

**Paiute Canyon
Grazing Allotment Evaluation
2000 – 2013**

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I. INTRODUCTION

Purpose

The purpose of the allotment evaluation process is to determine if grazing practices are consistent with the attainment of objectives found in the Carson City Field Office Consolidated Resource Management Plan (CRMP) and other applicable management plans, and propose livestock grazing practices that will ensure compliance with the approved Standards for Rangeland Health & Guidelines for Grazing Management (S&Gs), Sierra Front Northwestern Great Basin Area (BLM.2007). The evaluation analyzes the trend in rangeland condition and the influence grazing management has had on the multiple rangeland resources associated with the allotment. As a result of this analysis, recommendations for future grazing management and range improvements on the allotment will be proposed. Future management of livestock grazing will come through the issuance of a grazing permit which will provide the parameters and guidelines for management of the range resources on the allotment.

Evaluation Period

The evaluation period is from 2000, after the 1999 Allotment Management Plan (AMP) update, to 2013.

Management Framework

The CRMP incorporated decisions from eight major planning documents and five plan amendments (BLM.2001)

The 1982 Reno Grazing EIS (BLM. 1982) established that grazing management changes were required across the Carson City Field Office, now known as the Carson City District Office (CCDO). Specific management changes were then developed for each allotment. The Lahontan Rangeland Program Summary Update, December 1989 contained specific management objectives for the Paiute Canyon Allotment (BLM. 1989). These are also displayed in Appendix A.

In 1989, the Allotment Management Plan for the Paiute Canyon Allotment (Allotment) provided specific guidance for the Allotment (BLM. 1989a). On February 12, 1997, the RAC Standards & Guidelines for Rangeland Health for the Sierra Front-Northwestern Great Basin Area were made effective for the Carson City Field Office as part of the northwestern Great Basin area. Subsequently, in 1999, the update to the Paiute Allotment Management plan further refined the management of the Allotment (BLM. 1999).

II. ALLOTMENT PROFILE

The Paiute Canyon Allotment (Allotment) is located north of Reno, Nevada and extends to the north from about five miles north of Reno to just beyond Tule Peak, a distance of about 25 miles. The Allotment, No. 3043, is within the jurisdictional boundary of the Carson City District Office (CCDO) of the Bureau of Land Management (BLM) within Washoe County, Nevada. Private lands within the Allotment fall into three Washoe County Planning Areas: North Valleys,

Spanish Springs and Warm Springs. Rural residential development occurs adjacent to and within the Allotment boundary, which has resulted in growing recreational use with the Hungry Valley and Warm Springs Valley areas of the Allotment. The Hungry Valley Recreation Area and the Dogskin Herd Management Area (HMA) are within the Allotment.

Topography in the Allotment varies from low lying valleys to high, rugged, mountainous country. Elevation runs from a low of 4,240 ft. to a high of 8,722 ft. Approximately forty percent of the Allotment (about 30,000 acres) has slopes ranging from 25-60 percent. The remainder of the Allotment has slopes less than 25 percent. Sagebrush plant communities dominate the landscape. Pinyon/juniper woodlands occur mostly in the mountain areas. Other vegetation or habitat types are scattered throughout the Allotment and are discussed in the Key Wildlife Habitats and Wildlife Species section and in the individual sections describing each pasture. There are numerous springs and associated riparian zones throughout the Allotment, which are also discussed in the Key Wildlife Habitats and Wildlife Species sections as well as in the sections discussing each pasture.

Two Areas of Critical Environmental Concern (ACEC) occur on the Allotment. One is the Carson Wandering Skipper ACEC and the other is the Incandescent Rocks Scenic ACEC.

Most of the Hungry Valley Recreation Area occurs within the Allotment (see Map 1). This approximately 27,400 acre recreation area is a popular off-highway vehicle (OHV) riding area for 4-wheelers, motorcycles and rock crawlers. Recreation opportunities are varied, but the dominate activities include camping, general use target shooting and intensive off-highway vehicle and equestrian use.

Approximately 17 percent of the Allotment, 14,640 acres, is available for renewable energy leases. There are 15 abandoned mine sites within the Allotment, primarily for uranium and titanium. The major Tuscarora Gas Pipeline right-of-way runs through the bottom half of the Allotment. Water facility rights-of-way for Washoe County and the Reno Sparks Indian Colony are located in the south end of the Allotment. Transmission line rights-of-way run through the southern and middle portions of the Allotment. There are also Recreation and Public Purpose leases for recreational activities that occur in the southern end of the Allotment. Organized events occur on a periodic basis. There are two airports on the Allotment. There are 42 roads and trails identified by use of aerial imagery that access the Allotment.

Acreage

The Allotment's historical boundaries encompass approximately 89,779 acres. These include large areas of formerly vacant land that have been converted to subdivisions. Currently, there are 69,882 acres of BLM land, 1,976 acres of BIA land and 17,922 acres of private land within the Allotment.

Pastures

The Allotment has six pastures (see Map 2), and their approximate acreages are listed below in Table 1.

Table 1 – Allotment Pastures

Pasture	Ownership	Acres
Dogskin	BLM	10593.76
Fall	BLM	4261.67
Fall	PVT	1171.75
Hungry Valley/Warm Springs	BLM	25076.74
Hungry Valley/Warm Springs	PVT	496.35
Incandescent Rocks	BLM	6003.50
Incandescent Rocks	PVT	121.89
Proposed Allotment Boundary Change Hungry Valley-Warm Springs	BLM	87.64
Proposed Allotment Boundary Change Hungry Valley-Warm Springs	PVT	13849.63
Shovel Springs	BIA	1975.76
Shovel Springs	BLM	16391.54
Shovel Springs	PVT	1794.54
Tule	BLM	7466.70
Tule	PVT	487.83
Allotment Total	Ownership	Acres
	BIA	1975.76
	BLM	69881.55
	PVT	17921.84

Soils

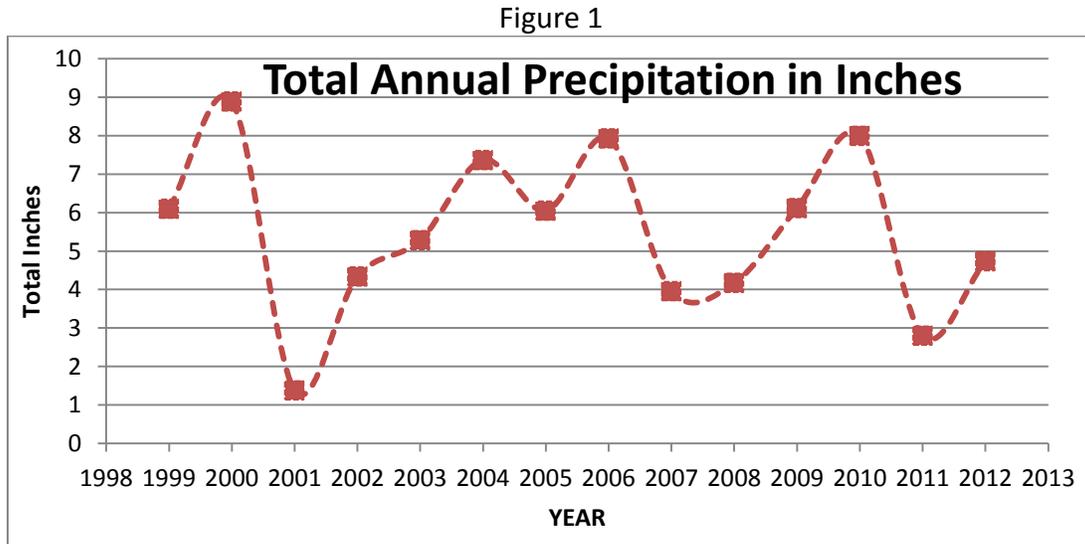
Rangeland Ecological Site Descriptions (RESDs) provided by the Natural Resources Conservation Service (NRCS) show that about 69 percent of the Allotment is comprised of loamy soils, and most of those are stony loams and varying degrees of sandy loams. The remainder of the Allotment has soil types ranging from granitic to gravelly to claypans. Loamy soils are among the most productive. One of the factors that limits vegetative productivity on the site is the low precipitation. Further discussions of soil types and conditions are in the sections discussing each pasture.

Precipitation

Climatic data for the area was taken from Western Regional Climate Center’s (WRCC) dataset for the weather station at Sutcliffe, Nevada (WCC. 2014).

The elevation of the Sutcliffe weather station is 3,900 ft. The elevation on the Allotment ranges from 4,240 ft. to 8,722 ft. Weather data collection at Sutcliffe began in 1967; however, data gaps exist over the 44 year record. Total precipitation in inches from 1999 – 2012 is presented here. The average annual precipitation at Sutcliffe for the years 1999 – 2012 is 5.5 inches. This average is slightly lower than the past 20-year average (1993 – 2012) of 6.8 inches. For 2011,

gaps exist within the dataset, and the total of 2.8 inches is assumed to be artificially low. This data is considered representative of the amount of precipitation received on the lowest elevations of the Allotment. Figure 1 illustrates the total annual precipitation in inches for the Sutcliffe weather station from 1999 through 2012.



Total annual precipitation (inches) for Sutcliffe, Nevada, weather station, managed by the Western Regional Climate Center.

Ecological sites

There is a broad range of ecological sites throughout the Allotment ranging from productive loamy soils to claypans with typical precipitation ranging from 8 to 10 inches. As previously stated, Rangeland Ecological Site Descriptions are provided by the NRCS, which provide a description of the reference area that includes factors such as climate, soil, and vegetation. A detailed breakdown is provided in the sections describing each pasture.

Key Plant Species

The Nevada Rangeland Monitoring Handbook (Swanson, et. al.) defines and explains key species for the purposes of monitoring range resource conditions. This term is also used by other protocols including those for developing RESDs. The key plant species used for monitoring may overlap with those designated in RESDs.

“These are often key forage species that indicate the degree of use of associated species or species which must, because of their importance, be considered in the management program. Generally:

1. Key species should represent objectives and be a significant component of the potential desired plant community. The species selected should be those that respond to management. Key forage species should be ones that respond to grazing management.
2. Key forage species should be palatable to the grazing animals during the planned season of use. (Very palatable plants that have low production potential should not be selected as key species. Species with low palatability or lower

palatability than the preferred species should not be selected. These give a falsely high or low use reading, leading to under use or excessive use on the more palatable forage species.)

3. Key species should be perennial except on annual rangelands....” (Swanson, et. al.).

The 1989 Allotment Management Plan identified the following key species for livestock and wildlife (Table 2). These species, along with those specified during the establishment of monitoring locations, are the key species for the Allotment.

Table 2 - Key Plant Species

Livestock Key Plant Species	Wildlife Key Plant Species
Thurber’s needlegrass	Thurber’s needlegrass
Indian ricegrass	antelope bitterbrush
desert needlegrass	
needle-and-thread grass	
antelope bitterbrush	

Key Wildlife Habitats and Wildlife Species

The Nevada Wildlife Action Plan describes 22 key habitat types and identifies wildlife species assemblages for each (WAPT. 2012). Table 3 shows the key habitats that occur on the Allotment. This data comes from the Southwest Regional GAP (SW ReGAP) Analysis Project, which provides an estimation of the habitat types that occur on the Allotment (USGS NGAP. 2004).

Table 3 – Key Habitat Types on the Allotment

Key Habitat Type	Total BLM Acres in Allotment	Percent of BLM Acres in Allotment
Agricultural Lands	13	0.02%
Barren Landscapes	116	0.17%
Sagebrush	50,344	72.13%
Lower Montane Woodlands and Chaparral	13,021	18.66%
Intermountain Cold Desert Shrub	3,583	5.13%
Intermountain Coniferous Forests and Woodlands	305	0.44%
Grasslands and Meadows	1,698	2.43%
Aspen Woodland	1	0.00%
Sierra Coniferous Forests and Woodlands	2	0.00%
Desert Playas and Ephemeral Pools	5	0.01%
Intermountain Rivers and Streams	19	0.03%
Cliffs and Canyons	686	0.98%

Key Habitat Type	Total BLM Acres in Allotment	Percent of BLM Acres in Allotment
Springs and Springbrooks	NA	NA
Totals	69,882	100%

Agricultural Lands - Agricultural lands are not usually found on public lands. This small percentage of land on the Allotment is most likely the result of a mapping error or perhaps a slight private land boundary issue. This habitat type will not receive further consideration in this Evaluation.

Barren Landscapes – This ecological system includes lands that are either barren in their natural state or have been subject to landscape altering forces such as mining or fire and are barren as a result of these actions. Areas classified as barren lands include areas of bedrock, desert pavement, scarps, talus, slides, volcanic material, glacial debris, sand dunes, strip mines, gravel pits, and other accumulations of earthen material (WAPT. 2012). These sites typically are avoided by wildlife since there is little cover and forage value, but may be inhabited by western banded geckos (*Coleonyx variegatus*) and other reptiles in areas of close juxtaposition with food-producing habitats (WAPT. 2012). This habitat type is a minimal part of the landscape on the Allotment and can be associated with invasive grassland areas, which will be discussed later.

Sagebrush – As shown in Table 3, 72 percent of the Allotment is within this key habitat type. Most of the various monitoring sites are within this habitat type. Tall, dense sagebrush is required by some wildlife species, but other species use more open or grassy areas. Understory requirements vary by species, although the presence of an understory layer is generally beneficial. In general, wildlife species benefit from a shrub community that contains a mix of seral stages, shrub densities, and height classes with a diversity of plant species. Sagebrush obligates such as the Great Basin pocket mouse (*Perognathus parvus*), sagebrush lizard (*Sceloporus graciosus*), and sagebrush vole (*Lemmys curtatus*) are most likely to occur in this habitat type. This habitat type also provides habitat for mule deer (*Odocoileus hemionus*), black bear (*Ursus americanus*), and upland game birds such as mourning doves (*Zenaidura macroura*) and chukar (*Alectoris chukar*) (WAPT. 2012).

Lower Montane Woodlands and Chaparral - As shown in Table 3, approximately 13,000 acres or 19 percent of the Allotment is within this key habitat type. This number may be high based on NRCS RESDs, which show about 7,200 acres as a juniper type. Most of this area is comprised of sagebrush with scattered juniper, which appears to be increasing. Monitoring photos and satellite imagery show juniper encroachment is occurring in many areas of the Allotment. Juniper tree densities depend on elevation, slope, and aspect. One monitoring location (Virginia PMU 13) in Tule Pasture is within this area. Since this area is basically an amalgam of two habitats, wildlife species typically associated with both habitats could occur. The more woodland-like areas would provide habitat for wildlife species such as Steller’s jay (*Cyanocitta stelleri*), mule deer, and black bear (WAPT. 2012).

Intermountain Cold Desert Shrub – There are no monitoring sites within this habitat type, which mostly occurs in or near the Warm Springs Valley and other low lying areas on the Allotment. The soils in this habitat type tend to be loose and sandy or gravelly and easily excavated by denning or burrowing animals. Many species use both cold desert scrub and sagebrush habitats for various life requirements such as foraging and nesting. For example, kit foxes (*Vulpes macrotis*) use the sandy soils in scrub habitat for denning, but also forage for prey in sagebrush plant communities. Ricegrass and shadscale seeds are important food sources for many wildlife species. Wildlife species associated with this habitat type include kit fox, pale kangaroo mouse (*Microdipodops pallidus*), long-nosed leopard lizard (*Gambelia wislizenii*), desert horned lizard (*Phrynosoma phatyrhinos*), Great Basin collared lizard (*Crotaphytus bicinctores*), and black-throated sparrow (*Amphispiza bilineata*) (WAPT. 2012).

Intermountain Coniferous Forests and Woodlands - There are no monitoring sites within this habitat type, which can be found in isolated pockets at the highest elevations of the Allotment. Associated wildlife species potentially could be flammulated owl (*Otus flammeolus*), hoary bat (*Lasiurus cinereus*), Palmer's chipmunk (*Neotamias palmeri*), and Inyo shrew (*Sorex tenellus*). Mule deer and black bear can also be expected (WAPT. 2012).

Grasslands and Meadows – On the Allotment, this habitat type consists entirely of Intermountain Basins Semi-Desert Grassland. The majority of this habitat type occurs in Shovel Springs Pasture in and adjacent to Hungry Valley. Frequency Transect SS01 at the north end of Shovel Springs Pasture is within this habitat type. Moderate grazing use was recorded for this area in 2012. Most of this semi-desert grassland area burned in 2000. Wildlife species typically associated with semi-desert grassland include burrowing owl (*Athene cunicularia*), pale kangaroo mouse (*Microdipodops pallidus*), dark kangaroo mouse (*Microdipodops megacephalus*) and pronghorn antelope (*Antilocapra Americana*) (WAPT. 2012).

Aspen Woodland - There is a very small pocket, approximately one acre, of this habitat near Dogskin Peak. There will be no further discussion regarding aspen woodland.

Sierra Coniferous Forests and Woodlands - There is a very small pocket, approximately 1.5 acre, of this habitat along Tule Ridge. There will be no further discussion regarding Sierra Coniferous Forests and Woodlands.

Desert Playas and Ephemeral Pools – There are two small playas, approximately two to three acres each, on the Allotment. One is located near Warm Springs. The other is located in Hungry Valley, Shovel Spring Pasture near a permitted airport. There will be no further discussion regarding Desert Playas and Ephemeral Pools.

Intermountain Rivers and Streams – This habitat type is restricted to a few of the springs and major drainages of the Allotment in very small pockets totaling about 19 acres. Great Basin Foothill and Lower Montane Riparian Woodland and Shrubland is the primary SW ReGAP Ecological System comprising this habitat type. One area located just south of Cove Springs 1 &

2 is captured in the riparian assessment “Lotic between Cove Sp. & Simple Spring” (See Table 34 and Map 8). These isolated, montane areas provide valuable habitat for a variety of wildlife species such as Cassin’s finch (*Carpodacus cassinii*), mountain quail (*Oreortyx pictus*), and montane shrew (*Sorex monticolus*) (WAPT. 2012).

Cliffs and Canyons – There are approximately 690 acres of this key habitat type scattered throughout the Allotment. There are no monitoring plots within this habitat type. There are two historic nesting areas within the Allotment. One site is identified as a prairie falcon (*Falco mexicanus*) nesting area. This area includes a small sliver of the Allotment on the east side near the Pyramid Lake Highway. There is no current information regarding the occupancy of this nesting area. The other area is identified as a golden eagle (*Aquila chrysaetos*) nesting area located in the southeastern part of the Allotment along the boundary of the Shovel Springs and Hungry Valley Pastures. It too has no current information regarding the occupancy of this nesting area (NDOW, Fresse, Mark, June 7, 2013, personal phone interview). According to NDOW, prairie falcons, as well as numerous other raptors, are known to reside in the area. Cliff habitats are used for nesting, roosting or denning, protection from predators, and foraging by a variety of species. The associated crevices and talus slopes are also important habitat features. Cliff ledges are used by falcons and eagles for nesting. Crevices are used by bats such as the spotted bat (*Euderma maculatum*). Talus slopes provide key habitat for species such as bighorn sheep (*Ovis canadensis*), western banded gecko, and Great Basin collared lizard (WAPT. 2012).

Springs and Springbrooks – Springs are not specifically noted in the SW ReGAP data. According to the 1989 AMP, there are forty springs on public land within the Allotment, fourteen of which are developed. Riparian assessments were conducted on the Allotment in May and June, 2009, at various spring locations. These are discussed in the various sections dealing with the individual pastures.

The characteristics of individual springs can vary tremendously in terms of flow, water chemistry, and habitats provided for wildlife species. Many spring systems important to wildlife represent little more than seeps. In addition to their critical importance to aquatic species, they also are important for terrestrial wildlife. Springs provide a vital source of water and food for a wide range of wildlife from big game to bats. None of the riparian assessments recorded any aquatic wildlife species.

Invasive Grasslands and Forblands – These plant communities are not specifically part of Nevada's 22 Key Habitats (WAPT. 2012), but they are a concern in most of the key habitats, and they are included in the SW ReGAP data. Within the Allotment, there are the following amounts of identified invasive plant communities:

- Invasive Annual Grassland - 1,830 acres
- Invasive Annual and Biennial Forb land – 185 acres
- Invasive Perennial Grassland – 79 acres

These invasive plant communities occur primarily within the various sagebrush communities so these acreages are lumped into the sagebrush key habitat type.

There are no monitoring sites within these specific communities, but several of the monitoring sites reported the presence of cheatgrass and other invasive plants. Seven of the eleven rangeland health assessments showed the presence of invasive plants. Four of those showed Moderate to Extreme departures from reference conditions. Production monitoring shows cheatgrass and annual forbs as the dominant producers over large areas. The expansion of these areas is an ecological problem on the Allotment. The extent of the invasion is far greater than indicated by the above acreage figures.

As indicated above, the Allotment includes habitat for a variety of game species including mule deer, pronghorn antelope, chukar, California quail (*Callipepla californica*), and mourning doves, as well as numerous non-game species. Mule deer are an important big game wildlife species on the Allotment. Table 4 shows the mule deer herds and their seasonal habitat on the Allotment (see Map 3).

Table 4 – Mule Deer Herds on the Allotment

Habitat	Herd Name	Unit_Group	BLM Acres	% of Allot
Crucial Winter	Loyalton Truckee/Doyle	021-022	20,937	30%
Crucial Summer	Virginia Mtns	022	2,317	3%
Year-round	Lemmon Valley/Warm Springs	021, 022	46,540	67%
		Total	69,882	100%

Black bear habitat occurs throughout the Allotment.

Bighorn sheep are discussed below in the Nevada BLM Sensitive Species section.

Pronghorn antelope occur on the Allotment. The 1989 AMP states that the Winnemucca Valley portion of the Allotment is yearlong range for pronghorn antelope. Currently, the Nevada Department of Wildlife shows two pronghorn herds within the Allotment and their seasonal habitats. Table 5 displays this information. Map 4 shows the herd/habitat areas.

Table 5 – Pronghorn Antelope Herds on the Allotment

Habitat	Herd Name	Unit_Group	BLM Acres	% of Allot
Year-round	Red Rock	021, 022	53,012	76%
Crucial Winter	Virginia Mtn.	021, 022	6,545	9%
Crucial Summer	Virginia Mtn.	021, 022	8,834	13%
		Total	68,392	98%

Federally Listed Species

Animal Species – The Carson wandering skipper is an endangered species. The Carson Wandering Skipper ACEC was designated in 2001 (BLM. 2001) and habitat has been fenced for protection. This ACEC is in the Warm Springs Valley just inside the eastern boundary of the Allotment off of Winnemucca Ranch Road. Two riparian assessments were conducted in this

area (Map 8) in 2009 and are discussed under Riparian/Stream Habitat of the Warm Springs/Hungry Valley Pasture.

Nevada BLM Sensitive Species

Plant Species – Webber's Ivesia (*Ivesia webberi*), which occurs on the Allotment, has been proposed for listing as a threatened species. Conditions on the Allotment including OHV route proliferation, dumping, mountain biking, and dog walking threaten the health of the plant in the identified critical habitat. Webber's Ivesia has been identified in the southern part of the Allotment, within the Shovel Springs Pasture. Fencing would protect the plant but fencing across existing routes is not currently authorized.

Ames milkvetch (*Astragalus pulsiferae* var. *pulsiferae*) is known to occur in Washoe County, and though it has not been specifically identified on the Allotment, the habitat for this species is known to occur within the Allotment. It's global status is imperiled and is threatened by development, transmission line projects, cattle (grazing and trampling), exotic species, road maintenance, and vehicle traffic (NatureServe. 2013).

Animal Species – There are several Nevada BLM sensitive wildlife species that may occur on the Allotment because they are associated with the key habitats present on the Allotment. They are listed in Appendix B. Three important species are mentioned below.

Bighorn Sheep – The northeastern part of the Allotment that includes the Virginia Mountains is within the Virginia Mountains herd unit area. In 1990, California bighorn sheep were reintroduced at Tule Mountain in the Virginia Mountains. Bighorn sheep currently occupy the Tule Mountain area in the northern most part of the Allotment (NDOW, Fresse, Mark, June 7, 2013, personal phone interview). Approximately 12,490 acres of the herd unit area lie within the Allotment (17 percent of the Allotment). The Dogskin Mountains are regarded as potential habitat. Approximately 11,170 acres of this habitat is within the Allotment (16 percent of the Allotment).

Pygmy Rabbit – Areas of big sagebrush with deep, friable, loamy soils may occur on the Allotment, but there have been no observations of pygmy rabbits nor have areas of potential habitat been identified.

Greater Sage-Grouse – The greater sage-grouse is also a candidate species for federal listing. Preliminary priority habitat (PPH) and preliminary general habitat (PGH) have been identified for the greater sage-grouse within the Allotment. There are approximately 2,906 acres of PPH on the Allotment and 12,566 acres of PGH (see Map 5). PPH comprises areas that have been identified as having the highest conservation value to maintaining sustainable greater sage-grouse populations. These areas would include breeding, late brood-rearing, and winter concentration areas. PGH comprises areas of occupied seasonal or year-round habitat outside of priority habitat. There are no known leks (traditional breeding grounds) on the Allotment.

BLM Migratory Birds

The BLM migratory birds known or expected to occur on the Allotment because they are associated with the key habitats present on the Allotment are listed in Appendix B.

Noxious Weeds / Invasive Plants

Weeds exist on the Allotment both in areas identified and yet to be identified. The following weeds shown in Table 6 have been mapped:

Table 6 – Invasive Weeds on the Allotment

CODE	Common Name(s)	Scientific Name
LELA2	tall whitetop, perennial pepperweed	<i>Lepidium latifolium</i>
CANU4	musk thistle, nodding plumeless thistle	<i>Carduus nutans L.</i>
ONAC	scotch cottonthistle, scotch thistle	<i>Onopordum acanthium L.</i>
CADR	hoary cress, whitetop	<i>Cardaria draba</i>
CESO3	yellow star thistle	<i>Centaurea solstitialis L.</i>
CIVU	bull thistle	<i>Cirsium vulgare (Savi) Ten.</i>

There are several invasive annual grasses and forbs. The two most prominent species are cheatgrass, *Bromus tectorum*, and tumble mustard, *Sisymbrium altissimum*.

Improvements

The range improvements below in Tables 7 and 8 were proposed in the 1989 AMP to improve cattle distribution and protect spring sources in riparian areas. They were completed in the period from 1989 to 1993. The 1999 AMP update concluded that cattle distribution had improved due to fencing and pasture rotation. Field visits in 2013 confirmed that the spring source for Paiute Spring Development #5 was effectively protected from cattle. The 2009 riparian assessment of Paiute Spring Development #3 (Tule #29) found that the enclosure fence was down in the northwest corner.

Table 7 - Proposed Range Improvements in the 1989 AMP

Job #	Job Name	Units	Location	Status
6319	Hungry Valley Fence and Cattle Guard	4 mi.	T. 22 N., R. 20 E. Sec. 30, 31, 32, 33, 34	Completed 1993
6276	Warm Springs Mtn. Fence	2.7 mi.	T. 22 N., R. 20 E. Sec.3, 4, 7, 8, 9	Completed 1991
6386	Paiute Cr. Fence	3.7 mi.	T. 23 N., R. 20 E. Sec. 3, 4, 11, 12	Completed 1994
6248	Tule Mtn. Fence	3.25 mi.	T. 24 N., R. 20 E. Sec. 17, 20, 21, 27, 28, 34	Completed 1991

Job #	Job Name	Units	Location	Status
6250	Shovel Springs Boundary Fence and Cattle Guard	3 mi.	T. 21 N., R. 20 E. Sec. 31, 32T. 21 N, R. 19 E. Sec. 36	Completed 1989

Table 8 - Proposed Improvements for Riparian Areas in the 1989 AMP

Job #	Job Name	Location	Improvement	Status
6424	Paiute Watershed #3 (aka Paiute Spring Devel #3)	T. 24 N., R. 20 E. Sec. 34 NWSW	Fence source, spring development.	Completed 1993
6435	Paiute Watershed #5 (aka Paiute Spring Devel #5)	T. 24 N., R. 20 E. Sec. 21 SWNW	Fence source, spring development.	Completed 1993

A complete listing of range improvements listed in the AMP and those associated with the grazing permit are in Appendices C and D.

HMA/Horse Use

The Dogskin Mountain HMA is mostly within the Dogskin Pasture of the Allotment (See Map 1). The HMA encompasses 6,895 acres, of which, 6,523 acres are within the Allotment. Elevations range from 5,550 feet to near 7,500 feet. Much of the terrain of this HMA is very steep, rocky and rugged. In 1988, the identified management level for this HMA was 19 head of horses. The current Appropriate Management Level (AML) is 10 – 15 horses (BLM. 2001). Horse use is not restricted to the HMA. Horse use is evident outside the HMA. The most recent count, May 12, 2012, showed 29 horses, but 26 were actually outside of the HMA. As a general rule, the horse herd doubles every four to five years. Consequently, periodic horse captures and removals are done to keep the herd at the prescribed AML. In December, 2005, 36 horses were removed. By 2010, the Dogskin Pasture was probably at double the AML of 10 – 15 horses. In January, 2012, 20 horses were captured and removed, but all were outside the HMA. Twenty-nine horses were counted in May, 2012, but only three were in the HMA (see Appendix E for Dogskin HMA Census and Removal Record).

Forage utilization in the HMA has been assessed over the years, but most recently for years 2011 and 2012. Because of the steep, rugged terrain, roughly 62 percent of the HMA received little to no use in either year. In 2011, 24 percent of the HMA received heavy use and 30 percent received light use. In 2012, 12 percent of the HMA received heavy use; 10 percent received moderate use; and 17 percent received light use. Table 9 displays the use recorded for 2011 and 2012 (see Map 6).

Table 9 – Dogskin HMA Utilization*

Use year	Use Zone	Ave % use	Use level	Acres	% of HMA
2011	North	68%	Heavy	1,534	24%
	South	30%	Light	926	14%
	remainder	0 - 5%	Negligible	4,063	62%
total				6,523	100%
2012	North	56%	Moderate	625	10%
	Middle	66%	Heavy	768	12%
	South	31%	Light	1,113	17%
	remainder	0 - 5%	Negligible	4,017	62%
total				6,523	100%

*Utilization represents the total combined use by all grazing animals, including cattle

The presence of horses outside the HMA in other pastures, particularly the Fall Pasture has been reported by the permit holder and observed by BLM staff. The permit holder is concerned about overuse on vegetation by horses outside the HMA.

Fire History

Since 1984, there have been 16 fires on the Allotment. The following Table 10 shows the fire history on the Allotment. The effects of wildfires are noted in several of the monitoring assessments discussed in individual pasture sections. Table 10 only shows the BLM acres burned and not the total size of the fire. Map 7 shows the total fire area by year.

Table 10 – Fire History

Fire Year	Fire Number	Fire Name	BLM Acres	Pastures
2012	G6KU	Pyramid Hwy	12	Hungry Valley
2010	FK3K	Warm	1	Warm Springs
2007	DN2X	Hungry Valley	49	Shovel Springs
2006	C5EE	Leon	14	Shovel Springs
2005	BVZ6	Sun Valley	29	south of Shovel Springs
2000	J906		8,701	Shovel Springs, Hungry Valley and Warm Springs
1999	J716		19	Incandescent Rocks
1999	J741		4	Shovel Springs
1999	J787		2,028	Tule
1999	J670		4,670	Shovel Springs
1988	J779		3,154	Dogskin and Fall
1986	J675		234	Shovel Springs and Hungry Valley
1985	J566		1,657	Dogskin and Warm Springs
1985			12,007	Hungry Valley
1985			7,213	Warm Springs
1984	J793		131	Hungry Valley

III. LIVESTOCK USE

Historic Livestock Use

Prior to the 1989 AMP, the Allotment did not have an established grazing system. Livestock were not well distributed, and heavy forage utilization occurred in some parts of the Allotment (BLM. 1989). Forage competition between cattle, wild horses, deer, and pronghorn antelope was a recognized issue.

The grazing permit in 1989 was for 408 cattle yearlong with a grazing preference of 4,798 AUMs (recognizing 98 percent public land). The current permit is for 400 cattle yearlong with a grazing preference of 4,800 AUMs. The permit requires that “GRAZING USE BE IN ACCORDANCE WITH THE PAIUTE AMP APPROVED JANUARY 1[sic], 1989 AND GRAZING SYSTEM MODIFICATIONS DATED 1999” (BLM. 2010). The AMP was actually approved on January 11, 1989. The 1999 AMP Update modification authorizes 350 cattle yearlong (4,200 AUMs) on a prescribed pasture rotation system.

Current Permitted / Authorized Use

For Allotment (No. 3043) the permit currently issued to Alan or Lillian Mendes is for 400 cattle (cow/calf) yearlong (03/01 to 02/28) for a total of 4800 Animal Unit Months (AUMs). The full active grazing preference is 4,800 AUMs. However, this was modified with a 1999 Memorandum, Subject: Modification of the Paiute Grazing System that authorizes 350 cattle yearlong on a pasture rotation basis for a total of 4200 AUMs (BLM. 1999). Table 11 shows the authorized use under the Amended AMP. The pasture rotation authorized in the AMP is displayed in Appendix F.

Table 11 – Authorized Use

Years 1 and 2

Pasture	Number of Livestock	Kind of Livestock	Grazing Period Start	Grazing Period End	AUMs
Shovel Springs	350	CATTLE	4/1	6/15	875
	100	CATTLE	6/16	7/15	100
Incandescent Rocks	250	CATTLE	6/16	7/15	250
	100	CATTLE	7/16	8/15	100
Tule Peak	150	CATTLE	7/16	8/15	150
	250	CATTLE	8/16	10/15	500
Dogskin	100	CATTLE	7/16	10/15	300
Fall/Fall Field/Private	350	CATTLE	10/16	11/15	350
Warm Springs/Hungry Valley	350	CATTLE	11/16	3/31	1,575
				Total AUMs	4,200

Years 3 and 4

Pasture	Number of Livestock	Kind of Livestock	Grazing Period Start	Grazing Period End	AUMs
Warm Springs/Hungry Valley	350	CATTLE	2/16	6/15	1,400
	100	CATTLE	6/16	7/15	100
Incandescent Rocks	250	CATTLE	6/16	7/15	250
	100	CATTLE	7/16	8/15	100
Tule Peak	150	CATTLE	7/16	8/15	150
	250	CATTLE	8/16	10/15	500
Dogskin	100	CATTLE	7/16	10/15	300
Fall/Fall Field/Private	350	CATTLE	10/16	11/15	350
Shovel Springs	350	CATTLE	11/16	2/15	1,050
				Total AUMs	4,200

Terms and Conditions for Existing Grazing use

Below are the key points in the terms and conditions specified in the Paiute Canyon Grazing Permit relative to the impacts of livestock grazing.

- Grazing use must be in accordance with the AMP approved January 11, 1989 and the grazing system modifications dated 1999.
- Salt and supplements must be placed ¼ mile from live water and associated riparian areas, livestock watering facilities, wet or dry meadows and aspen stands.

Actual Use

Table 12 shows the actual use on the Allotment for the years 2000 – 2012. While total AUMs for each year did not exceed the authorized 4200 AUMs, the AUMs used in a pasture for a given year exceeded authorized use multiple times. The use in each pasture will be discussed in the detailed sections on each pasture.

Table 12 - Actual Livestock Use in AUMs 2000-2012

Pasture	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Warm Springs/Hungry Valley	1152	1010	582	1030	1180	1660	1072	2139	448	882	1229	1286	262
Incandescent Rocks	478	743	224	143	183	433	571	NU	301	262	348	361	211
Tule	682	592	308	430	530	472	530	338	558	573	627	605	422
Dogskin	385	NU	54	344	330	NU	416	NU	294	239	254	135	381
Fall/Fall Field/Private	449	278	582	245	159	159	278	338	309	277	332	311	216
Shovel Springs	NU	NU	NU	338	542	418	639	343	1827	953	928	862	1113
Total AUMs	3146	2623	1750	2530	2924	3120	3506	3158	3737	3186	3718	3560	2605
% of Authorized AUMs	74%	62%	42%	60%	70%	75%	83%	75%	89%	76%	89%	85%	62%

The yearly use on the Allotment follows the pasture rotation from the 1999 update of the 1989 AMP and is shown in Table 10 above. The net effect is that there is alternate spring use on the Shovel Springs and the Warm Springs/Hungry Valley Pastures. The current permit holder brands, vaccinates, and weans by gathering trailer loads and transporting the cattle to his private property where he has corrals and other facilities.

Current Stocking Level by Pasture

Table 13 shows permitted livestock use by pasture under the 1999 modifications to the AMP.

Table 13

Pasture	Total Acres	Private Acres	BLM Acres	Active Preference Year 1 & 2	Acres/AUM	Active Preference Year 3 & 4	Acres/AUM
Shovel Springs	20,162	3,770	16,392	975	17	1,050	16
Warm Springs/Hungry Valley	25,573	496	25,077	1,575	16	1,500	17
Incandescent Rocks	6,125	122	6,003	350	17	350	17
Tule	7,955	488	7,467	650	11	650	11
Fall/Fall Field	5,434	1,172	4,262	350	12	350	12
Dogskin	10,594	0	10,594	300	35	300	35

Note: Acres / AUM are based on the total BLM acres within a pasture.

Stocking Rate

The stocking rate for the Allotment was set in the Lahontan Rangeland Program Summary Update in December of 1989 at 4,798 AUMs. The 1999 update to the 1989 AMP determined that the stocking rate had been reduced and set it to 4,200 AUMs.

IV. ALLOTMENT OBJECTIVES

Management objectives were developed for the Allotment in the 1989 AMP and the 1999 Modification to the AMP (BLM.1999). Management objectives were also stated in the Lahontan Rangeland Program Summary Update (BLM. 1989). Both sets of objectives are shown in Appendix A. Basically, these objectives are:

- Livestock
 - Maintain fair or better ecological condition on all key areas and improve ecological conditions.
 - Limit utilization on the key grass species to 55 percent.
 - Improve the distribution of livestock.
 - Manage for 4,798 AUMs of forage, which was subsequently changed to 4,200 AUMs.
 - Improve forage conditions through revegetation if possible.
- Wildlife
 - Maintain fair or better habitat conditions for deer and pronghorn antelope.
 - Provide for 1,601 AUMs of forage to support reasonable numbers of deer.
 - Limit utilization on antelope bitterbrush to 45 percent in identified deer and antelope habitat.
 - Protect riparian areas and restrict use to 55 percent.
 - Limit use on meadows in identified sage-grouse habitat.
 - Maintain or improve aspen stands
- Wild Horses
 - Maintain a level of 19 head in the Dogskin Mountain HMA. This would be a 228 AUM forage requirement. (This was revised in the Final Multiple Use Decision Paiute Allotment Dogskin Pasture on October 20, 1993 to a current objective of 10 to 15 head.)

Standards for Rangeland Health

Standards for Rangeland Health that apply to this Allotment have also been developed.

“The Standards and Guidelines for livestock grazing on Bureau of Land Management lands are written to accomplish the four fundamentals of rangeland health, insofar as they are affected by livestock grazing practices. Those fundamentals are:

- Watersheds are properly functioning;
- Ecological processes are in order;
- Water quality complies with State Standards; and
- Habitats of protected species are in order” (BLM. 2007a).

V. SUMMARY of DATA by PASTURE

Definitions of Monitoring Methods

Six types of monitoring were conducted on the Allotment between 2009 and 2013:

- rangeland health assessments
- frequency transects
- photo trend plots
- forage utilization
- forage production
- riparian assessments

Rangeland health assessments (RLHAs) are qualitative assessments of the degree to which the integrity of the soil, vegetation, water and air, as well as the ecological processes of the rangeland ecosystem, are balanced and sustained. Integrity is defined as maintenance of the structure and functional attributes characteristic of locale, including normal variability. The three attributes rated are Soil & Site stability, Hydrologic Function and Biotic Integrity. Rangeland health is measured as the departure from conditions described in a reference sheet provided by the NRCS that represents conditions that were expected to occur before the human impacts of European settlement. A complete instructional manual for this process is found in “Interpreting Indicators for Rangeland Health”, Technical Reference 1734-6, Version 4, 2005 (Pellant, M. et al. 2005).

Frequency transects provide a quantitative measure of the presence or absence of individual plants of a species within quadrats along a designated transect line, which is measured periodically. It is defined as the percentage of occurrence of a species in a series of samples of uniform size taken at the same location over time. They are a means of determining trend at a given site. The percentage of occurrence of a given plant is determined by dividing the number of quadrats with occurrences by the total number of quadrats sampled along the transect.

Photo plots are a quantitative measure of the vegetative cover by species and the resulting litter derived from a photograph of a designated plot which is measured periodically. Frequency transects and photo plots were established in areas where a key plant species was to be monitored. These key species, which vary by area, represent plants whose functional and structural characteristics maintain the integrity of the soil, vegetation, water and air as well as the ecological processes. Photo plots are a means of determining trend at a given site.

Forage utilization is the proportion of the current year’s forage production that is consumed or destroyed by animals (including insects). Categories are : None 0-5%, Slight 6-20%, Light 21-40%, Moderate 41-60%, Heavy 61-80%, Severe 81-94%, Extreme 95-100%.

Forage production is the current year’s vegetative growth of grasses and forbs (herbaceous, non-graminoid flowering plants). Studies were done with a 4.8 square foot hoop which enables a forage calculation of pounds per acre by multiplying the grams of clipped air dried vegetation by 20.

Riparian assessments (RAs) are qualitative assessments of a checklist of attributes and processes in hydrology, vegetation, and erosion/deposition of soils to evaluate the condition of riparian-wetland systems. They are a means of determining trend at a given site.

Trend is the direction of change over time, either toward or away from desired management objectives.

Shovel Springs Pasture

Pasture Profile

The Shovel Springs Pasture is displayed with its monitoring sites in Map 8. The Pasture is approximately 20,162 acres, making it the second largest pasture in the Allotment. Under the current grazing rotation, this pasture is stocked at 16 – 17 acres per AUM. Scheduled use of the pasture is displayed in Table 11 and Appendix F. Most of the pasture, approximately 70 percent, has slopes under 25 percent. The predominant ecological sites in the pasture are loamy and gravelly. The primary vegetation should be species of sagebrush with deep rooted perennial bunchgrasses including Thurber’s needlegrass, desert needlegrass, Indian ricegrass and needle-and-thread grass. A complete listing of soil types in the pasture is in the Rangeland Health Assessment Summary below. Much of the pasture is deficient in perennial bunchgrasses. Cheatgrass and tumble mustard are abundant.

The Shovel Springs Pasture has been heavily impacted by fire. Seven fires occurred between 1986 and 2012. The two large fires in 1999 and 2000 were reseeded with limited success. Map 7 shows the total fire area by year. Table 14 shows the BLM acres affected by the fires.

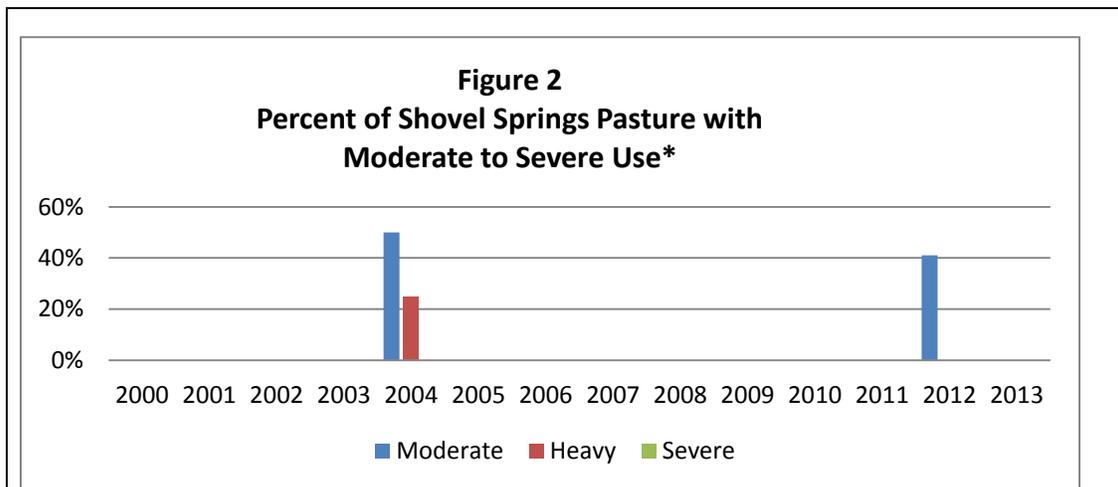
Table 14 – Fire History for Shovel Springs Pasture

Fire Year	Fire Number	Fire Name	BLM Acres	Pastures
2007	DN2X	Hungry Valley	49	Shovel Springs
2006	C5EE	Leon	14	Shovel Springs
2005	BVZ6	Sun Valley	29	Shovel Springs
2000	J906		8,701	Shovel Springs, Hungry Valley and Warm Springs
1999	J741		4	Shovel Springs
1999	J670		4,670	Shovel Springs
1986	J675		234	Shovel Springs and Hungry Valley

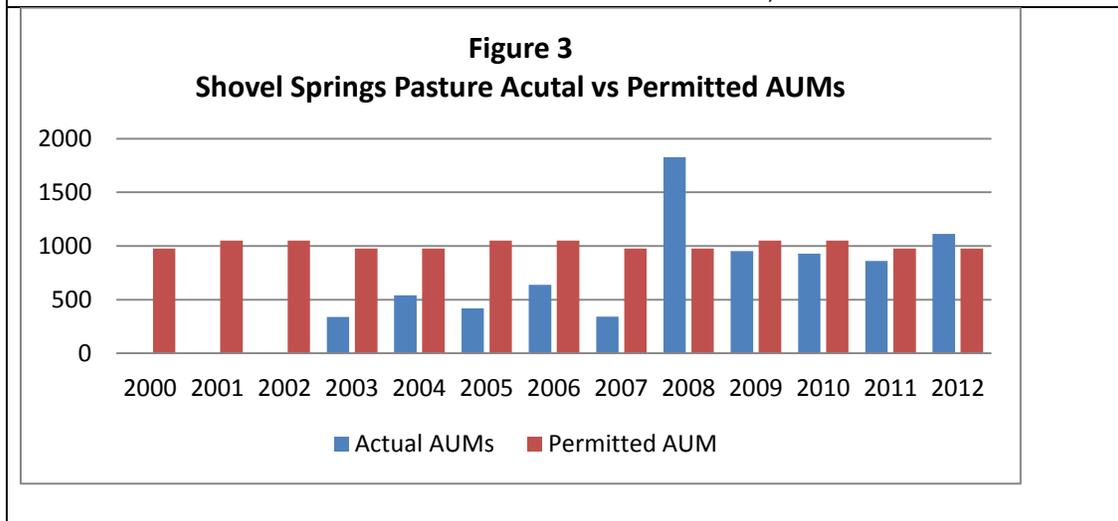
The following monitoring described below was conducted in the Shovel Springs Pasture in May and June of 2009: two rangeland health assessments, one frequency transect and one photo plot. In 2012, three utilization transects were read, and sixteen production plots were read in 2013. The key species at the frequency transect and photo plot sites are needle-and-thread grass, Indian ricegrass and antelope bitterbrush. Increases and decreases in plant species discussed are from the date of plot establishment.

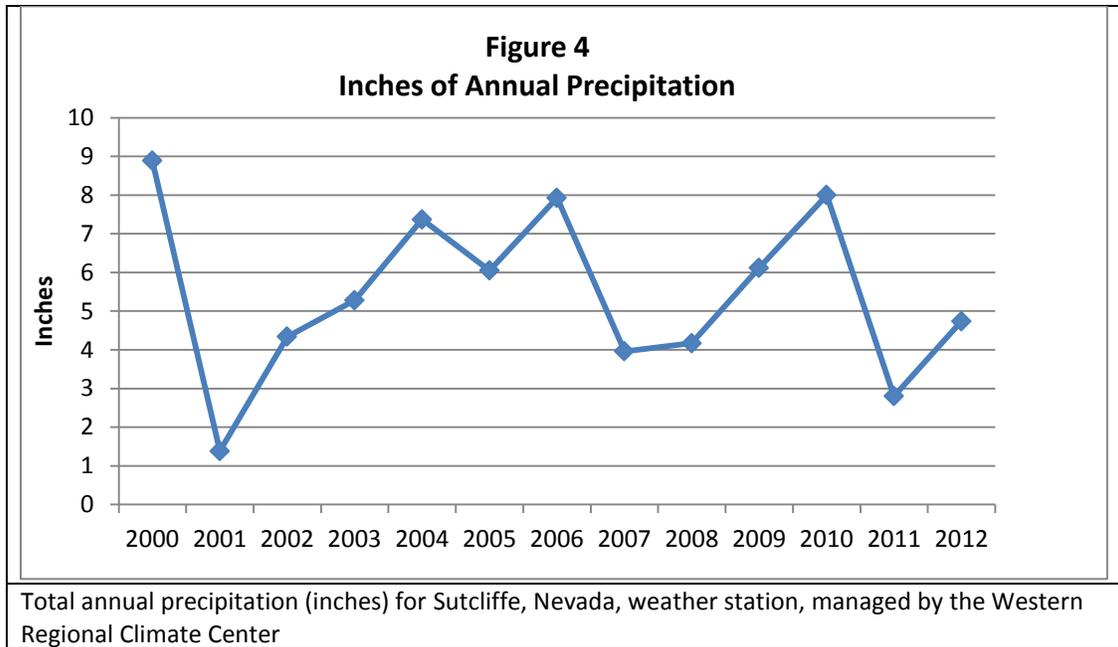
Utilization/Actual Use/Precipitation

There were three utilization transects read in the Shovel Springs Pasture in 2012. One showed light use; one showed moderate use; and one did not have enough key species in the transect to evaluate. Evaluating the prior utilization, there was no use in the Shovel Springs Pasture from 2000 to 2002 due to fire closures. Actual use from 2003 to 2007 was lower than permitted, but in 2004, moderate and heavy use was documented in most of the pasture during a year of above average precipitation and when actual use was about 44 percent less than permitted. In 2008, in a year of below average precipitation, actual use was almost double permitted use, which likely resulted in a substantial amount of heavy use. This may have contributed to the absence of deep rooted perennial bunchgrasses in the pasture seen at one transect site in 2012. For the years 2009 to 2011, actual use was lower than permitted use. In 2012, actual use was slightly higher than permitted use. 2011 and 2012 were years of below average precipitation. The utilization studies show about 40 percent of the pasture with moderate use for 2012 and no heavy or severe use. Figures 2, 3, and 4 display utilization levels, actual and permitted use, and annual precipitation respectively.



*Pasture closed 2000- 2002. Utilization data is not available for 2003, 2005-2011.





Rangeland Health Assessment Summary

The primary ecological sites represented in the Shovel Springs Pasture are loamy sites (approximately 42percent of the land area) and gravelly sites (approximately 26 percent of the land area). The ecological site descriptions show that on these sites, precipitation ranges from 8” to 12”, and vegetation should include different species of sagebrush with characteristic bunch grasses as shown in Table 15.

Table 15 – Ecological Sites in Shovel Springs Pasture

Soil Type	Acres	EcoSiteID	EcoSiteName	Habitat Type
Loamy				
	4,784	R026XY016NV	LOAMY 8-10 P.Z.	ARTRW8/ACTH7
	2,866	R026XY017NV	LOAMY HILL 10-12 P.Z.	JUOS/ARTRW8/ACTH7
	136	R026XY010NV	LOAMY 10-12 P.Z.	ARTR2/ACTH7
	500	R026XY015NV	SHALLOW LOAM 10-12 P.Z.	ARTR2-PUTR2/ACTH7-ACSP12
	117	R026XY024NV	DROUGHTY LOAM 8-10 P.Z.	ARTRW8-GRSP/ACHY-ACSP12
Total	8,403			
Approx. %	42%			
Gravelly				
	5,072	R026XY050NV	GRAVELLY CLAY 10-12 P.Z.	ARARL3/ACTH7
	250	R026XY041NV	GRAVELLY CLAY 8-10 P.Z.	ARARL3/ACSP12
Total	5,322			
Approx. %	26%			
Sandy				
	1,998	R026XY020NV	SANDY 8-10 P.Z	ARTR2/HECO26-ACHY
Approx. %	10%			
Granitic				
	693	R026XY026NV	GRANITIC SLOPE 10-12 P.Z.	ARTR2-PUTR2/ACTH7-ACSP12
	300	R026XY008NV	GRANITIC FAN 10-12 P.Z.	PUTR2-ARTRV/HECO26-ACHY

Soil Type	Acres	EcoSiteID	EcoSiteName	Habitat Type
	352	R026XY103NV	GRANITIC LOAM 10-12	ARTRW8/ACSP12
Total	1,345			
Approx. %	7%			
Claypan				
	545	R026XY02SNV	CLAYPAN 8-10 P.Z.	ARAR8/ACTH7-POSE
	445	R026XY023NV	CLAYPAN 10-14 P.Z.	ARAR8/ACTH7
Total	990			
Approx. %	5%			
Other				
	974	R026XY022NV	STONY SLOPE 8-10 P.Z.	ARTRW8/ ACSP12
	455	R026XY029NV	ERODED SLOPE 10-12 P.Z.	ARTRW8- SADOD3/ACHNA-ACHY- ELELS
	252	R026XY094NV	ERODED SLOPE 8-10	ARARI3/POSE
	53	R026XY011NV	SOUTH SLOPE 8-12 P.Z.	ARTRW8-EPVI-SADOD3/ACSP12
	43	R026XY021NV	SODIC FLAT	SAVE4/LECI4- DISP
	29	R026XY012NV	DRY FLOODPLAIN 8-10 P.Z.	ARTRT/LECI4
	297	unidentified		
Total	2,103			
Approx. %	10%			

Two rangeland health assessments (RLHAs) were done in the Shovel Springs Pasture. RLHA #1 is co-located with Photo Trend Plot S01 and is on a slope of approximately 29 percent. RLHA #2 is located near Frequency Transect SS01 and is on a slope of approximately two percent. Frequency and photo plot information are detailed below. Most of the indicators for Soil and Site Stability for RLHA #1 showed a “None to Slight” departure from the reference sheet; however, the three indicators that showed a “Slight to Moderate” departure were important indicators of erosion. They were the presence of rills, soil surface ability to resist erosion and soil surface loss. The departure from the reference sheet for attributes Hydrologic Function and Biotic Integrity was in the “Slight to Moderate” category for RLHA #1. Those indicators in the “Slight to Moderate” and above categories are shown in Table 16.

Table 16 - Rangeland Health Assessment #1

Hydrologic Function		Biotic Integrity	
Slight to Moderate	Moderate	Slight to Moderate	Moderate to Extreme
More rills than expected		Less soil surface resistance to erosion than expected	Higher presence of invasive species than expected
Less soil surface resistance to erosion than expected		More soil surface loss or degradation than expected	
More soil surface loss or degradation than expected		Imbalance in Functional/Structural Groups	
Plant community composition less		More plant community mortality than expected	

Hydrologic Function		Biotic Integrity	
Slight to Moderate	Moderate	Slight to Moderate	Moderate to Extreme
facilitative of infiltration			
Litter amount less than expected		Litter amount less than expected	

Most of the indicators for Soil and Site Stability for RLHA #2 showed a “None to Slight” departure from the reference sheet for attributes Soil and Site Stability and Hydrologic Function. For the attribute Biotic Integrity, most indicators were evaluated as a “None to Slight” departure from the reference sheet; however, three indicators were evaluated as a “Moderate” or “Moderate to Extreme” departure. The “Moderate” departure was found in the low reproductive capability of the perennial plants. Both the imbalance in Functional/Structural groups and the level of invasive plants were rated as a “Moderate to Extreme” departure. See Appendix G for a complete display of departure ratings.

Production Plots

Sixteen production plots were read for the Shovel Springs Pasture (see Map 9 for locations). Four of them contained deep rooted perennial bunchgrasses, including key species desert needlegrass and needle-and-thread grass. Annual grasses, primarily cheatgrass, were present in eleven of the sixteen plots and produced about 50 percent more than the deep rooted perennial bunchgrasses. Annual forbs, including tumble mustard and Russian thistle, were the bulk of the production. Table 17 shows the production at each of the production plots.

Table 17 - Shovel Springs Production Monitoring 2013

Point	Perennial (grams)			Annual (grams)	
	Deep Grass	Moderate Grass	Forbs	Grass	Forbs
8	0	0	7	4	1
9	26	0	4	0	0
10	7	0	0	2	1
W13	0	0	0	1	0
W14	1	0	0	0	5
W15	7	0	1	3	12
W16	0	0	1	2	0
W17	0	0	0	3	59
W18	0	0	0	27	29
W19	0	0	0	10	12
W20	0	0	3	6	34
W21	0	0	0	0	9
W22	0	0	9	4	6
W25	0	4	0	3	13
W29	0	0	0	0	22
W34	0	0	0	0	0
Total	41	4	25	65	203

Point	Perennial (grams)			Annual (grams)	
	Deep Grass	Moderate Grass	Forbs	Grass	Forbs
Average	3	0	2	4	13
Lbs Per Acre	51	5	31	81	254

Trend Data

Frequency Transect SS01 – Shovel Springs Pasture



SS01 is near the north end of the Shovel Springs Pasture (T21N, R20E, Section 6) in Hungry Valley on a slope of approximately two percent. A 40 inch frame size has been used for all plant species. The key area has 20 transects with 10 quadrats per transect for a total of 200 presence or absence frames. The Reference State potential vegetative composition by weight for this location (026XY020NV) is 60 percent grasses (needle-and-thread, Indian ricegrass) and 35 percent shrubs (Wyoming big sagebrush, basin big sagebrush with minor components of spiny hopsage, Anderson peachbrush). The site burned in 2000. Table 18 shows the percentage of the 200 quadrats in which species occurred.

Table 18 - Frequency Transect SS01

Species	1992	1999	2009
Thurber's needlegrass	0	0	2
Indian ricegrass	0	4	5.5
Squirreltail	41	24	12.5
desert needlegrass	4	0	0
Needle-and-thread grass	3.5	6.5	11.5

Species	1992	1999	2009
Wheatgrasses	0	0	5
spiny hopsage	22.5	23	0
Wyoming big sagebrush	13	14.5	0
rabbitbrush	20.5	26.5	16.5
Anderson peachbrush	1	3	3
spineless horsebrush	0	0	1

All values were compared to the baseline data collected in 1992. Ricegrass and needle-and-thread grass have significantly increased ($P>0.05$) between 1992 and 2009. Squirreltail has significantly decreased ($P>0.05$). Wyoming big sagebrush and spiny hopsage have significantly decreased ($P>0.05$), probably due to the 2000 fire. Figures 5 and 6 display the changes in species occurrences.

Figure 5 – Frequency Transect SS01 - Grasses

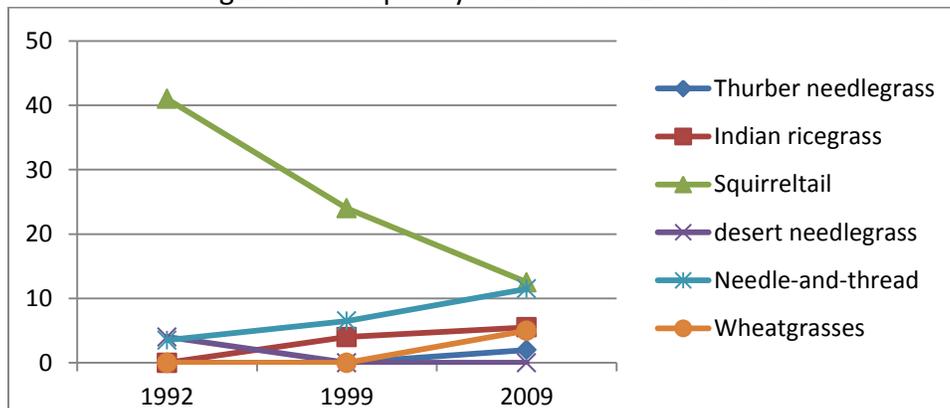
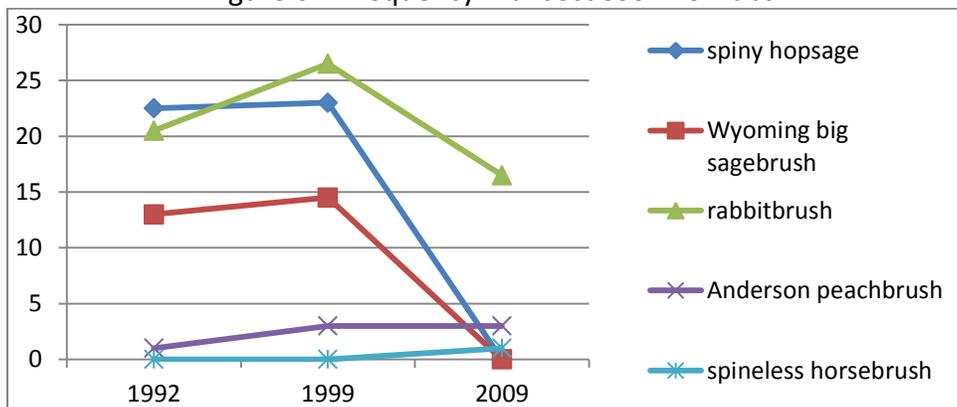


Figure 6 – Frequency Transect SS01 - Shrubs



There has been an increase in grasses at this location due to the lack of shrub competition after the 2000 fire, but this site is not representative of the pasture as comparison to the production plots shows. There is no juvenile sagebrush and the minor component, peachbrush, has increased.

Photo Plot S01 - Shovel Springs Pasture



S01 is located near the southern boundary of the allotment (T21N, R20E, Section 30) at the foothills of Spanish Peak on a slope of approximately 29 percent. The Reference State potential vegetative composition by weight for Ecological Site #026XY029NV is 35 percent grasses (desert needlegrass, Thurber’s needlegrass, Indian ricegrass, squirreltail) and 55 percent shrubs (Wyoming big sagebrush, Douglas rabbitbrush, antelope bitterbrush). The site burned in 1999. Table 19 displays the plant species within this plot in 1975, 1979 and 2009.

Table 19 – Photo Plot S01

Species	1975	1979	2009
Poa	5	2	56
squirreltail	8	13	17
antelope bitterbrush	1	1	
Wyoming big sagebrush	1	1	

At plot establishment in 1975, none of the expected grasses were present in the plot except squirreltail, which tolerates disturbance. Both squirreltail and *Poa* have increased since the plot was established. Two of the expected shrubs (Wyoming big sagebrush and antelope bitterbrush) were present when the plot was established but were not present in 2009, probably due to the fire in 1999. Although the number of grasses has increased since the plot was established, these are not key species. Consequently, the overall trend rating was static.

Riparian/Stream Habitat

There was one riparian assessment done in the Shovel Springs Pasture, which has water supplied by wells and a pipeline.

Conclusions for the Shovel Springs Pasture

- The Functional/Structural Groups in the pasture do not show the desired balance between deep rooted perennial bunchgrasses, annual grasses and forbs, and shrubs. Although the long term monitoring plots show an increase in bunchgrasses, the production plots in other areas of the pasture do not, and utilization monitoring showed a low density of perennial bunchgrasses in much of the pasture. RLHA #2 in the Hungry Valley flats showed a “Moderate to Extreme” departure in Functional/Structural Groups and in the level of invasive plants. (Note: RLHA #1 and Photo Trend Plot S01 are located on a slope that is approximately 29 percent and is outside of the primary grazing zones of the pasture.)
- The Shovel Springs Pasture has been heavily impacted by fire, particularly the large fires in 1999 and 2000. Reseeding efforts had limited success. These fires have resulted in changes to vegetative composition and density.
- Production surveys show very low perennial grass production for much of the pasture. Production, particularly in the lower lying areas of the pasture, was dominated by invasive cheatgrass and annual forbs such as tumble mustard.
- Fifty to seventy percent use occurred throughout the valley areas of the pasture in the early 1980s (BLM.1999). Most of the pasture was moderately to heavily grazed in 2004. Utilization of forage from recent grazing (2012) was light to moderate. About 40 percent of the pasture received moderate use (41 – 60%). This area coincides with the area that had received moderate to heavy use in the early 1980s. Given the actual use in 2008, heavy to severe use may have occurred. The allowable use level of 55 percent has not allowed perennial grasses to reestablish.
- There has been insufficient rest or deferment during the critical growing season.
- OHV use associated with the Hungry Valley Recreation Area continues to result in vegetation removal, soil disturbance, and soil loss.
- Drought conditions have contributed to the decline in vegetative conditions.

Recommendations for the Shovel Springs Pasture

To reduce the impact of grazing on key species and the Functional/Structural groups in the pasture, consider implementing the following actions.

- Change the season of use to exclude the growing season to prevent plant disturbance and promote deep rooted perennial grass reproduction.
- Change the pasture rotation to rest one pasture completely each year.
- Reduce the stocking rate to the current carrying capacity.
- Revegetate the pasture using herbicide to reduce cheatgrass and seeding the perennial bunchgrasses most likely to establish.

Warm Springs/Hungry Valley Pasture

Pasture Profile

The Warm Springs and Hungry Valley pastures are combined for management purposes. The Warm Springs/Hungry Valley pasture is displayed with its monitoring sites in Map 8. The combined pasture is approximately 25,573 acres, making it the largest pasture in the Allotment.

Under the current grazing rotation, this pasture is stocked at 16 - 17 acres per AUM. Scheduled use of the pasture is displayed in Table 11 and Appendix F. Most of the pasture, about 80 percent, has slopes under 25 percent. The predominant ecological sites in the pasture are loamy, granitic and gravelly. The primary vegetation should be sagebrush with bunch grasses. A complete listing of soil types in the pasture is in the Rangeland Health Assessment Summary below.

Like the Shovel Springs pasture, the Warm Springs/Hungry Valley pasture has been heavily impacted by fire. There have been eight fires that affected the Warm Spring and Hungry Valley pastures between 1984 and 2012. The large fire in 2000 was reseeded with limited success. Map 7 shows the total fire area by year. Table 20 shows the BLM acres affected by the fires.

Table 20 – Fire History for Warm Springs / Hungry Valley Pasture

Fire Year	Fire Number	Fire Name	BLM Acres	Pastures
2012	G6KU	Pyramid Hwy	12	Hungry Valley
2010	FK3K	Warm	1	Warm Springs
2000	J906	Antelope	8,701	Shovel Springs, Hungry Valley and Warm Springs
1986	J675		234	Shovel Springs and Hungry Valley
1985	J566		1,657	Dogskin and Warm Springs
1985			12,007	Hungry Valley
1985			7,213	Warm Springs
1984	J793		131	Hungry Valley

Most of the Warm Springs/Hungry Valley pasture is also designated as the Hungry Valley Recreation Area. All of the Hungry Valley pasture is within the recreation area, and about three quarters of the Warm Springs pasture is within the recreation area. This has resulted in the creation of OHV trails crisscrossing both pastures, removing vegetation and promoting erosion.

The 1989 AMP proposed the development of the Warm Springs Fence (RIPS# 546276) and the Hungry Valley Fence (RIPS # 546319) to create two pastures that are now called the Warm Springs and Hungry Valley pastures. These fences were completed in 1991 and 1993 respectively. The Hungry Valley Fence is in place and controlling cattle movement. The Warm Springs Fence was built on a ridge, and cattle are able to move back and forth where gullies create open spaces below the fence. At this point, Warm Springs and Hungry Valley are treated as one pasture.

The following monitoring was conducted in the Warm Springs portion of the Warm Springs/Hungry Valley pasture in May and June of 2009: two rangeland health assessments, one frequency transect, one photo plot, and two riparian assessments. In 2012, three utilization transects were read. Eleven production plots and one utilization transect were read in 2013.

The key species at the frequency transect and photo plot sites are needle-and-thread grass and Indian ricegrass. Increases and decreases in plant species discussed are from the date of plot establishment.

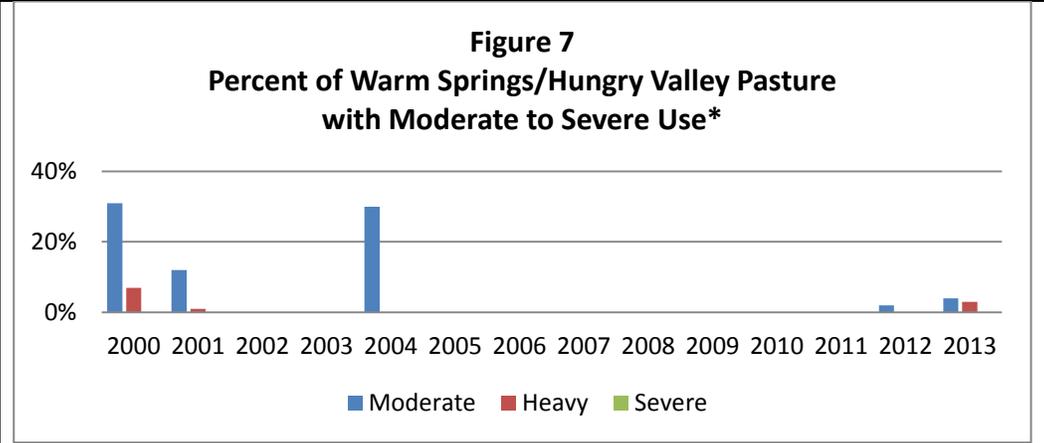
The following monitoring was conducted in the Hungry Valley portion of the Warm Springs/Hungry Valley pasture in May and June of 2009: two rangeland health assessments, one frequency transect and one photo plot. In 2012, five utilization transects and two production plots were read. The key species were not designated at the frequency transect site, but basin wildrye was designated at the photo plot site. Map 8 shows the locations of the monitoring sites.

Utilization/Actual Use/Precipitation

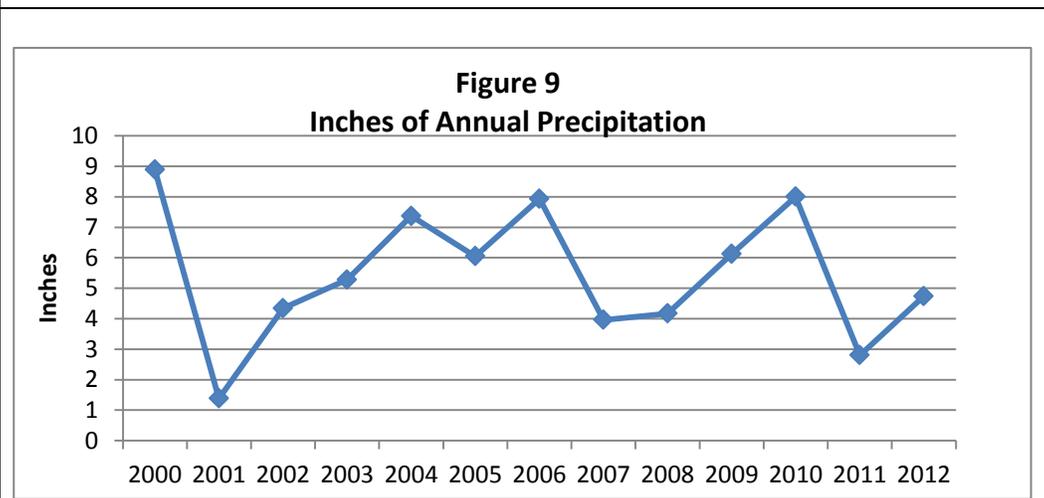
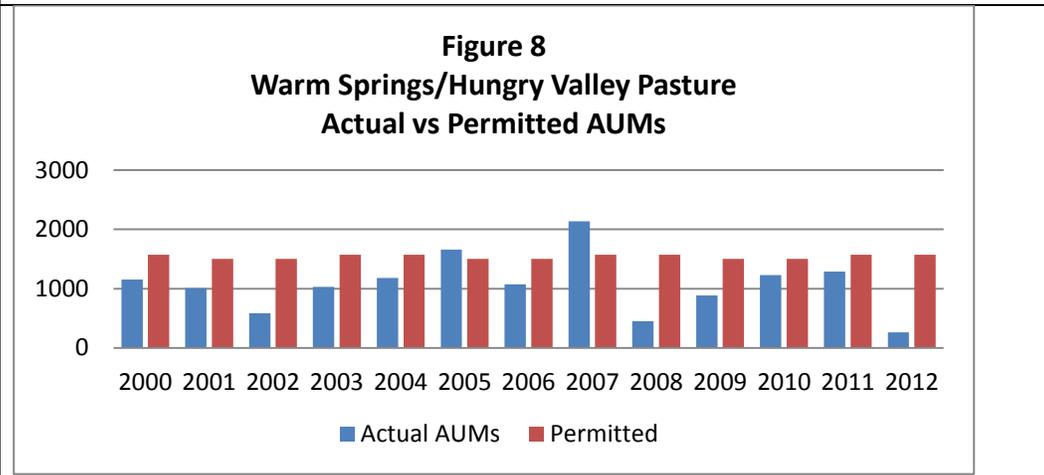
With the exception of watering sites, utilization was slight to light with one area of heavy use across the Warm Springs portion of the pasture as measured in three utilization transects in 2012 and one transect in 2013. However, there was a very low density of key species. The predominant vegetation was annual forbs and grasses and the shrubs rabbitbrush, ephedra and peachbrush.

Utilization ranged from slight to moderate across the Hungry Valley portion of the pasture in both 2012 and 2013. However, there was a very low density of key species observed. The predominant vegetation was annual forbs and grasses, rabbitbrush, sagebrush and occasional antelope bitterbrush and winterfat. In 2012, the antelope bitterbrush showed signs of hedging with severe use at one site and moderate use at another. There was heavy use on winterfat at one site in 2013, as well as heavy use on Indian ricegrass.

Figures 7, 8 and 9 compare the available utilization information from 2000 to 2013 with the actual and permitted AUMs and annual precipitation. In general, there were fewer actual AUMs in years of lower precipitation. For years in which utilization data is available, those areas of the pasture that were mapped showed moderate utilization on about 30 percent or less of the pasture and heavy utilization between 3 percent and 7 percent of the pasture. Comparing permitted utilization to actual utilization, for most years, actual use was lower than permitted. Actual use was higher than permitted use in 2005 and 2007. The year 2007 stands out as a year when there was lower than average precipitation and significantly higher than permitted use in the pasture.



*Utilization data not available for 2002-2003, 2005-2011



Total annual precipitation (inches) for Sutcliffe, Nevada, weather station, managed by the Western Regional Climate Center

The moderate utilization in 2001, in a year of very low precipitation, suggests that livestock and wildlife were eating residual forage from the prior year when precipitation was high. Utilization

data for the years 2005 to 2007 is not available. During this period actual AUMs were the highest during the period portrayed, and precipitation dropped to 4 inches in 2007 from just under 8 inches in 2006. It is possible that there was heavier utilization during this time, contributing to the lack of recruitment seen in 2012 and 2013.

Rangeland Health Assessment Summary

The primary ecological sites represented in the Warm Springs/Hungry Valley pasture are loamy sites (approximately 36 percent of the land area), granitic sites (approximately 20 percent of the land area), and gravelly sites (approximately 16 percent of the land area). The Ecological Site Descriptions show that on these sites, precipitation ranges from 8” to 12”, and vegetation should include different species of sagebrush with characteristic bunch grasses as shown in Table 21.

Table 21 – Ecological Sites in Warm Springs / Hungry Valley Pasture

Soil Type	Acres	EcoSiteID	EcoSiteName	Habitat Type
Loamy				
	4481	R026XY017NV	LOAMY HILL 10-12 P.Z.	JUOS/ARTRW8/ACTH7
	3002	R026XY016NV	LOAMY 8-10 P.Z.	ARTRW8/ACTH7
	763	R026XY024NV	DROUGHTY LOAM 8-10 P.Z.	ARTRW8-GRSP/ACHY-ACSP12
	735	R026XY010NV	LOAMY 10-12 P.Z.	ARTR2/ACTH7
	127	R023XY009NV	LOAMY BOTTOM 8-12 P.Z.	ARTRT/LECI4
	62	R026XY015NV	SHALLOW LOAM 10-12 P.Z.	ARTR2-PUTR2/ACTH7-ACSP12
	26	R027XY013NV	LOAMY 4-8 P.Z.	ATCO-ARSP5/ACHY
Total	9,196			
Approx. %	36%			
Gravelly				
	4050	R026XY050NV	GRAVELLY CLAY 10-12 P.Z.	ARARL3/ACTH7
	15	R026XY041NV	GRAVELLY CLAY 8-10 P.Z.	ARARL3/ACSP12
Total	4,065			
Approx. %	16%			
Granitic				
	2595	R026XY026NV	GRANITIC SLOPE 10-12 P.Z.	ARTR2-PUTR2/ACTH7-ACSP12
	2128	R026XY008NV	GRANITIC FAN 10-12 P.Z.	PUTR2-ARTRV/HECO26-ACHY
	121	R026XY006NV	GRANITIC LOAM 14+ P.Z.	ARTRV-PUTR2/ACHNA
	220	R026XY103NV	GRANITIC LOAM 10-12 P.Z.	ARTRW8/ACSP12
Total	5,064			
Approx. %	20%			
Sandy				
	2747	R026XY020NV	SANDY 8-10 P.Z.	ARTR2/HECO26-ACHY
Approx. %	11%			

Soil Type	Acres	EcoSiteID	EcoSiteName	Habitat Type
Eroded Slope				
	1051	R026XY094NV	ERODED SLOPE 8-10	ARARL3/POSE
	510	R026XY029NV	ERODED SLOPE 10-12 P.Z.	ARTRW8-SADOD3/ACHNA-ACHY-ELEL5
Total	1,561			
Approx. %	6%			
Claypan				
	482	R026XY023NV	CLAYPAN 10-14 P.Z.	ARAR8/ACTH7
	408	R026XY025NV	CLAYPAN 8-10 P.Z.	ARAR8/ACTH7-POSE
Total	890			
Approx. %	3%			
Other				
	575	R026XY022NV	STONY SLOPE 8-10 P.Z.	ARTRW8/ACSP12
	494	R026XY014NV	DUNE 10-12 P.Z.	PUTR2-PRAN2/HECO26-ACHY
	227	R026XY011NV	SOUTH SLOPE 8-12 P.Z.	ARTRW8-EPVI-SADOD3/ACSP12
	232	R026XY012NV	DRY FLOODPLAIN 8-10 P.Z.	ARTRT/LECI4
	93	R027XY027NV	BARREN GRAVELLY SLOPE 4-8 P.Z.	ATCO/ACHY
	102	R026XY021NV	SODIC FLAT	SAVE4/LECI4-DISP
	59	R026XY002NV	WET SODIC BOTTOM	DISP
	4	R026XY001NV	MOIST FLOODPLAIN	LETR5-LECI4
	266	unidentified		
Total	2,052			
Approx. %	8%			

Three rangeland health assessments were done in the Warm Springs/Hungry Valley Pasture. RLHA #3 was co-located with Photo Trend Plot HV02. RLHA #4 was co-located with Frequency Transect PC02, and RLHA #8 was co-located with Photo Plot and Frequency Transect HV01. These monitoring locations are described in the Trend section below (see Map 8 for locations).

For the Warm Springs portion of the pasture, the RLHA #4, which is on about a three percent slope, showed a “None to Slight” departure from the reference sheet in Soil & Site Stability and Hydrologic Function and a “Slight to Moderate” departure in Biotic Integrity due to lack of seedling establishment, the presence of cheatgrass and the overabundance of shrubs compared to perennial grasses.

For the Hungry Valley portion of the pasture, both RLHAs #3 and #8, which are on two to four percent slopes, showed a “None to Slight” departure from the reference sheet in Soil & Site Stability, Hydrologic Function, and Biotic Integrity based on the 17 indicators of rangeland

health. Although the two sites were categorized with an overall rating of “None to Slight”, the factors shown below in Table 22 are indicative of erosion and its impact on plant vigor. These indicators were in the “Slight to Moderate” or “Moderate” departure range at the two sites.

Table 22 - Rangeland Health Assessments #3 and #8

Rangeland Health Assessment #3		Rangeland Health Assessment #8	
Slight to Moderate	Moderate	Slight to Moderate	Moderate
Presence of gullies	Presence of water flow patterns	Presence of pedestals or terracettes	
Movement of Litter	Plant community composition relative to infiltration	Plant community composition relative to infiltration	
Imbalance in Functional/Structural Groups		Bare Ground greater than 40%	
Increased Plant Mortality and Decadence			

See Appendix G for a complete display of departure ratings.

Production Plots

There were no key species in the ten production plots (see Map 9 for locations) with slopes below 25 percent that were monitored in the Warm Springs portion of the pasture. The three production sites with slopes over 25 percent did not contain key species needle-and-thread grass and Indian ricegrass, but two sites did contain Thurber’s needlegrass, which is a key species at other sites. The perennial grasses, saltgrass, squirreltail and Sandberg’s bluegrass, were in three of the production plots with slopes below 25 percent. The primary vegetation in the production plots with slopes below 25 percent was annual grasses and forbs and in the sites with slopes over 25 percent, was Thurber’s needlegrass.

There were no key species in the four production plots with slopes below 25 percent in the Hungry Valley portion of the pasture. The perennial grass, squirreltail, was in one of these production plots. The primary vegetation was annual grasses and forbs.

Annual grasses were present in all but two plots at almost four times the production of the combined deep rooted and moderately rooted perennial bunchgrasses, further illustrating the imbalance in the Functional/Structural groups. Table 23 shows the production at each of the production plots.

Table 23 - Warm Springs/Hungry Valley Production Monitoring 2013

Point	Perennial (grams)			Annual (grams)	
	Deep Grass	Moderate Grass	Forbs	Grass	Forbs
1 (HV)	0	4	0	9	6
2 (HV)	0	0	0	41	2
6 (WS)	0	7	0	0	0
55 (WS)	0	0	1	1	1
56 (WS)	0	0	0	1	6
61 (WS)	0	0	0	1	1
62 (WS)	0	3	0	0	1
63 (WS)	0	0	0	1	0
64 (WS)	0	0	0	4	0
66 (WS)	0	0	0	3	24
67 (WS)	0	0	0	2	3
68 (WS)	0	0	0	12	0
WSN1	0	0	4	2	0
WSN2	12	0	0	2	1
WSS	6	0	0	6	0
HVN	0	0	0	38	4
HVS	0	0	0	4	2
Total	18	14	5	127	51
Average	1.1	0.8	0.3	7.5	3.0
Lbs Per Acre	21.2	16.5	5.9	149.4	60.0

Trend Data

Frequency Transect PC02 - Warm Springs Pasture



PC02 is in the Warm Springs portion of the Warm Springs / Hungry Valley pasture (T23N, R20E, Section 29) on about a three percent slope. A 40 inch frame size has been used for all plant species. The key area has 20 transects with 10 quadrats per transect for a total of 200 presence or absence frames. The Reference State potential vegetative composition by weight for this location is 60 percent grasses (needle-and-thread, Indian ricegrass) and 35 percent shrubs (Wyoming big sagebrush, basin big sagebrush with minor components of spiny hopsage, Anderson peachbrush, rabbitbrush). The site burned in 1985 and again in 2000. Table 24 shows the percentage of the 200 quadrats in which species occurred. Figure 10 and 11 display the changes in occurrence of grass species at the site over time.

Table 24 - Frequency Transect PC02

Species	1992	1999	2009
desert needlegrass	6	1	0
Thurber's needlegrass	0.5	0	1
needle-and-thread grass	47.5	81	59.5
Indian ricegrass	3.5	7.5	5.5
squirreltail	2.5	17	24
Poa	1.5	0.5	0.5
rabbitbrush	25.5	39.5	32
ephedra	7	11	10
spiny hopsage	0	1	0.5

Figure 10 - Frequency Transect PC02 - Grasses

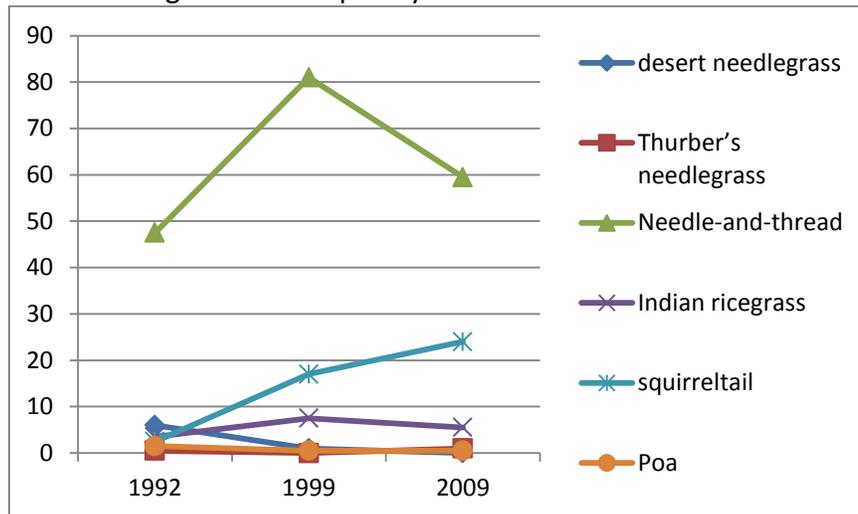
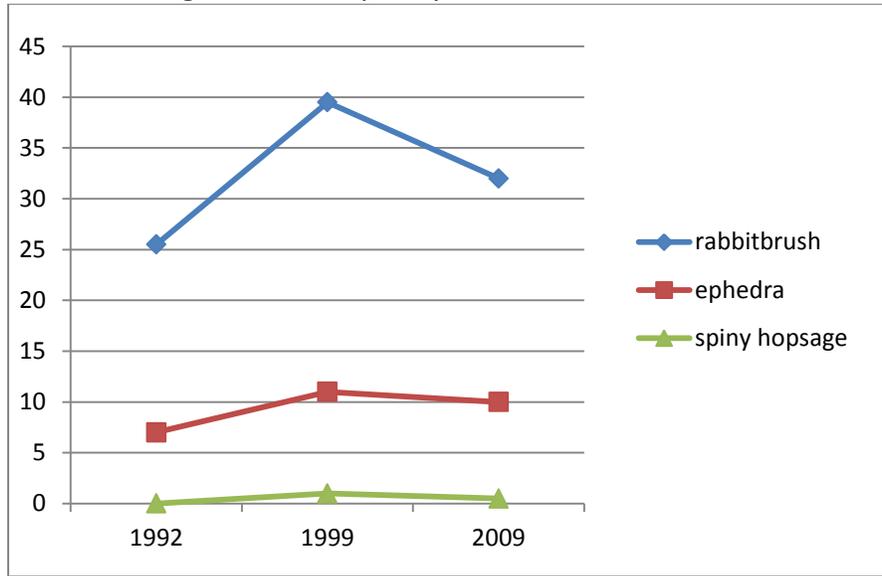


Figure 11 – Frequency Transect PC02 - Shrubs



Since establishment in 1992, Frequency Transect PC02 showed a statistically significant increase in key species needle-and-thread grass, a non-statistically significant increase in Indian ricegrass, but a statistically significant decrease in desert needlegrass, a plant that serves as a key species on other sites. There was a statistically significant increase in squirreltail, a plant that increases under disturbance. The site maintained its presence and amount of desirable deep rooted native perennials; however, the species composition within the site changed slightly. The long-term trend was recorded as static.

Frequency Transect HV01 - Hungry Valley Pasture

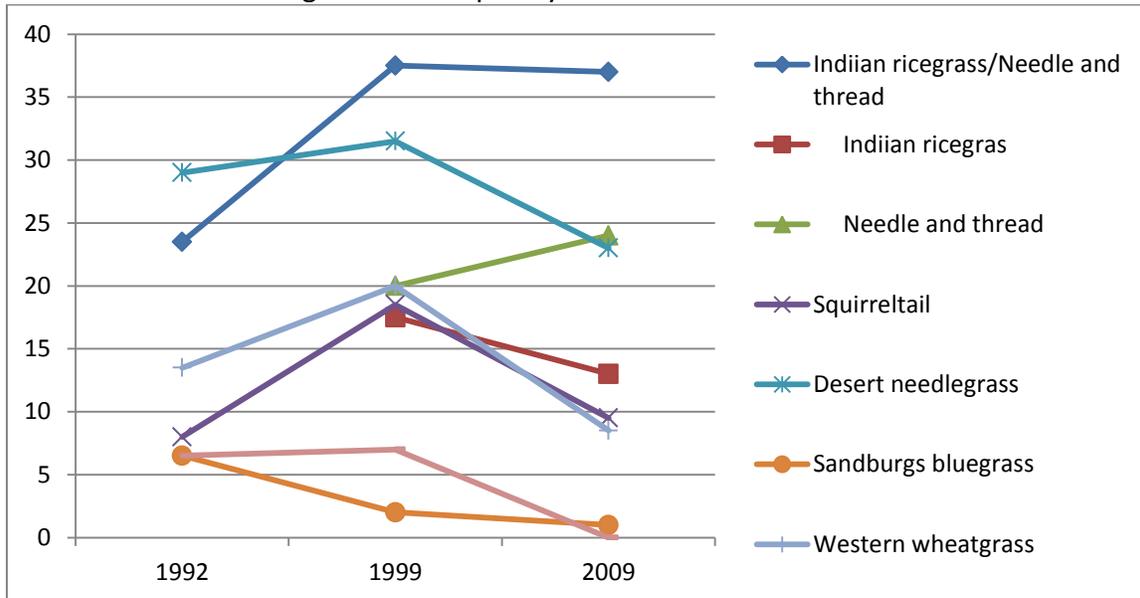


HV01 is at the north end of the Hungry Valley pasture (T22N, R20E, Section 9) on about a four percent slope. A 30 inch frame size has been used for all plant species. The key area has 20 transects with 10 quadrats per transect for a total of 200 presence of absence frames. The Reference State potential vegetative composition by weight at this location (026XY016NV) is 55 percent grasses (desert needlegrass, Thurber needlegrass and Indian ricegrass) and 40 percent shrubs (Wyoming big sagebrush, with minor components of spiny hopsage, and ephedra). The site burned in 1985. Table 25 shows the percentage of the 200 quadrats in which species occurred. Figure 12 displays the changes in occurrence of grass species at the site over time.

Table 25 – Frequency Transect HV01

Species	1992	1999	2009
Indian ricegrass/needle-and-thread grass	23.5	37.5	37
Indian ricegrass		17.5	13
needle-and-thread grass		20	24
squirreltail	8	18.5	9.5
desert needlegrass	29	31.5	23
Sandburg’s bluegrass	6.5	2	1
western wheatgrass	13.5	20	8.5
sedge	6.5	7	0
arrowleaf balsamroot	0	0	21.5
rabbitbrush	2	1	1

Figure 12 - Frequency Transect HV01 - Grasses



Frequency HV01 showed an increase in needle-and-thread grass and a decrease in Indian ricegrass since it was established in 1992, neither of which was statistically significant. There

was a statistically significant decrease in western wheatgrass and a non-significant decrease in squirreltail which increases under disturbance. Overall, there is a reduced presence and amount of desirable deep rooted native perennials. The long-term trend was recorded as static.

Photo Plot PC02 - Warm Springs



PC02 is in the middle of the Warm Springs Pasture (T23N, R20E, Section 29) on about a three percent slope. The Reference State potential vegetative composition by weight for this location (026XY020NV) is 60 percent grasses (needle-and-thread, Indian ricegrass) and 35 percent shrubs (Wyoming big sagebrush, basin big sagebrush, and minor presence of spiny hopsage, Anderson peachbrush and Nevada ephedra). The site burned in 1985 and again in 2000. Table 26 displays the plant species within this plot along with percent vegetative cover and percent litter cover in 1975, 1979, and 2009.

Table 26 – Photo Plot PC02

Species	1975	1979	1999	2009
needle-and-thread grass	7	9	16	5
Ephedra sp.	1	2	1	1
total cover live veg.	0.8%	5.2%		30.7%
litter	41.9%	31.5%		11.8%

Between 1975 and 2009, Photo Plot PC02 showed a decrease from 7 to 5 plants of needle-and-thread grass, but the plants on the site have grown larger, resulting in an increase in total cover of live vegetation, better holding resources on the site. The decrease in number of plants is

offset by the additional productivity of the larger plants, although a decline in recruitment is occurring. The site shows a sharp decline in needle-and-thread grass from 1999 to 2009, but the long-term trend was recorded as static.

Photo Plot HV02 - Hungry Valley



HV02 is located near the southern boundary of the Hungry Valley pasture (T22N, R20E, Section 33) on about one percent slope. The Reference State potential vegetative composition by weight on this site (026XY017NV) is 45 percent grasses (Thurber needlegrass, Indian ricegrass, basin wildrye) and 40 percent shrubs and trees (Wyoming big sagebrush, Utah juniper, antelope bitterbrush). Rabbitbrush is a minor shrub component. The site burned in 1975 and in 1985. It was seeded and then heavily grazed in the seventies. From the historical photographs, it appears to have been seeded to basin wildrye in 1980. Table 27 displays the plant species within this plot along with percent vegetative cover and percent litter cover from 1975 to 2009.

Table 27 - Photo Plot – HV02

Species	1975	1979	1980	1988	1999	2009
squirreltail	4	2	3	4	4	0
basin wildrye	1	1	1	1	2	3
western wheatgrass					7	0
rabbitbrush				1	3	1
big sagebrush					4	6
big sagebrush seedlings					20	0
total cover live veg.	1.7%	0.9%				19.5%
Litter	12.3%	7.2%				0%

Photo Plot HV02 showed an increase from 1 to 3 plants of key species basin wildrye since it was established in 1975. Total cover of live vegetation on the plot has increased due to the establishment of sagebrush and rabbit brush rather than key grass species. While basin wildrye increased as did shrubs, the increase is not large, resulting in little net change on the site. The trend was recorded as static.

Riparian/Stream Habitat

The Warm Springs/Hungry Valley pasture is served by pipelines and wells. The exception is the Carson Wandering Skipper (CWS) ACEC in the Warm Springs portion of the pasture which is fenced to exclude cattle. The CWS ACEC includes marsh and saltgrass areas, which were assessed for proper functioning condition in 2009. The saltgrass area was found to be functional at risk with a downward trend due to the presence of upland shrubs (greasewood and quailbush) in the saltgrass area. The marsh area was found to be functional at risk with an upward trend due to recent fencing.

Conclusions for the Warm Springs/Hungry Valley Pasture

- The Functional/Structural groups in the pasture do not show the desired balance between deep rooted perennial bunchgrasses, annual grasses and forbs, and shrubs. Although the long term monitoring plots show limited increases in bunchgrasses, the production plots in other areas of the pasture do not, and utilization monitoring showed a low density of perennial bunchgrasses. The rangeland health assessments showed the erosion impact of the loss of deep rooted perennial bunchgrasses as cheatgrass is less able to hold soil in place resulting in an increase in bare ground and plant mortality.
- The Warm Springs/Hungry Valley pasture has been heavily impacted by fire, particularly the large fires in 1985 and 2000. Reseeding efforts in 2000 had limited success. These fires have resulted in changes to vegetative composition and density.
- Production surveys show very low perennial grass production for much of the pasture. There were no key species noted in areas with slopes less than 25 percent. Production, particularly in the lower lying areas of the pasture, was dominated by invasive cheatgrass and annual forbs such as tumble mustard.
- Utilization of forage from recent grazing (2012 and 2013) on the pasture was primarily light with some areas of moderate and heavy use. The historic utilization data is too sparse to tell if utilization patterns changed as a result of the Warm and Hungry pasture fences, however, the 1999 update to the 1989 AMP reported that livestock distribution had improved as of 1999 due to both fencing, pasture rotation and lower livestock numbers.
- Actual Use for most years was below permitted use. However, the Functional/Structural group imbalances discussed above still persist. The allowable use level of 55 percent has not allowed perennial grasses to reestablish.
- There has been insufficient rest or deferment during the critical growing season.
- OHV use associated with the Hungry Valley Recreation Area continues to result in vegetation removal, soil disturbance, and soil loss.
- Drought conditions have contributed to the decline in vegetative conditions.

Recommendations for the Warm Springs/Hungry Valley Pasture

To reduce the impact of grazing on key species and the Functional/Structural groups in the pasture, consider implementing the following actions.

- Change the season of use to exclude the growing season to prevent plant disturbance and promote deep rooted perennial grass reproduction.
- Change the pasture rotation to rest one pasture completely each year.
- Reduce the stocking rate to the current carrying capacity.
- Revegetate the pasture using herbicide to reduce cheatgrass and seeding the perennial bunchgrasses most likely to establish.
- Evaluate the feasibility of providing water on the west side of the pastures to improve cattle distribution.

Incandescent Rocks Pasture

Pasture Profile

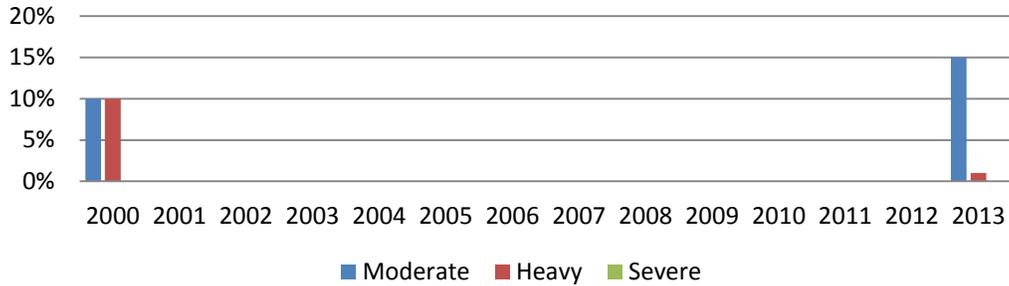
The Incandescent Rocks pasture is displayed with its monitoring sites in Map 8. The pasture is approximately 6,125 acres, making it the second smallest pasture in the Allotment. Under the current grazing rotation, this pasture is stocked at 17 acres per AUM. The pasture is scheduled for use each year from June 16 to August 15. Scheduled use of the pasture is displayed in Table 11 and Appendix F. About half of the pasture has slopes under 25 percent, however, based on the 2013 utilization studies, cattle make light use of the steeper slopes above 25 percent. The predominant ecological sites are claypans and loamy soils. A complete listing of soil types in the pasture is in the Rangeland Health Assessment Summary below. There has been one fire that affected 19 acres in the Incandescent Rocks pasture in 1999 (see Map 7). There were no range improvements built in the Incandescent Rocks pasture based on recommendations from the 1989 AMP. There are no frequency transects or photo plots established in the Incandescent Rocks pasture, and no rangeland health assessments were conducted. There were six production plots and three utilization transects read in 2013.

Utilization/Actual Use/Precipitation

Utilization in 2012 was slight to light in the Incandescent Rocks pasture. The three utilization transects read in 2013 showed light use primarily in areas of over 25 percent slope or distant from water and moderate use on lower slopes closer to water.

Figures 13, 14, and 15 compare the available utilization information from 2000 to 2013 with the actual and permitted AUMs and annual precipitation. In general, there were fewer actual AUMs in years of lower precipitation. For years in which utilization data is available, those areas of the pasture that were mapped showed moderate utilization on about 15 percent or less of the pasture and heavy utilization between 1 and 10 percent of the pasture. Comparing permitted use to actual use, for most years, actual use was lower than permitted. However, 2001 stands out as a year when there was lower than average precipitation and significantly higher than permitted use in the pasture.

Figure 13
Percent of Incandescent Rocks Pasture
with Moderate to Severe Use*



*Utilization data not available for 2001 to 2011

Figure 14
Incandescent Rocks Pasture Actual vs Permitted AUMs

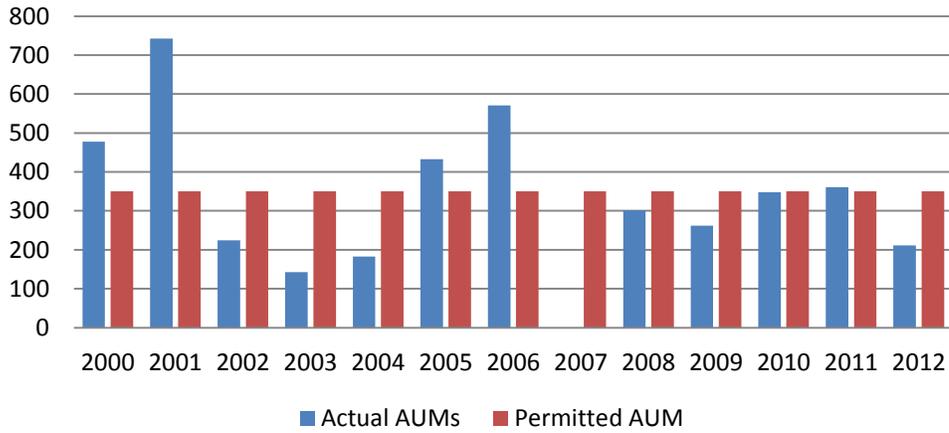
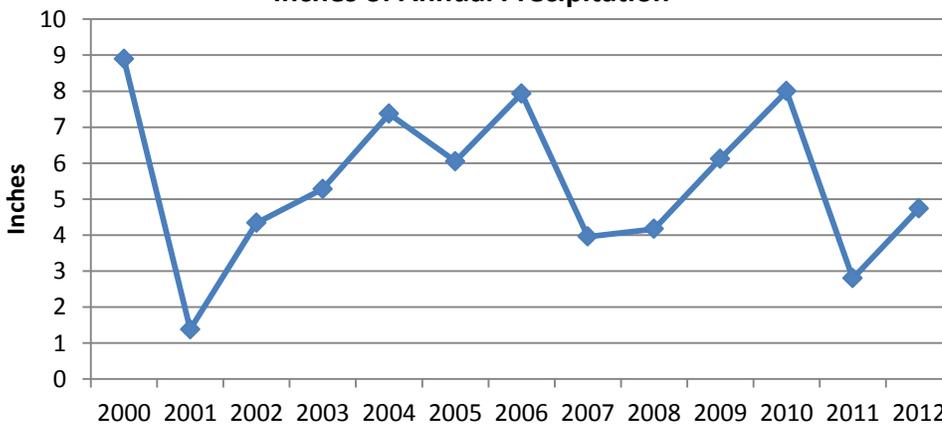


Figure 15
Inches of Annual Precipitation



Total annual precipitation (inches) for Sutcliffe, Nevada, weather station, managed by the Western Regional Climate Center

Rangeland Health Assessment Summary

There were no rangeland health assessments done in the Incandescent Rocks pasture. A detailed breakdown of the soils and habitat types in the pasture is shown in Table 28.

Table 28 – Ecological Sites in Incandescent Rocks Pasture

Soil Type	Acres	EcoSiteID	EcoSite Name	Habitat Type
Claypan				
	2,771	R026XY025NV	Claypan 8-10" P.Z.	ARAR8/ACTH7-POSE
	107	R026XY023NV	Claypan 10-14" P.Z.	ARAR8/ACTH7
Total	2,878			
Approx. %	47%			
Loamy				
	796	R026XY010NV	Loamy 10-12" P.Z.	ARTR2/ACTH7
	557	R026XY016NV	Loamy 8-10" P.Z.	ARTRW8/ACTH7
	56	R026XY005NV	Loamy 12-14" P.Z.	ARTRV-PUTR2/ACOCO
	37	R027XY013NV	Loamy 4-8" P.Z.	ATCO-ARSP5/ACHY
	3	R026XY015NV	Shallow Loam 10-12" P.Z.	ARTR2-PUTR2/ACTH7-ACSP12
	115	R026XY017NV	Loamy Hill 10-12" P.Z.	JUOS/ARTRW8/ACTH7
	408	R026XY024NV	Droughty Loam 8-10" P.Z.	ARTRW8-GRSP/ACHY-ACSP12
Total	1,972			
Approx. %	32%			
Slopes				
	807	R027XY027NV	Barren Gravelly Slope	ATCO/ACHY
	393	R026XY022NV	Stony Slope 8-10" P.Z.	ARTRW8/ACSP12
	35	R026XY011NV	South Slope 8-12" P.Z.	ARTRW8-EPVI-SADOD3/ACSP12
Total	1,235			
Approx. %	20%			
Other				
	14	R026XY020NV	Sandy 8-10" P.Z.	ARTR2/HECO26-ACHY
	18	R026XY012NV	Dry Floodplain 8-10" P.Z.	ARTRT/LECI4
	8	R026XY021NV	Sodic Flat	SAVE4/LECI4-DISP
Total	40			
Approx. %	1%			

Production Plots

The production plots in the Incandescent Rocks pasture (see Map 9 for locations) were largely in areas with less than 25 percent slope and recorded no deep rooted or moderately deep rooted perennial bunchgrasses. Deep rooted perennial bunchgrasses (Thurber's needlegrass, Indian ricegrass and bluebunch wheatgrass) were observed adjacent to the production sites as was the moderately deep rooted bunchgrass, squirreltail.

Annual grasses and forbs were present in all plots, illustrating the imbalance in the Functional/Structural groups. Table 29 shows the production at each of the production plots.

Table 29 – Incandescent Rocks Production Monitoring 2013

Point	Perennial (grams)		Annual (grams)		
	Deep Grass	Moderate Grass	Forbs	Grass	Forbs
4	0	0	3	3	0
5	0	0	0	3	3
W51	0	0	0	1	1
W57	0	0	0	4	0
IR N	0	0	0	1	0
IR S	0	0	0	2	3
Total	0	0	3	14	7
Average	0	0	0.5	2.3	1.2
Lbs Per Acre	0	0	10	47	23

Trend Data

There were no photo plot or frequency transects done in the Incandescent Rocks pasture.

Riparian/Stream Habitat

There were no riparian assessments done in the Incandescent Rocks Pasture.

Conclusions for the Incandescent Rocks Pasture

- The Functional/Structural groups in the pasture do not show the desired balance between deep rooted perennial bunchgrasses, annual grasses and shrubs. Although there were deep rooted perennial bunch grasses adjacent to the production plots and in the utilization transects, the production plots contained no perennial bunchgrasses. Utilization monitoring showed a lower density of perennial bunchgrasses in areas near water and areas with less than 25 percent slope. In the areas where bunchgrasses are low in density, production monitoring showed that cheatgrass captured the site resources instead, further preventing bunchgrass reproduction.
- Utilization of forage from recent grazing on the Incandescent Rocks pasture was primarily light with some areas of moderate use. Actual use for most years was below permitted use, but four years had actual use higher than permitted. In 2001, actual use

was more than twice the permitted use. The Functional/Structural group imbalances discussed above still persist.

- The pasture is scheduled for use during the same period each year, June 16 to August 15.
- Drought conditions have contributed to the decline in vegetative conditions.

Recommendations for the Incandescent Rocks Pasture

To reduce the impact of grazing on key species and the Functional/Structural groups in the pasture, consider implementing the following actions.

- Change the season of use to exclude the growing season to prevent plant disturbance and promote deep rooted perennial grass reproduction.
- Change the pasture rotation to rest one pasture completely each year.
- Reduce the stocking rate to the current carrying capacity.
- Revegetate the pasture using herbicide to reduce cheatgrass and seeding the perennial bunchgrasses most likely to establish.

Tule Pasture

Pasture Profile

The Tule Pasture is approximately 7,955 acres. Approximately one third of the pasture has slopes under 25 percent. Under the current grazing rotation, this pasture is stocked at eleven acres per AUM. The pasture is scheduled for use each year from July 16 to October 15. Scheduled use of the pasture is displayed in Table 11 and Appendix F. The predominant ecological sites on the pasture consist of loamy soils. A detailed breakdown is in the Rangeland Health Assessment Summary. One fire burned 2,028 acres in the Tule pasture in 1999. Map 7 shows the total fire area by year.

In 1989, the AMP proposed the fencing of the spring source on the south end of the Tule Pasture at what became Spring Development #5 when it was constructed in 1993. The enclosure was intact and protecting the spring source from large animals when inspected in September of 2013. The vegetation within the enclosure was primarily upland vegetation and thistles were present. The Tule Mountain Fence to separate Tule pasture from what became Fall Field was also proposed in the 1989 AMP. It was constructed in 1991. The fence was inspected in September of 2013 and the permit holder was in the process of repairing breaks in the fence where cattle were moving into the Fall Field pasture and returning those cattle to the Tule pasture.

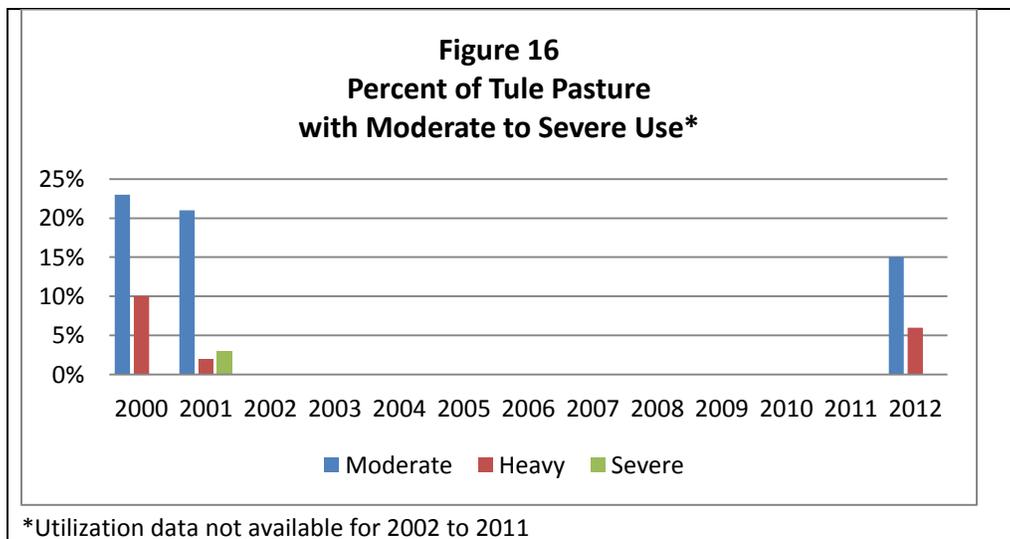
The following monitoring was conducted in the Tule pasture in May and June of 2009: one rangeland health assessment, one frequency transect and one photo plot. The key species for this pasture are bluebunch wheatgrass, basin wildrye and antelope bitterbrush. Three additional RLHAs were conducted in Tule pasture in September and October, 2012 in relation to greater sage-grouse habitat. Two were in preliminary priority habitat (PPH), and one was in preliminary general habitat (PGH). In addition, there were five utilization transects read in 2012 and one production plot read in 2013. Map 8 shows the locations of the monitoring sites.

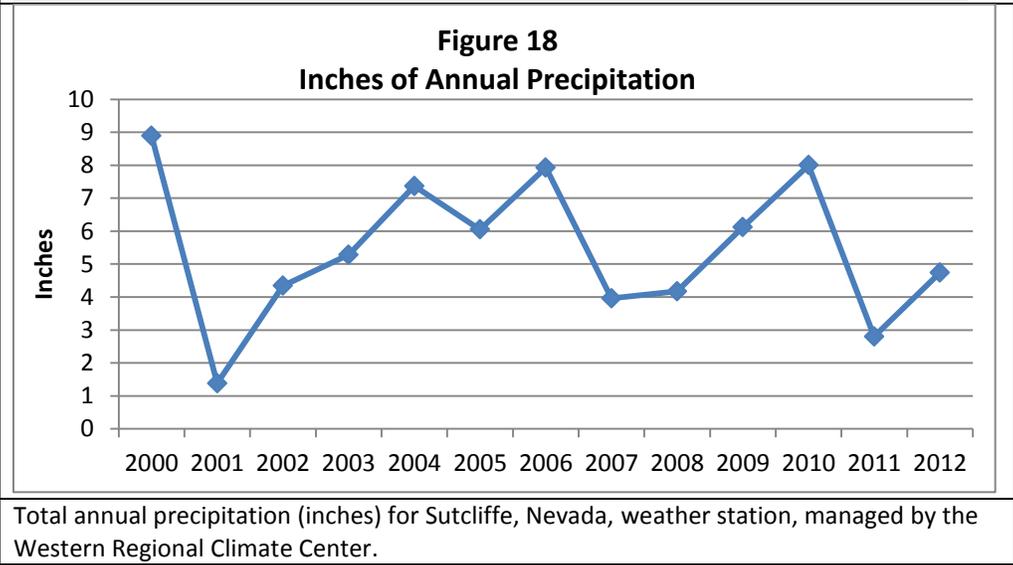
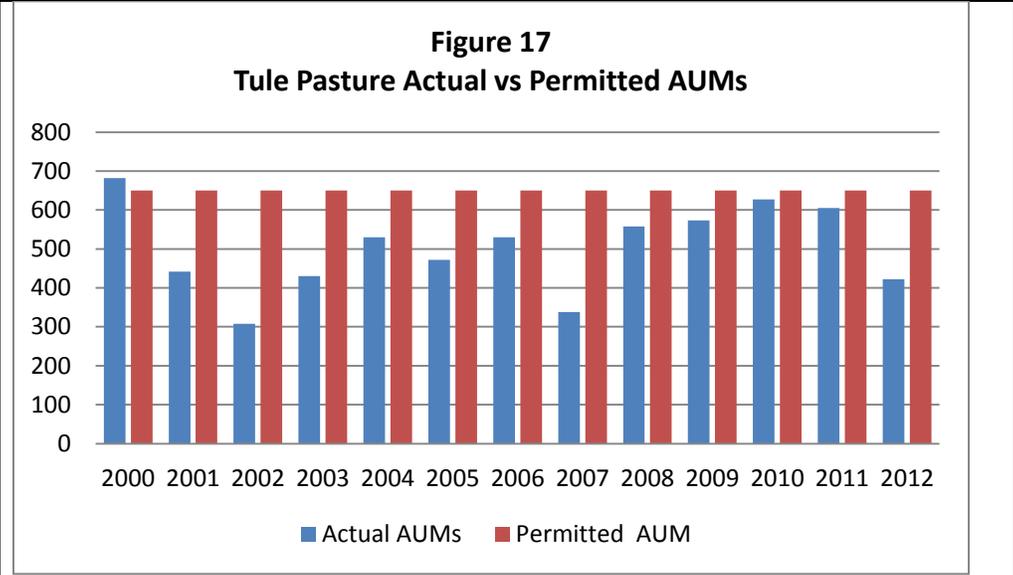
Utilization/Actual Use/Precipitation

Six utilization transects were read in 2012 in the Tule pasture. Most of the use was slight or light. There were three areas of moderate use and three areas of heavy use primarily along water and in flatter areas (see Map 6).

Figures 16, 17, and 18 compare the available utilization information from 2000 to 2013 with the actual and permitted AUMs and annual precipitation. In general, there were fewer actual AUMs in years of lower precipitation. For most years, actual use was lower than permitted. The exception was 2000 when actual use was slightly higher than permitted during a year of below average precipitation. This may have contributed to the low functioning level recorded on the riparian assessments. In the early 1980s, an area at the north end of the pasture, near Mahogany Flats and within the greater sage-grouse PPH area, received heavy grazing use.

For years for which utilization data is available, those areas of the pasture that were mapped showed moderate utilization on about 23 percent or less of the pasture and heavy utilization between 2 and 10 percent of the pasture. In 2001, there was severe utilization on 3 percent of the pasture.





Rangeland Health Assessment Summary

Ecological sites with loamy soils comprise 88 percent of the Tule Pasture, making it one of the most productive pastures on the allotment. Ecological Site Descriptions show that on these sites, precipitation ranges from 10” to above 16”. Vegetation should include different species of sagebrush as well as antelope bitterbrush with bunchgrasses Thurber’s needlegrass, mountain brome and desert needlegrass as shown in Table 30.

Table 30 – Ecological Sites in Tule Pasture

Soil Type	Acres	EcoSiteID	EcoSite Name	Habitat Type
Loamy				
	3,965	R026XY010NV	LOAMY 10-12 P.Z.	ARTR2/ACTH7
	361	R026XY005NV	LOAMY 12-14 P.Z.	ARTRV-PUTR2/ACOCO
	1,724	R023XY019NV	LOAMY 16+ P.Z.	ARTRV/BRMA4-ACHNA
	790	R026XY015NV	SHALLOW LOAM 10-12 P.Z.	ARTR2-PUTR2/ACTH7-ACSP12
	72	R023XY020NV	LOAMY 10-12 P.Z.	ARTR2/PSSPS-ACTH7
	55	R026XY017NV	LOAMY HILL 10-12 P.Z.	JUOS/ARTRW8/ACTH7
Total	6,967			
Approx.%	88%			
Claypan				
	115	R026XY023NV	CLAYPAN 10-14 P.Z.	ARAR8/ACTH7
	285	R026XY025NV	CLAYPAN 8-10 P.Z.	ARAR8/ACTH7-POSE
Total	400			
Approx.%	5%			
Flood Plains				
	20	R026XY001NV	MOIST FLOODPLAIN	LETR5-LECI4
	3	R026XY012NV	DRY FLOODPLAIN 8-10 P.Z.	ARTRT/LECI4
Total	23			
Approx.%	0%			
Slopes				
	536	R026XY022NV	STONY SLOPE 8-10 P.Z.	ARTRW8/ACSP12
	14	R026XY011NV	SOUTH SLOPE 8-12 P.Z.	ARTRW8-EPVI-SADOD3/ACSP12
Total	550			
Approx.%	7%			
Other	16	unidentified		
Total	16			
Approx.%	0%			

Rangeland Health Assessment #7 is co-located with Frequency Transect DV02 described in the Trend section below (Map 8) and is on about a seven percent slope. The assessment showed a “None to Slight” departure from reference condition for Soil and Site Stability, a “None to Slight” departure from reference condition for Hydrologic Function and a “Slight to Moderate” departure from reference condition for Biotic Integrity due to the reduced ability of the soil surface to resist erosion, the brush domination in the Functional/Structural Groups and the absence of expected quantities litter.

The three additional assessments done in 2012 were Virginia PMUs 13, 16, and 24 (Map 8). Virginia PMU 24 was conducted near the south end of the pasture near the border with Fall pasture. It is on a 15 percent slope. The assessment showed a “None to Slight” departure for

Soil / Site Stability, a “Slight to Moderate” departure for Hydrologic Function, and a “Moderate” departure for Biotic Integrity. For specific indicators, there was a “Moderate” departure in expected Litter Cover, Soil Surface Resistance to Erosion, and Functional / Structural Groups due to the abundance of cheatgrass, juniper encroachment and the lack of key, deep rooted perennial grasses.

Virginia PMU 13 was conducted about 1.5 miles north of Virginia PMU 24. It is on about a 17 percent slope. This area burned in 1999. The assessment showed a “Slight to Moderate” departure in Soil / Site Stability, a “Moderate” departure in Hydrologic Function, and a “Moderate to Extreme” departure in Biotic Integrity. For specific indicators, there were “Moderate to Extreme” departures for Soil Surface Resistance to Erosion, Functional/Structural Groups and Invasive Plants. There were “Moderate” departures for Plant Community Composition and Distribution and Litter Cover. Fifty percent of the ground cover was invasive cheatgrass. Less than ten percent of the ground cover was comprised of native, perennial grasses, which was primarily bluebunch wheatgrass. No other key, deep rooted grasses were recorded at the site. There were very few shrubs, probably due to the 1999 burn. Juniper were also encroaching the site.

Virginia PMU 16 was conducted at the north end of the pasture just west of Tule Peak. It is on about a 14 percent slope. This site is also within the 1999 burn. The assessment showed a “Moderate to Extreme” departure in Soil/Site Stability with an “Extreme to Total” departure for Soil Surface Resistance to Erosion. There was a “Moderate” departure in Hydrologic Function and “None to Slight” departure in Biotic Integrity. Sandberg’s bluegrass and squirreltail were the only grasses recorded at the site.

See Appendix G for a complete display of departure ratings.

Production Plots

Key species bluebunch wheatgrass was the dominant grass in the production plot in the Tule pasture (see Map 9 for location). Thurber’s needlegrass was on the site adjacent to the production plot. This production plot was in an area of about 35 percent slope, slightly higher than the Warm Springs/Hungry Valley production sites that showed very few key species in the plots. There were also fewer annual grasses in this plot, with the perennial bluebunch wheatgrass comprising 90 percent of the plot and the annual cheatgrass comprising 10 percent of the plot. Table 31 shows the production at this production plot. This plot does not reflect perennial grass production in the areas represented by the Virginia PMU RLHAs 13, 16, and 24.

Table 31 – Tule Pasture Production Monitoring 2013

Point	Perennial (grams)		Annual (grams)		
	Deep Grass	Moderate Grass	Forbs	Grass	Forbs
Tule N	19	0	0	2	0
Lbs Per Acre	380	0	0	40	0

Trend Data

Frequency Transect DV02 – Tule Pasture



DV02 is on the southwest side of the Tule pasture (T24N, R20E, Section 21) on about a seven percent slope. It was originally established as wildlife key area. A 40 inch frame size has been used for all plant species. The key area has 20 transects with 10 quadrats per transect for a total of 200 presence or absence frames. The Reference State potential vegetative composition by weight for this location (026XY017NV) is 45 percent grasses (Thurber's needlegrass, Indian ricegrass with minor components of basin wildrye and squirreltail) and 40 percent shrubs and trees (Wyoming big sagebrush, juniper and antelope bitterbrush with minor components of rabbitbrush, ephedra and currant). Table 32 shows the percentage of the 200 quadrats in which species occurred. Figures 19 and 20 display the changes in species occurrences from 1982 to 2009.

Table 32 - Frequency Transect DV02

Species	1982	1985	1988	1991	2000	2009
squirreltail	31.5	36.5	47.5	82.5	90.5	84
bluebunch wheatgrass			0.5		0	
<i>Stipa sp.</i>			8			
<i>Poa sp.</i>			1		0.5	1
crested wheatgrass	0.5	0.5	0.5		1	1
basin wildrye			4.5	3.5	3.5	4
antelope bitterbrush	1.5	2	3	2.5	3	0.5
Wyoming big sage	80.5	73.5	70.5	79	65	56.5
black sagebrush			3.5	4.5	4	1.5
littleleaf horsebrush			16.5	16	10.5	13.5
rabbit brush			3.5	8	6	5

Figure 19 – Frequency Transect DV02 - Grasses

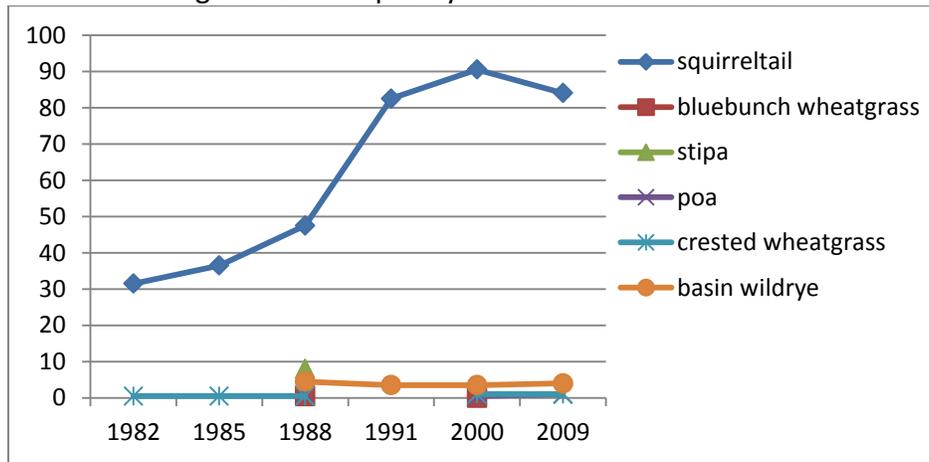
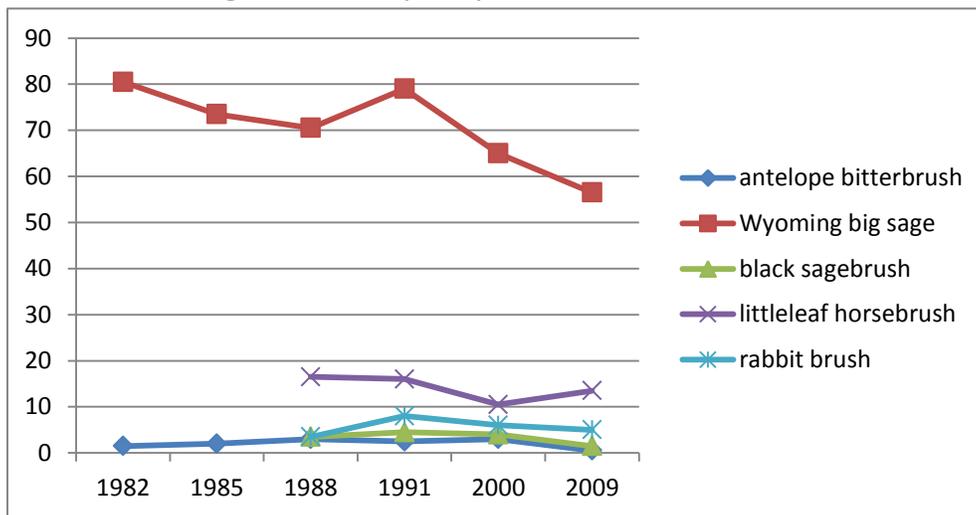


Figure 20 – Frequency Transect DV02 - Shrubs



All values were compared to the baseline data collected in 1982. The site is dominated by the grass, squirreltail, which has increased at a significant ($P>0.05$) rate and which is a minor component in the Reference State. Neither of the Reference State grasses, Thurber's needlegrass or Indian ricegrass, is present at the site. Basin wildrye, which is a key species for the pasture, was not present when the plot was established in 1982, but came in in 1988 and is still present at this site. The Reference State shrub, Wyoming big sagebrush, has decreased at a significant ($P>0.05$) rate. The site is shrub dominated with an increasing presence of juniper outside of the transect (see photo for PC01). The long-term trend was recorded as static.

Photo Plot PC01 - Tule Pasture



PC01 is located on the southwest side of Tule Pasture (T24N, R20E, Section 21) on about a 16 percent slope. The Reference State potential vegetative composition by weight for this location (026XY017NV) is 45 percent grasses (Thurber's needlegrass, Indian ricegrass with a minor component of basin wildrye and squirreltail) and 40 percent shrubs and trees (Wyoming big sagebrush, Utah juniper, antelope bitterbrush). Table 33 displays the plant species within this plot from 1975 to 2009.

Table 33 - Photo Plot PC01

Species	1975	1979	1981	1984	1999	2009
bluebunch wheatgrass	2	3	3	3	3	5
squirreltail					2	
sagebrush	3	3	3	3	3	3
antelope bitter brush	1					

This location is probably an inclusion in the soil series since there is little correspondence with the Reference State and actual vegetation. Not represented in the plot is significant juniper encroachment in the area around the plot. Bluebunch wheatgrass has increased in size and number of plants since the plot was established in 1975, and sagebrush has remained constant. There has been little overall vegetative change in the transect since it was established. The trend was recorded as static.

Riparian/Stream Habitat

There were six riparian assessments done in the Tule Pasture in 2009 and one done in 2013. They are summarized in the following Table 34.

Table 34 – Tule Pasture Summary of Riparian Assessments

Area	Status	Trend	Comments
Cove Springs 1&2 2009	Proper Functioning Condition		Some hoof action, limited entrenchment
Lotic between Cove Sp. & Simple Sp. 2009	Proper Functioning Condition		Minor headcutting confined to channel. Livestock trailing and localized impact areas.
Lotic between Cove Sp. & Simple Sp. June 26, 2013	Functional - At Risk	Not Apparent	Low end of Functional – At Risk Low vigor in perennial vegetation. Lack of willows. Not enough stabilizing vegetation.
Simple Spring 2009	Non Functional		Site draining more rapidly than it should. Head cutting; severe down cutting; hoof action. Some loss of riparian vegetation, sagebrush in riparian area.
Unnamed Spring PC01 2009	Functional - At Risk	Downward	Significant juniper increase, lost cover in area affected by hoof action. Road bisects system, sediment below road.
Orchid Spring	Orchid Spring		Site on a steep hillside; does not appear to be impacted by livestock.

Conclusions for the Tule Pasture

- The Functional/Structural groups in the pasture do not show the desired balance between deep rooted perennial bunchgrasses, annual grasses and forbs, and shrubs. In parts of the pasture, shrubs and juniper are over represented in the Functional/Structural group balance. Areas represented by the Virginia PMU RLHAs show substantial departures from Reference State conditions. Cheatgrass dominated the site at Virginia PMU 13.
- Historically, portions of the pasture have received heavy grazing use. Recent use has been primarily light with some areas of moderate, heavy, and in 2001, severe use. The heaviest use was along riparian areas and flatter areas of the pasture, which has only a third of its area under 25 percent slope.

- The pasture is scheduled for use during the same period each year, July 16 to October 15.
- The riparian assessments showed one system in “Proper Functioning Condition”. One system was revised from “Proper Functioning Condition” in 2009 to “Functional at Risk” in 2013. The two other systems were “Functional at Risk” and “Non Functional”.
- Drought conditions have contributed to the decline in vegetative conditions.

Recommendations for the Tule Pasture

To reduce the impact of grazing on the key species and Functional/Structural groups in the pasture and on riparian systems, consider implementing the following actions.

- Conduct detailed spring assessments to evaluate the contribution of livestock grazing to the deteriorated condition of the springs.
- Based on the above spring assessments, evaluate the efficacy of altering livestock grazing to avoid impact on springs in conjunction with range improvements needed to protect the springs.
- Move the troughs on exclosed springs so that water draining from the trough flows back into the spring enclosure.
- Treat juniper where it has expanded beyond its characteristic range.
- Evaluate the efficacy of shrub treatment to encourage growth of deep rooted perennial bunch grasses.
- Change the season of use to exclude the growing season to prevent plant disturbance and promote deep rooted perennial grass reproduction.
- Change the pasture rotation to rest one pasture completely each year.
- Reduce the stocking rate to the current carrying capacity.
- Revegetate the pasture using herbicide to reduce cheatgrass and seeding the perennial bunchgrasses most likely to establish.

Fall/Fall Field/Private Pasture

Pasture Profile

Fall/Fall Field/Private Pasture (aka Fall pasture) is approximately 5,434 acres, making it the smallest pasture on the Allotment. About 90 percent of the pasture has slopes under 25 percent. Under the current grazing rotation, this pasture is stocked at twelve acres per AUM. This pasture is scheduled for use from October 16 to November 15 every year. Scheduled use of the pasture is displayed in Table 11 and Appendix F. The 1999 Memorandum regarding the Modification of the Paiute Grazing System states, “Cattle can stay in the Fall/Fall Field pasture up to Heavy (61-80%) utilization on crested wheatgrass” (BLM. 1999).

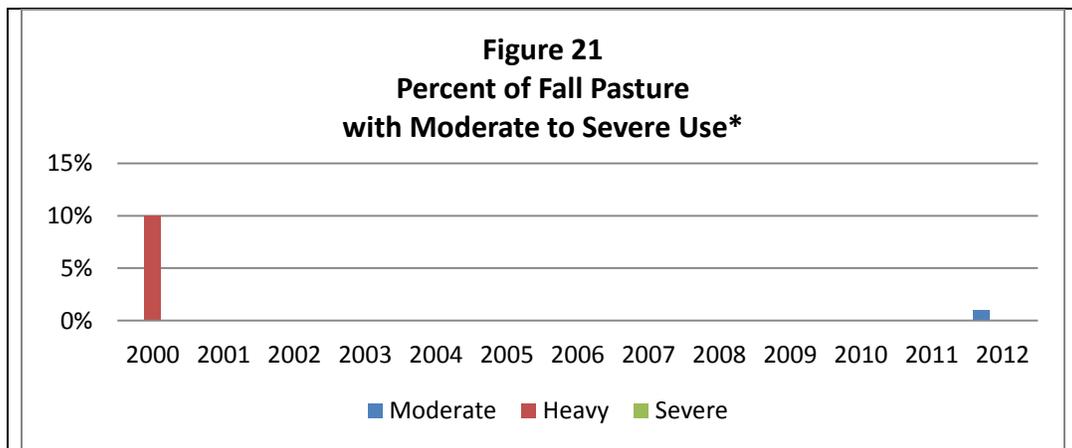
The three main ecological site types in the pasture are granitic, claypan and loamy. A breakdown by site type is shown in the Rangeland Health Assessment Summary section below. The vegetative communities should include species of sagebrush with antelope bitterbrush and Ephedra. Deep rooted perennial bunchgrasses expected to be present include Thurber’s needlegrass, desert needlegrass, Indian ricegrass, basin wildrye, and needle-and-thread grass.

Two fires, one in 1988 and one in 1999, affected portions of the Fall pasture (see Map 7).

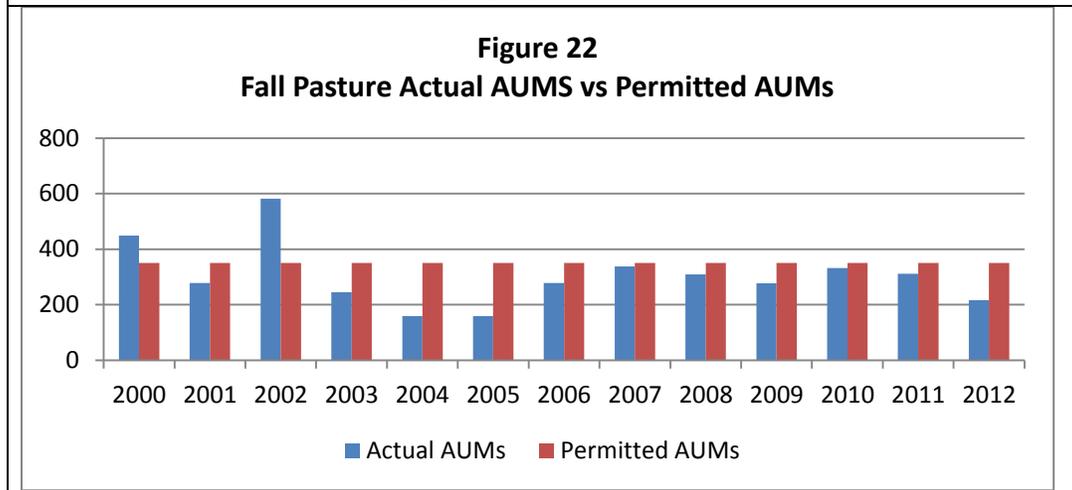
One riparian assessment was conducted in the Fall pasture in May of 2009. In 2012, two utilization transects were read. One production plot was read in 2013.

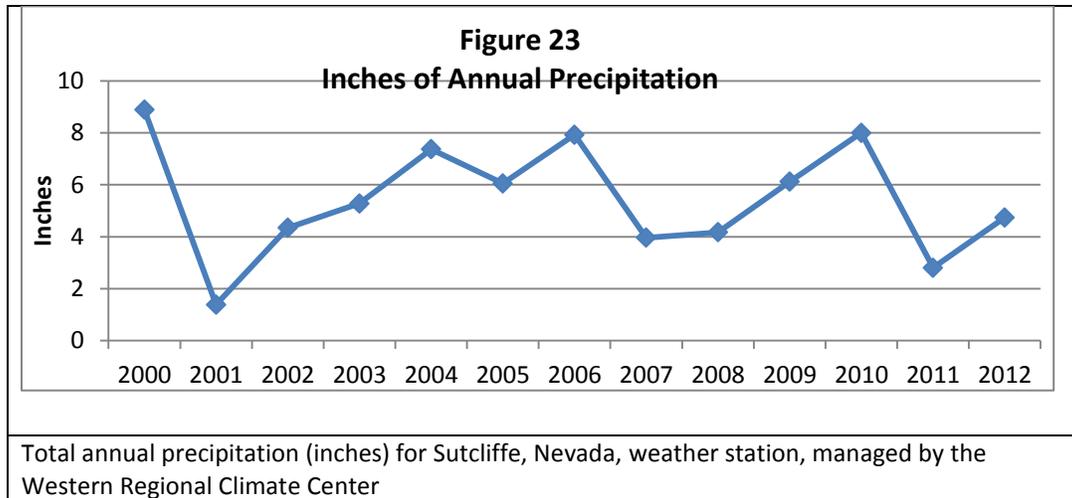
Utilization/Actual Use/Precipitation

Two utilization studies were done in 2012. They showed utilization as light across the Fall pasture with one area of moderate use (see Map 6). Figures 21, 22, and 23 compare the available utilization information from 2000 to 2012 with the actual and permitted AUMs and annual precipitation. For years for which utilization data is available, those areas of the pasture that were mapped showed heavy utilization on 10 percent of the pasture in 2000, a year with above average precipitation. For most years, actual use was lower than permitted. However, 2002 stands out as a year when there was lower than average precipitation and significantly higher than permitted use in the pasture.



*Utilization data not available for 2001 to 2011





Rangeland Health Assessment Summary

There were no Rangeland Health Assessments done in the Fall Pasture. A detailed breakdown of the soils and habitat types in the pasture is shown in Table 35.

Table 35 – Ecological Sites in Fall Pasture

Soil Type	Acres	EcoSiteID	EcoSite Name	Habitat Type
Claypan				
	1,163	R026XY025NV	CLAYPAN 8-10 P.Z.	ARAR8/ACTH7-POSE
	218	R026XY023NV	CLAYPAN 10-14 P.Z.	ARAR8/ACTH7
Total	1,381			
Approx. %	25%			
Granitic				
	882	R026XY026NV	GRANITIC SLOPE 10-12 P.Z.	ARTR2-PUTR2/ACTH7-ACSP12
	729	R026XY008NV	GRANITIC FAN 10-12 P.Z.	PUTR2-ARTRV/HECO26-ACHY
	21	R026XY103NV	GRANITIC LOAM 10-12	ARTRW8/ACSP12
Total	1,632			
Approx. %	30%			
Loamy				
	881	R026XY010NV	LOAMY 10-12 P.Z.	ARTR2/ACTH7
	331	R026XY017NV	LOAMY HILL 10-12 P.Z.	JUOS/ARTRW8/ACTH7
	105	R026XY016NV	LOAMY 8-10 P.Z.	ARTRW8/ACTH7
	91	R026XY024NV	DROUGHTY LOAM 8-10 P.Z.	ARTRW8-GRSP/ACHY-ACSP12
	10	R023XY009NV	LOAMY BOTTOM 8-12 P.Z.	ARTRT/LECI4
Total	1,418			
Approx. %	26%			
Slope				
	610	R026XY022NV	STONY SLOPE 8-10 P.Z.	ARTRW8/ACSP12
	59	R026XY011NV	SOUTH SLOPE 8-12 P.Z.	ARTRW8-EPVI-SADOD3/ACSP12
Total	669			

Soil Type	Acres	EcoSiteID	EcoSite Name	Habitat Type
Approx. %	12%			
Floodplain				
	201	R026XY001NV	MOIST FLOODPLAIN	LETR5-LECI4
	11	R026XY012NV	DRY FLOODPLAIN 8-10 P.Z.	ARTRT/LECI4
Total	212			
Approx. %	4%			
Other	36	R026XY020NV	SANDY 8-10 P.Z.	ARTR2/HECO26-ACHY
	85	unidentified		
Total	121			
Approx. %	2%			

Production Plots

There were no key species in the two production plots (see Map 9 for location) done in the pasture. However, the moderately deep rooted grass, squirreltail, was present in plot #3. Cheatgrass was present in both plots. Bluebunch wheat grass was adjacent to the Fall N plot. Table 36 shows the production at these plots.

Table 36 – Fall Pasture Production Monitoring 2013

Point	Perennial (grams)			Annual (grams)	
	Deep Grass	Moderate Grass	Forbs	Grass	Forbs
3	0	3	0	5	0
Fall N	0	0	3	3	1
Total	0	3	3	8	1
Average	0	1.5	1.5	4	0.5
Lbs Per Acre	0	30	30	80	10

Trend Data

No photo plots or frequencies transects have been established in this pasture.

Riparian/Stream Habitat

A riparian assessment was conducted on the Saltgrass Meadow- Paiute Check Dam site. The site was rated “Functional-At Risk” with an upward trend. Disturbance factors noted were hoof action, a road present, which did not alter the flow patterns, and the invasive species tall and small whitetop, Canada thistle and Scotch thistle. On a 2013 field visit, cattle were noted in the enclosure. The permit holder has removed the cattle and repaired the fence. BLM will include more permanent fence repair in its work plans.

The Tule #29 riparian assessment was conducted at spring development #3 near the southern boundary of the pasture. It was rated as “Functional-At-Risk” with no apparent trend. The

northwest corner of the fence enclosure was down. The spring source within the enclosure was being de-watered by the pipeline supplying water to the trough outside of the enclosure. Noxious weeds were present.

Conclusions for the Fall Pasture

- The Functional/Structural groups in the pasture do not show the desired balance between deep rooted perennial bunchgrasses, annual grasses and forbs, and shrubs. Although there were moderately deep rooted perennial bunch grasses in the production plot, the production plot contained no deep rooted perennial bunchgrasses. Utilization monitoring showed no key species and a low density of perennial bunchgrasses. In the areas where bunchgrasses are low in density, production monitoring showed that cheatgrass captured the site resources instead, further preventing bunchgrass reproduction.
- Utilization of forage from recent grazing on the Fall pasture was primarily light with some areas of moderate use even though the prescriptive use is heavy on crested wheatgrass. Actual use for most years was below permitted use. However, the Functional/Structural group imbalances discussed above still persist.
- The Fall pasture is used as a fall gathering pasture and is scheduled for use each year from October 16 to November 15.
- Drought conditions have contributed to the decline in vegetative conditions.

Recommendations for the Fall Pasture

To reduce the impact of grazing on the key species and the Functional/Structural groups in the pasture, consider implementing the following actions.

- Change the season of use to exclude the growing season to prevent plant disturbance and promote deep rooted perennial grass reproduction.
- Change the pasture rotation to rest one pasture completely each year.
- Reduce the stocking rate to the current carrying capacity.
- Revegetate the pasture using herbicide to reduce cheatgrass and seeding the perennial bunchgrasses most likely to establish.

Dogskin Pasture

Pasture Profile

The Dogskin Pasture is approximately 10,594 acres, making it the largest of the four smaller pastures. About 95 percent of the pasture has slopes over 25 percent. Under the current grazing rotation, this pasture is stocked at 35 acres per AUM. The pasture is scheduled for use each year from July 16 to October 15. Scheduled use of the pasture is displayed in Table 11 and Appendix F. The pasture contains the Dogskin HMA as described in the section titled HMA/Horse Use. The main ecological site type in the pasture is granitic with minor components of loamy and other soils. A breakdown by site type is shown in the Rangeland Health Assessment Summary section below. The vegetative communities include species of sagebrush with antelope bitterbrush and a minor component of juniper. Deep rooted perennial

bunchgrasses present include Thurber’s needlegrass, desert needlegrass, Indian ricegrass, bluebunch wheatgrass, basin wildrye and needle-and –thread grass. Three fires, two in 1985 and one in 1988, affected the Dogskin Pasture (see Map 7).

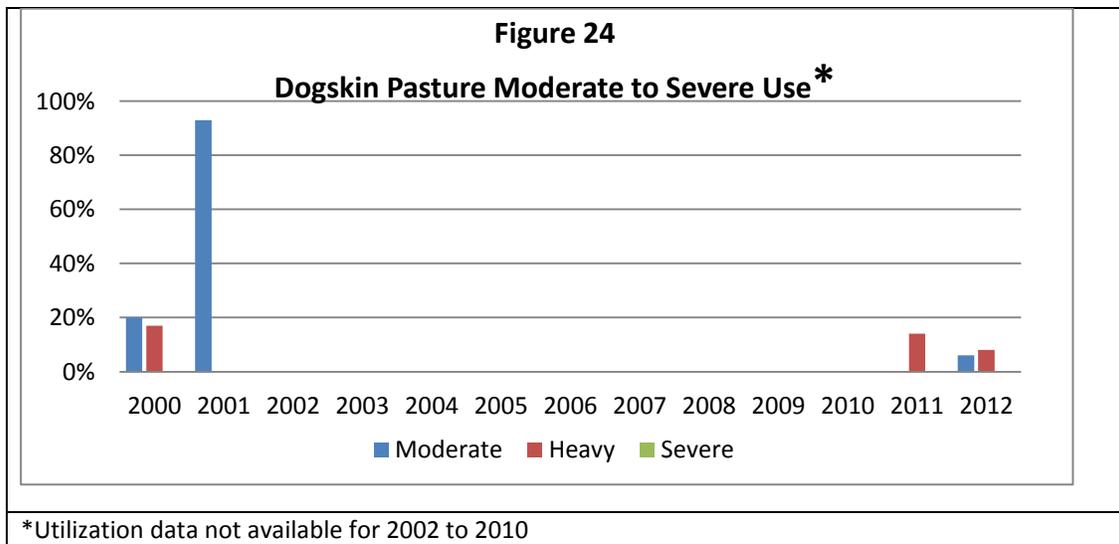
One riparian assessment was conducted in the Dogskin Pasture in May of 2009 as well as three frequency transects, one photo trend plot and two rangeland health assessments. In 2012, three utilization transects were read. One production plot was read in 2013.

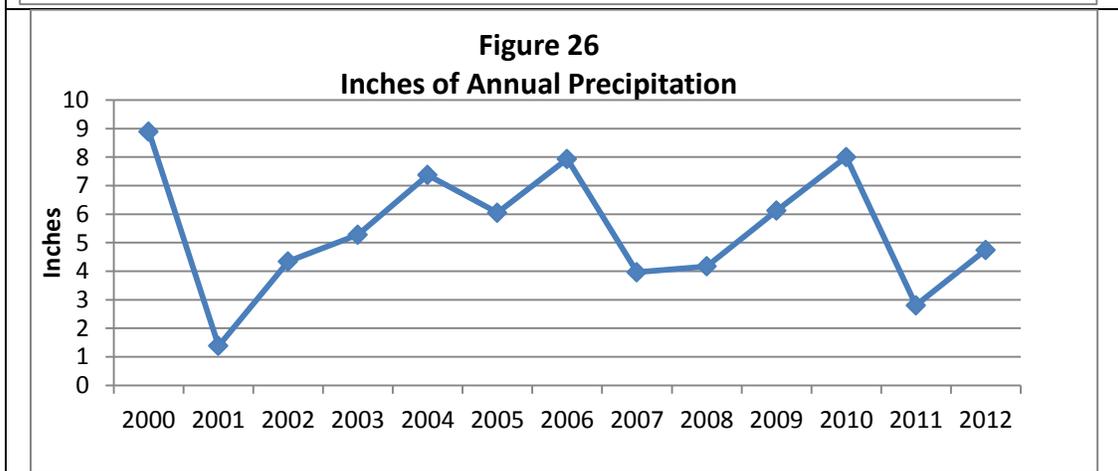
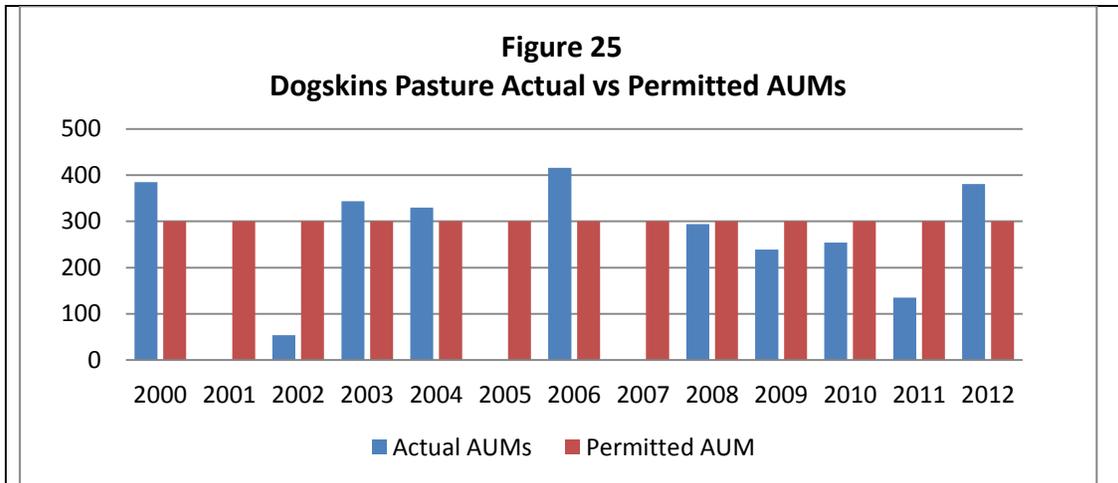
Utilization/Actual Use/Precipitation

Three cattle utilization transects were read on the pasture in 2012 showing primarily light use. Heavy use was noted in one location (see Map 6). Within the Dogskin HMA portion of the Allotment, utilization was read in 2011 and 2012. There was heavy utilization in 24 percent of the HMA in 2011. In 2012, there was heavy utilization in twelve percent of the HMA and moderate utilization in ten percent of the HMA.

Figures 24, 25, and 26 compare the available utilization information from 2000 to 2012 with the actual and permitted AUMs and annual precipitation. In general, there were fewer actual AUMs in years of lower precipitation. For years for which utilization data is available, those areas of the pasture that were mapped, showed moderate utilization on about 6 percent to 93 percent of the pasture and heavy utilization on 8 percent to 17 percent of the pasture. This includes the utilization data collected on the HMA in 2011 and 2012. During this thirteen year period, 2000- 2012, actual use exceeded permitted use in five years. In three years, there was no actual use recorded.

The year 2012 had lower than average precipitation and higher than permitted use in the pasture.





Total annual precipitation (inches) for Sutcliffe, Nevada, weather station, managed by the Western Regional Climate Center

Rangeland Health Assessment Summary

The primary ecological sites represented in the Dogskin pasture are granitic sites (approximately 80 percent of the pasture). About 13 percent of the pasture is comprised of loamy sites. The Ecological Site Descriptions show that on these sites, precipitation ranges from 8 to 14+ inches , and vegetation should include different species of sagebrush with characteristic bunch grasses as shown in Table 37.

Table 37 – Ecological Sites in Dogskin Pasture

Soil Type	Acres	EcoSiteID	EcoSite Name	Habitat Type
Granitic				
	8,235	R026XY026NV	GRANITIC SLOPE 10-12 P.Z.	ARTR2-PUTR2/ACTH7-ACSP12
	200	R026XY008NV	GRANITIC FAN 10-12 P.Z.	PUTR2-ARTRV/HECO26-ACHY
	92	R026XY006NV	GRANITIC LOAM 14+ P.Z.	ARTRV-PUTR2/ACHNA
Total	8,527			
Approx.%	80%			
Loamy				
	1,136	R026XY010NV	LOAMY 10-12 P.Z.	ARTR2/ACTH7

	176	R023XY020NV	LOAMY 10-12 P.Z.	ARTR2/PSSPS-ACTH7
	42	R026XY017NV	LOAMY HILL 10-12 P.Z.	JUOS/ARTRW8/ACTH7
	30	R026XY016NV	LOAMY 8-10 P.Z.	ARTRW8/ACTH7
Total	1,384			
Approx.%	13%			
Other				
	413	R026XY020NV	SANDY 8-10 P.Z.	ARTR2/HECO26-ACHY
	245	R026XY014NV	DUNE 10-12 P.Z.	PUTR2-PRAN2/HECO26-ACHY
	24	R026XY025NV	CLAYPAN 8-10 P.Z.	ARAR8/ACTH7-POSE
Total	682			
Approx.%	6%			

RLHA #5 was co-located with Frequency Transect P154 and is on about an eight percent slope. RLHA #6 was co-located with Photo Plot PC03 and is on about a 25 -30 percent slope. Both monitoring locations are described in the Trend section below (see Map 8 for locations). Based on the 17 indicators of rangeland health, both assessments (#5 and #6) showed a “None to Slight” departure from the reference sheet in Soil & Site Stability and Hydrologic Function. RLHA #5 also showed a “None to Slight” departure from the reference sheet in “Biotic Integrity”. However, RLHA #6 showed a “Slight to Moderate” departure from the Reference sheet in “Biotic Integrity”. Although the two sites were primarily categorized as having “None to Slight” departures from the reference sheet, the factors shown in Table 38 were in the in the “Slight to Moderate” or “Moderate” departure category at the two sites. See Appendix G for a complete display of departure ratings.

Table 38 - Rangeland Health Assessments #5 and #6

Range Health Evaluation #5		Range Health Evaluation #6	
Slight to Moderate	Moderate	Slight to Moderate	Moderate
Imbalance in Functional/Structural Groups		Soil surface less resistant to erosion	Invasive species present
Invasive species present		Imbalance in Functional/Structural Groups	

Production Plots

There were no production plots read within the Dogskin pasture.

Trend Data

Frequency Transect P154 – Dogskin Pasture



P154 is at the south end of the Dogskin pasture (T23N, R20E, Section 18) on about an eight percent slope. A 40 inch frame size has been used for all plant species. The key area has 10 transects with 20 quadrats per transect for a total of 200 presence or absence frames. The Reference State potential vegetative composition by weight for this location (026XY020NV) is

60 percent grasses (needle-and-thread, Indian ricegrass) and 35 percent shrubs (Wyoming big sagebrush, basin big sagebrush and minor components of spiny hopsage, Anderson peachbrush, and rabbitbrush). The site burned in 1985 and had heavy horse use from 1986 to the gather in December, 2005 when 36 horses were removed. By the last transect reading in 2009, the horse herd would have almost doubled again. Table 39 shows the percentage of the 200 quadrats in which species occurred.

Table 39 – Frequency Transect P154

Species	1982	1988	1992	2000	2009
desert needlegrass	45	37	43	47	48.5
needle-and-thread grass	39	31.5	33	49.5	11.5
Indian ricegrass	7.5	5.5	10	4	9
squirreltail	5	8	3	4.5	2.5
Poa sp.	0	1	2	1	0.5
Ephedra sp.	6	5	14	4.5	4.5
rabbitbrush		15.5	14	16	13.5
Wyoming sagebrush		3.5	3	6	4
Anderson peachbrush		18.5	8.5	16.5	15
horsebrush		3.5	3	2	1

All values were compared to the baseline data collected in 1982. Needle-and-thread has significantly decreased ($P>0.05$) between 1982 and 2009. Opportunistic shrubs, rabbitbrush and Anderson peachbrush, were not present in 1982 but now outnumber the Reference State sagebrush plants by seven to one. Figures 27 and 28 display the changes in species occurrences from 1982 to 2009.

Figure 27 – Frequency Transect P154 - Grasses

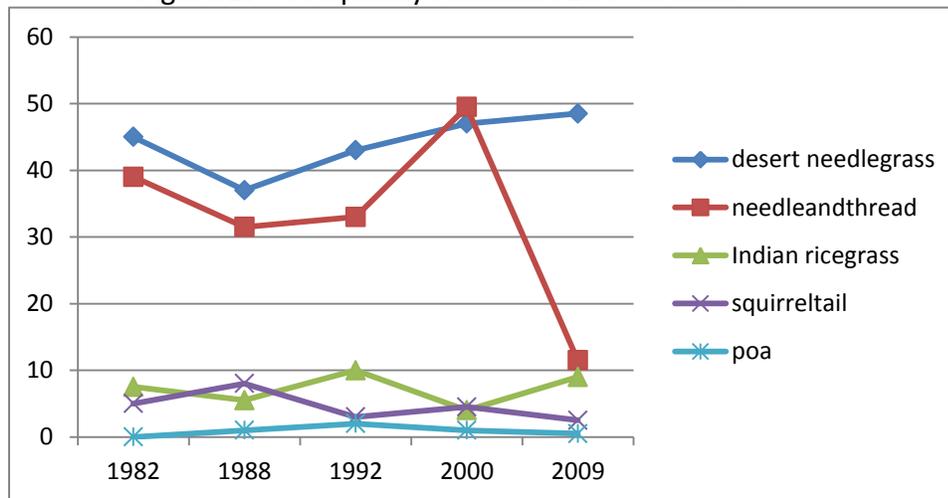
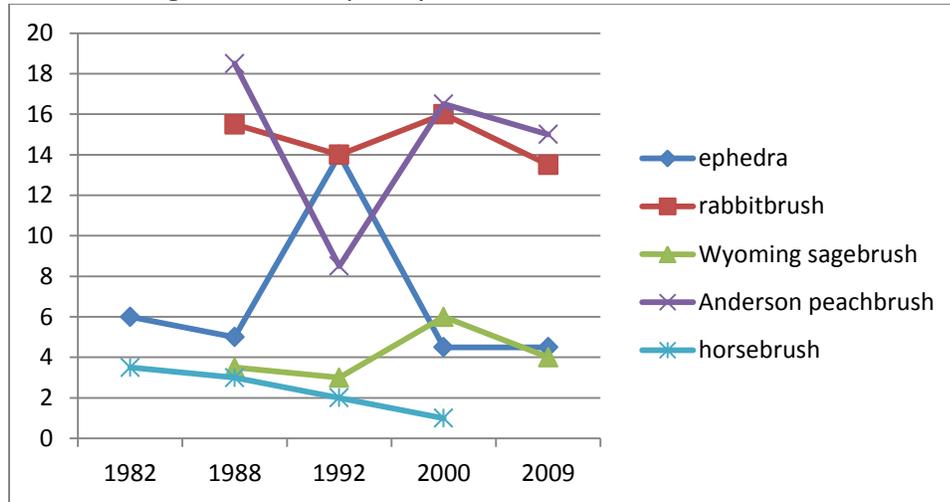


Figure 28 – Frequency Transect P154 - Shrubs



The decrease in the deep rooted perennial grass, needle-and-thread grass, and the increase in the opportunistic shrubs, rabbitbrush and peachbrush, indicate that the site has declined in its balance of Functional/Structural groups. The trend was recorded as downward.

Frequency Transect LW13 – Dogskin Pasture



LW13 is in the middle of the Dogskin pasture (T23N, R19E, Section 1) on about a 17 percent slope. It was originally established as a wildlife key area. The site had heavy horse use from 1986 to the gather in 2005. Heavy horse use was also recorded in 2011 and 2012. A 40 inch frame size has been used for all plant species. The key area has 20 transects with 10 quadrats per transect for a total of 200 presence or absence frames. The Reference State potential vegetative composition by weight for this location (026XY006NV) is 60 percent grasses (Thurber’s needlegrass, western needlegrass with minor components of Indian ricegrass and Poa) and 35 percent shrubs (Wyoming big sagebrush, antelope bitterbrush with minor components of rabbitbrush, Ephedra and currant). Table 40 shows the percentage of the 200 quadrats in which species occurred.

Table 40 – Frequency Transect LW13

Species	1982	1985	1991	2000	2009
Indian ricegrass	0	1	0	6	6
desert needlegrass	3.5	4	4	9	4.5
squirreltail	8	14.5	13	44.5	38.5
Poa	1	3.5	1.5	4	6.5
antelope bitterbrush	2.5	5	4.5	6.5	9
Wyoming sagebrush	19.5	26	19	25	42
rabbitbrush					17
ephedra					9.5
currant					7
juniper					0.5

All values were compared to the baseline data collected in 1982. Indian ricegrass has significantly increased ($P>0.05$) between 1982 and 2009 as have the opportunistic grasses squirreltail and Poa. The Reference State shrubs, Wyoming sagebrush and antelope bitterbrush, have significantly increased ($P>0.05$) between 1982 and 2009 as have the opportunistic rabbitbrush and Ephedra, which were not present in 1982. Juniper is also encroaching at this site. Figures 29 and 30 display the changes in species occurrences from 1982 to 2009.

Figure 29 – Frequency Transect LW13 - Grasses

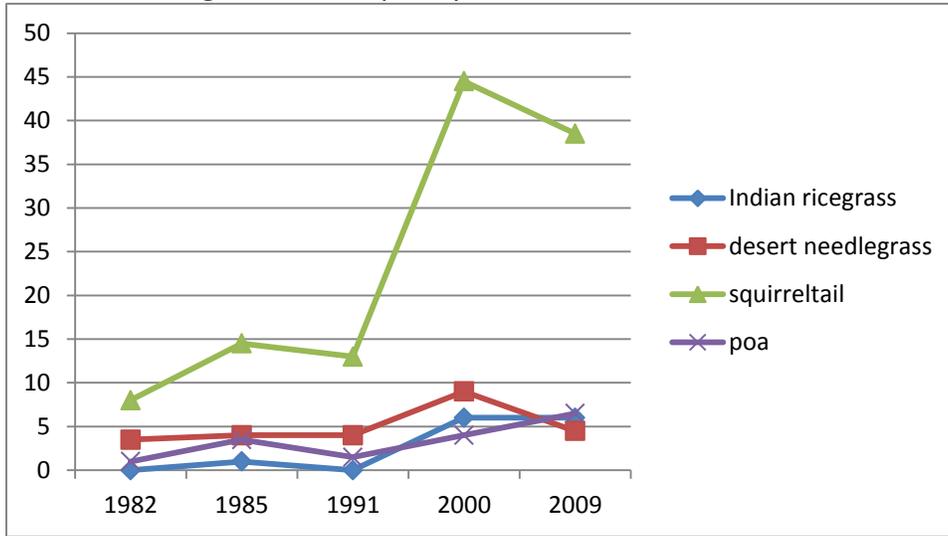
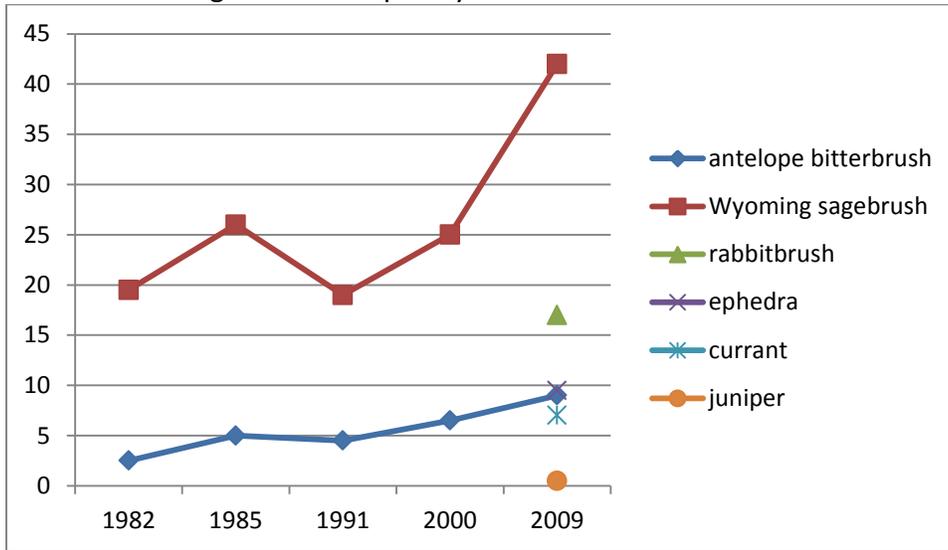


Figure 30 - Frequency Transect LW13 - Shrubs



There have been some significant changes in vegetation since the plot was established. Indian ricegrass and antelope bitterbrush have increased, but so has squirreltail, which is an opportunistic increaser. Sagebrush has increased in an already brush dominated site, and juniper has established in the site for the first time. The trend was recorded as upward.

Frequency Transect DS03 – Dogskin Pasture



DS03 is at the north end of the Dogskin Pasture (T24N, R19E, Section 26) on about a 15 percent slope. A 40 inch frame size has been used for all plant species. The key area has 20 transects with 10 quadrats per transect for a total of 200 presence or absence frames. The Reference State potential vegetative composition by weight for this location (026XY046NV) is 55 percent grasses (Thurber’s needlegrass, western needlegrass with minor components of Indian ricegrass and Poa) and 35 percent shrubs (mountain big sagebrush, antelope bitterbrush with minor components of rabbitbrush, Ephedra and currant). The site had heavy horse use from 1986 to the gather in 2005. The site was outside of the heavy horse use area in 2011 and 2012. Table 41 shows the percentage of the 200 quadrats in which species occurred.

Table 41 - Frequency Transect DS03

Species	1993	1999	2009
Thurber’s needlegrass	25	21.5	22.5
western needlegrass	9.5	6	0
squirreltail	66	56.5	55.5
Poa	39	51.5	59
oniongrass	1	0	6.5
crested wheatgrass	0.5	0.5	0
mountain sagebrush	29.5	24	42.5
rabbitbrush	51.5	52	48
currant	2	1	5
spineless horsebrush	3	3.5	4
antelope bitterbrush	1.5	2	3

All values were compared to the baseline data collected in 1993. Thurber's needlegrass presence has remained relatively constant while western needlegrass declined significantly ($P>0.05$) between 1993 and 2009 as has the opportunistic grass, squirreltail. Poa, which is a minor component in the Reference State, increased significantly ($P>0.05$). Together, Poa and squirreltail are the dominant grasses on the site. The Reference State shrub, mountain big sagebrush, has significantly increased ($P>0.05$) between 1993 and 2009 while rabbitbrush, which increases under disturbance, has decreased. Figures 31 and 32 display the changes in species occurrences from 1993 to 2009.

Figure 31 - Frequency Transect DS03 - Grasses

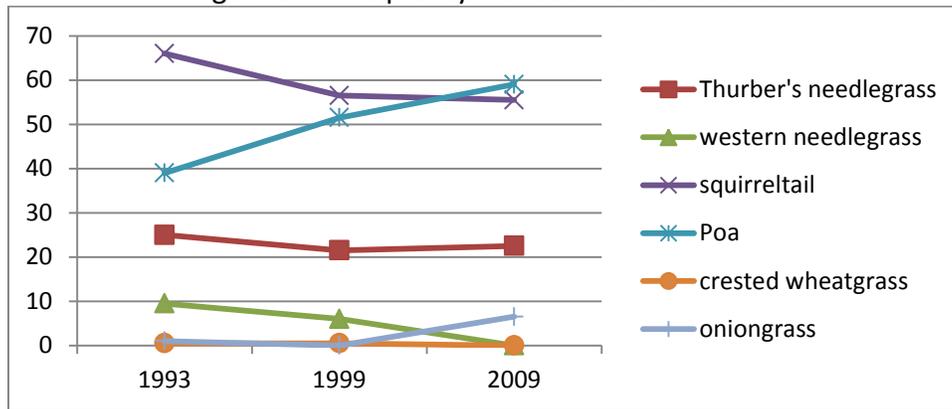
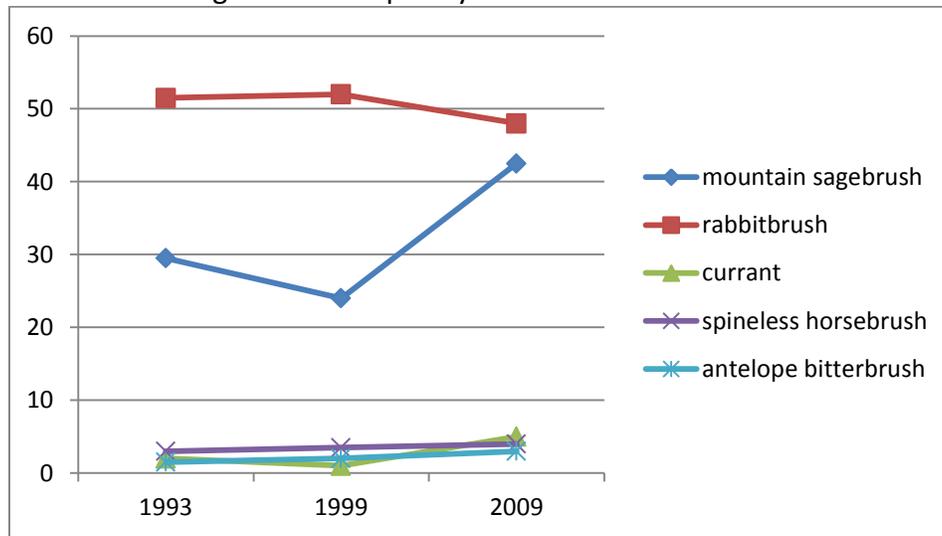


Figure 32 - Frequency Transect DS03 - Shrubs



There has been little net vegetative change since the transect was established. The trend was recorded as static.

Photo Plot PC03 - Dogskin Pasture



PC03 is located towards the north end of the Dogskin Pasture (T 24N, R 19E, Section 35) on about a 25-30 percent slope. The Reference State potential vegetative composition by weight for this location (026XY018NV) is 50 percent grasses (desert needlegrass and Thurber’s needlegrass) and 45 percent shrubs (antelope bitterbrush, Wyoming big sagebrush, spineless horsebrush). Table 42 displays the plant species within this plot from 1975 to 2009.

Table 42 - Photo Plot PC03

Year	1975	1979	1984	1999	2009
desert needlegrass	4	2	4	1	5
Thurber’s needlegrass		2		9	2
Nevada Ephedra	1	1	1	1	1
rabbitbrush				1	1

The Reference State grasses continue to be present. The shrub presence has increased by one minor component shrub (rabbitbrush) since the plot was initiated. There is big sagebrush and antelope bitterbrush on the site but not in the plot.

There has been little vegetative change in the plot since it was established. However, Thurber’s needlegrass showed a substantial increase in 1999 and then a sharp decline in 2009. The current trend is downward, but the long-term trend, compared to the baseline data, is static.

Riparian/Stream Habitat

One riparian assessment was conducted at Settlemeyer Spring north of Photo Plot PCO3 (see Map 8) with a finding of “Functional-At Risk” and no apparent trend. The spring source was pipe fenced to protect it from wild horses, and the riparian area appears to have contracted. Surface flow patterns had been disturbed by hoof action prior to fencing in 1963. There was not a diverse age-class distribution of vegetation or a diverse composition of riparian vegetation due to missing obligate species. The fence is deteriorating with the concrete exposed around posts at the lower end of the enclosure. The riparian area was dewatered by a pipeline and trough and invasive species were present.

Conclusions for the Dogskin Pasture

- The Functional/Structural groups in the pasture do not show the desired balance between deep rooted perennial bunchgrasses, annual grasses and forbs, and shrubs. There is an increase in shrub and juniper cover throughout much of the pasture. Invasive species, such as cheatgrass, are affecting the “Biotic Integrity” at RLHAs #5 and #6.
- Heavy horse use also occurred from 1986 to the gather in 2005. Heavy horse use was recorded again in 2011 and 2012.
- The pasture is scheduled for use by cattle each year from July 16 to October 15. It is used by wild horses continuously.
- Actual cattle use for the pasture was below permitted use for eight of the thirteen years of the evaluation period and for three of those years, there was no use. However, there still were five years when actual use was above permitted use by between 10 and 26 percent.
- The riparian assessment at Settlemeyer Spring was “Functional-At-Risk”.
- Drought conditions have contributed to the decline in vegetative conditions.

Recommendations for Dogskin Pasture:

To reduce the impact of grazing on the key species and the Functional/Structural groups in the pasture, consider implementing the following actions.

- Change the season of use to exclude the growing season to prevent plant disturbance and promote deep rooted perennial grass reproduction.
- Change the pasture rotation to rest one pasture completely each year.
- Reduce the stocking rate to the current carrying capacity.
- Revegetate the pasture using herbicide to reduce cheatgrass and seeding the perennial bunchgrasses most likely to establish.
- Evaluate the efficacy of shrub treatment to encourage growth of deep rooted perennial bunch grasses.
- Maintain horses at AML in the Dogskin HMA.

VI. SUMMARY SOIL EROSION ACROSS ALL PASTURES

The Allotment was comprehensively studied in the early 1980s as part of the Reno Grazing Environmental Impact Statement (BLM. 1982). The area was found to have soil erosion due to flooding and the recommendation was to revegetate the area. Eight rangeland health assessments conducted throughout the Allotment in May and June of 2009 found the overall departure from expected Soil / Site Stability to be “None to Slight” for the Allotment. Within that overall rating, some areas had “Slight to Moderate” or “Moderate” departures from what was expected for some indicators relative to the NRCS reference sites. Evidence of soil erosion and/or lack of soil stability was found at five of the eight sites where assessments were conducted in 2009. Those findings are summarized in Table 43. Three additional assessments (Virginia PMUs 13, 16 and 24) were conducted in September and October, 2012 in the Tule Pasture. Virginia PMU 24 showed a “None to Slight” departure from the expected Soil / Site Stability. Virginia PMU 13 showed a “Slight to Moderate” departure, and Virginia PMU 16 showed a “Moderate to Extreme” departure. Departures for specific indicators are also included in Table 43.

Table 43 - Rangeland Health Indicators

Rangeland Health Indicators for Soil / Site Stability *												
Pasture	Plot	RLHA #	Indicators by number									
			1	2	3	4	5	7	8	9		
Shovel Springs	S01	1	SM							SM	SM	1 - Rills 2 - Water Flow Patterns 3 - Pedestals and/or Terracettes 4 - Bare Soil 5 - Gullies 7 - Litter Movement 8 - Soil Surface Resistance to Erosion 9 - Soil Surface Loss or Degradation
Shovel Springs	SS01	2										
Hungry Valley	HV02	3		M				SM	SM			
Hungry Valley	HV01	8			SM	SM						
Warm Springs	PC02	4										<u>Departures from Reference Site</u> Blank = None to Slight SM = Slight to Moderate M = Moderate ME = Moderate to Extreme E = Extreme to Total
Dogskin	P154	5										
Dogskin	PC03	6								SM		
Tule	DV02/ PC01	7								SM		
Tule	Virginia PMU	13									ME	
Tule	Virginia PMU	16			SM						ET	
Tule	Virginia PMU	24									M	

* Indicator #6, Wind-Scoured, Blowouts, and/or Deposition Areas; and Indicator #11, Compaction Layer, were not assessed in 2009.

As the table above shows, there are issues with the ability of the existing vegetation to hold the soil in place.

VII. ALLOTMENT CONCLUSIONS AND RECOMMENDATIONS

Conclusions

Grazing, fire, recreational use and wild horse use are all disturbance factors that have led to loss of desired ecological condition on the Allotment.

Past grazing use of the Allotment, prior to the 1999 Modification of the AMP and documented in the 1988 Allotment Evaluation, was heavy throughout large areas of the Allotment. Conditions have been exacerbated by large fires, OHV use, and drought conditions. The 1999 AMP revision was an attempt to reverse the prevalent downward trend. Reduction in AUMs and the development of a pasture rotation system helped with livestock distribution and use, but the loss of desired ecological condition persists.

The Functional/Structural groups in the Allotment do not show the desired balance between deep rooted perennial bunchgrasses, annual grasses and forbs, and shrubs. Deep rooted perennial bunch grasses are underrepresented.

Vegetation over much of the Allotment is dominated by cheatgrass and annual weeds. Forty-two production plots were read in 2013. Thirty plots showed no perennial grass production, and 35 plots showed no production for key, deep rooted perennial grasses. The overall average perennial grass production for the 42 plots was 60 pounds per acre.

Juniper encroachment is occurring throughout the higher elevations of the Allotment. This is a particular concern within greater sage-grouse habitat.

Rangeland health assessments show varying departures from Reference State conditions. Overall, departure from expected Soil / Site Stability was “None to Slight” but most areas showed some departures in specific rangeland health indicators.

Forage utilization has improved under the 1999 grazing system, and since 2000, actual use by pasture has been below permitted use for most years. There were exceptions. Heavy use areas have been substantially reduced since implementation of the 1999 AMP modification. Most of the heavy use now is within the Dogskin and Tule pastures. The heavy use in Tule Pasture is mostly associated with springs and riparian areas and some of the more gentle slopes. Heavy to severe hedging on browse species such as antelope bitterbrush still occurs in some areas. Moderate use areas have also been reduced, but the 55 percent allowable use level has not been accompanied by key forage plants recovery. Northern pastures are used at the same time each year with no rotation. The Dogskin Pasture continues to receive heavy use, in part, because of the wild horse herd, which essentially doubles every four to five years. This situation makes it impossible to rest or defer use in this pasture.

The riparian assessments in the northern pastures showed only one system in “Proper Functioning Condition”.

The following addresses the objectives shown in Section IV- Allotment Objectives:

- Ecological conditions have not improved.
- Most use has been limited to 55 percent or less, but localized heavy use occurs. The allowable 55 percent use has not allowed key species to recover.
- Livestock distribution has improved.
- The Allotment has been managed for 4,200 AUMs. Total actual use for the Allotment has been less than permitted use during this evaluation period. Actual use within pastures has, at times, been higher than authorized use.
- Specific revegetation efforts to improve forage conditions have not been done. Some large fires were reseeded with limited success.
- Habitat conditions for deer and antelope have not been thoroughly assessed. In general, habitat conditions have not improved.
- Use on antelope bitterbrush has varied depending on location. Specific studies have not been done.
- Some riparian areas have been protected.
- Use on meadows within greater sage-grouse habitat has not been specifically monitored, but recent livestock utilization surveys show that it ranges from slight to heavy. Virginia PMU RLHAs showed substantial departures from reference site conditions.
- Aspen stands have not been specifically assessed.
- The wild horse herd continues to be maintained at the objective 10 to 15 head. Twenty head were removed in January 2012.

Recommendations

- Reduce the livestock stocking rate.
- Reduce the allowable use on key forage plants (Holechek, J. L., et. al. 1999). Higher use levels should only be used to achieve specific management objectives. Eliminate the heavy use prescription on crested wheatgrass in Fall Pasture and set a 55 percent allowable use, provided, use remains outside of the growing season.
- Change the pasture rotation to provide rest and/or additional deferment during the growing season.
- Conduct detailed spring assessments to evaluate the contribution of livestock grazing to the deteriorated condition of the springs. Based on the spring assessments, evaluate alterations in livestock grazing to avoid livestock impact on springs in conjunction with range improvements needed to protect the springs.
- If funding allows, move the troughs on exclosed springs so that water draining from the trough flows back into the spring enclosure.
- In the northern portions of the Allotment, evaluate the efficacy of shrub treatment to encourage growth of deep rooted perennial bunch grasses.
- Evaluate the feasibility of providing water on the west side of the pastures to improve cattle distribution.

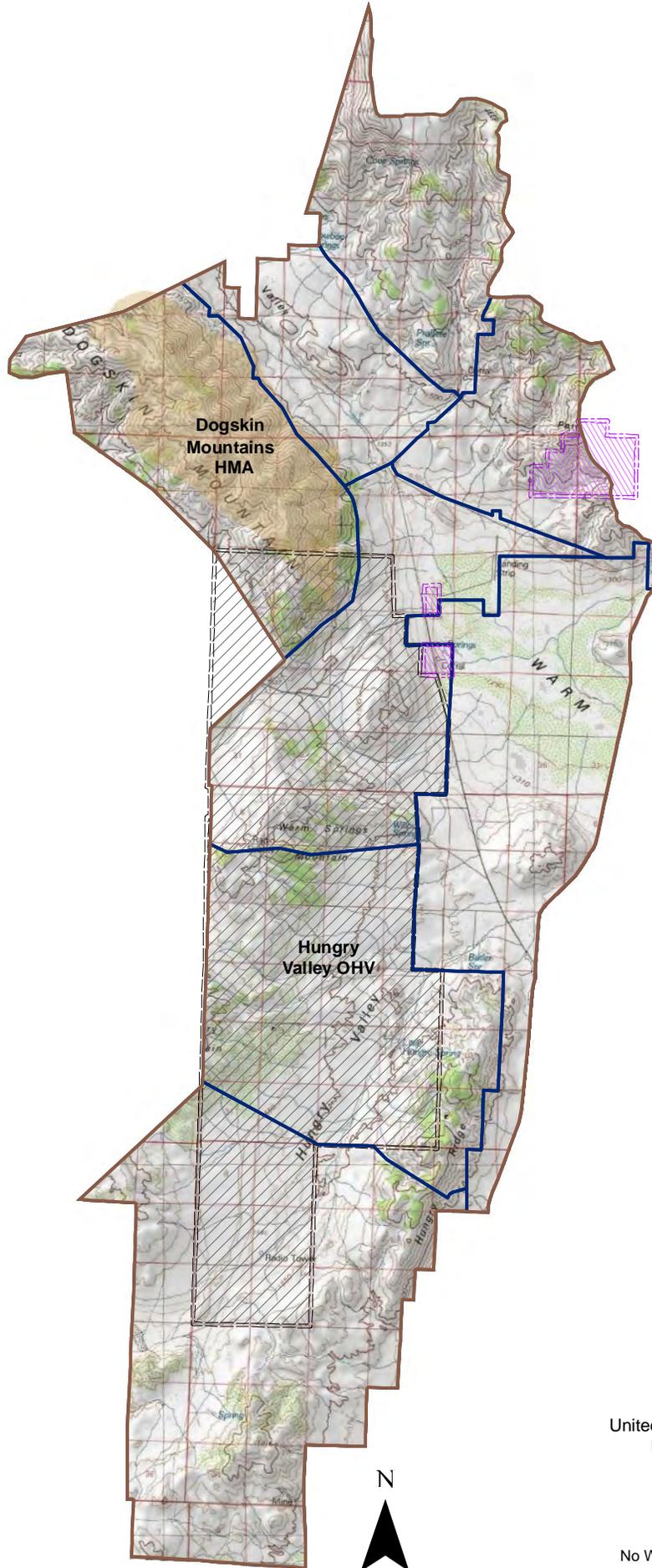
- Treat juniper where it has expanded beyond its characteristic range, particularly in greater sage-grouse habitat.
- Consider reseeding the pastures with perennial bunchgrasses.
- Consider methods to reduce cheatgrass.
- Maintain horses at AML in the Dogskin HMA.

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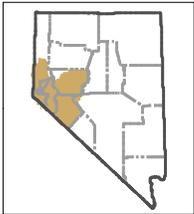
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Map 1 Special Designated Areas - Paiute Canyon Allotment



Carson City District



Paiute Allotment



Legend

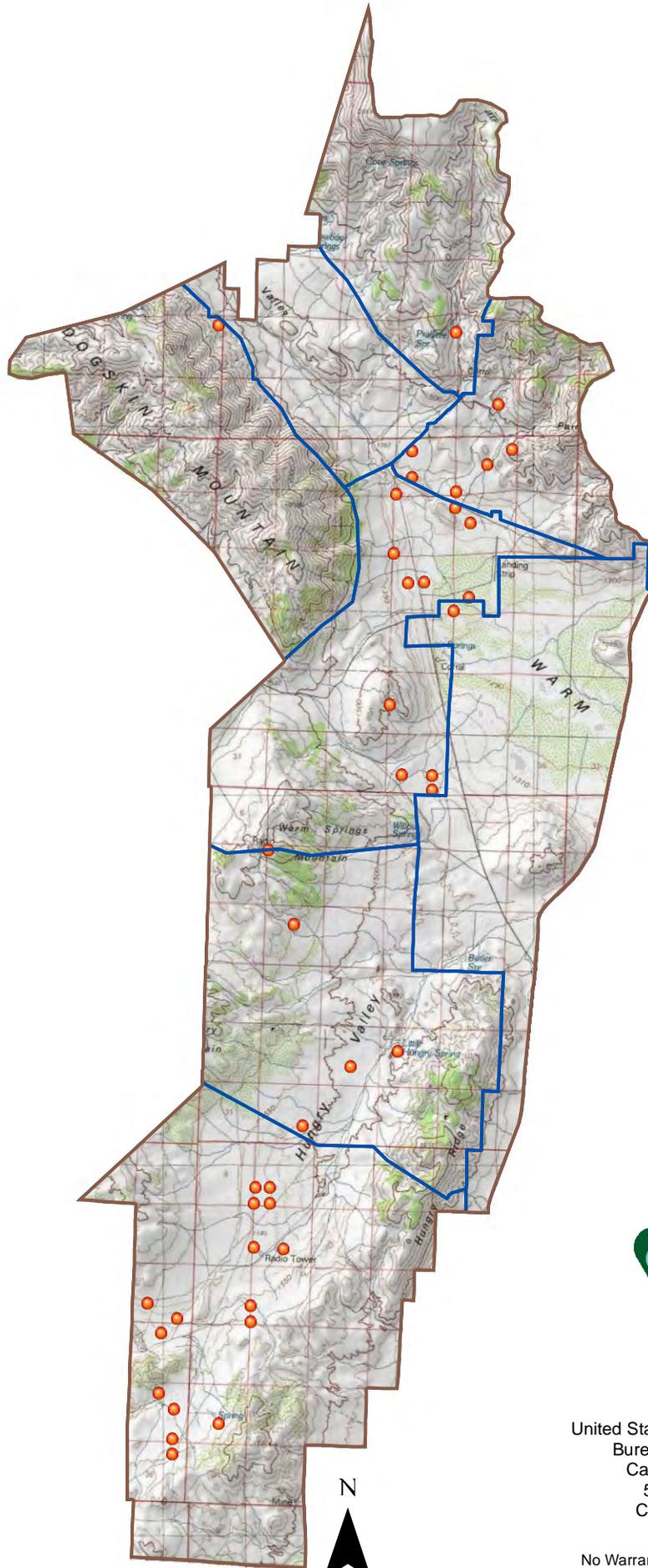
-  Paiute Allotment
-  Area of Critical Environmental Concern
-  Paiute Pastures
-  Hungry Valley Recreation Area
-  Dogskin Mountains Herd Management Area



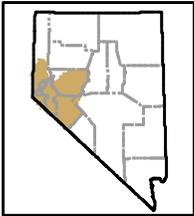
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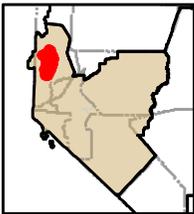
Map 9 Production Points Read in 2013 - Paiute Canyon Allotment



Carson City District



Paiute Allotment



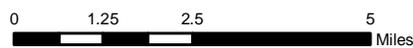
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-  Paiute Allotment
-  Paiute Pastures New
-  Paiute Production Points

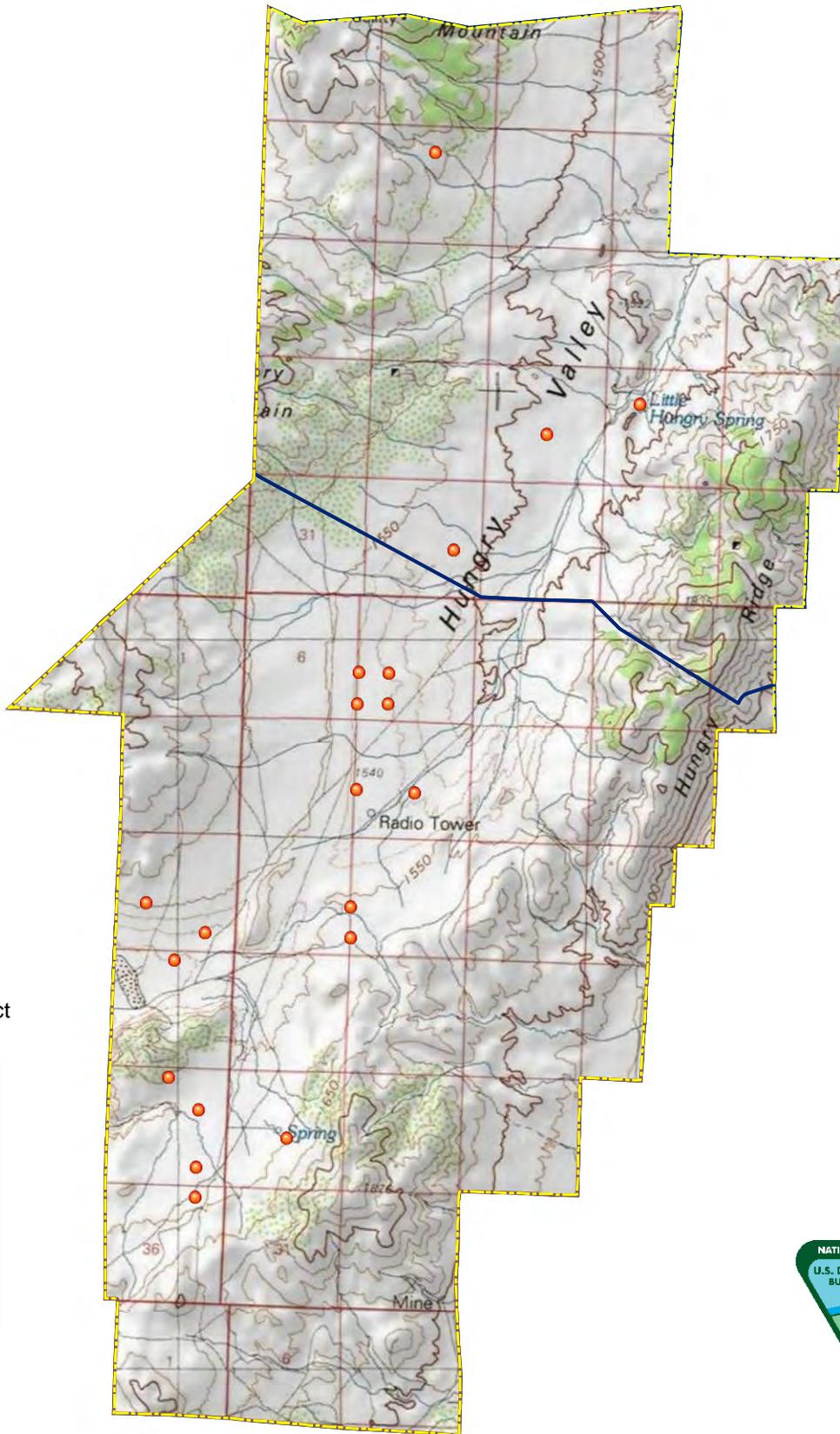


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Map 9 C Production Points Read in 2013 - Paiute Canyon Allotment



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Paiute Allotment



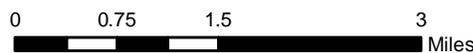
Legend

-  Zone C
-  Paiute Allotment
-  Paiute Pastures
-  Paiute Production Points

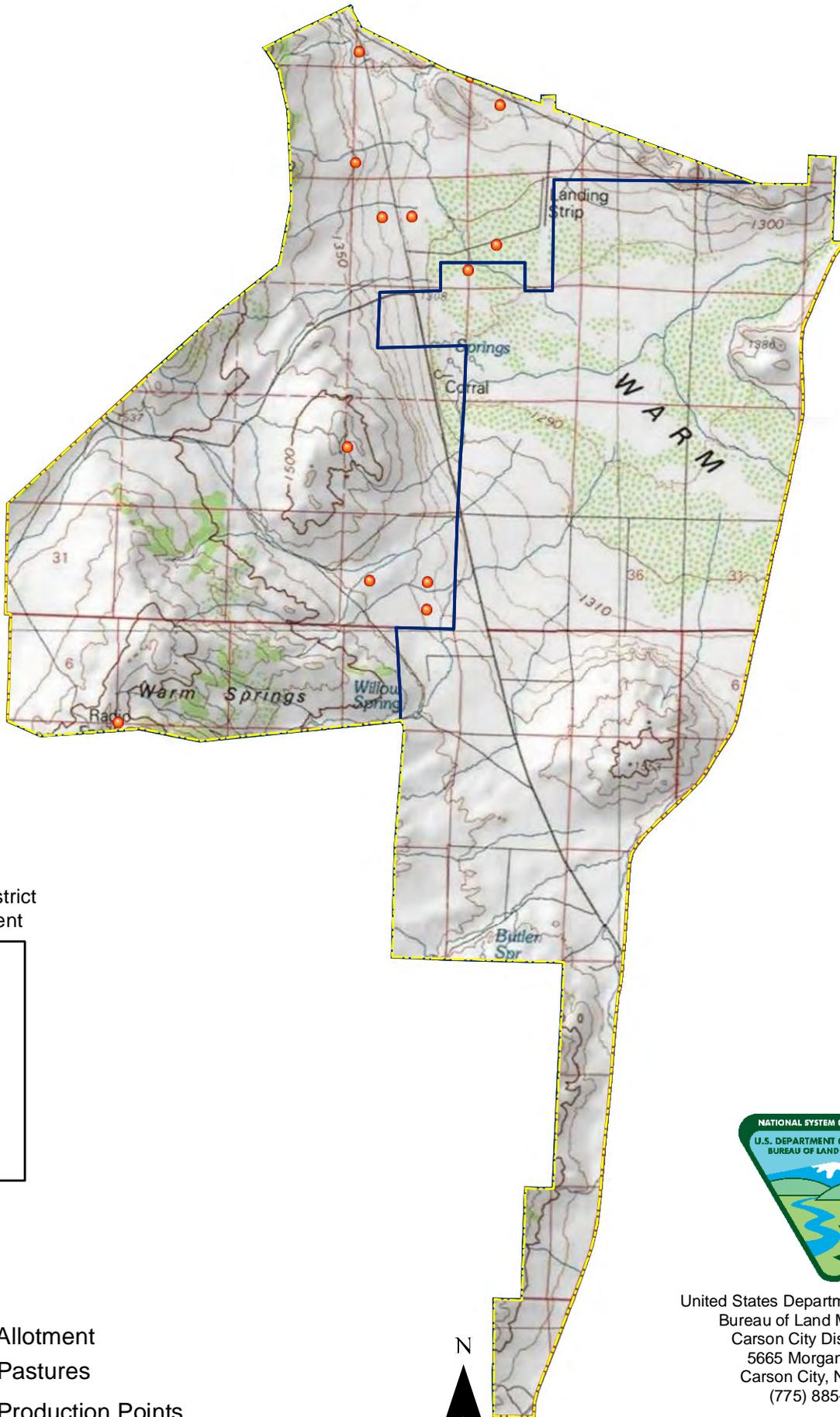


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Map 9 B Production Points Read in 2013 - Paiute Canyon Allotment



Carson City District
Paiute Allotment



Legend

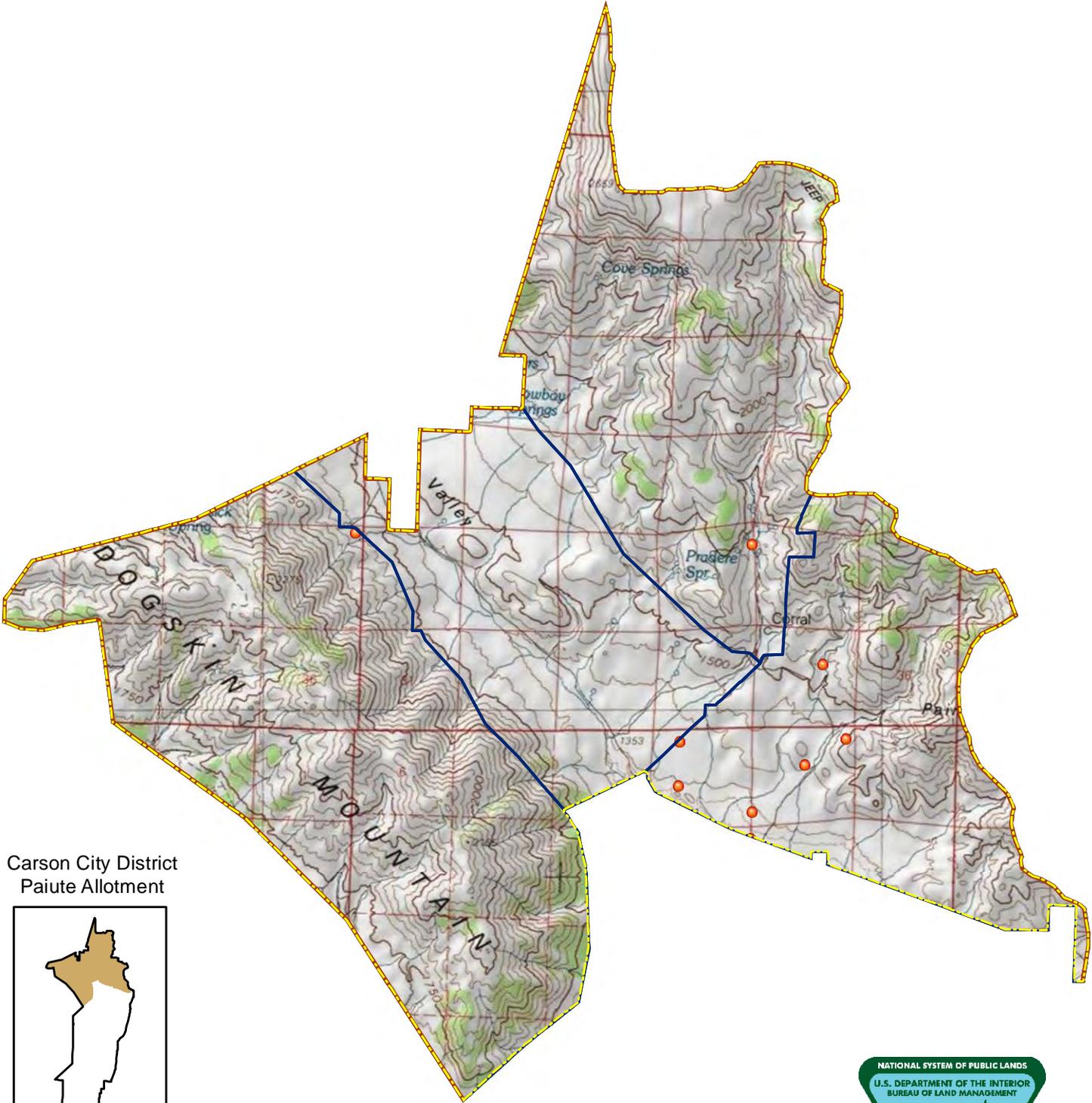
-  Zone B
-  Paiute Allotment
-  Paiute Pastures
-  Paiute Production Points



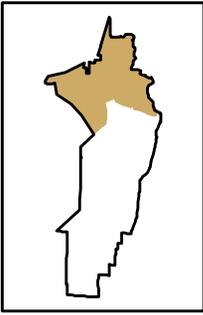
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Map 9 A Production Points Read in 2013 - Paiute Canyon Allotment



Carson City District
Paiute Allotment



Legend

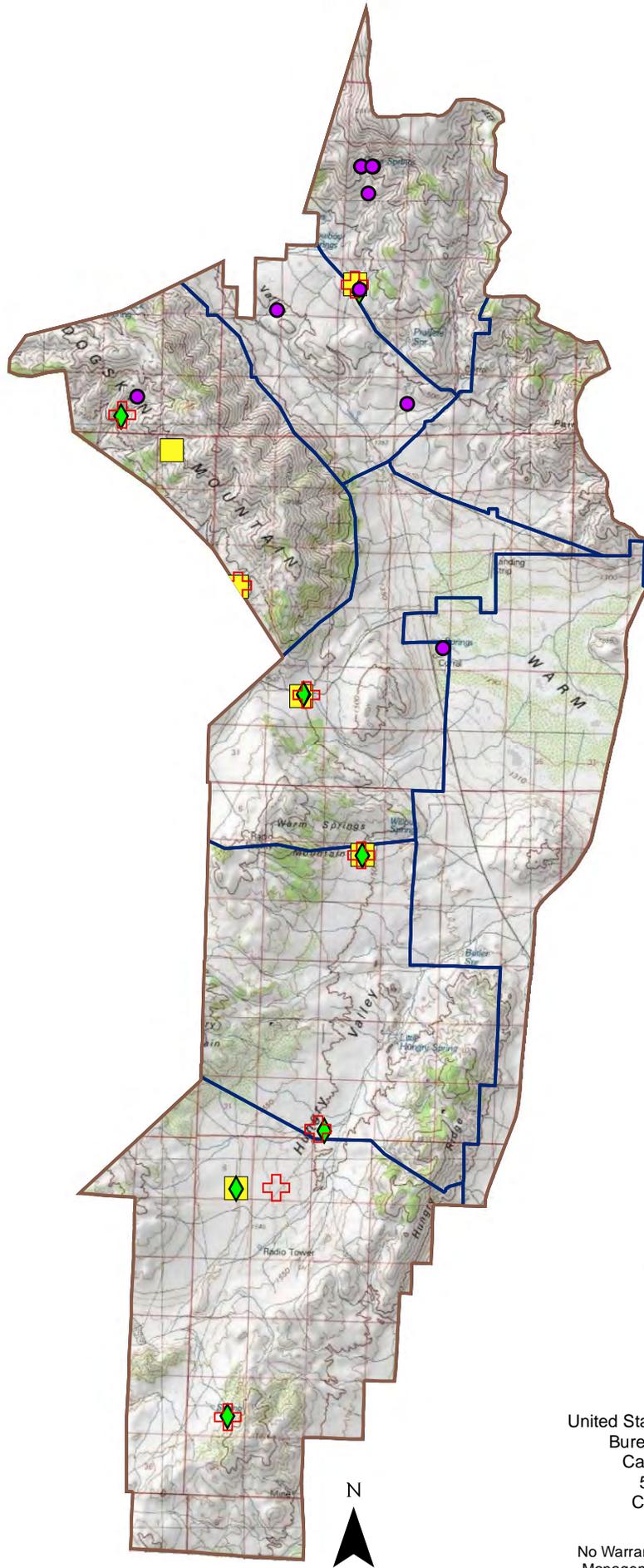
-  Zone A
-  Paiute Allotment
-  Paiute Pastures
-  Paiute Production Points



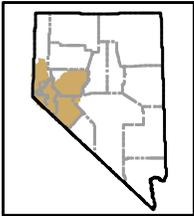
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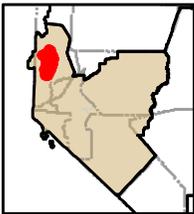
Map 8 Monitoring Sites - Paiute Canyon Allotment



Carson City District



Paiute Allotment



Legend

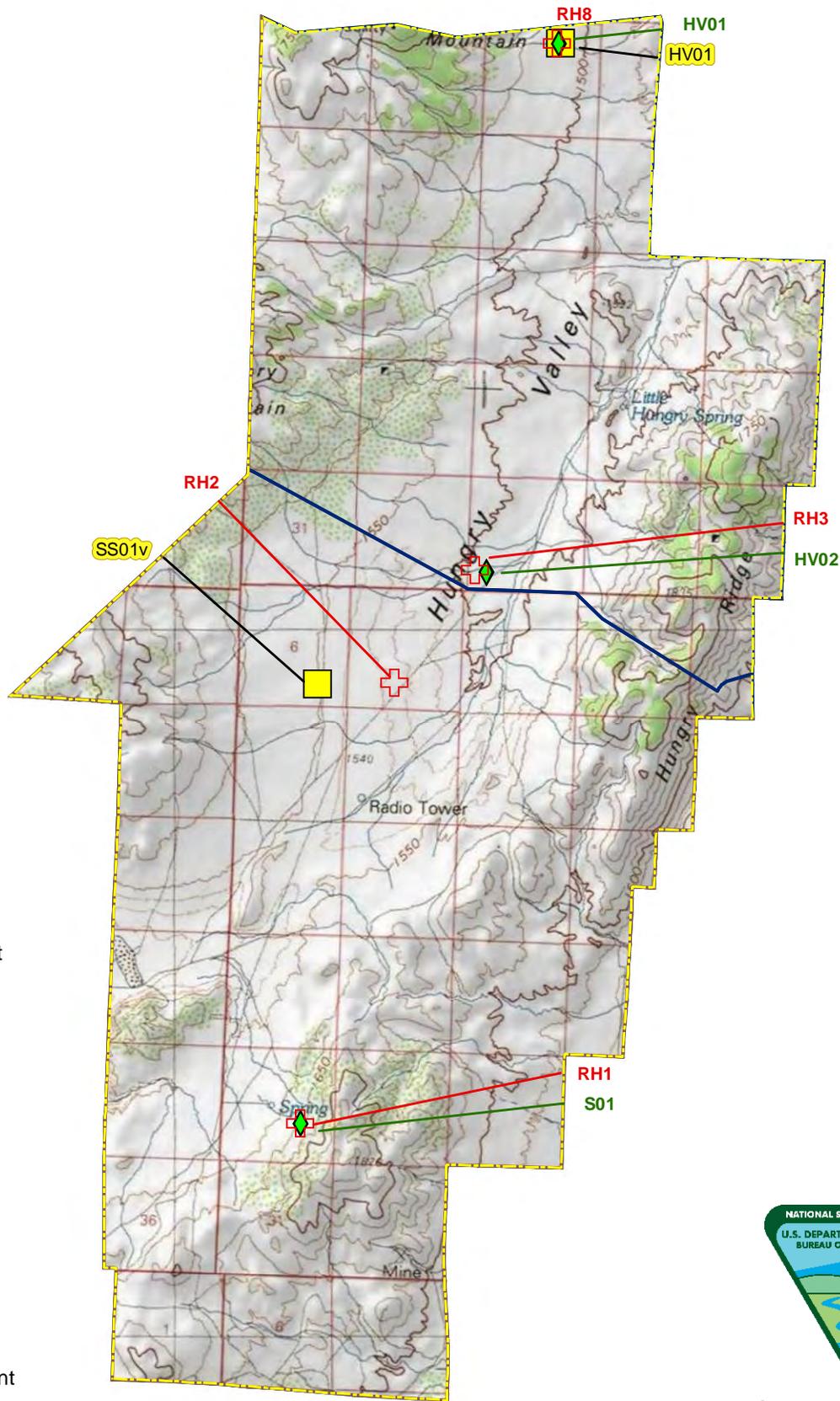
-  Paiute Allotment
-  Paiute Pastures
-  Riparian Assessment
-  Rangeland Health Assessment
-  Photo Trend Plots
-  Frequency Transect Points



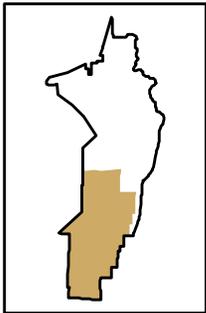
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Map 8 C Monitoring Sites - Paiute Canyon Allotment



Carson City District
Paiute Allotment



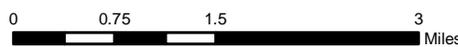
Legend

- Zone C
- Paiute Allotment
- Paiute Pastures
- Riparian Assessment
- Rangeland Health Assessment
- Photo Trend Plots
- Frequency Transect Points

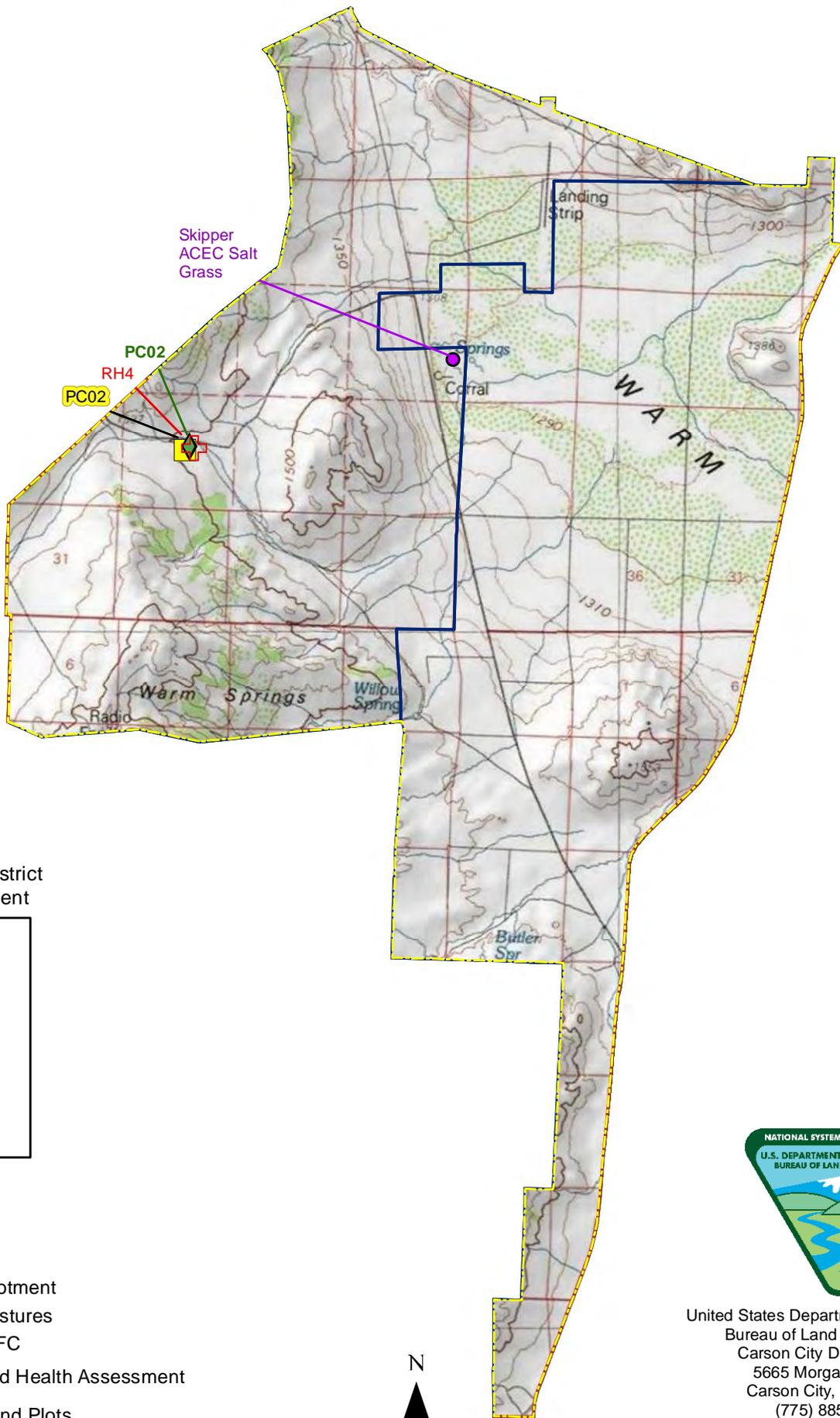


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Map 8 B Monitoring Sites - Paiute Canyon Allotment

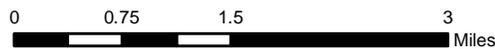


Carson City District
Paiute Allotment



Legend

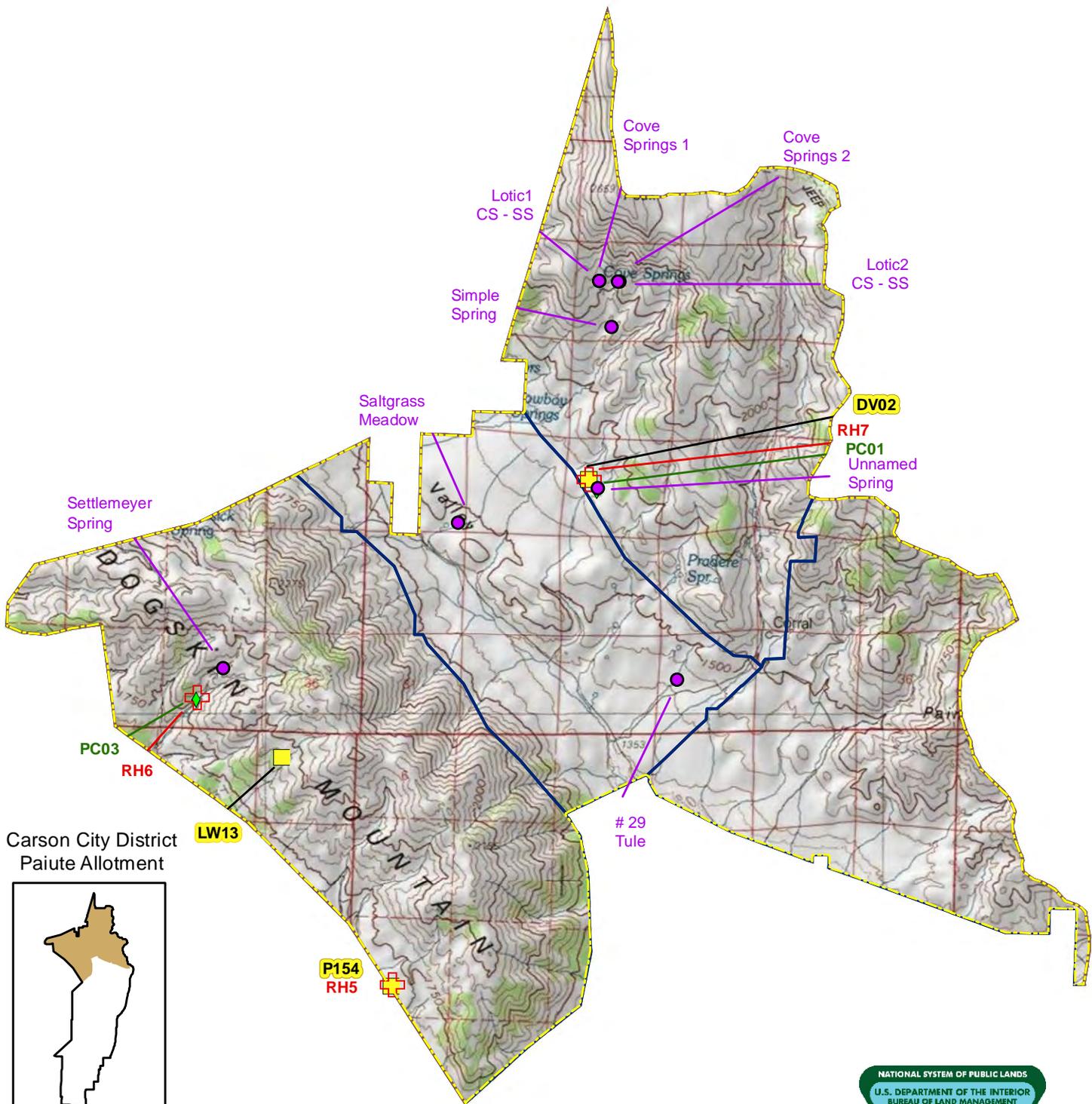
- Zone B
- Paiute Allotment
- Paiute Pastures
- Paiute_PFC
- Rangeland Health Assessment
- Photo Trend Plots
- Frequency Transect Points



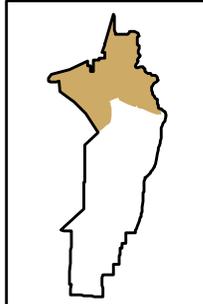
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Map 8 A Monitoring Sites - Paiute Canyon Allotment



Carson City District
Paiute Allotment



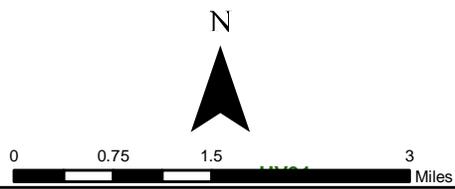
Legend

- Zone A
- Paiute Allotment
- Paiute Pastures
- Riparian Assessment (PFC)
- Rangeland Health Assessment
- Photo Trend Plots
- Frequency Transect Points

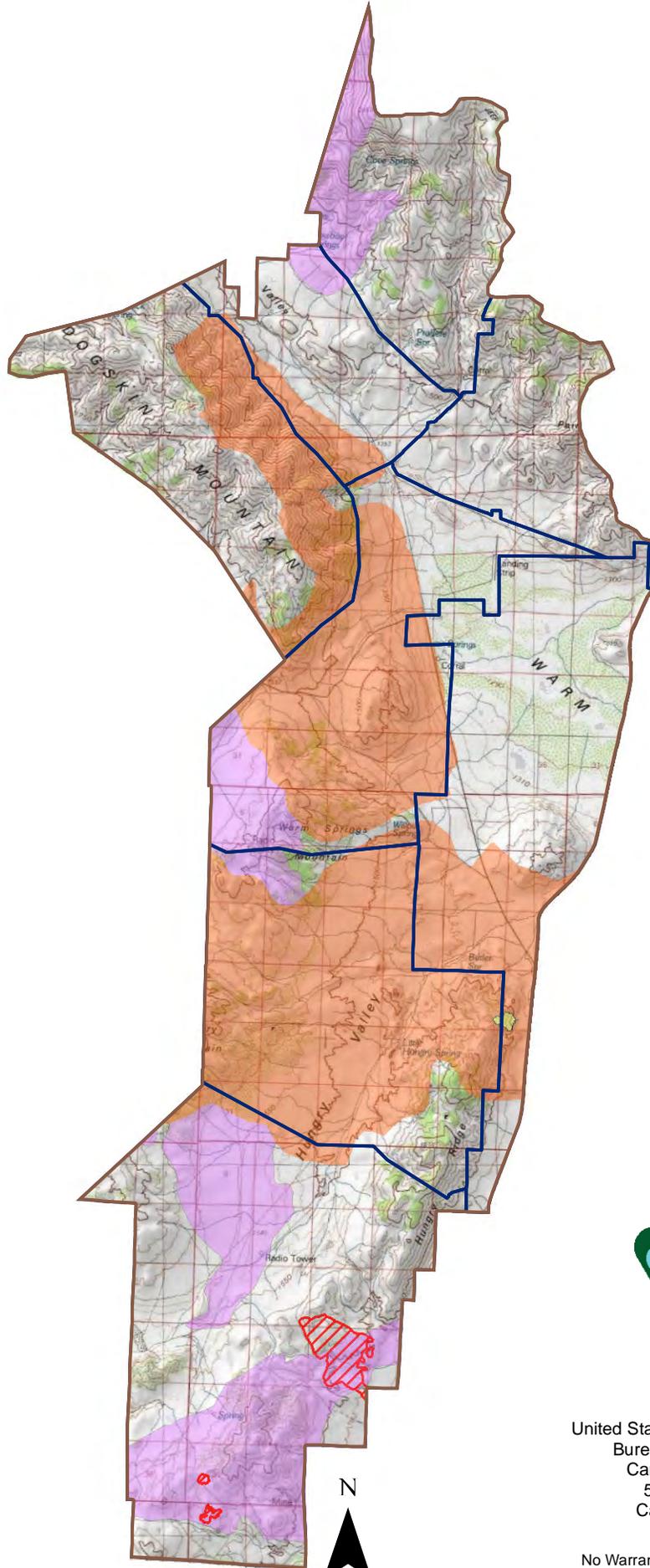


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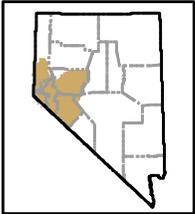
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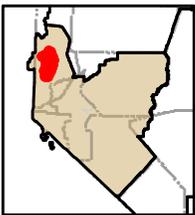
Map 7 Fire History - Paiute Canyon Allotment



Carson City District



Paiute Allotment



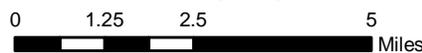
Legend

- Paiute Allotment
- Paiute Pastures
- 2009-2013 Fires
- 2004-2008 Fires
- 1999-2003 Fires
- 1994-1998 Fires
- 1983-1993 Fires
- Before 1983 Fires

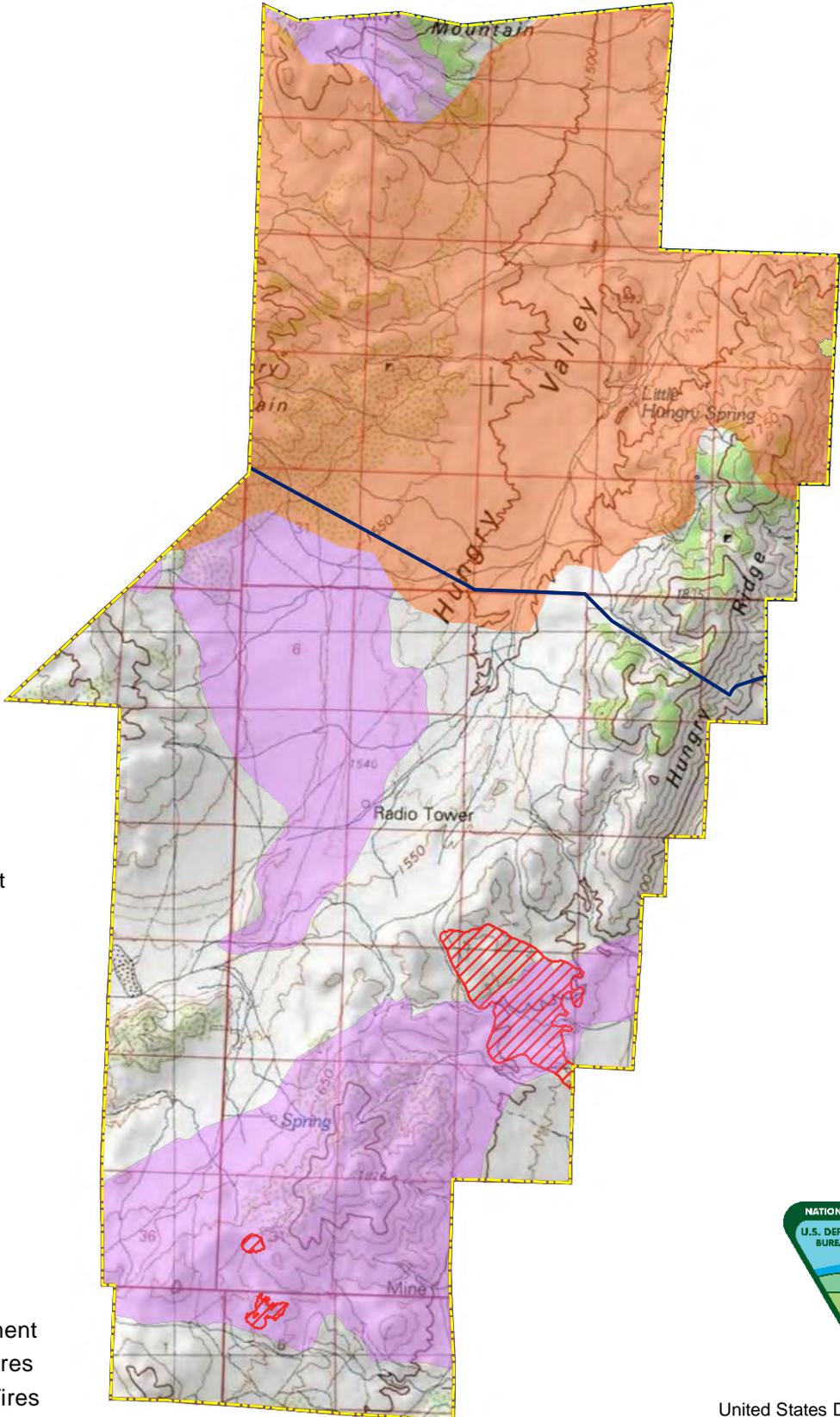


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Map 7 C Fire History - Paiute Canyon Allotment



Carson City District
Paiute Allotment



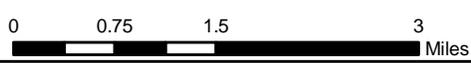
Legend

- Zone C
- Paiute Allotment
- Paiute Pastures
- 2009-2013 Fires
- 2004-2008 Fires
- 1999-2003 Fires
- 1994-1998 Fires
- 1983-1993 Fires
- Before 1983 Fires

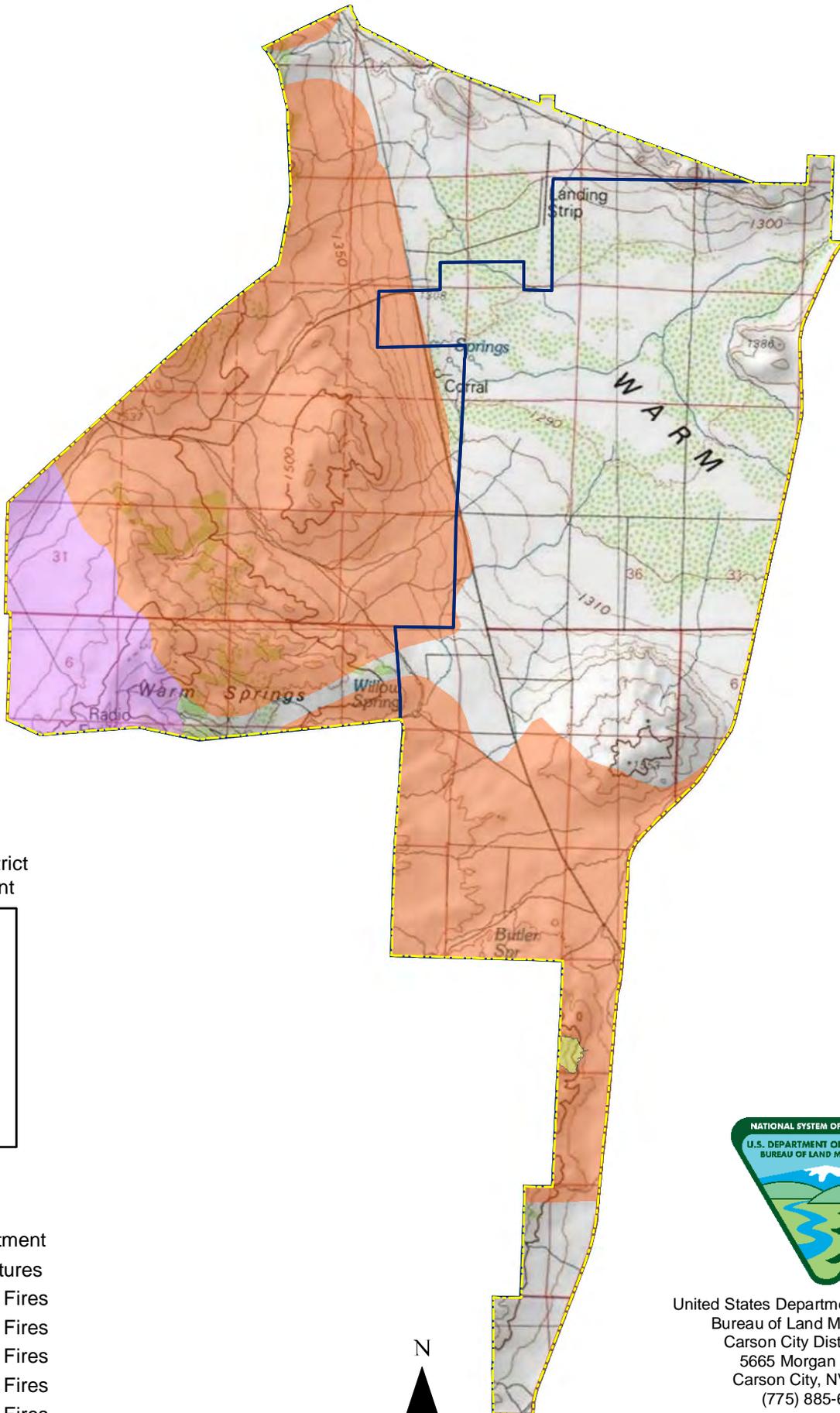


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Map 7 B Fire History - Paiute Canyon Allotment



Carson City District
Paiute Allotment



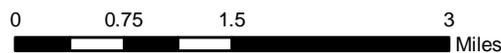
Legend

- Zone B
- Paiute Allotment
- Paiute Pastures
- 2009-2013 Fires
- 2004-2008 Fires
- 1999-2003 Fires
- 1994-1998 Fires
- 1983-1993 Fires
- Before 1983 Fires

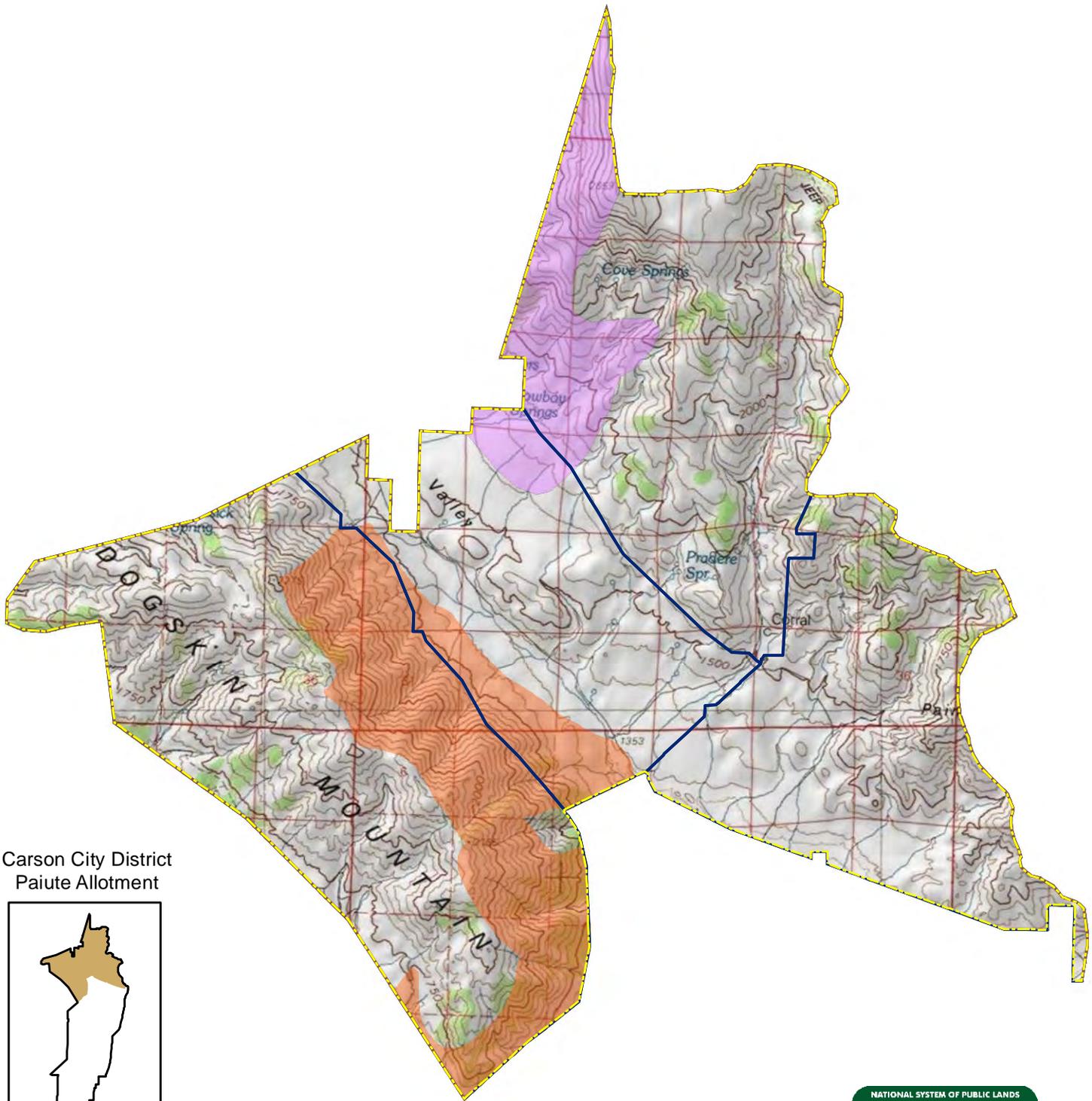


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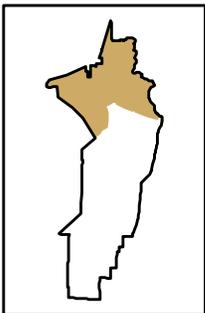
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Map 7 A Fire History - Paiute Canyon Allotment



Carson City District
Paiute Allotment



Legend

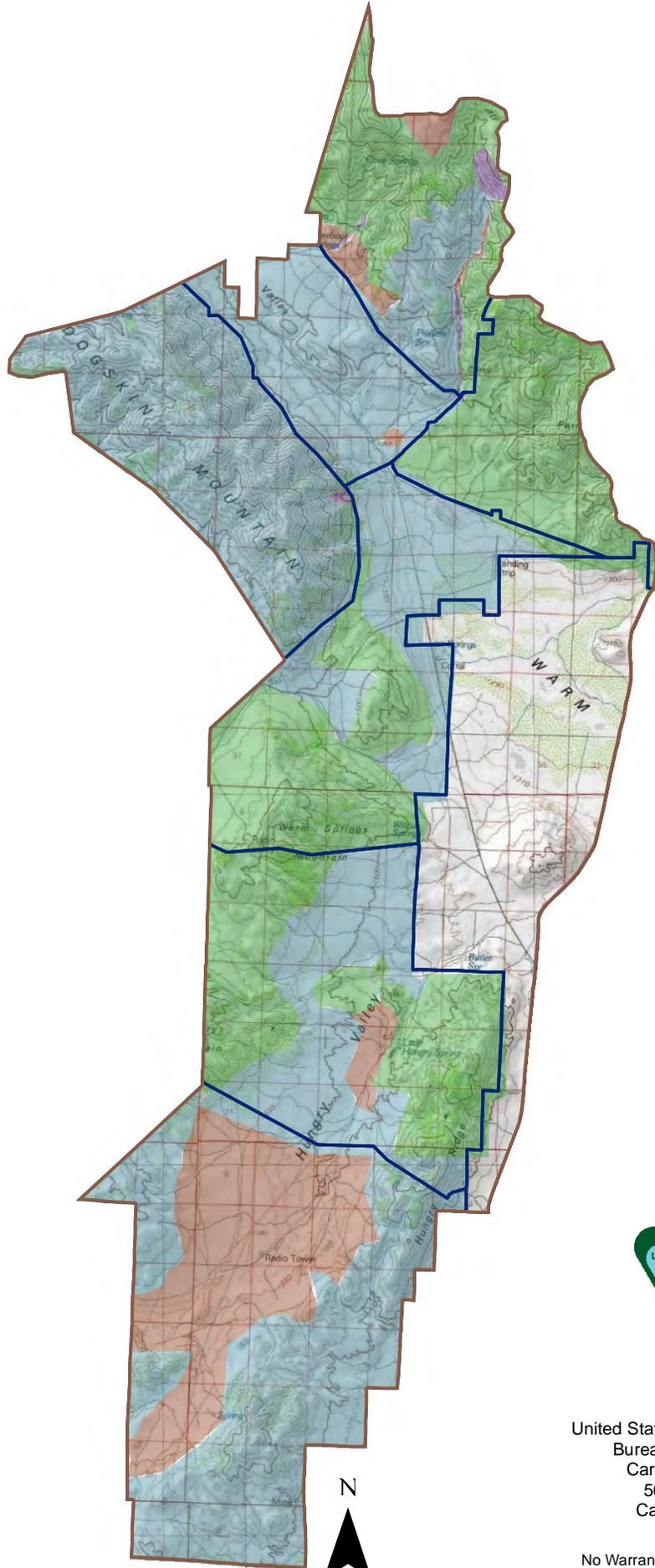
- Zone A
- Paiute Allotment
- Paiute Pastures
- 2009-2013 Fires
- 2004-2008 Fires
- 1999-2003 Fires
- 1994-1998 Fires
- 1983-1993 Fires
- Before 1983 Fires



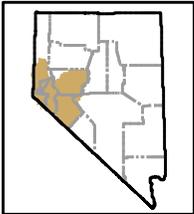
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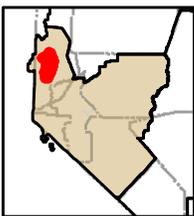
Map 6 2012 Grazing Utilization - Paiute Canyon Allotment



Carson City District



Paiute Allotment



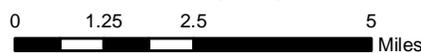
Legend

- Paiute Allotment
- Paiute Pastures
- Heavy Use
- Light Use
- Moderate Use
- Slight Use

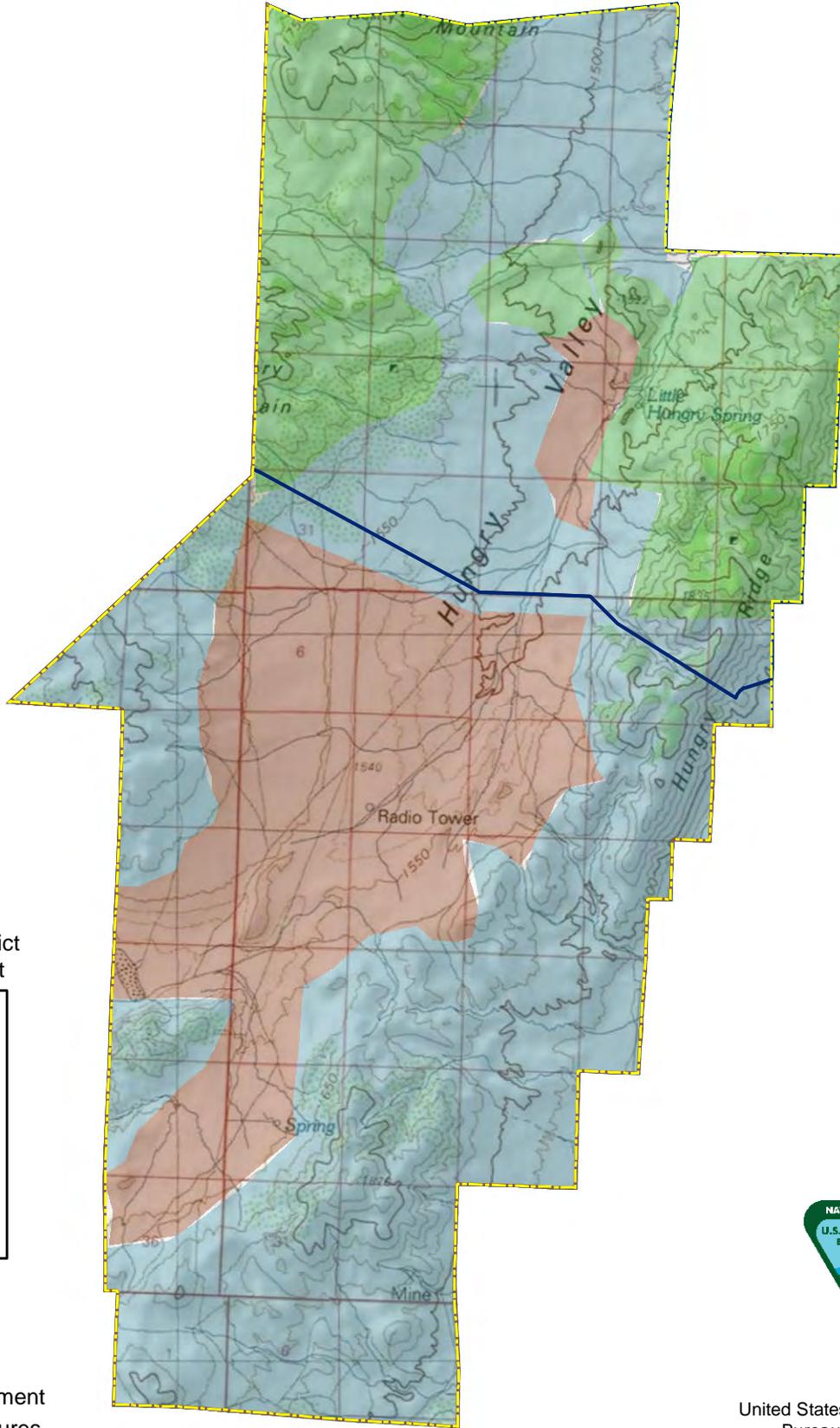


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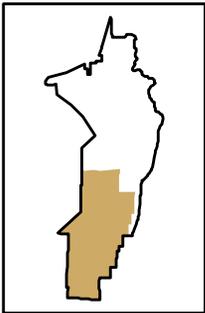
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Map 6 C 2012 Grazing Utilization - Paiute Canyon Allotment



Carson City District
Paiute Allotment



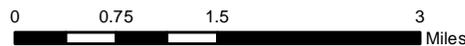
Legend

- Zone C
- Paiute Allotment
- Paiute Pastures
- Heavy Use
- Light Use
- Moderate Use
- Slight Use

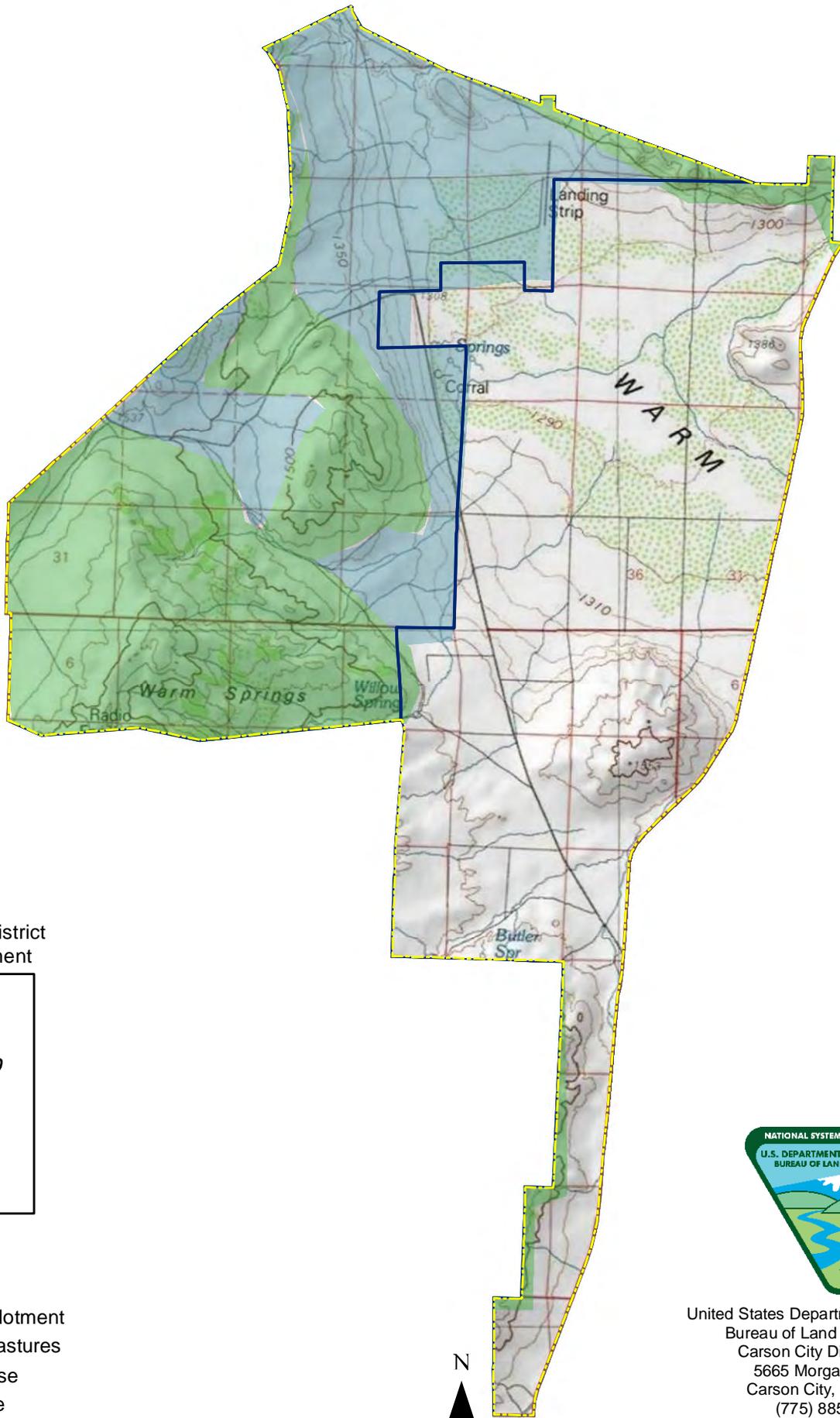


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Map 6 B 2012 Grazing Utilization - Paiute Canyon Allotment



Carson City District
Paiute Allotment



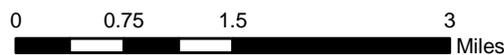
Legend

- Zone B
- Paiute Allotment
- Paiute Pastures
- Heavy Use
- Light Use
- Moderate Use
- Slight Use



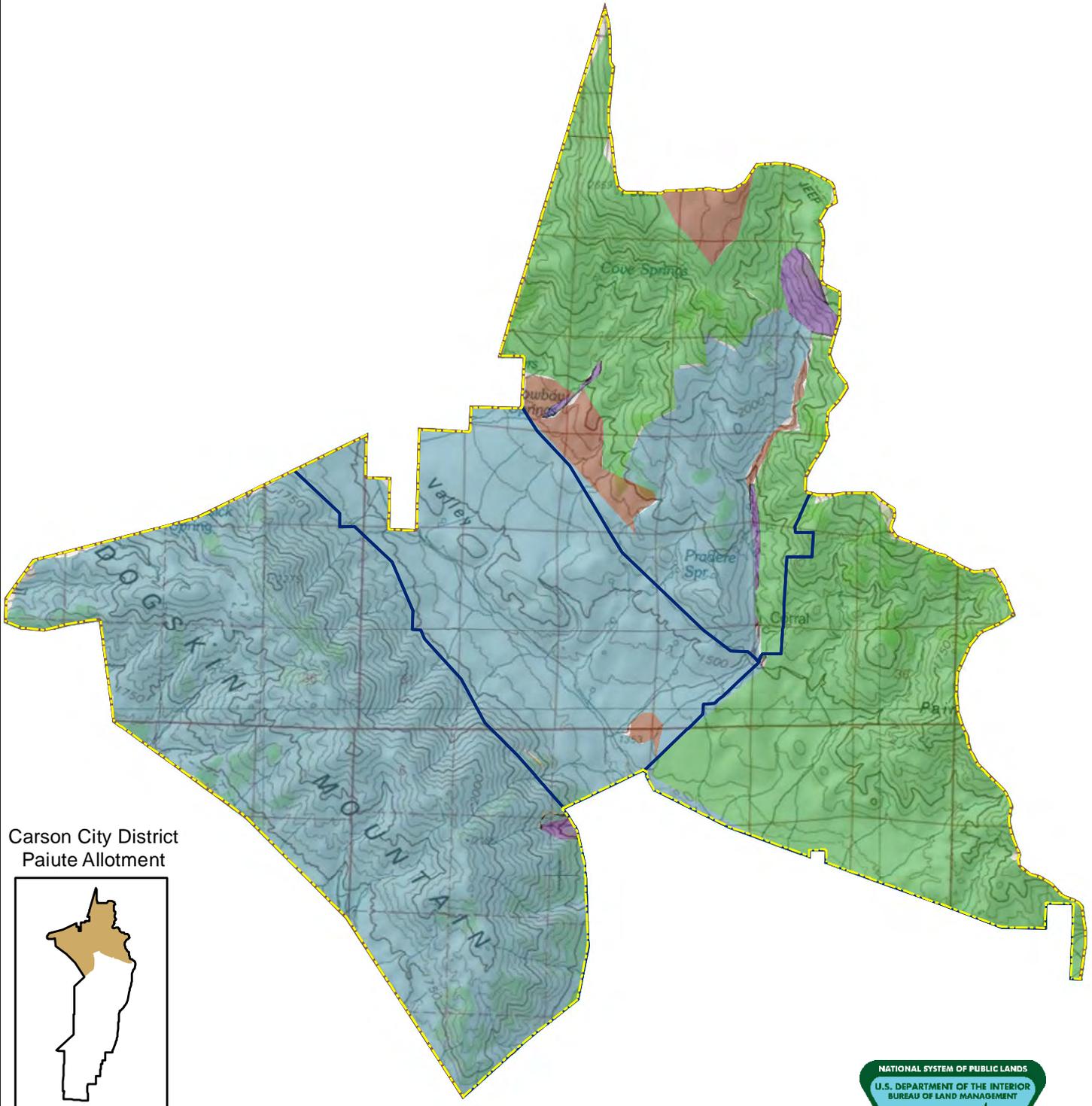
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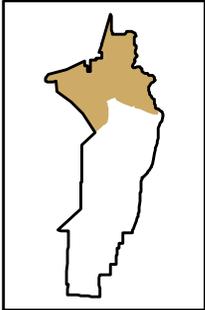


Map 6 A 2012 Grazing Utilization - Paiute Canyon Allotment

BLM



Carson City District
Paiute Allotment



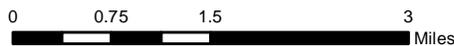
Legend

- Zone A
- Paiute Allotment
- Paiute Pastures
- Heavy Use
- Light Use
- Moderate Use
- Slight Use

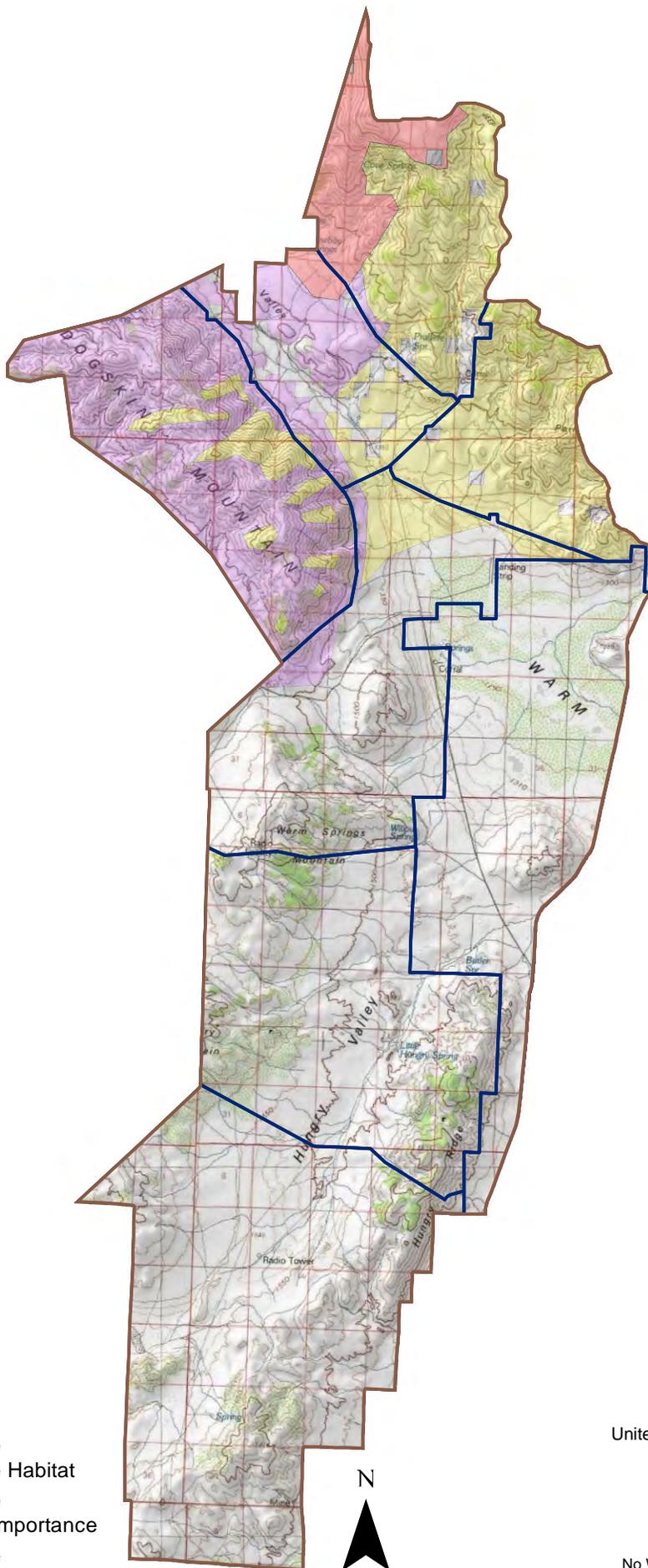


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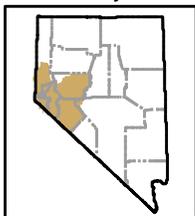
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Map 5 Greater Sage-Grouse Habitats on the Paiute Canyon Allotment



Carson City District



Paiute Allotment



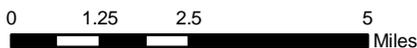
Legend

-  Paiute Allotment
-  Paiute Pastures
-  Greater Sage Grouse Essential/Irreplaceable Habitat
-  Greater Sage Grouse Habitat of Moderate Importance
-  Greater Sage Grouse Low Value/Transitional Habitat

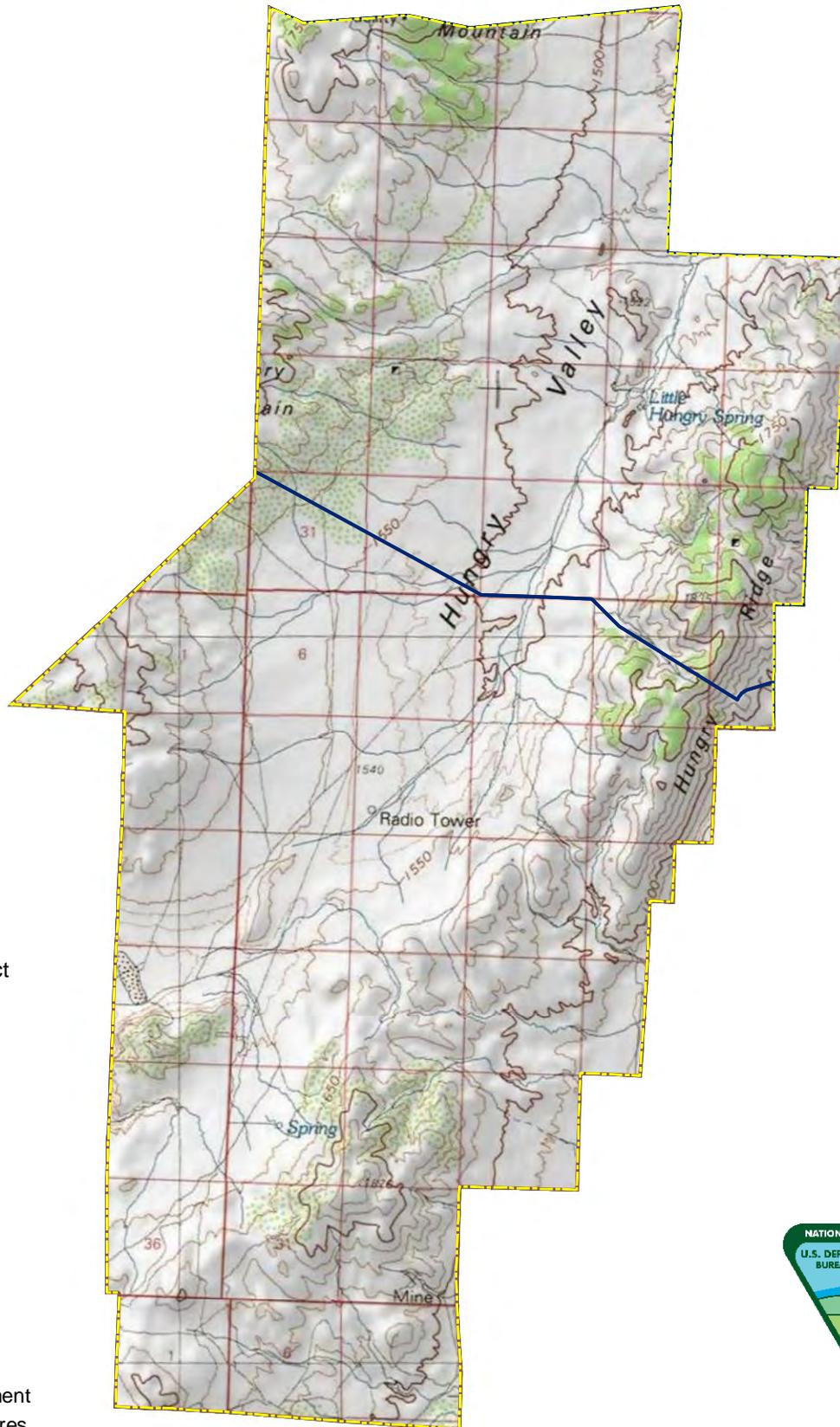


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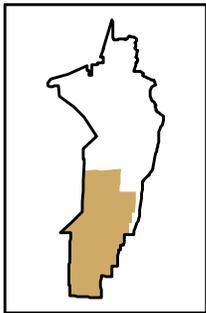
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Map 5 C Greater Sage-Grouse Habitats on the Paiute Canyon Allotment



Carson City District
Paiute Allotment



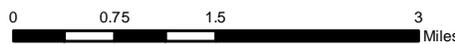
Legend

- Zone C
- Paiute Allotment
- Paiute Pastures
- Greater Sage Grouse Essential/Irreplaceable Habitat
- Greater Sage Grouse Habitat of Moderate Importance
- Greater Sage Grouse Low Value/Transitional Habitat

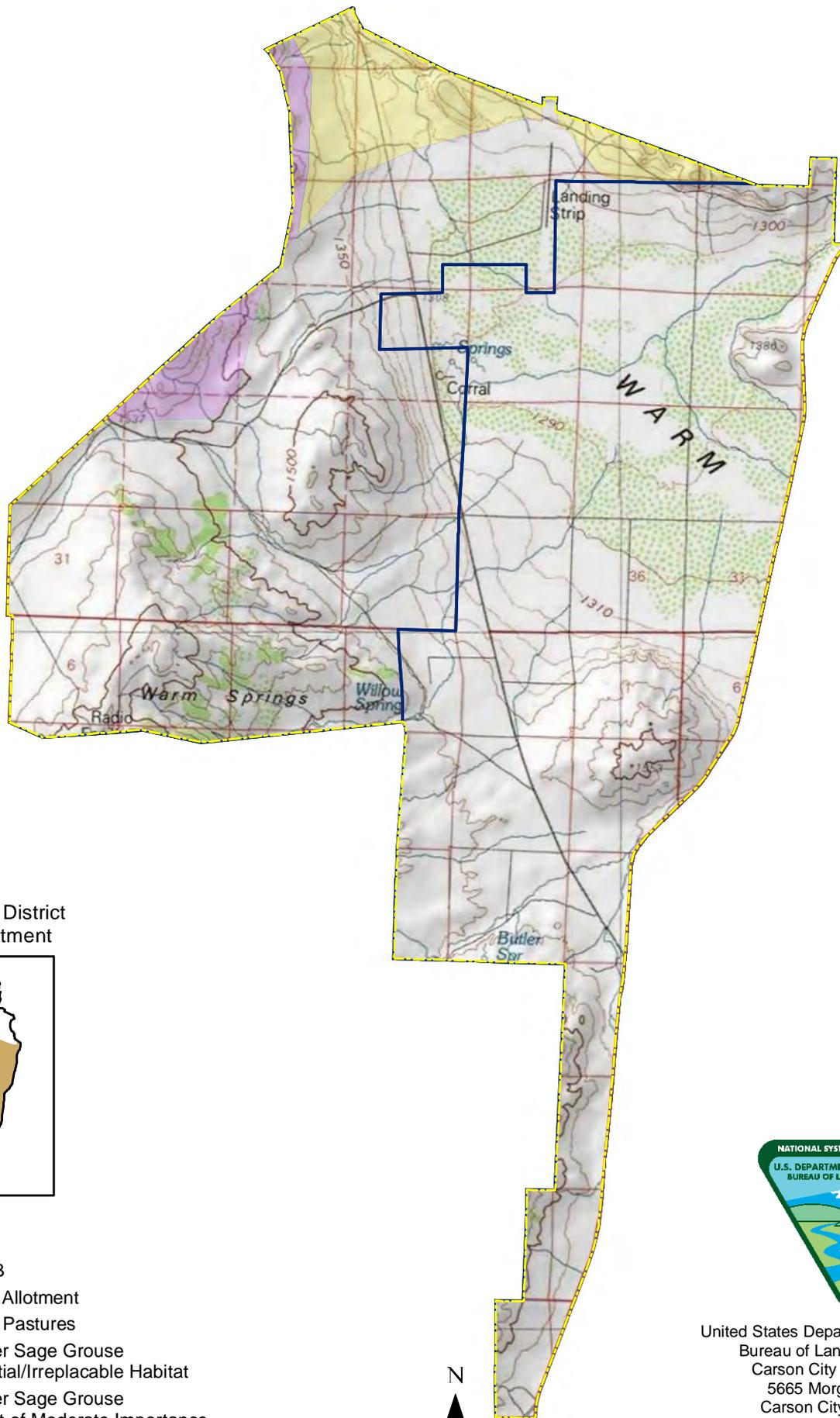


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Map 5 B Greater Sage-Grouse Habitats on the Paiute Canyon Allotment

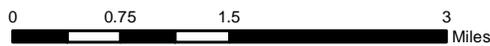


Carson City District
Paiute Allotment



Legend

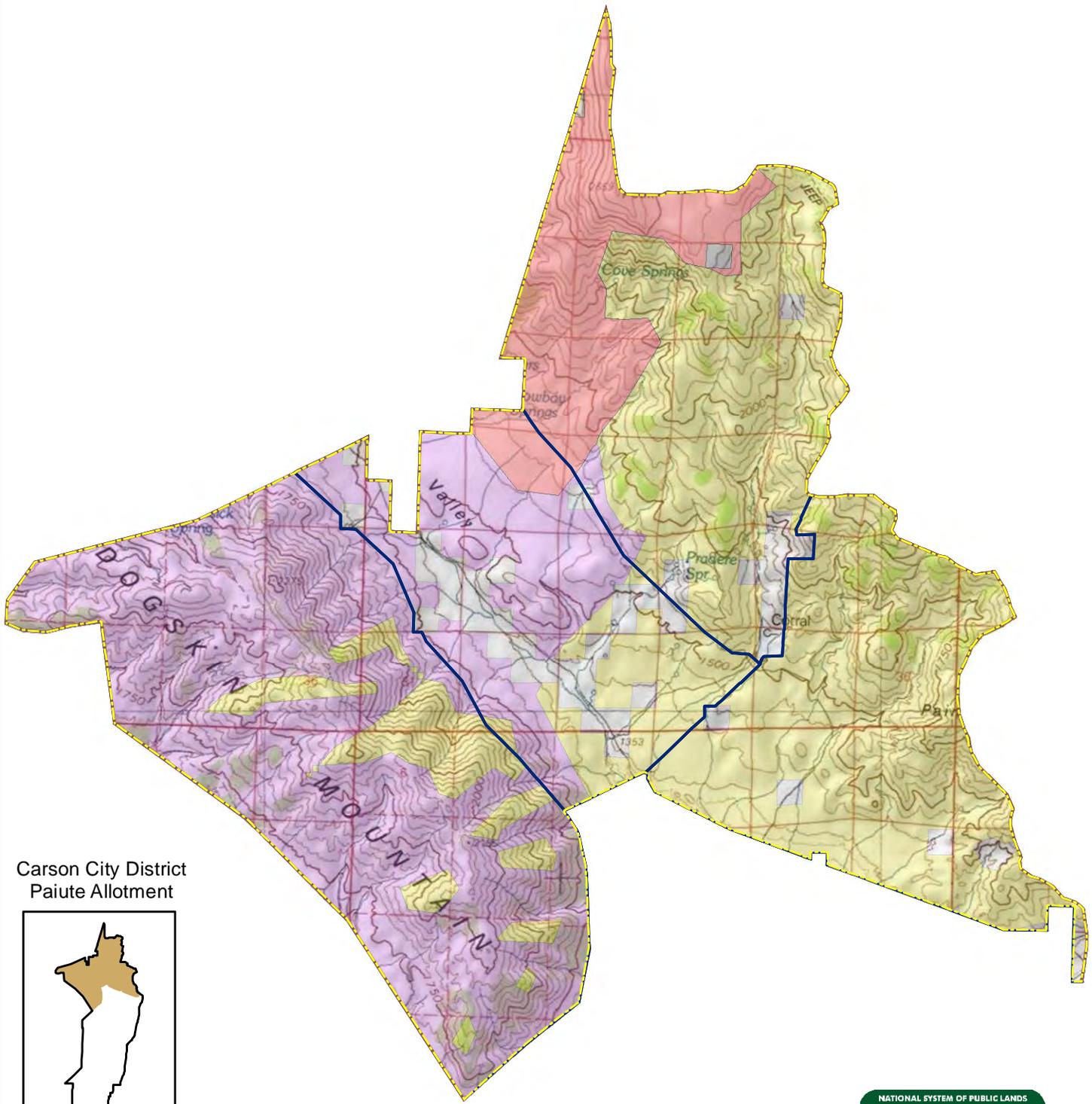
- Zone B
- Paiute Allotment
- Paiute Pastures
- Greater Sage Grouse Essential/Irreplacable Habitat
- Greater Sage Grouse Habitat of Moderate Importance
- Greater Sage Grouse Low Value/Transitional Habitat



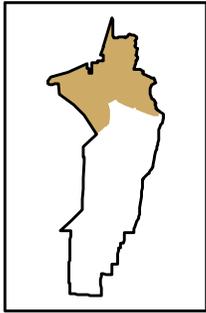
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Map 5 A Greater Sage-Grouse Habitats on the Paiute Canyon Allotment

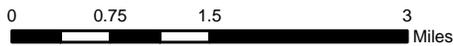


Carson City District
Paiute Allotment



Legend

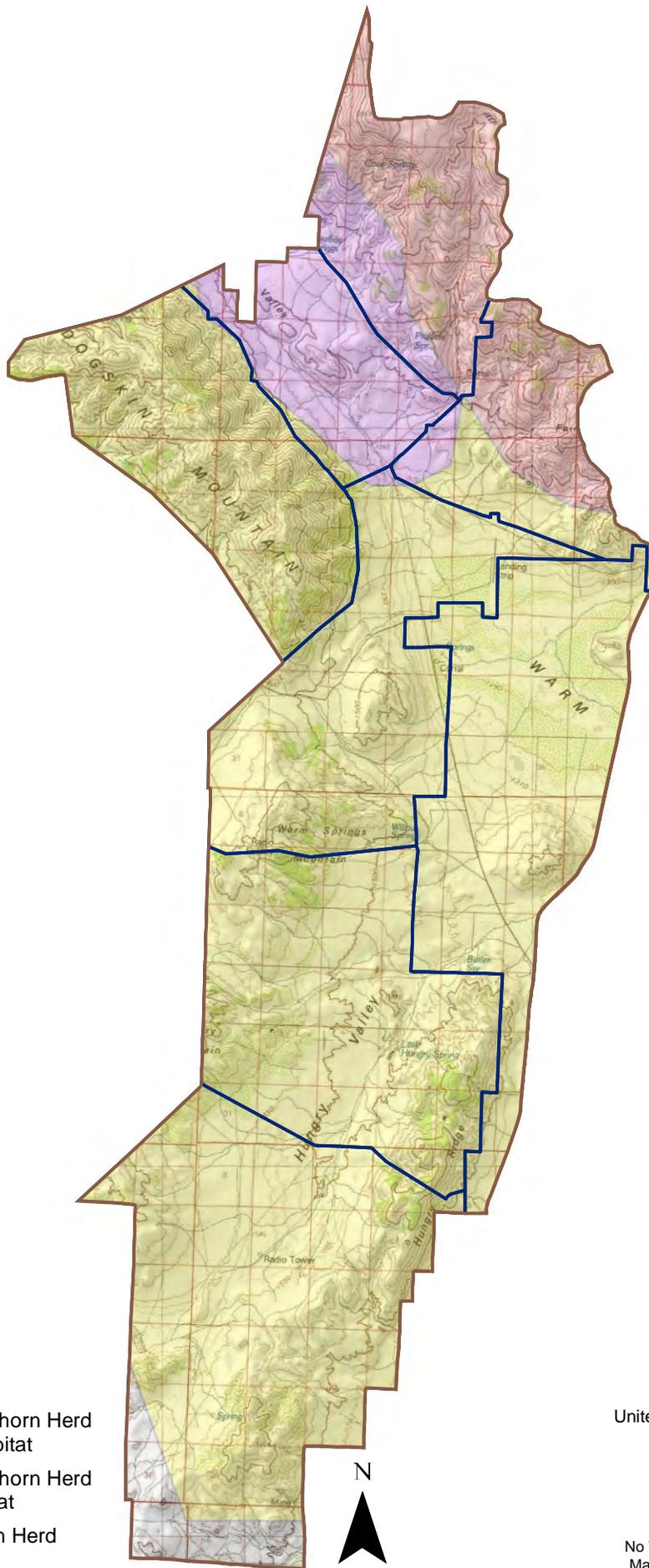
- Zone A
- Paiute Allotment
- Paiute Pastures
- Greater Sage Grouse Essential/Irreplaceable Habitat
- Greater Sage Grouse Habitat of Moderate Importance
- Greater Sage Grouse Low Value/Transitional Habitat



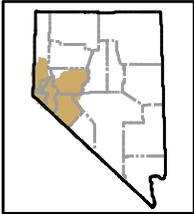
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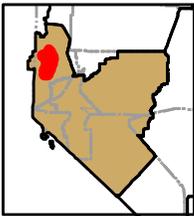
Map 4 Pronghorn Antelope Herds and Habitats - Paiute Canyon Allotment



Carson City District



Paiute Allotment



Legend

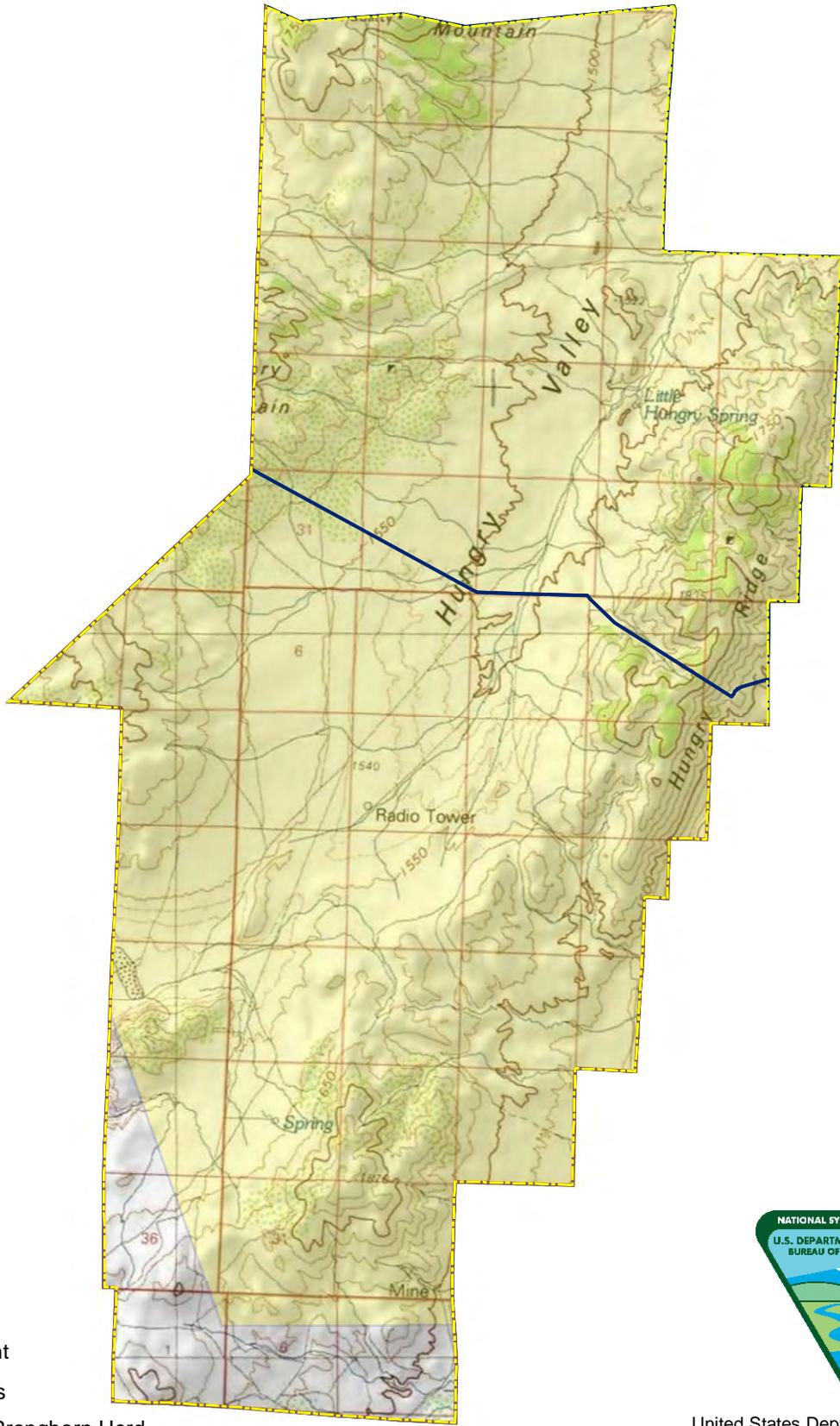
-  Paiute Allotment
-  Paiute Pastures
-  Virginia Mtns. Pronghorn Herd Crucial Summer Habitat
-  Virginia Mtns. Pronghorn Herd Crucial Winter Habitat
-  Red Rock Pronghorn Herd Year-Round Habitat



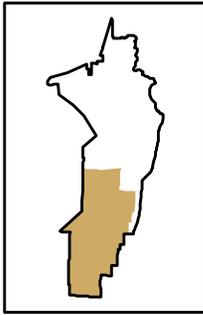
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Map 4 C Pronghorn Antelope Herds and Habitats - Paiute Canyon Allotment



Carson City District
Paiute Allotment

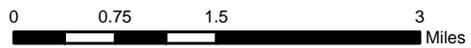


Legend

-  Zone C
-  Paiute Allotment
-  Paiute Pastures
-  Virginia Mtns. Pronghorn Herd
Crucial Summer Habitat
-  Virginia Mtns. Pronghorn Herd
Crucial Winter Habitat
-  Red Rock Pronghorn Herd
Year-Round Habitat

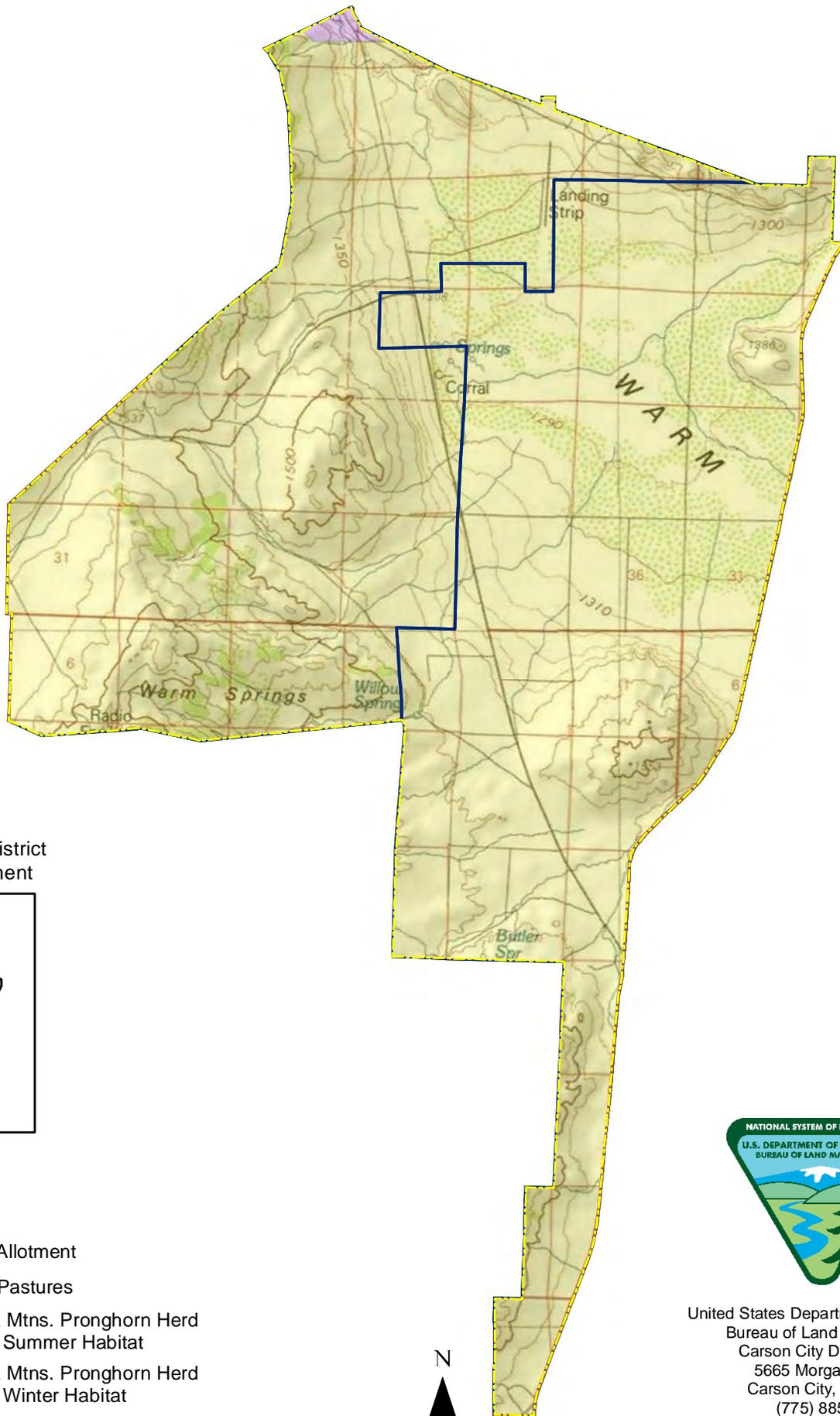


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Map 4 B Pronghorn Antelope Herds and Habitats - Paiute Canyon Allotment



Carson City District
Paiute Allotment



Legend

-  Zone B
-  Paiute Allotment
-  Paiute Pastures
-  Virginia Mtns. Pronghorn Herd
Crucial Summer Habitat
-  Virginia Mtns. Pronghorn Herd
Crucial Winter Habitat
-  Red Rock Pronghorn Herd
Year-Round Habitat

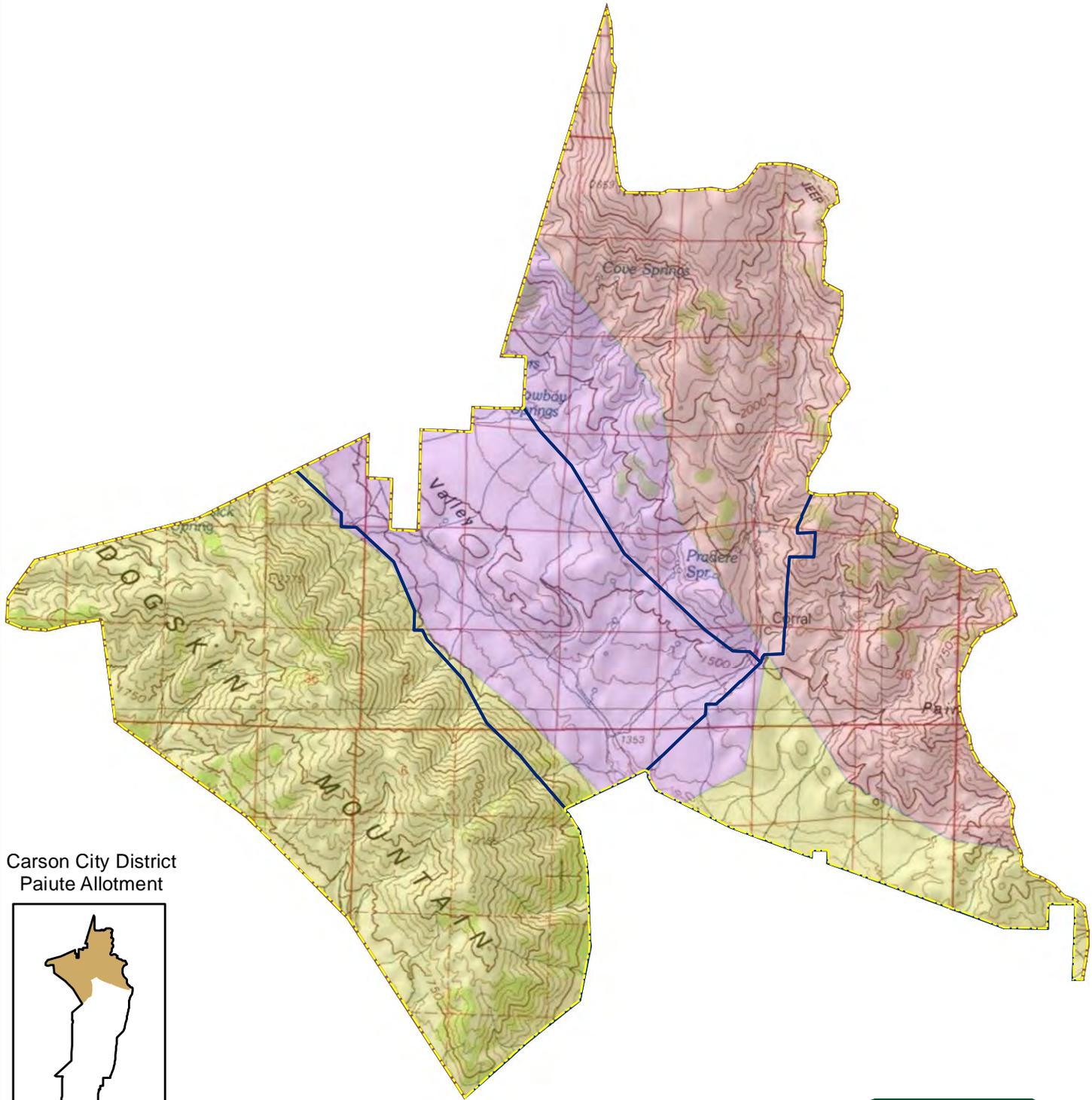


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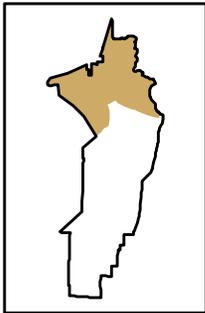
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Map 4 A Pronghorn Antelope Herds and Habitats - Paiute Canyon Allotment



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Paiute Allotment



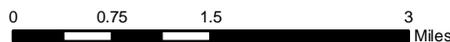
Legend

- Zone A
- Paiute Allotment
- Paiute Pastures
- Virginia Mtns. Pronghorn Herd
Crucial Summer Habitat
- Virginia Mtns. Pronghorn Herd
Crucial Winter Habitat
- Red Rock Pronghorn Herd
Year-Round Habitat

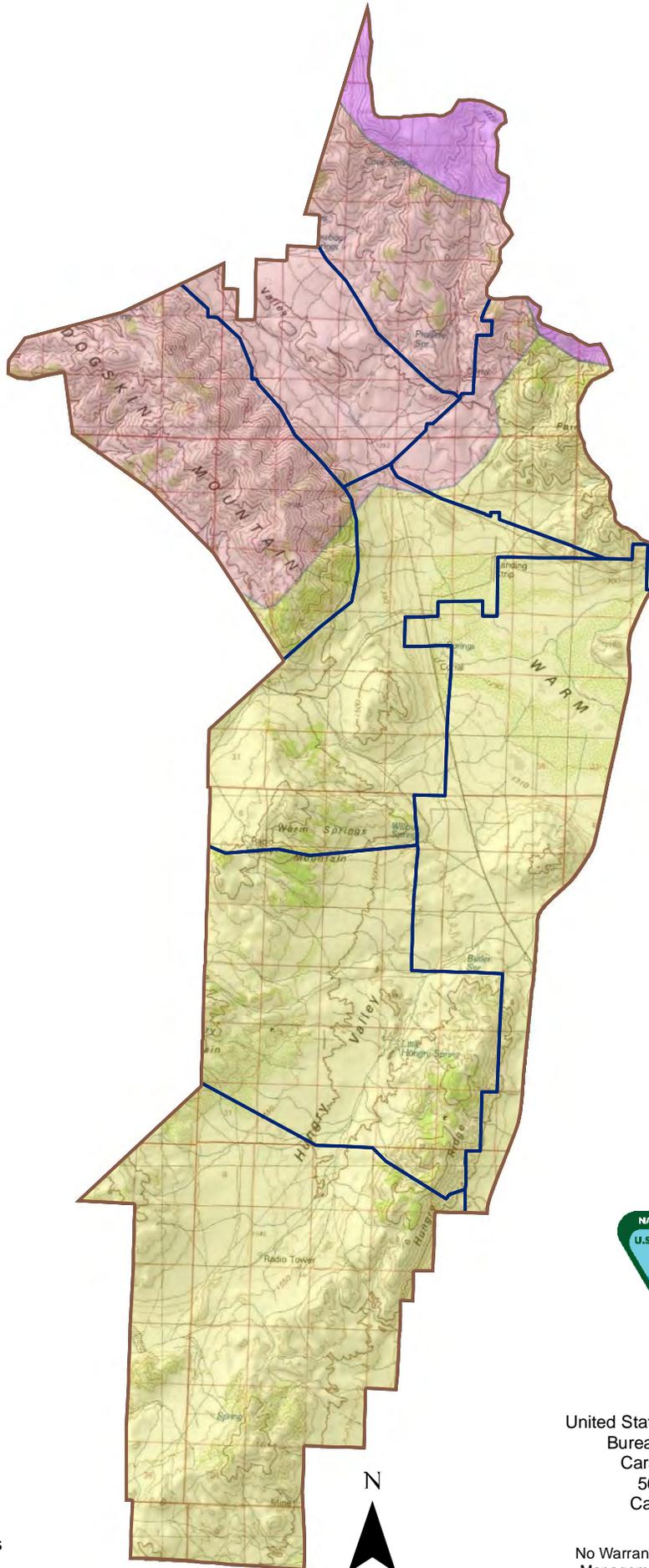


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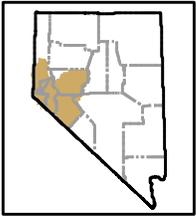
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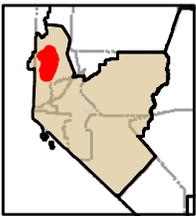
Map 3 Mule Deer Herds and Habitats - Paiute Canyon Allotment



Carson City District



Paiute Allotment



Legend

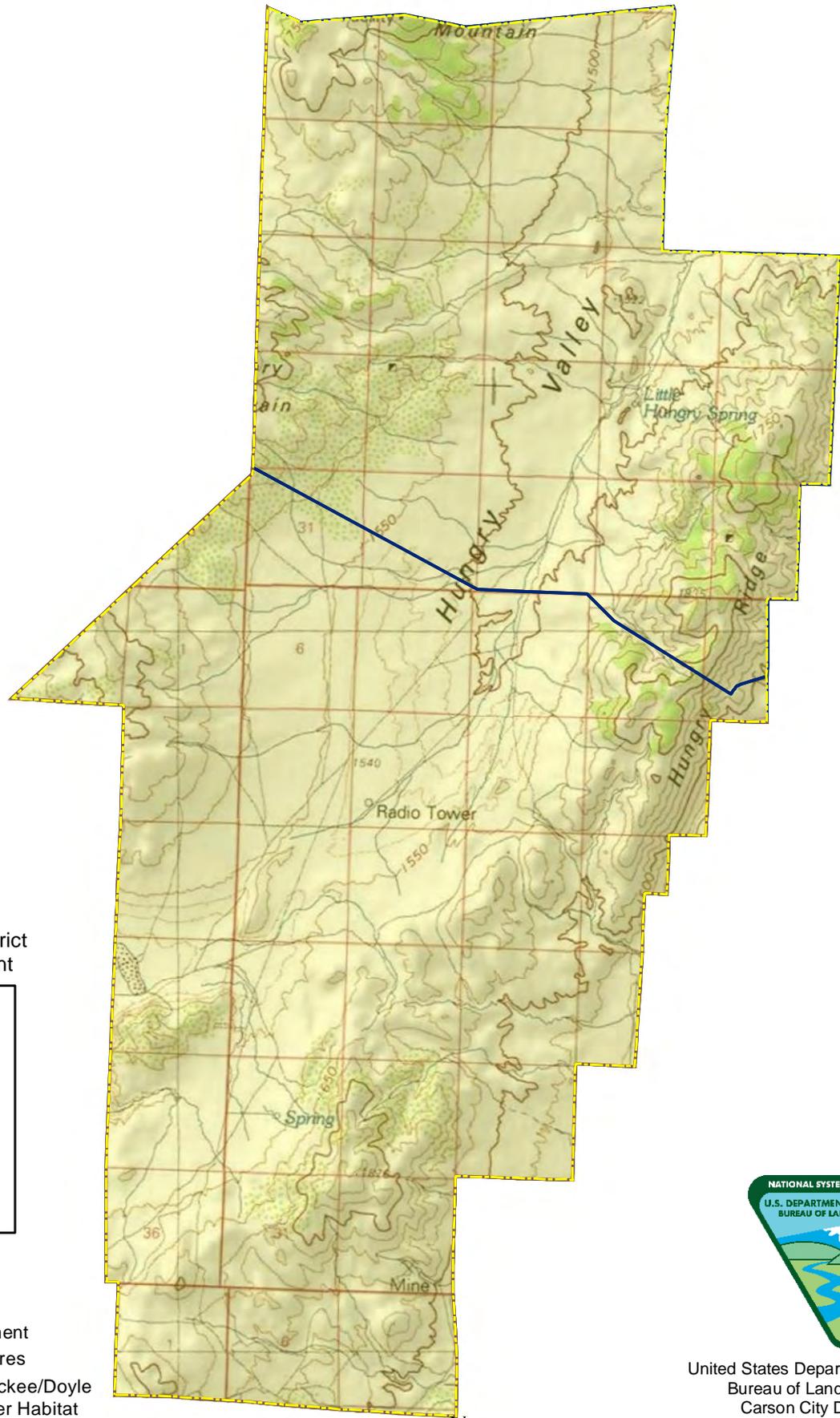
-  Paiute Allotment
-  Paiute Pastures
-  Loyaltan Truckee/Doyle Crucial Winter Habitat
-  Virginia Mountains Crucial Summer Habitat
-  Lemmon Valley/Warm Springs Year Round Habitat



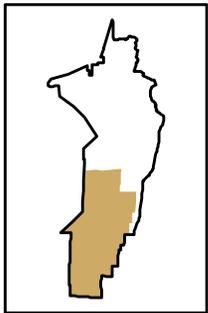
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Map 3 C Mule Deer Herds and Habitats - Paiute Canyon Allotment



Carson City District
Paiute Allotment



Legend

- Zone C
- Paiute Allotment
- Paiute Pastures
- Loyalton Truckee/Doyle Crucial Winter Habitat
- Virginia Mountains Crucial Summer Habitat
- Lemmon Valley/Warm Springs Year Round Habitat

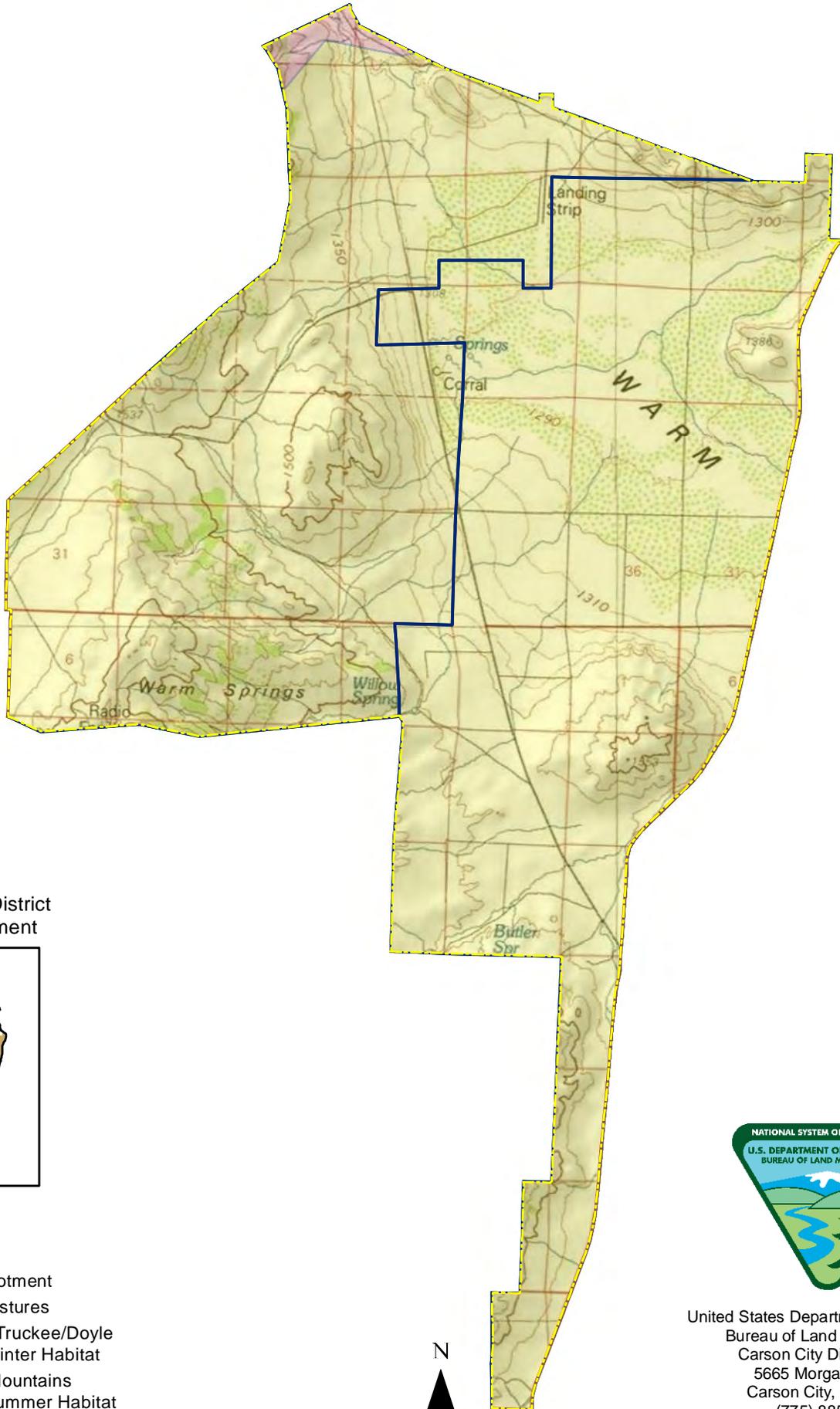


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Map 3 B Mule Deer Herds and Habitats - Paiute Canyon Allotment



Carson City District
Paiute Allotment



Legend

- Zone B
- Paiute Allotment
- Paiute Pastures
- Loyalton Truckee/Doyle Crucial Winter Habitat
- Virginia Mountains Crucial Summer Habitat
- Lemmon Valley/Warm Springs Year Round Habitat

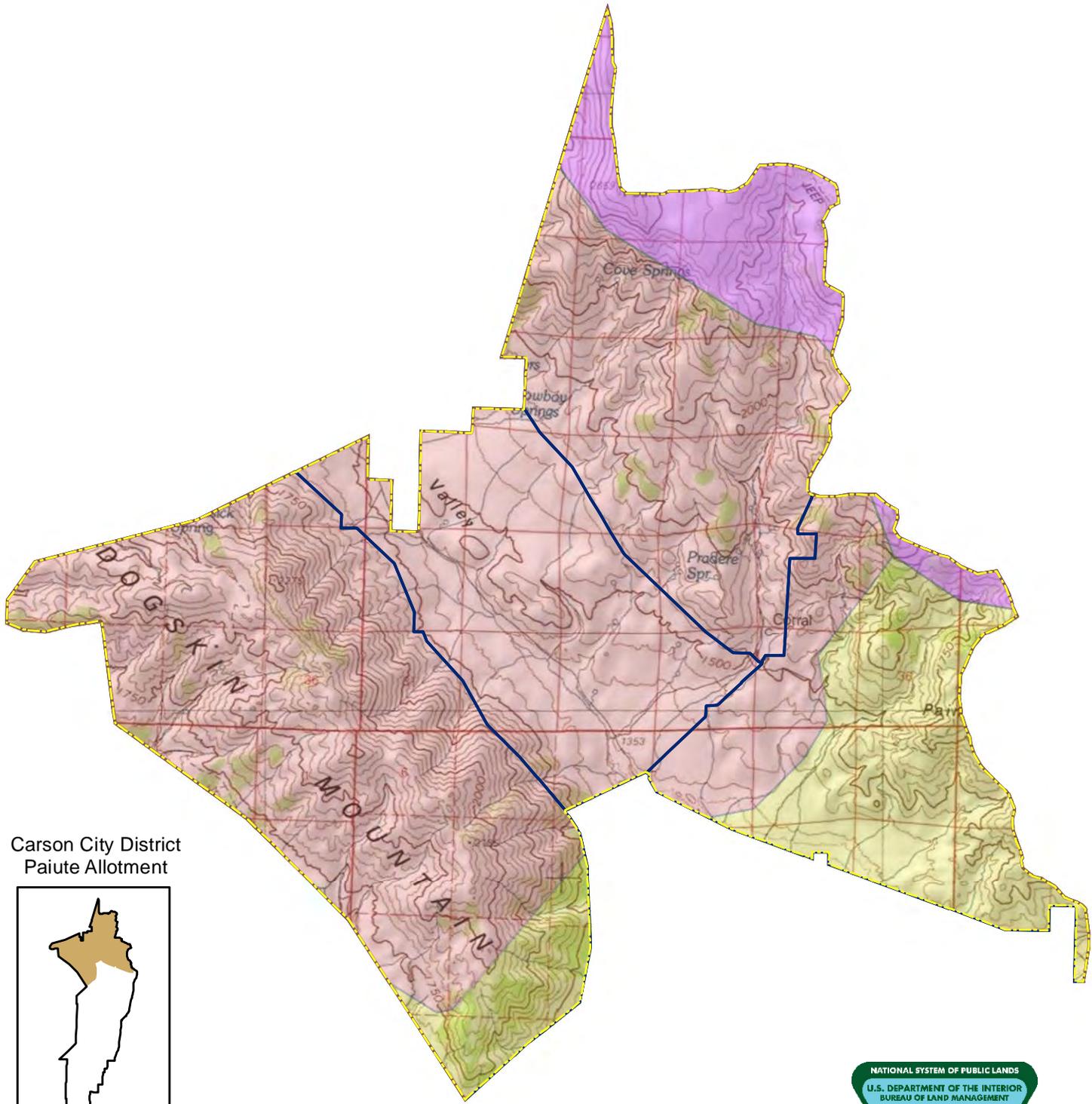


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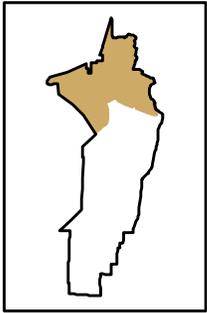
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Map 3 A Mule Deer Herds and Habitats - Paiute Canyon Allotment

BLM



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Paiute Allotment



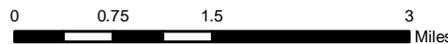
Legend

- Zone A
- Paiute Allotment
- Paiute Pastures
- Loyalton Truckee/Doyle
Crucial Winter Habitat
- Virginia Mountains
Crucial Summer Habitat
- Lemmon Valley/Warm Springs
Year Round Habitat

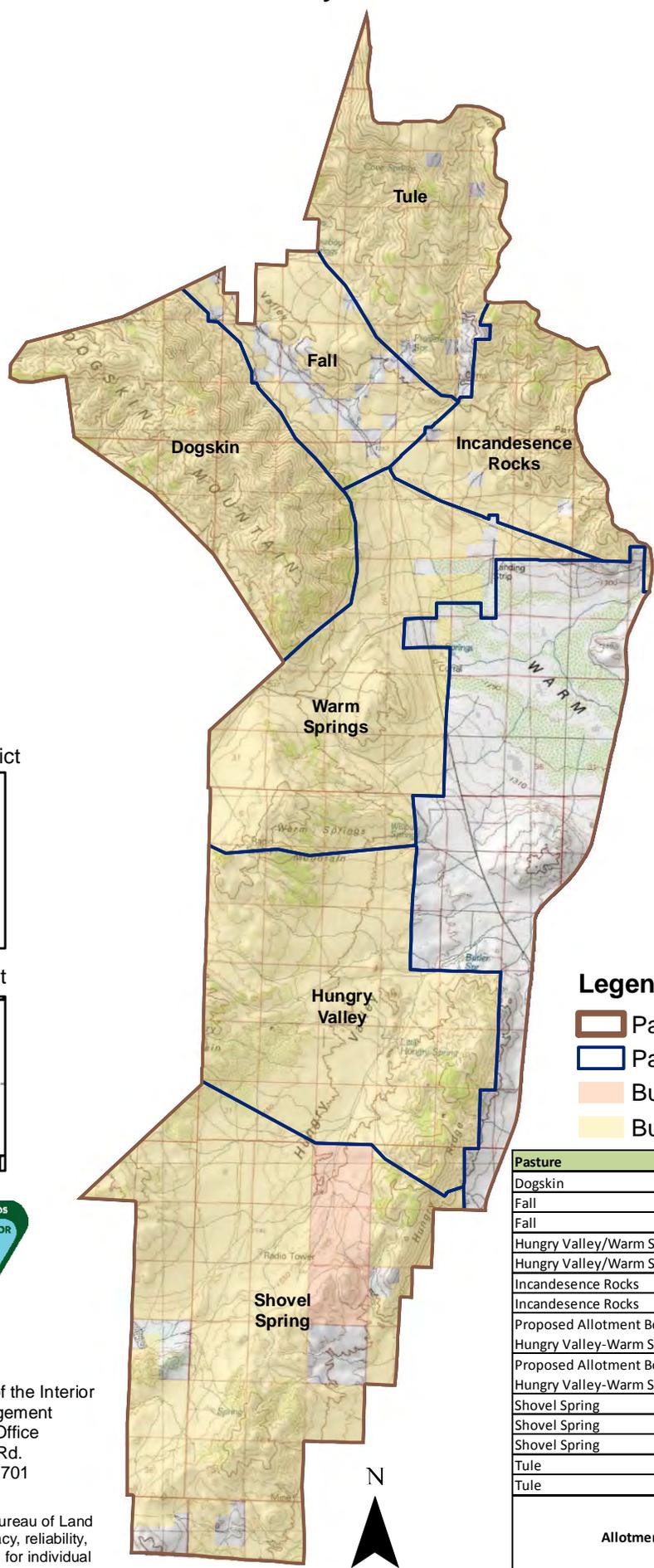


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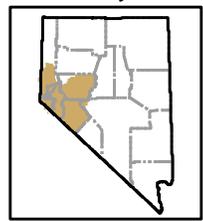
Map 2 Paiute Canyon Allotment Pastures



Legend

- Paiute Allotment
- Paiute Pastures
- Bureau of Indian Affairs
- Bureau of Land Management

Carson City District



Paiute Allotment



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Pasture	Ownership	Acres
Dogskin	BLM	10593.76
Fall	BLM	4261.67
Fall	PVT	1171.75
Hungry Valley/Warm Springs	BLM	25076.74
Hungry Valley/Warm Springs	PVT	496.35
Incandescence Rocks	BLM	6003.50
Incandescence Rocks	PVT	121.89
Proposed Allotment Boundary Change Hungry Valley-Warm Springs	BLM	87.64
Proposed Allotment Boundary Change Hungry Valley-Warm Springs	PVT	13849.63
Shovel Spring	BIA	1975.76
Shovel Spring	BLM	16391.54
Shovel Spring	PVT	1794.54
Tule	BLM	7466.70
Tule	PVT	487.83
Allotment Total	Ownership	Acres
	BIA	1975.76
	BLM	69881.55
	PVT	17921.84

