

1.B.14. Upland Vegetation

Profile

Vegetation was mapped in the planning area in 2006 using field observation, field cover data, and 2004 National Agriculture Imagery Program (NAIP) imagery. Potential Natural Vegetation Communities (PNC) data for the expected vegetation in the planning area is based on information from the Soil Survey Geographic Database (SSURGO).

There are five classes with six sub-classes of vegetation in the planning area, plus a not applicable (NA) category for areas without vegetation data. Vegetation classification follows national standards (Grossman et al., 1998). for classes and sub-classes with the exception of evergreen shrublands dominated by sagebrush. These communities are defined as having 10% or more shrub cover rather than the national standard of more than 25% shrub cover due to management objectives for sage-grouse (Wisdom et al., 2000). For management purposes, the classes and sub-classes are further broken into 49 vegetation communities based on dominant species (Appendix 8).

Microbiotic Soil Crusts

Microbiotic soil crusts are an important indicator of rangeland health (Belnap et al., 2001; Butler et al., 2003; Johansen et al., 1984). These crusts may serve as an early indicator to ecological site decline as they appear to be more sensitive to disturbance from wildfire, livestock grazing, and OHV activity than vascular plants.

Microbiotic soil crusts (Figure 11) occur in plant interspaces in all plant communities described

above. They are a complex mosaic of living organisms, including algae, cyanobacteria (blue-green algae), bacteria, lichens, mosses, liverworts, and fungi. Microbiotic soil crusts and their component organisms are linked closely to enhanced soil and landscape stability in arid and semi-arid areas (West, 1990). The diversity and cover of microbiotic soil crusts are expected to vary with community type, though generally, the more highly disturbed an ecosystem, the less microbiotic soil crusts occur, and the lower the species diversity (Rosentreter & Pellant, 2006). Microbiotic soil crusts function in dryland ecosystems to bind the soil, thus reducing soil loss; improve soil fertility; inhibit invasive weed establishment; and improve water infiltration in soils (Belnap, 1999; Belnap et al., 2001). Microbiotic soil crusts require moisture for growth and reproduction; however, moisture requirements are small compared to requirements for other plants. Growth is promoted by cool-season, as opposed to summer, moisture. Microbiotic soil crusts are fragile when dry (dormant), but quite pliable when moist. Once the microbiotic soil crust is fragmented, the soil surface is vulnerable to erosion by wind and water. The

Figure 11. Biological Soil Crust



microbiotic soil crust fragments can be removed from the site along with surface soil, reducing the potential for future recovery (Rosentreter & Pellant, 2006).

Indicators

If upland vegetation is in good condition, Standards 1 (Watersheds), 4 (Native Plant Communities), 5 (Seedings), and 6 (Exotic Plant Communities, Other than Seedings) of the S&Gs should be met as documented by S&G assessments conducted by an ID team (BLM, 1997). See Appendix 2 for more information on S&G assessments.

S&G assessments were conducted by BLM from 1998 through 2003 in 44 allotments on a total of 840,000 acres within the planning area. The standard for watersheds (Standard 1) was met on the majority of acreage assessed. The standards for native plant communities (Standard 4) and seedings (Standard 5) were met on over one-third of the acres assessed and were not met on over half of the acres assessed. The standard for exotic plant communities other than seedings (Standard 6) did not apply to nearly two-thirds of the acres assessed. Where Standard 6 did apply, over one-third of the acres met the standard (Table 18).

Table 18. S&G Determinations for Standards 1, 4, 5, and 6, 1998-2003

Standard	Determination*				
	Standard is Being Met	Progress is Being Made Towards Meeting Standard	Standard is Not Being Met		Standard Does Not Apply
			Cattle Not a Significant Factor	Cattle a Significant Factor	
1 – Watersheds	66%	0%	12%	22%	0%
4 – Native Plant Communities	37%	3%	19%	39%	1%
5 – Seedings	36%	0%	34%	21%	10%
6 – Exotic Plant Communities, Other Than Seedings	13%	0%	17%	5%	64%

Percentages were rounded to the nearest whole number and Standards may not total 100%.
 *Determination displayed as percent of 840,000 acres assessed.

Current Condition

Vegetation types in the planning area are diverse and represent a range of seral stages primarily influenced by wildfires and fire rehabilitation, livestock grazing, motorized vehicles, and weather. The planning area is dominated by Shrubland (40%), of which Evergreen is the prevalent sub-class, and Herbaceous (32%), of which Perennial Graminoid is the prevalent sub-class (Table 19). Other vegetation classes present include Dwarf Shrubland, Sparse Vegetation, and Woodland. This is calculated including BLM lands managed by the Jarbidge FO (1,400,000), USAF lands outside the Exclusive Use Areas (EUAs) (92,000), State lands (77,000), and Bureau of Reclamation (BOR) lands (6,000). Acreages in Table 19 do not include private lands, EUAs of USAF lands, or other Federal and State lands within the planning area boundary.

Table 19. Mapped Vegetation Communities, 2006

Class	Sub-Class	Vegetation Community	Acres ^A	% of planning area
Dwarf Shrubland	Evergreen	Black sagebrush/bluebunch	1,700	0.1
		Black sagebrush/bluegrass	29,000	1.9
		Black sagebrush/crested	1,100	0.1
		Low sage/bluebunch-Idaho fescue	15,000	1.0
		Low sage/bluegrass	380	<0.1
		Low sage/Idaho fescue	58,000	3.8
		Low sage/squirreltail	160	<0.1
		Shadscale	3,500	0.2
		Winterfat/Indian ricegrass	0	0.0
Dwarf Shrubland total			108,840	7.1
Herbaceous	Annual Graminoid or Forb	Annual	120,000	7.8
	Perennial Graminoid	Bluebunch wheatgrass	47,000	3.1
		Bluegrass	10,000	0.7
		Crested wheatgrass	300,000	19.6
		Idaho fescue	5,400	0.4
		Intermediate wheatgrass	3,200	0.2
		Needlegrass	3,800	0.2
		Semi-wet meadow	460	<0.1
		Thurbers needlegrass	200	<0.1
Herbaceous total			490,060	31.9
NA	NA	Agricultural land	60	<0.1
		No Data	2,000	0.1
		Water	260	<0.1
NA total			2,320	0.2
Shrubland	Deciduous	Deciduous mountain brush	1,500	0.1
		Greasewood/basin wildrye	0	0.0
	Evergreen	Basin big sagebrush	410	<0.1
		Evergreen mountain brush	7,200	0.5
		Four-wing saltbush/crested wheatgrass	3,400	0.2
		Mountain big sagebrush/bluebunch wheatgrass-Idaho fescue	20,000	1.3
		Mountain big sagebrush/Idaho fescue	12,000	0.8
		Rabbitbrush/annual	1,500	0.1
		Rabbitbrush/bluebunch wheatgrass	3,900	0.3
		Rabbitbrush/bluegrass	28,000	1.8
		Rabbitbrush/crested wheatgrass	6,800	0.4
		Rabbitbrush/Idaho fescue	4,400	0.3
		Rabbitbrush/intermediate wheatgrass	1,000	0.1

Class	Sub-Class	Vegetation Community	Acres ^A	% of planning area
		Rabbitbrush/Thurbers needlegrass	20	<0.1
		Wyoming big sagebrush/annual	13,000	0.8
		Wyoming big sagebrush/bluebunch wheatgrass	80,000	5.2
		Wyoming big sagebrush/bluegrass	330,000	21.5
		Wyoming big sagebrush/crested wheatgrass	57,000	3.7
		Wyoming big sagebrush/Idaho fescue	5,000	0.3
		Wyoming big sagebrush/Indian ricegrass	40	<0.1
		Wyoming big sagebrush/intermediate wheatgrass	60	<0.1
		Wyoming big sagebrush/Thurbers needlegrass	35,000	2.3
Shrubland total			613,772	39.8
Sparse Vegetation	Consolidated Rocks	Breaks	42,000	2.7
	Unconsolidated Material	Barren	2,100	0.1
		Recent burn	270,000	17.6
		Sand dune	0	0.0
Sparse Vegetation total			316,727	20.5
Woodland	Deciduous	Aspen	3,200	0.2
	Evergreen	Juniper	860	0.1
		Mountain mahogany	4,500	0.3
Woodland total			8,499	0.6
GRAND TOTAL			1,534,100	100.0
^A Acres have been rounded.				

The Shrubland class is common³ (40%) and has two sub-classes associated with it: Deciduous and Evergreen. The Deciduous sub-class is either dominated or co-dominated by deciduous shrubs including bitterbrush (*Purshia tridentata*), snowberry (*Symphoricarpus oreophilus*), chokecherry (*Prunus emarginata*), willows (*Salix spp.*), woods rose (*Rosa woodsii*), dogwood (*Cornus sericea*), shrubby aspen (*Populus tremuloides*), or greasewood (*Sarcobatus vermiculatus*). This sub-class includes woody riparian communities and mountain shrub communities which occur primarily in the southern end of the resource area. The Evergreen sub-class is either dominated or co-dominated by basin big sagebrush (*Artemisia tridentata* var. *tridentata*), mountain big sagebrush (*A. tridentata* var. *vaseyana*), Wyoming big sagebrush (*A. tridentata* var. *wyomingensis*), shadscale (*Atriplex confertifolia*), ceanothus (*Ceanothus velutinus*), subalpine sagebrush (*A. tridentata* var. *spiciformis*), bitterbrush, rabbitbrush (*Chrysothamus spp.*), and four-wing saltbush (*Atriplex canescens*). Basin big sagebrush

³ Common is defined as having between 25% and 50% cover.

communities occur in drainages throughout the planning area and in sandy areas in the north. Mountain big sagebrush and deciduous mountain brush communities are primarily found at higher elevations in the southern portion of the planning area, though some that are dominated by bitterbrush occur on sandy soils in the north, also. Wyoming big sagebrush communities dominate the planning area and occur throughout. Shadscale communities are primarily near the canyon rims along the north and west edges of the planning area. Shrub communities disturbed by events such as wildfire may become dominated by rabbitbrush which will lose dominance to other shrubs, particularly sagebrush, without further disturbance. Four-wing saltbush-dominated communities do not naturally occur in the planning area at a large enough scale to be mapped and are primarily the result of seeding projects, generally following a fire.

The Herbaceous vegetation class is common (32%) and has either an Annual Graminoid or Forb, or Perennial Graminoid sub-class. The Annual sub-class is primarily dominated by cheatgrass (*Bromus tectorum*), Russian thistle (*Salsola kali*), tumblemustard (*Sisymbrium altissimum*), or a combination of the three non-native species. Annual



species, particularly cheatgrass, are common invaders of burned and disturbed areas within the planning area, but is not a naturally occurring sub-class. Though primarily found in the lower elevations (less than 3000 feet) in the northern portion of the planning area, the Herbaceous Annual vegetation sub-class can be found throughout in burned or otherwise disturbed areas. The Perennial Graminoid sub-class of the Herbaceous vegetation class is either dominated by native species such as basin wildrye (*Leymus cinereus*), bluebunch wheatgrass, Sandberg bluegrass, Idaho fescue, Indian ricegrass (*Achnatherum hymenoides*), needleandthread (*Hesperostipa comata*), Thurbers needlegrass (*Achnatherum thurberianum*), western wheatgrass (*Pascopyrum smithii*), and herbaceous wetland species in a semi-wet meadow community; or by non-native, seeded species including crested wheatgrass (*Agropyron cristatum*) (Figure 12) and intermediate wheatgrass (*Thinopyrum intermedium*). This sub-class occurs throughout the planning area, where fire or another disturbance has removed or greatly reduced the shrub cover. Naturally occurring grasslands occupy <1% of the planning area.

The Dwarf Shrubland class is occasional⁴ (7%) and has an Evergreen sub-class which is typically dominated by low sagebrush (*Artemisia arbuscula*) or black sagebrush (*A. nova*). The understory is primarily graminoid, dominated or co-dominated by Idaho fescue (*Festuca idahoensis*) and bluebunch wheatgrass (*Pseudoroegneria spicata*) or by Sandburg bluegrass (*Poa secunda*). Evergreen Dwarf Shrubland occurs primarily in the southern-end of the planning area.

The Sparse Vegetation class is occasional (21%) and are areas that are less than 10% vegetated. These may be naturally un-vegetated areas, such as Breaks and Sand dunes, or due to disturbance from a fire within the past two years (Recent Burn) or gravel pit activity (Barren). These areas are split into either Consolidated Rocks or Unconsolidated Materials sub-classes. The majority of

⁴ Occasional is defined as having between 5% and 25% cover.

this class is mapped as Recent Burn (18%).

The Woodland vegetation class is very rare⁵ (<1%) in the planning area and occurs either at high elevations or in riparian areas and drainages. The Deciduous sub-class is dominated by aspen greater than 15 feet tall at maturity. The Evergreen sub-class is dominated either by juniper or mountain mahogany (*Cercocarpus ledifolius*). Juniper (*Juniperus*) communities have invaded aspen stands that have an impaired disturbance regime. Aspen communities require a disturbance, such as fire, to be maintained.

S&G assessments were conducted by BLM from 1997 through 2002 in 44 allotments on a total of 840,000 acres within the planning area. Standards for Native Plant Communities (Standard 4) and Seedings (Standard 5) are not met on the majority of the acreage assessed, and the Standard for Exotic Plant Communities (Standard 6) is not met on the majority of the acres where the standard applies (Table 20). The Standard for Watersheds (Standard 1) is met on the majority of the acres assessed by S&G assessments (BLM 1997).

Table 20. S&G Assessment Determinations for Standards 1, 4, 5, and 6, 1997-2002

Standard	Determination*			
	Standard is Being Met	Progress is Being Made Towards Meeting Standard	Standard is Not Being Met	Standard Does Not Apply
Standard 1 (Watersheds)	65%	0%	35%	0%
Standard 4 (Native Plant Communities)	37%	3%	58%	1%
Standard 5 (Seedings)	35%	0%	55%	10%
Standard 6 (Exotic Plant Communities, Other Than Seedings)	13%	0%	20%	67%

Percentages were rounded to the nearest whole number and Standards may not total 100%.
 *Determination displayed as percent of 840,000 acres assessed.

Microbiotic Soil Crusts

An average microbiotic soil crust cover of 7% was found in 2006 on Ecological Site Inventory (ESI) line point transects, completed at 450 plots, and line point transects for wildlife habitat monitoring, completed at six plots (Table 21).

⁵ Very rare is defined as having less than 1% cover.

Table 21. Microbiotic Crust Cover by Vegetation Community

Class	Sub-Class	Vegetation Community	Number of Plots	Average Cover (%)
Dwarf Shrubland	Evergreen	Black sagebrush/bluegrass	6	4.7
		Black sagebrush/crested wheatgrass	1	0.0
		Low Sage/bluegrass	16	7.1
		Low Sage/crested wheatgrass	1	2.5
		Low Sage/Idaho fescue	12	6.1
		Low Sage/Squirreltail	1	5.3
		Shadscale	1	36.8
Herbaceous	Annual Graminoid or Forb	Annual	58	2.4
	Perennial Graminoid	Bluebunch wheatgrass	22	7.8
		Bluegrass	91	8.0
		Crested wheatgrass	50	5.9
		Idaho fescue	30	4.6
		Needlegrass	2	10.1
		Bluegrass/Idaho fescue	1	5.1
		Semi-wet meadow	1	13.0
Western wheatgrass	2	8.2		
Shrubland	Deciduous	Deciduous mountain brush	7	4.5
	Evergreen	Basin big sagebrush	3	5.6
		Evergreen mountain brush	1	0.0
		Greasewood	1	15.0
		Mountain big sagebrush/annual	1	0.8
		Mountain big sagebrush/Idaho fescue	21	2.8
		Rabbitbrush/annual	1	2.1
		Rabbitbrush/bluegrass	13	10.5
		Rabbitbrush/Idaho fescue	3	4.3
		Wyoming big sagebrush/annual	4	5.9
		Wyoming big sagebrush/bluebunch wheatgrass	6	7.8
		Wyoming big sagebrush/bluegrass	80	13.9
		Wyoming big sagebrush/crested wheatgrass	2	13.7
Wyoming big sagebrush/Idaho fescue	3	5.8		
Sparse Vegetation	Unconsolidated Rocks	Sand dune	1	5.0
		Recent burn	1	2.0
	Consolidated Rocks	Breaks	1	0.0
Woodland	Deciduous	Aspen	5	0.0
	Evergreen	Juniper	1	7.0
	Evergreen	Mountain mahogany	6	1.9
Total			456	7.3

Trends

In order to approximate trend, the existing vegetation data is being compared to the potential natural community (PNC) data from the relevant soil surveys (NRCS, 1997, 1998, 2003; SCS,

1991). PNC are the stable biotic community that would become established if all successional stages were completed without human interference under present environmental conditions. The PNCs in the planning area are listed in Table 22. The planning area potential is to be dominated by Shrubland (88%), with Evergreen as the prevalent sub-class. In 2006, the Shrubland Class covers 40% of the planning area with Evergreen being the most common. Wyoming big sagebrush/Thurbers needlegrass plant community has the greatest potential for occurring in the planning area, and would be expected on over 48% of the area, but only occurs on 2% of the area. Wyoming big sagebrush/bluebunch wheatgrass and Wyoming big sagebrush/Indian ricegrass would be expected to commonly occur (20% and 11%, respectively). In 2006, Wyoming big sagebrush/bluebunch wheatgrass covered 5% of the planning area while the Wyoming big sagebrush/Indian ricegrass vegetation community occurs on less than 0.1% of the planning area, the majority being converted to Annual or Crested wheatgrass communities due in large part to past fires and rehabilitation efforts. Wyoming big sagebrush/bluegrass was an occasional community (22% of the area) in 2006, but the potential is for this community to occur on less than 0.1% of the planning area.

Dwarf Shrubland has the potential to occasionally occur (8%) in the planning area. The only sub-class expected would be Evergreen with Low sagebrush, Black sagebrush, Shadscale, and Winterfat communities. In 2006, the Dwarf Shrubland occurred on 7% of the planning area with Low sagebrush/Idaho fescue being most common (4%) in the planning area.

Sparse Vegetation is expected on 3% of the planning area. In 2006, Sparse Vegetation occurred in 19% of the planning area, of which the majority is Recent Burn. These areas are expected to become re-vegetated within two years of being burned. The vegetation community expected on these areas would depend on the community before the burn and on rehabilitation efforts.

Herbaceous and Woodland are very rarely expected in the planning area (<0.1 and 0.4%, respectively). Herbaceous Perennial Semi-wet meadow and bluegrass are the most common (<0.1% each) vegetation communities expected and in 2006 occurred on <0.1% and 0.7%, respectively, of the planning area. In 2006, the Herbaceous class was common (27%), with the Perennial Graminoid sub-class prevalent and Crested wheatgrass vegetation communities most common (19%) in the planning area. The most common expected PNC Woodland communities are Aspen and Mountain Mahogany (each covering 0.2% of planning area). In 2006, Woodland vegetation occurred on 0.6% of the planning area and Mountain mahogany was the most common Woodland vegetation sub-class (0.3%).

In general, BLM trend data shows a static trend in both the native plant communities and the seeded communities since 1984. Trend data collected between 1986 and 2000 in crested wheatgrass seedings shows an overall increase in Sandberg bluegrass and rabbitbrush (BLM). However, deviation from the PNC indicates a net loss of Shrubland, particularly Wyoming big sagebrush communities, and a net increase in Herbaceous communities, particularly Crested wheatgrass and Annual communities.

Table 22. Potential Natural Vegetation Communities

Class	Sub-Class	Vegetation Community	Acres ^B	% planning area
Dwarf Shrubland	Evergreen	Black sagebrush/bluebunch	18,000	1.2
		Black sagebrush/bluegrass	0	0.0
		Black sagebrush/crested wheatgrass	0	0.0
		Low sage/bluebunch-Idaho fescue	0	0.0
		Low sage/bluegrass	0	0.0
		Low sage/Idaho fescue	77,000	5.0
		Low sage/squirreltail	0	0.0
		Shadscale	2,200	0.1
		Winterfat/Indian ricegrass	10	<0.1
Dwarf Shrubland total			97,210	6.3
Herbaceous	Annual Graminoid or Forb	Annual	0	0.0
	Perennial Graminoid	Bluebunch wheatgrass	0	0.0
		Bluegrass	0	0.0
		Crested wheatgrass	0	0.0
		Idaho fescue	0	0.0
		Intermediate wheatgrass	0	0.0
		Needlegrass	0	0.0
		Semi-wet meadow	220	<0.1
		Thurbers needlegrass	0	0.0
Herbaceous total			220	<0.1
		No data ^A	96,000	6.2
NA total			96,000	6.2
Shrubland	Deciduous	Deciduous mountain brush	0	0
		Greasewood/basin wildrye	1,400	0.1
	Evergreen	Basin big sagebrush	52,000	3.4
		Evergreen mountain brush	13,000	0.8
		Four-wing saltbush/crested wheatgrass	0	0.0
		Mountain big sagebrush/bluebunch wheatgrass-Idaho fescue	37,000	2.4
		Mountain big sagebrush/Idaho fescue	15,000	1.0
		Rabbitbrush/annual	0	0.0
		Rabbitbrush/bluebunch wheatgrass	0	0.0
		Rabbitbrush/bluegrass	0	0.0
		Rabbitbrush/crested wheatgrass	0	0.0
		Rabbitbrush/Idaho fescue	0	0.0
		Rabbitbrush/intermediate wheatgrass	0	0.0

Class	Sub-Class	Vegetation Community	Acres ^B	% planning area
		Rabbitbrush/Thurbers needlegrass	0	0.0
		Wyoming big sagebrush/annual	0	0.0
		Wyoming big sagebrush/bluebunch wheatgrass	310,000	20.1
		Wyoming big sagebrush/bluegrass	0	0.0
		Wyoming big sagebrush/crested wheatgrass	0	0.0
		Wyoming big sagebrush/Idaho fescue	0	0.0
		Wyoming big sagebrush/Indian ricegrass	180,000	11.7
		Wyoming big sagebrush/intermediate wheatgrass	0	0.0
		Wyoming big sagebrush/Thurbers needlegrass	730,000	47.4
Shrubland total			1,338,400	87.0
Sparse Vegetation	Consolidated Rocks	Breaks	0	0.0
		Barren	0	0.0
	Unconsolidated Material	Recent burn	0	0.0
		Sand dune	0	0.0
Sparse Vegetation total			0	0.0
Woodland	Deciduous	Aspen	3,800	0.2
	Evergreen	Juniper	0	0.0
		Mountain mahogany	3,200	0.2
Woodland total			7,000	0.5
GRAND TOTAL			1,538,830	100.0
^A Includes agricultural land and water.				
^B Acres have been rounded.				

The 1987 RMP had no data on vegetation classes or sub-classes and provided only a large-scale, general vegetation map with general vegetation communities and a summary that included areas no longer in the planning area. Since the 1987 data was not “spatially defined,” there is error in the acreage calculations from digitizing the data from a scale of 1:750,000. Table 23 is a summary of vegetation from the 1987 data compared with PNC and 2006 vegetation data. In general, since 1987 there has been an increase in seeded acreage causing an increase in Herbaceous acres. PNC data reports no acres as seeded and <1% as Herbaceous. Shrubland is the PNC for 88% of the planning area; however there has been a decrease in Shrubland to 40% since 1987. Within the Shrubland class, the Wyoming big sagebrush community acres decreased since 1987 and have decreased by more than 50% from PNC.

Table 23. Comparison of Vegetation Types

Class	Vegetation Types ^A	Percent of Planning Area		
		PNC	1987	2006
Dwarf Shrubland	Black sagebrush	2%	1%	2%
	Low sagebrush	6%	6%	5%
	Shadscale	<1%	<1%	<1%
	Winterfat	<1%	0%	0%
	Dwarf Shrubland total	8%	8%	7%
Herbaceous	Seeding	0%	27%	33% ^B
	Native grass/Semi-wet meadow	<1%	0%	5%
	Herbaceous total	<1%	27%	32%
Shrubland	Mountain big sagebrush	4%	3%	2%
	Wyoming big sagebrush	79%	42%	29%
	Basin big sagebrush	3%	0%	<1%
	Rabbitbrush	0%	0%	2%
	Other	2%	0%	1%
	Shrubland total	88%	45%	34% ^C
Sparse Vegetation	Recent burns	0%	13%	18%
	Breaks	3%	5% ^D	3%
	Other	<1%	0%	<1%
	Sparse Vegetation total	3%	18%	20%
NA	NA total	0%	2%	<1%
Woodland	Woodland total	<1%	0%	1%

^A Vegetation Types are those identified in the 1987 Jarbidge RMP and aggregations of current vegetation communities (Table 19).
^B Includes seedings with more than 10% brush cover (6% of planning area) and communities with an annual component
^C Shrubland with annual or seeded understory (6% of planning area) are included in the seeding percentage
^D Canyons/Meadows/Riparian vegetation community in 1987 RMP.

Microbiotic Soil Crusts

A summary of microbiotic soil crust cover from ESI and wildlife habitat line point transects collected in 2006 is displayed in Table 24. Potential microbiotic crust cover was determined for each plant community in the table using the *Site Potential for Biological Soil Crust Site Evaluation Sheet* matrix (Rosentreter & Pellant, 2006). The potential for microbiotic soil crust cover throughout the majority of the planning area ranges from moderate (15%-25% cover) in the central and southern portion of the planning area to high (>25% cover) in the northern end. Microbiotic soil crust cover measured in 2006 is generally lower than potential in each plant community sampled, likely due to impacts including grazing, wildfire and rehabilitation activities, and OHV use. Wildlife habitat monitoring data found the majority of microbiotic soil crust cover under vascular plants rather than between the plants. Sites where vegetation structure was modified due to introduction of invasive weeds or rhizomatous grasses seeded into areas that naturally supported bunchgrass vegetation have reduced microbiotic soil crust cover. Sites dominated by annual species such as cheatgrass or medusahead wildrye (*Taeniatherum caput-medusae*) have lowered potential for microbiotic soil crust development due to high plant density, litter accumulation, and frequent fire. Microbiotic soil crusts will recover on burned sites seeded with bunchgrasses, forbs, and shrubs, if the resulting

community structure is similar to that of the PNC and contains open interspaces (Rosentreter & Pellant, 2006) (Kaltenecker & Wicklow-Howard, 1994).

Trampling is one of the greatest disturbances to microbiotic soil crusts, but impacts are less severe when crusts are wet (Belnap, 1999; Belnap et al., 2001). Disturbance generally results in loss of microbiotic soil crust species diversity, biomass, and surface cover (Belnap et al., 2001). The least impact occurs when the crust is moist or frozen, but not saturated (Belnap et al., 2001). Regrowth potential is greatest during periods when cool season moisture is consistent for several weeks. Late fall use has low impacts because the microbiotic soil crust is likely to be moist and pliable due to dew, frost, and periodic rain; and there is a considerable length of time between the period of use and the dry, hot season. Late spring use may also have low impacts since microbiotic soil crust is moist and pliable; however, the dry, hot season is imminent and the crust may not have time to recover from trampling impacts via reattachment and regrowth (Rosentreter & Pellant, 2006).

Table 24. Actual and Potential Microbiotic Crust Cover

Class	Sub-Class	Vegetation Community	Current Microbiotic Crust Rank ^A	Potential Microbiotic Crust Rank ^A	Departure from Potential
Dwarf Shrubland	Evergreen	Black sagebrush/bluegrass	low	low-moderate	lower
		Black sagebrush/crested wheatgrass	very low	low-moderate	NSD ^B
		Low Sage/bluegrass	low	low-moderate	lower
		Low Sage/crested wheatgrass ^C	low	low-moderate	NSD ^B
		Low Sage/Idaho fescue	low	moderate	lower
		Low Sage/Squirreltail	low	low-moderate	NSD ^B
		Shadscale	high	moderate-high	NSD ^B
Herbaceous	Annual Graminoid or Forb	Annual	very low	moderate	lower
	Perennial Graminoid	Bluebunch wheatgrass	low	low-moderate	lower
		Bluegrass	low	moderate	lower
		Crested wheatgrass	low	moderate-high	lower
		Idaho fescue	low	low-moderate	lower
		Needlegrass	low	moderate	lower
		Bluegrass/Idaho fescue ^C	low	moderate	NSD ^B
		Semi-wet meadow ^D	low	NA ^D	NA
Western wheatgrass	low	moderate	lower		
Shrubland	Deciduous	Deciduous mountain brush	low	low-moderate	lower

Class	Sub-Class	Vegetation Community	Current Microbiotic Crust Rank ^A	Potential Microbiotic Crust Rank ^A	Departure from Potential
	Evergreen	Basin big sagebrush	low	moderate	lower
		Evergreen mountain brush	very low	low-moderate	NSD ^B
		Greasewood	low-moderate	NA ^D	NA
		Mountain big sagebrush/annual	very low	low	NSD ^B
		Mountain big sagebrush/Idaho fescue	very low-low	low-moderate	lower
		Rabbitbrush/annual	very low	moderate	NSD ^B
		Rabbitbrush/bluegrass	low	moderate-high	lower
		Rabbitbrush/Idaho fescue	low	moderate	lower
		Wyoming big sagebrush/annual	low	moderate-high	lower
		Wyoming big sagebrush/bluebunch wheatgrass	low	moderate	lower
		Wyoming big sagebrush/bluegrass	low-moderate	moderate-high	lower
		Wyoming big sagebrush/crested wheatgrass	low-moderate	moderate-high	lower
		Wyoming big sagebrush/Idaho fescue	low	moderate	lower
Sparse Vegetation	Unconsolidated Rocks	Sand dune	low	moderate	NSD ^B
		Recent burn	very low	moderate	NSD ^B
	Consolidated Rocks	Breaks	very low	moderate	NSD ^B
Woodland	Deciduous	Aspen	very low	NA ^D	NA
	Evergreen	Juniper	low	NA ^D	NA
	Evergreen	Mountain mahogany	very low	NA ^D	NA
^A High = >25%, moderate = 25-15%, low = 3-15%, very low = <3%; compound ratings reflect cover levels between ratings (e.g., low-moderate = 12-18% cover). ^B NSD = Not sufficient data; these communities are represented by only one data point, so no departure from potential can be determined. ^C This vegetation community occurs in the planning area as small pockets or unmapped islands within larger areas. ^D <i>Site Potential for Biological Soil Crust Site Evaluation Sheet</i> matrix (Rosentreter and Pellant 2006) does not apply to this vegetation community.					

Forecast

Upland vegetation communities may continue to deviate from PNC without more proactive management. A continued conversion of shrubland communities to herbaceous communities,

including an increase in non-native annual communities, is also expected. Wildfires and fire rehabilitation, livestock grazing, motorized vehicles, and climate change are likely to influence the movement towards or away from expected upland vegetation. Wildfire will play a role in conversion of sagebrush steppe vegetation to herbaceous. Restoration may have a positive effect on upland vegetation communities if funding and native seed are available, there is a willingness to use natives, and knowledge for successfully establishing native species improves. An increase in motorized vehicle use is expected in the planning area, which negatively impacts upland vegetation.

Key Features

Key features of upland vegetation are the remaining Wyoming big sagebrush communities in the north and central portions of the planning area and corridors connecting these areas. Annual plant communities and some Crested wheatgrass communities in the north and central portion are areas to be considered for restoration treatments. The southern portion of the planning area is near PNC, and management should be considered to maintain or improve the native plant communities in this area.

Current Management

Lands in poor ecological conditions when the 1987 RMP was written have not been successfully improved since that time due to wildfires and other constraints. Implementation to improve these lands is ongoing.

The 1987 Jarbidge RMP specified MUAs in which riparian areas should be maintained. For example, the Columbet Creek Gap fence constructed around 2002 has protected about 0.6 miles of riparian habitat. In MUA 11, livestock trailing down steep slopes, as well as trampling in water gaps and unprotected areas is a source of sediment in Clover Creek. More than 200 cottonwood poles were planted to improve aquatic habitat along portions of Clover Creek. About 6 miles of gap fences have protected about 15 miles of Clover Creek.

Multiple Use Activity Plans are no longer used by the BLM and were not completed for MUAs 11, 12, or 15.

The 1987 Jarbidge RMP called for the improvement of lands in poor ecological condition through natural plant succession and removal of livestock on MUA 14. Livestock were removed through the installation of gap fences. The Salmon Falls Creek channel has stabilized, but overall ecological condition has not yet improved due to the amount of time necessary for recovery.

Management Opportunities

Due to the non-specific nature of the 1987 Jarbidge RMP's decision to improve lands in ecological condition, the decision has not been implemented. A more descriptive statement on criteria, areas, and tools for implementation could allow for better management. Microbiotic crusts could be included when assessing ecological condition.

1.B.15. Special Status Plants

Profile

Special status plant species include species officially listed or proposed for listing as Endangered or Threatened under ESA, candidates for listing as Endangered or Threatened under ESA, and species designated by the BLM State Director as Sensitive. The BLM manages special status species under the policy established in BLM Manual 6840 in addition to requirements set forth under ESA. State laws protecting species apply to all BLM programs and actions to the extent that they are consistent with FLPMA.

Endangered or Threatened species are species officially listed by the Secretary of the Interior under ESA and for which a final rule has been published in the *Federal Register*. Proposed species are species that have been officially proposed for listing as Endangered or Threatened by the Secretary of the Interior and for which a proposed rule has been published in the *Federal Register*. Candidate species are species designated as candidates for listing as Endangered or Threatened by the FWS or NMFS and are included on a list published in the *Federal Register*. Candidate status indicates existing information warrants listing of the species, but other species have higher priority.

Sensitive species are those species designated by the BLM State Director in cooperation with State wildlife agencies (e.g., IDFG). Idaho BLM Sensitive plant species are reviewed at the annual Idaho Native Plant Society meeting, with the list of Sensitive plant species updated periodically. Idaho BLM ranks Sensitive plant species into five types.

- **Type 1. Threatened, Endangered, Proposed and Candidate Species** – These species are listed by the FWS as Threatened or Endangered, or they are Proposed or Candidates for listing under ESA.
- **Type 2. Range wide/Globally Imperiled Species - High Endangerment** – These species have a high likelihood of being listed in the foreseeable future due to their global rarity and significant endangerment factors.
- **Type 3. Range wide/Globally Imperiled Species - Moderate Endangerment** – These species are globally rare with moderate endangerment factors. Their global rarity and inherent risks associated with rarity make them imperiled species.
- **Type 4. Species of Concern** – These species are generally rare in Idaho with small populations or localized distribution and currently have low threat levels. However, due to the small populations and habitat area, certain future land uses in close proximity could significantly jeopardize these species.
- **Type 5. Watch List:** Watch list species are not considered BLM Sensitive species, and associated Sensitive species policy guidance does not apply. Watch list species include species that may be added to the Sensitive species list depending on new information concerning threats and species biology or statewide trends.

Because a portion of the planning area is in the State of Nevada, plants listed by the Nevada BLM in conjunction with the Nevada Natural Heritage Program as Sensitive that occur or may occur within the planning area are also included in this document. Nevada BLM Sensitive plant species are denoted as Type NV.

Indicators

Figure 13. Slickspot Peppergrass



Sensitive plant populations are inventoried and monitored for population numbers, viability, and habitat quality following BLM and CDC protocol. Population monitoring uses the CDC Rare Plant Data Form. Additional population monitoring of slickspot peppergrass (*Lepidium papilliferum*) (Figure 13) is conducted annually following the Habitat Integrity and Population (HIP) Monitoring Protocol (Colket, 2005).

For special status plants, Standards 1 (Watersheds), 4 (Native Plant Communities), and 8 (Threatened and Endangered [T&E] Plants and Animals) of the S&Gs

should be met as documented by S&G assessments conducted by an ID team (BLM, 1997). See Appendix 2 for more information on S&G assessments.

S&G assessments were conducted by BLM from 1998 through 2003 in 44 allotments on a total of 840,000 acres within the planning area. The standard for watersheds (Standard 1) was met on the majority of acreage assessed. The standard for native plant communities (Standard 4) was met on over one-third of the acres assessed and was not met on over half of the acres assessed. The standard for Threatened and Endangered plants and animals (Standard 8) was met on 15% of the acres assessed and was not met on nearly three-quarters of the acres assessed (Table 25).

Table 25. S&G Determinations for Standards 1, 4, and 8, 1998-2003

Standard	Determination*				Standard Does Not Apply
	Standard is Being Met	Progress is Being Made Towards Meeting Standard	Standard is Not Being Met		
			Cattle Not a Significant Factor	Cattle a Significant Factor	
1 – Watersheds	66%	0%	12%	22%	0%
4 – Native Plant Communities	37%	3%	19%	39%	1%
8 – T&E Plants and Animals	15%	0%	30%	44%	4%

Percentages were rounded to the nearest whole number and Standards may not total 100%.
 *Determination displayed as percent of 840,000 acres assessed.

Current Condition

Table 26 includes all special status plant species known to occur or expected to occur in the Jarbidge FO.

Several plant species listed as Sensitive in the 1984 Jarbidge EIS and the 1993 Update are not on the current Sensitive plant list. Mourning milkvetch were determined not to occur in the planning area. Owyhee milkvetch and whitewoolly buckwheat were removed from the Sensitive list due to data showing these species to be more widespread or have greater abundance than previously believed. Species accounts are listed in Appendix 9.

Table 26. Special Status Plant Species

Name	Scientific Name	1984 Status ^A	2007 Status ^B	Rank ^C
Annual Forbs				
Slickspot peppergrass	<i>Lepidium papilliferum</i>	Not listed for the planning area	Type 1	G2/S2
Alkali cleomella	<i>Cleomella plocasperma</i>	Not listed for the planning area	Type 3	G4/SH
Least phacelia	<i>Phacelia minutissima</i>	Not listed for the planning area	Type 3, NV	G3/S2 (S2)
Spreading gilia	<i>Ipomopsis polycladon</i> [syn. <i>Gilia polycladon</i>]	Not listed for the planning area	Type 3	G4/S2
Desert pincushion	<i>Chaenactis stevioides</i>	Not listed for the planning area	Type 4	G5/S2
Rigid threadbush	<i>Nemacladus rigidus</i>	Not listed for the planning area	Type 4	G4/S2
White eatonella	<i>Eatonella nivea</i>	Sensitive	Type 4	G4G5/S3
White-margin waxplant	<i>Glyptopleura marginata</i>	Not listed for the planning area	Type 4	G4G5/S3
Perennial Forbs				
American wood sage	<i>Teucrium canadense</i> var. <i>occidentale</i>	Not listed for the planning area	Type 3	G5T5?/S2 (S2)
Bruneau River phlox	<i>Linanthus glabrum</i> [syn. <i>Leptodactylon glabrum</i>]	Sensitive	Type 3, NV	G2/S2 (S2)
Calcareous buckwheat	<i>Eriogonum ochrocephalum</i> var. <i>calcareum</i>	Not listed for the planning area	Type 3	G5T3/S2
Davis peppergrass	<i>Lepidium davisii</i>	Federal Category 2 /Sensitive	Type 3, NV	G3/S3 (S1)
Four-wing milkvetch	<i>Astragalus tetrapterus</i>	Not listed for the planning area	Type 3	G4G5/S1
Chatterbox orchid	<i>Epipactis gigantea</i>	Not listed for the planning area	Type 3	G3G4/S3
Greeley's wavewing	<i>Cymopterus acaulis</i> var. <i>greeleyorum</i>	Not listed for the planning area	Type 3	G5T2/S2
Janish penstemon	<i>Penstemon janishiae</i>	Not listed for the planning area	Type 3	G4/S2
Matted cowpie buckwheat	<i>Eriogonum shockleyi</i> [syn. <i>Eriogonum shockleyi</i> var. <i>shockleyi</i>]	Not listed for the planning area	Type 3	G5T4/S2
Owyhee milkvetch	<i>Astragalus yoder-williamsii</i>	Not listed for the planning area	Type 3, NV	G3/S3 (S1)
Packard's cowpie buckwheat	<i>Eriogonum shockleyi</i> [syn. <i>Eriogonum shockleyi</i> var. <i>packardiae</i>]	Not listed for the planning area	Type 3	G5T2/S2
Two-headed onion	<i>Allium anceps</i>	Not listed for the planning area	Type 3	G4/S2

Name	Scientific Name	1984 Status ^A	2007 Status ^B	Rank ^C
Newberry's milkvetch	<i>Astragalus newberryi</i> <i>var. castoreus</i>	Not listed for the planning area	Type 4	G5T5/S2
Simpson's hedgehog cactus	<i>Pediocactus simpsonii</i> <i>var. robustior</i>	Not listed for the planning area	Type 4	G4/S3
Snake River milkvetch	<i>Astragalus purshii</i> <i>var.</i> <i>ophiogenes</i>	Not listed for the planning area	Type 4	G5T3/S3
Spine-node milkvetch	<i>Peteria thompsoniae</i>	Not listed for the planning area	Type 4	G4/S2
Cusick's primrose	<i>Primula cusickiana</i> <i>var.</i> <i>cusickiana</i>	Not listed for the planning area	Type 5	G4T4/S2
Broadleaf fleabane	<i>Erigeron latus</i>	Federal Category 2	Type NV	G3/(S1)
Lewis buckwheat	<i>Eriogonum lewisii</i>	Not listed for the planning area	Type NV	G2G3Q/(S2 S3)
Mourning milkvetch	<i>Astragalus atratus</i> <i>var.</i> <i>inseptus</i>	Federal Category 2	Does not occur in planning area	NA
Owyhee mourning milkvetch	<i>Astragalus atratus</i> <i>var.</i> <i>owhyeensis</i>	Sensitive	Removed from Sensitive list	NA
Whitewoolly buckwheat	<i>Eriogonum</i> <i>ochrocephalum</i> <i>var.</i> <i>sceptrum</i>	Sensitive	Removed from Sensitive list	NA
Non-Vascular Plants				
Woven-spore lichen	<i>Texosporium sancti- jacobi</i>	Not listed for the planning area	Type 2	G2/S2
Earth lichen	<i>Catapyrenium</i> <i>congestum</i>	Not listed for the planning area	Type 4	G4/S2
Coral lichen	<i>Aspicilia fruticulosa</i>	Not listed for the planning area	5	G3/(S1)
^A (BLM, 1985) ^B 1–Federally listed, proposed for listing, or designated Candidate species, 2–range wide imperiled, 3–regional/state imperiled, 4–at periphery of range, 5–Watch species; Type NV–Sensitive species in Nevada. ^C G = Global ranking: 5–secure, 4–apparently secure, 3–vulnerable, 2–imperiled, 1–critically imperiled T = Trinomial rank indicator, denotes global status of infraspecific taxa: 5–secure, 4–apparently secure, 3–vulnerable, 2–imperiled, 1–critically imperiled S = State ranking: 5–secure, 4–apparently secure, 3–vulnerable, 2–imperiled, 1–critically imperiled, H = Historical occurrence; ? = Uncertainty exists about stated rank; NA = Not applicable. (codes in parenthesis are status within Nevada).				

Vegetation communities and habitats for Sensitive species in the planning area are listed in Table 27.

Table 27. Distribution of Sensitive Plants by Vegetation Type and Habitat.

Habitat	Species
Aspen/semi-wet meadow with tall forbs and false hellbore	Least phacelia
Black sagebrush with calcareous sites	Coral lichen
Greasewood/Basin wildrye	Alkali cleomella
	White-margin waxplant
Shadscale with horsebrush areas	Desert pincushion
	Spreading gilia
Shadscale with salt desert shrub	Newberry's milkvetch
	Earth lichen
	Greeley's wavewing
	White eatonella
	Calcareous buckwheat
	Spreading gilia
	White-margin waxplant
	Rigid threadbush
Shadscale with salt desert shrub and specialized habitats	Alkali cleomella
	Cowpie buckwheat (both varieties)
	Janish penstemon
Needlegrass	Snake River milkvetch
Needlegrass with Indian ricegrass areas	Desert pincushion
	Greeley's wavewing
Low sagebrush	Two-headed onion
	Owyhee milkvetch
	Broadleaf fleabane
	Lewis buckwheat
	Spreading gilia
Low sagebrush with specialized habitats	Simpson's hedgehog cactus
	Janish penstemon
Mountain big sagebrush with specialized habitats	Owhyee milkvetch
	Cusick's primrose
Large, hard-bottomed playas	Davis peppergrass
Rabbitbrush with disturbed Wyoming big sagebrush sites	Woven-spore lichen
Breaks with rhyolitic canyon walls or at the base of cliffs	Bruneau River phlox
Semi-wet meadow with riparian areas, wetlands, or hot springs	Chatterbox orchid
	American wood sage
Semi-wet meadow with snow drift areas	Least phacelia
Wyoming big sagebrush	Four-wing milkvetch
	Desert pincushion
	Broadleaf fleabane
	Rigid threadbush
	Simpson's hedgehog cactus
	Woven-spore lichen
Wyoming big sagebrush with specialized habitats	Greeley's wavewing
	Slickspot peppergrass
Wyoming big sagebrush/shadscale	Newberry's milkvetch
	Desert pincushion
	White eatonella
	Spreading gilia

	Rigid threadbush
	Simpson's hedgehog cactus
Wyoming big sagebrush/shadscale with specialized habitats	Greeley's wavewing
	Cowpie buckwheat (both varieties)

S&G assessments were conducted by BLM from 1997 through 2004 in 44 allotments on a total of 840,000 acres within the planning area (Table 28). The majority of the acres assessed do not meet standards for native plant communities (Standard 4) or Threatened or Endangered plants and animals (Standard 8), but do meet standards for watersheds (Standard 1).

Table 28. S&G Assessment Determinations for Standards 1, 4, and 8, 1997-2004

Standard	Determination ^A			
	Standard is Being Met	Progress is Being Made Towards Meeting Standard	Standard is Not Being Met	Standard Does Not Apply
Standard 1 (Watersheds)	65%	0%	35%	0%
Standard 4 (Native Plant Communities)	37%	3%	58%	1%
Standard 8 (T&E Plants and Animals)	15%	0%	81%	4%

^A Determination is percent of 840,000 acres assessed.

Trends

Sensitive plant species are ranked by the network of Natural Heritage Programs and CDC. Each species is assigned a global and state rank which denote the risk of extinction for the species either range-wide (global rank) or within each state where it occurs (state rank). Ranks and data for special status plant population quality and their threats in the planning area are summarized in Table 29.

Table 29. Special Status Plant Species Global and State Ranks, Field Data, and Threats.

Name	Status in Planning Area			
	Recent Inventory/ Monitoring	Population Vigor	Habitat Quality	Common Threats in the Planning Area
Annual Forbs				
Slickspot peppergrass	Yes	fair	fair	wildfire, weeds, livestock
Alkali cleomella	No	no data	no data	no data
Least phacelia	No	no data	no data	no data
Spreading gilia	Yes	poor	fair	annual weeds, livestock
Desert pincushion	Yes	no data	no data	no data
Rigid threadbush	Yes	poor	good	annual weeds
White eatonella	Yes	no data	no data	no data
White-margin waxplant	Yes	no data	fair-poor	annual weeds, wildfire, livestock
Perennial Forbs				

Name	Status in Planning Area			
	Recent Inventory/ Monitoring	Population Vigor	Habitat Quality	Common Threats in the Planning Area
American wood sage	No	no data	no data	no data
Bruneau River phlox	Yes	fair	fair	no data
Calcareous buckwheat	Yes	good	fair-good	weeds, annual grasses, livestock
Davis peppergrass	Yes	good	fair-good	annual weeds, livestock
Four-wing milkvetch	No	no data	no data	no data
Chatterbox orchid	Yes	no data	no data	no data
Greeley's wavewing	Yes	poor-fair	poor-fair	weeds, wildfire, livestock
Janish penstemon	Yes	good	poor-fair	livestock, annual weeds, fragmentation
Matted cowpie buckwheat	Yes	fair	fair	livestock, weeds, OHV, wildfire
Owyhee milkvetch	Yes	no data	no data	no data
Packard's cowpie buckwheat	Yes	no data	no data	no data
Two-headed onion	No	no data	no data	no data
Newberry's milkvetch	No	no data	no data	no data
Simpson's hedgehog cactus	Yes	good	good	livestock, erosion, none
Snake River milkvetch	Yes	poor	poor	annual grasses and weeds
Spine-node milkvetch	Yes	good-excellent	fair	annual grasses and weeds, wildfire, livestock
Cusick's primrose	Yes	good	excellent	juniper encroachment and loss of open habitat
Broadleaf fleabane	Yes	good	good	annual grass, OHV
Lewis buckwheat	Yes	no data	no data	no data
Non-Vascular Plants				
Woven-spore lichen	No	no data	no data	no data
Earth lichen	No	good	fair	livestock trampling
Coral lichen	No	no data	no data	no data

Sagebrush habitats in the planning area have declined in quality since 1984 or have been converted to non-native annual or non-native perennial communities due to wildfire and subsequent rehabilitation projects. No trend data is available for special status plant species, but several species dependent on sagebrush habitats have likely declined due to reduced habitat quality and quantity (Table 27). Of the 15 species with data on habitat quality, ten are ranked as poor to fair quality and four are ranked as fair-good or good. Of the 16 species with data on

population vigor, ten are ranked as poor to fair quality, and five are ranked as fair to good or good. Only one species had good to excellent population vigor. There is no data for 15 of the species.

Inventory and monitoring conducted in 2006 for six of the eight annual forbs previously identified or expected in the northern portion of the planning area (Table 29) found no plants. Inventories for slickspot peppergrass found additional occupied slickspots, extending some population areas. Plants were not found in some previously identified occupied habitat. HIP monitoring showed a generally static condition of the habitat, but an increase in ground disturbance from livestock in HIP transects (Colket, 2006). Meyer et al. determined there was a measurable risk of extinction of slickspot peppergrass over a 100-year period (Meyer et al., 2006).

Recent inventory and monitoring for 15 special status perennial forbs in the planning area was conducted from 2003 to 2006. New populations were found for five species: Snake River milkvetch, Greeley's wavewing, calcareous buckwheat, Simpson's hedgehog cactus, and Janish penstemon. No monitoring or inventory for non-vascular plants has been recently conducted in the planning area, though one new population of earth lichen was found. Increases in the number of populations of Sensitive plant species in the planning area over time is primarily due to increased inventory efforts. For example, slickspot peppergrass had two known populations in the planning area in 1993, but after four years of intensive inventory (2003-2006), 25 populations have been documented.

Threats to special status plant species involve direct impacts to plants and indirect impacts to habitat. Known threats include habitat degradation, wildfire, fire suppression activities, concentrated livestock use, range development projects, invasive plants, removal from BLM protection due to land exchanges, and OHV use. The most common threats to special status plants identified during monitoring are listed by species in Table 29.

Forecast

Wildfire and the spread of invasive plants will continue to play a significant role in the loss of sagebrush steppe communities. OHV use, grazing management, and range infrastructure will be a factor in the condition and trend of special status plants.

Key Features

Key features for special status plants include both occupied and suitable habitat for each special status plant species. A list of these habitats by species can be found in Table 27.

Current Management

The 1987 Jarbidge RMP directed the BLM to allow no action to occur that would adversely affect the habitat of Sensitive, Candidate, or Endangered species in MUA 4. Wildfire has adversely impacted habitat for Janish penstemon, ochre-flowering buckwheat, and Greeley's wavewing in MUA 4.

If EAs predict proposed actions will have an adverse effect on Threatened, Endangered, or

Sensitive plants, the 1987 RMP directed those actions to be prohibited or redesigned to eliminate their adverse effects. For example, the Candidate Conversation Agreement for slickspot peppergrass mitigates some impacts to this species from grazing. The BLM is participating in an ongoing study with the University of Idaho to examine the impacts of livestock trampling on slickspot peppergrass. One enclosure has been installed to protect cowpie buckwheat.

Management Opportunities

Management actions to reduce invasive plants in and adjacent to Sensitive plant locations and their habitats could be included in the revised RMP. Invasive plants can alter habitat, increase fire frequency and intensity, and compete with sensitive plants and their habitats. Existing invasive plants and noxious weeds in or near special status plant habitats should be actively managed to prevent expansion. Actions could include using certified weed-free seed mixes in or near special status plant populations or their habitat.

Restoration of sagebrush and salt desert shrub communities could improve habitat for many Sensitive plant species, including slickspot peppergrass and other obligate sagebrush species. Seeding or planting sagebrush could also improve the hydrologic cycle needed to support slickspot peppergrass and restoration of forbs that will aid in pollination of this species, as well as improving habitat for other Sensitive plant species.

The area of concern for special status species could be expanded from that in the 1987 RMP to include the Snake River and habitat for other Federally listed, Proposed, Candidate, or Idaho BLM Sensitive species, including plants.

Conservation measures to maintain or improve habitat for Davis peppergrass may include removal of fences and stock ponds from playas and not seeding invasive plants into the adjacent habitat.

The Candidate Conservation Agreement for slickspot peppergrass requires conservation measures for this species (FWS, 2006). The conservation measures for slickspot peppergrass are responsive to current issues and should be maintained.

1.B.16. Noxious Weeds and Invasive Plants

Profile

Public lands in the Jarbidge FO are negatively affected by the invasion and spread of noxious weeds and invasive plants (BLM, 2007). Noxious weeds are plant species designated “noxious” by law. According to Idaho Statute, a noxious weed is defined as any plant having the potential to cause injury to public health, crops, livestock, land, or other property and is designated as noxious by the Director of the Idaho State Department of Agriculture (Idaho Statute 22-2402). An invasive species is defined as a non-native species whose introduction does or is likely to cause economic or environmental harm or harm to human health (Executive Order 13112). Noxious weeds and invasive plants displace native plants, degrade wildlife and plant habitat, reduce recreational opportunities, and negatively impact water quality, runoff, and sedimentation (BLM, 2007). Weeds can cause drastic changes in the composition, structure, and productivity of vegetation communities and change the ecological state of ecological sites (West, 1999). The cost and complexity of managing noxious weeds and invasive plants and restoring native habitats increases the longer these situations are not adequately addressed. Counties, private landowners, Tribal governments, and Federal and State agencies are concerned with negative impacts associated with noxious weeds and invasive plants and are pursuing weed control on lands under their ownership and/or jurisdiction (BLM, 2007).

Indicators

Noxious weeds and invasive plants are an important component of Standards 2 (Riparian Areas and Wetlands), 3 (Stream Channel/Floodplain), 4 (Native Plant Communities), 5 (Seedings), 6 (Exotic Plant Communities, Other Than Seedings), and 8 (Threatened and Endangered [T&E] Plants and Animals) of the S&Gs (BLM, 1997). See Appendix 2 for more information on S&G assessments.

S&G assessments were conducted by BLM from 1998 through 2003 in 44 allotments on a total of 840,000 acres within the planning area. Standards for riparian areas and wetlands (Standard 2) and stream channel/floodplain (Standard 3) did not apply to nearly half of the acres assessed; the majority of the acres where Standards 2 and 3 did apply did not meet the standards. The standards for native plant communities (Standard 4) and seedings (Standard 5) were met on over one-third of the acres assessed and were not met on over half of the acres assessed. The standard for exotic plant communities other than seedings (Standard 6) did not apply to nearly two-thirds of the acres assessed. Where Standard 6 did apply, over one-third of the acres met the standard. The standard for Threatened and Endangered plants and animals (Standard 8) was met on 15% of the acres assessed and was not met on nearly three-quarters of the acres assessed (Table 30).

Current Condition

Comprehensive noxious weed and invasive plant inventories have not been completed by BLM within the Jarbidge FO; however, some documentation of noxious weeds and invasive plants and their locations within the FO exists. Weed treatment data from 1996 through 2006 were compiled from various sources, such as topographic maps and GPS points created by BLM employees in the field, showing several locations of 13 noxious weed species and 1 invasive plant species.

Table 30. S&G Determinations for Standards 2, 3, 4, 5, 6, and 8, 1998-2003

Standard	Determination*				
	Standard is Being Met	Progress is Being Made Towards Meeting Standard	Standard is Not Being Met		Standard Does Not Apply
			Cattle Not a Significant Factor	Cattle a Significant Factor	
2 – Riparian Areas and Wetlands	3%	4%	8%	44%	41%
3 – Stream Channel/Floodplain	3%	3%	8%	46%	42%
4 – Native Plant Communities	37%	3%	19%	39%	1%
5 – Seedings	36%	0%	34%	21%	10%
6 – Exotic Plant Communities, Other Than Seedings	13%	0%	17%	5%	64%
8 – T&E Plants and Animals	15%	0%	30%	44%	4%

Percentages were rounded to the nearest whole number and Standards may not total 100%.
 *Determination displayed as percent of 840,000 acres assessed.

The TFD weed program only treats a portion of the areas included in fire rehabilitation plans due to the frequency of fire in the District. Locations of noxious weeds outside of fire rehabilitation plans are often reported by the public, grazing permittees, and Federal or State employees in the field. The Jarbidge FO provides funds to Elmore, Owyhee, and Twin Falls Counties through Weed Control Assistance Agreements to aid in the cost of spraying weeds along county roads crossing public lands.

The Idaho Noxious Weed List contains 36 weed species. According to the Idaho State Department of Agriculture, 22 of these are known to occur within Elmore, Owyhee, or Twin Falls Counties, Idaho (Table 31). Thirteen of these noxious weeds are known to occur within the planning area. In addition to the Idaho State Noxious Weed List, Twin Falls County has a noxious weed list consisting of two weeds: halogeton (*Halogeton glomeratus*) and St. John’s wort (*Hypericum perforatum*).

The Nevada Noxious Weed List contains 47 weed species (Table 32). According to the Natural Resource Conservation Service (NRCS), 16 of these are known to occur within Elko County, Nevada. Eight of these species are known to occur within the planning area.

Table 31. Idaho Noxious Weeds Occurring within Elmore, Owyhee, or Twin Falls Counties

Common Name	Scientific Name	Native or Introduced ^A	Occurrence by County			Known to Occur in the FO
			Elmore	Owyhee	Twin Falls	
black henbane	<i>Hyoscyamus niger</i>	I	X	X	X	X
buffalobur	<i>Solanum rostratum</i>	N	X	X	X	
Canada thistle	<i>Cirsium arvense</i>	I	X	X	X	X
dalmatian toadflax	<i>Linaria dalmatica</i>	I	X	X		
diffuse knapweed	<i>Centaurea diffusa</i>	I	X	X	X	X
field bindweed	<i>Convolvulus arvensis</i>	I	X	X	X	X
hoary cress (whitetop)	<i>Cardaria draba</i>	I	X	X	X	X
jointed goatgrass	<i>Aegilops cylindrica</i>	I	X		X	
leafy spurge	<i>Euphorbia esula</i>	I	X	X	X	
musk thistle	<i>Carduus nutans</i>	I			X	X
orange hawkweed	<i>Hieracium aurantiacum</i>	I	X			
perennial pepperweed	<i>Lepidium latifolium</i>	I		X		X
perennial sowthistle	<i>Sonchus arvensis</i>	I		X		
poison hemlock	<i>Conium maculatum</i>	I	X	X	X	
puncturevine	<i>Tribulus terrestris</i>	I	X	X	X	X
purple loosestrife	<i>Lythrum salicaria</i>	I	X	X		X
rush skeletonweed	<i>Chondrilla juncea</i>	I	X	X	X	X
Russian knapweed	<i>Acroptilon repens</i>	I	X	X	X	X
scotch thistle	<i>Onopordum acanthium</i>	I	X	X	X	X
spotted knapweed	<i>Centaurea maculosa</i>	I	X	X	X	X
toothed spurge	<i>Euphorbia dentata</i>	NI			X	
yellow starthistle	<i>Centaurea solstitialis</i>	I	X	X		

^A I = Introduced, N = Native, NI = Native and Introduced (It is not agreed upon whether this plant is native or introduced.)
Sources: (BLM, ; IASCD, 2004; ISDA, 2006; NRCS, 2006a)

Table 32. Nevada Noxious Weeds Occurring within Elko County

Common Name	Scientific Name	Native or Introduced ^A	Occurrence by County			Known to Occur in the FO
			Elmore	Owyhee	Twin Falls	
black henbane	<i>Hyoscyamus niger</i>	I	X	X	X	X
buffalobur	<i>Solanum rostratum</i>	N	X	X	X	
Canada thistle	<i>Cirsium arvense</i>	I	X	X	X	X
dalmatian toadflax	<i>Linaria dalmatica</i>	I	X	X		
diffuse knapweed	<i>Centaurea diffusa</i>	I	X	X	X	X
field bindweed	<i>Convolvulus arvensis</i>	I	X	X	X	X
hoary cress (whitetop)	<i>Cardaria draba</i>	I	X	X	X	X
jointed goatgrass	<i>Aegilops cylindrical</i>	I	X		X	
leafy spurge	<i>Euphorbia esula</i>	I	X	X	X	
musk thistle	<i>Carduus nutans</i>	I			X	X
orange hawkweed	<i>Hieracium aurantiacum</i>	I	X			
perennial pepperweed	<i>Lepidium latifolium</i>	I		X		X
perennial sowthistle	<i>Sonchus arvensis</i>	I		X		
poison hemlock	<i>Conium maculatum</i>	I	X	X	X	
puncturevine	<i>Tribulus terrestris</i>	I	X	X	X	X
purple loosestrife	<i>Lythrum salicaria</i>	I	X	X		X
rush skeletonweed	<i>Chondrilla juncea</i>	I	X	X	X	X
Russian knapweed	<i>Acroptilon repens</i>	I	X	X	X	X
scotch thistle	<i>Onopordum acanthium</i>	I	X	X	X	X
spotted knapweed	<i>Centaurea maculosa</i>	I	X	X	X	X
toothed spurge	<i>Euphorbia dentate</i>	NI			X	
yellow starthistle	<i>Centaurea solstitialis</i>	I	X	X		

^AI = Introduced, N = Native, NI = Native and Introduced (It is not agreed upon whether this plant is native or introduced.)

Sources: (BLM, ; NDA, 2005; NRCS, 2006b)

In addition to the listed noxious weeds, other invasive species are problematic on the rangelands of the Jarbidge FO (Table 33). These plants are considered invasive species because they displace and reduce the normal composition and productivity of native rangeland vegetation (*Permit Renewal and Vegetation Allocation Environmental Assessment, 2004*). Some raise the risk of wildland fire because of increased flammability, altered fire return frequency, and biomass accumulation in rangeland vegetation communities (*Permit Renewal and Vegetation Allocation Environmental Assessment, 2004*). Annual grasslands, mainly dominated with cheatgrass, are of particular concern in the northern half of the planning area because of reduced forage productivity, increased wildfire risk, and the ability to rapidly expand into disturbed areas.

Crested wheatgrass is not listed in Table 33 because BLM does not consider it to be an invasive species and it resists cheatgrass competition better than native species (Ogle, 2002). Due to higher seeding rates and much higher costs of native seed mixes, some introduced species, such as crested wheatgrass, play an important role in fire rehabilitation plantings to prevent noxious weed and invasive plant invasions (Thompson et al., 2006).

High disturbance areas are corridors and points for the expansion of non-native invasive plants (Trombulak & Frissell, 2000). These high disturbance areas include, but are not limited to, roads, areas of intense recreational use (camping or OHV sites), range improvement sites, gravel pits, and mining activities. Noxious weed and invasive plant species can invade and spread from these areas into adjacent native shrub steppe and seedings. However, with mitigation such as seeding the area to perennial grasses following any disturbance, noxious or invasive species are less likely to become established and spread. Invasive species spread from these facilities into adjacent native shrub steppe and seedings.

Trends

Most noxious weeds were originally spread by European settlers who inadvertently brought them on ships to the United States in crop seed and livestock feed. Weeds slowly spread across the country with human settlement. Cheatgrass, halogeton, and medusahead wildrye were accidentally introduced through contaminated crop seed or livestock forage. Other invasive weeds, such as Russian olive, were introduced for specific purposes such as horticultural or soil stabilization and have escaped into natural vegetation communities (*Permit Renewal and Vegetation Allocation Environmental Assessment*, 2004). Today, noxious weeds and invasive plants continue to be spread by OHVs, fire suppression vehicles, passenger vehicles, road maintenance activities, campers, backpackers, hunters, wildlife, livestock, wind, and other land management practices. In addition, weeds continue to spread onto public land from adjacent private lands.

Noxious weeds and invasive plants have become an increasing problem on BLM lands within the Jarbidge FO since the 1987 RMP. Weeds have rapidly displaced desirable plants that provide habitat for wildlife and forage for livestock, decreased recreational enjoyment, and altered historic wildfire regimes. The common occurrence of wildfire over the past 20 years has opened the door to many invasive species, cheatgrass in particular. In recent history, several hundred thousand acres burned in the Jarbidge FO, creating opportunity for noxious weeds and invasive plants to establish and spread. Diffuse knapweed, hoary cress (whitetop), field bindweed, and black henbane are present and spreading in the southern portion of the Jarbidge FO.

Recent surveys of riparian areas within the Jarbidge FO show increases in the presence of Canada thistle. Reed and reed canary grass now dominate the vegetation on some parts of Salmon Falls Creek, Clover Creek, and the Bruneau River. Russian olive dominates much of the tree component along the Snake River and tamarisk has increased along Salmon Falls Creek and the Snake River.

Table 33. Invasive Plant Species Occurring within the Jarbidge FO

Common name	Scientific Name	Abundance ^A ; Dominance ^B
annual wheatgrass	<i>Eremopyrum triticeum</i>	Numerous, locally dominant
barnyard grass	<i>Echinochloa crus-galli</i>	Uncommon ^C
bittersweet nightshade	<i>Solanum dulcamara</i>	Uncommon
bulbous bluegrass	<i>Poa bulbosa</i>	Numerous, locally abundant
bull thistle	<i>Cirsium vulgare</i>	Wide spread, common ^D
bur buttercup	<i>Ranunculus testiculatus</i>	Wide spread, locally dominant
burdock	<i>Arctium sp.</i>	Wide spread, uncommon
cheatgrass	<i>Bromus tectorum</i>	Wide spread, dominant in large areas
clasping pepperweed	<i>Lepidium perfoliatum</i>	Wide spread, locally abundant
cocklebur	<i>Xanthium sp.</i>	Wide spread, uncommon
common cocklebur	<i>Xanthium strumarium</i>	Uncommon
common dandelion	<i>Taraxacum officinale</i>	Wide spread, locally abundant
common mullein	<i>Verbascum thapsus</i>	Patchy, locally abundant
field pennycress	<i>Thlaspi arvense</i>	Patchy, locally abundant
flixweed	<i>Descurainia sophia</i>	Wide spread, locally dominant
halogeton	<i>Halogeton glomeratus</i>	Wide spread, common
Japanese brome	<i>Bromus japonicus</i>	Restricted, locally abundant
Kentucky bluegrass	<i>Poa pratensis</i>	Wide spread, locally dominant
littlepod false flax	<i>Camelina microcarpa</i>	Uncommon
meadow fescue	<i>Festuca pratensis</i>	Uncommon
Medusahead wildrye	<i>Taeniatherum caput-medusae</i>	Restricted, locally abundant
Missouri iris	<i>Iris missouriensis</i>	Uncommon
poverty weed	<i>Iva axillaris</i>	Patchy, locally abundant
prickly lettuce	<i>Lactuca serriola</i>	Wide spread, locally dominant
prostrate knotweed	<i>Polygonum aviculare</i>	Patchy, locally abundant
purple mustard	<i>Chorispora tenella</i>	Patchy, locally abundant
rabbitfoot grass	<i>Polypogon monspeliensis</i>	Uncommon
reed	<i>Phragmites australis</i>	Wide spread, locally dominant
reed canary grass	<i>Phalaris arundinacea</i>	Wide spread, locally abundant
Russian olive	<i>Elaeagnus angustifolia</i>	Wide spread, locally dominant
Russian thistle	<i>Salsola tragus</i>	Wide spread, locally abundant
Russian thistle, tumbleweed	<i>Salsola kali</i>	Wide spread, locally dominant
smooth brome	<i>Bromus inermis</i>	Patchy, locally abundant
soft brome	<i>Bromus mollis</i>	Restricted, locally abundant
stork's bill	<i>Erodium cicutarium</i>	Wide spread, locally dominant
tall oatgrass	<i>Arrhenatherum elatius</i>	Uncommon
Tamarisk (salt cedar)	<i>Tamarix sp.</i>	Uncommon, locally abundant
teasel	<i>Dipsacus sylvestris</i>	Wide spread, locally abundant
tumble mustard	<i>Sisymbrium altissimum</i>	Wide spread, locally abundant
western tansymustard	<i>Descurainia pinnata</i>	Wide spread, locally dominant

^ARestricted=species limited to few areas; Numerous=species found in numerous areas; Wide spread=found over large areas.
^BDominant=readily dominates sites; Locally abundant=abundant in patches and may dominate small sites.
^CPresent in low amounts.
^DNumerous but scattered.
Sources: (BLM, ; Invasive.org, 2006; NRCS, 2006a, 2006b)

Forecast

Noxious weeds and invasive plants will continue to be spread by OHVs, fire suppression vehicles, passenger vehicles, road maintenance activities, campers, backpackers, hunters, wildlife, livestock, wind, and other land management practices. The Bell Rapids area serves as one source for noxious weeds and invasive plants in the planning area as that land is no longer being used for agricultural purposes. The spread of noxious weeds and invasive plants poses a hazard to vegetation communities and forage production in the Jarbidge FO as noxious weeds and invasive plants displace native plants through competition for space, sunlight, water, and nutrients. Noxious weeds and invasive plants may cause drastic changes in the composition, structure, and productivity of vegetation communities. They may alter the mix of native vegetation, reducing wildlife habitat quality and structure and wild and domestic ungulate forage quality and quantity. Noxious weeds and invasive plant species increase the fuel load, allow fire to burn earlier in the year, and replace important native annual and perennial forbs over time (Connelly et al., 2004; D'Antonio & Vitousek, 1992; Knick et al., 2003; Knick & Rotenberry, 1997). Noxious weeds and invasive species, especially cheatgrass, may increase the risk of wildfire to the vegetation community because of abundant growth during wet years and flammability (Zouhar, 2003). The noxious weed species listed in Table 31 and Table 32 not known to occur within the Jarbidge FO have the potential to be introduced into the area from neighboring lands.

Key Features

The northern half of the planning area is more susceptible to weed infestations due, in part, to the frequency of wildfire. Several hundred thousand acres burned in the Jarbidge FO, leading to an increase of noxious weeds and invasive plants that further exceeds BLM's current capacity to contain and control. Restoration of all of these areas is difficult due to high costs, limited seed availability, and low precipitation. Most efforts occur in the form of rehabilitation after wildfires or small-scale fuel reduction projects. Much of the Jarbidge FO has been seeded to crested wheatgrass (*Agropyron cristatum*) as a rehabilitation effort following wildfires to deter the establishment and infestation of cheatgrass and other weed species, with varying success.

Smaller areas in the far north of the planning area are of particular concern because of OHV use. OHVs are capable of rapidly spreading noxious and invasive weed seeds across vast distances, and their use has dramatically increased in the area in recent years. As more people use this area to recreate, it is likely disturbed areas will increase in size as the OHV riders expand into new territory. This could lead to new infestations in areas that currently have few or no noxious weeds or invasive plant species.

A number of noxious weeds, some of which tend to be widespread, are known to occur within the Saylor Creek Herd Area (HA) and are displayed in Areas of the Jarbidge FO with native vegetation, especially the southern portion, appear to have fewer noxious weeds and invasive plants and are less susceptible to wildfire and subsequent weed infestations. Deterring noxious weeds and invasive plants from establishment in such areas requires an active preventive approach to weed management.

Table 34. In addition, several invasive plants are known to occur within the HA. Some of these invasive plants also tend to be widespread, especially in the case of cheatgrass which dominates

the vegetative component in some areas of the HA.

Areas of the Jarbidge FO with native vegetation, especially the southern portion, appear to have fewer noxious weeds and invasive plants and are less susceptible to wildfire and subsequent weed infestations. Deterring noxious weeds and invasive plants from establishment in such areas requires an active preventive approach to weed management.

Table 34. Known Noxious Weed Occurrences in Allotments within the Saylor Creek HA.

Noxious Weed Species	Allotment ^A							
	BM	BB	DS	GR	HA	SC	TH	TB
Rush skeletonweed	X	X	X	X	X	X	X	X
Scotch thistle	X	X	X	X	X	X	X	X
Diffuse knapweed		X	X	X	X		X	X
Russian knapweed	X							X
Field bindweed	X			X		X	X	X
Canada thistle	X					X		
Whitetop	X							
Black henbane						X		

^ABM = Black Mesa; BB=Blue Butte; DS=Dove Springs; GR=Grindstone; HA=Hallelujah; SC=Saylor Creek/North Three Island; TH=Thompson; TB=Twin Buttes

Current Management

The 1987 Jarbidge RMP directed BLM to work with County governments to monitor the locations and spread of noxious weeds, maintain up-to-date inventory records, and control the spread of noxious weeds on public lands where possible, economically feasible, and to the extent funds are prioritized for that purpose. The Jarbidge FO provides money to Elmore, Owyhee, and Twin Falls Counties through Weed Control Assistance Agreements to aid in the cost of spraying noxious weeds and invasive plants along county roads crossing public land. BLM actively sprays weed infestations reported by BLM staff, grazing permittees, and the public. Weed treatments are carried out as part of wildfire rehabilitation plans.

Management Opportunities

Preventing weed seeds from reaching public lands, educating the public, and mitigating land use authorizations and construction projects could aid in deterring establishment and decrease the spread of noxious weeds and invasive plants. Using a weed-free seed and straw policy for all wildfire rehabilitation and fuel reduction projects, as well as a weed-free hay program, could help deter establishment, slow the spread, and initiate eradication of noxious weeds and invasive species. Establishing an education campaign for OHV users as well as other recreationists who use the public lands within the Jarbidge FO is another option to consider in the revised RMP.

Establishing mitigation measures for land use authorizations/construction projects could aid in managing noxious weeds and invasive plants. Expanded BLM involvement with State and County governments in on-the-ground actions and record keeping would ensure areas of infestations are treated and that monies are being used to their full potential.

1.B.17. Wildlife

Profile

Over 350 vertebrate species are present in the Jarbidge FO. The vertebrates are typically broken into general categories: fish (see Aquatic Resources), amphibians, reptiles, birds and mammals. Table 35 displays the approximate number of wildlife species by general category. Birds form the largest group of vertebrates. Bird numbers are generally greatest during the late summer and migration. Non-native bird species include pigeons, starlings, ring-necked pheasant, gray partridge, chukar, and English (house) sparrows. Non-native mammals include the wild horse, house mouse, Norway rat, and feral house cat; the last three species are usually concentrated around private land. BLM has no data on the number of terrestrial invertebrates present in the area. Terrestrial invertebrates are animals without back bones including worms, mollusks (snails and slugs), centipedes, spiders, scorpions, butterflies, beetles, and other insects. The majority of wildlife are native to the planning area. Vertebrate wildlife species found in the planning area are listed in (Appendix 10).

Table 35. Number of Vertebrate Wildlife Species by Category

Category	Number of Species	Number of Non-Native Species
Amphibians	8	1
Reptiles	10	0
Birds	≈220	7
Mammals	≈60	4

Wildlife is classified by IDFG and NDOW into several broad categories. The major classifications for IDFG include protected non-game, big game, upland game, waterfowl, furbearers, and non-protected non-game. The majority of wildlife species in the planning area are classified as protected non-game. Protected non-game includes amphibians, reptiles, a variety of birds, and small mammals. IDFG and NDOW do not have specific management objectives for most of these species; however, they issue permits for research and other uses. IDFG and NDOW commissions set hunting and trapping seasons, issue tags and/or licenses, establish methods of harvest, and develop population management and harvest objectives for big game, upland game, waterfowl, and furbearers. Non-protected non-game species include the house mouse, Norway rat, feral cat, starling, English sparrow, rock doves, jack rabbits, coyotes, weasels, skunks, and most rodents. Non-protected non-game species are not addressed further.

Protected Non-Game

Amphibians

Amphibians in Idaho consist of frogs, toads, newts, and salamanders. Five species of frogs and three species of toads are present or were historically present in the planning area. Amphibians are uncommon and their distribution within the planning area is poorly documented. The western toad, woodhouse toad, Columbia spotted frog, and northern leopard frog are categorized as Sensitive species and addressed in the special status species section.



Figure 14. Adult Western Toads

Reptiles

Reptiles in Idaho include turtles, snakes, and lizards. There are no native turtles present in the planning area. Nine species of lizards and nine species of snakes are found in the planning area. The distribution of reptiles in the planning area appears to be linked to soils, elevation, temperature, and some unique habitat variables. Western fence and side-blotched lizards are generally restricted to areas with cliffs, talus slopes, and rock outcrops. Leopard lizards and western whiptails are usually found in areas where the soils are somewhat sandy (sands, fine sands, and sandy loams) at elevations less than 4,500 feet. Sagebrush lizards and horned lizards are usually found in shrub steppe habitats. Western skink, rubber boas, and western terrestrial garter snakes are usually found in relative close proximity to riparian zones. The racer, rattlesnake, and gopher snake are found at most elevations in all habitats. The Great Basin black-collared lizard, longnose snake, and western ground snake are categorized as Sensitive species and are addressed in the special status species section.

Birds

Protected non-game birds include all raptors (16 species), owls (7 species), wading/shorebirds (28 species), woodpeckers (5 species), and a variety of wading, shore, and neo-tropical migratory birds (120+ species). A few species such as the rough-legged hawk and snow bunting are present only in the winter, while the majority of the species migrate from the area in the fall and return in the spring for nesting. A number of species are present year round including the northern harrier, golden eagle, horned larks, juniper titmouse, mountain chickadee, common flicker, raven, and magpie. Many songbirds such as the tree swallow, cliff swallow, and American dipper tend to be habitat specific, whereas other species such as the American robin and red-tailed hawk are more habitat generalists.

Small Mammals

Small mammals in the protected non-game category include all bats and several shrew and rodent species. Generalist rodents include the deer mouse and montane vole. A number of small mammals such as the beaver, muskrat, water shrew, and western jumping mouse are specialists strongly associated with riparian zones. A few species are sagebrush obligates like the sagebrush vole and least chipmunk. The canyon mouse is found primarily in rocky canyons. Of the rodents, beaver and muskrat are categorized as furbearers.

Indicators

For general wildlife, Standards 2 (Riparian Areas and Wetlands), 4 (Native Plant Communities), and 5 (Seedings) of the S&Gs should be met as documented by S&G assessments conducted by an ID team (BLM, 1997). See Appendix 2 for more information on S&G assessments.

S&G assessments were conducted by BLM from 1998 through 2003 in 44 allotments on a total of 840,000 acres within the planning area. The standard for riparian areas and wetlands (Standard 2) did not apply to nearly half of the acres assessed; the majority of the acres where Standard 2 did apply did not meet the standards. The standards for native plant communities (Standard 4)

and seedings (Standard 5) were met on over one-third of the acres assessed and were not met on over half of the acres assessed (Table 36).

Table 36. S&G Determinations for Standards 2, 4, and 5, 1998-2003

Standard	Determination*				
	Standard is Being Met	Progress is Being Made Towards Meeting Standard	Standard is Not Being Met		Standard Does Not Apply
			Cattle Not a Significant Factor	Cattle a Significant Factor	
2 – Riparian Areas and Wetlands	3%	4%	8%	44%	41%
4 – Native Plant Communities	37%	3%	19%	39%	1%
5 – Seedings	36%	0%	34%	21%	10%

Percentages were rounded to the nearest whole number and Standards may not total 100%.
 *Determination displayed as percent of 840,000 acres assessed.

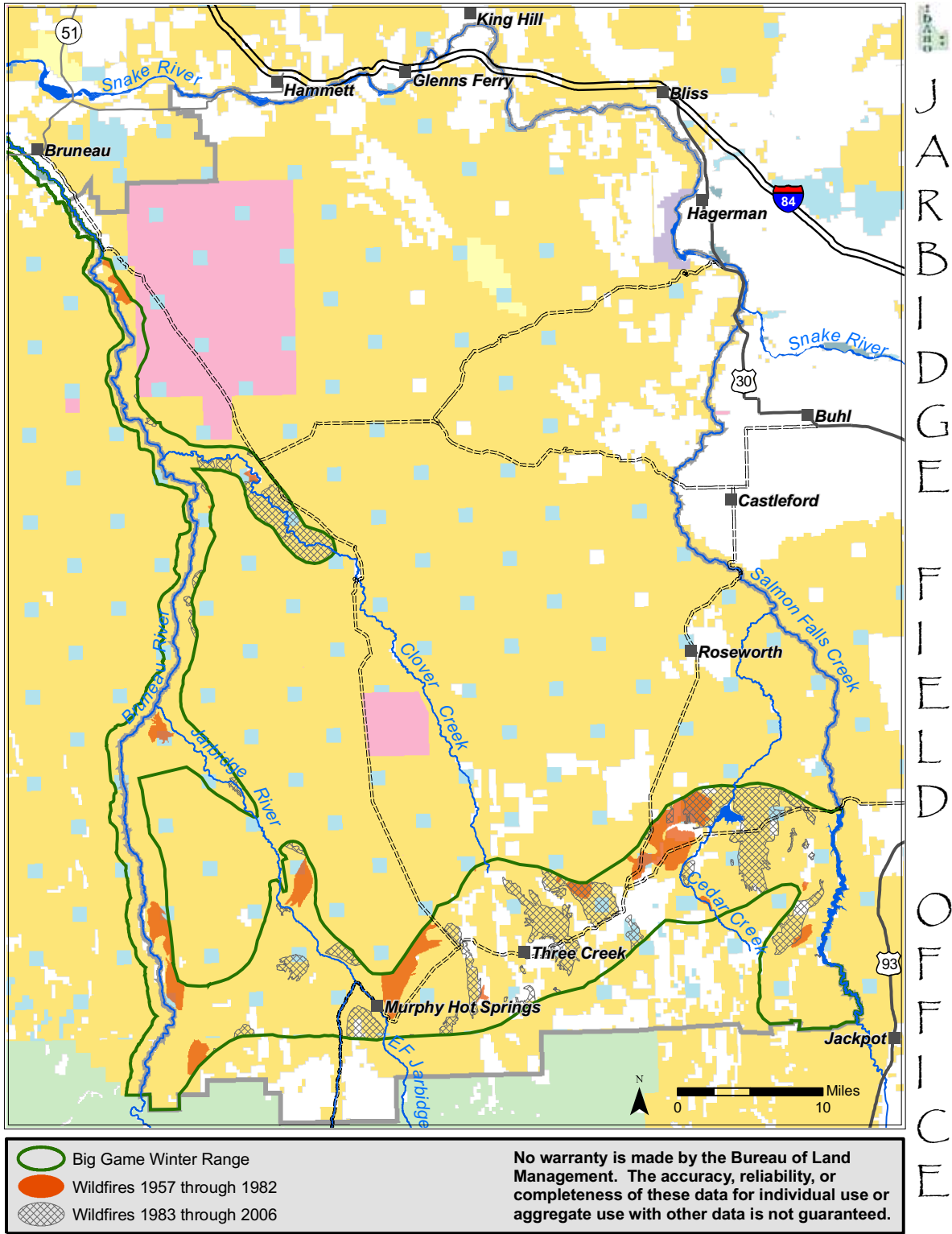
Current Condition

According to soil surveys, the PNC for 93% of the planning area should be sagebrush steppe communities. The remaining 6% is composed of riparian/wetlands, sparsely vegetated areas, mountain brush shrublands, aspen and mountain mahogany woodlands, and shadscale (salt desert shrub) habitats. Since 1982, 800,000 acres of sagebrush-steppe habitat in the planning area has been altered by fire (Figure 15). The southern portions of the planning area experienced less habitat alteration of shrub steppe habitat. In the northern portion of the planning area, habitat alteration resulted in a high level of fragmentation of the remaining sagebrush steppe habitat.

Amphibians

A few amphibian species are found in the planning area. Inventory efforts focused primarily on documenting the presence of Columbia spotted frogs, with other amphibian species noted if observed. The condition of riparian zones associated with springs, seeps, playas, ponds, and creeks influence amphibian populations. To date, seeps, springs, and playas have not been assessed for functional condition. Portions of Cedar, Columbet, Deadwood Creek, Devil, Dorsey, and Sanovia Creeks are dewatered annually due to the diversion of water to irrigate private land. In drought years, irrigation on private land causes portions of Clover Creek to be dewatered. Although BLM does not have jurisdiction over the water withdrawal, the dewatering in these streams influences habitat for amphibians.

Figure 15. Big Game Winter Range Burned by Wildfire, 1957-1982 and 1983-2006



Based on surveys in 2006, Cherry, China, Flat, House, Pole, Columbet, and Dorsey Creeks did not appear to have any amphibians. Streams surveyed were typically low gradient streams with high sinuosity and recent to old beaver dams. Incised channel or high gradient streams were not inventoried. The only amphibians observed during inventory in early July were Western chorus frogs found at one of four stock ponds surveyed. This pond had floating vegetation including water buttercup (*Ranunculus longirostris*). Tadpoles, metamorphs, and adults were present. Chorus frogs are also known to be present along the East Fork of the Jarbidge River, in some oxbows at Camas Slough, a pond in Devil Creek Canyon, and a pond in Poison Creek. Amphibian inventory in 2006 did not cover the majority of ponds or playas in the area.

Reptiles

With the exception of a study by Beck and Peterson in 1995, reptiles were only recorded from incidental observations in the planning area. During inventory efforts in 2006, gopher snakes were found to be the most abundant snake species, whereas the most common reptile species noted were sagebrush lizards and short-horned lizards. Field crews observed lizard movements were impeded by dense cheatgrass. Cheatgrass stems tangled around the legs, feet, and toes of Western whiptail, longnose leopard lizard, and short-horned lizards hindering movements. Although reptiles were noted up to 7,000 feet in elevation, more species and greater numbers were between 3,200 to 4,500 feet in elevation.

Birds

The majority of information on bird species within the planning area is from incidental observations. Breeding birds were inventoried in the early morning (7:00 a.m. to 8:30 a.m.) from early to late June 2006. By late June, male bird singing dropped substantially in duration and frequency. The most widely reported species was the western meadowlark. Ring-necked pheasants were found within 2 miles or less of agricultural land, typically in areas with fairly tall (>16 inches) dense grass. Habitat where grasshopper and Savannah sparrows were heard consisted of a tall (>20 inches) “wolfy” crested wheatgrass seedings. “Wolf” grass plants are those with more than two years of old stems and leaves in the center of the plant. Raptors, ravens, and magpies recorded were flying through the plot area during the counts. A few bird nests with eggs were seen into early July. These were likely second broods for a number of species including vesper sparrow, sage sparrow, mourning dove, and other species.

The Southern Idaho Mountain Bluebird Association (SIMBA) placed approximately 125 bluebird boxes in the southern portion of the planning area (Monuments Springs-Beaver Meadows and vicinity). SIMBA monitoring indicates about 250 bluebirds were fledged in 2006. Violet-green swallows, tree swallows, and house wrens also use bluebird boxes for nesting.

Brewer’s sparrows were found in all Wyoming big sagebrush habitats surveyed and occasionally in shrub patches in other habitats. Gray flycatcher, loggerhead shrike, and sage thrasher were present in areas where some tall (> 40 inches) shrubs (e.g. bitterbrush and sagebrush) were present mixed with shorter shrubs.

Livestock troughs and storage tanks are a source of mortality to a variety of birds including raptors, owls, and songbirds. Bird mortality is reduced when troughs and storage tanks contain functional wildlife escape ramps. In the last two years, BLM made a concerted effort to ensure troughs and storage tanks are fitted with wildlife escape ramps. Burkett and Thompson found no change in wildlife numbers due to the installation of storage ponds when compared to areas without additional water (Burkett & Thompson, 1994).

Fences are also a source of mortality to hawks, owls, sage-grouse, and other species. Little information is published on the impacts of fences on sage-grouse or other upland game. Fences were documented to be a source of mortality (Baines & Summers, 1997). Research by Yosef suggested fences may increase the amount of predation and parasitism on nesting birds (Yosef, 1994). The extent of this source of mortality on bird populations is unknown. Fences can provide some benefit to wildlife by protecting riparian zones and providing perch sites for raptors, brown-headed cowbirds, and some songbirds.

Small Mammals

Small mammal trapping was conducted in the summer of 2006 from early June to the end of September at 40 locations in 23 habitats throughout the planning area. Three habitats were defined by non-vegetative parameters including dune land, canyon land, and a recent burn. Captures per 100 trap nights were similar in annual grassland and crested wheatgrass seedings (< 5 captures/100 trap nights), whereas big sagebrush habitat had greater than 15 captures/100 trap nights. The majority of the sagebrush steppe habitats supported at least three times the prey base compared to annual and non-native perennial grassland.

Deer mice were found in all habitats and are typically the most abundant species found in southern Idaho (Johnson, 1961; Reynolds, 1980). Yellow pine chipmunks were only found in aspen stands. This species was previously not known to be present in the planning area. As expected, a number of species were found primarily in shrub habitats including sagebrush vole and least chipmunk.

Reynolds reported grazed sagebrush habitats had 16% fewer and grazed crested wheatgrass seedings had 72% fewer small mammals compared to the same habitats ungrazed (Reynolds, 1980). A study on fragmented sagebrush steppe habitat in southern Idaho found small mammals with larger home ranges and habitat specialists were more impacted by fragmentation than small mammals with small home ranges and habitat generalists (Hanser & Huntly, 2006). Hanser and Huntly noted that with increasing isolation, small habitat islands were less likely to be recolonized by species such as the grasshopper mouse, sagebrush vole and least chipmunk (Hanser & Huntly, 2006).

Trends

Amphibians

Based upon recent inventory efforts, amphibians appear to occur in low numbers and to be declining. No breeding spadefoot toads were documented. Areas that seem to contain suitable habitat, but appear to be unoccupied including upper House Creek, China Creek,

Yahoo Creek, Toana Gulch, Whiskey Slough, Camas Slough, and Columbet Creek. Three ponds were found containing chorus frogs. Generally these ponds had few adults, tadpoles, and metamorphs. Ponds that even ten years ago had numerous western chorus frogs, had few or no frogs when surveyed in 2006.

It is not known if or to what level chytridiomycosis, a fungal disease that can kill amphibians, is influencing population trends. The impact of periodic high levels of bacteria in water on developing amphibians in natural settings is unknown. This is more of a concern in playas and ponds than streams because playas and ponds lack a water outflow, which concentrates bacteria and nutrients as the water evaporates. Warmer water temperatures tend to speed the growth of amphibian larvae (Nussbaum et al., 1983).

Reptiles

There is no specific trend data for reptiles. Habitat for sagebrush lizards in lower elevations has been reduced by over 320,000 acres since 1982 due to wildfire and subsequent habitat conversion. Dense cheatgrass cover impedes the movement of lizards.

Birds

The loss of 800,000 acres of sagebrush steppe habitat adversely affected a variety of birds that rely on or use sagebrush, including the sage thrasher and Brewer's sparrow. Sagebrush provides structure to support the nests of some species and overhead cover for a number of ground-nesting species. Sagebrush also provides hiding cover for birds while foraging. Some bird species forage on sagebrush itself, while other bird species forage on insects found on sagebrush stems and leaves. Dead sagebrush stems provide material for constructing nests for some raptors. Remaining sagebrush habitat is fragmented and portions are presently in a degraded condition.

An increase in water developments throughout the planning area and associated increased grass utilization levels near those developments decreased tall grass cover used by a number of birds for nesting and winter cover. Fences offer brown-headed cowbirds and raptors additional perches, influencing habitat use by nesting birds. Riparian areas are important breeding and nesting habitats for songbirds. Of the 243 bird species that breed in Idaho, 46% (113) use riparian areas for nesting (Ritter, 1998). Damaged riparian areas impact breeding and nesting songbirds.

Small Mammals

The loss of 800,000 acres of sagebrush steppe habitat adversely affected a variety of small mammals that rely on or use sagebrush including sagebrush vole, pygmy rabbit, and least chipmunk. Remaining sagebrush habitat is fragmented and portions are presently in a degraded condition.

Forecast

Amphibians

Chorus frogs were not observed in some sites where they had previously been found. Amphibian populations are expected to decline over the planning area.

Reptiles

Because no trends are known for reptiles, a forecast cannot be made. Continued wildfires will likely further reduce the habitat for sagebrush lizards.

Birds

Sagebrush obligate birds are expected to decline as low elevation sagebrush habitat is further altered by wildfire. Sage thrasher, gray flycatcher, vesper sparrow, and western meadowlark will be limited to unburned areas of suitable sagebrush habitat. Small islands of shrub steppe, although occupied by certain species, may function as population sinks rather than a population source. Small patches of habitat are usually more efficiently hunted by predators and easily invaded by brown-headed cowbird, a nest parasite. Animals must travel through unsuitable habitat to reach the island. Species from the adjacent area may compete for the resources of the habitat island. Small islands of habitat are more easily degraded by invasive species and are often eliminated by subsequent wildfires. These areas then become patches of annual grassland. Wolf plant treatments will reduce suitable habitat for species requiring expanses of tall, dense grass. Uses that degrade riparian areas will reduce habitat for songbirds. The old floodplain terrace (bare area) in Figure 16 is now dominated by non-native annual grasses. Areas such as these and collapsed banks increase sediment to the aquatic habitat.

Figure 16. Localized Impacts of Livestock Concentrating in a Riparian Zone at Deer Creek.



Small Mammals

Given the current rate in which sagebrush steppe habitat is altered, many species found primarily in sagebrush such as the sagebrush vole, least chipmunk, and black-tailed jackrabbit will be limited to a fraction of their historic range. Connectivity between patches of sagebrush habitat will be lost and remaining sagebrush areas will consist of islands of habitat. This will isolate small mammal populations. Generalist mammals will be present at lower rates. The reduction in small mammal prey base is expected to further reduce predators including raptors.

Key Features

Riparian zones and wetlands are key features for a large number of wildlife species throughout the planning area. These areas should receive careful management and improvement that move them toward PFC. Riparian habitat and stream channel restoration will benefit a variety of wildlife species including amphibians, mammals, and birds.

Developing methods to slow the spread of invasive annuals and reduce the impact of wildfire on remaining native plant communities and restoration areas will be important. In absence of a large-scale restoration effort, sagebrush-obligate species could be restricted to 30% or less of their historic range.

Given the wide-scale loss of sagebrush steppe habitat in the planning area, management of remaining contiguous blocks and island will be important. Developing management strategies to balance the needs of sagebrush steppe-obligate wildlife with other uses such as livestock grazing, motorized vehicles, noxious and invasive plant management, and fire management will be essential.

Game Species

Big Game

Species in the planning area classified as big game include mule deer, pronghorn, elk, California bighorn sheep (Figure 17), and mountain lion. Big game harvest is managed under a controlled hunt, limited-entry, system for mule deer south of the Three Creek Highway, elk, pronghorn, and California bighorn sheep. In most of Idaho, mountain lion harvest is regulated based on a quota of female harvest. In 2006, the quota was set at 6 female lions in the planning area. Black bear and moose are rare in the planning area and not hunted. A single moose was seen in 2006 in a riparian zone in the China Mountain area. California bighorn sheep are addressed in more detail in the special status species discussion.



Upland Game

Wildlife classified as upland game includes dusky (formerly blue) grouse, sage-grouse, California quail, gray partridge (also called Hungarian partridge), chukar, ring-necked pheasant, and mourning dove. Gray partridge, pheasant, chukar, and California quail were introduced in Idaho in the early 1900s. Changes in farming practices reduced the numbers of pheasants and gray partridge from historically high levels in the 1950s and 1960s. Sage-grouse and mountain quail are BLM Sensitive species and addressed in more detail in the special status species section. Mountain cottontail is the only mammal presently classified as upland game.

Waterfowl

A variety of waterfowl (27 species), primarily ducks and geese, are hunted in the northern and eastern portions of the planning area. The Snake River, Salmon Falls Creek and Reservoir, Roseworth Reservoir, and other sources of surface water provide important nesting and brood-rearing habitat, migratory resting areas, and winter habitat for a wide variety of waterfowl. Common breeding and nesting waterfowl include Canada geese, mallards, and cinnamon teal. Surface water habitats in the planning area provide

important resting areas and winter habitat for large flocks of migratory waterfowl. Frequent migrants and winter residents include Canada geese, mallards, ring-necked ducks, lesser scaup, redheads, and common goldeneye.

Furbearers

Wildlife classified as furbearers inhabiting the planning area include red fox, mink, river otter, badger, beaver, muskrat, raccoon, and bobcat. Beaver, muskrat, mink, and river otter harvest is restricted to specific trapping seasons. River otter harvest is regulated by a regional quota: 20 in the IDFG Magic Valley Region for 2006-2007, including several from the planning area. Red fox, raccoon, and badger trapping and shooting seasons are open year round. Bobcat is the most highly sought after furbearer species in the planning area.

Species of Conservation Concern

A number of wildlife species of conservation concern exist in all wildlife categories. Reasons for the concern could include broad changes in habitat, State or regional declining populations, or a general lack of information. Wildlife appearing to have downward population trends in other regions may be categorized by BLM as Watch species (Table 37). Wildlife classified as Watch species do not receive any additional management emphasis by BLM and are considered general wildlife.

Table 37. Idaho BLM “Watch” Wildlife Species Occurring or Likely to Occur in the Jarbidge FO

Common Name	Scientific Name	Habitat Association
Reptiles		
Night snake	<i>Hypsiglena torquata</i>	Sagebrush steppe, Canyons
Ringneck snake	<i>Diadophis punctatus</i>	Rocky canyons near perennial water
Birds		
Grasshopper sparrow	<i>Ammodramus savannarum</i>	Grassland
Long-billed curlew	<i>Numenius americanus</i>	Grassland
Pinyon jay	<i>Gymnorhinus cyanocephalus</i>	Juniper
Red-naped sapsucker	<i>Sphyrapicus nuchalis</i>	Aspen
Sage thrasher	<i>Oreoscoptes montanus</i>	Sagebrush steppe
Scott’s oriole	<i>Icterus parisorum</i>	Juniper
Swainson hawk	<i>Buteo swainsoni</i>	Open woodland
Virginia’s warbler	<i>Vermivora virginiae</i>	Riparian, Mountain Mahogany
Western burrowing owl	<i>Athene cunicularia</i>	Sagebrush steppe, Grassland
Wilson phalarope	<i>Phalaropus tricolor</i>	Wetland

IDFG’s Comprehensive Wildlife Conservation Strategy identified 229 SGCN in Idaho and established an ecological, habitat-based framework to aid in the conservation and management of these species. The strategy provides recommendations for actions to improve the population status and habitat conditions of SGCN, describes an approach for long-term monitoring, and complements other conservation strategies, funding sources, planning initiatives, and legally mandated activities. The SGCN includes all Federally listed and Candidate species, as well as the majority of the BLM Sensitive and Watch species. Species in the Comprehensive Wildlife Conservation Strategy (IDFG, 2005) are also considered general wildlife unless they are designated by BLM and IDFG as

Sensitive species or are classified as Candidate or listed under ESA by FWS. Table 38 shows only those SGCN found in the planning area not included in any other category.

Table 38. Wildlife Species of Greatest Conservation Need Not Classified as Sensitive by BLM that Occur or Likely to Occur in the Jarbidge FO

Common Name	Scientific Name	Habitat Association
Birds		
American avocet	<i>Recurvirostra americana</i>	Wetland
Black-crowned night heron	<i>Nycticorax nycticorax</i>	Riverine woodland
Black-necked stilt	<i>Himantopus mexicanus</i>	Wetland
Blue grosbeak	<i>Guiraca caerulea</i>	Riparian
Cattle egret	<i>Bubulus ibis</i>	Riverine woodland
Clark's grebe	<i>Aechmophorus clarkii</i>	Wetland/Riverine
Common loon	<i>Gavia immer</i>	Riverine, Lake
Great egret	<i>Ardea alba</i>	Riverine woodland
Juniper titmouse	<i>Baeolophus ridgwayi</i>	Juniper
Lesser goldfinch	<i>Carduelis psaltria</i>	Various, near riparian
Merlin	<i>Falco columbarius</i>	Aspen/Juniper bordering sagebrush steppe
Northern pintail	<i>Anas acuta</i>	Wetland/Riverine
Sandhill crane	<i>Grus canadensis</i>	Wetland
Short-eared owl	<i>Asio flammeus</i>	Grassland
Snowy egret	<i>Egretta thula</i>	Riverine woodland
Western grebe	<i>Aechmophorus occidentalis</i>	Wetland/Riverine
Mammals		
California myotis	<i>Myotis californicus</i>	Riparian/Sagebrush steppe
Merriam's shrew	<i>Sorex merriami</i>	Sagebrush steppe
Invertebrates (terrestrial)		
A tiger beetle	<i>Cicindela platonica</i>	Rangelands
Source: (IDFG, 2005)		

Wildlife experience a number of crucial seasonal periods when resources such as forage or vegetation cover and/or environmental conditions can limit production, recruitment, and survival. These periods are commonly associated with winter and reproduction (Table 39).

Vegetation provides wildlife with food, cover, and structure for reproduction. A few birds such as common nighthawk and killdeer prefer open, sparsely vegetated areas for nesting, whereas others such as short-eared owl, grasshopper sparrow, and waterfowl nest in tall dense cover. Herbaceous residual cover is less important for species that nest in shrubs or trees; however, it is important for small mammals and birds that forage or travel on the ground. Thick stands of cheatgrass can be too dense and hinder the movement of some species including lizards. Riparian zones are high-value areas for the majority of wildlife. Within the planning area some wildlife species are limited to a single habitat: aspen (yellow pine chipmunk, tree swallow), mountain mahogany woodlands (Virginia warbler, spotted towhee) and canyon lands (white-throated swift, canyon wren, canyon mouse).