

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

Standards Determination Document

January 2011

**Standard Determination Document for the Big Indian Creek (00410) and Middle Steptoe
(00411) Grazing Allotments**

Location: White Pine County, Nevada

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Standards Determination Document

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**Chapter 1. STANDARDS
DETERMINATION DOCUMENT
Big Indian Creek (00410) and Middle
Steptoe (00411) Grazing Allotment**

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1.1. Introduction

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 evaluates and assesses livestock grazing management achievement of the Standards and conformance with the Guidelines for the Nevada's Northeastern Great Basin Area for the Big Indian Creek (00410) and Middle Steptoe (00411) Allotments in the Ely District. This document does not evaluate or assess achievement of the Wild Horse and Burro or the Off Highway Vehicle Standards or conformance to their respective Guidelines.

1.2. General Allotment Description

The Standards were assessed for the Big Indian Creek Allotment and Middle Steptoe Seeding Allotment by a BLM interdisciplinary team. Documents and publications used in the assessment process include the Soil Survey of Western White Pine Area, Nevada, Parts of White Pine and Eureka Counties, Ecological Site Descriptions for Major Land Resource Area 28B, 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 Ely BLM District Office. The interdisciplinary team used rangeland monitoring data, professional observations, and photographs to assess achievement of the Standards and conformance with the Guidelines.

The Big Indian Creek and the Middle Steptoe Allotments encompass approximately 6,144 public land acres and 2,361 public land acres, respectively. The grazing permit area occurs entirely within White Pine County, and is situated approximately 25–35 miles north of Ely, Nevada. The permit area occurs within the Steptoe Valley Watershed. Neither the Big Indian Creek Allotment or Middle Steptoe Allotment are within a Wild Horse Herd Management Area (HMA). No wilderness occurs within or adjacent to the allotment boundaries.

One key area has been established on the Big Indian Creek Allotment and two key areas have been established for the Middle Steptoe Allotment. The establishment of these key areas is based on accessibility and general use by livestock, vegetation, and ecological range sites. Monitoring and utilization data collected at Key areas from 1999 to 2010 was used in this assessment for the both allotments. Key forage species in the Big Indian Creek Allotment include Indian ricegrass and Bottlebrush squirreltail. Key forage species for the Middle Steptoe Allotment include Alkali Sacaton, Alkali Cordgrass, Rush spp., Western Wheatgrass and Horsetail in the meadow area and Indian ricegrass and Bottlebrush squirreltail in the remainder of the allotment. A discussion of the monitoring data for both allotments is can be found below and it is also summarized in [Appendix A](#) of this document.

1.3. Description Of Vegetation Types On Allotment

The primary vegetation types on the Big Indian Creek Allotment is a Wyoming big sagebrush (*Artemisia tridentata wyomingensis*), Douglas' rabbitbrush (*Chrysothamnus viscidiflorus*) with Bottlebrush squirreltail (*Elymus elymoides*), and Indian ricegrass (*Achnatherum hymenoides*) plant community. The primary vegetation on the Middle Steptoe is a mixture of Wyoming big sagebrush with Bottlebrush squirreltail and Indian ricegrass on the western side of the allotment, Alkali Cordgrass (*Spartina gracilis*), Alkali Sacaton (*Sporobolus airoides*), Rush (*Juncus spp.*), Horsetail (*Equisetum spp.*), Western Wheatgrass (*Pascopyrum smithii*), Saltgrass (*Distichlis spicata*) with a mixture of annual and perennial forbs through the middle of the allotment and a mixture of Greasewood (*Sarcobatus vermiculatus*), Spiny Hopsage (*Grayia spinosa*), Shadscale saltbush (*Atriplex confertifolia*), Douglas' rabbitbrush (*Chrysothamnus viscidiflorus*), Big sagebrush (*Artemisia tridentata*) with Bottlebrush squirreltail and Indian ricegrass throughout the eastern half of the allotment. The primary ecological sites within the Big Indian Creek Allotment are Gravelly Clay (028BY089NV) and Shallow Loam (028BY010NV). The primary ecological sites within the Middle Steptoe Allotment are Coarse Gravelly Loam (028BY075NV), Sodic Terrace (028BY028NV) (028BY074NV), Saline Meadow (028BY002NV) and Loamy (028BY010NV).

1.4. Wildlife Habitat On Allotment

The Big Indian Creek Allotment is a Wyoming big sagebrush , Douglas' rabbitbrush with Bottlebrush squirreltail , and Indian ricegrass plant community. It provides habitat for Sage Grouse (*Centrocercus urophasianus*), Pronghorn antelope (*Antilocapra americana*), Mule deer (*Odocoileus hemionus*) and Rocky Mountain Elk (*Cervus canadensis*), various predator and small mammals, reptiles and a number of bird species. The Middle Steptoe Allotment is a mixture of Wyoming big sagebrush to a saline meadow/salt desert shrub plant community. It also provides habitat for Sage Grouse , Pronghorn antelope, Mule deer, Rocky Mountain Elk and various predators and small mammals, reptiles and a number of bird species. Both allotments have a perennial stream flowing through them which also provides water and habitat for wildlife as well as aquatic species. Duckcreek flows through the Middle Steptoe Allotment and maintains populations of non-native fish species and has historic habitat for relict dace (*Relictus solitarius*), a sensitive species, which does not presently occur within the creek. Mattier Creek and Big Indian Creek both flow through the Big Indian Creek Allotment and also maintain populations of non-native fish species. The Big Indian Creek Allotment is within the Antelope Sage Grouse Population Management Unit (PMU) and the Middle Steptoe Allotment is split by the Antelope PMU and the Butte Sage Grouse PMU. The Big Indian Creek Allotment occurs within the Nevada Department of Wildlife hunting management areas #11 and the Middle Steptoe Allotment occurs within area #12. There are no Sage Grouse leks within either allotment, but there are 2 active leks within a 3 miles of the Middle Steptoe Allotment and 1 active lek within 3 miles of the Big Indian Creek Allotment.

1.5. Description Of Current Livestock Management

The Big Indian Creek Allotment and the Middle Steptoe Allotment have one permittee, authorization #2702980. The current term permit is issued for the period 07/01/2006 - 06/30/2011. These allotments are both authorized for cattle use with a total grazing preference of 179 Animal Unit Months (AUMs) on the Big Indian Creek Allotment and 315 AUMs on the Middle Steptoe Allotment. For the Big Indian Creek Allotment, 99 AUMs are active and 80 AUMs are suspended

nonuse, with the current term permit authorizing approximately 25 head of cattle with a season of use from 07/01 to 10/19. For the Middle Steptoe Allotment, 173 AUMs are active and 142 AUMs are suspended nonuse, with the current term permit authorizing approximately 50 head of cattle with a season of use from 07/01 to 10/07. [Table 1](#) summarizes the current permit.

Table 1.1. Summary of the Current Grazing Permit for Authorization #2702980

Allotment Name and Number	Livestock Number/Kind	Grazing Period Begin End	% Public Land^a	Type Use	AUMs^b
Big Indian Creek (00410)	25 Cattle	07/01–10/19	100	Active	91
Middle Steptoe (00411)	50 Cattle	07/01–10/07	100	Active	163
Allotment AUMs Summary					
Allotment Name	ACTIVE AUMS	SUSPENDED AUMS	GRAZING PERMITTED USE		
Big Indian Creek	99	80	179		
Middle Steptoe	173	142	315		

^a% Public Land is the percent of public land for billing purposes.

^bAUMs may differ from Active Permitted Use due to a rounding difference with the number of livestock and the period of use.

Chapter 2. Part 1. Standard Achievement Review

Big Indian Creek Allotment**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:

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:

	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

Conclusions: Standard Achieved.

Rangeland monitoring data and professional observations indicate that soil condition in the Big Indian Creek Allotment is meeting Standard 1 in that indicators demonstrate that ground cover is sufficient to protect the soil from water or wind erosion and provide infiltration and permeability characteristics appropriate to the soil type, climate, and landform present. Cover data was collected using the Line-Point Intercept method. Using this method, one is able to collect total ground cover (canopy and understory). This is useful in determining what type of ground cover is available to disrupt precipitation energy and also overland-like flow, whether it be wind or water. In addition, because this method collects canopy and understory cover, total cover may be greater than 100 percent.

One key area has been established for the allotment. Data was collected in 2010. Key area BIC-1 occurs on a gravelly loam 8-10" P.Z. (Precipitation Zone) ecological site (028BY010NV). This site has a gravelly soil surface. It has a moderate permeability rate and runoff potential is medium. The potential for sheet and rill erosion is moderate to high depending on slope. Hazard of erosion by water and wind is slight. The expected vegetative ground cover (basal and crown) for this ecological site is 10-20 percent. Monitoring data indicated that this key area had a vegetative cover of 36 percent, litter cover of 6 percent, and bare ground was 58 percent.

In addition to the established key area site, three additional study sites were established in 2010 in sagebrush communities throughout the allotment. These sites were permanently established for the dual purpose of monitoring vegetative cover and wildlife habitat conditions.

Study site SG-BIC-1 is on a gravelly loam 8-10" P.Z. ecological site (028BY010NV). This site has a gravelly soil surface. The expected vegetative ground cover (basal and crown) for this ecological

site is 10-20 percent. Monitoring data indicated that this key area had a vegetative cover of 33 percent, rock cover of 2 percent, litter cover of 17 percent, and bare ground was 55 percent.

Study site SG-BIC-2 is on a gravelly loam 8-10" P.Z. ecological site (028BY010NV). This site has a gravelly soil surface. The expected vegetative ground cover (basal and crown) for this ecological site is 10-20 percent. Monitoring data indicates that this key area has a vegetative cover of 31 percent, rock cover of 1 percent, litter cover of 19 percent, and bare ground was 59 percent.

Study site SG-BIC-3 is on a gravelly loam 8-10" P.Z. ecological site (028BY010NV). This site has a gravelly soil surface. The expected vegetative ground cover (basal and crown) for this ecological site is 10-20 percent. Monitoring data indicates that this key area has a vegetative cover of 33 percent, biological crust cover of 1 percent, rock cover of 3 percent, litter cover of 12 percent, and bare ground was 58 percent.

Utilization data collected on the allotment in 2008 showed light to moderate use on the grass species present and was wildlife use only. Total ground cover consisted of vegetation, rocks, biological crusts, and litter and as such the soils were further protected from wind or water erosional forces. The soil showed no signs of rills, gullies or other erosional features. Specific cover data is summarized in [Appendix A](#), [Table 4-1](#) and [4-2](#).

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.

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

Determination:	
X	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

Causal Factors:

- 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:

- In conformance with the Guidelines**
 Not in conformance with the Guidelines

Conclusion: Achieving the standard

Two streams were identified for a riparian assessment based on livestock accessibility and these were the only known riparian areas within the allotment on public land. The assessments were conducted by an Interdisciplinary (ID) team consisting of a wildlife biologist, ecologist, and rangeland/vegetation specialist.

Big Indian Creek is a perennial stream that starts on Forest Service (FS) administered land and then crosses onto BLM land. The stretch that was assessed started at the FS/BLM boundary and went downstream approximately 1/4 mile where the stream was stopped by a dam and drained into a pipe. The team assessed the Big Indian Creek using the Riparian Proper Functioning Condition (lotic) protocol and found the system to be in Proper Functioning Condition (PFC). The stream had adequate vegetation (e.g.. diverse composition, diverse age class distribution, species with strong and dense root masses, vigorous, and high cover values), and/or rock present to dissipate stream energy associated with high water flows. Hydrological indicators (e.g. access to floodplain, channel characteristics in balance with landscape, saturation, no excessive water fluctuations, potential extent is achieved, upland watershed is in balance with riparian system, water quality, no excessive disturbance, and safe flow passage) and erosion/deposition indicators (e.g. no chemical accumulation, no excessive erosion or deposition, stability, and adequate bank cover) indicate that this riparian system is functioning properly.

Mattier Creek is also a perennial stream that starts on FS land and crosses through private land onto BLM land. This stream crosses private land in several places. The stretches assessed started at the private/BLM boundary to the another private land boundary (approx. 1/4 mile) and then again between two other sections of private land (approx. 1/4 mile). This stream was assessed and found to be Functioning-At Risk, with an upward trend (FAR, upward). This stream is deeply incised, so it is not accessible to livestock. It lacked vegetative cover, composition and diversity of riparian species. There were a number of colonizers present and some riparian species (Carex) beginning to re-establish. Mattier Creek did exhibit good hydrologic and erosion deposition indicators (e.g. rocks/coarse debris, access to floodplain, channel characteristics in balance with landscape, saturation, potential extent is achieved, upland watershed is in balance with riparian system, water quality, no excessive disturbance, and safe flow passage). It appeared that this stream had experienced a high flow event, or does so frequently, and was in the process of recovering. The remainder of the stream that crosses public land, below the lower section of private land, was not assessed because it was channelized into a ditch system and is no longer a natural riparian system.

Although Mattier Creek was not assessed as being in Proper Functioning Condition in terms of BLM's riparian assessment tool, the team did believe that Mattier Creek exhibited conditions of recovery, functionality, and resilience.

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.

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

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

Conclusion: Not achieving the standard, but making significant progress towards. Livestock were not identified as a contributing factor, failure to meet the standard is related to other issues or conditions.

Rangeland monitoring data and professional observations indicate that vegetative composition and productivity for the majority of the Big Indian Creek Allotment are not appropriate to provide adequate habitat and is not consistent with the Rangeland Ecological Site Descriptions (ESD) for the ecological site monitored. Vegetative composition, structure and productivity are skewed towards shrub dominance with percent composition by weight as well as vegetative cover showing shrubs are higher than what is expected while grasses are lower when compared to the historic climax plant community (HCPC) in the ESD.

Only one key area has been established for this allotment, which is thought to represent condition for the majority of the allotment.

Vegetative composition and productivity were measured at Key area site BIC-1 in 2010. This site occurs on a loamy 8–10” P.Z. (028BY010NV) ecological site. The expected vegetative composition by weight for this ecological site is 50 percent grasses, 5 percent forbs and 45 percent shrubs and trees. Composition by weight measured at BIC-1 was 3 percent grasses, less than 1 percent forbs, and 96 percent shrubs. Total annual production (air-dried) 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. Both 2009 and 2010 were favorable precipitation

years and the annual total production was measured at 918 pounds per acre in 2010. Similarity index for this key area was calculated to be 41 percent.

In addition to the established key area site, three additional study sites were established in 2010 in sagebrush communities throughout the allotment. These sites were permanently established for the dual purpose of monitoring vegetative cover and wildlife habitat conditions. Key area BIC-1 had a herbaceous cover of 3% with average grass height of 12 inches and a sagebrush cover of 23% with an average sagebrush height of 15 inches. The study site SG-BIC-1 had a herbaceous cover of 2% with an average grass height of 8 inches and a sagebrush cover of 28% with an average height of 19 inches. SG-BIC-2 had no herbaceous cover and a sagebrush cover of 31% with an average height of 18 inches, SG-BIC-3 had no herbaceous cover and a sagebrush cover of 30% with an average height of 21 inches.

The Big Indian Creek Allotment did not have an appropriate distribution of age classes in either shrubs or grasses. It was noted that there was an abundance of decadent or dead shrubs throughout the allotment and a lack of grass and forb cover. Large portions of the allotment appear to be transitioning toward an altered, shrub-dominant, vegetative state. As this transition occurs, these plant communities may no longer be accurately represented by the HCPC.

Livestock have not used this allotment for at least the past 10 years. Wildlife use and sign of use was noted in this allotment, particularly by antelope, deer and elk (see Tables 2-1 and 3-1). Although the allotment is currently providing habitat for wildlife, the monitoring data and observations collected indicate that the Big Indian Creek Allotment is not providing a diverse population of native and/or desirable plant species which is appropriate to the site characteristics, and thus, not achieving the Habitat Standard. Failure to meet the standard may be due to a lack of natural disturbance, such as fire, climatic issues or historic grazing. A summarization of this data is found in [Appendix A](#), Sections 2, 3 and 5.

Middle Steptoe Allotment

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:

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:

	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
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Not in conformance with the Guidelines

Conclusions: Standard Achieved.

Rangeland monitoring data and professional observations indicate that soil condition in Middle Steptoe Allotment is meeting Standard 1 in that indicators demonstrate that ground cover is sufficient to protect the soil from water or wind erosion and provide infiltration and permeability characteristics appropriate to the soil type, climate, and landform present. Cover data was collected using the Line-Point Intercept method. Using this method, one is able to collect total ground cover (canopy and understory). This is useful in determining what type of ground cover is available to disrupt precipitation energy and also ground flow, whether it be by wind or water. In addition, because this method collects canopy and understory cover total cover may be greater than 100 percent.

Two key areas were previously established for the allotment, however, data was collected from only one key area site in 2010. Key area MS-1 occurs on a saline meadow ecological site (028BY002NV). This site has a silty soil surface. The permeability rate is moderately slow and runoff potential is very slow. The potential for sheet and rill erosion is low. Hazard of erosion by water and wind is slight. The expected vegetative ground cover (basal and crown) for this ecological site is 15-25 percent. Monitoring data indicated that this key area had a vegetative cover of 68 percent, litter cover of 35 percent, and bare ground was at 15 percent.

In addition to the established key area site, three additional study sites were established in 2010 in sagebrush communities throughout the allotment. These sites were permanently established for the dual purpose of monitoring vegetative cover and wildlife habitat conditions.

Study site SG-MS-1 is on a sodic terrace 8-10" P.Z. ecological site (028BY028NV). This site has a gravelly soil surface. The expected vegetative ground cover (basal and crown) for this ecological site is 10-20 percent. Monitoring data indicated that this key area had a vegetative cover of 33 percent, biological crust cover of 2 percent, rock cover of 10 percent, litter cover of 10 percent, and bare ground was 50 percent.

Study site SG-MS-2 is on a gravelly loam 8-10" P.Z. ecological site (028BY010NV). This site has a gravelly soil surface. The expected vegetative ground cover (basal and crown) for this ecological site is 10-20 percent. Monitoring data indicated that this key area had a vegetative cover of 15 percent, biological crust cover of 10 percent, rock cover of 9 percent, litter cover of 3 percent, and bare ground was 63 percent.

Study site SG-MS-3 is on a Gravelly loam 8-10" P.Z. ecological site (028BY010NV). This site has a gravelly soil surface. The expected vegetative ground cover (basal and crown) for this ecological site is 10-20 percent. Monitoring data indicated that this key area had a vegetative cover of 20 percent, biological crust cover of 6 percent, rock cover of 10 percent, litter cover of 12 percent, and bare ground was 58 percent.

Total ground cover consisted of vegetation, rocks, biological crusts, and litter and as such the soils were further protected from wind or water erosional forces. The soil showed no signs of rills, gullies or other erosional features. Specific cover data is summarized in [Appendix A, Table 4-1](#) and [4-2](#).

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.

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

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:

	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: Achieving the standard.

One stream and one spring were identified for a riparian assessment based on livestock accessibility and these were the only known riparian areas within the allotment on public land. The assessments were conducted by an Interdisciplinary (ID) team consisting of a wildlife biologist, ecologist, and rangeland/vegetation specialist using the Riparian Proper Functioning Condition (lentic and lotic) protocols.

Duck Creek is a semi-perennial stream and one of the main streams within the Steptoe Valley watershed. It starts on Forest Service (FS) administered land and then crosses Private and BLM land multiple times before draining into a reservoir. Because the stretch of Duck Creek assessed on the Middle Steptoe Allotment is several miles below the reservoir, the flow can be quite variable. The reach that was assessed started at the southern allotment boundary and continued from there for approximately 1/2 mile. This reach of Duck Creek was assessed by the ID Team as

being in Proper Functioning Condition (PFC). The stream had adequate vegetation (e.g. diverse composition, diverse age class distribution, species with strong and dense root masses, vigorous, and high cover values), and/or rock present to dissipate stream energy associated with high water flows. Hydrologic indicators (e.g. access to floodplain, channel characteristics in balance with landscape, saturation, no excessive water fluctuations, potential extent is achieved, upland watershed is in balance with riparian system, water quality, no excessive disturbance, and safe flow passage) and erosion/deposition indicators (e.g. no chemical accumulation, no excessive erosion or deposition, stability, and adequate bank cover) indicate that this riparian system is functioning properly. The part of Duck Creek assessed showed system resilience and functionality and would be capable of withstanding high wind and water flow events.

The unnamed spring (#597) is a natural riparian system approximately 1 acre in size. The riparian area had adequate vegetation (e.g. diverse composition, diverse age class distribution, species with strong and dense root masses, vigorous, and high cover values) and/or rock present to dissipate stream energy associated with high water flows. Hydrological indicators (e.g. access to floodplain, channel characteristics in balance with landscape, saturation, no excessive water fluctuations, potential extent is achieved, upland watershed is in balance with riparian system, water quality, no excessive disturbance, and safe flow passage) and erosion/deposition indicators (e.g. no chemical accumulation, hydric soil maintenance, perched water source, no excessive erosion or deposition, stability, and adequate bank cover) illustrate that this riparian system was functioning properly. Some of the risk factors at this site were a few bare spots on the bank due to trampling and some hoof action in the center of the spring which caused some hummocking.

Based on the riparian assessments and professional observations, the Middle Steptoe Allotment is achieving the 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.

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

Determination:

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

Causal Factors:

	Livestock are a contributing factor to not achieving the standard
X	Livestock are not a contributing factor to not achieving the standard
X	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: Not achieving the standard, but making significant progress towards. Livestock were not identified as a contributing factor, failure to meet the standard is related to other issues or conditions.

Rangeland monitoring data and professional observations indicate that vegetative structure, composition, and productivity for portions of the Middle Steptoe Allotment are not appropriate to provide adequate habitat and are not consistent with the Rangeland Ecological Site Descriptions (ESD) for some of the ecological site monitored. Vegetative composition, structure and productivity are within the expected range at the key area MS-1 however, vegetative composition, structure and productivity are skewed towards shrub dominance with percent composition by weight showing shrubs are higher than what is expected while grasses are lower when compared to the historic climax plant community (HCPC) in the ESD in the other portions of the allotment.

Two key areas have been established for this allotment. However, only one key area was monitored. This key area does not represent the entire allotment, since this allotment has several different plant communities from sagebrush to a saline meadow.

Vegetative composition and productivity was measured at Key area site MS-1 in 2010. This site occurs on a saline meadow (028BY002NV) ecological site. The expected vegetative composition by weight for this ecological site is 85 percent grasses, 10 percent forbs and 5 percent shrubs. Composition by weight measured at MS-1 was 87 percent grasses and grass-like species, 14 percent forbs, and no shrubs. Total annual production (air-dried) expected for this ecological site is 1,500 pounds per acre on a favorable year, 1,000 pounds per acre on a normal year, and 700 pounds per acre on an unfavorable year. Both 2009 and 2010 were favorable precipitation years and the annual total production was measured at 331 pounds per acre in 2010. Similarity index for this key area was calculated to be 45 percent. The key area site had an appropriate distribution of age classes in grass and forbs. In addition, vegetative cover was determined to be appropriate for this site suggesting that this site does meet the standard for vegetative composition, structure and productivity.

Production and composition data for the sagebrush communities was not collected or available for this evaluation, but cover data was collected in these communities at the sagebrush study sites established in 2010. The study site SG-MS-1 had no herbaceous cover and a sagebrush cover of 25% with an average height of 28 inches. SG-MS-2 had no herbaceous cover and a sagebrush cover of 14% with an average height of 11 inches. SG-MS-3 had a herbaceous cover of 1% with an average grass height of 9 inches and a sagebrush cover of 12% with an average height of 17 inches. Cover data indicates that vegetative cover was adequate but lacked a herbaceous understory which is not appropriate for these sites. It was also noted that there was an abundance of decadent or dead shrubs at the sites and a lack of grass and forb cover.

Within the past 10 years the Middle Steptoe Allotment has had grazing use from 2006 to present. Utilization was recorded once, in 2008. At that time utilization levels were slight (18%) to light (22%) depending on the forage species. Observations in 2010, while monitoring data was being collected, suggest that the slight to light or moderate utilization levels appeared to be consistent.

The monitoring data and observations collected indicate that the Middle Steptoe Allotment is not achieving the Habitat standard. Failure to meet the standard may be due to a lack of natural disturbance, such as fire, climatic issues or historic grazing. Even though the meadow portion of the allotment demonstrates an appropriate vegetative composition, structure and productivity and the sagebrush portions of the allotment do not, wildlife use and signs of use were noted, particularly by sage grouse at the sagebrush sites and antelope in the meadow area, indicating that the allotment does currently provide habitat for sage grouse and antelope. A summarization of this data is found in [Appendix A](#), Sections [2](#), [3](#), [4](#) and [5](#).

Special Status Species

Big Indian Creek and Middle Steptoe Allotments

Sage Grouse

The Greater Sage-Grouse (*Centrocercus urophasianus*) is a high-profile Sensitive Species that has been determined to be warranted for listing but which is precluded by other species of higher priority. (Federal Register /Vol. 75, No. 55 /Tuesday, March 23, 2010). It has been identified as an “umbrella” species by the Ely District BLM, and chosen to represent the habitat needs of the sagebrush (*Artemisia* spp.) obligate or sagebrush/woodland dependent guild (BLM 2007; p. 4.7-10). The White Pine County Sage Grouse Conservation Plan (hereafter termed the Plan; 2004) identified approximately 49% (950,773 ac) of potential (1,870,317 ac) sage-grouse habitat within the Butte/Buck/White Pine PMU as not meeting the sage-grouse habitat guidelines established by Connelly et al. (2000). In the sagebrush habitat rating system used in the Plan, one category, termed “R2”, is defined as “Areas with inadequate grass/forb understory composition, adequate sagebrush cover”. Based on the composition data collected for the Big Indian Creek Allotment and the western portion of the Middle Steptoe Allotment, the sagebrush habitat communities at the key areas and study sites measured within the allotment fall under this category.

Site specific evaluation of sage-grouse habitat guidelines should be tempered with consideration of site potentials described in the ESD. According to Connelly, et al. (2000): “There is much variability among sagebrush-dominated habitats (Tisdale and Hironaka 1981, Hironaka et al. 1983), and some Wyoming sagebrush and low sagebrush breeding habitats may not support 25% herbaceous cover. In these areas, total herbaceous cover should be greater than 15%. In all of these cases, local biologists and range ecologists should develop height and cover requirements that are reasonable and ecologically defensible.”

Both allotments contains winter, summer (brood rearing) and nesting habitat. 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. The table below describes the specific habitat needs for each of the habitat types.

Table 2. Characteristics of sagebrush rangeland needed for productive sage-grouse habitat (Connelly 2000)

	Breeding (Nesting)		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%	

There are no known sage grouse lek sites within either the Big Indian Creek or Middle Steptoe allotments boundaries. There is one active sage grouse lek with 3 miles of the north boundary of the Big Indian Creek Allotment and 3 lek site within 3 miles of the Middle Steptoe Allotment, 2 of which are active and 1 is inactive (Appendix B, Figure 4). Sage grouse often nest in suitable habitat within three miles of a lek site.

In addition to the already established key area site on the Big Indian Creek, 3 additional study sites were used to measure additional vegetative cover in sagebrush habitats throughout the allotment. Only the western portion of the Middle Steptoe Allotment is within sagebrush habitat. Three study sites were used to measure additional vegetative cover in sagebrush habitats throughout the Middle Steptoe Allotment. Under the sage-grouse guidelines, the herbaceous component (grasses and forbs) should comprise at least 15% cover and sagebrush should comprise at least 15-25% cover (Connelly et al. 2000).

Key area BIC-1 had a herbaceous cover of 3% with average grass height of 12 inches and a sagebrush cover of 23% with an average sagebrush height of 15 inches. The study site SG-BIC-1 had a herbaceous cover of 2% with an average grass height of 8 inches and a sagebrush cover of 28% with an average height of 19 inches. SG-BIC-2 had no herbaceous cover and a sagebrush cover of 31% with an average height of 18 inches, SG-BIC-3 had no herbaceous cover and a sagebrush cover of 30% with an average height of 21 inches. Based on the cover data collected the majority of the allotment is not meeting the sage grouse habitat guidelines for nesting and brood rearing habitat set forth by Connelly et al. (2000). Most portions of the allotment have an overgrown and decadent sagebrush community with very little herbaceous understory.

The study site SG-MS-1 had no herbaceous cover and a sagebrush cover of 25% with an average height of 28 inches. SG-MS-2 had no herbaceous cover and a sagebrush cover of 14% with an average height of 11 inches. SG-MS-3 had a herbaceous cover of 1% with an average grass height of 9 inches and a sagebrush cover of 12% with an average height of 17 inches. Based on the cover data collected, the allotment is not meeting the sage-grouse habitat guidelines for nesting habitat set forth by Connelly et al. (2000). It was noted there was sign of sage grouse at the study sites, which suggest that the this portion of the allotment may be currently providing winter habitat for sage grouse. A more detailed summarization of the cover data for both allotments can be found in [Appendix A, Section 5](#).

The Ely District Approved Resource Management Plan, developed by local specialists, states in reference to sagebrush plant communities, "Sagebrush in the mid-late phase of the herbaceous state is desired for wildlife habitat." The majority of the both the Big Indian Creek and Middle Steptoe allotments fall within this stage.

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

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 2006).

Big Indian Creek Allotment Standards Summary Review

Standard #1: Upland Sites:

Achieving the standard

Standard #2: Riparian and Wetland Sites:

Achieving the standard

Standard #3: Habitat:

The Standard is not being achieved, but significant progress is being made. Livestock are not a contributing factor to not achieving the Standard. Failure to meet the standard is related to other issues or conditions. These conditions may be the historical grazing patterns on the allotment and/or an altered disturbance regime, both of which contribute to an increase in shrub dominance. In addition, this area is prone to extremely variable annual precipitation which is also considered a contributing factor (See [Appendix A](#), [Table 8-1](#) and [Figure 8-1](#)).

Middle Steptoe Allotment Standards Summary Review

Standard #1: Upland Sites:

Achieving the standard

Standard #2: Riparian and Wetland Sites:

Achieving the standard

Standard #3: Habitat:

The Standard is not being achieved, but significant progress is being made. Livestock are not a contributing factor to not achieving the Standard. Failure to meet the standard is related to other issues or conditions. These conditions may be from the historical grazing patterns on the allotment and/or an altered disturbance regime, both of which contribute to an increase in shrub dominance. In addition, this area is prone to extremely variable annual precipitation which is also considered a contributing factor (See [Appendix A](#), [Table 8-1](#) and [Figure 8-1](#)).

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

Grazing is in conformance with all applicable Guidelines as provided in the Northeastern Great Basin Standards and Guidelines.

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

Management Recommendations:

1. Continue to authorize cattle grazing use on the Big Indian Creek and Middle Steptoe Allotments.
2. The Active AUMs are recommended to remain at 99 Active AUMs on the Big Indian Creek Allotment and 173 Active AUMs on the Middle Steptoe Allotment.
3. The season of use on the Big Indian Creek Allotment would change to a winter use period (10/1 to 2/28).
4. The season of use on the Middle Steptoe Allotment would be changed to a year round use period (3/1 to 2/28) with the following stipulations:
 - The Middle Steptoe Allotment cannot be grazed in the spring (3/1 to 6/30) for 2 consecutive years. The season of use is recommend to be as follows:
 - **Even Years:** 14 Cattle from 3/1 to 2/28.
 - **Odd Years:** 21 Cattle from 7/1 to 2/28.

These changes are recommended to allow for operational flexibility in addition to continue to progress toward achieving Rangeland Health Standards.
5. Salt and/or mineral supplements for livestock shall be located no closer than 1/2 mile from water sources, riparian areas, sensitive sites, and cultural resource sites. In addition, salt and/or mineral supplements for livestock shall be located no closer than 1 mile from sage grouse leks. Location of supplement away from riparian areas will lessen grazing pressure in these areas, allowing them to progress towards the Riparian and Wetland Sites Standard as well as allow for better livestock distribution.
6. Maximum utilization levels will be established as follows:
 - Perennial native grasses: 50% current year's growth.

This use level is necessary to allow desirable key herbaceous species to 1) develop above ground biomass for protection of soils, 2) to contribute to litter cover, and 3) develop roots to improve carbohydrate storage for vigor, reproduction, and improve/increase desirable perennial cover.
 - Perennial shrubs and half-shrubs: 50% use on current annual production.

This use level is necessary to allow desirable perennial key browse species to develop branchlets and woody stature able to withstand the pressure of grazing use.
 - 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.

7. Wildlife escape ramps would be installed and maintained by the permittee at each trough used on the allotments (permanent or temporary).
8. Re-introduce disturbance by implementing vegetation management projects on both the Big Indian Creek and Middle Steptoe Allotments to increase herbaceous production and composition and enhance wildlife habitat.
9. Construct allotment boundary fences on the south side of the Big Indian Creek Allotment and the Middle Steptoe Allotment to better manage livestock and prevent livestock drift between adjacent allotments.

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Chapter 6. SIGNATURE PAGE

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Appendix A. Data Summary

A.1. 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 1-1 depicts key areas and their locations within the Big Indian Creek Allotment as well as the ecological site associated with the key area in native rangeland and dominate soils of each site.

Table 1-1. Big Indian Creek Allotment Key Area Description

Key Area	Location	Ecological Site	Major Plant Community	Soil Mapping Unit
BIC-1	T21N R64E Sec. 28 SWSE	Loamy 8-10" P.Z. (028BY010NV)	Wyoming Big sagebrush/ Bottlebrush Squirreltail	1330–Yody-Dewar Association

Table 1-2. Middle Steptoe Allotment Key Area Description

Key Area	Location	Ecological Site	Major Plant Community	Soil Mapping Unit
MS-1	T22N, R63E, Sec 25, SESW	Saline Meadow (028BY002NV)	Alkali Sacaton/Alkali Cordgrass	1130–Duffer-Equis Association

A.2. 2. Licensed Livestock Use

Over the last 11 grazing seasons from 2000 to 2010, there has not been any livestock licensed actual use on the Big Indian Creek Allotment. During this same time period livestock licensed actual use on the Middle Steptoe Allotment ranged from a high of 166 AUMs in 2007 to a low of 87 AUMs in 2010. Livestock use on both allotments has varied dependent on growing conditions, available forage, and management objectives of the permittee and the BLM. Table 2-1 included licensed actual use and percentage of licensed actual use compared to total active AUMs permitted by allotment. Active AUMs permitted for the Big Indian Creek Allotment are 99, and active AUMs permitted for the Middle Steptoe Allotment are 173.

Table 2-1. Big Indian Creek and Middle Steptoe Allotments Actual Use

Grazing Year	Big Indian Creek Allotment		Middle Steptoe Allotment	
	Licensed Use (AUMs)	% Licensed Use of Permitted Use (AUMs)	Licensed Use (AUMs)	% Licensed Use of Permitted Use (AUMs)
2000	0	0%	0	0%
2001	0	0%	0	0%
2002	0	0%	0	0%
2003	0	0%	0	0%
2004	0	0%	0	0%
2005	0	0%	0	0%
2006	0	0%	163	94%
2007	0	0%	166	96%
2008	0	0%	163	94%
2009	0	0%	163	94%
2010	0	0%	87	50%

A.3.3. Utilization

The following is a summary of the livestock utilization data collected on the Big Indian Creek Allotment and the Middle Steptoe Allotment over the period of the previous permit.

Utilization is the estimation of the proportion of annual production consumed or destroyed by animals (Swanson 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 – August, 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 (February 1997).

Key forage plant utilization method was used to collect utilization data at the key areas. Utilization for the allotment is summarized in Table 4-1.

Table 3-1. Big Indian Creek Allotment Utilization

Key Area/Location	Key Species	Grazing Year	Utilization	Total
E 694124 N 4391528	Bluegrass spp	2008	Moderate*	47%
	Indian Ricegrass		Light*	33%
*Wildlife Use Only				

Table 3-2. Middle Steptoe Allotment Utilization

Key Area/Location	Key Species	Grazing Year	Utilization	Total
E 688626 N 4402629	Alkali Sacaton	2008	Light	22%
	Alkali Cordgrass		Slight	18%

A.4. 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 are then compared to the appropriate cover for each ecological site as indicated by the Natural Resources Conservation Service (NRCS) Rangeland Ecological Site Descriptions. Using the Line-Point Intercept method, one is able to collect total ground cover (canopy and understory). This is useful in determining what type of ground cover is available to disrupt precipitation energy and also ground flow, whether it be wind or water. In addition, because this method collects canopy and understory cover total cover may be greater than 100 percent. Results are also compared to general known healthy rangelands.

Line-Point Intercept cover studies have been conducted at one key area, and 3 study sites within sagebrush plant communities on the Big Indian Creek Allotment and one key area and 3 study sites on the Middle Steptoe Allotment in 2010. Tables 4-1, 4-2, 4-3 and 4-4 summarize the cover data collected at key areas and study sites on native rangeland.

Table 4-1. Big Indian Creek Allotment Line-Point Intercept Ground Cover 2010

Key Area/ Study Site	Ecological Site	Bare Ground	Ground Cover					ESD Veg. Cover
			Rock	Bio. Crust	Herb. Litter	Woody /Embed- ded Lit- ter	Veg.	
BIC-1	028BY010NV	58%	0%	0%	6%	0%	36%	10–20%
*SG-BIC-1	028BY010NV	55%	2%	0%	16%	1%	33%	10–20%
*SG-BIC-2	028BY010NV	59%	1%	0%	16%	3%	31%	10–20%
*SG-BIC-3	028BY010NV	58%	3%	1%	12%	0%	33%	10–20%
*Sagebrush habitat study points								

Table 4-2. Big Indian Creek Allotment Vegetative Cover by species (including understory)

Key Area/Study Site	Vegetative Species	% Cover	Avg. Height (Inches)
BIC-1	Wyoming Big Sagebrush	23%	15
	Douglas' Rabbitbrush	11%	11
	Bottlebrush Squirreltail	3%	12
	Mustard spp.	1%	15
*SG-BIC-1	Wyoming Big Sagebrush	28%	19
	Douglas' rabbitbrush	4%	13
	Bottlebrush Squirreltail	1%	8
	Groundsmoke	1%	6
*SG-BIC-2	Wyoming Big Sagebrush	31%	18
*SG-BIC-3	Wyoming Big Sagebrush	30%	21
	Douglas' Rabbitbrush	2%	9
*Sagebrush habitat study points			

Table 4-3. Middle Steptoe Allotment Line-Point Intercept Ground Cover 2010

Key Area/ Study Site	Ecological Site	Bare Ground	Ground Cover					ESD Veg. Cover
			Rock	Bio. Crust	Herb. Litter	Woody /Embed- ded Lit- ter	Veg.	
MS-1	028BY002NV	15%	0%	0%	35%	0%	68%	15–25%
*SG-MS-1	028BY028NV	50%	10%	2%	10%	0%	33%	10–20%
*SG-MS-2	028BY010NV	63%	9%	10%	3%	0%	15%	10–20%
*SG-MS-3	028BY010NV	58%	10%	6%	12%	0%	20%	10–20%
*Sagebrush study points								

Table 4-4. Middle Steptoe Allotment Vegetative Cover by species (including understory)

Key Area/Study Site	Vegetative Species	% Cover	Avg. Height (Inches)
MS-1	Alkali Cordgrass	53%	—
	Rush spp.	19%	—
	Alkali Sacaton	4%	—
	Equisetum	2%	—
	Unknown Perennial Forb	1%	—
	Unknown Annual Forb	1%	—
*SG-MS-1	Wyoming Big Sagebrush	25%	28
	Greasewood	8%	35
*SG-MS-2	Black Sagebrush	10%	10
	Wyoming Big Sagebrush	4%	14
	Shadscale Saltbush	1%	12
*SG-MS-3	Wyoming Big Sagebrush	12%	17
	Douglas' Rabbitbrush	7%	11
	Bud Sage	1%	7
	Shadscale Saltbush	1%	12
	Bottlebrush Squirreltail	1%	9
*Sagebrush habitat study points			

A.5. 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 historic climax plant community (HCPC) and is an expression of how similar the existing plant community is to HCPC. Also note that HCPC is not always the most desirable plant community for which to manage.

When the similarity index is computed, a seral stage can be derived. Seral stages are the developmental stages of an ecological succession (NRCS 1997). A similarity index of 0 to 25 percent represents an early seral plant community, 26 to 50 percent represents a mid-seral plant community, 51 to 75 percent represents a late seral plant community, and 76 to 100 percent represents a climax plant community.

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 HCPC in the Rangeland Ecological Site Description for the site. To calculate the similarity index, current

composition cannot exceed that of HCPC. This yields percent allowable. The sum of all allowable percentages equals the similarity index.

Tables 5-1 and 5-2 summarize data used to calculate similarity index for the Big Indian Creek and Middle Steptoe Allotments.

Table 5-1. Total Annual Yield and Composition of the Big Indian Creek Allotment Key Areas

Key Area: BIC-1				
Ecological Site: Loamy 8-10" P.Z. (028BY010NV)				
Potential vegetative composition*: 50% grasses, 5% forbs and 45% shrubs.				
Total Annual Production (air dry lb/ac)*: 800 (Favorable), 600 (Normal), 400 (Unfavorable Year)				
6/24/2010				
Plant Common Name	Current Production (air dry lb/ac)	Current % Composition by Weight (air dry)	HCPC % Composition by Weight (air dry)*	% Allowable
Wyoming Big Sagebrush	708	77%	25-35%	35%

Table 5-2. Total Annual Yield and Composition of the Middle Steptoe Allotment Key Areas

Key Area: MS-1				
Ecological Site: Saline Meadow 8-10" P.Z. (028BY002NV)				
Potential vegetative composition*: 85% grasses and grass-likes, 10% forbs and 5% shrubs.				
Total Annual Production (air dry lb/ac)*: 1500 (Favorable), 1000 (Normal), 700 (Unfavorable Year)				
6/24/2010				
Plant Common Name	Current Production (air dry lb/ac)	Current % Composition by Weight (air dry)	HCPC % Composition by Weight (air dry)*	% Allowable
Alkali Cordgrass	162	49%	10-15%	15%

A.6. 6. Riparian Data

Proper Functioning Condition (PFC) is the method used by the BLM to assess riparian health and functionality. The process is completed by an interdisciplinary (ID) team. The team looks at hydrology, vegetation, and erosion/deposition characteristics of the site in order to determine if the riparian area is in proper functioning condition, functioning at risk, or nonfunctional.

Table 6-1. Summary of PFC Assessments on the Big Indian Creek Allotment

Riparian Area	Date	Functionality (Notes)
Big Indian Creek	9/1/2010	Proper Functioning Condition
Mattier Creek	9/1/2010	Functioning - At Risk with an upward trend: Livestock not a contributing factor. This is due to natural events. Lack of riparian vegetation and age class distribution. Colonizers were present, appears to be in the early seral stage.

Table 6-2. Summary of PFC Assessments on the Middle Steptoe Allotment

Riparian Area	Date	Functionality (Notes)
Duck Creek	9/1/2010	Proper Functioning Condition
Unnamed spring (ASPEN #597)	9/1/2010	Proper Functioning Condition

A.7. 7. 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 provides an accurate representation of the annual precipitation on the Big Indian Creek and Middle Steptoe Allotments. Table 7-1 and Figure 7-1 summarize annual precipitation data collected since 1970.

Table 7-1. Western Regional Climate Center Total Annual Precipitation Data for Ely, NV

Year	Annual Precip. (Inches)	Year	Annual Precip. (Inches)	Year	Annual Precip. (Inches)
1970	10.69	1984	14.84	1998	12.23
1971	9.42	1985	9.89	1999	6.61
1972	6.59	1986	8.6	2000	10.12
1973	11.23	1987	12.3	2001	6.7
1974	4.22	1988	8.66	2002	4.52
1975	9.77	1989	6.6	2003	8.54
1976	8.25	1990	8.76	2004	9
1977	9.19	1991	9.98	2005	12.99
1978	12.47	1992	9.78	2006	9.2
1979	7.39	1993	10.06	2007	6.76
1980	12.78	1994	9.72	2008	5.5
1981	10.29	1995	12.19	2009	10.04
1982	15.53	1996	7.31	2010	11.18
1983	14.84	1997	9.5		

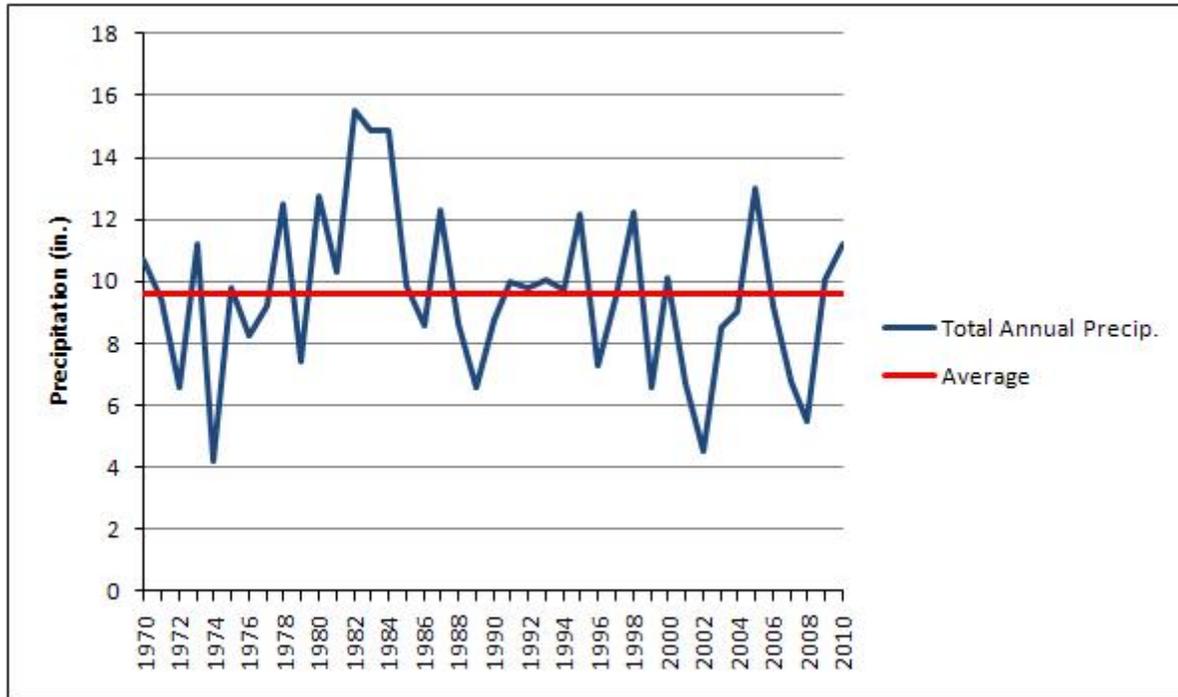


Figure Figure 7-1. Western Regional Climate Center Total Annual Precipitation and Average Data for Ely, NV from 1970 to 2010

Appendix B. Maps

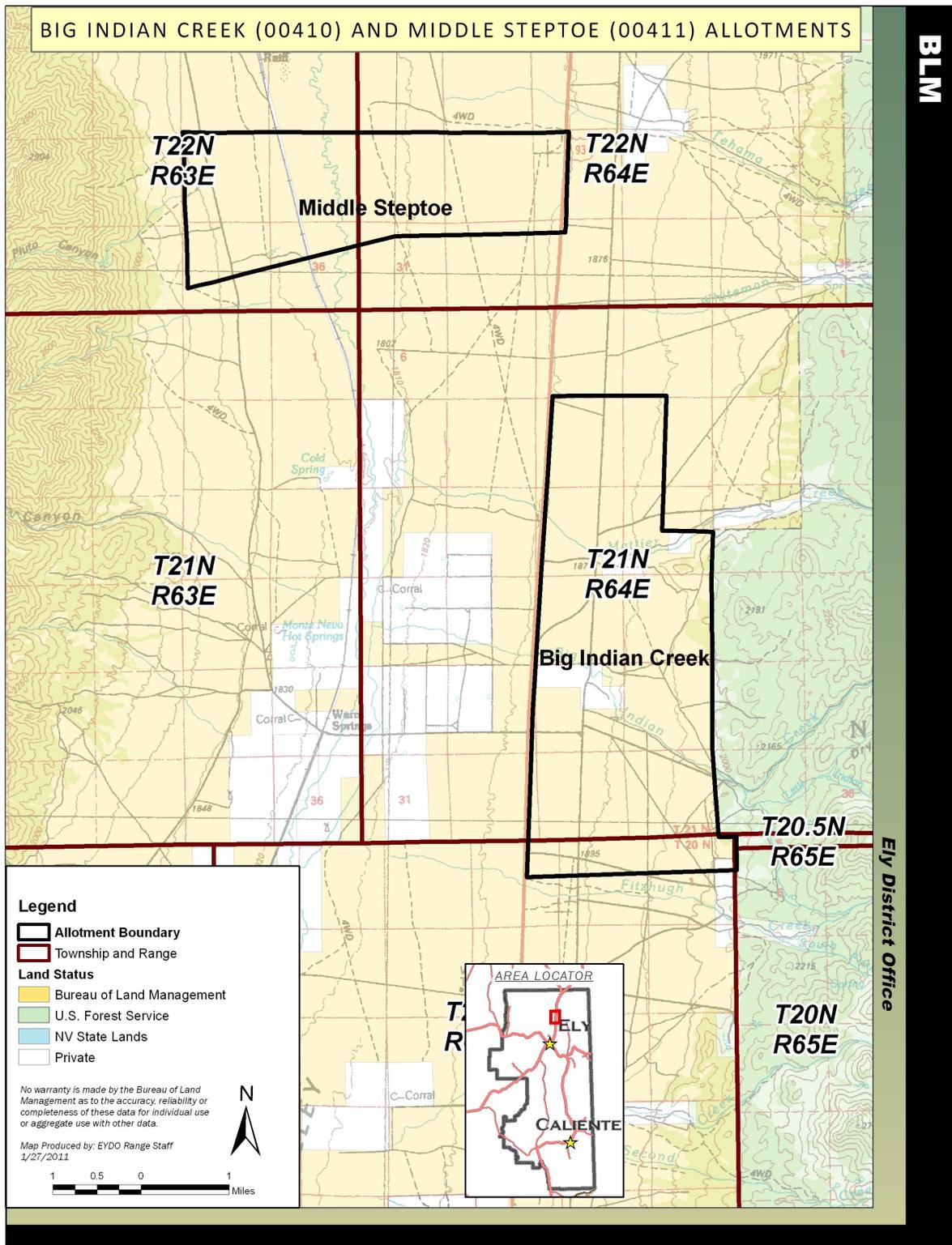


Figure 1. Big Indian Creek and Middle Steptoe Allotment map

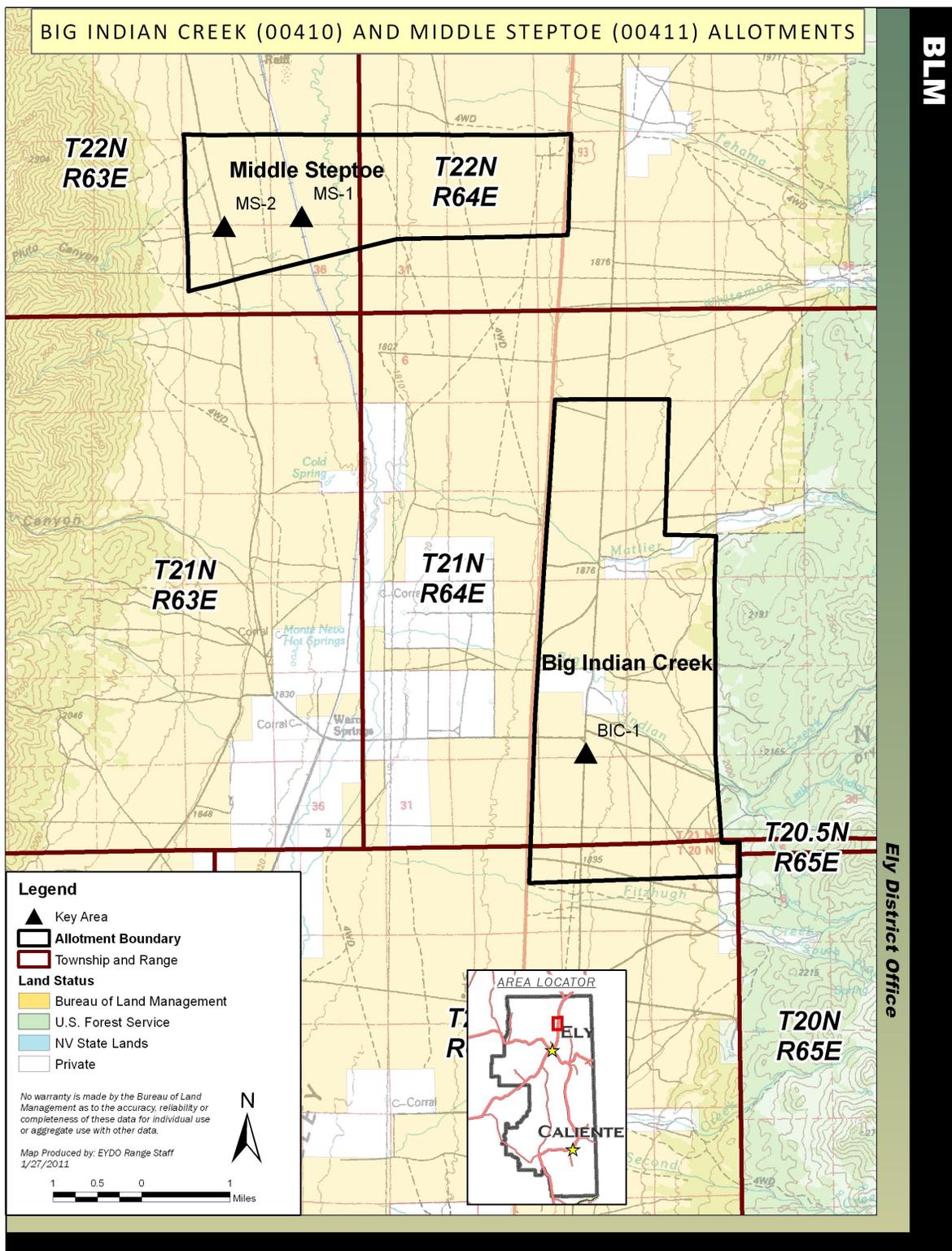


Figure 2. Key area site for the Big Indian Creek and Middle Steptoe Allotments

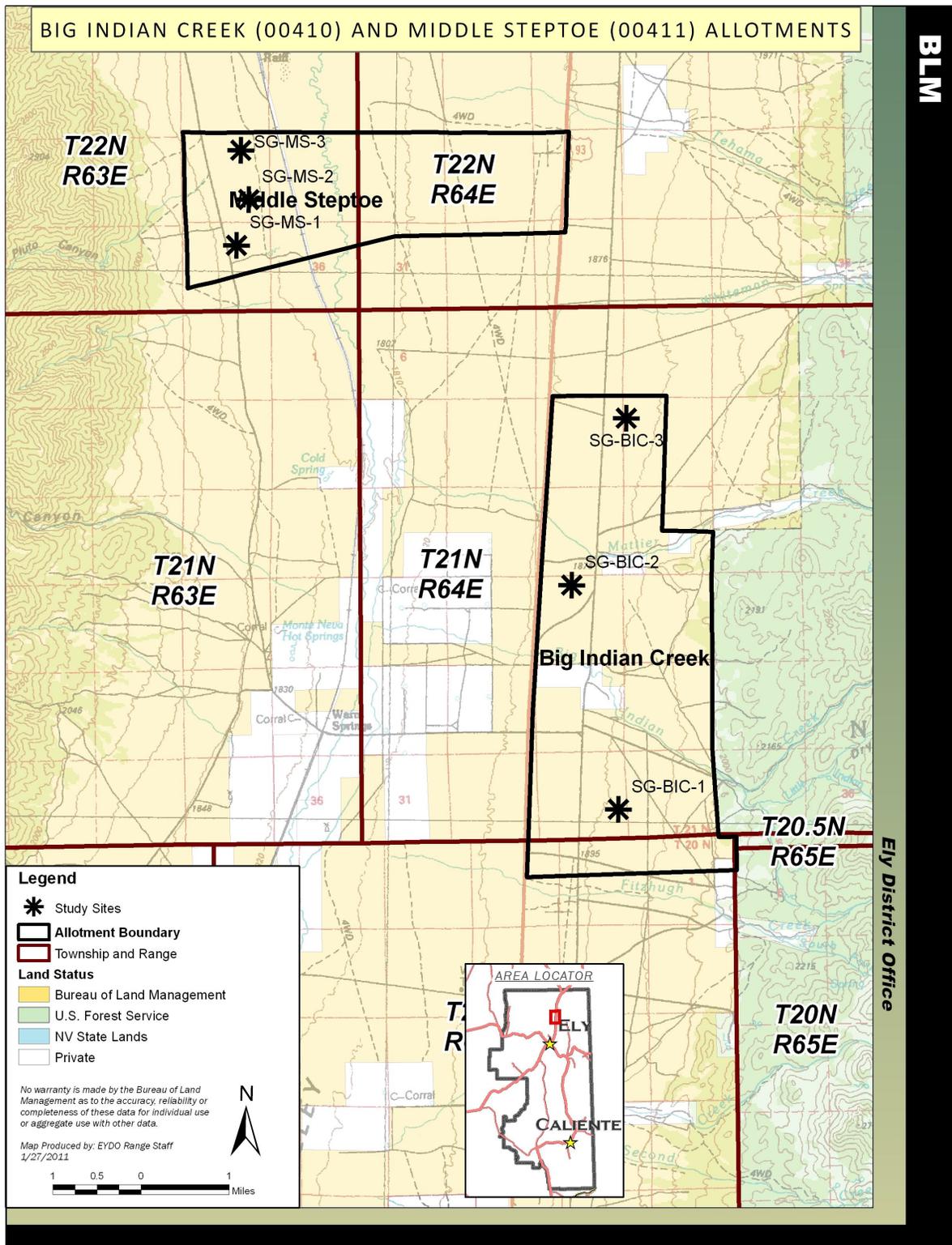


Figure 3. Sagebrush Habitat Study Sites for the Big Indian Creek and Middle Steptoe Allotments

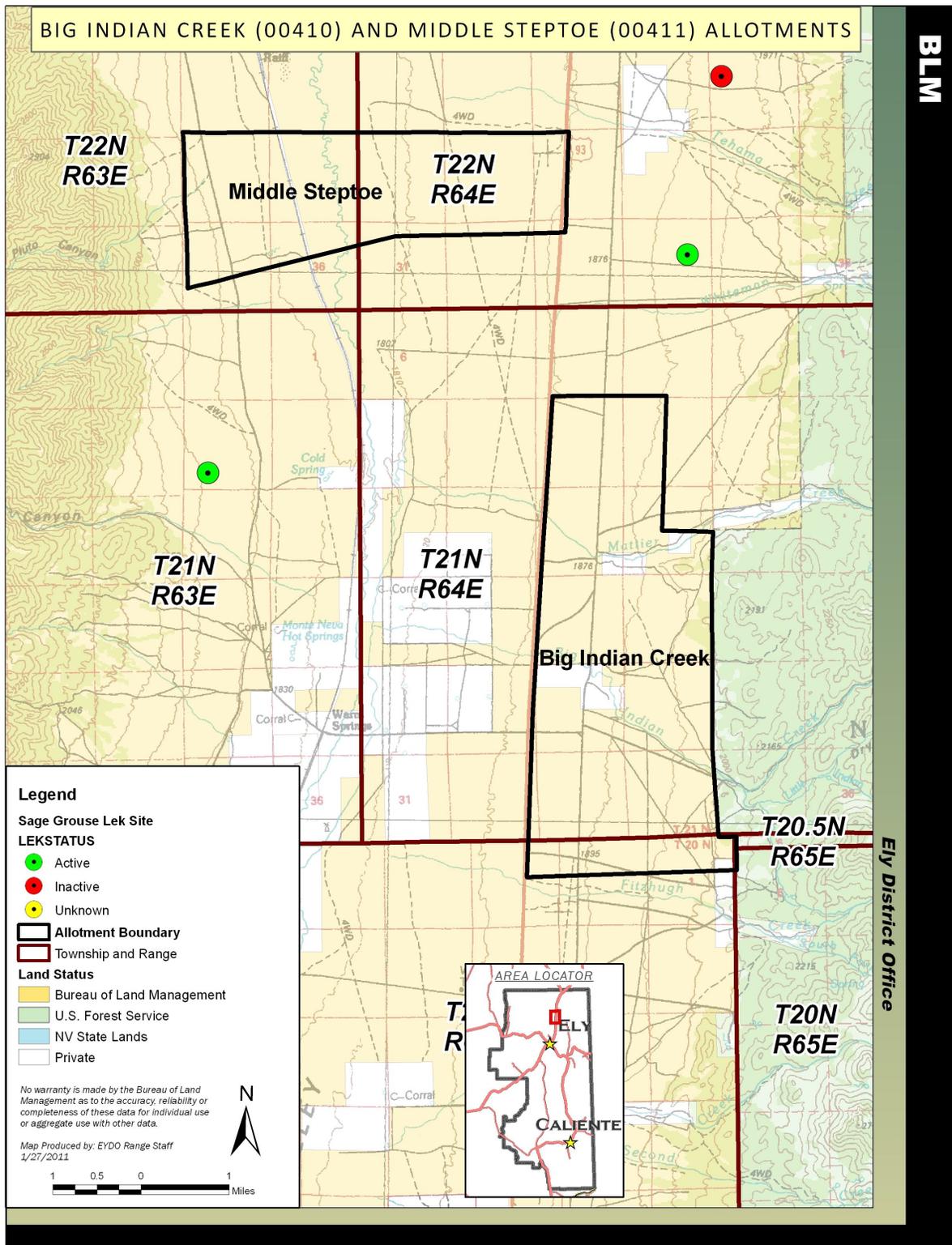


Figure 4. Sage grouse lek sites

Appendix C. Terms And Conditions

New Grazing Permit

Table C.1. Summary of Authorization #2702980

Allotment Name and Number	Livestock Number/Kind	Grazing Period Begin End	% Public Land ^a	Type Use	AUMs ^b
Big Indian Creek (00410)	20 Cattle	10/01–02/28	100	Active	99
Middle Steptoe (00411)	14 Cattle	03/01–02/28	100	Active	168
Allotment AUMs Summary					
Allotment Name	ACTIVE AUMS	SUSPENDED AUMS	GRAZING PERMITTED USE		
Big Indian Creek	99	80	179		
Middle Steptoe	173	142	315		

^a% Public Land is the percent of public land for billing purposes.

^bAUMs may differ from Active Permitted Use due to a rounding difference with the number of livestock and the period of use.

Terms and Conditions:

Big Indian Creek Allotment (00410):

1. The total active AUMs on the Big Indian Creek Allotment is 99 AUMs.
2. The Season of use for the Big Indian Creek Allotment is 20 cattle from 10/01 to 02/28 and 99 AUM's.
3. Maximum utilization levels will be established as follows:

- Perennial native grasses: 50% current year's growth.

This use level is necessary to allow desirable key herbaceous species to 1) develop above ground biomass for protection of soils, 2) to contribute to litter cover, and 3) develop roots to improve carbohydrate storage for vigor, reproduction, and improve/increase desirable perennial cover.

- Perennial shrubs and half-shrubs: 50% use on current annual production.

This use level is necessary to allow desirable perennial key browse species to develop branchlets and woody stature able to withstand the pressure of grazing use.

- 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.

4. Wildlife escape ramps would be installed and maintained by the permittee at each trough used on the allotment (permanent or temporary).

Middle Steptoe Allotment (00411):

1. The total active AUMs on the Middle Steptoe Allotment is 173 AUMs.
2. The Season of use for the Middle Steptoe Allotment is from 03/01 to 2/28 and cannot exceed 173 AUMs with the following stipulations:
 - The Middle Steptoe Allotment cannot be grazed in the spring (3/1 to 6/30) in 2 consecutive years. The season of use would to be as follows:
 - **Even Years:** 14 Cattle from 3/1 to 2/28 and 168 AUMs.
 - **Odd Years:** 21 Cattle from 7/1 to 2/28 and 168 AUMs.
3. Maximum utilization levels will be established as follows:
 - Perennial native grasses: 50% current year's growth.

This use level is necessary to allow desirable key herbaceous species to 1) develop above ground biomass for protection of soils, 2) to contribute to litter cover, and 3) develop roots to improve carbohydrate storage for vigor, reproduction, and improve/increase desirable perennial cover.
 - Perennial shrubs and half-shrubs: 50% use on current annual production.

This use level is necessary to allow desirable perennial key browse species to develop branchlets and woody stature able to withstand the pressure of grazing use.
 - 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.

Other Terms and Conditions:

1. Livestock numbers are flexible as long as permitted use (i.e. AUM's) is not exceeded during the authorized season of use.
2. Permittee will move livestock to another authorized pasture or from the allotment no later than 5 days following attainment of maximum utilization levels. Any deviation in livestock movement will require authorization from the authorized officer.
3. Salt and/or mineral supplements for livestock must be located at least 1/2 mile from water sources, riparian areas, winterfat bottoms, sensitive sites, and cultural resource sites. Such supplements may be used to encourage livestock distribution. However, feeding of forage products on public rangelands is prohibited.

4. Water hauling may be needed to maintain proper livestock distribution. The location of water hauling sites will be determined by the authorized officer in cooperation with the livestock permittee.
5. Water haul site must be at least 1/2 mile from Winterfat dominated sites, known riparian areas, cultural sites and special status species locations.

Additional Stipulations Common to All Grazing Allotments:

1. Livestock numbers identified in the Term Grazing Permit are a function of seasons of use and permitted use. Deviations from those livestock numbers and seasons of use may be authorized on an annual basis where such deviations would not prevent attainment of the multiple-use objectives for the allotment.
2. Deviations from specified grazing use dates will be allowed when consistent with multiple-use objectives. Such deviations will require an application and written authorization from the authorized officer prior to grazing use.
3. The authorized officer is requiring that an actual use report (form 4130-5) be submitted within 15 days after completing your annual grazing use.
4. Grazing use will be in accordance with the Standards and Guidelines for Grazing Administration. The Standards and Guidelines have been developed by the respective Resource Advisory Council and approved by the Secretary of the Interior on February 12, 1997. Grazing use will also be in accordance with 43 CFR Subpart 4180 - Fundamentals of Rangeland Health and Standards and Guidelines for Grazing Administration.
5. If future monitoring data indicates that Standards and Guidelines for Grazing Administration are not being met, the permit will be reissued subject to revised terms and conditions.
6. Pursuant to 43 CFR 10.4 (G) the holder of this authorization must notify the authorized officer by telephone, with written confirmation, immediately upon discovery of human remains, funerary objects, sacred objects, or objects of cultural patrimony (as defined at 43 CFR 10.2). Further, pursuant to 43 CFR 10.4 (C) and (D), you must stop activities in the immediate vicinity of the discovery and protect it from your activities for 30 days or until notified to proceed by the authorized officer.
7. The permittee must notify the authorized officer by telephone, with written confirmation, immediately upon discovery of any hazardous or solid wastes as defined in 40 CFR Part 261.
8. The permittee is responsible for all maintenance of assigned range improvements including wildlife escape ramps for both permanent and temporary water troughs.
9. When necessary, control or restrict the timing of livestock movement to minimize the transport of livestock-borne noxious weed seeds, roots, or rhizomes between weed-infested and weed-free areas.
10. The placement of mineral or salt supplements will be a minimum distance of ½ mile from known water sources, riparian areas, winterfat dominated sites, sensitive sites, populations of special status plant species, and cultural resource sites. Mineral and salt supplements will

also be one mile from active sage-grouse leks. Placing supplemental feed (i.e. hay, grain, pellets, etc.) on public lands without authorization is prohibited.