

SQUARE LAKE ALLOTMENT

Assessment of Standards for Rangeland Health

I. BACKGROUND

In 1997 the BLM in Idaho adopted a series of “Standards for Rangeland Health” in coordination with the Resource Advisory Committees. There are eight Standards, not all of which will apply to any one parcel of land. Each Standard establishes a goal that if reached implies a healthy situation and is further defined in terms of “indicators” that the Standard is or is not being met. A description of the Standards and the indicators can be found in the “Idaho Standards for Rangeland Health and Guidelines for Livestock Grazing Management of August, 1997” (copies available at the Shoshone BLM Office). It is exceedingly rare for all of the indicators for any Standard to agree as to whether or not the standard is being met. Therefore, information from all available sources will be used.

In 1998, the BLM began assessing Rangeland Health Standards by having multi-disciplinary teams inspect selected grazing allotments. This process was coordinated with affected permittees, State agencies having responsibility for managing land or resources, and interested publics to allow their participation in this process. During field inspections, qualitative information relative to the indicators of applicable Standards along with quantitative data on canopy cover as a measurement of vegetation cover, abundance and composition was collected. The Natural Resource Conservation Service’s (formerly Soil Conservation Service) ecological site descriptions use dry weight (production) for a measure of community composition. While each of these methods has its own values and weaknesses they are not directly comparable. The reader should be alerted to this fact and interpret the data accordingly.

This document is a summary of the data obtained from field inspections to evaluate the indicators for the Rangeland Health Standards and other available monitoring data. Qualitative assessment descriptions used to evaluate indicators in the field for Standards 1 (Watersheds), 4 (Native Plant Communities), and 5 (Seedings) are in Appendix 1. A revised assessment worksheet for Standards 1, 4, and 5 was implemented in 2005 to guide resource specialists to a rating of extreme to total; moderate to extreme; moderate; slight to moderate; or none to slight (see Appendix 1-1). These ratings refer to the degree of departure from ecological site description and/or ecological reference area.

In order to assess Standard 2 (Riparian Areas and Wetlands) and Standard 3 (Stream Channel/ Floodplain), the standard checklist in Appendix 3-2 is used. This checklist is a qualitative method of determining whether riparian areas are in Proper Functioning Condition (PFC). Descriptions guide the resource specialists to a rating of yes, no, or not applicable for Standards 2 and 3 (see Appendix 1-2).

A separate assessment form is used to evaluate Standard 6 (Exotic Plant Communities, Other Than Seedings), where applicable. In the case of the Square Lake Allotment, Standard 6 is not applicable.

The State of Idaho Division of Environmental Quality’s 303d designation of water quality limited streams list is used to evaluate Standard 7 (Water Quality).

The Natural Resource Conservation Service’s ecological site descriptions (composition) and habitat evaluations for species present under current management will be used to evaluate Standard 8. Additional assessment descriptions used to evaluate sage-grouse habitat was added in 2000, revised in 2001, and is described in Appendix 1-3. These descriptions guide the resource specialist to a rating of suitable, marginal, or unsuitable habitat.

II. TABLE 1: ALLOTMENT INFORMATION

Field Office: Shoshone		Watershed Names/Numbers: Big Wood/17040219	
Allotment Name/Number: Square Lake/80505			
Public Land (Acres)			Streams on Public Land (miles):
Upland: 3,552	Riparian: 0	Total: 3,552	0
Date(s) of Field Assessment: 5/16/2007 5/17/2007 5/18/2007			Name of Permittee: Spring Creek Idaho Ranch LLC
Assessment Participants (Name & Discipline or Interest):			
Dan Patten, Rangeland Management Specialist Diana Miller, Rangeland Management Specialist Clare Josaitis, Rangeland Management Specialist Bonnie Claridge, Wildlife Biologist Julie Hilty, Botanist Mike Pellant, Great Basin Restoration Initiative Coordinator			

II. ALLOTMENT PROFILE

The south end of the Square Lake Allotment is approximately 18 miles north of Shoshone, Idaho, and the north end is about 5 miles farther (see Appendix 2). The allotment is bordered on the north and west by the Timmerman Hills and Magic Dam Allotments, by the Richfield Canal on the south, and by State Highway 75 on the east. It is currently divided into 4 separate pastures (North, Middle, Southwest, and Southeast). Cattle grazing is allowed from April 25th to August 13th with a total active preference of 744 AUMs.

The Square Lake Allotment was originally part of the Magic Allotment, which was separated into Magic Dam and Square Lake in 1985. Under the Square Lake Allotment Management Plan (AMP), the stocking level was set at 744 AUMs of active preference, but 176 AUMs would not be scheduled for use until the new rest rotation system had been evaluated. In 1995, the unscheduled AUMs were used for the first time, and they were permanently reinstated in 1999.

The allotment consists of 141 acres of private land, 639 acres of State Land, and 3,552 acres of public land administered by the BLM. The elevation ranges from about 4,640 feet where the Richfield Canal leaves the allotment to 5,732 feet at the top of Rattlesnake Butte.

The soils on public land within this allotment are generally loams, clays, or a combination, with rock outcrops along the slopes and on ridges. The two major ecological sites in this allotment

are Clayey 12 – 13” (Threetip sagebrush/bluebunch wheatgrass) and Loamy 8 – 12” (Wyoming big sagebrush/bluebunch wheatgrass)

Wyoming big sagebrush, Sandberg bluegrass, crested wheatgrass, and bluebunch wheatgrass are the most dominant species in the allotment. Cheatgrass (*Bromus tectorum*), an invasive introduced annual, is common in some areas of the allotment, but is not dominant in any areas.

III. IDAHO RANGELAND HEALTH STANDARDS ASSESSMENT

The field assessment consisted of evaluating the ecological sites found in key use areas within the allotment. An allotment summary of the data obtained from the field assessment for applicable Rangeland Health Standards is given hereafter. The indicators are ranked by determining the degree to which each site departs from what is expected for that site. All indicators are not given equal weight in determining the overall rating for each site.

A. Standard 1 (Watersheds)

This Standard is designed to assess the physical stability of each site. Eleven indicators of watershed health were evaluated on each survey site. Table 2 provides a summary of watershed indicator ratings for each location. In determining vegetative cover during the site assessment, canopy cover for three layers, from the top layer to the ground, were recorded along a step-point transect. Cover values for this Standard are from only the top canopy layer to provide an aerial estimate of all cover components (vegetation, rock, bare soil, etc.) for soil surface protection. Therefore cover values for individual components will total 100%. Each site is given a code that references the pasture in which the transect is located and the number of the transect (e.g. N1 refers to the North Pasture, transect 1).

Table 2: Watershed Indicator Summary

Indicator	Degree of Departure from Ecological Site Description and/or Ecological Reference Area(s)				
	Extreme	Moderate to Extreme	Moderate	Slight to Moderate	None to Slight
1. Rills					N1, N2, M1, SE1, SW1
2. Water Flow Patterns			N1	M1, SE1, SW1	N2
3. Pedastals and/or Terracettes (Wind & Water)				N1, N2, M1, SE1, SW1	
4. Bare Ground				SE1	N1, N2, M1, SW1
5. Gullies					N1, N2, M1, SE1, SW1
6. Wind-scoured, Blowout, and/or Depositional Areas					N1, N2, M1, SE1, SW1
8. Soil Surface Resistance to Erosion				N1, N2, M1, SE1, SW1	
9. Soil Surface Loss or Degradation				N1, N2, M1, SE1, SW1	
10. Plant Community Composition & Distribution Relative to Infiltration & Runoff					N1, N2, M1, SE1, SW1
11. Compaction Layer				N1, N2	M1, SE1, SW1
17. Reproductive Capability of Perennial Plants					N1, N2, M1, SE1, SW1
<i>Rangeland Health Attributes</i>	Extreme	Moderate to Extreme	Moderate	Slight to Moderate	None to Slight
Standard 1 (Indicators 1-6, 8-11, & 17)			1 Indicator	21 Indicators	33 Indicators
Overall Rating for Site				X	
Overall Rating for Allotment					

Much of this standard relies on the overall ground cover within the allotment. Field measurements found that vascular plants provided 60% of the cover on average for those sites evaluated in this allotment, litter was 24%, rock was 2%, bare ground was 13%, and biological crust was 1%. There was some evidence of water flow patterns and plant pedestaling, though it appeared to be more historical than current and the flow patterns were filling with desirable vegetation.

Allotment Summary for Standard 1 (Watersheds):

The overall rating of this allotment for Standard 1 is slight to moderate (refer to Appendix 1-1). Thirty-three indicators (60%) were marked none to slight, twenty-one indicators (38%) were marked slight to moderate, and one indicator (2%) was marked moderate. These indicators and their ratings suggest that this area is physically stable with little active erosion and has most of the proper characteristics to minimize the effects of water runoff and wind erosion.

B. Standard 2 (Riparian Areas and Wetlands) & Standard 3 (Stream Channel/Floodplain)

These Standards do not apply to the Square Lake Allotment because it does not contain any naturally occurring wetlands, riparian areas, or streams.

C. Standard 4 (Native Plant Communities)

This Standard applies to those sites in which native species dominate the site. For easier presentation, this Standard is separated into the two ecological sites in which the native communities were found, and are presented with the ecological site descriptions. The cover values for this Standard and Standard 5 (Seedings) are the total percent cover from up to three canopy layers for each point along the step-point transect. Therefore, if there was more than one vegetative layer, total canopy cover can be higher than 100%.

1. Loamy 12 – 16” (Threetip sagebrush/bluebunch wheatgrass)

This site is a co-dominant inclusion found in drainageways in the allotment. It is not mapped or acknowledged in the NRCS soil surveys for Blaine County, but through interdisciplinary collaboration, it was determined that this is the ecological site that most closely represents what was found on the ground.

The Natural Resources Conservation Service (NRCS) site descriptions for this site state that, by weight, grasses should be about 40 percent of the total, forbs about 20 percent, and shrubs about 40 percent.

The dominant potential natural grasses by weight for this site include bluebunch wheatgrass (*Pseudoroegneria spicata*) and Sandberg bluegrass (*Poa secunda*), with lesser amounts of Prairie Junegrass (*Koeleria macrantha*) and western wheatgrass (*Pascopyrum smithii*).

Forbs in the potential natural plant community include arrowleaf balsamroot (*Balsamorhiza sagittata*) and Lupine (*Lupinus* spp.). The dominant shrub is Threetip sagebrush (*Artemisia tridentata*), with lesser amounts of antelope bitterbrush (*Purshia tridentata*).

N2

Cover data indicate that Sandberg bluegrass (provides 17% cover), bluebunch wheatgrass (16%), and cheatgrass (8%) were the dominant grasses on this site. The dominant shrub was threetip sagebrush (38% cover). Forbs provided 29% cover.

Native perennial grasses contributed 35% cover, annual grasses provided 8% cover, native perennial forbs were 22%, and native annual forbs were 7%. Shrub cover was 38% and biological crust was found on 3% of the transect.

2. Loamy 8 – 12” (Wyoming big sagebrush/bluebunch wheatgrass)

The NRCS site description for this site states that the dominant visual aspect of this site is Wyoming big sagebrush with a bluebunch wheatgrass understory. By weight, grasses should be 55 – 65 percent of the total, forbs 5 – 15 percent, and shrubs 25 – 35 percent.

The dominant potential natural grass by weight for this site is bluebunch wheatgrass. Other grasses that may be present include Sandberg bluegrass, bottlebrush squirreltail (*Elymus elymoides*), needle and thread (*Hesperostipa comata*), and Indian ricegrass (*Achnatherum hymenoides*).

The common forbs in the potential natural plant community include hawksbeard (*Crepis* spp.), Phlox (*Phlox* spp.), milkvetch (*Astragalus* spp.), sandworts (*Arenaria* spp.), and buckwheat (*Eriogonum* spp.). The common shrubs on this site include Wyoming big sagebrush, antelope bitterbrush (*Purshia tridentata*), and rabbitbrush (*Chrysothamnus* spp.).

N1

Cover data indicate that cheatgrass (provides 23% cover), Sandberg bluegrass (22%), bluebunch wheatgrass (13%), and bottlebrush squirreltail (13%) were the dominant grasses on this site. The dominant shrub on the transect was Wyoming big sagebrush (provides 19% cover). Forbs amounted to 17% cover.

Native perennial grasses contributed 48% cover, annual grasses provided 25% cover, annual forbs were 1%, perennial forbs were 16%, and shrub cover was 19%. Biological crust was found on 3% of the transect.

M1

Though site M1 was located in an area that was once seeded to intermediate wheatgrass, it is dominated by native species. This site was plowed and seeded to intermediate wheatgrass and alfalfa in the Dinosaur Ridge Seeding of 1966. The area of this seeding is considered the lower end of intermediate wheatgrass range, and the seeded species are minor components now. Therefore, it will be treated as a native site in this assessment.

Cover data indicate that Sandberg bluegrass (provides 27% cover), bottlebrush squirreltail (4%), cheatgrass (3%), and bluebunch wheatgrass (2%) were the dominant grasses on this site. The dominant shrubs on the transect were Wyoming big sagebrush (provides 13% cover), low sagebrush (*Artemisia longiloba*; 4%), and threetip sagebrush (2%). Forbs amounted to 17% cover.

Native perennial grasses contributed 33% cover, annual grasses provided 4% cover, seeded grasses provided 2% cover, annual forbs were 2%, perennial forbs were 15%, and shrub cover was 19%. Biological crust was found on 4% of the transect.

Table 3: Native Plant Community Indicator Ratings

Standard 4: Native Plant Community (Summary)					
Indicator	Degree of Departure from Ecological Site Description and/or Ecological Reference Area(s)				
	Extreme	Moderate to Extreme	Moderate	Slight to Moderate	None to Slight
8. Soil Surface Resistance to Erosion				N1, N2, M1	
9. Soil Surface Loss or Degradation				N1, N2, M1	
11. Compaction Layer				N1, N2	M1
12. Functional/Structural Groups				N1, N2, M1	
13. Plant Mortality/Decadence					N1, N2, M1
14. Litter Amount					N1, N2, M1
15. Annual Production					N1, N2, M1
16. Invasive Plants				N1, N2, M1	
17. Reproductive Capability of Perennial Plants					N1, N2, M1
<i>Rangeland Health Attributes</i>	Extreme	Moderate to Extreme	Moderate	Slight to Moderate	None to Slight
Standard 4 (Indicators 8, 9, 11-17)				14 Indicator	13 Indicators
Overall Rating for Each Site				N1, N2, M1	
Overall Rating for Allotment				X	

Table 4: Species Observed in Native Sites (not a comprehensive list)

Shrubs	Forbs	
Antelope bitterbrush	Alfalfa	Matted buckwheat
Low sagebrush	Annual agoseris	Monkeyflower
Rubber rabbitbrush	Beckwith's violet	Mourning milkvetch
Threetip sagebrush	Bird's-beak	Narrowleaf pussytoes
Wyoming big sagebrush	Blue eyed Mary	Nineleaf biscuitroot
Grasses	Browse milkvetch	Penstemon
Bluebunch wheatgrass	Clasping pepperweed	Prickly lettuce
Bottlebrush squirreltail	Death camas	Ragwort
Bulbous bluegrass	Desert madwort	Rayless shaggy fleabane
Cheatgrass	Fernleaf biscuitroot	Rock buckwheat
Idaho fescue	Green fiddleneck	Rockcress
Intermediate wheatgrass	Gymnosteris	Shaggy fleabane
Japanese brome	Hawksbeard	Slender phlox
Sandberg bluegrass	Hood's phlox	Stickseed
Sixweeks fescue	Hooker's balsamroot	Tansymustard
Thurber needlegrass	Indian paintbrush	Thistle
	Lava aster	Wild onion
	Longleaf phlox	Willowherb
	Low larkspur	Woolypod milkvetch
	Low pussytoes	Yellow clover
	Lupine	

Allotment Summary for Standard 4 (Native Plant Community)

Fourteen indicators (52%) were marked slight to moderate due to slight reduction in native bunch grasses and the presence of cheatgrass and/or Japanese brome. There was also a slight compaction layer and evidence of past soil loss on some sites. Thirteen indicators (48%) were marked none to slight. The overall rating for the assessed indicators for Standard 4 is slight to moderate (refer to Appendix 1-1). Overall, this ranking means that the biotic integrity of these sites are intact and resilient to minor disturbances.

D. Standard 5 (Seedings)

This Standard is designed to assess the health of those sites that are dominated by seeded species. Two sites were evaluated in the Square Lake Allotment for this Standard.

SE1

This site was located in the Magic Resource Conservation Area (RCA) Plow and Seed project of 1965. Included in the seeding mixture were crested wheatgrass, alfalfa, and cereal rye. Cover data indicate that crested wheatgrass (provides 39% cover), Sandberg bluegrass (11%), and Japanese brome (4%) are the dominant grasses on this site. The dominant shrub encountered on the transect was Wyoming big sagebrush (6%). Forbs provided 12% cover.

Sandberg bluegrass was the only native perennial grass encountered. Annual grasses provided 6% cover, annual forbs were 8% and perennial forbs were 4%.

SW1

This site was also located in the Magic RCA Plow and Seed project. Cover data indicate that Crested wheatgrass (provides 24% cover), Sandberg bluegrass (17%), and bottlebrush squirreltail (2%) are the dominant grasses on this site. Wyoming big sagebrush was the only shrub encountered on the transect and it provided 13% cover. Forbs provided 14% cover.

Native perennial grasses provided 18% cover, crested wheatgrass was the only exotic perennial grass found with 24%, annual forbs provided 2%, and perennial forbs provided 12%. Biological crust was found on 2% of the transect.

Table 5: Seeding Community Indicator Ratings

Standard 5: Seeding Community (Summary)					
Indicator	Degree of Departure from Ecological Site Description and/or Ecological Reference Area(s)				
	Extreme	Moderate to Extreme	Moderate	Slight to Moderate	None to Slight
8. Soil Surface Resistance to Erosion				SE1, SW1	
9. Soil Surface Loss or Degradation				SE1, SW1	
11. Compaction Layer					SE1, SW1
12. Functional/Structural Groups					SE1, SW1
13. Plant Mortality/Decadence					SE1, SW1
14. Litter Amount					SE1, SW1
15. Annual Production					SE1, SW1
16. Invasive Plants				SE1, SW1	
17. Reproductive Capability of Perennial Plants					SE1, SW1
<i>Rangeland Health Attributes</i>	Extreme	Moderate to Extreme	Moderate	Slight to Moderate	None to Slight
Standard 5 (Indicators 8, 9, 11-17)				6 Indicators	12 Indicators
Overall Rating for Each Site					SE1, SW1
Overall Rating for Allotment					X

Table 6: Species Observed in Seeded Sites (not a comprehensive list)

Shrubs	Forbs		
Rubber rabbitbrush	Alfalfa	Hood's phlox	Ragweed
Wyoming big sagebrush	Annual agoseris	Hooker's balsamroot	Rayless shaggy
Grasses	Beckwith's violet	Indian paintbrush	fleabane
Bottlebrush squirreltail	Bigseed biscuitroot	Larkspur	Rock buckwheat
Cheatgrass	Bird's beak	Lava aster	Salsify
Crested wheatgrass	Blue-eyed Mary	Longleafed phlox	Shaggy fleabane
Idaho fescue	Bur buttercup	Low pussytoes	Tansymustard
Japanese brome	Cushion buckwheat	Lupine	Thistle
Sandberg bluegrass	Death camas	Matted buckwheat	Tumble mustard
	Desert madwort	Monkeyflower	Wild onion
	False dandelion	Mourning milkvetch	Willowherb
	Goldenweed	Nineleaf biscuitroot	Woolypod milkvetch
	Green fiddleneck	Penstemon	Wooly sunflower
	Hawksbeard	Prickly lettuce	Yellow clover

Allotment Summary for Standard 5 (Seedings)

Six indicators (33%) were marked slight to moderate for the presence of cheatgrass and/or Japanese brome and some slight evidence of past soil loss. Twelve indicators (67%) were marked none to slight. The overall rating for the assessed indicators for Standard 5 is none to slight (refer to Appendix 1-1). This overall ranking means that the seeding is healthy with the re-establishment of sagebrush and the expected amounts of native forbs and grasses.

E. Standard 6 (Exotic Plant Communities, Other than Seedings)

This Standard does not apply to the Square Lake Allotment because it has no plant communities dominated by non-seeded exotic species.

F. Standard 7 (Water Quality)

A list of water quality limited streams (303(d) list) and the known problems leading to their inclusion is published by the State on a regular basis. The Shoshone BLM is currently using the 1998 303(d) list. The Square Lake Allotment does not contain any streams of any kind, therefore Standard 7 does not apply.

G. Standard 8 (Threatened and Endangered Plants and Animals)

The federally listed and candidate (Type 1) animal species which potentially may occur in the allotment is the Yellow-billed Cuckoo (*Coccyzus americanus*). The BLM lists additional plants and animals as BLM Sensitive Species in Idaho. Those BLM Sensitive Species with available information that may occur in the allotment are discussed below. Additional BLM Sensitive Species are listed in Appendix 3.

It is unlikely that wolves would use public land in the Square Lake Allotment. However, the nearest suspected wolf pack, the Hyndman pack, is located about 30 air-miles north of the allotment.

The US Fish and Wildlife Service (USFWS) lists Yellow-billed Cuckoos as a candidate species, those that should be considered in early planning decisions to avoid listing. The Service advises an evaluation of potential effects on candidate species that may occur in the project area. In 2005, an intensive survey for both historic and likely locations for cuckoos was completed (Reynold and Hinkley, 2005). Although there were several confirmed recordings in Idaho, only one area (Stanton Crossing) was confirmed within the Shoshone Field Office boundary. The Yellow-billed cuckoo prefers open woods orchards, and streamside willow and alder groves (Shirley, 1983). With little suitable riparian habitat within the Lava Allotment, the occurrence of cuckoos is unlikely.

1. BLM Sensitive Plants

Astragalus atratus var. *inseptus* (mourning milkvetch)

Several small populations of mourning milkvetch were encountered during the field Assessment. Mourning milkvetch is a small, wiry, perennial milkvetch that occurs on thin, clay or clay-loam soil over basalt that is wet in spring but dries out later in the season. It occurs at approximately 4000 to 6000 ft elevation and blooms in May and June. This taxon is often found in early low (alkali) sagebrush (*Artemisia longiloba*) communities. Associated species include early low (alkali) sagebrush, Wyoming big sagebrush, threetip sagebrush, tapertip onion, lava aster, Sandberg bluegrass, lesser rushy milkvetch, specklepod milkvetch, woolly-pod milkvetch, Blepharipappus, Beckwith's violet, annual sunflower, Thurber's needlegrass, and bluebunch wheatgrass.

Mourning milkvetch is endemic to the northern edge of the Snake River Plain in Blaine, Camas, Lincoln, Twin Falls, and Gooding Counties. Its range includes the Timmerman Hills, Bennett Hills, Black Butte Hills, Sonners Flat, Macon Flat, and south to the area around Kinzie Butte. Mourning milkvetch is currently managed as a Type 3 Sensitive Species by BLM., meaning that it is globally rare with moderate endangerment factors. Although mourning milkvetch is narrowly endemic, it is relatively common in appropriate habitats within a limited range.

Prentice (1993) suggested that populations occurring in the lava flows at the eastern edge of the known range were more sparse than in areas with less abundant surface rock because travel routes for livestock and roads tended to be located in limited open areas, including mourning milkvetch habitat. In addition, potential habitat is limited within the flows. Local observations indicate that mourning milkvetch tolerates low to moderate levels of disturbance and is often found in the center strip of two-track roads in appropriate habitats, but is eliminated by activities that result in high levels of soil disturbance including early-season livestock grazing during wet/muddy conditions, high-intensity livestock use (such as around trough sites), road and trail construction, pipeline construction, mining activity, and conversion of habitat to weedy species (cheatgrass, medusahead wildrye).

Astragalus oniciformis (Picabo milkvetch)

Picabo milkvetch is a wiry, diffuse, perennial milkvetch that occurs on deep, stable sandy soils overlying basalt, with flat to rolling topography, at approximately 3500 to 5000 ft elevation. This species tends to occur in areas where competing vegetation is sparse. It flowers May to July. Associated species include Wyoming big sagebrush, Basin big sagebrush, threetip sagebrush, thickspike wheatgrass, Indian ricegrass, and needle-and-thread grass.

Picabo milkvetch is endemic to the northern edge of the Snake River Plain in Blaine, Lincoln, and Minidoka Counties, from Gooding east to the eastern boundary of Craters of the Moon National Monument, and the lower foothills of the Pioneer Mountains near Picabo. There are no known populations of Picabo milkvetch in the allotment, the area is within the known range for the species and there is high potential for populations to exist on sandy soils within the allotment.

Picabo milkvetch is also managed as a Type 3 Sensitive Species by BLM. Threats include soil-disturbing activities including road/trail construction, pipeline construction, and high-intensity livestock use (such as around trough sites), and habitat fragmentation due to disturbance followed by subsequent dominance by weedy plants. Picabo milkvetch has been shown to be tolerant of some disturbance, including post-fire rehabilitation treatments involving seeding with a rangeland drill (Popovich and Pyke 1997) and moderate grazing (Alexander et al. 2004). While published studies have been short-term in duration, Alexander et al. (2004) determined that current threats, plant community changes over the last 60 years due to changing fire patterns, habitat alteration due to livestock grazing, and habitat loss due to past rangeland improvements (i.e. seedings) have not to date reduced genetic diversity of the species across its range. Alexander et al. suggested conservation habitat to support numerous large populations with smaller intervening patches to preserve gene flow among populations.

2. BLM Sensitive Animals

Greater sage-grouse (*Centrocercus urophasianus*) require large areas of contiguous sagebrush with perennial grass and forb understory to survive and there is considerable knowledge of their habitat requirements in comparison with other sagebrush obligate species. Sagebrush habitats which contain the structural components and habitat diversity necessary to meet the life cycle needs of sage-grouse are also likely to provide suitable habitat conditions for other sagebrush obligate species.

The northern end of the Square Lake Allotment is identified as Key sage-grouse habitat. Key habitat is defined as areas of generally intact sagebrush that provide sage-grouse habitat during some portion of the year including winter, spring, summer, late brood-rearing, fall, transition sites from winter to spring, spring to summer, and summer/fall to winter. Key habitat may or may not provide adequate nesting, early brood-rearing, and winter cover due to elevation, snow depth, lack of early season forbs, limited herbaceous cover, or small sagebrush patch size.

The majority of the allotment is designated as Restoration 1 (R1) habitat. R1 habitat is defined as sagebrush-limited areas characterized by perennial grass species composition and/or structure that should provide suitable potential nesting habitat in the future, once sufficient sagebrush cover is re-established. It includes native and/or introduced perennial bunchgrasses. These sites have the potential to be restored to good ecological condition for sage-grouse through natural recovery or by seeding/planting sagebrush. These areas need to be protected from future wildfires to facilitate recovery. Sage-grouse may use these sites during summer, late brood-rearing, or fall, depending on forb and sagebrush availability. After restoration or recovery of sagebrush ($\geq 10\%$ canopy cover), these sites may become key habitat, and may also help to link or reconnect isolated sage-grouse populations.

There are four active leks and one lek with an unknown status in the Square Lake Allotment. There are eighteen additional leks with unknown status, nine inactive, and ten active sage-grouse leks within five miles of the allotment boundary. Leks with unknown status are those that have not been visited for several years. The allotment provides suitable sage-grouse breeding, late brood rearing, and winter habitat. Information collected during the survey effort for the allotment indicates that the forbs preferred by sage-grouse were common enough to determine that the allotment provides suitable habitat for sage-grouse during the brood-rearing periods (refer to Tables 7, 8, 9, and 10).

Table 7: Sage-grouse Habitat Assessment Worksheet – Breeding Habitat

Habitat Indicator	Suitable Habitat	Marginal Habitat	Unsuitable Habitat
Average Big Sagebrush Canopy Cover	N1, M1	N2, SW1	SE1
Average Big Sagebrush Height	N1, N2, M1, SE1, SW1		
Big sagebrush growth form	N1, N2, M1, SE1, SW1		
Average herbaceous grass and forb height	N1, N2, M1, SE1, SW1		
Average perennial grass canopy cover	N1, N2, M1, SE1, SW1		
Average forb canopy cover	N1, N2, M1, SE1, SW1		
Forb richness (relative to site potential and site guides)	N1, N2, M1, SE1, SW1		
Overall Site Evaluation	N1, N2, M1, SW1	SE1	
Overall Allotment Evaluation	X		
Comments: M1-Artrw in mosaic with Arlo & Artr4. SE1-Not much sagebrush but adjacent to some; could be lek sites in pasture.			

Table 8: Sage-grouse Habitat Assessment Worksheet – Late Brood Rearing

Habitat Indicator	Suitable Habitat	Marginal Habitat	Unsuitable Habitat
<i>Riparian and Wet Meadow Communities:</i>			
Riparian and wet meadow plant community			
Riparian and wet meadow stability			
Forb availability in uplands and wetland areas			
Proximity of sagebrush cover			
Overall Riparian/Wet Meadow Site Evaluation			
<i>Upland Sagebrush Communities</i>			
Forb availability	N1, N2, M1, SE1, SW1		
Overall Upland Site Evaluation	N1, N2, M1, SE1, SW1		
Overall Allotment Evaluation	X		
Comments: M1-Good forb diversity in species & phenology.			

Table 9: Sage-grouse Habitat Assessment Worksheet – Winter Habitat

Habitat Indicator	Suitable Habitat	Marginal Habitat	Unsuitable Habitat
Sagebrush canopy cover	N1, M1, SW1	N2, SE1	
Sagebrush height (availability during the winter)	N1, M1, SE1, SW1	N2	
Overall Site Evaluation	N1, M1, SW1	N2, SE1	
Overall Allotment Evaluation	X		
Comments: N2-Threetip sagebrush site; Artrw adjacent. M1-Artrw in mosaic with Arlo & Artr4.			

Table 10: Forb Abundance Form for Sage-grouse Evaluations

Species	Rare	Sparse	Common
Sage-grouse Preferred Forbs:			
Broomrape (<i>Orobanch</i> spp.)			
Composites:			
Daisies (<i>Erigeron</i> and <i>Aster</i> spp.)		M1, SE1, SW1	N1, N2
Dandelion, C. (<i>Taraxacum officinale</i>)			
Dandelion, Mt. (<i>Agoseris</i> spp.)			N1, N2, M1, SE1, SW1
Hawksbeard (<i>Crepis</i> spp.)	SE1	N1, SW1	N2, M1
Microsteris (<i>Microseris</i> spp.)	N1, M1		SE1, SW1
Prickly lettuce (<i>Lactuca serriola</i>)	N1, N2, SW1	M1, SE1	
Salsify (<i>Tragopogon dubius</i>)	N1, M1, SE1		
Desert-parsley (<i>Lomatium</i> and <i>Cymopterus</i> spp.)		N1, N2, M1, SE1, SW1	
Everlasting (<i>Antennaria</i> spp.)	N1, SE1, SW1	N2, M1	

Groundsmoke (<i>Gayophytum</i> spp.)	N2		
Knotweed (<i>Polygonum</i> spp.)			
Legumes (other than <i>Lupinus</i> spp.)			
Alfalfa (<i>Medicago</i> spp.)			M1
Bird's foot tre-foil (<i>Lotus</i> spp.)			
Clover (<i>Trifolium</i> spp.)	N2	SE1	
Sweet clover (<i>Melilotus</i> spp.)			
Sweetvetch (<i>Hedysarum</i> spp.)			
Vetch (<i>Vicia</i> spp.)			
Milkvetch (<i>Astragalus</i> spp.)		M1, SE1, SW1	N1, N2
Peppergrass (<i>Lepidium</i> spp.)			
Phlox (<i>Phlox</i> spp.)			N1, N2, M1, SE1, SW1
Prairie star flower (<i>Lithophragura</i> spp.)			
Yarrow (<i>Achillea millifolium</i>)			

Pygmy rabbits (*Brachylagus idahoensis*), a BLM Type 2 ‘sensitive species’, are also a shrub-steppe obligate. A 2003 study (Rachlow) indicates a mid level of pygmy rabbit habitat potential. The six habitat priority rankings were based primarily on elevation, slope, soil depth, and soil clay content. This species requires deep loamy soils to dig their burrows, require large areas of habitat to conserve the species and to accommodate seasonal, regional, and potentially annual variation in resource availability and to maintain linkages among populations (Sanchez, 2008), depends solely on sagebrush for winter food, and is thought to be affected by fire.

Bald Eagle (*Haliaeetus leucocephalus*), was recently removed from the endangered species list by the USFWS. Based on its potential to be re-listed, the Service advises agencies evaluate potential effects within project areas. There are several CDC observations surrounding the allotment, but none occur within its bounds likely based on the lack of trees and riparian areas.

The Idaho department of Fish and Game (IDFG) had identified important big game habitat across the state, and the Square Lake allotment is classified as year-round elk habitat.

Additional species that are either BLM Sensitive Species, Idaho Fish and Game (IDFG) protected nongame species, or are protected under the Migratory Bird Treaty Act (Appendix 3) utilize the allotment to varying degrees.

IV. SUMMARY OF ALLOTMENT STUDIES:

A. *Actual Use*

Grazing use in the Square Lake Allotment is managed under the Bennett Hills/Timmerman Hills Management Framework Plan (MFP) and the Square Lake Allotment Management Plan of 1985. A summary of actual use in the allotment for 1985 - 2007 is in Table 11.

Table 11: Actual Use Summary

Year	Grazing Use Period	Active Preference (AUMs)	Number of Livestock	AUMs Used	Percent of Active Use
1985	05/03 – 08/22	568	160	528	84
1986	04/25 – 08/12	568	173	533	94
1987	04/27 – 08/04	568	104	289	51
1988	05/12 – 08/01	568	103	237	42
1989	05/08 – 08/14	568	101	286	50
1990	04/26 – 06/15	568	254	361	64
1991	04/26 – 06/15	568	134	165	29
1992	04/30 – 05/23	568	237	154	27
1993	04/30 – 06/15	568	233	355	63
1994	04/29 – 06/29	568	201	410	71
1995	04/18 – 08/29	744	203	767	103
1996	04/17 – 07/30	744	234	619	83
1997	05/05 – 07/08	744	211	347	47
1998	05/21 – 07/27	744	181	344	46
1999	05/11 – 07/12	744	262	464	62
2000	05/09 – 07/06	744	232	388	52
2001	05/14 – 06/12	744	211	177	24
2002	05/07 – 06/24	744	194	270	36
2003	05/17 – 08/04	744	126	288	39
2004	05/02 – 07/10	744	205	388	52
2005	Nonuse	744	0	0	0
2006	07/11 – 08/10	744	146	129	17
2007	05/20 – 07/27	744	150	277	37
2008	Nonuse	744	0	0	0

B. *Trend Studies*

Trend studies conducted in the Square Lake Allotment include three 3x3 foot range trend plots that were established in 1970, along with two sets of four nested frequency transects that were established in 1984 and one established in 1985. The range trend plots are designed to show the percent basal cover of perennial species found within the 3x3 foot plot. The nested frequency data shown is the percent frequency of occurrence of each species along a transect. The species listed in the following tables are the most dominant. It should be noted that a decrease in percent composition does not translate to a decrease in abundance or cover of a particular species.

Trend Plot 1 is located in the Southwest Pasture in the area of the Magic RCA Plow and Seed project. Data was collected in the trend plot in 1970, 1981, 1984, and 2006 and are summarized in table 12. Data was collected for the nested frequency transects in 1984, 1987, 1990, 1993, and 2006 and are summarized in Table 13. The trend at this site appears to be upwards, with an increase in the relative abundance and dominance of native forbs and sagebrush.

**Table 12: Trend Plot 1 Annual Summary
(Percent Composition)**

Species	1970	1981	1984	2008
Crested wheatgrass	95	82	47	15
Bottlebrush squirreltail	4	-	-	-
Woodypod milkvetch	1	10	7	3
Sandberg bluegrass	-	2	Trace	3
Phlox spp.	-	5	-	20
Wild onion	-	-	-	1
Pussytoes	-	-	-	Trace
Mourning milkvetch	-	-	-	Trace
Agoseris	-	-	-	Trace
Wyoming big sagebrush	-	Trace	43	55

**Table 13: Trend Plot 1 Nested Frequency Annual Summary
(Percent Frequency of Occurrence)**

Species	1984	1987	1990	1993	2008
Crested wheatgrass	100	96	95	91	65
Sandberg bluegrass	33	3	31	36	61
Bottlebrush squirreltail	15	3	4	3	0
Japanese brome	11	0	3	0	0
Cheatgrass	0	0	0	0	52
Longleafed phlox	54	51	41	40	79
Wild onion	12	0	6	34	20
Mourning milkvetch	1	3	0	9	0
Bushy bird's beak	8	0	1	44	28
False dandelion	4	0	0	16	0
Buckwheat	1	0	15	0	3
Prickly Lettuce	33	0	20	0	0
Willowherb	19	0	1	0	0
Hood's phlox	11	11	8	14	23
Woodypod milkvetch	5	0	8	0	6
Bur buttercup	59	0	0	0	61
Arrowleaf balsamroot	0	0	0	0	1
Desert alyssum	0	0	0	0	4
Agoseris	0	0	0	0	39

Brewer's navarretia	0	0	0	0	51
Lava aster	0	0	0	0	6
Fernleaf biscuitroot	0	0	0	0	31
Mustard	0	0	0	0	3
Clasping pepperweed	0	0	0	0	3
Wyoming big sagebrush	40	26	29	50	53

Trend Plot 2 is also located in the Southeast Pasture, and is also in the Magic RCA Plow and Seed project. Data was collected in the trend plot in 1970, 1981, 1984, and 1987 and are summarized in table 14. Data were collected for the nested frequency transects in 1984, 1987, and 1990 and are summarized in Table 15. The trend at this site appears to be static, with relatively stable levels of crested wheatgrass and fluctuations in the sagebrush cover. The lack of forbs in 1987 and 1990 are most likely due to data being collected late in the season after most forbs have died back for the year.

**Table 14: Trend Plot 2 Annual Summary
(Percent Composition)**

Species	1970	1981	1984	1987
Crested wheatgrass	59	22	16	76
Sandberg bluegrass	1	-	Trace	-
Alfalfa	26	-	-	-
Wyoming big sagebrush	13	78	84	24

**Table 15: Trend Plot 2 Nested Frequency Annual Summary
(Percent Frequency of Occurrence)**

Species	1984	1987	1990
Cheatgrass	54	3	13
Crested wheatgrass	66	55	54
Sandberg bluegrass	16	4	15
Longleafed phlox	3	0	0
Woolypod milkvetch	1	0	0
Willowherb	11	0	0
False dandelion	1	0	0
Alfalfa	1	5	0
Threetip sagebrush	25	0	18
Wyoming big sagebrush	5	20	5

Trend Plot 4 is located in the Middle Pasture in the area of the Dinosaur Ridge Seeding. Data was collected in the trend plot in 1970, 1979, 1982, and 2006 and are summarized in table 16. Data was collected for the nested frequency transects in 1985, 1989, 1992, and 2006 and are summarized in Table 17. The trend at this site is not apparent. This area is considered to be a lower precipitation zone than intermediate wheatgrass requires to persist. Therefore, its

disappearance should be expected and does not translate to a declining trend, as long as it is being replaced by desirable species such as phlox and milkvetch.

**Table 16: Trend Plot 4 Annual Summary
(Percent Composition)**

Species	1970	1979	1982	2008
Intermediate wheatgrass	62	28	3	-
Sandberg bluegrass	4	3	15	18
Bottlebrush squirreltail	4	-	-	2
Long-leafed phlox	21	6	-	10
Hood's phlox	-	-	-	25
Woolypod milkvetch	-	-	3	5
Wyoming big sagebrush	9	63	79	40

**Table 17: Trend Plot 4 Nested Frequency Annual Summary
(Percent Frequency of Occurrence)**

Species	1985	1989	1992	2006
Intermediate wheatgrass	48	25	14	0
Japanese brome	19	9	0	60
Sandberg bluegrass	54	19	45	76
Cheatgrass	5	0	0	24
Hood's phlox	0	0	6	0
Buckwheat	1	0	0	3
Willowherb	36	0	0	8
Brewer's navarretia	21	28	0	43
Bushy bird's beak	0	0	1	39
Bottlebrush squirreltail	15	9	9	43
Bulbous oniongrass	0	0	0	10
Longleafed phlox	36	8	34	53
Bluebunch wheatgrass	0	0	0	5
Bulbous bluegrass	0	0	0	11
Prickly Lettuce	8	0	0	0
Alfalfa	5	1	1	1
Bur buttercup	0	0	0	78
Wild onion	0	0	0	54
Wyoming big sagebrush	51	28	35	41
Cryptantha	0	0	0	5
Clasping pepperweed	0	0	0	15
Slender phlox	0	0	0	8
Larkspur	0	0	0	1
Milkvetch	0	0	0	13

C. Utilization Studies

Utilization mapping has been conducted in the Square Lake Allotment periodically, since 1986. These maps show typical use patterns with heavy use areas concentrated around water sources and seedings. To determine the average utilization level for each year, utilization maps were digitized into GIS, then acreage of each use level (Heavy, Moderate, Light) was calculated. The average utilization level in the Square Lake Allotment is about 44% through the eleven years that mapping was conducted. The original Use Pattern Maps are located in the Square Lake Allotment Studies File in the Shoshone Field Office.

Appendix 1-1 2005

Qualitative Assessment Worksheet: Indicators of Rangeland Health

Degree of Departure from Ecological Site Description and/or Ecological Reference Area(s)					
Indicator	Extreme	Moderate to Extreme	Moderate	Slight to Moderate	None to Slight
1. Rills	Rill formation is severe and well defined throughout most of the site.	Rill formation is moderately active and well defined throughout most of the site.	Active rill formation is slight at infrequent intervals; mostly in exposed areas.	No recent formation of rills; old rill have blunted or muted features.	Current or past formation of rills as expected for the site.
2. Water Flow Patterns	Water flow patterns extensive and numerous; unstable with active erosion; usually connected.	Water flow patterns more numerous and extensive than expected; deposition and cut areas common; occasionally connected.	Number and length of water flow patterns nearly match what is expected for the site; erosion is minor with some instability and deposition.	Number and length of water flow patterns match what is expected for the site; some evidence of minor erosion. Flow patterns are stable and short.	Matches what is expected for the site; minimal evidence of past or current soil deposition or erosion.
3. Pedestals and/or Terracettes (Wind and Water)	Abundant active pedestalling and numerous terracettes. Many rocks and plants are pedestalled; exposed plant roots are common.	Moderate active pedestalling; terracettes common. Some rocks and plants are pedestalled with occasional exposed roots.	Slight active pedestalling; most pedestals are in flow paths and interspaces and/or on exposed slopes. Occasional terracettes present.	Active pedestalling or terracette formation is rare; some evidence of past pedestal formation, especially in water flow patterns and on exposed slopes.	Current or past evidence of pedestalled plants or rocks as expected for the site. Terracettes absent or uncommon.
4. Bare Ground	Much higher than expected for the site. Bare areas are large and generally connected.	Moderately to much higher than expected for the site. Bare areas are large and occasionally connected.	Moderately higher than expected for the site. Bare areas are of moderate size and sporadically connected.	Slightly to moderately higher than expected for the site. Bare areas are small and rarely connected.	Amount and size of bare areas match that expected for the site.
5. Gullies	Common with indications of active erosion and downcutting; vegetation is infrequent on slopes and/or bed. Nickpoints and headcuts are numerous and active.	Moderate in number to common with indications of active erosion; vegetation is intermittent on slopes and/or bed. Headcuts are active; downcutting is not apparent.	Moderate in number with indications of active erosion; vegetation is intermittent on slopes and/or bed. Occasional headcuts may be present.	Uncommon, vegetation is stabilizing the bed and slopes; no signs of active headcuts, nickpoints, or bed erosion.	Match what is expected for the site; drainages are represented as natural stable channels; vegetation common and no signs of erosion.
6. Wind-Scoured, Blowout, and/or Depositional Areas	Extensive.	Common.	Occasionally present.	Infrequent and few.	Match what is expected for the site.
7. Litter Movement (wind or water)	Extreme; concentrated around obstructions. Most size classes of litter have been displaced.	Moderate to extreme; loosely concentrated near obstructions. Moderate to small size classes of litter have been displaced.	Moderate movement of smaller size classes in scattered concentrations around obstructions and in depressions.	Slightly to moderately more than expected for the site with only small size classes of litter being displaced.	Matches that expected for the site with a fairly uniform distribution of litter.
8. Soil Surface Resistance to Erosion	Extremely reduced throughout the site. Biological stabilization agents including organic matter and biological crusts virtually absent.	Significantly reduced in most plant canopy interspaces and moderately reduced beneath plant canopies. Stabilizing agents present only in isolated patches.	Significantly reduced in at least half of the plant canopy interspaces, or moderately reduced throughout the site.	Some reduction in soil surface stability in plant interspaces or slight reduction throughout the site. Stabilizing agents reduced below expected.	Resistance of soil surface to erosion matches that expected for the site. Surface soil is stabilized by organic matter decomposition products and/or a biological crust.

Appendix 1-1 continued 2005
Qualitative Assessment Worksheet: Indicators of Rangeland Health

Degree of Departure from Ecological Site Description and/or Ecological Reference Area(s)					
Indicator	Extreme	Moderate to Extreme	Moderate	Slight to Moderate	None to Slight
9. Soil Surface Loss or Degradation	Soil surface horizon absent. Soil structure near surface is similar to, or more degraded, than that in subsurface horizons. No distinguishable difference in subsurface organic matter content.	Soil loss or degradation severe throughout site. Minimal differences in soil organic matter content and structure of surface and subsurface layers.	Moderate soil loss or degradation in plant interspaces with some degradation beneath plant canopies. Soil structure is degraded and soil organic matter content is significantly reduced.	Some soil loss has occurred and/or soil structure shows signs of degradation, especially in plant interspaces.	Soil surface horizon intact. Soil structure and organic matter content match that expected for site.
10. Plant Community Composition & Distribution Relative to Infiltration & Runoff	Infiltration is severely decreased due to adverse changes in plant community composition and/or distribution. Adverse plant cover changes have occurred.	Infiltration is greatly decreased due to adverse changes in plant community composition and/or distribution. Detrimental plant cover changes have occurred.	Infiltration is moderately reduced due to adverse changes in plant community composition and/or distribution. Plant cover changes negatively affect infiltration.	Infiltration is slightly to moderately affected by minor changes in plant community composition and/or distribution. Plant cover changes have only a minor effect on infiltration.	Infiltration and runoff are not affected by any changes in plant community composition and distribution. Any changes in infiltration and runoff can be attributed to other factors (e.g. compaction).
11. Compaction Layer	Extensive; severely restricts water movement and root penetration.	Widespread; greatly restricts water movement and root penetration	Moderately wide-spread, moderately restricts water movement and root penetration.	Rarely present or is thin and weakly restrictive to water movement and root penetration.	Matches that expected for the site; none to minimal, not restrictive to water movement and root penetration.
12. Functional/Structural Groups	Number of F/S groups greatly reduced and/or Relative dominance of F/S groups has been dramatically altered and/or Number of species within F/S groups dramatically reduced.	Number of F/S groups reduced and/or one dominant group and/or one or more sub-dominant group replaced by F/S groups not expected for the site and/or Number of species within F/S groups significantly reduced.	Number of F/S groups moderately reduced and/or One or more subdominant F/S groups replaced by F/S groups not expected for the site and/or Number of species within F/S groups moderately reduced.	Number of F/S groups slightly reduced and/or Relative dominance of F/S groups has been modified from that expected for the site and/or number of species within F/S slightly reduced.	F/S groups and number of species in each group closely match that expected for the site.
13. Plant Mortality/Decadence	Dead and/or decadent plants are common.	Dead plants and/or decadent plants are somewhat common.	Some dead and/or decadent plants are present.	Slight plant mortality and/or decadence.	Plant mortality and decadence match that expected for the site.
14. Litter Amount	Largely absent or dominant relative to site potential and weather.	Greatly reduced or increased relative to site potential and weather.	Moderately more or less relative to site potential and weather.	Slightly more or less relative to site potential and weather.	Amount is what is expected for the site potential and weather.
15. Annual Production	Less than 20% of potential production for the site based on recent weather.	20-40% of potential production for the site based on recent weather.	40-60% of potential production for the site based on recent weather.	60-80% of potential production for the site based on recent weather.	Exceeds 80% of potential production for the site based on recent weather.
16. Invasive Plants	Dominate the site.	Common throughout the site.	Scattered throughout the site.	Present primarily in disturbed areas within the site.	If present, composition of invasive species matches that expected for the site.
17. Reproductive Capability of Perennial Plants	Capability to produce seed or vegetative tillers is severely reduced relative to recent climatic conditions.	Capability to produce seed or vegetative tillers is greatly reduced relative to recent climatic conditions.	Capability to produce seed or vegetative tillers is moderately reduced relative to recent climatic conditions.	Capability to produce seed or vegetative tillers is slightly limited relative to recent climatic conditions.	Capability to produce seed or vegetative tillers is not reduced relative to recent climatic conditions.

Appendix 1-2 Standard Checklist For Lotic Riparian

Yes	No	N/A	Hydrologic	Yes	No	N/A	Vegetative	Yes	No	N/A	Soils-Erosion Deposition
			1. Floodplain above bankfull inundated in "relatively frequent" events				6. There is diverse age-class distribution of riparian wetland vegetation (recruitment for maintenance/recovery)				13. Flood plain and channel characteristics (i.e., rocks overflow channel, coarse and/or large woody material) are adequate to dissipate energy
			2. Where beaver dams are present they are active and stable				7. There is diverse composition of riparian-wetland vegetation (for maintenance/recovery)				14. Point bars are revegetating with riparian-wetland vegetation
			3. Sinuosity, width/depth ratio, and gradient are in balance with the landscape setting (i.e., landform, geology, and bioclimatic region)				8. Species present indicate maintenance of riparian soil moisture characteristics				15. Lateral stream movement is associated with natural sinuosity
			4. Riparian-wetland area is widening or has achieved potential extent				9. Streambank vegetation is comprised of those plant or plant communities that have root masses capable of withstanding high streamflow events				16. System is vertically stable
			5. Upland watershed is not contributing to riparian degradation				10. Riparian-wetland plants exhibit high vigor				17. Stream is in balance with the water and sediment being supplied by the watershed (i.e. no excessive erosion or deposition)
							11. Adequate riparian-wetland vegetative cover present to protect banks and dissipate energy during high flows				
							12. Plant communities are an adequate source of coarse and/or large woody material (for maintenance/recovery)				

Standard Checklist for Lentic Riparian

Yes	No	N/A	Hydrologic	Yes	No	N/A	Vegetative	Yes	No	N/A	Soils-Erosion Deposition
			1. Riparian-wetland area is saturated at or near the surface or inundated in "relatively frequent" events				8. Diverse age-class distribution (recruitment for maintenance or recovery)				16. Accumulation of chemicals affecting plant productivity/composition is not apparent
			2. Fluctuation of water levels is not excessive				9. Diverse composition of vegetation (for maintenance/recovery)				17. Saturation of soils (i.e., ponding, flooding frequency and duration) is sufficient to compose and maintain hydric soils
			3. Riparian-wetland zone is enlarging or has achieved potential extent				10. Species present indicate maintenance of riparian-wetland soil moisture characteristics				18. Underlying geologic structure/soil material/permafrost is capable of restricting water percolation
			4. Upland watershed is not contributing to riparian-wetland degradation				11. Vegetation is comprised of those plants or plant communities that have root masses capable of withstanding wind events, wave flow events, or overland flows (e.g., storm events, snowmelt)				19. Riparian-wetland is in balance with water and sediment being supplied by the watershed (i.e., no excessive erosion or deposition)
			5. Water quality is sufficient to support riparian-wetland degradation				12. Riparian-wetland plants exhibit high vigor				20. Islands and shoreline characteristics (i.e., rocks, course and/or large woody debris) adequate to dissipate wind and wave event energies
			6. Natural surface or subsurface flow patterns are not altered by disturbance (i.e., hoof action, dam, dikes, trails, roads, rills, gullies, drilling activities)				13. Adequate vegetative cover present to protect shorelines/soil surface and dissipate energy during high wind and wave events or overland flows				
			7. Structure accommodates safe passage of flows (e.g., no headcut affecting dam or spillway)				14. Frost or abnormal hydrologic heaving is not present				
							15. Favorable microsite conditions (i.e., woody debris, water temperature, etc.) is maintained by adjacent site characteristics				

Appendix 1-3 2005

Standard 8 Sage-grouse Habitat Assessment Worksheet - Breeding Habitat

Habitat Indicator	Suitable Habitat	Marginal Habitat	Unsuitable Habitat
Average Sagebrush Canopy Cover	≥ 15% but ≤ 25%	10-15% or >25%	<10%
Average Sagebrush Height Mesic Site	15-30"	10-14" or > 30"	< 10"
Arid Site	12-30"	10-11" or > 30"	< 10"
Sagebrush Growth Form	Spreading form, few, if any, dead branches for most plants	Mix of spreading and columnar growth forms present	Tall, columnar growth form with dead branches for most plants
Average Grass and Forb Height	≥ 7"	5 - <7"	< 5"
Average Perennial Grass Canopy Cover Mesic Site	≥ 15%	5 - < 15%	< 5%
Arid Site	≥ 10%	5 - < 10%	< 5%
Average Forb Canopy Cover Mesic Site	≥ 10%	5 - < 15%	< 5%
Arid Site	≥ 5%	5 - < 10%	< 3%
Preferred Forb Abundance and Diversity	Forbs common with at least a few preferred species present	Forbs common but only 1 or 2 preferred species present	Forbs rare to sparsely present

Standard 8 Sage-grouse Habitat Assessment Worksheet - Late Brood-rearing

Indicator	Suitable Habitat	Marginal	Unsuitable Habitat
Riparian and Wet Meadow Communities:			
Riparian and wet meadow plant community	Mesic or wetland plant species dominate wet meadow or riparian area	Xeric plant species invading wet meadow or riparian area	Xeric plant species along water's edge or near center of wet meadow
Riparian and wet meadow stability	No erosion evident; some bare ground may be evident but vegetative cover dominates the site	Minor erosion occurring and bare ground may be evident but vegetative cover dominates the site	Major erosion evident; large patches of bare ground
Forb availability in uplands and wetland areas	Succulent, green forbs are readily available in terms of distribution and plant structure	Succulent, green forbs are available though distribution is spotty or plant structure limits effective use	Succulent, green forbs are not available
Proximity of sagebrush cover	Sagebrush cover is adjacent to brood-rearing area (< 100 yards)	Sagebrush cover is in close proximity (100 - 300 yards) of brood-rearing areas	Sagebrush cover is unavailable (> 300 yards).
Upland Sagebrush Communities:			
Forb availability	Succulent, green forbs are readily available in terms of distribution and plant structure	Succulent, green forbs are available though distribution is spotty or plant structure limits effective use	Succulent, green forbs are scarce or not available despite favorable growing conditions

Appendix 1-3 continued 2005

Standard 8 Sage-grouse Habitat Assessment Worksheet - Winter Habitat

Habitat Indicator	Suitable Habitat	Marginal Habitat	Unsuitable Habitat
Sagebrush canopy cover	10-30%	5- 9% or >30%	< 5%
Sagebrush height (availability during the winter)	Generally tall or a diversity of sagebrush heights present relative to species and site potential	Some tall plants but generally more moderate to short plants relative to species and site potential	Poor height diversity with generally short plants relative to species and site potential

Appendix 1-3 - continued

Site Forb Abundance Form for Sage-grouse Evaluations

Species	Rare	Sparse	Common
Sage-grouse Preferred Forbs:			
Broomrape (<i>Orobanche</i> spp.)			
Composites			
Daisies (<i>Erigeron</i> and <i>Aster</i> spp.)			
Dandelion, C. (<i>Taraxacum officinale</i>)			
Dandelion, Mt. (<i>Agoseris</i> spp.)			
Hawksbeard (<i>Crepis</i> spp.)			
Microsteris (<i>Microseris</i> spp.)			
Prickly lettuce (<i>Lactuca serriola</i>)			
Salsify (<i>Tragopogon dubius</i>)			
Desert-parsley (<i>Lomatium</i> and <i>Cymopterus</i> spp.)			
Everlasting (<i>Antennaria</i> spp.)			
Groundsmoke (<i>Gayophytum</i> spp.)			
Knotweed (<i>Polygonum</i> spp.)			
Legumes (other than <i>Lupinus</i> spp.)			
Alfalfa (<i>Medicago</i> spp.)			
Bird's foot tre-foil (<i>Lotus</i> spp.)			
Clover (<i>Trifolium</i> spp.)			
Sweet clover (<i>Melilotus</i> spp.)			
Sweet vetch (<i>Hedysarum</i> spp.)			
Vetch (<i>Vicia</i> spp.)			
Milkvetch (<i>Astragalus</i> spp.)			
Peppergrass (<i>Lepidium</i> spp.)			
Phlox (<i>Phlox</i> spp.)			
Prairie star flower (<i>Lithophragura</i> spp.)			
Yarrow (<i>Achillea millifolium</i>)			
Other Forbs:			

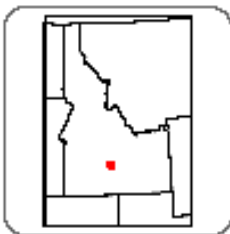
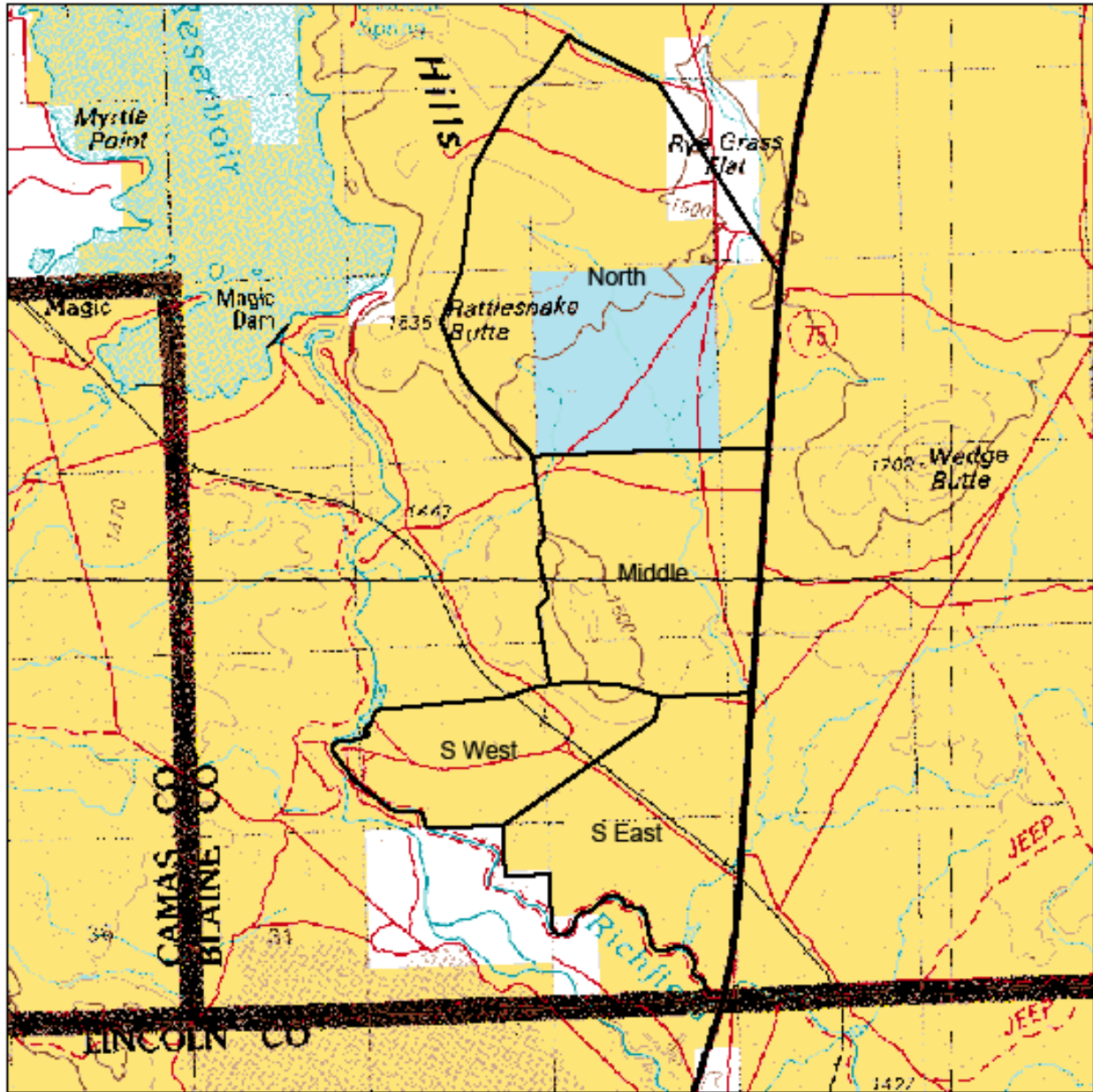
Directions:

1. Walk around an area generally the size of a 100-foot radius circle and observe the relative abundance of forbs based on the following ratings:

- Rare:** Less than 5 plants
- Sparse:** 5-25 plants
- Common:** 26+ plants





Appendix 2: Allotment Map

SQUARE LAKE ALLOTMENT



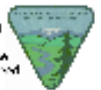
United States Department of the Interior
Bureau of Land Management
Twin Falls District, Idaho

Legend

-  Square Lake Allotment
-  Bureau of Land Management
-  Private
-  State



No warranty is made by the Bureau of Land Management. The accuracy, reliability, or completeness of these data is not guaranteed.



Friday, September 5, 2008 1:12:30 PM
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Appendix 3: Federally listed and BLM sensitive species list

Federally Listed and BLM Sensitive Animal Species that may occur in the Shoshone Field Office		
Common Name	Scientific Name	General Habitat Use
Type 1-Threatened (T), Endangered (E), or Candidate (C)		
Yellow-billed Cuckoo (C)	<i>Coccyzus americanus</i>	Riparian...
Gray Wolf	<i>Canis lupus</i>	Forest, Sagebrush, Riparian
Type 2-Rangewide/Globally Imperiled Species		
Greater Sage-grouse	<i>Centrocercus urophasianus</i>	Sagebrush, Riparian
Canada Lynx	<i>Lynx canadensis</i>	Forest
Bald Eagle	<i>Haliaeetus leucocephalus</i>	Forest, Sagebrush, Riparian
Pygmy Rabbit	<i>Brachylagus idahoensis</i>	Sagebrush
Boreal Toad	<i>Bufo boreas boreas</i>	Riparian
Northern Leopard Frog	<i>Rana pipiens</i>	Riparian
Type 3-Regional/State Imperiled Species		
Townsend's Big-eared Bat	<i>Plecotus townsendii</i>	Sagebrush, Grassland, Cave
Fringed Myotis	<i>Myotis thysanodes</i>	Sagebrush, Grassland, Cave
Fisher	<i>Martes pennanti</i>	Forest, Riparian
Wolverine	<i>Gulo gulo luscus</i>	Forest, Riparian
Prairie Falcon	<i>Falco mexicanus</i>	Sagebrush, Grassland
Peregrine Falcon	<i>Falco peregrinus anatum</i>	
Northern Goshawk	<i>Accipiter gentilis</i>	Forest, Grassland, Sagebrush, Riparian
Ferruginous Hawk	<i>Buteo regalis</i>	Forest, Grassland, Sagebrush, Riparian
Mountain Quail	<i>Oreotyx pictus</i>	Forest, Grassland, Sagebrush, Riparian
Flammulated Owl	<i>Otus flammeolus</i>	Forest, Grassland, Sagebrush, Riparian
Lewis's Woodpecker	<i>Melanerpes lewis</i>	
Willow Flycatcher	<i>Empidonax trailii</i>	Forest, Riparian
Grasshopper Sparrow	<i>Ammodramus savannarum</i>	Grassland, Sagebrush
Loggerhead Shrike	<i>Lanius ludovicianus</i>	Sagebrush
Brewer's Sparrow	<i>Spizella breweri</i>	Sagebrush

Federally Listed and BLM Sensitive Animal Species that may occur in the Shoshone Field Office		
Sage Sparrow	<i>Amphispiza belli</i>	Sagebrush
Common Garter Snake	<i>Sonora semiannulata</i>	Forest, Riparian
Western Toad	<i>Bufo boreas</i>	Forest, Riparian
Type 4-Idaho Peripheral Species		
California Myotis	<i>Myotis californicus</i>	Sagebrush, Grassland, Cave
White-faced Ibis	<i>Plegadis chihi</i>	Grassland, Riparian
Virginia's Warbler	<i>Vermivora virginiae</i>	Forest, Grassland, Sagebrush, Riparian
Black-throated Sparrow	<i>Amphispiza bilineata</i>	Grassland, Sagebrush, Riparian
<p>Type 1-Threatened, Endangered, and Proposed Species -These species are listed by the Fish and Wildlife Service or National Marine Fisheries Service as threatened or endangered, or they are proposed for listing under the Endangered Species Act.</p> <p>Type 2- Range-wide/Globally Imperiled Species -These are species designated as FWS candidate or are ranked by the Natural Heritage program network as globally rare to critically imperiled.</p> <p>Type 3-Regional/State Imperiled Species -These are species that are in danger of becoming extirpated from Idaho in the foreseeable future if factors contributing to their decline, or habitat degradation or loss, continue.</p> <p>Type 4-Peripheral Species -These are species that are in danger of becoming extirpated from Idaho and (a) may be local endemics with currently low threat levels or (b) peripheral, rare species in Idaho.</p>		

V. LITERATURE CITED:

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