

**U.S. Department of the Interior  
Bureau of Land Management**

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**Standards Determination Document**

**Moorman Ranch (00802) Grazing Allotment**

**March 2012**

**Location: White Pine County, Nevada**

**PREPARING OFFICE**

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Document: Moorman Ranch  
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**Chapter 1. STANDARDS  
DETERMINATION DOCUMENT  
Moorman Ranch (00802) Grazing Allotment**

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The Standards and Guidelines for Nevada's Northeastern Great Basin Area were developed by the Northeastern Great Basin Area Resource Advisory Council (RAC) and approved in 1997. Standards and guidelines are likened to objectives for healthy watersheds, healthy native plant communities, and healthy rangelands. Standards are expressions of physical and biological conditions required for sustaining rangelands for multiple uses. Guidelines point to management actions related to livestock grazing for achieving the standards.

This Standards Determination Document (SDD) evaluates and assesses livestock grazing management's achievement of the Standards and conformance with the Guidelines for the Nevada's Northeastern Great Basin Area for the Moorman Ranch Allotment in the Egan Field Office, Ely District. This document does not evaluate or assess achievement of the Cultural Resources, Wild Horse and Burro Populations, or the Off Highway Vehicle Standards and/or Guidelines. This document will also consider the adequacy of the current grazing management system in place on the allotment and make allotment management recommendations.

The Moorman Ranch Allotment encompasses approximately 124,000 public land acres (Map B.1, "Moorman Ranch Allotment Map" (p. 53)). The grazing permit area occurs entirely within White Pine County, Nevada and is situated approximately 20 miles west of Ely, Nevada. The southwestern portion of this allotment borders Forest Service lands. The area reaches from northern Jakes Valley into the southern portion of Long Valley and includes the extreme southern portion of the Butte Mountains and northern portion of the White Pine Range. The Moorman Ranch Allotment occurs in both the Long Valley and the Jakes Valley Watersheds with a small portion in the Newark Watershed.

The current term grazing permit for the Moorman Ranch, LLC (2704607) on the Moorman Ranch Allotment is issued for the period July 27, 2009 to February 28, 2019 and allows for year-round grazing in accordance with the Livestock Use Agreement for the Moorman Ranch Allotment, as amended, (Appendix C, *Appendix C—Livestock Management Agreement* (p. 61)). This agreement was established in 1997 as a five-year agreement resulting from the Moorman Ranch Allotment Final Multiple Use Decision (FMUD). In 2003, the agreement was evaluated and the management practices continued for an additional five-year term through a second agreement. In 2008, a SDD for the Moorman Ranch Allotment was completed and the Moorman Ranch Livestock Grazing Management Agreement Amendment was signed, extending the term of the agreement through February 28, 2013. This agreement outlines a voluntary non-use agreement and a pasture rotation system including a deferred-rotation on the summer portion of the allotment in conjunction with a Forest Service grazing permit. The 1997 FMUD amended the Allotment Management Plan (AMP) that was established on the Moorman Ranch Allotment in 1968 and also amended in 1978.

The Moorman Ranch Allotment is dominated by Wyoming big sagebrush (*Artemisia tridentata* ssp. *wyomingensis*) shrublands, black sagebrush (*Artemisia nova*) shrublands, and pinyon-juniper (*Pinus monophylla* - *Juniperus osteosperma*) woodlands, with smaller areas of salt desert scrub (mainly winterfat [*Krascheninnikovia lanata*]) and mixed mountain shrublands (including mountain big sagebrush [*Artemisia tridentata* ssp. *vaseyana*], bitterbrush [*Purshia tridentata*], serviceberry [*Amelanchier utahensis*], and snowberry [*Symphoricarpos oreophilus*]). Non-native seedings (crested wheatgrass [*Agropyron cristatum*] and Russian wildrye [*Psathyrostachys juncea*]) have also been established on the allotment.

In 2008, about 1,000 acres of Wyoming sagebrush was mowed in the Moorman Ranch Allotment Sagebrush Restoration Project (Map B.2, "Moorman Ranch Allotment Existing Range Improvements" (p. 54)). This project occurred mostly in the East Jakes Pasture with a

portion in the Townsend Seeding. The area was closed to livestock grazing for two growing seasons and, in 2011, resumed grazing in accordance with the Livestock Use Agreement for the Moorman Ranch Allotment.

A summary of monitoring data for the Moorman Ranch Allotment is in Appendix A, *Appendix A—Data Summary* (p. 35) (also see Map B.3, “Moorman Ranch Allotment Monitoring Points” (p. 55)).

The Moorman Ranch Allotment provides habitat for elk (*Cervus canadensis*), mule deer (*Odocoileus hemionus*), and pronghorn (*Antilocapra americana*), with crucial winter mule deer habitat on Antelope Mountain and crucial summer mule deer habitat on Buster Mountain. The allotment provides habitat for animals such as coyotes (*Canis latrans*), rabbits (*Lepus* spp. and *Sylvilagus* spp.), badgers (*Taxidea taxus*), bobcats (*Lynx rufus*), grey and red foxes (*Urocyon cinereoargenteus* and *Vulpes vulpes*), sagebrush obligate birds such as sage sparrow (*Amphispiza belli*), and other small mammals, reptiles, and invertebrates. Also, several species of migratory birds are known to have a distribution that overlaps with the allotment. Illipah Creek and Illipah Reservoir occur in the allotment and provide habitat for some species of fish, mainly sport fish stocked in the reservoir by the Nevada Department of Wildlife (NDOW).

BLM Sensitive Species known to occur on the Moorman Ranch Allotment are the Greater sage-grouse (*Centrocercus urophasianus*) and the pygmy rabbit (*Brachylagus idahoensis*). Ferruginous hawk (*Buteo regalis*) and golden eagle (*Aquila chrysaetos*) nests have also been identified on the allotment in the past (primarily in the 1980s).

A portion of the Triple B Wild Horse Herd Management Area (HMA) occurs within the Moorman Ranch Allotment (Map B.4, “Moorman Ranch Allotment Wild Horse Areas” (p. 56)). In 2011, a wild horse gather occurred across this HMA. The Pancake HMA, Monte Cristo Wild Horse Territory (WHT), and the Jakes Wash Wild Horse Herd Area (HA) also occur near the allotment. In 2012, a wild horse gather occurred across the Pancake HMA and Jakes Wash HA. Wild horse use has occurred throughout the allotment, generally wintering at lower elevations and summering in the higher elevations.

Highway 50 crosses the southern portion of the Moorman Ranch Allotment. This highway is fenced on both sides through the entire allotment and serves as a pasture boundary for several pastures. The Loneliest Highway Special Recreation Management Area (SRMA) occurs along this highway. The Falcon to Gondor Utility Corridor also crosses the allotment. Illipah Recreation Area occurs in the Illipah Seeding Pasture at Illipah Reservoir; its primary uses are fishing, camping, and picnicking. The Illipah Mine, now closed and rehabilitated, is located in the northwestern portion of the Antelope Pasture. Additional gold exploration is occurring in this area.

# **Chapter 2. Part 1. Standard Achievement Review**

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## Standard 1. Upland Sites

*Upland soils exhibit infiltration and permeability rates that are appropriate to soil type, climate and land form.*

As indicated by:

- Indicators are canopy and ground cover, including litter, live vegetation and rock, appropriate to potential of the site.

Determination:	
<input checked="" type="checkbox"/>	Achieving the Standard
<input type="checkbox"/>	Not Achieving the Standard, but making significant progress towards achieving
<input type="checkbox"/>	Not Achieving the Standard, and not making significant progress toward standard

Guidelines Conformance:	
<input checked="" type="checkbox"/>	In conformance with the Guidelines
<input type="checkbox"/>	Not in conformance with the Guidelines

### Conclusions:

Monitoring data, field observations, and photo documentation indicate that the Moorman Ranch Allotment has foliar and ground cover appropriate to the potential of the site. Site potential was determined from Ecological Site Descriptions (ESDs), soil survey information, and general knowledge of local ecosystems. Soils are being protected and stabilized by vegetation, litter, rocks, and biological crusts. Cover data is summarized in Table A.4, “Moorman Ranch Allotment Ground Cover” (p. 42). Distribution of soils is shown in Map B.5, “Moorman Ranch Allotment Soils Map” (p. 57).

Key area MR-01 occurs on a Katelana, level-Raph soil association (241) which has a silt loam surface texture (NRCS 1998). The expected vegetative ground cover for the associated ecological site is 10–20 percent. Monitoring data from 2011 indicate that this key area has a vegetative cover of 19 percent with a rock cover of 1 percent, a biological crust cover of 7 percent, and a litter cover of 12 percent. Monitoring data from 2009 indicate that this key area has a vegetative cover of 31 percent with a biological crust cover of 27 percent and a litter cover of 6 percent.

Key area MR-02 occurs on Yody gravelly sandy loam (578; NRCS 1998). This area has been seeded to crested wheatgrass. Monitoring data from 2011 indicate that this key area has a vegetative cover of 31 percent with a rock cover of 6 percent, a biological crust cover of 1 percent, and a litter cover of 15 percent. Monitoring data from 2009 indicate that this key area has a vegetative cover of 37 percent with a biological crust cover of 1 percent and a litter cover of 13 percent.

Key area MR-03 occurs on an Abgese-Yody-Shabliss soils association (920) which has a sandy loam surface texture (NRCS 1998). This area has been seeded to crested wheatgrass. Monitoring data from 2011 indicate that this key area has a vegetative cover of 31 percent with a rock cover of 3 percent and a litter cover of 18 percent. Monitoring data from 2009 indicate that this key area has a vegetative cover of 31 percent with a litter cover of 14 percent.

Key area MR-04 occurs on an Abgese-Roden-Orr soils association (900) which has a sandy loam surface texture (NRCS 1998). This area has been seeded to Russian wildrye. Monitoring data from 2011 indicate that this key area has a vegetative cover of 41 percent with a rock cover of 10

percent and a litter cover of 13 percent. Monitoring data from 2009 indicate that this key area has a vegetative cover of 15 percent with a rock cover of 1 percent and a litter cover of 16 percent.

Key area MR-05 occurs on a Wredah-Amelar-Orr soil association (880) which has a gravelly sandy loam surface texture (NRCS 1998). The expected vegetative ground cover for the associated ecological site is 20–30 percent. Monitoring data from 2011 indicate that this key area has a vegetative cover of 62 percent with a rock cover of 1 percent and a litter cover of 18 percent. Monitoring data from 2009 indicate that this key area has a vegetative cover of 46 percent with a litter cover of 6 percent.

Key area MR-06 occurs on an Abgese-Yody-Shabliss soils association (920) which has a sandy loam surface texture (NRCS 1998). The expected vegetative ground cover for the associated ecological site is 10–20 percent. Monitoring data from 2011 indicate that this key area has a vegetative cover of 47 percent with a rock cover of 2 percent and a litter cover of 12 percent. Monitoring data from 2009 indicate that this key area has a vegetative cover of 49 percent with a litter cover of 12 percent.

Key area MR-07 occurs on an Amelar-Eoj soil association (870) which has a gravelly silt loam surface texture (NRCS 1998). The expected vegetative ground cover for the associated ecological site is 25–35 percent. Monitoring data from 2009 indicate that this key area has a vegetative cover of 69 percent with a rock cover of 2 percent and litter cover of 12 percent.

Key area MR-08 occurs on a Segura-Eoj-Cassiro soil association (762) which has a very cobbly loam surface texture (NRCS 1998). The expected vegetative ground cover for the associated ecological site is 10–20 percent. Monitoring data from 2011 indicate that this key area has a vegetative cover of 49 percent with a rock cover of 6 percent and a litter cover of 18 percent. Monitoring data from 2009 indicate that this key area has a vegetative cover of 34 percent with a biological crust cover of 2 percent and litter cover of 9 percent.

Key area MR-09 occurs on a Palinor-Izar-Biken soil association (1287) which has a gravelly loam surface texture (NRCS 1998). The expected vegetative ground cover for the associated ecological site is 10–20 percent. Monitoring data from 2011 indicate that this key area has a vegetative cover of 47 percent with a rock cover of 4 percent and a litter cover of 15 percent. Monitoring data from 2009 indicate that this key area has a vegetative cover of 27 percent with a rock cover of 2 percent and litter cover of 8 percent.

Key area MR-10 occurs on a Heist-Tulase soil association (351) which has a silt loam surface texture (NRCS 1998). The expected vegetative ground cover for the associated ecological site is 10–20 percent. Monitoring data from 2011 indicate that this key area has a vegetative cover of 49 percent with a biological crust cover of 1 percent and a litter cover of 11 percent. Monitoring data from 2009 indicate that this key area has a vegetative cover of 44 percent with a litter cover of 4 percent.

Key area MR-12 occurs on Heist silt loam (353; NRCS 1998). The expected vegetative ground cover for the associated ecological site is 10–20 percent. Monitoring data from 2011 indicate that this key area has a vegetative cover of 35 percent with a biological crust cover of 2 percent and a litter cover of 15 percent. Monitoring data from 2009 indicate that this key area has a vegetative cover of 27 percent with a litter cover of 4 percent.

Key area MR-13 occurs on a Kunzler-Bylo-Zimwala soil association (643) which has a silt loam surface texture (NRCS 1998). The expected vegetative ground cover for the associated ecological

site is 10–20 percent. Monitoring data from 2011 indicate that this key area has a vegetative cover of 31 percent with a biological crust cover of 9 percent and a litter cover of 7 percent. Monitoring data from 2009 indicate that this key area has a vegetative cover of 25 percent with a biological crust cover of 22 percent and litter cover of 2 percent.

Key area MR-14 occurs on an Abgese-Yody-Shabliss soils association (920) which has a sandy loam surface texture (NRCS 1998). This area has been seeded to crested wheatgrass. Monitoring data from 2011 indicate that this key area has a vegetative cover of 28 percent with a rock cover of 1 percent and a litter cover of 18 percent. Monitoring data from 2009 indicate that this key area has a vegetative cover of 25 percent with a rock cover of 1 percent and a litter cover of 8 percent.

Key area MR-15 occurs on an Abgese-Yody-Shabliss soils association (920) which has a sandy loam surface texture (NRCS 1998). This area has been seeded to crested wheatgrass. Monitoring data from 2011 indicate that this key area has a vegetative cover of 31 percent with a rock cover of 2 percent and a litter cover of 138 percent. Monitoring data from 2009 indicate that this key area has a vegetative cover of 29 percent with a rock cover of 1 percent and a litter cover of 8 percent.

In addition to key area data, three additional cover studies were completed in 2009 on the Moorman Ranch Allotment. These data indicate a vegetative cover of 34 to 67 percent with a rock cover of 0 to 2 percent and a litter cover of 4 to 14 percent . In 2011, six random data collection points within sage-grouse habitat were used to collected cover data on the allotment. These data indicate a vegetative cover of 34 to 52 percent with a rock cover of 0 to 10 percent, a biological crust cover of 0 to 3 percent, and a litter cover of 3 to 22 percent. Also in 2011, one random cover study within the 2008 Moorman Ranch Allotment Sagebrush Restoration project showed a vegetative cover of 51 percent with a rock cover of 2 percent and a litter cover of 25 percent. Also in 2011, three sites from the Jakes Valley Land Health Assessment (LHA) data collection indicate a vegetative cover of 39 to 65 percent with a biological crust cover of 0 to 9 percent and a litter cover of 12 to 18 percent.

Soil compaction and displacement are likely near watering sites and trails used by livestock. The degree and magnitude of impacts from livestock use are expected to be localized near trails and watering sites and are not expected to alter soil productivity or increase erosion potential. Minimal impacts to localized physical soil characteristics would not alter the infiltration or percolation rates of the soils on the Moorman Ranch Allotment. As such, impacts to the soil resources resulting from livestock grazing would not affect the physical, chemical, or biological processes on or within the soil horizons.

The Moorman Ranch Allotment meets or exceeds expected cover across the area and no other soil stability concerns have been identified. Proper ground cover is indicative of appropriate infiltration and permeability rates. Therefore, the Moorman Ranch Allotment is meeting the Upland Sites Standard.

## **Standard 2. Riparian and Wetland Sites**

*Riparian and wetland areas exhibit a properly functioning condition and achieve state water quality criteria.*

As indicated by:

- Stream side riparian areas are functioning properly when adequate vegetation, large woody debris, or rock is present to dissipate stream energy associated with high water flows.

Elements indicating proper functioning condition such as avoiding accelerating erosion, capturing sediment, and providing for groundwater recharge and release are determined by the following measurements as appropriate to the site characteristics:

- Width/Depth ratio;
  - Channel roughness;
  - Sinuosity of stream channel;
  - Bank stability;
  - Vegetative cover (amount, spacing, life form); and
  - Other cover (large woody debris, rock).
- Natural springs, seeps, and marsh areas are functioning properly when adequate vegetation is present to facilitate water retention, filtering, and release as indicated by plant species and cover appropriate to the site characteristics.
  - Chemical, physical and biological constituents do not exceed the state water quality standards.

Determination:

X	Achieving the Standard
	Not Achieving the Standard, but making significant progress towards achieving
	Not Achieving the Standard, and not making significant progress toward standard

Guidelines Conformance:

X	In conformance with the Guidelines
	Not in conformance with the Guidelines

Conclusion:

Monitoring data, field observations, and photo documentation indicate that most riparian areas on the Moorman Ranch Allotment are able to dissipate energy associated with high water flows. Riparian areas were assessed using the Proper Functioning Condition (PFC) method (Table A.8, “Summary of PFC Assessments on the Moorman Ranch Allotment” (p. 49)). Five small, spring-fed riparian areas as well as four reaches along Illipah Creek were assessed on the allotment by an interdisciplinary team of BLM specialists (Map B.6, “Moorman Ranch Allotment Riparian Areas” (p. 58)).

Water from Campbell No. 2 Sheep Swan spring flows approximately 200 feet creating a small, herbaceous riparian area. This area was found to be in proper functioning condition in 2010 and 2007. Hoof action at the source is creating water at the surface and presents the greatest risk factor to this riparian area. Use in this area appears to be primarily from wild horses.

Halstead Spring creates a small, wet meadow. This area was found to be in proper functioning condition in 2010. Some livestock hoof action is present, mostly around the edges of this riparian area.

Indian Spring has been developed for stock watering, however, at the source, overflows continue downstream supporting a herbaceous riparian area for approximately 0.25 miles. This area was found to be functioning at risk with an upward trend in 2010 and 2007. The risk factors to the riparian area are the dependence on the development for water and hoof action from wild horses, cattle, and wildlife.

Illipah Creek flows onto the Moorman Ranch Allotment and fills Illipah Reservoir. Outflows from the reservoir continue along the natural channel and are used for irrigation of agricultural fields on

private land. For assessment purposes, Illipah Creek is divided into four reaches—Upper Reach, Above Reservoir, Below Reservoir, and Above Ranch.

The Upper Reach (about 0.5 miles) of Illipah Creek occurs within an old incised channel and supports a herbaceous riparian area. In 1999, this reach was fenced and has not been grazed by livestock since that time. This reach was found to be in proper functioning condition in 2010 and 2007.

The Above Reservoir Reach (about 0.3 miles) of Illipah Creek occur below the Illipah Riparian Pasture Fence to the reservoir. This reach appears to be flooded when the reservoir is full, however, at the time of the 2010 assessment, the water was below full-pool level for the reservoir and the shorelines were exposed. This reach was found to be functioning at risk with a downward trend in 2010. This was due mostly to the lack of riparian vegetation or other shoreline characteristics adequate to dissipate energies.

The Below Reservoir Reach (about 0.9 miles) of Illipah Creek occur from Illipah Dam to the public/private land boundary fence. While completely dependent on water from the reservoir, this reach supports a herbaceous riparian area with patches of willows (*Salix spp.*). This reach was found to be in proper functioning condition in 2010. Dependence on irrigation water management was identified as the risk factor for this reach.

The Above Ranch Reach (about 1.9 miles) of Illipah Creek occurs immediately above the Moorman Ranch Headquarters on public lands between privately owned parcels. This reach occurs within a old incised channel and supports a herbaceous riparian area with some willows. This reach was found to be in proper functioning condition in 2010. Again the dependence on irrigation water management was identified as the risk factor for this reach.

An unnamed spring along the Illipah Road is creating a herbaceous riparian area with subsurface flows for approximately 0.25 miles. A portion of this riparian area has been fenced and livestock use is excluded. This area was found to be in proper functioning condition in 2010.

Wild Horse Spring is a low flow system that is currently supporting a small, herbaceous riparian area. Surface water is present during snow melt and precipitation events and is being maintained by livestock hoof action and historic digging. Historically this spring was developed to provide stock water, however the old development is not functioning. This riparian area was found to be functioning at risk with a downward trend in 2010 and 2007. The biggest risk factor to this system is low flows with livestock trampling being an additional risk factor.

At the Willow Spring location, there is a historic, stock water development and a small, free-flowing spring adjacent to the development. The adjacent spring is flowing approximately 500 feet supporting a herbaceous riparian area. This area was found to be in proper functioning condition in 2010. A small amount of hoof action from wild horses, cattle, and wildlife was noted at the source as a risk factor to this system.

Water quality data has not been collected on the Moorman Ranch Allotment, however no water quality problems are known to exist.

Overall, the riparian areas on the Moorman Ranch Allotment are functioning properly to dissipate high flow energy under current manage. Therefore the allotment is meeting the Riparian and Wetland Sites Standard.

## Standard 3. Habitat

*Habitats exhibit a healthy, productive, and diverse population of native and/or desirable plant species, appropriate to the site characteristics, to provide suitable feed, water, cover and living space for animal species and maintain ecological processes. Habitat conditions meet the life cycle requirements of threatened and endangered species.*

As indicated by:

- Vegetation composition (relative abundance of species);
- Vegetation structure (life forms, cover, height, and age class);
- Vegetation distribution (patchiness, corridors);
- Vegetation productivity; and
- Vegetation nutritional value.

### Determination:

<input type="checkbox"/>	Achieving the Standard
<input checked="" type="checkbox"/>	Not Achieving the Standard, but making significant progress towards achieving
<input type="checkbox"/>	Not Achieving the Standard, and not making significant progress toward standard

### Causal Factors:

<input type="checkbox"/>	Livestock are a contributing factor to not achieving the standard
<input checked="" type="checkbox"/>	Livestock are not a contributing factor to not achieving the standard
<input checked="" type="checkbox"/>	Failure to meet the standard is related to other issues or conditions

### Guidelines Conformance:

<input checked="" type="checkbox"/>	In conformance with the Guidelines
<input type="checkbox"/>	Not in conformance with the Guidelines

Threatened and Endangered Species: None known within or near the Moorman Ranch Allotment.

### BLM Sensitive Species:

Greater Sage-Grouse—The Moorman Ranch Allotment lies within the Butte Valley/Buck Mountain/White Pine Range Sage-Grouse Population Management Unit (PMU). Twelve sage-grouse leks are known to occur within the allotment (two active, one inactive, and nine of unknown status). Additionally one active lek occurs within two miles of the allotment boundary. Approximately 58,260 acres within the Moorman Ranch Allotment have been identified as preliminary priority habitat (PPH) for sage-grouse habitat management with an additional approximately 21,440 acres of preliminary general habitat (PGH; Map B.7, “Moorman Ranch Allotment Sage-Grouse Habitat” (p. 59))

The sage-grouse breeding and nesting period is generally considered to be approximately March 15 through May 31. The brood-rearing period is generally considered to be June 1 through October 31. The wintering period is generally considered to be November 1 through March 14.

Connelly et al. (2000) sets forth guidelines for productive sage-grouse habitat in what is commonly known as the “Connelly Guidelines.” Guidelines related to the sage-grouse habitats found on the Moorman Ranch Allotment are summarized in Table 2.1, “Characteristics of sagebrush rangeland needed for productive sage-grouse habitat (Connelly 2000)” (p. 11). There has been much debate as the applicability of these guidelines to sagebrush rangelands in Nevada (Schultz 2004) so it should be emphasized that these are merely guidelines and not standards.

This was also implied by Connelly et al. (2000) in their expression of the need for local biologist and range ecologists to use local data and knowledge to make management recommendations.

**Table 2.1. Characteristics of sagebrush rangeland needed for productive sage-grouse habitat (Connelly 2000)**

	Breeding		Brood-rearing		Winter (exposed above snow)	
	Height (inches)	Canopy Cover (%)	Height (inches)	Canopy Cover (%)	Height (inches)	Canopy Cover (%)
Sagebrush	11–32	15–25	16–32	10–25	10–14	10–30
Grass/Forb	>7	>15	variable	>15	N/A	N/A
% seasonal habitat needed with these conditions	>80%		>40%		>80%	

The past crested wheatgrass seedings on this allotment are currently providing sage-grouse habitat, therefore they have been included in this data analysis. These areas are providing good structural habitat for sage-grouse, however are supporting a limited forb component. Perennial forbs and their associated insects provide important food sources for sage-grouse.

When compared to monitoring data collected in sage-grouse habitat on the Moorman Ranch Allotment (Table A.5, “Sage-Grouse Habitat Data on the Moorman Ranch Allotment” (p. 43)), these guidelines are being met at 7 of the 28 data collection points. These guidelines are not being met for various reasons which are summarized in Table 2.2, “Achievement of Connelly Guidelines on the Moorman Ranch Allotment” (p. 11). All five sites with low sagebrush cover and/or short sagebrush height occur in areas of past vegetation treatment (crested wheatgrass seeding or recent mechanical treatment), however these areas also show good herbaceous understory. Areas with excess sagebrush cover occur across the sagebrush habitats on the Moorman Ranch Allotment with some areas also showing a corresponding decrease in herbaceous understory.

**Table 2.2. Achievement of Connelly Guidelines on the Moorman Ranch Allotment**

Sage-Grouse Habitat Monitoring Point	Year Data Collected	Meeting Connelly Guidelines	Not Meeting Connelly Guidelines				
			Sagebrush Cover Above Guideline	Sagebrush Cover Below Guideline	Sagebrush Height Below Guideline	Herbaceous Cover Below Guideline	Grasses Height Below Guideline
SG-MR-02	2011	X					
SG-MR-04	2011	X					
SG-MR-06 <sup>a</sup>	2011		X				
SG-MR-09	2011					X	
SG-MR-10	2011	X					
SG-LV-20	2011					X	X
MR-02 <sup>a</sup>	2011			X			
	2009				X		
MR-03 <sup>a</sup>	2011			X			
	2009				X		
MR-05	2011		X				
	2009		X				X
MR-06	2011	X					
	2009						X
MR-08	2011	X					
	2009						X
MR-09	2011		X				
	2009					X	X

Sage-Grouse Habitat Monitoring Point	Year Data Collected	Meeting Connelly Guidelines	Not Meeting Connelly Guidelines				
			Sagebrush Cover Above Guideline	Sagebrush Cover Below Guideline	Sagebrush Height Below Guideline	Herbaceous Cover Below Guideline	Grasses Height Below Guideline
MR-14 <sup>a</sup>	2011				X		
	2009		X		X	X	
MR-15 <sup>a</sup>	2011	X					
	2009						X
MRST-1	2009		X				
MRST-2	2009		X		X	X	X
MRST-3	2009					X	X
MRST-4 <sup>b</sup>	2011			X	X		
JAKS01	2011	X					
JAKS08	2011		X			X	
<b>TOTALS:</b>	<b>28 data points</b>	<b>7</b>	<b>8</b>	<b>3</b>	<b>6</b>	<b>7</b>	<b>8</b>

<sup>a</sup>occurs in a crested wheatgrass seeding

<sup>b</sup>this area was mowed in 2008 as a sagebrush restoration project

Additionally, observations in the Buster Mountain area (SG-MR-05) indicate the area is supporting trees and mixed shrubs making this area poor sage-grouse habitat in its current condition (Figure 2.1, “SG-MR-05 Site Overview Photo” (p. 12)). No qualitative data was collected at this location due the high tree cover.



**Figure 2.1. SG-MR-05 Site Overview Photo**

Pygmy Rabbit—According to Larrucea and Brussard (2008) data, nine pygmy rabbit occurrences have been documented in the Jakes Valley portion of the Moorman Ranch Allotment (Map B.8, “Moorman Ranch Allotment Pygmy Rabbit Occurrences” (p. 60)) with populations likely occurring throughout suitable habitat over the whole allotment. Pygmy rabbit habitat is defined by areas with dense, tall sagebrush for food and cover and deep, loose soils for digging burrows. The extent and condition of pygmy rabbit habitat across the Moorman Ranch Allotment has not been determined. Larrucea and Brussard (2008) also suggests that pygmy rabbits occupy sites with a high sagebrush cover and limited understory. Under the current livestock grazing management

plan, the likelihood of cattle using this type of site is rare, therefore direct impacts to pygmy rabbits and their habitat from current livestock grazing should be minimal on the Moorman Ranch Allotment. However, cattle have been known to collapse pygmy rabbit burrows.

While sagebrush is a major food source for pygmy rabbits year round, grasses and forbs comprise a large portion of their summer diet (Green and Flinders, 1980). Current grazing management should allow for sufficient grasses and forbs for pygmy rabbit foraging.

Other—Given known habitat associations and current conditions, other state or BLM listed Sensitive or Special Status Species are likely to be present within the Moorman Ranch Allotment. Such species may occur as transients or indigenous populations, including, but not limited to loggerhead shrike (*Lanius ludovicianus*), vesper sparrow (*Pooecetes gramineus*), Lewis's woodpecker (*Melanerpes lewis*), greater sandhill crane (*Grus canadensis tabida*), and multiple small mammal species including bats and rodents.

#### Conclusion:

Monitoring data, field observations, and photo documentation indicate that vegetative composition, structure, distribution, and productivity vary across the Moorman Ranch Allotment generally being appropriate to the potential of the site. Site potential was determined from ESDs and general knowledge of local ecosystems. A general transition towards shrub dominance is being observed on the Moorman Ranch Allotment. Vegetative composition and productivity data is summarized in Table A.6, "Total Annual Yield and Composition of Key Areas, Moorman Ranch Allotment" (p. 44).

Key areas MR-01, MR-10, MR-12 and MR-13 occur on a silty (028BY013NV) ecological site. This ecological site is characterized by winterfat vegetation and provides winter grazing opportunities in the Long Valley and West Jakes Pastures. The expected vegetative composition by weight for this ecological site is 65 percent shrubs, 5 percent forbs, and 30 percent grasses. Composition by weight measured at MR-01 in 2011 was 100 percent shrubs. Composition by weight measured at MR-10 in 2011 was 66 percent shrubs, 7 percent forbs, and 27 percent grasses. Composition by weight measured at MR-12 in 2011 was 89 percent shrubs, 8 percent forbs, and 4 percent grasses. Composition by weight measured at MR-13 in 2011 was 99 percent shrubs, a trace amount of forbs, and 1 percent grasses. Vegetative data from 2009 show a similar composition. Total annual production expected for this ecological site is 700 pounds per acre on a favorable year, 500 pounds per acre on a normal year, and 350 pounds per acre on an unfavorable year. The total annual production measured at MR-01 was 1,000 pounds per acre in 2011 and 895 pounds per acre in 2009. The total annual production measured at MR-10 was 1,247 pounds per acre in 2011 and 832 pounds per acre in 2009. The total annual production measured at MR-12 was 740 pounds per acre in 2011 and 1,804 pounds per acre in 2009. The total annual production measured at MR-13 was 1,107 pounds per acre in 2011 and 271 pounds per acre in 2009. The similarity index for MR-01 was calculated to be 50 percent in both 2011 and 2009. The similarity index for MR-10 was calculated to be 54 percent in 2011 and 51 percent in 2009. The similarity index for MR-12 was calculated to be 54 percent in 2011 and 52 percent in 2009. The similarity index for MR-13 was calculated to be 51 percent in 2011 and 52 percent in 2009.

This key area analysis indicates that the silty ecological sites of the Moorman Ranch Allotment are favoring shrub dominance, but still support a herbaceous understory. Currently, these sites are supporting the major vegetative species expected, however have most likely crossed a threshold into a stable plant community that is no longer represented by the potential native vegetation (PNV) of the ESD. Annual production of these silty ecological sites meet or exceed expectations.

Key area MR-05 occurs on a loamy (028BY007NV) ecological site. This ecological site is characterized by Wyoming big sagebrush vegetation and provides summer grazing opportunities and sagebrush habitat in the Antelope Pasture. The expected vegetative composition by weight for this ecological site is 25 percent shrubs, 10 percent forbs, and 65 percent grasses. Composition by weight measured at MR-05 in 2011 was 81 percent shrubs, 1 percent forbs, and 18 percent grasses. Vegetative data from 2009 show a similar composition. Total annual production expected for this ecological site is 1,000 pounds per acre on a favorable year, 800 pounds per acre on a normal year, and 600 pounds per acre on an unfavorable year. The total annual production was measured at 1,745 pounds per acre in 2011 and 1,151 pounds per acre in 2009. The similarity index for this key area was calculated to be 40 percent in 2011 and 31 percent in 2009.

Key areas MR-06, MR-08, and MR-09 occur on a loamy (028BY010NV) ecological site. This ecological site is characterized by Wyoming big sagebrush vegetation and provides summer grazing opportunities and sagebrush habitat in the East Jakes, Divide, and Trench Pastures. The expected vegetative composition by weight for this ecological site is 45 percent shrubs, 5 percent forbs, and 50 percent grasses. Composition by weight measured at MR-06 in 2011 was 70 percent shrubs, 9 percent forbs, and 21 percent grasses. Composition by weight measured at MR-08 in 2011 was 84 percent shrubs, 7 percent forbs, and 9 percent grasses. Composition by weight measured at MR-09 in 2011 was 89 percent shrubs, 1 percent forbs, and 12 percent grasses. Vegetative data from 2009 show a similar composition at all three sites. Total annual production expected for this ecological site is 800 pounds per acre on a favorable year, 600 pounds per acre on a normal year, and 400 pounds per acre on an unfavorable year. The total annual production measured at MR-06 was 1,508 pounds per acre in 2011 and 1,225 pounds per acre in 2009. The total annual production measured at MR-08 was 1,209 pounds per acre in 2011 and 1,109 pounds per acre in 2009. The total annual production measured at MR-09 was 2,173 pounds per acre in 2011 and 897 pounds per acre in 2009. The similarity index for MR-06 was calculated to be 54 percent in 2011 and 51 percent in 2009. The similarity index for MR-08 was calculated to be 54 percent in 2011 and 50 percent in 2009. The similarity index for MR-09 was calculated to be 50 percent in 2011 and 53 percent in 2009.

Key area MR-07 occurs on a loamy slope (028BY015NV) ecological site. This ecological site is characterized by mountain big sagebrush but also supports other mountain shrubs and is readily invaded by pinyon-juniper vegetation. This area provides summer grazing opportunities and important wildlife habitat in the Buster Mountain Pasture. The expected vegetative composition by weight for this ecological site is 40 percent shrubs, 10 percent forbs, and 50 percent grasses. Composition by weight measured at MR-07 in 2009 was 73 percent shrubs, 24 percent forbs, and 2 percent grasses. Total annual production expected for this ecological site is 1,500 pounds per acre on a favorable year, 1,100 pounds per acre on a normal year, and 700 pounds per acre on an unfavorable year. The total annual production was measured at 883 pounds per acre in 2009. The similarity index for this key area was calculated to be 52 percent in 2009.

This key area analysis indicates that the loamy ecological sites of the Moorman Ranch Allotment are transitioning towards a shrub and/or tree dominate state. As this transition occurs, these plant communities may no longer be accurately represented by PNV of the ESDs. Currently, these key areas are supporting the major vegetative species expected, however they are occurring at a differing proportion. This transition is most likely due to the absence of fire or other disturbance cycles that result in less woody vegetation and more herbaceous vegetation. If this transition continues, understory species may be lost reducing habitat and forage values. Annual production of these loamy ecological sites meet or exceed expectations.

Key areas MR-02, MR-14, and MR-15 occur on crested wheatgrass seedings which provide spring and fall grazing opportunities in the Townsend Seeding, East Jakes Seeding, and Moorman Ranch Seeding Pastures. These seedings are also supporting Wyoming sagebrush vegetation. The vegetative composition by weight measured at MR-02 in 2011 was 61 percent shrubs, 1 percent forbs, and 38 percent grasses. The vegetative composition by weight measured at MR-14 in 2011 was 63 percent shrubs, a trace amount of forbs, and 37 percent grasses. The vegetative composition by weight measured at MR-15 in 2011 was 61 percent shrubs, 1 percent forbs, and 37 percent grasses. The total annual production measured at MR-02 was 1,587 pounds per acre in 2011. The total annual production measured at MR-14 was 1,206 pounds per acre. The total annual production at MR-15 was 1,929 in 2011.

Key area MR-04 occurs on a Russian wildrye seeding which provides grazing opportunities in the Illipah Seeding Pasture. The vegetative composition by weight at this site in 2011 was 12 percent shrubs, 1 percent forbs, and 88 percent grasses. The total annual production was measured at 436 pounds per acre in 2011.

This key area analysis indicates that shrubs have reestablished in the seedings on the Moorman Ranch Allotment. These areas should continue to be monitored to ensure that as shrubs increase there is not a corresponding loss of this important forage source. Annual production of these seeded sites is as expected.

A variety of plant communities are present across the allotment consistent with proper vegetation distribution for the size and location of the Moorman Ranch Allotment. Silty sites are located in the valley bottoms of both Long Valley and Jakes Valley. Moving up in elevation, the landscape transitions into Wyoming big sagebrush and black sagebrush sites with pinyon-juniper and mixed mountain shrubs occurring in the Butte and White Pine Ranges of the allotment. The varying elevations and rolling topography of the land area facilitate this distribution.

Across large portions of the Moorman Ranch Allotment, vegetative composition, structure, distribution, and productivity are as expected, however there are areas transitioning into shrub dominance found on the allotment. Special status species habitats, particularly sage-grouse habitat, are also threatened by this transition. Due to areas of shrub dominance, the Moorman Ranch Allotment is not meeting the Habitat Standard, however the allotment is progressing towards this standard. Livestock grazing is not a contributing factor to the non-attainment of this standard (See Part 2). Failure to meet this standard is most likely due to the absence of fire or other disturbance cycles that result in less woody vegetation and more herbaceous vegetation.

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**Chapter 3. PART 2. ARE LIVESTOCK  
A CONTRIBUTING FACTOR TO  
NOT MEETING THE STANDARDS?  
SUMMARY REVIEW:**

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According to the Standards and Guidelines for Nevada's Northeastern Great Basin Area, it must be determined if livestock grazing is a significant factor in the non-attainment of the Standards and Guidelines (BLM 1997).

**Standard #1: Upland Sites**

The Upland Sites Standard is being achieved on the Moorman Ranch Allotment.

**Standard #2: Riparian and Wetland Sites**

The Riparian and Wetland Sites Standard is being achieved on the Moorman Ranch Allotment.

**Standard #3: Habitat**

The Habitat Standard is not being achieved on the Moorman Ranch Allotment due to areas of shrub dominance. Of the 117 utilization measurements across the allotment since 2002 (Table A.3, "Utilization Data Summary, Moorman Ranch" (p. 38) and Map A.1, "Utilization Mapping 2010, Moorman Ranch Allotment" (p. 41)), 11 percent showed negligible use, 27 percent showed slight use, 34 percent showed light use, 23 percent showed moderate use, and 4 percent showed heavy use. Key area MR-10 (in the West Jakes Pasture) is the only location of repeat heavy use. This repeat heavy use was measured during periods of no or limited cattle use (Table A.2, "Moorman Ranch Allotment Licensed Use Summary" (p. 37)). Therefore, livestock grazing was not a significant contributor to heavy grazing or the non-attainment of the Habitat Standard. This heavy use also overlaps with areas of wild horse use and the Triple B Wild Horse Gather of 2011 should have reduced wild horse numbers sufficiently to bring combined utilization levels within the desired range.

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**Chapter 4. PART 3. GUIDELINE  
CONFORMANCE REVIEW AND  
SUMMARY**

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Current grazing use is in conformance with all applicable Guidelines as provided in Nevada's Northeastern Great Basin Standards and Guidelines on the Moorman Ranch Allotment.

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**Chapter 5. PART 4. MANAGEMENT  
RECOMMENDATIONS TO ACHIEVE  
STANDARDS AND CONFORM WITH  
GUIDELINES**

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1. Continue rangeland monitoring of the Moorman Ranch Allotment for livestock in compliance with proper allowable use levels and vegetative conditions.
2. Carry forward current livestock grazing management practices into an updated Livestock Grazing Use Agreement with a ten-year term to coincide with the term of the grazing permit. Livestock grazing management practices to be carried forward include:
  - a. Permit 4,749 active AUMs of cattle grazing
  - b. Hold 5,350 AUMs in voluntary non-use
  - c. The overall season of use will remain yearlong with the pasture rotation system shown below:

Pasture	Season of Use	Active AUMs	Voluntary Non-Use AUMs
Long Valley	10/15 to 04/15	1,366	2,003
West Jakes	09/01 to 04/15	644	471
Townsend Seeding	05/01 to 06/15 and 09/01 to 10/31 OR 03/01 to 06/15	477	0
East Jakes Seeding	05/01 to 06/15 and 09/01 to 10/31 OR 03/01 to 06/15	169	4
Moorman Ranch Seeding	05/01 to 06/15 and 09/01 to 10/31 OR 03/01 to 06/15	343	0
East Jakes	05/16 to 10/14	300 <sup>a</sup>	374
Burned Basin	05/16 to 10/14 <sup>b</sup>	148	565
Antelope/Divide	05/16 to 10/14	600 <sup>a</sup>	1,653
Trench	05/16 to 10/14	183	316
Buster Mountain	05/16 to 10/14 <sup>c</sup>	394	736
Illipah Seeding	05/16 to 10/14 <sup>c</sup>	125	0

<sup>a</sup>Full use of these AUMs is dependent upon water hauling

<sup>b</sup>Cattle may also be trailed through this area outside of this season of use

<sup>c</sup>The rest-rotation system in conjunction with Forest Service grazing permit has been terminated, but overall season of use will be maintained

- d. Full use of 600 AUMs in the Antelope/Divide Pasture will be dependent upon water hauling. Without hauling water only 492 AUMs will be available. Water will be hauled in accordance with Nevada State Water Law to:
  - i. Northern portion of the Divide Pasture: T18N R58E Sec.2–3, unless water is available at the stock pond: T18N R58E Sec. 11 NWNW
  - ii. Near Illipah Mine Site: T19N R58E Sec. 33 NESW
- e. Full use of 300 AUMs in the East Jakes Pasture will be dependent upon water hauling. Without hauling water only 147 AUMs will be available. Water will be hauled in accordance with Nevada State Water Law to:
  - i. Townsend Well (dry): T18N R60E Sec. 10
  - ii. South of Highway 50: T18N R60E Sec. 14
- f. Livestock will continue to be moved within larger pastures by changing water availability throughout the season and will be varied from year to year.
  - i. In order to maintain animal distribution in the Long Valley Pasture wells will be functioning and livestock use will be distributed based on pumping of the wells. These wells include Dickenson Well, Sunshine Well and North Spring Pipeline.
  - ii. Livestock will either start in the west portion of East Jakes Pasture and proceed east, shutting off waters as livestock are moved; or start east and proceed west, shutting off waters as livestock are moved

- iii. Livestock will be distributed between waters in the Divide Pasture and then herded into the Antelope Pasture, closing gates to exclude them from the Divide Pasture. Within the Antelope Pasture, livestock will either start in the north portion and move south or start in the south and move north.
  - g. Maximum allowable use levels will be as follows:
    - i. Winterfat and key perennial grasses during winter use: 50% of the current year's growth
    - ii. Bitterbrush and key perennial grasses during summer use: 45% of the current year's growth
    - iii. Perennial non-native seedings: 60% of the current year's growth
    - iv. Livestock will be moved to another authorized pasture or removed from the allotment before utilization objectives are met or no later than 5 days after meeting the utilization objectives. Any deviation in livestock movement will require authorization from the authorized officer.
  - h. Flexibility in grazing seasons will be allowed if it is consistent with meeting the Multiple Use Objectives for the allotment and agreed upon by the BLM authorized officer and the permittee.
  - i. Annual grazing use billings will be based on actual use for the period beginning March 1 and ending February 28. Actual Use Reports will be due by March 15 each year.
  - j. Annual grazing will be completed with consultation, coordination, and cooperation between the BLM and the grazing permittee.
  - k. Monitoring: The BLM and the permittee will continue to work together to collect monitoring data. Specific rangeland monitoring studies to be collected may include proper functioning condition (PFC) riparian studies, cover studies, ecological condition studies, and key species utilization studies. Additional studies may be collected if the need arises.
3. Pursue options to develop reliable water sources in the Divide Pasture.
4. Continue to implement current wild horse management plans and appropriate management levels.
5. Due to the success of the past sagebrush restoration treatment in this area and areas showing a decreasing understory due to high tree/shrub cover, additional restoration treatments would be recommended to prevent further loss of herbaceous understory in sagebrush habitats, especially in areas identified as priority sage-grouse habitat.
6. Consider interseeding perennial forbs into crested wheatgrass seedings to improve their value as sage-grouse habitat, while maintaining their integrity as an important livestock forage source.

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# **Chapter 6. SIGNATURE PAGE**

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# Appendix A. Appendix A—Data Summary

## A.1. Key Areas and Ecological Sites

A key area is a relatively small portion of a pasture or allotment selected because of its location, use, or grazing value as a monitoring point for grazing use. It is assumed that key areas, if properly selected, will reflect the current grazing management over the pasture or allotment as a whole (NRCS 1997). Key areas represent range conditions, trends, seasonal degrees of use, and resource production and values. Table A.1, “Moorman Ranch Allotment Key Areas” (p. 35) depicts key areas and their location within the Moorman Ranch Allotment as well as the ecological site associated with the key area and soil mapping unit of each site (Map B.3, “Moorman Ranch Allotment Monitoring Points” (p. 55), Map B.5, “Moorman Ranch Allotment Soils Map” (p. 57)). These key areas occur within the Soil Survey of Western White Pine County Area, Nevada (NV780; NRCS 1998).

An ecological site is a distinctive kind of land with specific physical characteristics that differs from other kinds of land in its ability to produce a distinctive kind and amount of vegetation (NRCS 1997). Ecological Site Descriptions (ESD) are used for inventory, evaluation, and management of native vegetation communities. The ecological site of a key area is determined based on several factors including soils, topography, and plant community.

**Table A.1. Moorman Ranch Allotment Key Areas**

Key Area	Pasture	Location	Ecological Site	Dominant Species from ESD	Soil Mapping Unit
MR-01	Long Valley	T20N R59E Sec. 19 NWSE	Silty 8–12” PZ (028BY013NV)	winterfat and Indian ricegrass	241—Katelana, level-Raph association
MR-02	Moorman Ranch Sdg	T18N R59E Sec. 36 SWSW	Seeding	crested wheatgrass	578—Yody gravelly sandy loam
MR-03	Townsend Sdg	T18N R60E Sec. 16 SWSW	Seeding	crested wheatgrass	920—Abgese-Yody-Shabliss association
MR-04	Illipah Sdg	T17N R58E Sec. 24 SWSW	Seeding	Russian wildrye	900—Abgese-Roden-Orr association
MR-05	Antelope	T18N R58E Sec. 8 SWSE	Loamy 10–12” PZ (028BY007NV)	Wyoming big sagebrush, Thurber’s needlegrass, and bluebunch wheatgrass	880—Wredah-Amelar-Orr association
MR-06	East Jakes	T18N R60E Sec. 9 NESW	Loamy 8–10” PZ (028BY010NV)	Wyoming big sagebrush, Indian ricegrass, and needleandthread	920—Abgese-Yody-Shabliss association
MR-07	Buster Mt.	T17N R58E Sec. 17 SESE	Loamy Slope 12–16” PZ (028BY015NV)	mountain big sagebrush and bluebunch wheatgrass	870—Amelar-Eoj association
MR-08	Divide	T18N R58E Sec. 26 NWSE	Loamy 8–10” PZ (028BY010NV)	Wyoming big sagebrush, Indian ricegrass, and needleandthread	762—Segura-Eoj-Cassiro association

Key Area	Pasture	Location	Ecological Site	Dominate Species from ESD	Soil Mapping Unit
MR-09	Trench	T18N R59E Sec. 5 SENW	Loamy 8–10” PZ (028BY010NV)	Wyoming big sagebrush, Indian ricegrass, and needleandthread	1287—Palinor-Izar-Biken association
MR-10	West Jakes	T18N R59E Sec. 35SWNW	Silty 8–12” PZ (028BY013NV)	winterfat and Indian ricegrass	351—Heist-Tulase association
MR-12	Long Valley	T19N R59E Sec. 8 NWSW	Silty 8–12” PZ (028BY013NV)	winterfat and Indian ricegrass	353—Heist silt loam
MR-13	Long Valley	T20N R58E Sec. 15 NWNE	Silty 8–12” PZ (028BY013NV)	winterfat and Indian ricegrass	643—Kunzler-Bylo-Zimwala association
MR-14	Townsend Sdg	T18N R60E Sec. 17 NWNE	Seeding	crested wheatgrass	920—Abgese-Yody-Shabliss association
MR-15	East Jakes Sdg	T18N R60E Sec. 22 NWNE	Seeding	crested wheatgrass	920—Abgese-Yody-Shabliss association

## A.2. Licensed Livestock Use

Over the grazing seasons from 2002 to 2011, livestock active permitted use on the Moorman Ranch Allotment was 4,749 cattle AUMs. Table A.2, “Moorman Ranch Allotment Licensed Use Summary” (p. 37) summarizes the licensed use data for this time period. Livestock grazing on the Moorman Ranch Allotment is rotated across twelve pastures throughout the grazing year. The Trench Pasture has been in non-use for over ten years. Annual variation in livestock use has occurred for several reasons including various business decisions of the permittee, competition with wild horses and other herbivores, and annual forage availability.

**Table A.2. Moorman Ranch Allotment Licensed Use Summary**

<b>Pasture:</b>	Antelope/ Divide		Burned Basin		Buster Mountain		East Jakes		East Jakes Seeding		Illipah Seeding		Long Valley		Moorman Seeding		Townsend Seeding		West Jakes	
<b>Permitted AUMs:</b>	600		148		394		300		169		125		1366		343		477		644	
<b>Grazing Year (Mar. 1 to Feb. 28)</b>	<b>Lic- nsed AU- Ms</b>	<b>% of Per- mit- ted</b>	<b>Li- censed AUMs</b>	<b>% of Per- mit- ted</b>	<b>Lic- nsed AU- Ms</b>	<b>% of Per- mit- ted</b>	<b>Lic- nsed AU- Ms</b>	<b>% of Per- mit- ted</b>	<b>Lic- nsed AU- Ms</b>	<b>% of Per- mit- ted</b>										
2002	461	77	44	30	194	49	524	175	135	80	148	118	1619	119	233	68	95	20	969	150
2003	424	71	0	0	368	93	747	249	109	64	0	0	1166	85	112	33	203	43	734	114
2004	355	59	0	0	296	75	226	75	164	97	0	0	1913	140	42	12	298	62	541	84
2005 <sup>a</sup>																				
2006	671	112	0	0	319	81	0	0	453	268	0	0	1224	90	260	76	250	52	477	74
2007	559	93	494	334	322	82	0	0	179	106	0	0	1350	99	80	23	608	127	265	41
2008	509	85	0	0	385	98	74	25	240	142	0	0	553	40	56	16	251	53	643	100
2009	725	121	101	68	237	60	91	30	442	262	85	68	1735	127	106	31	74	16	0	0
2010	391	65	77	52	61	15	0	0	67	40	47	38	880	64	39	11	190	40	0	0
2011	424	71	140	95	123	31	182	61	122	72	0	0	1584	116	101	29	441	92	0	0

<sup>a</sup>this Actual Use data has been lost

### A.3. Utilization

Utilization is the estimation of the proportion of annual production consumed or destroyed by animals (Swanson et. al. 2006). The general utilization objective for all allotments in the Ely BLM District according to the Ely District Record of Decision and Approved Resource Management Plan (ROD/RMP; 2008) is to “Manage livestock grazing on public lands to provide for a level of livestock grazing consistent with multiple use, sustained yield, and watershed function and health” (Ely RMP, p. 85). The Nevada Rangeland Monitoring Handbook gives guidelines to determine the proper use levels by plant category (grasses, forbs, and shrubs) and by grazing season (spring, summer, fall, winter, yearlong). Proper use levels for all allotments are also implied by the Standards and Guidelines for Rangeland Health and Grazing Administration (1997).

Key Species Method (Cooperative Extension Service et. al. 1996) was used to collect utilization data on the Moorman Ranch Allotment. This data was generally collected at key areas but other data collection sites have been used. Table A.3, “Utilization Data Summary, Moorman Ranch” (p. 38) summarizes utilization data collected since 2002. 2010 Utilization information was compiled into a map (Map A.1, “Utilization Mapping 2010, Moorman Ranch Allotment” (p. 41)). Utilization is for all herbivores (cattle, wild horses, wildlife, etc.)

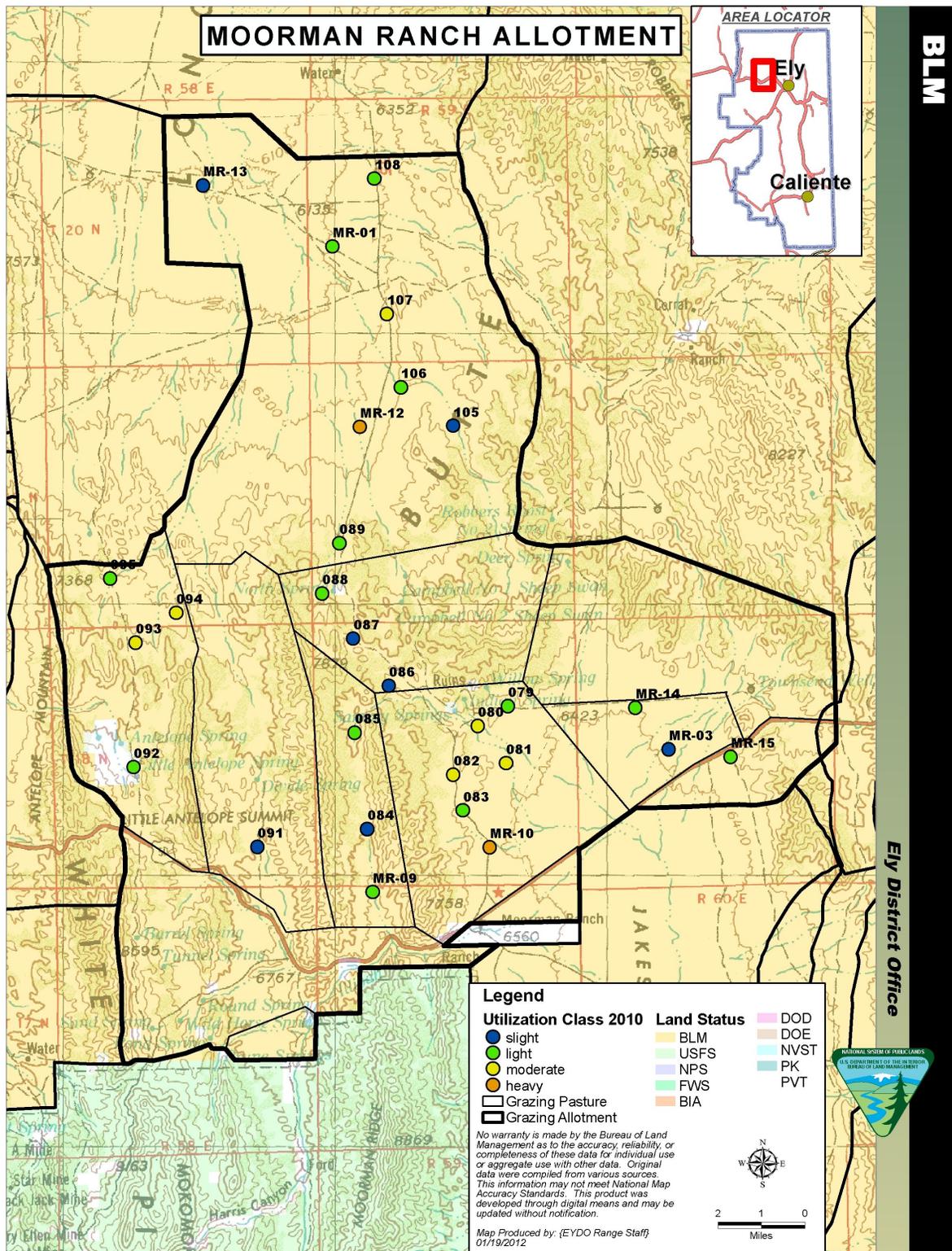
**Table A.3. Utilization Data Summary, Moorman Ranch**

Location	Date Collected	Vegetation Species	Utilization Class <sup>a</sup>	Measured Utilization	Notes
MR-01	4/15/2011	winterfat	light	38%	
	3/22/2010	winterfat	light	34%	
	7/15/2009	winterfat	negligible	5%	
	5/29/2003	winterfat	moderate	50%	
		squirreltail	moderate	56%	
	5/22/2002	winterfat	light	30%	
squirreltail		light	22%		
MR-02	3/22/2010	crested wheatgrass	slight	9%	
	7/14/2009	crested wheatgrass	negligible	5%	
	8/23/2007	crested wheatgrass	slight	6%	
	8/15/2002	crested wheatgrass	moderate	54%	
MR-03	4/15/2011	crested wheatgrass	slight	18%	
	7/21/2009	crested wheatgrass	slight	8%	
	8/23/2007	crested wheatgrass	moderate	52%	
	5/22/2002	crested wheatgrass	moderate	42%	
	8/15/2002	crested wheatgrass	light	40%	
MR-04	10/21/2010	Russian wildrye	light	39%	
	7/21/2009	Russian wildrye	light	36%	
	8/20/2007	Russian wildrye	light	28%	
MR-05	10/21/2010	western wheatgrass	light	25%	
	7/15/2009	squirreltail	negligible	3%	
	8/20/2007	western wheatgrass	light	22%	
		bluegrass	slight	18%	
	1/9/2003	western wheatgrass	moderate	48%	

Location	Date Collected	Vegetation Species	Utilization Class <sup>a</sup>	Measured Utilization	Notes
MR-06	10/21/2010	Indian ricegrass	slight	8%	
		needleandthread	light	24%	
	7/22/2009	Indian ricegrass	slight	7%	
		needleandthread	negligible	3%	
	8/21/2007	bluegrass	light	23%	
		Indian ricegrass	light	32%	
needleandthread		light	38%		
MR-07	10/21/2010	bluegrass	light	26%	
		bluebunch wheatgrass	negligible	5%	
	7/20/2009	bluebunch wheatgrass	slight	7%	
	8/21/2007	bluegrass	light	25%	
MR-08	10/21/2010	Indian ricegrass	light	33%	
		western wheatgrass	slight	8%	
	7/20/2009	Indian ricegrass	slight	18%	
		squirreltail	slight	9%	
	8/20/2007	Indian ricegrass	light	36%	
		western wheatgrass	slight	14%	
1/9/2003	Indian ricegrass	moderate	54%		
	western wheatgrass	light	36%		
MR-09	10/21/2010	Indian ricegrass	light	30%	
		western wheatgrass	slight	15%	
	7/21/2009	Indian ricegrass	slight	9%	
		western wheatgrass	slight	11%	
	8/22/2007	Indian ricegrass	light	22%	
		western wheatgrass	negligible	1%	
MR-10	4/15/2011	winterfat	heavy	74%	a lot of horse use observed
		winterfat	heavy	63%	
		winterfat	light	29%	
		winterfat	heavy	68%	
	5/22/2002	winterfat	moderate	48%	
		bluegrass	moderate	55%	
		Indian ricegrass	moderate	52%	
MR-12	4/15/2011	winterfat	heavy	69%	
		Indian ricegrass	moderate	54%	
		winterfat	light	23%	
	3/22/2010	winterfat	light	23%	observation (not measured)
		Indian ricegrass	none	–	
	7/15/2009	winterfat	slight	12%	
		Indian ricegrass	slight	17%	
	8/30/2007	winterfat	light	32%	
		Indian ricegrass	light	30%	
		bluegrass	light	23%	
	5/29/2003	winterfat	moderate	50%	
		shadscale	moderate	53%	
bluegrass		moderate	56%		

Location	Date Collected	Vegetation Species	Utilization Class <sup>a</sup>	Measured Utilization	Notes
MR-13	4/19/2011	winterfat	slight	17%	
	7/15/2009	winterfat	slight	7%	
		Indian ricegrass	negligible	3%	
	8/30/2007	winterfat	slight	10%	
	5/29/2003	winterfat	moderate	52%	
		squirreltail	heavy	61%	
		winterfat	slight	14%	
5/22/2002	Indian ricegrass	slight	13%		
	squirreltail	negligible	5%		
MR-14	4/15/2011	crested wheatgrass	light	30%	
	7/23/2009	crested wheatgrass	negligible	5%	
	8/22/2007	crested wheatgrass	moderate	55%	
	1/9/2003	crested wheatgrass	moderate	56%	
	5/22/2002	crested wheatgrass	moderate	44%	
MR-15	4/15/2011	crested wheatgrass	light	37%	
	3/22/2010	crested wheatgrass	light	22%	
	7/22/2009	crested wheatgrass	slight	6%	
	8/23/2007	crested wheatgrass	light	35%	
	1/9/2003	crested wheatgrass	moderate	57%	
	8/15/2002	crested wheatgrass	moderate	58%	
MRST-1	7/22/2009	Indian ricegrass	slight	13%	
		needleandthread	slight	6%	
MRST-2	7/23/2009	Indian ricegrass	negligible	3%	
MRST-3	3/22/2010	Indian ricegrass	negligible	3%	
	7/23/2009	Indian ricegrass	negligible	3%	

<sup>a</sup>negligible = 0–5%; slight = 6–20%; light = 21–40%; moderate = 41–60%; heavy = 61–80%; severe = 81–94%; extreme = 95–100%



Map A.1. Utilization Mapping 2010, Moorman Ranch Allotment

## A.4. Line-Point Intercept Cover Studies

Line-point intercept is a rapid, accurate method for quantifying soil cover, including vegetation, litter, rocks and biotic crusts. These measurements are related to wind and water erosion, water infiltration and the ability of the site to resist and recover from degradation (Herrick et al 2005). The results from this cover study are compared to the appropriate vegetative cover for each ecological site as indicated by the Natural Resources Conservation Service (NRCS) Rangeland Ecological Site Descriptions (ESD).

Line-point intercept cover studies were started in 2009 on the Moorman Ranch Allotment. Additionally, four line-point study sites had data collected in 2009 or 2011, six random data collection points within sage-grouse habitat had line-point intercept cover data collected in 2011, and three sites from the Jakes Valley Land Health Assessment (LHA) data collection had line-point intercept data collected in 2011 within the Moorman Ranch Allotment.. A ground cover summary of this data is in Table A.4, “Moorman Ranch Allotment Ground Cover” (p. 42).

**Table A.4. Moorman Ranch Allotment Ground Cover**

Location	Year Data Collected	Bare Ground	Ground Cover				ESD Veg. Cover
			Rock	Bio. Crust	Litter	Veg.	
MR-01	2011	61%	1%	7%	12%	19%	10%–20%
	2009	36%	0%	27%	6%	31%	
MR-02	2011	47%	6%	1%	15%	31%	—
	2009	49%	0%	1%	13%	37%	
MR-03	2011	48%	3%	0%	18%	31%	—
	2009	55%	0%	0%	14%	31%	
MR-04	2011	36%	10%	0%	13%	41%	—
	2009	68%	1%	0%	16%	15%	
MR-05	2011	19%	1%	0%	18%	62%	20%–30%
	2009	48%	0%	0%	6%	46%	
MR-06	2011	39%	2%	0%	12%	47%	10%–20%
	2009	39%	0%	0%	12%	49%	
MR-07	2009	17%	2%	0%	12%	69%	25%–35%
MR-08	2011	27%	6%	0%	18%	49%	10%–20%
	2009	55%	0%	2%	9%	34%	
MR-09	2011	34%	4%	0%	15%	47%	10%–20%
	2009	63%	2%	0%	8%	27%	
MR-10	2011	39%	0%	1%	11%	49%	10%–20%
	2009	52%	0%	0%	4%	44%	
MR-12	2011	48%	0%	2%	15%	35%	10%–20%
	2009	69%	0%	0%	4%	27%	
MR-13	2011	53%	0%	9%	7%	31%	10%–20%
	2009	51%	0%	22%	2%	25%	
MR-14	2011	53%	1%	0%	18%	28%	—
	2009	55%	1%	0%	8%	25%	
MR-15	2011	54%	2%	0%	13%	31%	—
	2009	62%	1%	0%	8%	29%	
MRST-1	2009	19%	0%	0%	14%	67%	
MRST-2	2009	44%	0%	0%	4%	52%	
MRST-3	2009	54%	2%	0%	10%	34%	
MRST-4	2011	22%	2%	0%	25%	51%	
SG-MR-02	2011	43%	4%	2%	9%	42%	
SG-MR-04	2011	34%	1%	1%	16%	48%	

Location	Year Data Collected	Bare Ground	Ground Cover				ESD Veg. Cover
			Rock	Bio. Crust	Litter	Veg.	
SG-MR-06	2011	31%	0%	0%	16%	53%	
SG-MR-09	2011	34%	10%	0%	22%	34%	
SG-MR-10	2011	38%	3%	3%	12%	44%	
SG-LV-20	2011	55%	6%	1%	3%	35%	
JAKS01	2011	17%	0%	0%	18%	65%	10–20%
JAKS08	2011	45%	0%	0%	12%	43%	20–30%
JAKS15	2011	39%	0%	9%	13%	39%	20–40%

The line-point intercept method is also used to collect information related to sage-grouse habitat. On the Moorman Ranch Allotment, six points were set up specifically in sage-grouse habitat additionally eight key areas, four study sites, and two LHA sites are also within sage-grouse habitat. The data from these sites are summarized in Table A.5, “Sage-Grouse Habitat Data on the Moorman Ranch Allotment” (p. 43). These data were collected in June or July which is the end of the sage-grouse nesting period and beginning of the brood-rearing period.

**Table A.5. Sage-Grouse Habitat Data on the Moorman Ranch Allotment**

Sage-Grouse Habitat Monitoring Point	Year Data Collected	Sagebrush		Grass		Forb	
		Cover	Average Height (inches)	Cover	Average Height (inches)	Cover	Average Height (inches)
SG-MR-02	2011	18%	19	10%	8	9%	1
SG-MR-04	2011	17%	15	28%	10	10%	13
SG-MR-06 <sup>a</sup>	2011	37%	12	22%	11	3%	2
SG-MR-09	2011	24%	13	4%	9	7%	3
SG-MR-10	2011	25%	14	13%	8	8%	5
SG-LV-20	2011	19%	14	11%	4	0	0
MR-02 <sup>a</sup>	2011	10%	14	21%	7	5%	1
	2009	23%	8	21%	7	0	0
MR-03 <sup>a</sup>	2011	7%	11	27%	8	3%	2
	2009	19%	7	21%	8	0	0
MR-05	2011	38%	22	41%	10	4%	6
	2009	30%	14	22%	4	2%	3
MR-06	2011	18%	21	27%	11	9%	3
	2009	20%	11	6%	5	9%	5
MR-08	2011	23%	25	14%	8	9%	3
	2009	19%	12	14%	4	1%	1
MR-09	2011	27%	18	29%	10	0	0
	2009	15%	13	12%	2	0	0
MR-14 <sup>a</sup>	2011	20%	9	15%	11	1%	8
	2009	31%	6	12%	10	0	0
MR-15 <sup>a</sup>	2011	19%	15	18%	10	0	0
	2009	18%	14	15%	6	0	0
MRST-1	2009	39%	21	14%	3	10%	4
MRST-2	2009	49%	7	5%	6	0	0
MRST-3	2009	24%	11	2%	4	0	0
MRST-4 <sup>b</sup>	2011	3%	7	31%	9	8%	5
JAKS01	2011	20%	20	41%	15	9%	11
JAKS08	2011	32%	14	1%	8	0	0

<sup>a</sup>occurs in a crested wheatgrass seeding

<sup>b</sup>this area was mowed in 2008 as a habitat enhancement project

## A.5. Similarity Index and Ecological Condition

A similarity index is the percentage of a specific vegetation state plant community that is presently on the site (NRCS 1997). Similarity index is usually computed in reference to the potential native vegetation (PNV) and is an expression of how similar the existing plant community is to PNV. Also note that PNV is not always the most desirable plant community to manage for.

Similarity index is calculated as a percent composition by air dry weight. The site is inventoried to determine the current percent composition by weight on an air dry basis. These numbers are then compared to the percent composition by weight on an air dry basis of the PNV in the Rangeland Ecological Site Description for the site. To calculate the similarity index, current composition cannot exceed that of PNV. This yields percent allowable. The sum of all allowable percentages equals the similarity index.

Table A.6, “Total Annual Yield and Composition of Key Areas, Moorman Ranch Allotment” (p. 44) summarizes data used to calculate similarity index for the Moorman Ranch Allotment.

**Table A.6. Total Annual Yield and Composition of Key Areas, Moorman Ranch Allotment**

<b>Key Area: MR-01</b>				
<b>Ecological Site: Silty 8–10” P.Z. (028BY013NV)</b>				
<b>Potential Vegetative Composition*: 30% Grasses, 5% Forbs, 65% Shrubs</b>				
<b>Total Annual Production (air dry lb/ac)*: 700 (Favorable), 500 (Normal), 350 (Unfavorable Year)</b>				
<b>Date: 06/15/2011</b>				
<b>Plant Common Name</b>	<b>Current Production (air dry lb/ac)</b>	<b>Current % Composition by Weight (air dry)</b>	<b>PNV % Composition by Weight (air dry)*</b>	<b>% Allowable</b>
winterfat	1000	100%	50%	150%
<b>Total Production:</b>	<b>1000</b>		<b>Similarity Index:</b>	<b>50%</b>
<b>Date: 07/15/2009</b>				
<b>Plant Common Name</b>	<b>Current Production (air dry lb/ac)</b>	<b>Current % Composition by Weight (air dry)</b>	<b>PNV % Composition by Weight (air dry)*</b>	<b>% Allowable</b>
winterfat	844	94%	50%	50%
squirreltail	2	trace	10%	—
Indian ricegrass	2	trace	25%	—
halogeton	45	5%	—	—
mustard	2	trace	2%	—
<b>Total Production:</b>	<b>895</b>		<b>Similarity Index:</b>	<b>50%</b>

<b>Key Area: MR-05</b>				
<b>Ecological Site: Loamy 10–12" P.Z. (028BY007NV)</b>				
<b>Potential Vegetative Composition*: 65% Grasses, 10% Forbs, 25% Shrubs</b>				
<b>Total Annual Production (air dry lb/ac)*: 1000 (Favorable), 800 (Normal), 600 (Unfavorable Year)</b>				
<b>Date: 06/21/2011</b>	<b>Current Production (air dry lb/ac)</b>	<b>Current % Composition by Weight (air dry)</b>	<b>PNV % Composition by Weight (air dry)*</b>	<b>% Allowable</b>
Wyoming big sagebrush	1410	81%	25%	25%
perennial forbs	21	1%	10%	1%
thickspike wheatgrass	156	9%	3%	3%
bluegrass	135	8%	8%	8%
squirreltail	17	1%	3%	1%
Indian ricegrass	6	trace	5%	—
<b>Total Production:</b>	<b>1745</b>		<b>Similarity Index:</b>	<b>40%</b>
<b>Date: 07/15/2009</b>	<b>Current Production (air dry lb/ac)</b>	<b>Current % Composition by Weight (air dry)</b>	<b>PNV % Composition by Weight (air dry)*</b>	<b>% Allowable</b>
Wyoming big sagebrush	1024	89%	25%	25%
perennial forbs	24	2%	10%	2%
bluegrass	15	1%	8%	1%
squirreltail	84	7%	3%	3%
Indian ricegrass	4	trace	5%	—
<b>Total Production:</b>	<b>1151</b>		<b>Similarity Index:</b>	<b>31%</b>
<b>Key Area: MR-06</b>				
<b>Ecological Site: Loamy 8–10" P.Z. (028BY010NV)</b>				
<b>Potential Vegetative Composition*: 50% Grasses, 5% Forbs, 45% Shrubs</b>				
<b>Total Annual Production (air dry lb/ac)*: 800 (Favorable), 600 (Normal), 400 (Unfavorable Year)</b>				
<b>Date: 06/08/2011</b>	<b>Current Production (air dry lb/ac)</b>	<b>Current % Composition by Weight (air dry)</b>	<b>PNV % Composition by Weight (air dry)*</b>	<b>% Allowable</b>
Wyoming big sagebrush	848	56%	35%	35%
Douglas rabbitbrush	205	14%	5%	5%
perennial forbs	82	5%	5%	5%
annual forbs	56	4%	—	—
crested wheatgrass	111	7%	3%	3%
bluegrass	180	12%	5%	5%
thickspike wheatgrass	9	1%	3%	1%
Indian ricegrass	6	trace	30%	—
cheatgrass	11	1%	—	—
<b>Total Production:</b>	<b>1508</b>		<b>Similarity Index:</b>	<b>54%</b>
<b>Date: 07/22/2009</b>	<b>Current Production (air dry lb/ac)</b>	<b>Current % Composition by Weight (air dry)</b>	<b>PNV % Composition by Weight (air dry)*</b>	<b>% Allowable</b>
Wyoming big sagebrush	771	63%	35%	35%
Douglas rabbitbrush	318	26%	5%	5%
perennial forbs	28	2%	5%	2%
bluegrass	14	1%	5%	1%
thickspike wheatgrass	12	1%	3%	1%
Indian ricegrass	18	1%	30%	1%
squirreltail	7	1%	8%	1%
needleandthread	57	5%	20%	5%
<b>Total Production:</b>	<b>1225</b>		<b>Similarity Index:</b>	<b>51%</b>

<b>Key Area: MR-07</b>				
<b>Ecological Site: Loamy Slope 12–16" P.Z. (028BY015NV)</b>				
<b>Potential Vegetative Composition*:</b> 50% Grasses, 10% Forbs, 40% Shrubs				
<b>Total Annual Production (air dry lb/ac)*:</b> 1500 (Favorable), 1100 (Normal), 700 (Unfavorable Year)				
<b>Date:</b> 07/20/2009	<b>Current Production (air dry lb/ac)</b>	<b>Current % Composition by Weight (air dry)</b>	<b>PNV % Composition by Weight (air dry)*</b>	<b>% Allowable</b>
mountain big sagebrush	351	40%	20%	20%
antelope bitterbrush	148	17%	8%	8%
snowberry	87	10%	8%	8%
Utah serviceberry	46	5%	8%	5%
Douglas rabbitbrush	12	1%	3%	1%
perennial forbs	212	24%	8%	8%
bluebunch wheatgrass	19	2%	40%	2%
squirreltail	4	trace	2%	—
bluegrass	3	trace	2%	—
intermediate wheatgrass	1	trace	2%	—
<b>Total Production:</b>	<b>883</b>		<b>Similarity Index:</b>	<b>52%</b>
<b>Key Area: MR-08</b>				
<b>Ecological Site: Loamy 8–10" P.Z. (028BY010NV)</b>				
<b>Potential Vegetative Composition*:</b> 50% Grasses, 5% Forbs, 45% Shrubs				
<b>Total Annual Production (air dry lb/ac)*:</b> 800 (Favorable), 600 (Normal), 400 (Unfavorable Year)				
<b>Date:</b> 06/22/2011	<b>Current Production (air dry lb/ac)</b>	<b>Current % Composition by Weight (air dry)</b>	<b>PNV % Composition by Weight (air dry)*</b>	<b>% Allowable</b>
Wyoming big sagebrush	929	77%	35%	35%
Douglas rabbitbrush	90	7%	5%	5%
perennial forbs	80	7%	5%	5%
annual forbs	2	trace	—	—
Indian ricegrass	39	3%	30%	3%
thickspike wheatgrass	23	2%	3%	2%
squirreltail	20	2%	8%	2%
bluegrass	26	2%	5%	2%
<b>Total Production:</b>	<b>1209</b>		<b>Similarity Index:</b>	<b>54%</b>
<b>Date:</b> 07/20/2009	<b>Current Production (air dry lb/ac)</b>	<b>Current % Composition by Weight (air dry)</b>	<b>PNV % Composition by Weight (air dry)*</b>	<b>% Allowable</b>
Wyoming big sagebrush	739	67%	35%	35%
Douglas rabbitbrush	184	17%	5%	5%
perennial forbs	124	11%	5%	5%
Indian ricegrass	11	1%	30%	1%
squirreltail	35	3%	8%	3%
bluegrass	16	1%	5%	1%
<b>Total Production:</b>	<b>1109</b>		<b>Similarity Index:</b>	<b>50%</b>

<b>Key Area: MR-09</b>				
<b>Ecological Site: Loamy 8–10" P.Z. (028BY010NV)</b>				
<b>Potential Vegetative Composition*: 50% Grasses, 5% Forbs, 45% Shrubs</b>				
<b>Total Annual Production (air dry lb/ac)*: 800 (Favorable), 600 (Normal), 400 (Unfavorable Year)</b>				
<b>Date: 06/14/2011</b>	<b>Current Production (air dry lb/ac)</b>	<b>Current % Composition by Weight (air dry)</b>	<b>PNV % Composition by Weight (air dry)*</b>	<b>% Allowable</b>
Wyoming big sagebrush	1760	81%	35%	35%
Douglas rabbitbrush	164	8%	5%	5%
winterfat	5	trace	3%	—
perennial forbs	14	1%	5%	1%
bluegrass	168	8%	5%	5%
thickspike wheatgrass	18	1%	3%	1%
Indian ricegrass	16	1%	30%	1%
needleandthread	15	1%	20%	1%
squirreltail	13	1%	8%	1%
<b>Total Production:</b>	<b>2173</b>		<b>Similarity Index:</b>	<b>50%</b>
<b>Date: 07/21/2009</b>	<b>Current Production (air dry lb/ac)</b>	<b>Current % Composition by Weight (air dry)</b>	<b>PNV % Composition by Weight (air dry)*</b>	<b>% Allowable</b>
Wyoming big sagebrush	553	62%	35%	35%
Douglas rabbitbrush	214	24%	5%	5%
perennial forbs	59	7%	5%	5%
bluegrass	12	1%	5%	1%
thickspike wheatgrass	20	2%	3%	2%
Indian ricegrass	15	2%	30%	2%
needleandthread	24	3%	20%	3%
<b>Total Production:</b>	<b>897</b>		<b>Similarity Index:</b>	<b>53%</b>
<b>Key Area: MR-10</b>				
<b>Ecological Site: Silty 8–10" P.Z. (028BY013NV)</b>				
<b>Potential Vegetative Composition*: 30% Grasses, 5% Forbs, 65% Shrubs</b>				
<b>Total Annual Production (air dry lb/ac)*: 700 (Favorable), 500 (Normal), 350 (Unfavorable Year)</b>				
<b>Date: 06/14/2011</b>	<b>Current Production (air dry lb/ac)</b>	<b>Current % Composition by Weight (air dry)</b>	<b>PNV % Composition by Weight (air dry)*</b>	<b>% Allowable</b>
winterfat	812	65%	50%	50%
Wyoming big sagebrush	1	trace	—	—
Douglas rabbitbrush	8	1%	2%	1%
perennial forbs	4	trace	5%	—
annual forbs	82	7%	—	—
bluegrass	324	26%	2%	2%
Indian ricegrass	16	1%	25%	1%
<b>Total Production:</b>	<b>1247</b>		<b>Similarity Index:</b>	<b>54%</b>
<b>Date: 07/22/2009</b>	<b>Current Production (air dry lb/ac)</b>	<b>Current % Composition by Weight (air dry)</b>	<b>PNV % Composition by Weight (air dry)*</b>	<b>% Allowable</b>
winterfat	823	99%	50%	50%
bluegrass	9	1%	2%	1%
<b>Total Production:</b>	<b>832</b>		<b>Similarity Index:</b>	<b>51%</b>

<b>Key Area: MR-12</b>				
<b>Ecological Site: Silty 8–10" P.Z. (028BY013NV)</b>				
<b>Potential Vegetative Composition*: 30% Grasses, 5% Forbs, 65% Shrubs</b>				
<b>Total Annual Production (air dry lb/ac)*: 700 (Favorable), 500 (Normal), 350 (Unfavorable Year)</b>				
<b>Date: 06/15/2011</b>	<b>Current Production (air dry lb/ac)</b>	<b>Current % Composition by Weight (air dry)</b>	<b>PNV % Composition by Weight (air dry)*</b>	<b>% Allowable</b>
winterfat	655	89%	50%	50%
perennial forbs	3	trace	5%	—
annual forbs	56	8%	—	—
bluegrass	13	2%	2%	2%
Indian ricegrass	13	2%	25%	2%
<b>Total Production:</b>	<b>740</b>		<b>Similarity Index:</b>	<b>54%</b>
<b>Date: 07/15/2009</b>	<b>Current Production (air dry lb/ac)</b>	<b>Current % Composition by Weight (air dry)</b>	<b>PNV % Composition by Weight (air dry)*</b>	<b>% Allowable</b>
winterfat	242	13%	50%	50%
shadscale	1335	74%	2%	2%
bud sagebrush	5	trace	8%	—
halogeton	214	12%	—	—
Indian ricegrass	5	trace	25%	—
<b>Total Production:</b>	<b>1804</b>		<b>Similarity Index:</b>	<b>52%</b>
<b>Key Area: MR-13</b>				
<b>Ecological Site: Silty 8–10" P.Z. (028BY013NV)</b>				
<b>Potential Vegetative Composition*: 30% Grasses, 5% Forbs, 65% Shrubs</b>				
<b>Total Annual Production (air dry lb/ac)*: 700 (Favorable), 500 (Normal), 350 (Unfavorable Year)</b>				
<b>Date: 06/15/2011</b>	<b>Current Production (air dry lb/ac)</b>	<b>Current % Composition by Weight (air dry)</b>	<b>PNV % Composition by Weight (air dry)*</b>	<b>% Allowable</b>
winterfat	1093	99%	50%	50%
perennial forbs	2	trace	5%	—
squirreltail	8	1%	10%	1%
Indian ricegrass	4	trace	25%	—
<b>Total Production:</b>	<b>1107</b>		<b>Similarity Index:</b>	<b>51%</b>
<b>Date: 07/15/2009</b>	<b>Current Production (air dry lb/ac)</b>	<b>Current % Composition by Weight (air dry)</b>	<b>PNV % Composition by Weight (air dry)*</b>	<b>% Allowable</b>
winterfat	265	98%	50%	50%
squirreltail	3	1%	10%	1%
Indian ricegrass	3	1%	25%	1%
<b>Total Production:</b>	<b>271</b>		<b>Similarity Index:</b>	<b>52%</b>
* From Ecological Site Description				

## A.6. Current Composition and Production of Seeded Areas

Key areas within the seeded portions of the Moorman Ranch Allotment were inventoried to determine the current vegetative production and percent composition by weight on an air dry basis. This was completed using a double sampling technique. Current composition and production data are summarized in Table A.7, “Current Composition and Production of Seeded Areas on Moorman Ranch Allotment” (p. 49).

**Table A.7. Current Composition and Production of Seeded Areas on Moorman Ranch Allotment**

Key Area	Date Collected	Plant Common Name	Current Production (lbs./ac.; air dry wt.)	Current % Composition by Weight (air dry)
MR-02	06/10/2011	crested wheatgrass	601	38%
		bur buttercup	8	1%
		milkvetch	1	trace
		Wyoming big sagebrush	878	55%
		Douglas rabbitbrush	99	6%
		<b>TOTAL:</b>	<b>1587</b>	
MR-04	06/10/2011	Russian wildrye	383	88%
		bur buttercup	3	1%
		Wyoming big sagebrush	50	12%
		<b>TOTAL:</b>	<b>436</b>	
MR-14	06/08/2011	crested wheatgrass	442	37%
		long-leaf phlox	1	trace
		Wyoming big sagebrush	763	63%
		<b>TOTAL:</b>	<b>1206</b>	
MR-15	06/09/2011	crested wheatgrass	699	36%
		Indian ricegrass	25	1%
		mustard	8	trace
		milkvetch	26	1%
		stickseed	4	trace
		Wyoming big sagebrush	1081	56%
		Douglas rabbitbrush	86	5%
		<b>TOTAL:</b>	<b>1929</b>	

## A.7. Riparian Data

Proper Functioning Condition (PFC) is a qualitative method for assessing the condition of riparian-wetland areas (Prichard 1998, Prichard 2003). The process is completed by an interdisciplinary (ID) team. The team looks at hydrology, vegetation, and erosion/deposition (soil) characteristics of the site in order to assess the condition of a riparian area. Table A.8, “Summary of PFC Assessments on the Moorman Ranch Allotment” (p. 49) summarizes the finding of this team (Map B.6, “Moorman Ranch Allotment Riparian Areas” (p. 58)).

**Table A.8. Summary of PFC Assessments on the Moorman Ranch Allotment**

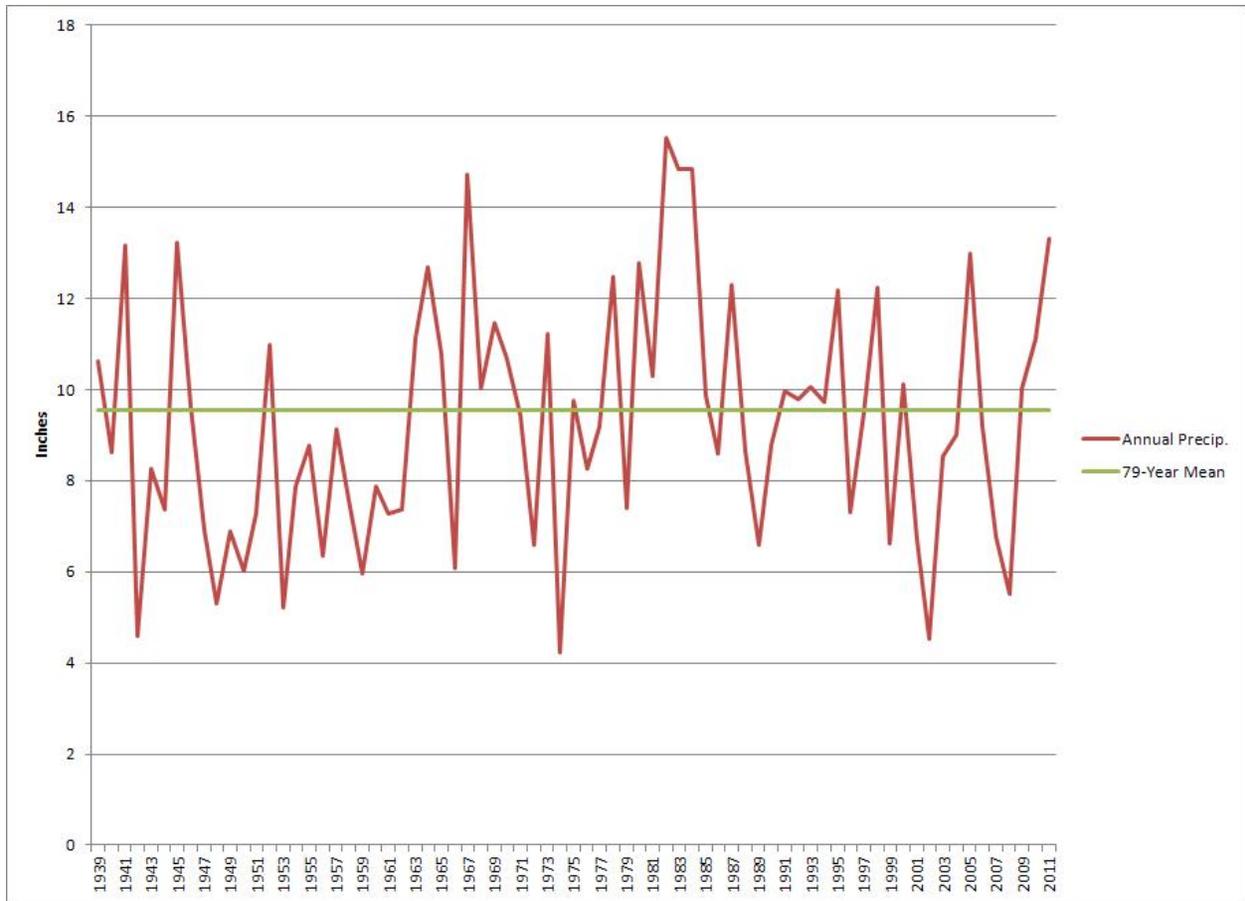
Riparian Area	Date	Functional Rating <sup>a</sup>	Notes
Cambell No. 2 Sheep Swan	08/26/2010	PFC	Risk Factor: hoof action at source
	09/14/2007	PFC	Trampling at source
Halstead Spring	08/25/2010	PFC	Risk Factor: trampling and hoof action
Indian Spring	08/26/2010	FAR Upward Trend	Risk Factors: dependent upon water development, hoof action
	08/27/2007	FAR Upward Trend	Dependent upon water development
Illipah Creek—Upper reach	08/25/2010	PFC	Riparian area occurs within an old incised channel; Reach is fenced to exclude livestock
	08/28/2007	PFC	Fenced to exclude livestock
Illipah Creek—Above reservoir	08/25/2010	FAR Downward Trend	Reach is flooded when reservoir is full, several years of low water is allowing vegetation to begin to establish

Riparian Area	Date	Functional Rating <sup>a</sup>	Notes
Illipah Creek—Below dam	08/26/2010	PFC	Risk Factor: water in system is controlled by the dam and irrigation water use
Illipah Creek—Above ranch	08/26/2010	PFC	Riparian area occurs within an old incised channel; Risk Factor: water in system is controlled by the dam and irrigation water use
unnamed spring along Illipah Road	08/25/2010	PFC	Fenced to exclude livestock
Wild Horse Spring	08/25/2010	FAR Downward Trend	Risk Factor: low flows, hoof action/trampling
	08/29/2007	FAR Downward Trend	Low flows, hoof action/trampling
Willow Spring (adjacent to historic development)	08/26/2010	PFC	Risk Factor: hoof action

<sup>a</sup>PFC=Proper Functioning Condition; FAR=Functional At Risk

## A.8. Precipitation Data

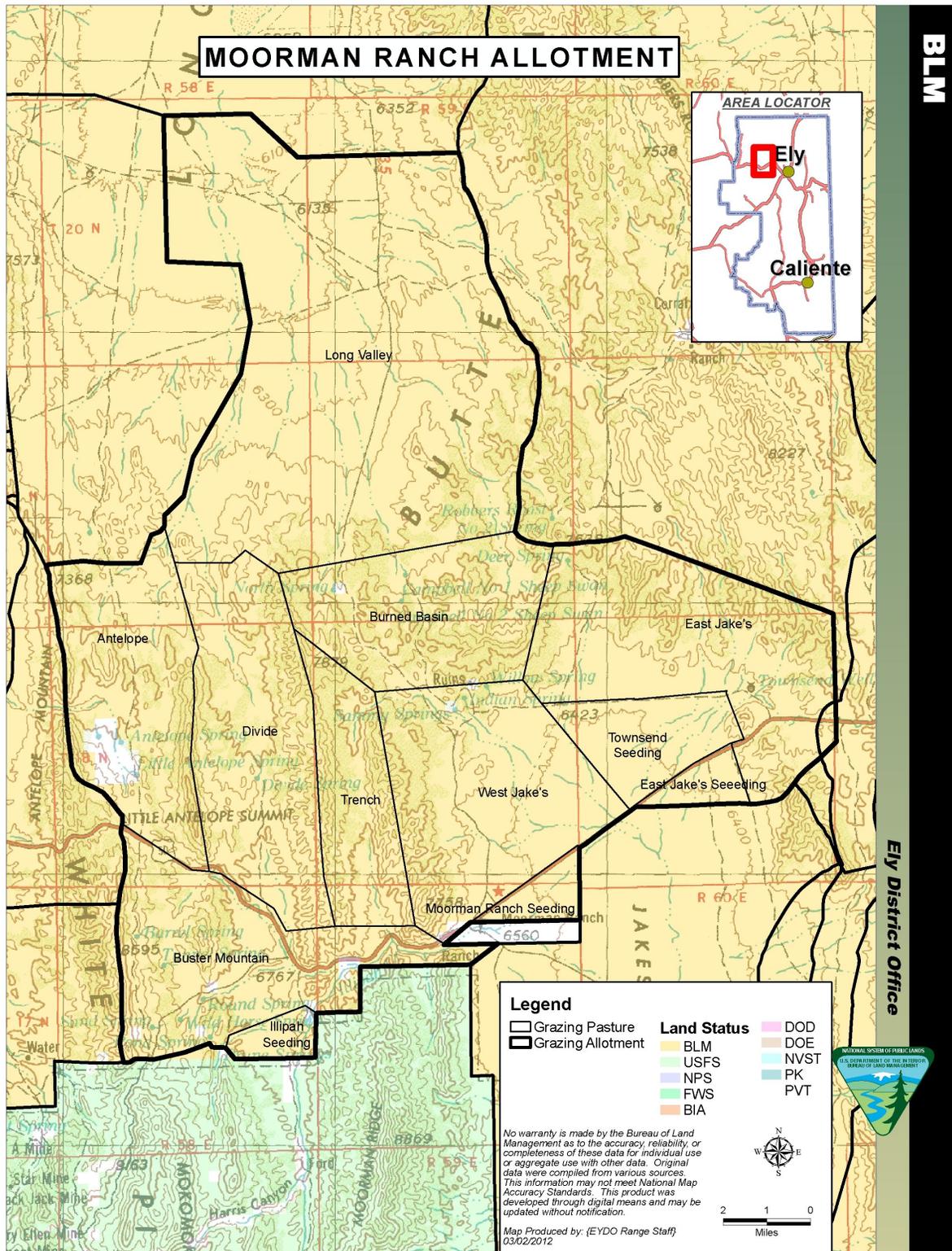
Annual precipitation greatly influences growing condition of forage species and is often correlated to available forage. Historical climate data from the Western Regional Climate Center at the Ely, Nevada weather station is being used to represent the annual precipitation on the Moorman Ranch Allotment (2012). Figure A.1, “Precipitation Data (1939–2011) from Western Regional Climate Center, Ely, NV” (p. 51) summarizes annual precipitation data collected since 1939. The 79 year mean annual precipitation for this station is 9.56 inches.



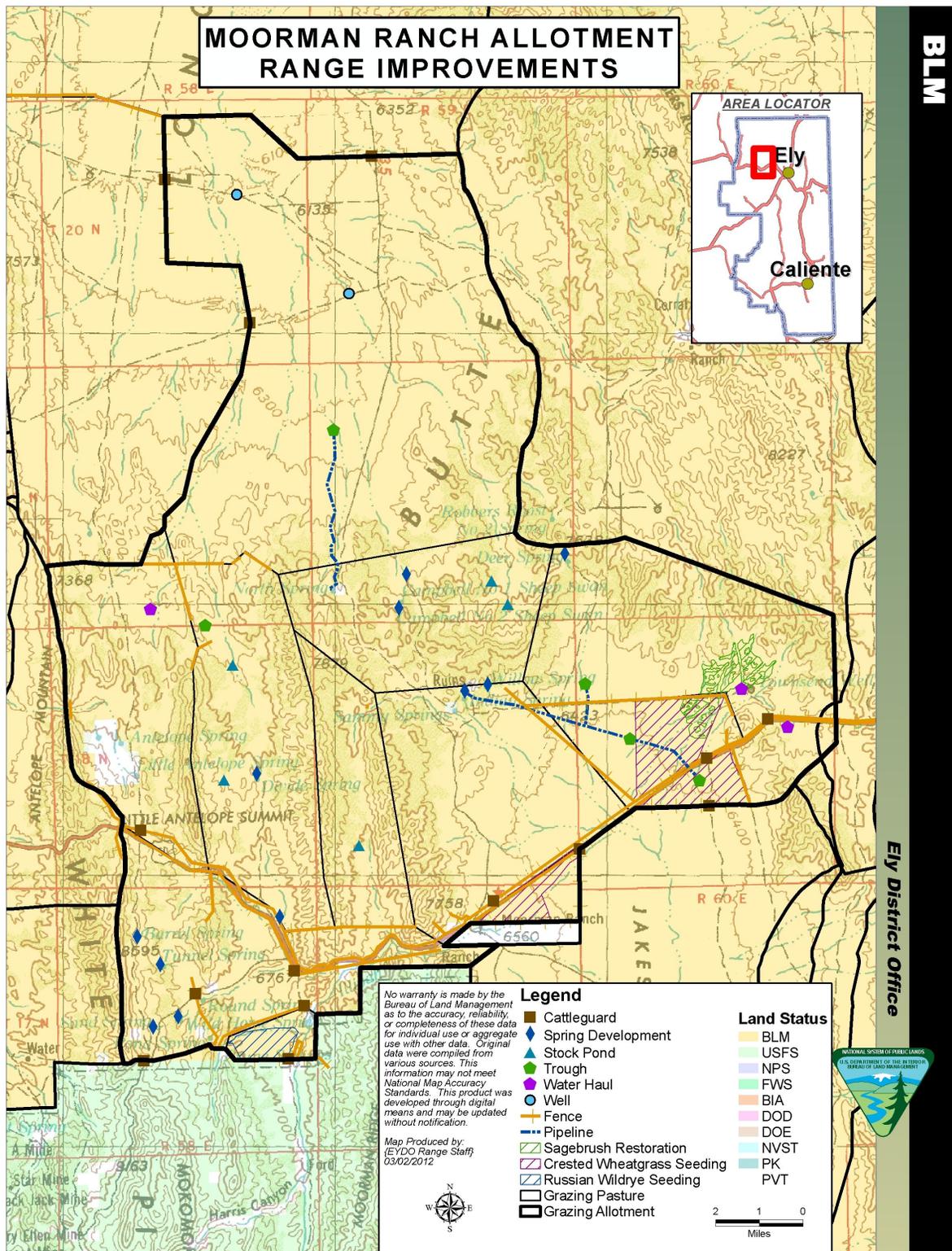
**Figure A.1. Precipitation Data (1939–2011) from Western Regional Climate Center, Ely, NV**

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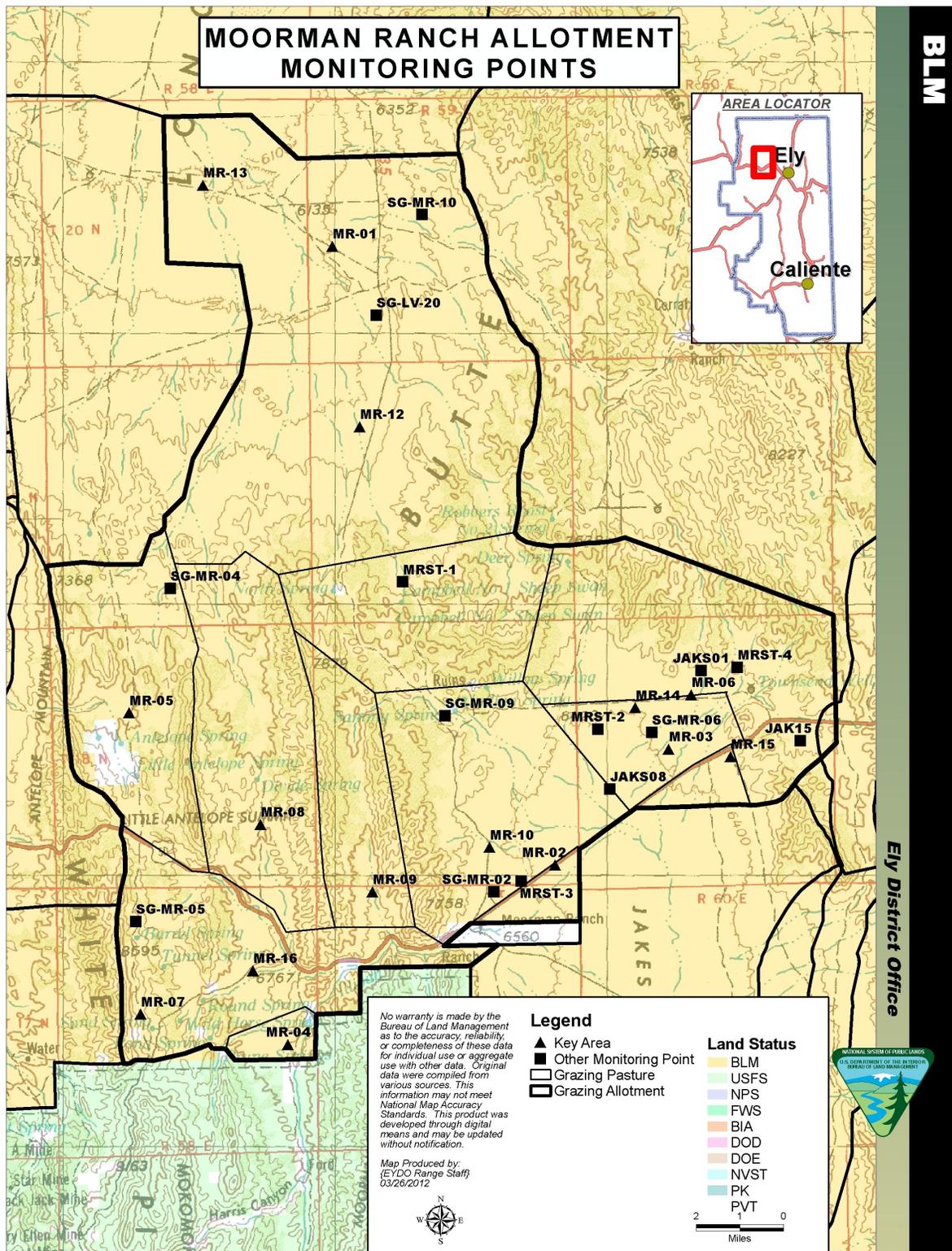
# Appendix B. Appendix B—Maps



Map B.1. Moorman Ranch Allotment Map

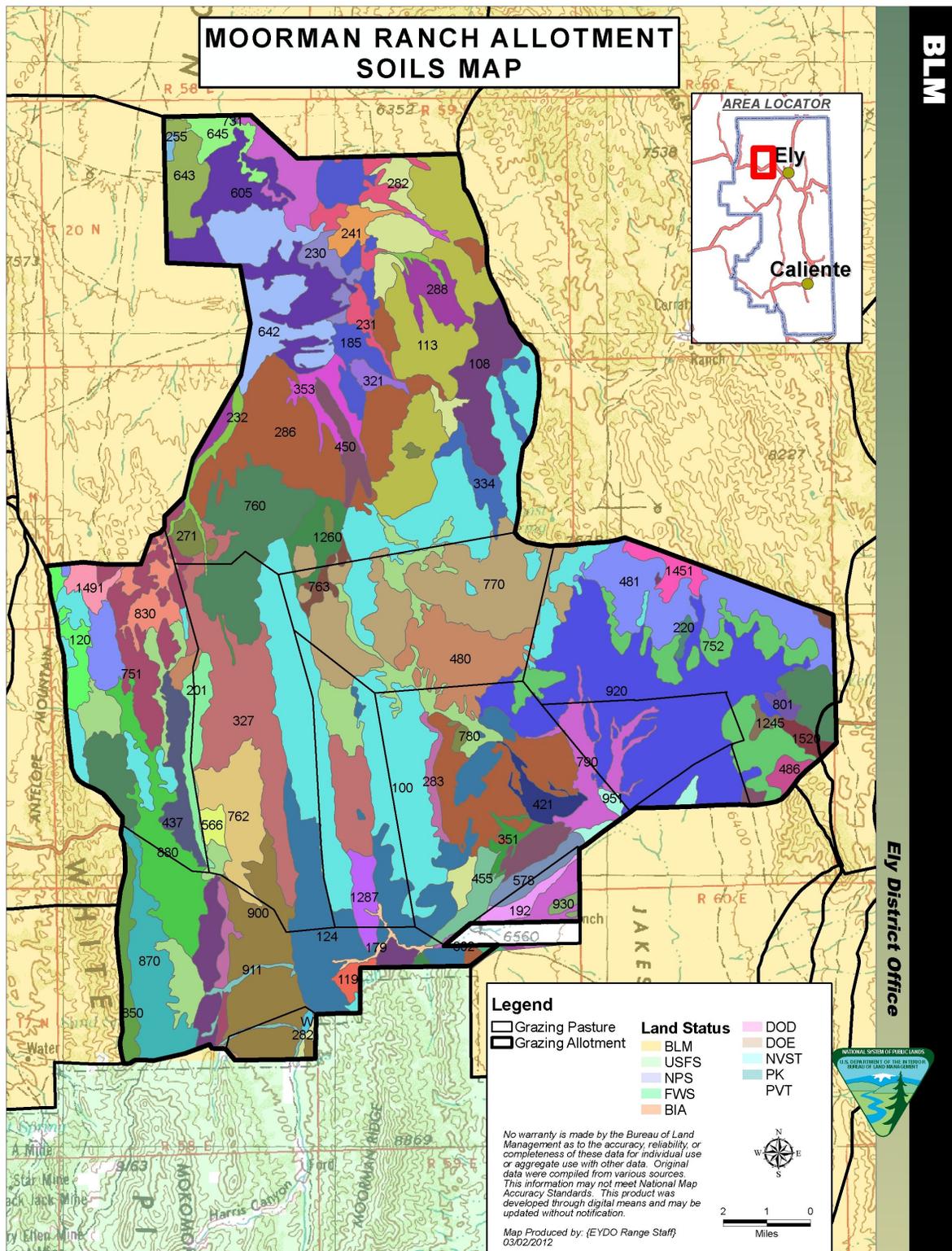


Map B.2. Moorman Ranch Allotment Existing Range Improvements



Map B.3. Moorman Ranch Allotment Monitoring Points

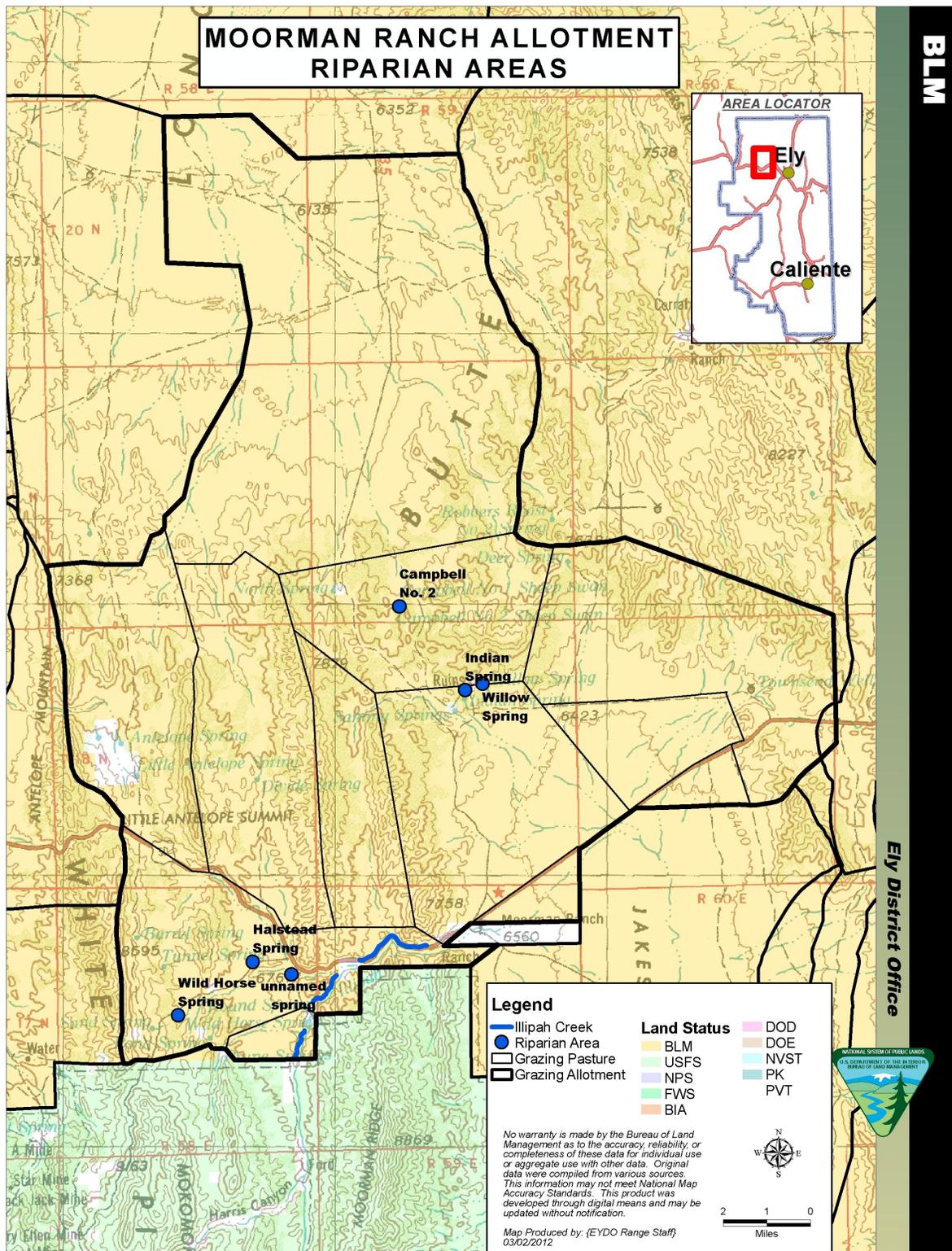




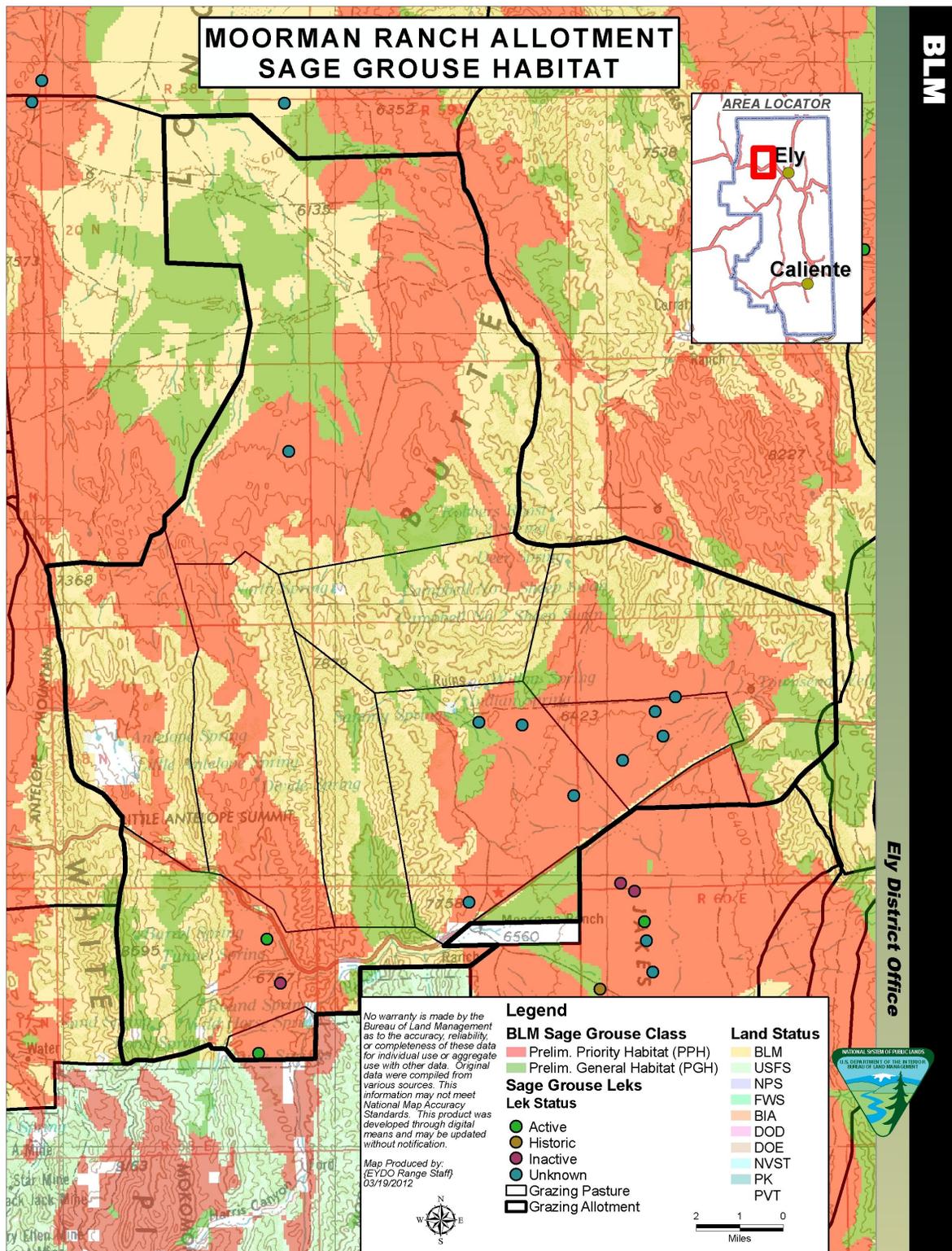
**Map B.5. Moorman Ranch Allotment Soils Map**

March 2012

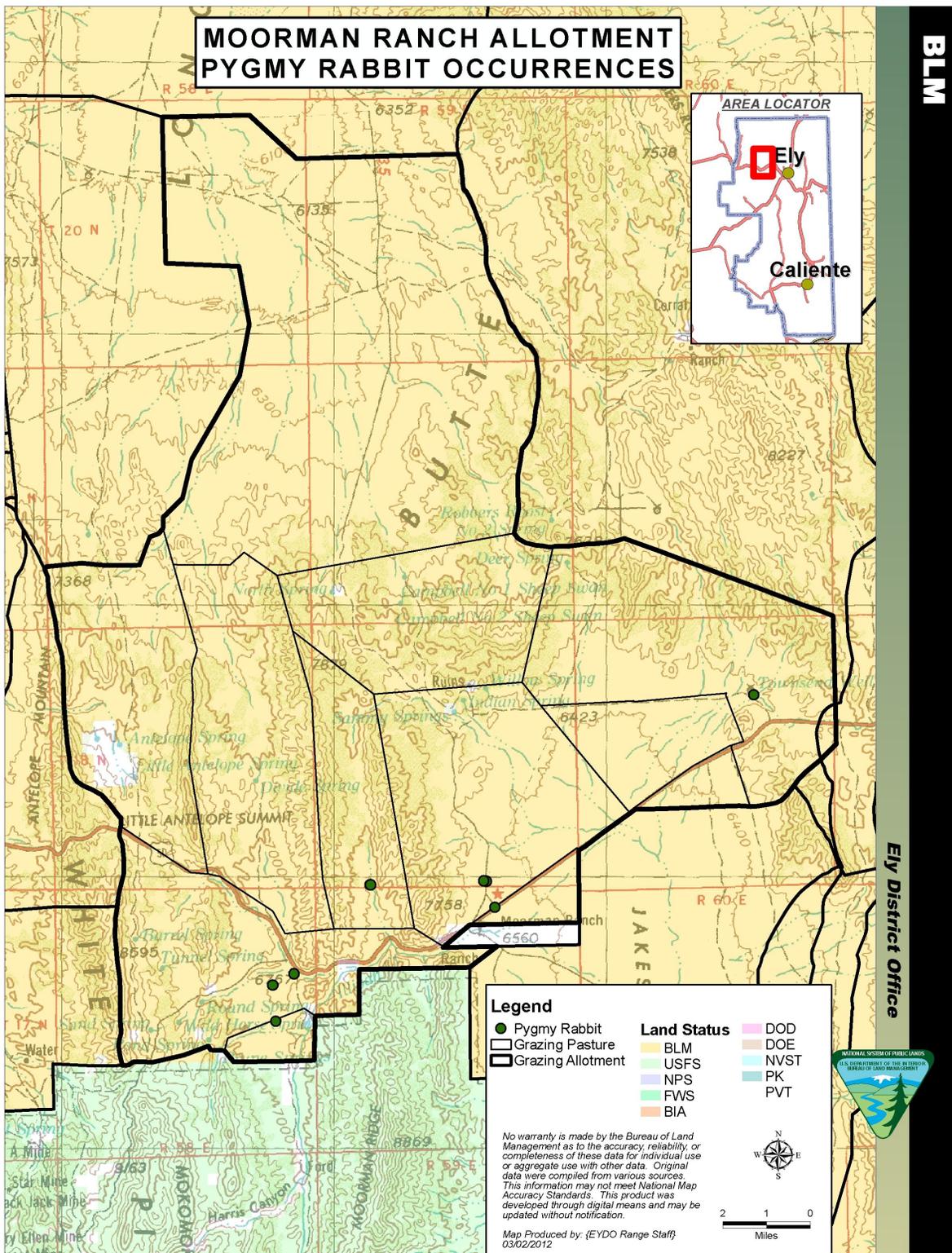
Appendix B Appendix B—Maps  
 Precipitation Data



Map B.6. Moorman Ranch Allotment Riparian Areas



Map B.7. Moorman Ranch Allotment Sage-Grouse Habitat



Map B.8. Moorman Ranch Allotment Pygmy Rabbit Occurrences

# Appendix C. Appendix C—Livestock Management Agreement

November 2008

## Moorman Ranch Livestock Grazing Management Agreement Amendment

This serves to amend the Moorman Ranch Livestock Grazing Management Agreement signed October 1997. The purpose of this amendment is to change the term of the agreement. The term of the agreement will be extended to 02/28/2013. The terms and conditions of authorized use will continue in accordance with the agreement.

/s/ Jack Neal  
Jack Neal

11/17/08  
Date

/s/ Jeffrey A. Weeks  
Jeffrey A. Weeks  
Field Manager  
Egan Field Office

11-19-08  
Date

LIVESTOCK USE AGREEMENT  
FOR THE  
MOORMAN RANCH ALLOTMENT

---

## I. INTRODUCTION

This agreement is based on the Moorman Ranch Allotment Evaluation dated Feb. 11, 1994, and developed through consultation, cooperation and coordination.

The agreed upon livestock use, as documented below is consistent with the achievement of the management objectives for the public lands administered by the Bureau of Land Management in the Moorman Ranch Allotment.

## II. MOORMAN RANCH OBJECTIVES

The Bureau will monitor the attainment of the multiple use management objectives as identified in the Final Multiple Use Decision for the Moorman Ranch Allotment.

## III. AGREED UPON CHANGES IN LIVESTOCK USE

### A. Background

The Moorman Ranch Allotment Evaluation was sent to the interested public on 2/11/94. This document analyzed monitoring data collected between the years 1988 and 1992, and set proper stocking levels by use area, established seasons of use based on phenology of key species and historical use by the permittee, and outlined a rotation system for three seeding within the Moorman Ranch Allotment. During the preparation of this document the Bureau of Land Management had numerous opportunities to discuss various resource problems with the permittee. Prior to the issuance of the allotment evaluation the permittee took a proactive stance and began to reduce numbers of livestock by use area to help alleviate concerns with resource problems which had been identified. The permittee also began to haul water to correct distribution problems which had been identified. As a result of the issuance of the evaluation, the Nevada Division of Wildlife submitted comments expressing concern of overuse of key browse species within the Buster Mountain Use Area. In response to these comments a meeting was held between the U.S. Forest Service, the permittee, the Bureau of Land Management, and the Nevada Division of Wildlife. As a result of this meeting, the permittee agreed to establish a rotation system between two BLM grazing use areas within the Moorman Ranch Allotment, and his Forest Service allotment which would minimize the impacts of late use by livestock on key browse species within the Buster Mountain Use Area. This system also rotated early and late use within the Illipah Use Area so the riparian areas would be deferred two out of four years. As a result of these management actions monitoring data for the years 1994 through 1997 show progress being made towards meeting management objectives for the Moorman Ranch Allotment.

### B. Description of Agreed Upon Changes

#### 1. Authorized Grazing Use

- a. Active Use: 4,749 AUMs

*Appendix C Appendix C—Livestock Management  
Agreement*

*I. INTRODUCTION*

*March 2012*

b. Non Use: 5,350 AUMs\*

\* 5,350 AUMs will remain in voluntary non use for a period of five years beginning March 1, 1998. At the end of the fifth year the Moorman Ranch Allotment will be reviewed to see if grazing use is meeting or making significant progress towards multiple use objectives. If monitoring data shows that adjustments need to be made in grazing use, either an increase or a decrease, it will be proportioned between livestock and wild horses through a multiple use decision at that time. If monitoring data shows that the level of livestock use in the Final Multiple Use Decision are appropriate to meet the multiple use objectives for the allotment, this level of use will become the permitted use.

2. Season of Use and Number of AUMs by Use Area

<u>Use Area</u>	<u>Period of Use</u>	<u>AUMs</u>
Long Valley	10/15 – 04/15	1366
West Jake	09/01 – 04/15	644
Antelope/Divide	05/16 – 10/15	600
Trench	05/16 – 10/12	183
Burned Basin	09/01 – 04/15	148
Townsend Seeding*		477
M. Ranch Seeding*		343
Illipah Seeding**		125
East Jake	05/16 – 10/15	300
East Jake Seeding*		169
Buster Mountain**		394
		4749

\* Livestock season of use will be limited to (5/1 – 6/15) and (9/1 – 10/31) or (3/1 – 6/15) as identified in the Final Multiple Use Decision for the Moorman Ranch Allotment.

\*\* A four year rotation system will be established in conjunction with the permittees' U.S. Forest Service Allotments as outlined below:

**Buster Mountain**

<u>Year</u>	<u>Season of Use</u>
1	06/16 – 07/24
2	07/01 – 08/08
3	07/26 – 09/02
4	09/06 – 10/14

**Illipah Seeding**

<u>Year</u>	<u>Season of Use</u>
1	09/30 – 10/14
2	06/16 – 06/30
3	07/11 – 07/25
4	08/22 – 09/05

Flexibility in grazing seasons will be allowed if it is consistent with meeting the Multiple Use Objectives for the allotment and agreed upon by the authorized officer and the permittee.

If monitoring shows that objectives are not being met by the fifth year, the permittee will reduce the number of AUMs based on available monitoring data as the authorized officer directs, to reduce impacts of late use.

3. In accordance with 43 CFR 4130.3–2, the permittee agrees to the following terms and conditions which will be included in the Dickenson grazing permit for the Moorman Ranch Allotment:

- a. No salt or supplements will be allowed within 1/2 mile of water sources or in winterfat vegetation sites.
- b. The stocking rate for the East Jakes Use Area will be set at 300 AUMs for cattle based on water hauling or 147 AUMs if water hauling is not utilized. Full use of the 300 AUMs will be based on the establishment of two water haul sites. One will be located at Townsend Well (Dry), T. 18 N., R. 60 E., Sec. 10 and the other will be located south of U.S. Highway 50 in the vicinity of T. 18 N., R. 60E., Sec. 14. The specific location will be agreed upon by the Rangeland Management Specialist and permittee. Livestock use will either start in the West portion of the East Jakes Use Area and proceed east, shutting off waters as livestock are moved, or started in the East and proceed west shutting off waters as livestock are moved.
- c. The stocking rate for the Antelope/Divide Use Area will be set at 600 AUMs for cattle based on water hauling, or 492 AUMs if water hauling is not utilized. Full use of the 600 AUMs will be based on the following stipulations:

- 1) Water will either be available in the stock pond located at T. 18 N., R. 58 E., Sec. 11 NWNW or will be hauled to a suitable location to be decided by the Rangeland Management Specialist and permittee in the northern portion of the Divide Use Area

- 2) Water will either be hauled to T. 19 N., R. 58 E., Sec. 33 NESW or pumped from the existing well (at the same location) by the mine as in the past.

Livestock will be distributed between waters in the northern and southern portions of the Divide Use Area and then herded into the northern portion of the Antelope Use Area and then south. Gates will be closed to exclude livestock from the Divide Use Area once they have been moved into the Antelope Use Area.

## **IV. MONITORING PROGRAM**

- a. Collect monitoring data as identified in the Moorman Ranch Evaluation for livestock, wild horses and wildlife as funding and workloads permit. This data includes the following studies:
  - a. Actual Use/Census
  - b. Key Area Utilization/Ecological Status
  - c. Frequency
  - d. Use Pattern Mapping

Additional types of monitoring data may be collect if the need arises.

As time and funding permits future monitoring will entail the establishment of additional key areas. This will be done in consultation, coordination and cooperation with the livestock operator and interested publics.

## V. FUTURE ADJUSTMENTS

This agreement documents and establishes the grazing practices to be used on the Moorman Ranch Allotment.

Any future adjustments will be based on the results of additional monitoring data collected and evaluated towards the achievement of the Multiple Use Objectives identified in the Final Multiple Use Decision for the Moorman Ranch Allotment. This process will be done in coordination, consultation and cooperation with the livestock operator and interested publics.

**VI.** Authority for this agreement is contained in Title 43 of the Code of Federal Regulations, including 4100.0–8, 4110.3, 4110.3–2(b), 4120.3–1(c), 4130.3, 4130.3–2, and 4130.3–1(a)

**VII.** The agreed upon changes in livestock use identified above is agreed to by the undersigned signatories and goes into effect once the wild horse gather is completed.

/s/ Robert Dickenson

Robert Dickenson

10-16-97

Date

/s/ Alfred W. Coulloudon

Alfred W. Coulloudon, ADM  
Renewable Resources

10/14/97

Date