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

STANDARDS DETERMINATION DOCUMENT

Deer Lodge Allotment (#21026)

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Standards and Guidelines Assessment

The Standards and Guidelines for Nevada's Mojave-Southern Great Basin Area were developed by the Mojave-Southern Great Basin 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 evaluates and assesses livestock grazing management achievement of the Standards and conformance with the Guidelines for the Deer Lodge Allotment in the Ely BLM District. This document does not evaluate or assess achievement of the wild horse and burro or Off Highway Vehicle Standards or conformance to the respective Guidelines.

The standards were assessed for the Deer Lodge Allotment by a BLM interdisciplinary team. Documents and publications used in the assessment process include the Soil Survey of Lincoln County Nevada, Meadow Valley, Ecological Site Descriptions for Major Land Resource Area 29, Interpreting Indicators of Rangeland Health (USDI-BLM et al. 2000), Sampling Vegetation Attributes (USDI-BLM et al. 1996) and the National Range and Pasture Handbook (USDA-NRCS 1997). A complete list of references is included at the end of this document. All are available for public review in the Caliente BLM Field Station. The interdisciplinary team used rangeland monitoring data, professional observations, and photographs to assess achievement of the Standards and conformance with the Guidelines.

One key area was established for this 7,300 acre allotment in 1983. The Ecological Site Description was identified on the key area locator form as Shallow Loam 8-10" p.z. – 028AY017NV – Wyoming big sagebrush/Indian Ricegrass-Needleandthread. This occurs on the largest soil map unit on the allotment: the Roval Gravelly Loam 2-15% slopes. The map unit vegetation is dominated by Wyoming big sagebrush (*Artemisia tridentata var. wyomingensis*). The most common Ecological Site Description is the Loamy 8-10" p.z. (029XY006NV).

The area where the key area resides was seeded into crested wheatgrass (*Agropyron cristatum*). The history of the seeding and its origins is not known as the administrative file was not found. Based on the few crested wheat plants and the age of the extensive sagebrush, it is estimated the seeding was established as late as the 1960's. Most of the seedings of this nature were implemented in the late 1950s to the early 1970's. This seeding has reverted to a Wyoming big sagebrush dominated community with a mixed understory of perennial grasses and forbs. Crested wheatgrass is still available but remains in the community in small amounts. The key species at the key area include crested wheatgrass and squirreltail (*Elymus elemoides*). Indian ricegrass (*Achnatherum hymenoides*) was also identified at the key area in 2008.

Natural wildfire has been absent from the allotment for several decades. The BLM attempted to use prescribed fire to reduce juniper cover two years ago but the fire failed to carry and relatively

little area was burned. Wild horses and mule deer make substantial use on the burn and are the main forage users on the allotment.

According to the BLM geographic information system database, there are no special status species or species of concern in the boundaries of the Deer Lodge Allotment. However, the sage grouse is a Nevada Special Status Species. The allotment is included in the Lincoln Sage Grouse Population Management Unit (PMU) based on habitat availability. No mapped lek sites, summer, winter, nesting, or year long habitat occurs on the allotment in the BLM's data. Because the allotment is in the PMU sage grouse habitat is given consideration in the Habitat and Biota section of this document.

One grazing permit authorizes 167 AUMs of active livestock use on the allotment. The permit was transferred from John Mathews' Flatnose Ranch to Eldon Crawford, the current permittee, in 2003. He has not licensed use on the allotment since obtaining the permit. Prior to the transfer, John Mathews licensed an average of 80% of the allotment AUMs from 1996-2002. Licensed use data is located in Appendix I.

The precipitation data (Appendix I) indicates rain/snow are highly variable in the area. Data collected by the BLM from 1987 to 2007 indicates an average of 10 inches per year. But precipitation varied from three inches to nearly 20 inches during the period.

All monitoring data and reports are available for public inspection at the Caliente Field Station during business hours. A map of the allotment is located in Appendix II of this document.

PART 1. STANDARD CONFORMANCE REVIEW

Standard 1. Soils

"Watershed soils and stream banks should have adequate stability to resist accelerated erosion, maintain soil productivity, and sustain the hydrologic cycle."

Soil Indicators:

- Ground Cover (vegetation, litter, rock, bare ground).
- Surfaces (e.g., biological crust, pavement).
- Compaction/infiltration.

Riparian Soil Indicators:

- Stream bank stability.

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

Causal Factors N/A

□ Livestock are a contributing factor to not achieving the standard.

□ Livestock are not a contributing factor to not achieving the standard

□ Failure to meet the standard is related to other issues or conditions

Guidelines Conformance:

X In conformance with the Guidelines

□ Not in conformance with the Guidelines

Conclusion: *Standard Achieved*

UPLANDS: Vegetative cover was determined by using the line intercept method at the key area and at other areas not deemed key areas but representative of major soil types in the allotment. Cover data is summarized in Appendix I. The table contains key soil type information as well as cover contributions by species.

Key Area 1 occurs in the Roval Soil Mapping Unit. The Ecological Site Description for Key Area 1 is a Loamy 8-10" P.Z. – 029XY006NV – Wyoming big sagebrush/Indian Ricegrass-Needleandthread. The approximate potential ground cover (basal and crown) according to the range site is 15-25%. Cover measured at the key area is 15%. The key area occurs on an old crested wheatgrass seeding. The key area has become revegetated with Wyoming big sagebrush over the last few decades. The sagebrush is starting to show signs of a decadent state. Some plants have dead branches and reduced leaf production. Though the cover is presently at the lower end of the potential for the site, cover is appropriate given the previous treatment which would have sought to reduce the sagebrush cover to maximize herbaceous potential. Crested wheatgrass still provides forage and cover but it is not the dominant species at the site. Cover is also contributed by Douglas' rabbitbrush (*Chrysothamnus viscidiflorus*), mosses, and forbs (various). These deep soils occur on a flat surface and are stable with no evidence of soil loss observed. Figure 1 shows the transect at Key Area 1.

The site is used mostly by wild horses and by mule deer. Livestock have not been grazed on the allotment since 2003. Utilization on crested wheat for 2007 growth was measured at the key area to be 47% (moderate use) by horses. Use on Indian ricegrass was measured at 38% by horses.

Figure 1. Key Area 1 on Deer Lodge Allotment.

Transect DL-1 was read in a loamy bottom about half the distance between two reservoirs. Though not a key area, this site receives grazing use from horses and wildlife and cattle (when they are actually licensed on the allotment). The site occurs on the Decan-Uana Soil Association according to the Meadow Valley Soil Survey. The site occurs in a drainage bottom. The Ecological Site Description used to describe the site is the Upland Wash (029XY009NV). The species noted on site include Wyoming big sagebrush, basin big sagebrush (*A. tridentata tridentata*), blue grama (*Bouteloua gracilis*), squirreltail, prickly pear cactus (*Opuntia spp*.), rubber rabbitbrush (*C. nauseosus*) (in drainage), mosses and microbiotic crusts on the surface. Cover was measured at 26% at the site. The potential cover for the site is 20-35%. Perennial grasses occur in the interspace. Blue grama is the dominant understory species. Sagebrush vary in size, stature, and age. This allows the open spaces needed to allow an herbaceous understory. Figure 2 shows the area.

Figure 2

The soils were observed throughout the allotment and were found to be sufficiently protected by the vegetation. In the shallower soils where black sagebrush is dominant, gravelly soil surfaces allow for additional protection and stability. Blue grama and small galleta (*Pleuraphis jamesii*) provide cover throughout the allotment.

Transect DL-2 was read on a Shallow Calcareous Loam (029XY006NV) site which is dominated by black sagebrush. The site is also in the Decan-Uana Soil Association. Potential cover for this site is 20-30% for canopy and ground cover. The cover at the site was estimated to be 30.2%. In addition to the 30% vegetative cover, litter added 1.65% soil cover. Most of the cover was contributed by black sagebrush with other contributions from galleta, Douglas' Rabbitbrush, Indian ricegrass, blue grama, several forbs, and mosses. The site is very stable with no signs of erosion being observed during field sampling. The gravelly surface provides additional protection beyond the vegetation of the site. Other species present include Nevada ephedra (*Ephedra nevadensis*), Indian paintbrush (*Castilleja spp*.), squirreltail, needleandthread (*Hesperostipa comata*), a very small amount of cheatgrass (*Bromus tectorum*), and young junipers (*Juniperus osteosperma*). Healthy clumps of moss occur in the area indicating a stable system with low impacts to the soil surface occurring. See Figure 3.

Figure 3. Moss occurring in transect DL-2

Transect DL-3 was read in the Zoate Cobbly Loam Soil Mapping Unit (ZOF). This soil unit occurs in the southwestern portion of the allotment. Rolling hills are dominated by black sagebrush (*A. nova*) and perennial grass/annual forb understory vegetation. The soil surface contains a high gravel component. Larger cobbles are also present on the surface. The Ecological Site Description is the Shallow Calcareous Slope 8-10" p.z. (029XY014NV). Canopy and ground cover was estimated at 31.55%. The potential for the site is 15-25%. In addition to the 30% vegetative cover, litter added 1.65% soil cover.

The soils are very stable in accordance with the description which states, "Rock fragments on the soil surface have a stabilizing effect on surface erosion conditions." This was observed throughout the area in the map unit. Even with the high gravel component, the site is very productive. Forb species were numerous and flowering throughout the area. Galleta, Indian ricegrass, and blue grama represent the grass species in the transect. Species also present but not counted (due to dominant canopy obscuring them) include Douglas' rabbitbrush, Nevada ephedra, *Astragalus spp*., Star-lily (*Leucocrinum montanum*), wild geranium (*Geranium spp*.), and others observed but not identified. The presence of these forbs is another indicator of stability and low disturbance in the area.

Three reservoirs were built in the wash which leads to Flatnose Canyon. These reservoirs not only provide water in the area to livestock, wild horses, and a large assortment of wildlife, they also serve to reduce flood risks to the private lands south of Echo Canyon Reservoir. The reservoirs need maintenance to continue functioning in this manner. Flatnose Canyon is a narrow canyon east of these private lands. The walls of this canyon are narrow, steep and

extremely high. The silty bottom and enormous boulders indicate the propensity to move high amounts of water at times.

RIPARIAN: Flatnose Spring is the only spring on the allotment. The spring is developed with a vent pipe at the head and a 10-inch PVC pipe which transports water a short distance. It is assumed that another pipe is buried to transfer water to the fields for agriculture use since this spring which has a copius amount of water disappears underground after approximately 300 meters. While there is plenty of water at the source, there is not a riparian community associated with the spring. Mature salt cedar is present at the spring. Rubber rabbitbrush and four-wing saltbush (*Atriplex canescens*) are scattered in the wash. Mounded soil is evidence that the source had been dug up with heavy equipment, though not recently. The Standard refers to streambank stability. There are no streambanks at this source so the Standard is not applicable. Refer to the Guidelines in section 3 of this document for further discussion on the riparian system management.

Based on the data analysis, field observations, photographs, and potential for the ecological sites for vegetative cover, it is determined that the standard for soils is being achieved on the allotment. This determination is based on soils which are stable despite the potential for heavy rainfall events. Blue grama and small galleta play an important role in the ecosystem for soil stabilization. Mosses and cryptobiotic crusts occur throughout the allotment, which are indicators that the soil surface is stable. These crusts easily disappear under heavy constant trampling. No signs of surface soil loss were observed such as rills or sheet erosion. Other than the cuts in two of the reservoirs, there is no evidence that the ecosystem is not functioning accordingly. Healthy sagebrush communities add to stability of the soils. Figure 3 shows one of many photographs taken in March 2008 of the substantial amount of blue grama occupying the interspaces.

Figure 4. Well developed blue grama in the sagebrush community.

At Flatnose Spring, the soils are functioning accordingly to transport the surface water left after piping water from the site. The mature salt cedar trees (*Tamarisk spp*.) effectively reduce the potential of the riparian community by shading, outcompeting native vegetation for nutrients and water, and by exuding allelopathic chemicals which inhibit other plants from being able to co-exist (DiTomaso, 1996).

The riparian area conditions warrant further management such as tamarisk removal. Water is not left at the source as required in Nevada. Follow-up with the state Division of Water Resources is warranted to get the spring development into compliance.

Standard 2. Ecosystem Components

Watersheds should possess the necessary ecological components to achieve State water quality criteria, maintain ecological processes, and sustain appropriate uses.

Riparian and wetlands vegetation should have structural and species diversity characteristic of the stage of stream channel succession in order to provide forage and cover, capture sediment, and capture, retain, and safely release water (watershed function).

Upland Indicators:

- Canopy and ground cover, including litter, live vegetation, biological crust, and rock appropriate to potential of the ecological site.

- Ecological processes are adequate for the vegetative communities.

Riparian Indicators:

- 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 acceleration 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).
    - Other covers (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 plan species and cover appropriate to the site characteristics.

Water Quality Indicators:

- Chemical, physical and biological constituents do not exceed the State water quality Standards.

The above indicators shall be applied to the potential of the ecological site.

Determination:

X Achieving the Standard

☐ Not Achieving the Standard, but making significant progress towards achieving

☐ Not Achieving the Standard, and <u>not</u> making significant progress toward standard

Causal Factors N/A

☐ Livestock are a contributing factor to not achieving the standard.

☐ Livestock are not a contributing factor to not achieving the standard

☐ Failure to meet the standard is related to other issues or conditions

Guidelines Conformance:

X In conformance with the Guidelines

☐ Not in conformance with the Guidelines

<u>Conclusion: *Standard Achieved*</u>

UPLANDS**:** The dominant communities in the allotment are Wyoming sagebrush/Indian ricegrass and the black sagebrush/Indian ricegrass. Most of the allotment rests atop the alluvial fan which formed under the influence of the watershed of the Mahogany Mountains. Most of the topography on the allotment is flat with increasing up and down slopes on all sides. Deer Lodge Canyon feeds into the eastern portion of the allotment and into Flatnose Wash and Flatnose

Canyon to the south and west. The gentle topography of the sagebrush flats aids in the stability of the soils and vegetative community.

Soils are effectively protected by the vegetation, appropriate canopy and ground cover and a vigorous understory comprised of blue grama, small galleta, squirreltail, crested wheatgrass (in the seeding only), poas (*Poa spp*.) (in the burn area), and a healthy diverse forb constituent. These species add to the organic matter in the surface soils and add porosity to the surface. Gravels in the black sagebrush community add further stability. Infiltration is effective and runoff is managed most of the time except when precipitation events exceed the capacity of the surface to receive and store moisture.

Noteworthy in the community is the very low amount of cheatgrass, an invasive, unwanted annual grass. Cheatgrass is known to readily invade many burned or disturbed areas yet is not present in very large amounts in the black line nor the small burned area on the allotment. Cheatgrass was not observed in troublesome quantities anywhere on the allotment, even though precipitation has been normal or above normal for the last couple of years. Refer to the precipitation data in Appendix I. The lack of cheatgrass indicates resiliency of the vegetative community to this and other aggressive invaders. No noxious weed species were observed anywhere on the allotment during field sampling.

Based on the results of the 2006 prescribed burn, it is reasonable to expect a natural wildfire could have beneficial results in this area. If the burn was not being grazed for most months out of the calendar year by horses, the revegetation efforts of the ecosystem would exceed the present status.

Utah juniper occurs in low densities in the sagebrush community but was observed in increasing numbers, especially younger trees, wherever the rangeland sites met the lower slopes of the woodlands (see figure 5). Juniper is slowly increasing in abundance in the old seeding. Its abundance in the sagebrush community is still acceptable as it provides shade/cover and nesting/perching opportunities for wildlife. Juniper increases in density and cover in the center of the allotment. At the present abundance, the junipers are not decreasing the resilience of the area to catastrophic wildfire. The understory is vigorous and could still result in a healthy post-fire vegetative community.

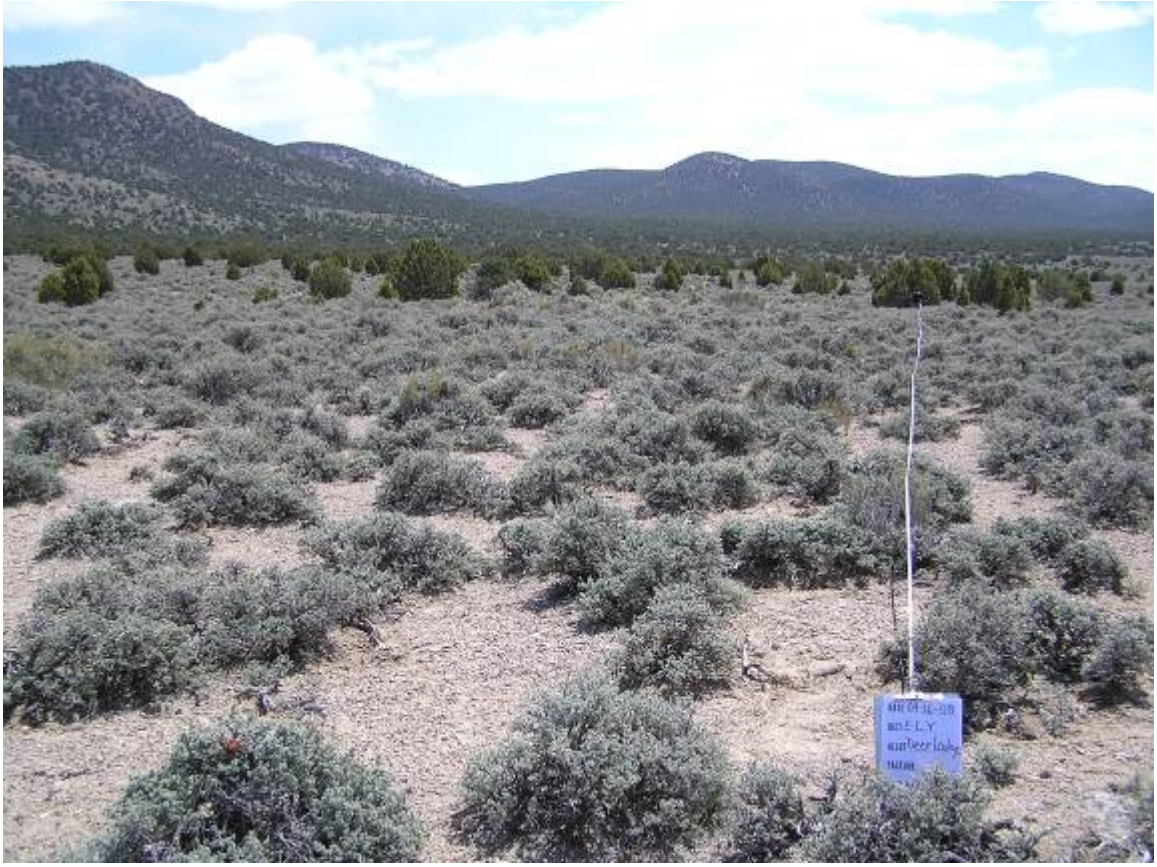

Figure 5. Transect DL2.

Microbiotic crusts and mosses were observed in desirable amounts throughout the allotment. These living organisms play a key role in the fixation of nitrogen while protecting the soils from erosion particularly where gravels do not occur on the surface.

Flatnose Canyon experiences high flows periodically as shown by the high sand, gravel, and enormous boulders in the canyon bottom (Figure 6). Very little vegetation occurs in the canyon as shown in the figure. Sunlight is minimal in the bottom. As the canyon widens towards the private lands to the west, vegetation such as rabbitbrush, sagebrush, and fourwing saltbush appear and stabilize the sandy bottoms (Figure 7).

Figure 6. Flatnose Canyon.

RIPARIAN: The only spring or riparian source is Flatnose Spring which occurs in the west portion of the canyon very close to private lands. There are no banks as the sandy and gravelly substrate does not allow for bank formation.

The Standard refers to streamside riparian areas. These do not exist at this developed and piped spring. It calls for large woody debris or rock to dissipate stream energy from high flows. This is the case in the wash. The spring was not rated as "proper functioning condition" due to lack of water at the source and no saturation zone with tamarisk present. However, based on the sizable amount of water leaving via the pipeline, none is expected.

Based on the analysis of data, recent field observations, and the apparent resiliency of the vegetative community, Standard 2 - Ecosystem Components is determined to be achieved on the allotment. Vegetative conditions are acceptable and desirable. The range represented on the allotment is not at high risk for catastrophic wildfire, nor for invasion of non-native, undesirable weed species. The sagebrush communities appear to be healthy and vigorous with a good diversity of understory perennial grasses and native annual forbs.

Standard 3. Habitat and Biota:

As indicated by:

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

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

Causal Factors N/A

□ Livestock are a contributing factor to not achieving the standard.

□ Livestock are not a contributing factor to not achieving the standard

□ Failure to meet the standard is related to other issues or conditions

Guidelines Conformance:

X **In conformance with the Guidelines**

□ Not in conformance with the Guidelines

Conclusion: *Standard Achieved*

The indicators for the Standard refer to vegetative composition, structure, distribution, productivity, and nutritional value. Vegetative conditions on the Deer Lodge allotment suitably reflect these attributes. Conditions are suitable based on the present canopy and ground cover in the Wyoming big sagebrush and black sagebrush communities. A diverse herbaceous understory and interspatial vegetative components over a majority of the allotment serves to provide a variable forage base with suitable structure and distribution to support a diverse biota. Numerous forb species were identified on the allotment including, *Penstemon spp., Geranium spp., Lomatium spp., Castilleja spp., Phlox spp., Cryptantha spp., Eriogonum spp., Calochortus spp., Erigeron spp., Leucocrinum spp*., and *Astragalus spp*., to name the notable species. These species were found in abundance in the spring of 2008. Several composite species were also observed but not identified. The abundance of these species not only indicate a vegetative state which is not declining but is still productive and functional, Forbs are important for diversity and provide forage for those wildlife species who depend on them for survival and sustenance.

The allotment provides year round habitat for mule deer. All but the eastern one-fourth of the allotment is crucial mule deer habitat. Evidence of mule deer use and occupation was seen throughout the allotment and in the neighboring areas. Based on their numbers and proximity to Eagle Valley, Spring Valley, and Echo Canyon, this area is very important to the mule deer population in this portion of the district. The sagebrush areas provide year round forage and cover. Based on fresh fecal deposits, their numbers were high at the time of the field inspections. The nearby tree line provided by junipers provides important escape cover. These areas also provide thermal protection in the summer and winter for these animals and other wildlife species.

With plentiful water available at three small reservoirs on the allotment and at the neighboring state parks, the area represented by the allotment provides for quality habitat for mule deer.

Rocky Mountain Elk are transient and drift through the area from the Mount Wilson and White Rock ranges as well as from Utah. The allotment can provide quality forage for elk.

Vegetative cover values are appropriate for the ecological sites or exceed guidelines in the descriptions. In some areas, the understory supports a diverse community of perennial and annual species consistent with the ecological range sites, while in others (i.e. Key Area 1) the herbaceous understory is not at desirable levels.

The sage grouse is not known to occur on the allotment, but the allotment is included in the Lincoln PMU. According to the Lincoln County Sage Grouse Conservation Plan (LCCP-2007), birds are found in "open areas at high elevations". Higher occurrences of forbs and perennial bunchgrasses would be desirable to support sage grouse on the allotment.

Junipers and pinyons (*Pinus monophylla*) are increasing on the allotment which eventually could degrade the quality of the habitat for sage grouse as site-appropriate vegetation decreases due to competition with juniper and pinyon for sunlight, nutrients, and water. Their eventual dominance on the allotment could impact the sagebrush ecosystem and the species that are dependent on it. With reduced presence of grasses and forbs available to sage grouse or any other wildlife or insect species, the biodiversity could decrease based on available suitable habitat. This risk is still several decades away for most of the allotment but is a consideration at present time.

Generally speaking, the habitats of the species mentioned are appropriate and suitable based on vegetative communities, water quality and quantity, and the diversity of the sagebrush ecosystem. Other features such as escape terrain, thermal cover and perching/nesting habitat from both short and tall statured woody species are all desirable. The allotment offers habitat for small mammals, and assorted numerous songbirds and raptors. Lizards and snakes comprise the reptilian population and are abundant based on the number of burrows observed.

The advent of cheatgrass as a major ecological problem in the western states has prompted BLM to become aware and improve management of it in the sagebrush ecosystem. Very little cheatgrass was observed on the allotment, and in most cases it did not occur in the areas of any of the monitoring transects. Cheatgrass has not become established on the allotment. This is worth mentioning because it provides important evidence to the resiliency of the ecosystems represented on the Deer Lodge Allotment.

Based on the existing conditions as described, the standard for Habitat and Biota is determined to be achieved on the allotment.

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

<u>Standard #1: Soils</u>
N/A. The standard is achieved.

Standard #2: Ecosystem Components
N/A. The standard is achieved.

Standard #3: Habitat and Biota
N/A. The standard is achieved.

PART 3. GUIDELINE CONFORMANCE REVIEW AND SUMMARY

Conformance to the guidelines pertaining to wild horses and burros are not determined in this document. Wherever the guidelines pertain to management practices those guidelines are assessed.

1. Soils:

1.2 states, "Riparian-wetland management practices should maintain or promote sufficient residual vegetation to maintain, improve, or restore functions such as stream flow energy dissipation, sediment capture, groundwater recharge, and streambank stability."

Flatnose Spring is dewatered possibly for agricultural purposes. This neither reflects on the management of livestock of the Deer Lodge Allotment, nor on the permittee. By not leaving water at the source, the pipeline for agriculture may not be in compliance with State water law. There is presently not enough water to support any riparian herbaceous vegetation. However, since this practice is not related to management of the livestock on the allotment, it does not apply.

2. Ecosystem Components:

2.6 states, "Subject to all valid existing rights, the design of spring and seep developments shall include provisions to maintain or promote ecological functions and processes."

Dewatering at Flatnose Spring is not maintaining or promoting ecological functions and processes. This is outside the control of the BLM.

3. Habitat and Biota:

Management of the Deer Lodge Allotment is in conformance with the Guidelines for the Standard.

PART 4. MANAGEMENT PRACTICES TO CONFORM WITH GUIDELINES AND ACHIEVE STANDARDS

Discussion:

Grazing management on the Deer Lodge Allotment already conforms to the Guidelines. All three of the Standards are achieved for the allotment. In order to ensure grazing continues to achieve the Standards, the following terms and conditions are recommended to be added to the grazing permit as best management practices.

Recommendations for Grazing Management:

1. Salt and/or mineral supplements for livestock will be located no closer than ¼ mile from water sources. Use of nutritional supplements (not forage) is encouraged to improve the ability of cattle to utilize forage in the winter months and to improve livestock distribution across the allotment.

2. Maximum allowable use levels would be established as follows:

- Perennial grasses: 40% current year's growth.
- Perennial shrubs, half-shrubs and forbs: 40% use on current annual production.

Justification for this use limit is based on the possibility of present or future use by sage grouse, a Nevada BLM Sensitive Species and because of crucial habitat for mule deer. A conservative use limit also helps to provide forage even during periodic drought events for wildlife, livestock and wild horses until conditions improve.

3. Wildlife escape ramps are required to be installed and maintained by the permittee at each trough used on the allotment.

Presently, there are no troughs used on the allotment, however this stipulation would apply if they are utilized in the future.

Additional Recommendations:

The above mentioned terms and conditions are recommended to be incorporated into the normal grazing permit. In addition, it is recommended that the reservoirs be maintained and repaired to hold water as designed. This will reduce flooding downstream following severe storm events and improve delivery of water supply to upland wildlife, wild horses, and livestock.

Based on high horse numbers observed on the allotment, it is recommended that wild horse use be monitored yearly to ensure the horse numbers do not exceed the carrying capacity of the Herd Management Area (HMA).

One additional key area should be established outside the old seeded area to monitor a site that hasn't been affected by man-made disturbance (i.e. prescribed fire, seeding, etc).

Interdisciplinary Team Review

Kari Harrison, Soil Scientist _____
Date

Bonnie Waggoner, Weeds Specialist _____
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Lisa Gilbert, Cultural Specialist _____
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Ben Noyes, Wild Horse and Burro Specialist _____
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Rick Baxter, Wildlife Biologist _____
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Melanie Peterson, Environmental Protection Specialist _____
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Elvis Wall, Tribal Coordinator _____
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Prepared by:

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Date

Reviewed by:

Chris Mayer, Lead Rangeland Management Specialist _____
Date

I concur:

_____ _____
Ron Clementsen, Assistant Field Manager Date

REFERENCES

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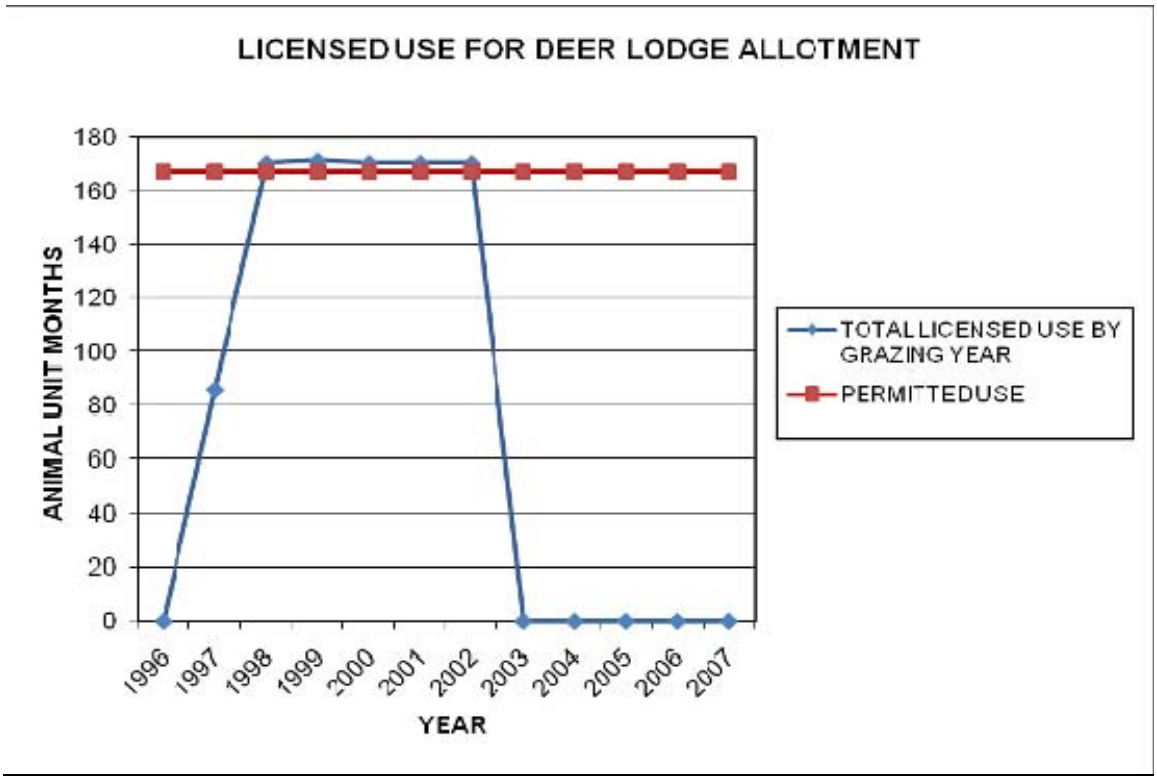
APPENDIX I

DATA ANALYSIS – DEER LODGE ALLOTMENT

1. Licensed Livestock Use: Livestock have not been licensed on the allotment since 2002. Average use from 1997 to 2003 was 156 AUMs or 94% of permitted use. In the chart below, the blue line (representing the x axis) shows AUMs used whereas the red line (y axis) shows the potential AUMs to be used without exceeding the permit. Reduced use occurred in 1997 due to the drought conditions on the allotment. In 2003 the permit was transferred to the current permittee who has not licensed cattle on the allotment to date.

Table 1.



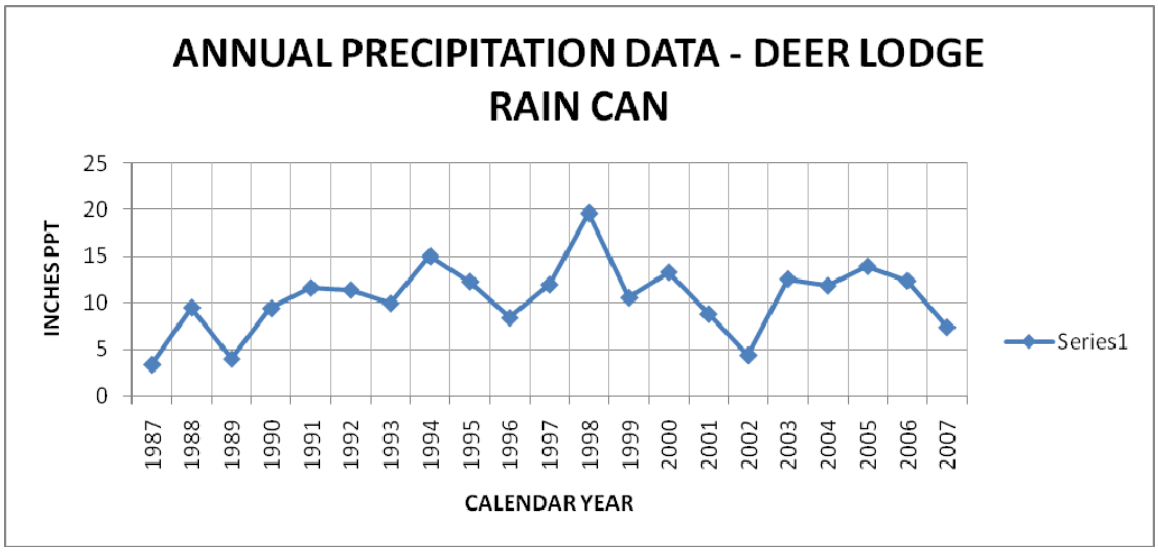
2. Utilization

Utilization was monitored in 1998. Use was light (24%) on crested wheatgrass and light (40%) on Indian ricegrass. Use was monitored again in 2008 to monitor wild horse use (no livestock use has occurred). In 2008, use on crested wheat was measured as moderate (47%) and use on Indian ricegrass was light (38%). Horses and mule deer are the main forage consumers on the allotment but horse use is visible throughout the area. Deer make slight to light use overall of the sagebrush but mainly in the winter months. Wild Horses are year-round residents, leaving only with heavy snows.

3. Precipitation Data

For twenty years local precipitation monitoring has occurred on the Deer Lodge Allotment. The 20-year average based on rain can collection data was 10.5 inches from 1987-2007. The precipitation was highly variable however, with an annual low of 3.3 inches in 1987 and a high of nearly 20 inches in 1998. Three major drought events occurred in 1987, 1989, and 2002.

Table 2.



4. Line Intercept Cover

The method used to estimate cover is called Line Intercept. This method measures the dominant canopy cover and ground cover but does not measure vegetation which occurs underneath a canopy of another plant. Due to this constraint, not all species on site are represented in the table below as many grow in the shade of larger, more dominant species.

Cover data was read in 2008 at the key area (KA1) and in the major soil units on the allotment. KA1 occurs in an old crested wheatgrass seeding. The site is dominated by Wyoming big sagebrush with lesser co-dominant species mainly being Indian ricegrass and crested wheatgrass. The other three transect areas occurred in the remaining major soil mapping units on the allotment. Data is summarized in Table 3.

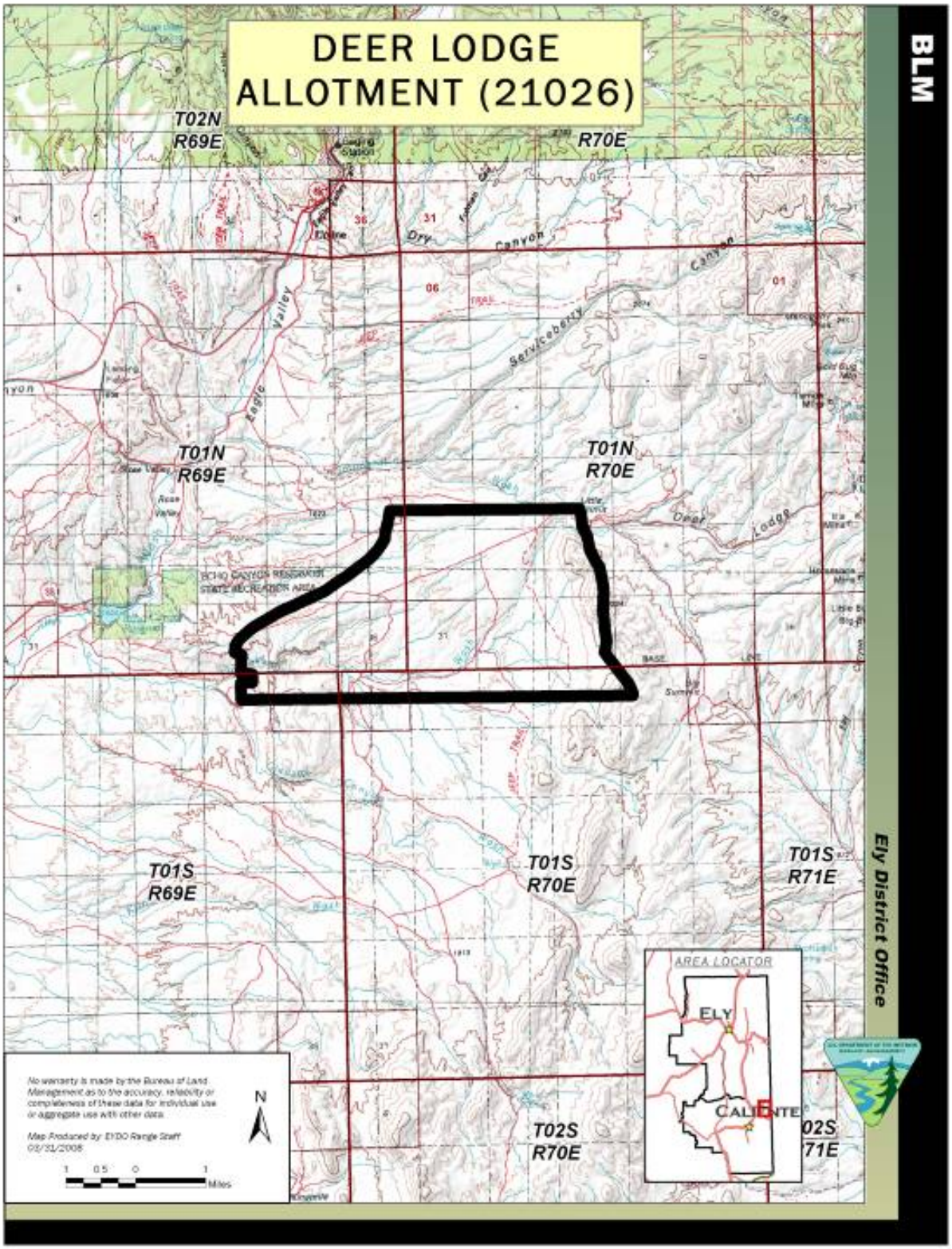
Table 3.

KEY AREA INFORMATION		SPECIES	COMPOSITION BY SPECIES BASED ON COVER
KEY AREA 1		Wyoming Sagebrush	13.1%
Range site: Loamy 8-10" p.z. (029XY006NV).		Douglas' Rabbitbrush	0.33%
Desirable Cover For Site: 15-25%		Crested Wheatgrass	1.08%
Percent Cover Measured 2008: 14.975%		Moss	0.4%
Elevation: 6157 Ft		Unknown Forb	0.08%
		Litter	Not measured
COMPOSITION BY GROUPS			
SHRUBS	89.6%		
GRASSES	1.08%		
FORBS/MOSS	3.17%		
TRANSECT DL-1		Wyoming Sagebrush	18.45%
Range site: Upland Wash (029XY009NV).		Basin Big Sagebrush	3.6%
Desirable Cover For Site: 20-35%		Blue Grama	4.05%
Percent Cover Measured 2008: 26.3%		Soil Crust	0.2%
Elevation: 6016 Ft		Litter	Not measured
COMPOSITION BY GROUPS			
SHRUBS	83.84%		
GRASSES	15.39%		
FORBS/MOSS	0.76%		
TRANSECT DL-2		Black Sagebrush	27.88%
Range site: Shallow Calcareous Loam 8-12" p.z. (029XY008NV)		Douglas' Rabbitbrush	1.3%
Desirable Cover For Site: 15-25%		Nevada Ephedra	0.5%
Percent Cover Measured 2008: 31.925%		Needlandthread	0.13%
		Indian Ricegrass	0.10%
		Mosses	0.18%
		Litter	1.65%
COMPOSITION BYGROUPS			
SHRUBS	98.12%		
GRASSES	0.783%		
FORBS/MOSS	1.096%		
TRANSECT DL-3		Black Sagebrush	29.33%
Range site: Shallow Calcareous Slope 8-12" p.z. (029XY014NV)		Douglas' Rabbitbrush	0.45%
Desirable Cover For Site:		Galleta	0.58%
Percent Cover Measured 2008: 31.55%		Indian Ricegrass	0.38%
		Cheatgrass	0.10%
		Blue Grama	0.5%
		Unknown Forbs (Assorted)	0.40%
		Lily	0.03%
		Moss	0.05%
		Litter	6.15%
COMPOSITION BY GROUPS			

SHRUBS	94.37%		
GRASSES	4.12%		
FORBS/MOSS	1.5%		

5. Proper Functioning Condition (PFC) – Riparian Assessment

The proper functioning condition assessment was conducted at the spring in Flatnose Canyon. Fully developed with a large PVC pipeline, no water was found at the source. The pipeline washed out and pours water out which surprisingly sinks back into the sandy substrate within 1000 feet of the source. The assessment determined the spring to be non-functional with no apparent trend. Factors affecting the rating are outside the control of the BLM including water rights, historic dredging, pipeline, and horse use. No evidence of livestock use was seen (no cow pies, tracks, trails, etc.). Tamarisk can be removed which would increase water and improve soil chemical properties potentially but would not have an impact on whether or not water is at the source. No riparian vegetation was found.

APPENDIX II

ALLOTMENT MAP