

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

STANDARDS AND GUIDES ASSESSMENT

BARTON (03203) GRAZING ALLOTMENT

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Location: Elko County, Nevada

PREPARING OFFICE

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STANDARDS AND GUIDES ASSESSMENT

BARTON (03203) GRAZING ALLOTMENT

1—Standards and Guides Assessment

1.1. Introduction

The Bureau of Land Management (BLM) grazing regulations at 43 CFR 4130.3-1(c) require that grazing permits issued by the BLM contain terms and conditions that ensure conformance with BLM regulations at 43 CFR 4180, which are the regulations under which the Northeastern Great Basin Resource Advisory Council developed the *Northeastern Great Basin Standards and Guidelines for Grazing Administration* (RAC, 1997). Recently, the Wells Field Office completed an assessment of the achievement of these standards on the Barton Allotment. The results of this assessment are presented in this report. This assessment will serve to inform the BLM's determination as to whether these standards are being met, and, if they are not met, whether existing grazing management practices contribute to their lack of attainment.

The approved standards for rangeland health are as follows:

Standard 1. Upland Sites: Upland soils exhibit infiltration and permeability rates that are appropriate to soil type, climate and landform.

Standard 2. Riparian and Wetland Sites: Riparian and wetland areas exhibit a properly functioning condition and achieve state water quality criteria.

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 life cycle requirements of threatened and endangered species.

Standard 4. Cultural Resources: Land use plans will recognize cultural resources within the context of multiple-use.

Standard 5. Healthy Wild Horse and Burro Populations: Wild horses and burros exhibit characteristics of a healthy, productive, and diverse population. Age structure and sex ratios are appropriate to maintain the long term viability of the population as a distinct group. Herd management areas are able to provide suitable feed, water, cover and living space for wild horses and burros and maintain historic patterns of habitat use.

This assessment will assess Standards 1, 3, and 4 only. Standard 2 is not applicable because there are no riparian areas on public ground within this allotment (see below—General Allotment Description). Standard 5 is not applicable on this allotment because it is not located within a wild horse Herd Management Area.

1.2. General Allotment Description

The Barton Allotment contains approximately 3,216 acres of public land administered by the BLM and approximately 2,663 acres of private land. The Barton Allotment is located approximately 14 miles east of Jackpot, Nevada and just south of the Idaho border (Appendix B, Figure 3).

The Barton Allotment borders the Salmon River, Big Bend, and Little Goose Creek allotments. The allotment has no internal fencing except for a small privately owned gather field on the north end of the allotment that contains about 40 acres of Fenced Federal Range (FFR). Figure 4 displays the current land ownership, roads, pastures, existing range improvements, and water locations (Appendix B, Figure 4).

The Barton Allotment sits at the base of Gollaher Mountain on a northeast aspect. The topography is fairly consistent with flat to gently rolling benches separated by narrow, relatively shallow ephemeral drainages. The allotment as a whole slopes slightly (<10%) to the North. Elevations range from about 5,730-6,260 feet.

Milligan Creek, Bottom Creek, and Gollaher Spring Draw Creek all run through the allotment, but those reaches that run through public land are all intermittent or ephemeral and lack sufficient flow to create sustainable riparian areas. These streams do have some reaches with perennial flow on private land.

BLM records for this allotment go back to 1937 when the private property changed hands. Grazing preference changed hands several times between then and 1967 when the current permittee acquired the private property and grazing privileges for the allotment.

1.3. Description of Vegetation Types

Vegetation is a mixture of native plants and non-native cheatgrass (*Bromus tectorum*). The native vegetation is a varied mixture of basin big sagebrush (*Artemisia tridentata tridentata*), Douglas' rabbitbrush (*Chrysothamnus viscidiflorus*), spineless horsebrush (*Tetradymia canescens*), bluebunch wheatgrass (*Pseudoroegneria spicata*), squirreltail (*Elymus elymoides*), Idaho fescue (*Festuca idahoensis*), Sandberg's bluegrass (*Poa secunda*), lupine (*Lupinus* spp.), phlox (*Phlox* spp.) and other forbs.

Recent fires have shaped the vegetative composition and structure on the allotment. In the last twenty years five different wildfires have burned parts of the Barton Allotment. In 1994 the 13,000 acre Goose Creek fire burned approximately 100 acres in the southeast corner of the allotment. In 2000 the 54,000 acre West Basin fire and the 31,000 acre Choke Cherry fire burned nearly all of the Barton Allotment. The 2007 West Basin fire burned approximately 58,000 acres including about two-thirds of the Barton Allotment. The most recent fire occurred in 2012 when the Milligan Fire burned about 500 acres in the allotment. (See Appendix B, Figure 6)

Recent rehabilitation efforts include limited aerial seeding after the 2007 west basin fire. Three different seed mixes were applied. Low sagebrush was planted on known sage-grouse leks.

Wyoming big sagebrush, basin big sagebrush, and western yarrow were seeded as a mid-elevation mix on the extreme southern end of the allotment. A watershed mix consisting of Snake River wheatgrass, great basin wildrye, thickspike wheatgrass, Sherman bluegrass, blue flax, and basin big sagebrush was seeded on a small portion of Gollaher Spring Creek. The 2012 Milligan Fire burned primarily on private ground and was a fast moving low intensity burn with very little bunchgrass mortality. Based on post fire monitoring no rehabilitation or closure was deemed necessary.

1.4. Wildlife Habitat

General Wildlife

The allotment is located entirely within NDOW Hunt Unit 076 and provides important year-round habitat for elk (*Cervus elaphus*), antelope (*Antilocapra americana*), and is of limited use for mule deer (*Odocoileus hemionus*). The allotment contains sagebrush steppe habitat for numerous additional non-game species including migratory birds, small mammals, reptiles, amphibians, and invertebrates.

Special Status Species

BLM Special Status Species (SSS) are: (1) species listed or proposed for listing under the Endangered Species Act (ESA), and (2) species requiring special management consideration to promote their conservation and reduce the likelihood and need for future listing under the ESA, which are designated as Bureau Sensitive by the State Director. All Federal candidate species, proposed species, and delisted species in the five years following delisting will be conserved as Bureau sensitive species (BLM 2008). No known threatened or endangered plant or animal species, or their habitat, exist within the allotment. See Appendix C for the list of Special Status Species on the Elko District.

Greater Sage-Grouse

Greater Sage-Grouse (*Centrocercus urophasianus*; sage-grouse), a Candidate for listing as Threatened or Endangered under the Endangered Species Act, is known to use habitat within the allotment. BLM Instruction Memorandum 2012-043 described two categories of sage-grouse habitat: 1) Preliminary Priority Habitat (PPH), and 2) Preliminary General Habitat (PGH). Preliminary Priority Habitat is comprised of areas that have been identified as having the highest conservation value to maintaining sustainable sage-grouse populations. These areas include breeding, late brood-rearing, and winter concentration areas and have been identified by the BLM in coordination with the Nevada Department of Wildlife (NDOW). Preliminary General Habitat is comprised of areas of occupied seasonal or year-round habitat outside of priority habitat, and these areas have also been delineated. The allotment is located entirely within PPH. It contains one inactive and one historic lek, with an additional 57 leks (17 historic, 29 inactive, 6 active, and 5 pending active status) within four miles of the allotment boundary, highlighting the importance of the area for sage-grouse, particularly prior to the recent wildfires.

1.5. Description of Current Livestock Management

The Barton Allotment has one permittee. The current term permit is issued for the period of 03/01/2009-02/28/2019. This allotment is authorized for 810 Animal Unit Months (AUMs) of cattle use. Of these AUMs 804 are active and 3 are Fenced Federal Range (FFR), with the

current term permit authorizing approximately 168 cows (cows, bulls, yearlings, or pairs) from 5/1-11/30.

Under current management the permittee typically uses most of the allocated AUMs, but they are used during a shorter grazing period than the permit allows. Grazing typically commences during the last week of May or the first week of June and ends within the first two weeks of November. During this period the permittee typically runs between 200 and 250 head of pairs, bulls, and yearlings. Table 1 summarizes the current permit.

Table 1.—Table summarizing the current grazing permit for Barton Allotment.

<u>Livestock Number/Kind</u>	<u>Grazing Period Begin End</u>	<u>% Public Land</u>	<u>Type Use</u>	<u>AUMs</u>
168 Cattle	05/01 to 11/30	68	Active	804
1 Cattle	08/01 to 10/31	100	Active	3
❖ % Public Land is the percentage of the allotment's total forage coming from public land not the percentage of public land by acreage.				

2—Standard Achievement Review

Table 2.—Table summarizing the achievement of the standards of rangeland health, causal factors, and conformance to guidelines.

*Standards 2 and 5 are not applicable to this allotment.	Standard 1 Upland Sites	Standard 3 Habitat	Standard 4 Cultural Resources
Determination:			
Achieving the Standard	X		X
Not achieving the Standard, but making significant progress toward achieving std.		X	
Not achieving the Standard, and not making significant progress toward std.			
Causal Factors:			
Livestock are a contributing factor to not achieving the std.			
Livestock are not a contributing factor to not achieving the std.		X	
Failure to meet the standard is related to other issues or conditions			
Guidelines Conformance:			
In conformance with the Guidelines	X	X	X
Not in conformance with the Guidelines			

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.

Conclusion: Standard Achieved

Rangeland monitoring along with professional observations indicate that overall soil condition is meeting the Standard and being maintained on the Barton Allotment. Soils are stable and the topsoil is holding in place.

Key area BA-01 occurs in the Loamy 12-14" P.Z. ecological site (025XY027NV) on slopes ranging from 2-30% (Appendix B, Figure 5). This ecological site encompasses most of the Barton Allotment (~85%). The soil types found in the Barton Allotment include the Chayson-Igdell, Forvic-Igdell, and Coser-Forvic-Scalfar associations (NRCS 2002). According to the Ecological Site Description (ESD) the soils for this ecological site are moderately deep to deep and well drained. Surface soils are moderately fine to medium textured and more than 10" thick to the subsoil or underlying material. The water holding capacity is moderate to high. Runoff is slow to medium. The potential for sheet and rill erosion is slight to moderate depending on slope (NRCS 2003). A rangeland health evaluation done in 2005 found no departure from the ecological site description in terms of soil and site stability. Table 3, "Rangeland Health Evaluation Summary" (p. 9), shows the results of this evaluation only for those indicators relating to soils.

Table 3.—Table evaluating rangeland health indicators related to soil/site stability recorded 6/15/2005.

Rangeland Health Indicators Related To Soil/Site Stability					
6/15/2005	Departure from Ecological Site Description/ Ecological Reference Area(s)				
Indicator:	Extreme	Moderate to Extreme	Moderate	Slight to Moderate	None to Slight
1) Rills					X
Comments:	<i>None noted</i>				
2) Water Flow Patterns					X
Comments:	<i>No abnormalities</i>				
3) Pedestals and/or Terracettes					X
Comments:	<i>None noted</i>				
4) Bare Ground					X
Comments:	<i>No excessive bare ground</i>				
5) Gullies					X
Comments:	<i>None noted</i>				
6) Wind-Scoured, Blowouts, and/or Deposition Areas					X
Comments:	<i>None noted</i>				
7) Soil Surface Resistance to Erosion					X
Comments:	<i>No erosion seen</i>				
8) Soil Surface Loss or Degradation					X
Comments:	<i>None noted</i>				
9) Compaction Layer					X
Comments:	<i>None noted</i>				

Point cover data collected in 2010 showed sufficient vegetation, litter, and rock fragments to disrupt precipitation energy and overland flow, whether it is wind or water. Ground cover was 26% basal vegetation, 35% canopy vegetation, 36% litter, and 3% rock. Cryptogamic crust was less than 1% and bare ground was 36% (Appendix A, Table 10). According to the Ecological Site Description, the expected ground cover (basal and crown) is 40-50% (NRCS 2003).

Currently no signs of erosion are apparent on the allotment and the soils appear stable. All indications are that the soil is stable and appropriate for the soil type, climate, and land form.

Standard 2. Riparian and Wetland Sites

Not applicable.

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.

Conclusion: Not achieving the Standard, but making significant progress toward achieving the standard.

Rationale:

Given the recent, ubiquitous wildfire occurrence within the allotment, data collected prior to the 2007 burn at key area BA-01 have limited utility for evaluating current habitat conditions. The effects of wildfire on existing sagebrush habitats were widespread and significant. This also precludes a meaningful analysis of long-term vegetation trend before and after fire, as well as analysis of habitat trend specifically related to the current livestock management regime. Post-fire data is primarily useful to document and evaluate the success of vegetation recovery.

Key Area BA-01

This site burned in 2000 and again in 2007, therefore data collected in 2010 represented only three growing seasons following the most recent burn. Composition (by dry weight) at key area BA-01 in 2010 was 37% grasses (23% of this was cheatgrass, an invasive species), 55% forbs (62% of this was tansymustard [*Descurainia pinnata*], an undesirable annual species) and 8% shrubs. Of 1,460 lbs total vegetative production per acre, 34% was tansymustard and 9% was cheatgrass. Annual species (both nonnative invasive and native) are often the first to colonize a site following a large disturbance such as wildfire (Young et al. 1972). However, depending on specific post-burn site conditions, including precipitation, rehabilitation efforts, changes in livestock grazing management, and the proportion of the native seedbank still present following a fire, annual species are often outcompeted over time as successional changes occur. While not directly comparable to production data collected in 2010, line intercept data (Appendix A, Table 11) and professional observations in 2013 indicated that the relative proportion of tansymustard significantly declined in three years (from 34% to less than 1%) under the current grazing regime, a positive observation for native vegetation and habitat quality.

Cheatgrass remained present throughout the allotment primarily in scattered patches adjacent to the more widespread native bunchgrasses. Cheatgrass observations were particularly prevalent at and around the key area compared to the rest of the allotment (Appendix A, Figure 2), comprising 22.9% of vegetation composition (Appendix A, Table 11). Having burned twice in the recent past, it is not surprising that cheatgrass has a significant presence. However, in the presence of a diverse and resilient native herbaceous community, such as that present throughout much of the Barton Allotment, cheatgrass is often at a competitive disadvantage to native species as succession occurs following a disturbance. It remains unclear if this will occur within the

Barton Allotment, therefore, the presence of a significant cheatgrass component is a factor in non-attainment of the Standard.

General wildlife habitat

Despite drought conditions throughout northern Nevada in 2012-2013, native grasses were abundant and vigorous throughout the allotment during the 2013 growing season. Species present included bluebunch wheatgrass, Idaho fescue, squirreltail, Sandberg bluegrass, Great Basin wildrye (*Leymus cinereus*) and western wheatgrass (*Pascopyrum smithii*). Native grasses comprised over 64% of the vegetation present. Also noted was an abundance of native forbs, including lupine (*Lupinus* spp.), small bluebells (*Mertensia longiflora*), phlox (*Phlox* spp.) and sagebrush buttercup (*Ranunculus glaberrimus*). Despite the majority of the allotment being burned in 2007, a number of smaller islands of unburned sagebrush were present, particularly in the more mesic drainage bottoms. These islands provide a seed source for recruitment of new sagebrush seedlings into the burned areas and also provide valuable cover and food for sage-grouse. Observations throughout the allotment in spring and summer of 2013 indicated that sagebrush seedlings were being recruited into the post-fire vegetation community, although recovery of big sagebrush communities to pre-burn conditions can take several decades (USFWS 2010).

Within the burned area, Douglas' rabbitbrush was the most common shrub, followed by spineless horsebrush. Utilization data (key forage plant method) collected in April, 2013 at key area BA-01 indicated that pronghorn were foraging heavily (60% percent utilization of previous year's growth) on spineless horsebrush during the previous winter. Livestock were not present on the allotment over winter, and the abundance of recent pronghorn scat indicated that they were the primary grazer during this time. In addition, utilization of the current year's growth of spineless horsebrush was 44% in August. Again, pronghorn appeared to be utilizing spineless horsebrush while cattle were using native grasses (Appendix A, Table 6). Another key factor in the diet quality of pronghorn is the availability of native forbs (Beale and Smith 1970), which were present throughout the allotment and comprised 8.2% of vegetation composition (Appendix A, Table 11). Pronghorn habitat was rated as Good (Appendix A, Table 13).

Special Status Species

Greater Sage-Grouse habitat: As a sagebrush-obligate, landscape-scale species and current candidate for listing as a Threatened or Endangered Species, sage-grouse is an appropriate "umbrella" species representing the habitat needs of a suite of sagebrush-obligate and near-obligate species. As an umbrella species, it is assumed that managing for habitat characteristics that benefit sage-grouse will also generally benefit other species that fall under the sage-grouse umbrella (Rowland et al. 2006). In the Barton allotment, these species include, but are not limited to: sage thrasher (*Oreoscoptes montanus*), pygmy rabbit (*Brachylagus idahoensis*) (both BLM Sensitive Species), Brewer's sparrow (*Spizella breweri*), sagebrush sparrow (*Artemisiospiza nevadensis*) and sagebrush vole (*Lemmiscus curtatus*).

Recent large fires have negatively affected tens of thousands of acres of sage-grouse habitat within and surrounding the Barton Allotment. It is important to recognize that fire, particularly

large fires outside the historic range of variation, was identified by the US Fish and Wildlife Service as a primary threat to sage-grouse (USFWS 2010). The time it takes burned sagebrush communities to recover to mature stands is highly variable, taking between 25 to 150 years, depending on the particular species and environmental setting (USFWS 2010, Baker 2011). It may take even longer for extirpated sage-grouse to use recovered habitats in large burned areas (USFWS 2010). While many of the leks in the area have been abandoned due to the effects of large-scale wildfire, the small unburned sagebrush islands within the allotment may provide nesting habitat for grouse still using the area, and the abundant native herbaceous vegetation adjacent to remaining sagebrush islands is good quality brood-rearing habitat. The remainder of the burned sagebrush community is progressing as expected toward recovery to fully functional priority habitat, although it is not currently meeting the Standard.

Five lek areas within the allotment or within 0.5 miles of the allotment boundary were aerially seeded with little sagebrush (*Artemisia arbuscula*) in 2007 to attempt to reestablish sagebrush in the lek vicinities. Based on evidence at the site at the time of seeding (e.g., few remnant burned sagebrush stems, large rock fragments on the soil surface), the lek sites were likely located on smaller inclusions of little sagebrush within the larger basin big sagebrush matrix. As a result of these seedings, in 2013 these sites appeared to exhibit increased sagebrush recruitment that should provide improved habitat suitability for sage-grouse in the future.

In summary, due to the recent, ubiquitous wildfire occurrence within and surrounding the allotment, the resulting early seral stage of the majority of vegetation does not currently meet the habitat Standard. However, rangeland monitoring data and professional observation indicate that native sagebrush plant communities are progressing toward a healthy, productive and diverse condition following recent, widespread wildfires within the allotment. The habitat is able to provide suitable feed, water, cover and living space for some animal species during some portion of their life cycle (including SSS species) and maintain ecological processes within the constraints imposed by the recent fires. Although not currently meeting the Standard, habitat conditions are progressing as expected toward meeting all life cycle requirements of sage-grouse, a candidate species, and other sagebrush obligate or sagebrush associated species that fall under the sage-grouse umbrella.

Standard 4. Cultural Resources

Land use plans will recognize cultural resources within the context of multiple-use.

Conclusion: Standard Achieved

Rangeland management plans, including term grazing permit renewals will consider listings of known sites that are National Historic Register eligible or considered to be of cultural significance as well as new eligible sites as they become known. Based on the evaluation of existing information pertaining to range improvements and grazing, cultural resources are being recognized within the context of multiple use management in the Barton Allotment.

Standard 5. Healthy Wild Horse and Burro Populations

Not applicable.

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4—Signature Page

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Appendix A—Data Summary

A.1. Key Area and Ecological Site Description

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. Due to the size and relative uniformity of the Barton Allotment, only one key area is required to represent the allotment. The key area was chosen based on its location, distance from water, ecological status, and soil type being representative of the rest of the allotment. Table 4, “Key Area and Ecological Site Description” (p. 16) depicts this key area, its location, ecological site, and soil mapping unit. Figure 5, “Barton Allotment Dominant Ecological Site map” (p. 31) shows the location of the key area and the area covered by the ecological site. This key area occurs within Elko County, Nevada, Northeast Part (NRCS 2003).

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

Table 4.—Table describing the key area location and basic information relating to the ecological site.

Key Area	Location	Ecological Site	Dominate Species from ESD	Soil Mapping Unit
BA-01	T47N R67E Sec. 20 NE 1/4 NE 1/4	Loamy 12-14" P.Z. (RO25XY027NV)	Basin Big Sagebrush and Idaho Fescue	195-Chayson-Igdell Association

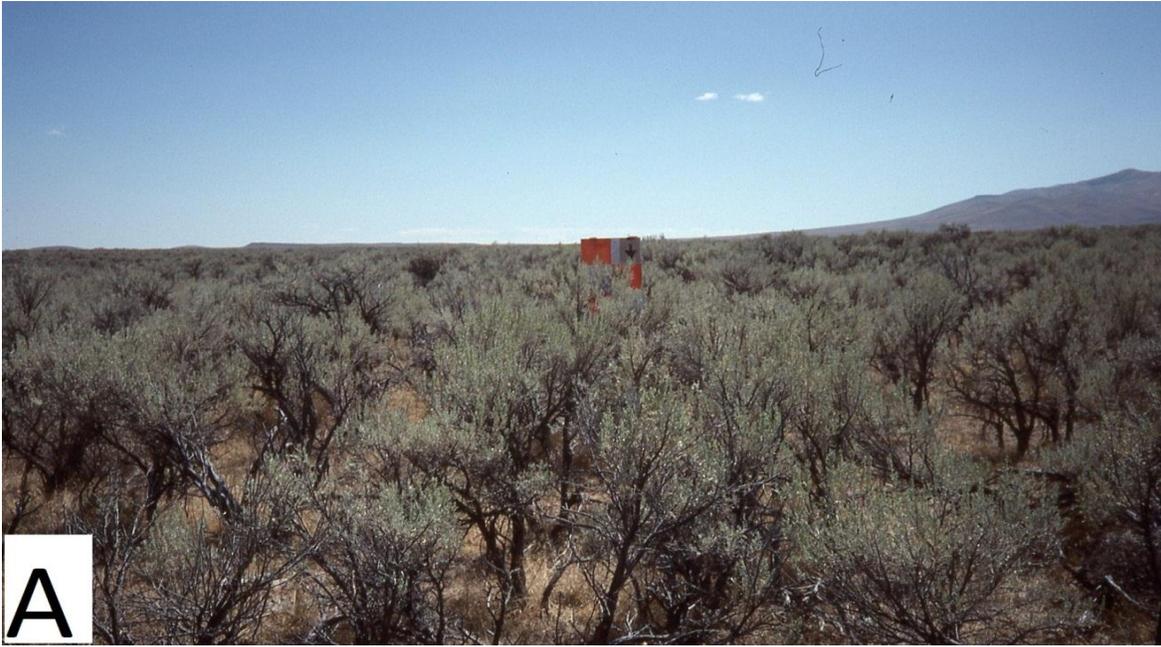


Figure 1.—Compilation of Photos A and B from site level repeat photography taken at key area BA-01, looking south along monitoring transect. Photos taken: A) on August 18, 1989, before the 2000 wildfires, and B) on April 23, 2013, six years after the 2007 West Basin wildfire.



A.2. Actual Livestock Use

Livestock Permitted use on the Barton Allotment between 1986 and 2013 was 810 cattle AUMs. Table 5, “Barton Allotment Actual Use” (p. 18), summarizes the actual use data for this time period. Annual use in this allotment has varied due to business decisions of the permittee, annual forage fluctuations, and fire activity and closures.

Table 5.—Barton Allotment Actual Use, 1986-2013

Actual Use Summary 1986-2012 Barton Allotment			
Year	AUMs	% of 810 AUM Permitted Use	Use Dates
1986	435	54%	5/2-11/6
1987	668	82%	4/20-10/24
1988	656	81%	4/28-10/29
1989	647	80%	5/5-10/29
1990	694	86%	6/2-11/4
1991	751	93%	6/3-11/1
1992	746	92%	6/1-10/24
1993	798	99%	6/10-10/30
1994	810*	100%	5/1-11/30*
1995	779	96%	6/8-11/5
1996	806*	99%	5/13-10/31*
1997	802	99%	6/20-11/15
1998	785	97%	6/10-12/1
1999	776	96%	6/20-11/10
2000	299*	37%	6/19-8/10*
2001	250*	31%	10/15-11/15*
2002	853*	105%	6/15-11/30*
2003	807*	100%	5/1-11/30*
2004	807*	100%	5/1-11/30*
2005	No Use	0%	n/a
2006	758	94%	6/13-11/25
2007	394	49%	6/9-10/26
2008	105	13%	9/12-11/15
2009	626	77%	5/30-11/15
2010	872	108%	6/2-11/16
2011	782	97%	6/4-11/7
2012	729	90%	5/22-11/9
2013	776	96%	6/15-11/10
Total: 27 Years	Average: 674	Average % Use: 80%	

*Actual use not reported; numbers and dates reflect billed use.

A.3. Utilization

Utilization is the estimation of the proportion of annual production consumed or destroyed by animals (Swanson et. al. 2006). 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).

Table 6, “Barton Utilization” (p. 19) summarizes utilization data collected since 1986. Utilization is for all herbivores both domestic and wild.

Table 6.—Table showing utilization data collected at key area BA-01 between 1986 and 2013.

Date Collected	Location	Vegetation Species	Utilization Class	Measured Utilization (%)
8/28/2013	BA-01	FEID	Light	27
		PSSP	Slight	8
		TECA2	Moderate	44
10/8/1997	BA-01	FEID	Light	30
		PSSP	Light	28
11/3/1992	BA-01	FEID	Light	33
		PSSP	Light	32
		STTH2	Light	35
12/6/1990	BA-01	PSSP	Light	40
		FEID	Light	31
10/23/1990	BA-01	FEID	Slight	12
		PSSP	Slight	13
11/14/1989	BA-01	FEID	Heavy	62
		PSSP	Moderate	57
11/12/1988	BA-01	PSSP	Slight	15
		FEID	Light	33
12/3/1986	BA-01	PSSP	Slight	8
		FEID	Slight	0

FEID-Idaho fescue, PSSP-Bluebunch wheatgrass, TECA2-spineless horsebrush, STTH2-Thurber's needlegrass

A.4. Frequency and Production Data

Production data for the Barton Allotment is displayed in Table 7 (p. 21). Frequency Data is shown in Table 8 (p. 22). In 2000 the West Basin and Choke Cherry fires burned nearly all of the Barton Allotment including the key area. In 2007 the West Basin fire again burned key area BA-01 along with two-thirds of the allotment. Due to the drastic changes in vegetation caused by these fires, any conclusions drawn by comparing post fire data to pre-fire data have very little relevance in terms of establishing trend.

The recorded annual production in 1987, 1989, and 2005 is 3-5 times greater than the ecological site description predicts for a “favorable” year and 5-7 times greater than an “average” year. Most of this production comes from the shrub component which should only account for 20% of

the total production. In 87' and 89' the shrub component comprised 88% of total production, in 05' it was 37%. Based on these huge discrepancies between recorded and expected production it seems likely that errors have occurred either in the actual sampling or in the data recording and/or processing. Either way the credibility of the data for these years is called into question, and for the most part must be disregarded.

The 2010 annual production is slightly higher than the ecological site description predicts for a “favorable” year, which precipitation data for 2010 shows that it was, but not so high as to discredit the accuracy of the data. Furthermore, professional observations based upon field visits to BA-01 in 2013 show a similar plant composition and relative abundance to that recorded in 2010.

Table 7.— Table showing production data for key area BA-01 for 1987, 1989, 2005, and 2010.

Key Area: BA-01				
Ecological Site: Loamy 12-14" P.Z. (025XY027NV)				
Potential Vegetative Composition: 70% Grasses, 10% Forbs, and 20% Shrubs				
Total Annual Production (air dry lb/ac): 1300 (Favorable), 900 (Normal), 500 (Unfavorable Year)				
Production (air dry lb/ac)				
Plant Code	1987	1989	2005	2010
AFF				0.2
ELLAL	128	61		10
AGGL			48	35
PASM			28	22
PSSPS	95	16	1794	265
ALLIU		6		0.3
ARABI2	28		2	
ARIST		21		
ARTRT	4052	5187	2038	
ASTER	21	1		
ASTRA	4			59
BAHO	37	0.4	10	9
BASA3				5
BRTE	18	426	990	125
CHVI8	93	52	243	48
CIRSI			46	
COPA3			12	
DESCU			5	495
ERIOG				12
FEID	48	8	281	33
LOMAT		1	2	
LUPIN	69	93	195	132
MERTE			34	
OPPO	12			
ACHY		4		
PENST				3
PHLO2	40	32	6	12
POSE	67	8	309	27
PFF			4	
SENEC			72	6
ELELE	9	17	56	64
ACTH7		20		
TECA2	9			63
TRDU	1	4		
VIOLA			25	
Total Production:	4706	5958	6244	1460

The plant codes listed above have been changed as needed to reflect the current accepted plant names and codes found in the USDA plants database. AGGL, PHLO2, and POSE had different codes for the same plant on different years. These codes have been merged for simplicity and identified with the current codes.

Table 8.—Table showing frequency data for key area BA-01 for 1987, 1989, 1990, and 2010.

Plant Code	1987			1989			1990			2010			Significant Changes	
	Frame Size			Frame Size			Frame Size			Frame Size				
	3"	10"	30"	3"	10"	30"	3"	10"	30"	3"	10"	30"		
ACHY			2.0%			1.0%								
ACMI2			1.5%			2.0%						1.0%		
ALLIU						29.0%				4.0%	16.5%	52.5%	Increase 89'-10'	
ARABIZ			3.5%			1.0%							Decrease 87'-89'	
ARTRT		16.0%	76.5%		11.0%	58.0%							2.5%	Decrease 87'-89' 87'-10' 89'-10' (30")
ASTRA			11.0%			3.0%				3.0%	9.5%	46.5%	Decrease 87'-89' Increase 89'-10'	
BAHO			5.0%								1.0%	8.0%		
BRTE	50.0%			73.0%						25.5%	44.5%	70.5%	Increase 87'-89' Decrease 87'-10', 89'-10'	
CASTI2			7.5%			0.5%							Decrease 87'-89'	
CHV18			39.0%			32.0%					3.5%	11.5%	Decrease 87'-10' 89'-10'	
CIRSI			0.5%										1.0%	
ELELE			57.5%			37.5%				3.5%	13.5%	53.5%	Decrease 87'-89' Increase 89'-10'	
ELLAL			21.0%			39.0%							1.5%	Increase 87'-89' Decrease 87'-10', 89'-10'
FEID		32.0%			10.0%	35.0%		26.0%	53.5%	10.0%	36.5%	73.5%	Decrease 87'-89' (10") Increase 89'-90' 89'-10' (10") Decrease 87'-10', 89'-10' (30") Increase 89'-90' 89'-10' 90'-10' (30")	
IOAL			40.5%			21.5%				0.5%	1.0%	7.5%	Decrease 87'-89' 87'-10' 89'-10'	
LIPU11			1.0%			0.5%								
LUPIN		19.5%	76.0%		17.5%	70.5%				5.0%	35.5%	91.0%	Increase 87'-10' 89'-10' (10") Increase 87'-10' 89'-10' (30")	
OPPO			1.0%			1.5%					1.0%	2.0%		
PHLO2					40.5%	72.5%				10.0%	28.0%	59.5%	Decrease 89'-10' (10") & (30")	
POA++			26.5%			32.5%								
PSSPS			55.0%			29.5%			19.0%	5.5%	12.5%	46.5%	Decrease 87'-89' 87'-90' Increase 89'-10' 90'-10'	
TAOF						0.5%							0.5%	
TECA2						3.0%					0.5%	4.5%		
TRDU			13.0%			4.0%							2.5%	Decrease 87'-89' 87'-10'

A.5. Carrying Capacity Analysis

The formula used to calculate the grazing capacity is as follows:

$$\frac{\text{Actual Use (AUMs)} \times \text{Utilization Objective}}{\text{Recorded Utilization}} = \text{Grazing Capacity}$$

The utilization objective for the key native grass species on the Barton Allotment is 45% of the current year's growth. The BLM believes this level of use to be compatible with achievement of the land use plan objectives and standards for rangeland health, and establishes a consistent objective across the Barton Allotment. Recorded utilization is taken from data collected at key area BA-01.

The carrying capacity analysis for the Barton Allotment is summarized in Table 9 (p. 23). The 1986 data was excluded from grazing capacity calculation because the actual use was extremely low and not considered representative of the capacity of the pasture. The first 1990 reading was omitted because cattle were still using the pasture and the final 1990 utilization reading was deemed more accurate. All other years not shown in Table 9 (p. 23) were excluded because utilization data was not recorded those years.

The average of all years of collected data shows a CAF corrected capacity of 928 AUMs. Though the calculated carrying capacities demonstrate that more forage is available than the 810 AUMs currently authorized for livestock use, the BLM is not recommending an increase at this time. The excess forage currently found in the allotment is primarily the result of a reduced brush component resulting from recent recurrent wildfire. As the shrub component reestablishes post-fire the abundance of grass will diminish proportionally. Adopting the current conservative use level will ensure that long term use levels are adequate and will also ensure residual forage remains for wildlife utilization and cover.

Table 9.—Table showing actual use dates and CAF corrected grazing capacity analysis and those factors used to calculate it including key species, utilization, actual use, grazing capacity, and CAF between 1986 and 2013.

Date Collected	Use Dates	Vegetation Species	Measured Utilization (%)	Actual Use (AUMs)	Pre-CAF Capacity (AUMs)	CAF	Post CAF Capacity (AUMs)
8/28/2013	6/15-11/10	FEID	27	776	1293	0.80	1037
		PSSP	8				
10/8/1997	6/20-11/15	FEID	30	802	1203	1.52	1829
		PSSP	28				
11/3/1992	6/1-10/24	FEID	33	746	1017	0.72	732
		PSSP	32				
12/6/1990	6/2-11/4	PSSP	40	694	781	0.97	754
		FEID	31				
10/23/1990	6/2-11/4	FEID	12	694	--	0.97	--
		PSSP	13				
11/14/1989	5/5-10/29	FEID	62	647	470	1	470
		PSSP	57				
11/12/1988	4/28-10/29	PSSP	15	656	895	0.84	748
		FEID	33				
12/3/1986	5/2-11/6	PSSP	8	435	--	1.50	--
		FEID	0				
-- Indicates data excluded from carrying capacity analysis.					943		928

A.6. Cover Data

Ground cover data is related to wind and water erosion, water infiltration, and the ability of the site to resist and recover from degradation (Herrick et al 2005). A modified point-intercept method was used to collect cover data at key area BA-01 in 2010 (Table 10). This methodology consisted of recording the ground cover at the end point of each of the three frame bars on the 3", 10", and 30" frequency quadrats. Possible cover types included vegetation (basal and/or canopy), litter, bare ground, rock and cryptogamic crust. Because a single point may contain both basal and canopy vegetation cover, total ground cover may exceed 100%. This data allows comparison of basal and canopy cover to appropriate cover levels as outlined in the NRCS Ecological Site Descriptions (ESD).

Table 10. Line-point cover data at key area BA-01, June 9, 2010.

Bare Ground	Ground Cover					ESD Veg. Cover
	Rock	Bio. Crust	Litter	Veg. Cover		
				Basal	Canopy	
36%	3%	<1%	36%	26%	35%	40-50%
				61%		

Table 11. Line intercept cover data at key area BA-01, August 29, 2013.

	Cover (tenths of a foot)	Composition (%)
Grass		
Cheatgrass	69.5	22.9
Idaho fescue	20.0	6.6
Squirreltail	24.0	7.9
Western wheatgrass	19.5	6.4
Sandberg bluegrass	117.5	38.8
Bluebunch wheatgrass	8.0	2.6
Forb		
Longleaf phlox	18.0	5.9
Lupine spp	6.0	2.0
Western tansymustard	1.0	0.3
Shrub		
Spineless horsebrush	19.5	6.4
Total	303.0	100



Figure 2.—Line intercept transect at key area BA-01, August 29, 2013. Note the patchy presence of cheatgrass in the area.

A.7. Precipitation Data

BLM derived precipitation data and climatic adjustment factors (CAF) from data developed through the Parameter-elevation Regressions on Independent Slopes Model (PRISM) climate mapping system. PRISM maintains a new website at <http://prism.oregonstate.edu/> (accessed January 13, 2014); BLM used precipitation data from the PRISM Data Explorer located on the old PRISM website (<http://oldprism.nacse.org/>) to compile precipitation information for the Barton Allotment. Methods used by the PRISM model are described in Daly, et. al. (2008), located at

http://prism.oregonstate.edu/documents/Daly2008_PhysiographicMapping_IntJnlClim.pdf accessed January 13, 2014. The 30-year Median Crop Year Precipitation for the Barton Allotment from 1984-2013 as per the PRISM model amounts to 11.86 inches.

The Climatic Adjustment Factor (CAF) is calculated from methodologies described in Sneva and Britton (1983). CAF is derived from Crop Year precipitation, which is measured from September of the previous calendar year through the following June. This is the precipitation which most affects plant growth. CAF can be used to normalize carrying capacity and vegetation production to what would be expected during a median precipitation year. See Table 12 (p.27) for precipitation totals, crop year precipitation, and climatic adjustment factors.

Table 12.—Barton Allotment Precipitation Data, 1984-2013

Calendar Year	Total Annual Precip.	Crop Year	Crop Year Precip.	CAF ₁
1984	17.04	1983-1984	19.61	1.80
1985	21.21	1984-1985	10.54	0.86
1986	15.00	1985-1986	16.69	1.50
1987	13.26	1986-1987	10.80	0.89
1988	11.88	1987-1988	10.28	0.84
1989	11.25	1988-1989	11.83	1.00
1990	12.29	1989-1990	11.53	0.97
1991	12.85	1990-1991	10.19	0.83
1992	10.89	1991-1992	9.17	0.72
1993	13.55	1992-1993	15.16	1.34
1994	13.14	1993-1994	9.59	0.76
1995	19.44	1994-1995	17.90	1.63
1996	18.36	1995-1996	15.40	1.37
1997	14.80	1996-1997	16.88	1.52
1998	18.88	1997-1998	17.34	1.57
1999	11.66	1998-1999	14.49	1.27
2000	12.27	1999-2000	9.72	0.78
2001	11.65	2000-2001	9.09	0.71
2002	10.89	2001-2002	11.89	1.00
2003	13.02	2002-2003	11.18	0.93
2004	14.82	2003-2004	11.52	0.96
2005	20.21	2004-2005	18.22	1.66
2006	16.70	2005-2006	16.18	1.45
2007	11.78	2006-2007	11.28	0.94
2008	13.02	2007-2008	12.36	1.05
2009	16.33	2008-2009	16.66	1.50
2010	16.93	2009-2010	12.43	1.06
2011	14.10	2010-2011	18.02	1.64
2012	13.64	2011-2012	10.56	0.87
2013	--	2012-2013	9.95	0.80
	Avg: 14.51		Avg: 11.86	

A.8. Pronghorn Habitat Rating

The Barton Allotment is year-round habitat for pronghorn antelope (K. Heubner, NDOW, personal communication, 9/2013). BLM Manual 6630 gives direction for rating pronghorn habitat, which includes factors such as distance to water, vegetation composition, and cover scores (Table 13). One factor noted during monitoring was the presence of approximately 1.5 miles of old barbed wire fence that had burned in the wildfires and was laying on the ground, posing a potential entanglement hazard for numerous species of wildlife, including pronghorn.

Table 13.—Habitat rating for pronghorn antelope, 2013. From BLM Manual 6630 - Big Game Studies.

Metric	Quantity	Score
A. Water Availability Rating:		
Miles to Water (to 1/2 mile)	1.5	12.5
B. Vegetation Quality Rating:		
Forbs (to 0.1%):	8.2%	8.2
Grasses (to 0.1%):	85.2%	20
Shrubs (to 0.1%):	6.4%	6.4
C. Vegetation Quantity Rating:	1460 lbs/acre	15
D. Vegetation Height Rating:	10	5
Total Score:		67.1
Rating:		Good

Comment: Vegetation quality from 2013 line intercept. Vegetation quantity from 2010 production. Vegetation height from 2013 density board.

Appendix B—Maps



Figure 3.—Barton Allotment Location Map

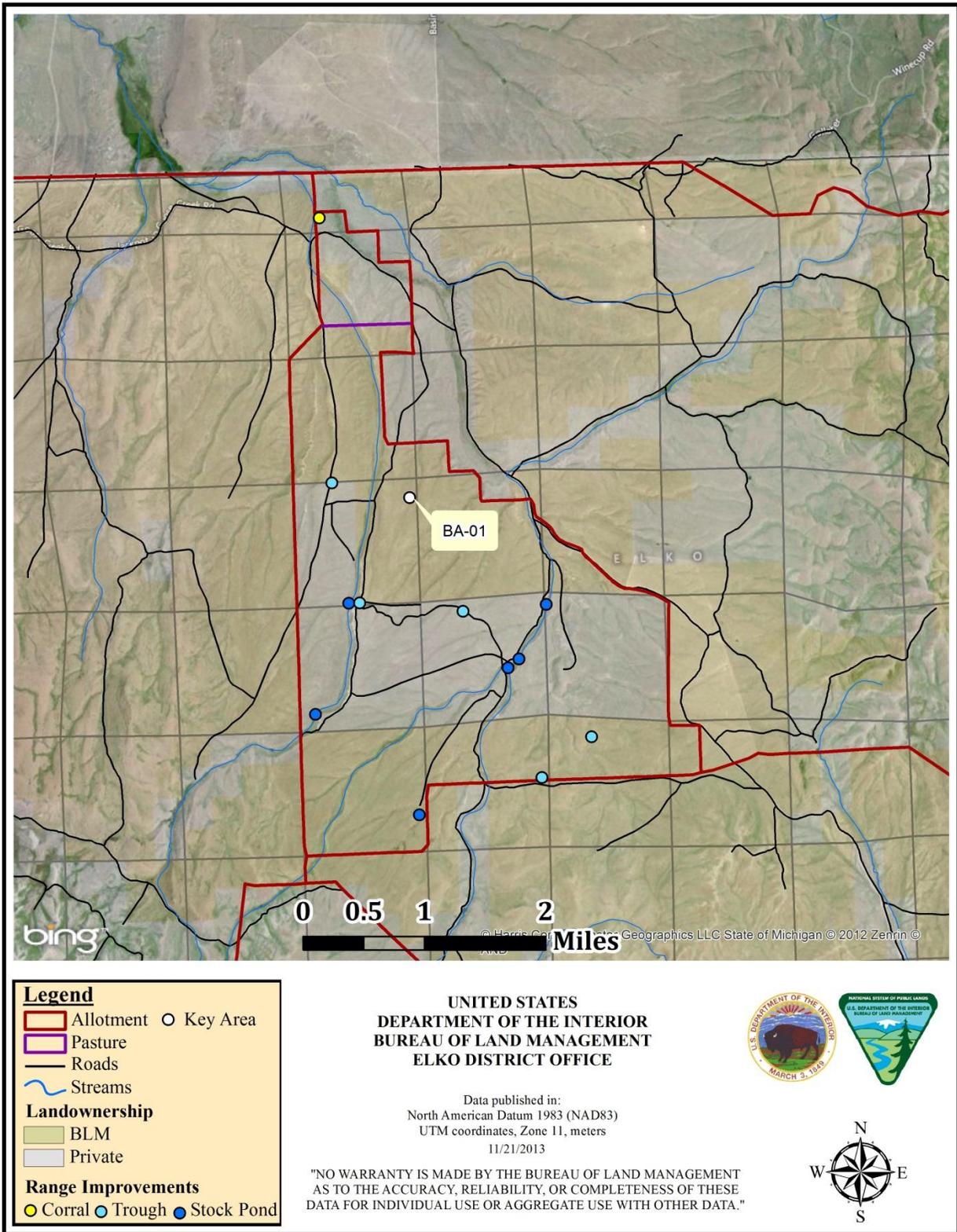


Figure 4.—Barton Allotment Boundary Map

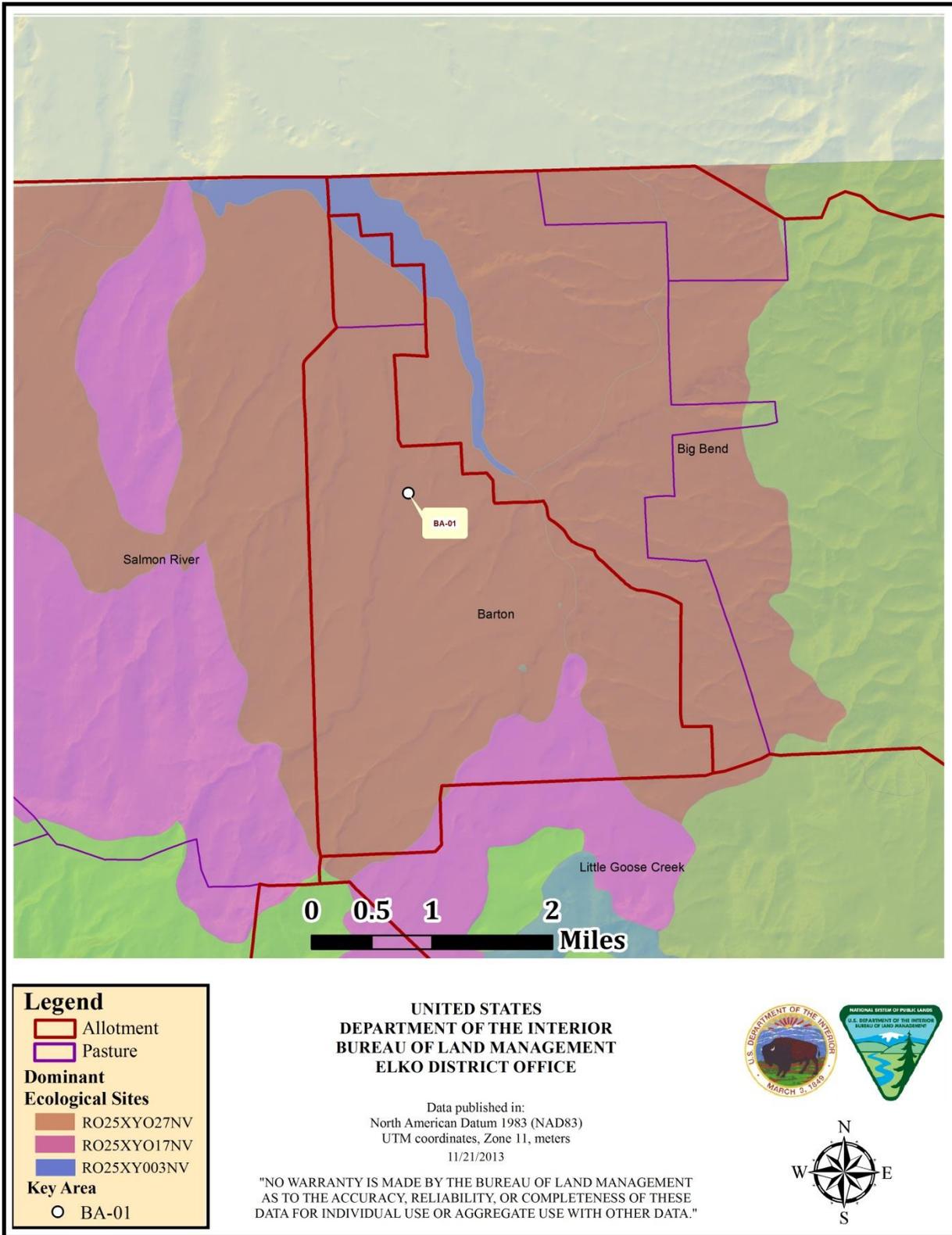


Figure 5.—Barton Allotment Dominant Ecological Site Map

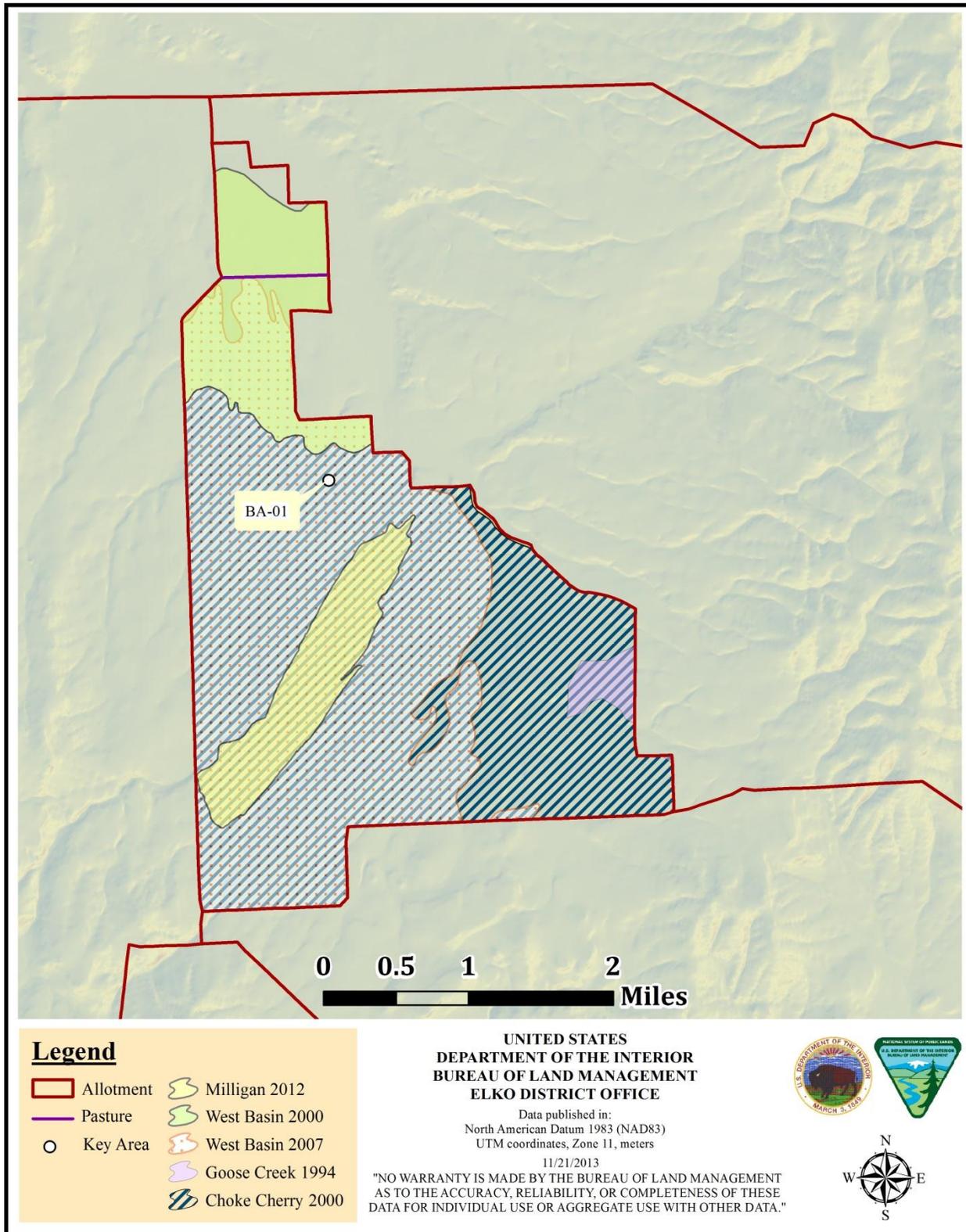


Figure 6.—Barton Allotment Fire History Map

Appendix C—Elko BLM Special Status Species

Scientific Name	Common Name	USFWS Status ¹	NV Range ²	BLM Criteria ³
Amphibians				
<i>Rana pipiens</i>	northern leopard frog		YR	1,2
<i>Rana luteiventris</i>	Columbia spotted frog (including Toiyabe spotted frog subpopulation)	Candidate	YR	1,2
Birds				
<i>Falco peregrinus</i>	Peregrine Falcon		YR	
<i>Accipiter gentilis</i>	Northern Goshawk		B	1
<i>Aquila chrysaetos</i>	Golden Eagle		YR	2
<i>Haliaeetus leucocephalus</i>	Bald Eagle		YR	1
<i>Buteo regalis</i>	Ferruginous Hawk		B	1,2
<i>Buteo swainsoni</i>	Swainson's Hawk		B	1
<i>Centrocercus urophasianus</i>	Greater Sage-Grouse	Candidate	YR	1
<i>Charadrius alexandrinus nivosus</i>	Western Snowy Plover	T	B	1,2
<i>Lanius ludovicianus</i>	Loggerhead Shrike		YR	1
<i>Leucosticte atrata</i>	Black Rosy-Finch		YR	2
<i>Melanerpes lewis</i>	Lewis' Woodpecker		YR	1
<i>Gymnorhinus cyanocephalus</i>	Pinyon Jay		YR	
<i>Oreoscoptes montanus</i>	Sage Thrasher		B	1
Fish				
<i>Gila bicolor isolata</i>	Independence Valley tui chub		YR	2
<i>Gila bicolor newarkensis</i>	Newark Velley tui chub		YR	2
<i>Lepidomeda copei</i>	Northern leatherside chub		YR	1
<i>Oncorhynchus clarki henshawi</i>	Lahontan cutthroat trout	T	YR	1,2
<i>Oncorhynchus mykiss gairdneri</i>	inland Columbia Basin redband trout		YR	2
<i>Relictus solitarius</i>	relict dace		YR	2
<i>Rhinichthys osculus lethoporus</i>	Independence Valley speckled dace	E	YR	1,2
<i>Rhinichthys osculus oligoporus</i>	Clover Valley speckled dace	E	YR	1,2
<i>Salvelinus confluentus</i>	Bull trout	T	YR	1,2

Scientific Name	Common Name	USFWS Status ¹	NV Range ²	BLM Criteria ³
Mammals				
<i>Antrozous pallidus</i>	pallid bat		YR	2
<i>Corynorhinus townsendii</i>	Townsend's big-eared bat		YR	1,2
<i>Euderma maculatum</i>	spotted bat		YR	1,2
<i>Eptesicus fuscus</i>	big brown bat		YR	2
<i>Lasionycteris noctivagans</i>	silver-haired bat		YR	2
<i>Lasiurus cinereus</i>	hoary bat		B	2
<i>Myotis californicus</i>	California myotis		YR	2
<i>Myotis ciliolabrum</i>	western small-footed myotis		YR	2
<i>Myotis evotis</i>	long-eared myotis		YR	2
<i>Myotis lucifugus</i>	little brown myotis		YR	2
<i>Myotis thysanodes</i>	fringed myotis		YR	2
<i>Myotis yumanensis</i>	Yuma myotis		YR	2
<i>Pipistrellus hesperus</i>	western pipistrelle		YR	2
<i>Tadarida brasiliensis</i>	Brazilian free-tailed bat		YR	2
<i>Brachylagus idahoensis</i>	pygmy rabbit	petitioned	YR	1
<i>Sorex preblei</i>	Preble's shrew		YR	2
<i>Ochotona princeps</i>	pika		YR	1,2
Reptiles				
none				
Insects				
<i>Euphilotes pallescens mattonii</i>	Mattoni's blue butterfly		YR	2
Molluscs				
<i>Anodonta californiensis</i>	California floater		YR	2
<i>Pyrgulopsis humboldtensis</i>	Humboldt pyrg		YR	2
<i>Pyrgulopsis villacampae</i>	Duckwater Warm Springs pyrg	petitioned 2009	YR	2
<i>Pyrgulopsis vinyardi</i>	Vinyards pyrg		YR	1,2
<i>Tryonia clathrata</i>	Grated tryonia	petitioned 2009	YR	1,2
Plants				
<i>Antennaria arcuata</i>	Meadow pussytoes	Species of Concern		1, 2
<i>Astragalus anserinus</i>	Goose Creek milkvetch	Candidate		1, 2
<i>Boechera falcifructa</i>	Elko rockcress	Species of Concern		1,2

Scientific Name	Common Name	USFWS Status ¹	NV Range ²	BLM Criteria ³
<i>Collomia renacta</i>	Barren Valley collomia	Species of Concern		1, 2
<i>Erigeron latus</i>	Broad fleabane	Species of Concern		1, 2
<i>Eriogonum beatleyae</i>	Beatley buckwheat			1
<i>Eriogonum lewisii</i>	Lewis buckwheat	Species of Concern		1
<i>Eriogonum nutans</i> var. <i>glabratum</i>	Deeth buckwheat			1
<i>Ivesia rhypara</i> var. <i>rhypara</i>	Grimy mousetails	Former candidate		1
<i>Lathyrus grimesii</i>	Grimes vetchling	Species of Concern		1,2
<i>Lepidium davisii</i>	Davis peppergrass	Species of Concern		1, 2
<i>Leptodactylon glabrum</i>	Owyhee prickly phlox	Species of Concern		2
<i>Mentzelia tiehmii</i>	Tiehm blazingstar			1
<i>Penstemon idahoensis</i>	Idaho beardtongue			2
<i>Phacelia minutissima</i>	Least phacelia	Species of Concern		2
<i>Potentilla cottamii</i>	Cottam cinquefoil	Species of Concern		1
<i>Ranunculus triternatus</i>	Obscure buttercup			1
<i>Silene nachlingerae</i>	Nachlinger catchfly	Species of Concern		1

¹**Candidate:** Species for which the FWS has sufficient information on their biological status and threats to propose them as endangered or threatened under the Endangered Species Act, but for which development of a proposed listing regulation is precluded by other higher priority listing activities.

Petitioned: petitioned for listing as a Threatened or Endangered species.

T: Listed as Threatened.

E: Listed as Endangered.

Species of Concern: An informal term used to refer to species that are declining or appear to be in need of conservation.

²**YR:** Year-round resident

B: Breeding season resident

- ³1. There is information that a species has recently undergone, is undergoing, or is predicted to undergo a downward trend such that the viability of the species or a distinct population segment of the species is at risk across all or a significant portion of the species range, or
2. The species depends on ecological refugia or specialized or unique habitats on BLM-administered lands, and there is evidence that such areas are threatened with alteration such that the continued viability of the species in that area would be at risk (From BLM Manual 6840-Special Status Species Management).

Appendix D—List of Plant Codes and Names

Plant Code	Species Name	Common Name
AAFF	-	annual forb
ACHY	<i>Achnatherum hymenoides</i>	Indian ricegrass
ACMI2	<i>Achillea millefolium</i>	common yarrow
ACTH7	<i>Acnatherum thurberianum</i>	Thurber's needlegrass
AGGL	<i>Agoseris glauca</i>	pale agoseris
AGOSE	<i>Agoseris</i>	agoseris
ALLIU	<i>Allium</i>	onion
ARABI2	<i>Arabis</i>	rockcress
ARIST	<i>Aristida</i>	threeawn
ARTRT	<i>Artemisia tridentata</i>	basin big sagebrush
ASTER	<i>Aster</i>	aster
ASTRA	<i>Astragalus</i>	milkvetch
BAHO	<i>Balsamorhiza hookeri</i>	Hooker's balsamroot
BASA3	<i>Balsamorhiza sagittata</i>	arrowleaf balsamroot
BRTE	<i>Bromus tectorum</i>	cheatgrass
CASTI2	<i>Castilleja</i>	Indian paintbrush
CHVI8	<i>Chrysothamnus viscidiflorus</i>	yellow rabbitbrush
CIRSI	<i>Cirsium</i>	thistle
COPA3	<i>Collinsia parviflora</i>	maiden blue eyed Mary
DESCU	<i>Descurainia</i>	tansymustard
ELELE	<i>Elymus elymoides</i>	squirreltail
ELLAL	<i>Elymus lanceolatus</i>	thickspike wheatgrass
ERIOG	<i>Eriogonum</i>	buckwheat
FEID	<i>Festuca idahoensis</i>	Idaho fescue
IOAL	<i>Ionactis alpina</i>	Lava aster
LIPU11	<i>Linanthus pungens</i>	granite prickly phlox
LOMAT	<i>Lomatium</i>	desertparsley
LUPIN	<i>Lupinus</i>	lupine
MERTE	<i>Mertensia</i>	bluebells
OPPO	<i>Opuntia polykantha</i>	plains pricklypear
PASM	<i>Pascopyrum smithii</i>	western wheatgrass
PENST	<i>Penstemon</i>	beardtongue
PHLO2	<i>Phlox longifolia</i>	longleaf phox
PHLOX	<i>Phlox</i>	phlox
POA	<i>Poa</i>	bluegrass
POSE	<i>Poa secunda</i>	Sandberg bluegrass
PPFF	-	perennial forb
PSSPS	<i>Pseudoroegneria spicata</i>	bluebunch wheatgrass
SENEC	<i>Senecio</i>	ragwort
TAOF	<i>Taraxacum officinale</i>	common dandelion
TECA2	<i>Tetradymia canescens</i>	spineless horsebrush
TRDU	<i>Tragopogon dubius</i>	yellow salsify
VIOLA	<i>Viola</i>	violet