RESOURCE MANAGEMENT PLAN/
ENVIRONMENTAL IMPACT STATEMENT

Analysis of the Management Situation for the Jarbidge Resource Management Plan

July 2007

Jarbidge Field Office, Idaho

BLM

It is the mission of the Bureau of Land Management to sustain the health, diversity, and productivity of the public lands for the use and enjoyment of present and future generations.

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EXECUTIVE SUMMARY

The Bureau of Land Management (BLM) Twin Falls District is preparing a Resource Management Plan/Environmental Impact Statement (RMP/EIS) for the Jarbidge Field Office (FO) planning area. This area was previously recognized as the Jarbidge planning area of the Boise and Lower Snake River District. Management decisions for this land area are currently covered by the 1987 Jarbidge RMP. A limited number of amendments to this plan have been made during the past 19 years. The revised Jarbidge RMP will replace the 1987 RMP and its amendments for lands within the current planning area.

Purpose of Analysis of the Management Situation

While preparing an RMP, BLM must analyze inventory data and other information available to identify issues and opportunities. This is called the Analysis of the Management Situation (AMS). The AMS provides BLM's current understanding of resources and uses in the planning area; a snapshot in time that BLM is continuing to refine through additional compilation and analysis of data and information. BLM will consider these preliminary and subsequent assessments of conditions, current management, and management opportunities in the RMP/EIS.

All data, maps, and figures are based on preliminary analyses of datasets as of March 2007. As both the data and analyses are in draft form, any numbers, acreages, and maps are presented for illustrative and comparative purposes only and are not intended for use beyond this document. Prior to the publication of the Draft RMP, new data may be added and existing data may be refined. Specific analyses, uses, and displays of data may vary from those that appear in the Draft RMP/EIS as appropriate to the needs of that document.

This document represents an early component of the resource management planning process. The AMS is not intended to be an exhaustive review of resources or uses within the planning area, nor does it provide specific details about various resources. It is intended to provide a summary analysis of existing management practices, including direction from existing plans and agency policy; local resources and resource uses; and social and economic conditions.

General Description of Planning Area

The Jarbidge RMP planning area extends from the Bruneau River on the west to Salmon Falls Creek on the east, and from the Snake River on the north to the northern boundaries of the BLM Elko FO and the Humboldt-Toiyabe National Forest on the south (Figure 1). It includes parts of Elmore, Owyhee, and Twin Falls Counties in south central Idaho and Elko County in northern Nevada. Although these counties have a combined population of nearly 155,000 (US Census Bureau, 2007), Hot Springs, Indian Cove, Murphy Hot Springs, Three Creek, and Roseworth, and are the only communities within the planning area; all have populations of less than 100 people. The majority of the planning area supports sagebrush steppe and seeded grasslands, mostly from fire rehabilitation projects.

The 1987 Jarbidge RMP made decisions for the planning area by multiple use area (MUA) (Figure 2). These MUAs will not be carried forward in the new planning effort, but will be discussed when talking about current management. The boundary for the planning area has changed from the 1987 RMP. Acreage numbers in the 1987 RMP may not be directly comparable to current planning efforts due to that change.

Key Findings

The following are the key findings of the AMS:

- The planning area contains lands that are unique and desirable as places to live and recreate.
- Human uses and impacts on public lands are likely to increase in the future.
- Wildfire has affected all resources within the planning area to some degree and is a major driving force in the current condition of most resources.
- Restoration is needed to improve degraded lands and could be an important component of the revised RMP.
- There is a downward trend in native vegetation associated with the increase in annual non-native vegetation.
- Sagebrush communities have declined and become fragmented, affecting the special status species that rely on them for habitat.
- There is an increased demand for varying uses of the public lands including access, transportation routes, right of ways, and renewable energy development.
- Livestock grazing management influences the condition of resources.
- Rangeland health, wildfire, off-highway vehicle (OHV) use, and special designations impact resource conditions.

Figure 1. Jarbidge RMP Planning Area

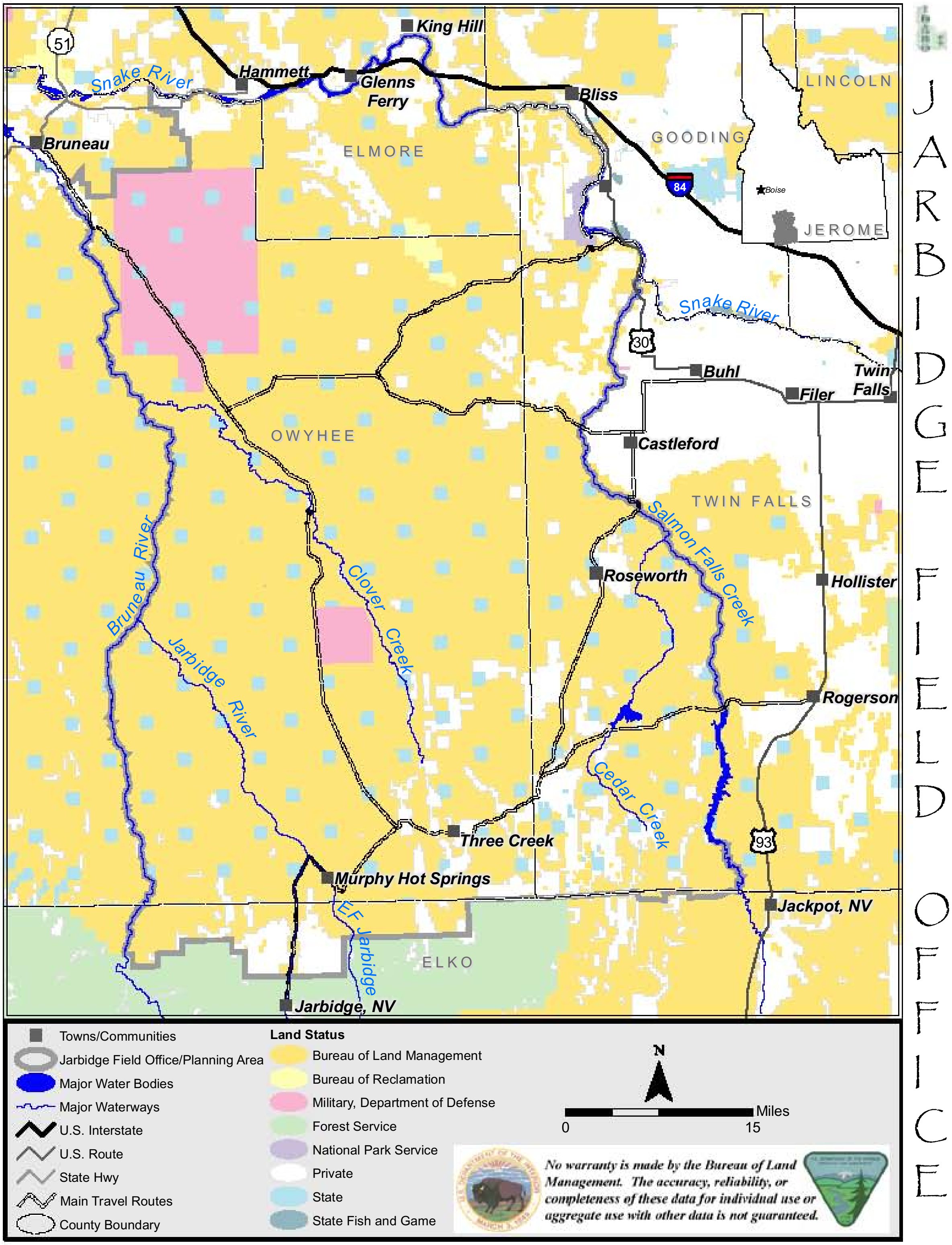
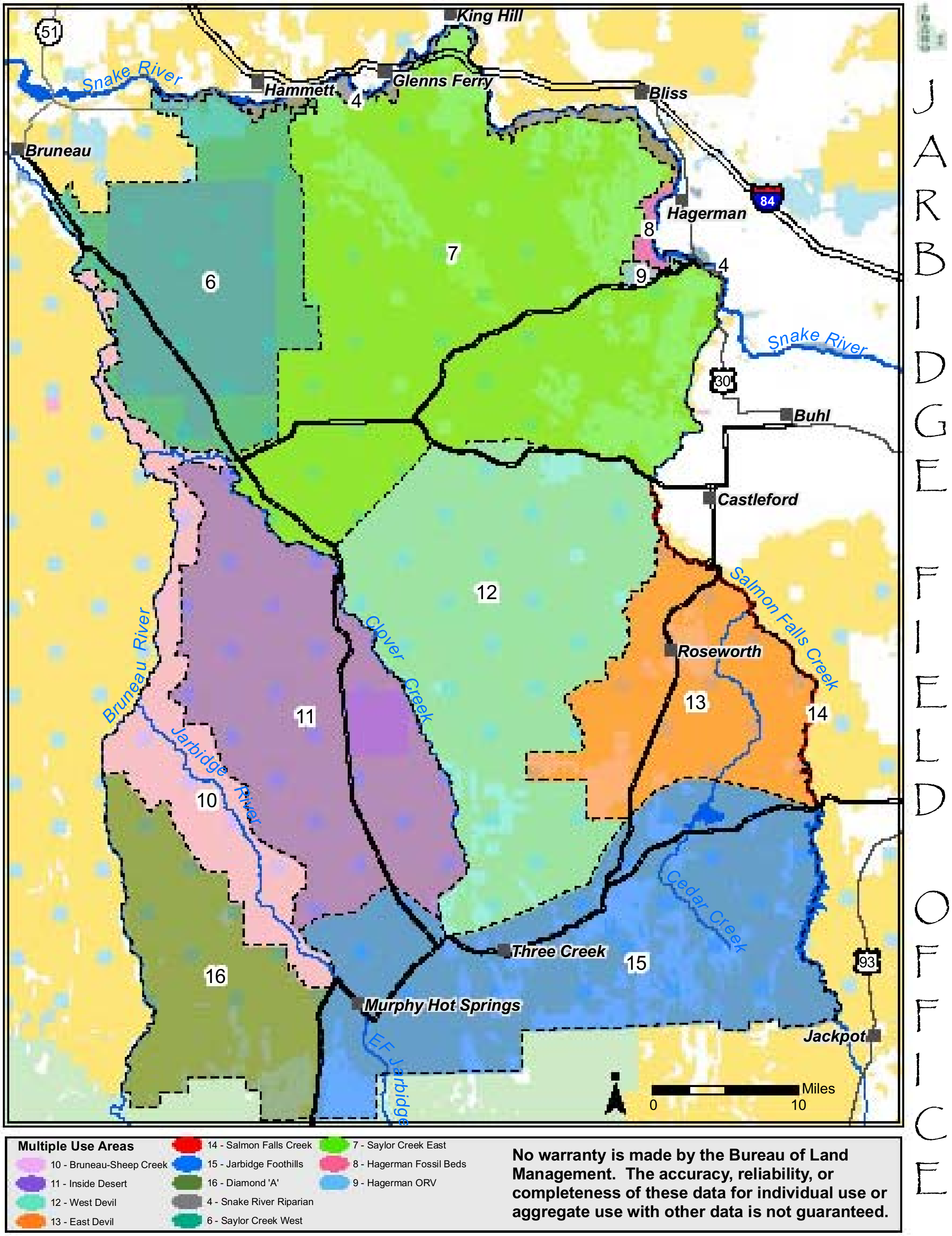


Figure 2. 1987 Jarbidge RMP MUAs



CHAPTER 1. PROFILE, CURRENT MANAGEMENT, AND MANAGEMENT OPPORTUNTIES

1.A. Tribal Rights and Interests

The United States has a unique legal relationship with American Indian Tribal governments as set forth in the Constitution of the United States, treaties, statutes, Executive Orders, and court decisions. Since the formation of the Union, the United States has recognized Native American Tribes as domestic dependent nations under its protection. The Federal Government has enacted numerous regulations and policies that establish and define a trust relationship with Indian Tribes.

All Federally recognized Tribes have off-reservation interests in public lands, and many retain pre-existing rights reserved through treaty or Executive Order language. The legal basis of these Tribal rights and interests are founded in the inherent sovereignty of Tribes, continuing aboriginal rights, pre-existing rights reserved in treaties, executive order, agreements, and Federal statutes.

The relationship between Federal agencies and sovereign Tribes is defined by numerous laws and regulations addressing the requirement of Federal agencies to notify or consult with Native American Tribes, or otherwise consider their rights and interests when planning and implementing Federal undertakings. Pertinent laws, regulations, executive orders, and policy statements are listed in the Planning Criteria section of this report.

The planning area is the homeland of three culturally and linguistically related tribes: the Northern Shoshone, the Bannock, and the Northern Paiute. In the latter half of the 19th century, reservations were established at Fort Hall near Blackfoot in eastern Idaho and at Duck Valley on the Nevada/Idaho border west of the Bruneau River. The composite Tribes residing on these reservations today actively practice their culture and retain treaty and aboriginal rights and/or interests in the planning area.

The US government has a trust responsibility to Federally recognized Native American Tribes that covers lands, natural resources, money, or other assets held by the Federal government in trust or restricted against alienation for Native American Tribes and Native American individuals. Additionally, BLM must consider and protect off-reservation treaty-reserved fishing, hunting, gathering, and similar rights of access and resource use on the public lands it administers. Within the planning area, the Shoshone-Bannock Tribes of the Fort Hall Reservation have rights, reserved in the Fort Bridger Treaty of 1868, to hunt, fish, and gather on the unoccupied lands of the United States. The Shoshone-Paiute Tribes claim aboriginal rights to their traditional homelands as their treaties with the United States, the Boise Valley Treaty of 1864 and the Bruneau Valley Treaty of 1866, which would have extinguished aboriginal title to the lands now Federally administered, were never ratified.

BLM is responsible under statute, regulation, and Executive Orders (Appendix 1) to consult with those Federally recognized Tribes whose rights and/or interests might be affected by land management decisions and actions.

Consultation with the Shoshone-Paiute Tribes of the Duck Valley Reservation and the Shoshone-Bannock Tribes of the Fort Hall Reservation over the years indicates a wide range of Tribal rights and/or interests are present in the planning area. These include potential impacts to resources associated with practices like hunting; trapping; fishing; gathering food, medicinal plants, and other natural products; the availability of clean water and healthy plant and animal populations; as well as potential impacts to aboriginal archaeological sites, sacred sites, and traditional cultural properties.

The identification of lands for retention or disposal is of great interest to the Tribes. The natural and cultural resources associated with a particular parcel of public land identified for exchange may not exist on an incoming parcel. This is of particular concern in a Federal land sale or transfer, where there are no incoming lands to potentially replace the acreage and associated cultural and natural resource values going out of Federal ownership. As a result, the practice of the treaty-reserved right and/or traditional use associated with these foregone resources would likely be negatively impacted.

The 1987 RMP did not make management decisions that specifically addressed tribal rights or interests in the planning area. Decisions and actions, tiered to the 1987 RMP, that might affect tribal rights or interests are implemented in consultation with Tribal governments.

Current management direction requires consultation with affected Tribes during planning and subsequent plan implementation to ensure the rights or interests of the Tribes are addressed. Consultation is particularly important when considering decisions regarding the allocation of lands for special designations, such as Areas of Critical Environmental Concern (ACECs), for land tenure adjustments (disposal or retention of lands), and for decisions affecting access, travel management, cultural resources, or other use allocations.

1.B. Resources

1.B.1. Regional Context

Description of Region

The planning area is located in the northern part of the Basin and Range Province of the Great Basin in Nevada and in the Snake River Plain, which lies in the southern portion of the Columbia River Basin in Idaho. The Columbia River Basin is the primary drainage basin in the Northwestern United States and has a total drainage area of approximately 214,000 square miles (mi^2) (FWS, 1995). In July 1993, President Bill Clinton requested land management agencies to develop a scientifically sound, ecosystem-based strategy for forest and rangelands east of the Cascade Mountains. The resulting Interior Columbia Basin Ecosystem Management Project (ICBEMP) increased the scientific understanding of ecosystem processes and functions in the basin and led to a better awareness that many forest, range, riparian, and aquatic ecosystems are becoming less resilient and, as a result, some plant and animal species dependant on these ecosystems are declining (Quigley & Arbelbide, 1997; Wisdom et al., 2000). ICBEMP provides a regional framework for public lands management throughout the Columbia River Basin and is being used as a reference in the revision of the Jarbidge RMP.

Planning Area Description

The Jarbidge planning area is known for its unique geology of broad, gently rolling plateau lands with deeply incised rivers, which provide a variety of scenic values and habitats used by numerous fish, plant, and wildlife species. Water availability influences the distribution of plant communities and is based on the rain shadow effect, distribution of soil types, slope, and aspect. Dry lowland areas support salt desert shrub communities, which change to sagebrush steppe with increasing elevation and moisture. At higher elevations, juniper, aspen, and mountain mahogany are present. A few areas contain limber pine and subalpine fir. Surface water is generally limited to scattered perennial springs and creeks. Creeks are typically located in the deeper draws and canyons.

Terrestrial Ecosystems

There is very little information on population trends for the majority of wildlife species found in the region, often limited to species presence or absence. The majority of wildlife is considered non-game. For some hunted species, primarily big game, there is limited long-term population trend data.

In southern Idaho, numbers of pheasant, California quail, and gray partridge are generally lower than 40 years ago. This is due in large part to changes in agriculture (e.g., field leveling, increased field size, use of center pivots) that reduced nesting and winter habitat for these game birds (Hayden, Spicer, Crenshaw, Rachael et al., 2006). Long-term Breeding Bird Survey routes also show declines in some bird species (Rich et al., 2004).

Greater sage-grouse numbers have declined in the region due in part to the conversion and fragmentation of sagebrush steppe habitat in the Snake River Plain and portions of Nevada from the 1940s into the 1980s. Numerous large wildfires since the 1970s, and subsequent rehabilitation, resulted in millions of acres of sagebrush steppe converted into grasslands in both southern Idaho and northern Nevada, which has reduced the suitability of winter habitat for a variety of wildlife species (Paige & Ritter, 1999). Approximately 46% of the acreage in the planning area is no longer vegetated by sagebrush steppe. In adjacent BLM planning areas, fires removed sagebrush from 23% of the Bruneau FO (McCoy, 2007), just over 50% of the vegetated portion of Craters of the Moon National Monument (BLM & NPS, 2004), and nearly 68% of the acreage of the Snake River Birds of Prey National Conservation Area (BLM, 2006). Fires burned about 37% of the sage-grouse habitat in the BLM Elko FO north of Interstate 80 in the past 9 years (Welch, 2007). These habitat changes contributed to long-term declines in numbers of active greater sage-grouse leks and populations. In addition, West Nile Virus recently arrived in southwestern Idaho. Idaho Department of Fish and Game (IDFG) closed the greater sage-grouse hunting season in western Owyhee County in 2006, and several landowners in the area reported dozens of dead sage-grouse near private meadowlands.

Bighorn sheep and elk were extirpated from the region by the 1950s, but through transplant efforts in Idaho and Nevada by IDFG and Nevada Division of Wildlife (NDOW), elk are present in northern Nevada and bighorn sheep populations are established with controlled hunting allowed in Idaho. As the elk herd increases, elk are immigrating into southern Idaho. NDOW's current management plan targets a population of 2,500 elk; IDFG has yet to set a population target for elk in this part of the state. Pronghorn and mule deer numbers are down from levels observed in the late 1980s as a result of wildfires that burned a substantial acreage of winter range in the region.

Numbers of designated BLM Sensitive wildlife species have increased in the planning area and throughout the West. There is little information regarding the population trends of the majority of species presently designated by BLM as Sensitive. Partners in Flight identifies 14 Watch species and 16 Stewardship species in the region (Rich et al., 2004). Many of the species are found in riparian, sagebrush steppe, and juniper habitats.

Riparian and Aquatic Ecosystems

The Snake River aquifer, one of the largest groundwater systems in Idaho, underlies the Snake River Plain from St. Anthony, Idaho, to the western end of the Snake River on the northern boundary of the planning area (FWS, 1995). The physical characteristics of the rocks in the Snake River Plain provide a highly reliable and productive source of groundwater. Spring discharges of groundwater between Milner Reservoir and King Hill equal approximately two-thirds of the total groundwater released from the aquifer (IWRB, 1993). Thousands of claims to surface and groundwater in the Snake River Plain exist for agriculture and other purposes under Idaho water law. These claims are filed with the Idaho Department of Water Resources (IDWR) and documented as part of the Snake River Basin Adjudication.

The Snake River has a total drainage area of approximately 110,000 mi^2 and is the largest tributary in the Columbia River Basin (FWS, 1995). The Snake River Plain stretches west to the Owyhee Mountains near the Oregon border, north to the southern edge of the Lemhi Mountain Range, east to the foothills of the Rocky Mountains and south to the Great Basin uplift in southern Idaho. The relatively flat surface of the plain generally slopes westward and makes the Snake River one of North America's highest gradient large rivers (60 FR 49819). Prior to the development of hydroelectric dams and impoundments and the regulation of flows, the Snake

River fauna included large migrations of chinook salmon, steelhead trout, anadromous sturgeon, and Pacific lamprey. Today, several of these fish in the middle Snake River are extinct or considered Sensitive by the BLM and IDFG. Native Sensitive fish species in this river reach currently include white sturgeon, redband trout, and Shoshone sculpin. Population data for these species of fish are managed by IDFG and the Idaho Conservation Data Center (CDC).

The Jarbidge River in southwest Idaho and northern Nevada is a tributary to the Snake River and contains the southernmost population of bull trout in North America (FWS, 2004). Genetic analysis of bull trout in the Columbia River Basin indicates Jarbidge River bull trout have a shared evolutionarily history with populations in the upper Columbia River and Snake River. For over 100 years, Jarbidge River bull trout have been geographically isolated from other populations in the Snake River by more than 150 miles of unsuitable habitat and several impassable hydroelectric dams on the Snake River and lower Bruneau River (FWS, 2004). Bull trout in the Jarbidge River are considered important because they occupy a unique and unusual ecological setting and their loss would result in a substantial modification of the species' range. These bull trout are the only species of fish within the planning area Federally listed as Threatened under the Endangered Species Act of 1973 (ESA). An interagency recovery plan is being developed for the long-term protection and recovery of this species in Idaho and northern Nevada.

Cultural and Paleontological Context

Cultural resources in the planning area are typical of south central Idaho and north central Nevada in terms of cultural themes and the density, distribution, and types of sites. For approximately 12,000 years, human use of the planning area revolved around hunting, gathering, and fishing pursuits, with short-term adjustments and long-term adaptations to climatic changes. Since the 1880s, cattle, horse, and sheep ranching and farming have been the dominant cultural themes. Native American populations in the area include the Northern Shoshone, Bannock, and Northern Paiute Tribes. Tribal members, now concentrated at the Duck Valley and Fort Hall Reservations, maintain a close spiritual connection to the land.

Paleontological resources in the region, including several concentrations of major scientific importance, are primarily associated with the ancient Pliocene and Pleistocene lake sediments that form the Snake River Plain across southern Idaho.

1.B.2. Air Resources

Profile

Indicators

Air quality in a given location is described by the concentrations of various pollutants in the atmosphere, expressed in units of parts per million (ppm) or micrograms per cubic meter ($\mu g/m^3$). Air quality is determined by the type and amount of pollutants emitted into the atmosphere, the size and topography of the airshed, and meteorological conditions related to the prevailing winds, which are normally from the northwest for the Jarbidge FO. The significance of a pollutant concentration is determined by comparison with Federal and/or State air quality standards, which represent the maximum allowable concentrations of various pollutants necessary to protect public health and welfare with reasonable margin of safety. Federal standards were established by the Environmental Protection Agency (EPA) and are referred to as the National Ambient Air Quality Standards (NAAQS).

The EPA Office of Air Quality Planning and Standards set NAAQS for six specific pollutants, called "critical" pollutants: carbon monoxide, lead, nitrogen dioxide, particulate matter (PM_{10} and $PM_{2.5}$), ozone, and sulfur oxides (EPA, 2007). Within the planning area, the Idaho Department of Environmental Quality (DEQ) adopted the NAAQS to regulate these pollutants at these particular levels.

According to EPA regulations, an area with air quality better than the NAAQS is designated as an attainment area, while an area with air quality worse than the NAAQS is classified as a non-attainment area. An unclassifiable area is one in which insufficient air quality monitoring data has been collected to justify formal classification. Many rural areas of Idaho, including the three Idaho counties of the planning area, are designated unclassifiable and generally accepted by the EPA as being in attainment of the NAAQS.

DEQ operates a real-time, continuous $PM_{2.5}$ monitoring station on the roof of Smith's Food and Drug Center on Addison Avenue in Twin Falls, Idaho. An air quality index is developed from the data and posted on the DEQ website each business day. If air quality deteriorates or is predicted to deteriorate to a point that public health could be negatively affected, the DEQ issues an Air Quality Advisory and can request the limitation of open burning and, in extreme cases, industrial activity.

Current Condition

The two main factors affecting air quality in the planning area are particulate matter, such as dust and pollen, and smoke. These are a result of wind effects on open, exposed soils, dirt roads, and small disturbed areas; vehicle emissions; and BLM's wildland fire management activities. Few outside influences on the air resources of the planning area exist except for adjacent private farming operations, which may contribute to a decline in air quality on a periodic basis as soils are tilled, plowed, and planted. The amount of particulate matter and smoke present depends on the time of year. Generally, the highest levels occur during the summer and early fall, when soils are dry and wildfire activity is high. Other times of the year are typically wetter, helping to keep soils and particulate matter in place with weather conditions less suitable for wildfire. Periodic air inversions make high levels of these pollutants worse, especially during the winter months.

There are few, if any, other activities. such as major industrial, mining or commercial activities, that degrade the air quality of the area. The only exceptions would be jet noise and emissions from United States Air Force (USAF) use of the training ranges in the planning area. The planning area's lack of developments and relative remoteness makes it free from other recognized or "critical" national ambient air quality pollutants such as carbon monoxide, lead, nitrogen dioxide, ozone, and sulfur oxides. None of these pollutants are known to occur in significant quantities or contribute to any air quality problems in the planning area. According to DEQ, this region of the state and country is known to have relatively clean air (VanZandt, 2006).

The only monitored pollutant in the area is $PM_{2.5}$. Monitoring data from DEQ's Twin Falls monitoring station between 1999 and 2005 showed this pollutant to be below the national standard of 15 $\mu g/m^3$, with a weighted annual average of 7.5 $\mu g/m^3$ over the past six years (www.epa.gov/). Limited monitoring occurred within the actual planning area; some data were collected by DEQ at the House Creek Ranch near Three Creek, Idaho, from 1999 to 2001. This particular sampling, done for background purposes, found $PM_{2.5}$ concentrations were 3.3, 3.3, and 3.1 $\mu g/m^3$ respectively, well below the standard of 15 $\mu g/m^3$. The House Creek Ranch numbers are very low, the lowest in the state, and therefore, the air quality is considered "very good to excellent" (VanZandt, 2006).

Air quality impacts from wildland fire are more significant than from other sources within the planning area. These air quality impacts include not only immediate impacts from smoke, but also impacts from the movement of soil particles from high winds after the fire and fire rehabilitation treatments.

Public Law 95-95 requires compliance with Federal, State, and local air quality regulations, as well as coordination with State and local air quality authorities. In order to ensure compliance with this law, the Twin Falls District BLM participates in the Montana/Idaho Airshed Group (Montana/Idaho Airshed Group, 2006). The Idaho State Smoke Management program is approved by DEQ, has been reviewed and approved by EPA, and acts as a State Implementation Plan for Idaho. The intent of this program is to minimize or prevent smoke impacts while using wildland fire as a tool to accomplish land management objectives. Prescribed fire projects are coordinated with the Montana/Idaho Airshed Group using the online Airshed Management System, which allows for interagency cooperation to determine appropriate burn windows and potential smoke impacts from burning.

DEQ has two advisory programs related to fire and open burning. One program primarily addresses woodstove and fireplace emissions in the winter, but can be activated at any time. When air quality reaches critical levels due to air stagnation or other reasons, burn bans may apply to the area. Another program addresses open burning and some permitted stationary sources are required to stop when a NAAQS violation is possible or taking place. By State law, Idaho cannot regulate agricultural burning but can encourage and support voluntary programs. The State also prefers voluntary rather than mandatory programs for forest and rangeland burning. A process for agencies to share information and develop a voluntary smoke management program is under development in southern Idaho.

Odors and fugitive dust are concerns in the planning area. DEQ developed policies for determining if odor emissions for facilities under its regulatory jurisdiction are excessive. If a violation is identified, DEQ requests a written Odor Management Plan from the source. Currently, the Idaho State Department of Agriculture has jurisdiction for the control of odors originating from dairies and feedlots lying to the north and east of the planning area.

DEQ has standards for the control of fugitive dust and can request Fugitive Dust Management Plans from facilities or operations allowing particulates to escape from their property boundaries (VanZandt, 2006). Fugitive dust may be a concern at the two USAF training ranges and on farmlands along the north and east sides of the planning area near the Roseworth, Magic Waters, and Bell Rapids areas.

Under the Clean Air Act, all BLM-administered lands were designated as Class II airsheds, allowing moderate deterioration associated with moderate, well-controlled industrial and population growth. Though no areas in the Jarbidge planning unit are designated as Class I airsheds, air quality concerns and abatement measures are applicable to areas with special designations including the three Wilderness Study Areas (WSAs), the three Areas of Critical Environmental Concern (ACECs), and the Hagerman Fossils Beds National Monument.

Other activities that may affect air quality within the planning area are small-scale sand and gravel extraction operations. The sand and gravel activities create dust and noise from road use and crushing and blasting operations, but are very short-lived and infrequent (once in 10 years per site). During these activities, operators are required to comply with the air quality stipulation of their current permits, stating the site and haul roads shall be sprayed as necessary with water or other suitable material to hold down the dust created by these activities. If these activities ever become large-scale and exceed current dust levels, operators would need to apply for the proper permits with the appropriate State agency.

Trends

Since 1987, air quality in the planning area has remained unchanged and is estimated to be in the "good to excellent" category based on limited localized monitoring by DEQ for a few pollutants.

Although there is no quantitative information showing air quality has decreased within the planning area as a result of wildland fire, a correlation could be made between an increase in the average number of acres burned increased from 1987 to the present and the impact on air quality.

Forecast

The forecast for air quality in the planning area includes some minor degradation and decreases in air quality due to drivers such as population growth, urbanization of surrounding areas, and climate change. For the most part, the main air quality impacts should remain consistent with the past; particulate matter and smoke should continue to be the major pollutants of concern.

Increases of smog, carbon monoxide, and other air particulates from the Boise metropolitan area can seasonally impact the air quality of the planning area. Another region that may impact the planning area's future air quality is northern Nevada, where past and present gold mining operations occur. Water quality monitoring in the Salmon Falls Reservoir by DEQ in the fall of 2005 detected higher than normal mercury levels, 180% of normal.

Another concern is regional haze resulting from the growth of Twin Falls, Idaho, and surrounding areas. Suspected sources in the area are major factories and stationary facilities, open burning, field burning, wood stoves, mobile sources, fugitive dust from agriculture, construction, roads, and gas emissions from large confined animal feeding operations which can react in the atmosphere and create particulate matter. There are positive developments in the management of field burning by DEQ, including an increase in outreach and education programs to address illegal open burning, a significant contributor to regional haze (VanZandt, 2006).

Climate change may cause the region to become drier and less vegetated in the foreseeable future, leaving soils more exposed to wind erosion and resulting in an increase in particulate matter. As conditions get drier and more acres within the planning area are converted to non-native annual grasses, wildfires are likely to increase in frequency and size. This would further increase impacts from particulate matter and smoke. As population increases near the planning area, smoke originating from the planning area may begin to have more of an impact on communities such as Glenns Ferry, Castleford, and Rogerson.

As interest in returning areas dominated by annual grasses to perennial vegetation increases, the amount of prescribed fire within the planning area will likely increase. This would result in short term impacts on air quality. If successful restoration results in a shift from an accelerated fire regime to a regime closer to historical return intervals, air quality impacts should decrease in the long term across the planning area.

Air quality reclassification is the prerogative of the States, and must follow a process mandated by the Clean Air Act Amendments of 1977 and 1990. BLM will continue to manage WSAs within the planning area as Class II airsheds, as the Department of the Interior (DOI) will not recommend a change in air quality classification as part of Wilderness recommendations (BLM Handbook H-8550-1).

Key Features

The Jarbidge Wilderness in Nevada is the only Class I airshed near the planning area. Class I airsheds are the most restrictive, receive the highest level of protection, and have strict numerical thresholds for pollutants. Air quality in these areas is cleaner than required; this designation is established to prevent air quality deterioration. The US Forest Service (USFS) Humboldt-Toiyabe National Forest and the National Park Service (NPS) are monitoring the air quality characteristics of this Wilderness Area to ensure air quality requirements are being met.

Current Management

The 1987 Jarbidge RMP did not address any goals, objectives, or management actions for air quality. Under the Clean Air Act, BLM lands are given Class II classification, which allows moderate deterioration. BLM manages all public lands as Class II unless they are reclassified by the State. The 2005 Fire Management Plan, the Prescribed Fire Handbook (H-9214), and the 2001 Smoke Management Guide for Prescribed and Wildland Fire contain guidance for air quality as it relates to fire management. Administrative actions comply with the air quality classifications for the planning area.

Management Opportunities

There will be many opportunities to maintain the good to excellent air quality conditions across the planning area and region. Except for conditions or events beyond BLM's control, such as wildfires, the BLM should have reasonable techniques and mitigation measures to limit and control any air quality impacts.

Smoke management is necessary to minimize air quality and visibility impacts from prescribed fires in smoke-sensitive areas. The use of prescribed fires should be planned, coordinated, and conducted to minimize the impacts of smoke by combining favorable atmospheric transport and dispersion conditions with prescribed fire management techniques. These methods may include the size of the burn, season of burn, time of day, moisture content of the fuel, fuel treatment, ignition method, and topography of the site.

Management direction in the revised RMP could reflect the decisions and recommendations outlined in the 2005 Fire Management Plan, the Prescribed Fire Handbook (H-9214), and the 2001 Smoke Management Guide for Prescribed and Wildland Fire, such as minimizing the amount of smoke entering populated areas to prevent public health and safety hazards and problems at sensitive sites, avoiding significant deterioration of air quality and NAAQS violations, and eliminating human-caused visibility impacts in Class I areas.

BLM activities located within 20 to 25 miles of the Jarbidge Wilderness and in areas with special designations should be managed to prevent any air quality deteriorations and impacts.

The BLM will comply with all State air quality regulations and standards as directed and required by DEQ. Other options include dust abatement practices for mineral/mining and road building activities.

1.B.3. Geologic Resources

Profile

Indicators

There are no indicators for geologic resources in Jarbidge FO.

Current Condition

Geologic features in the Jarbidge FO vary from deep river canyons of the Bruneau and Jarbidge Rivers, to the foothills of the Jarbidge Mountains, to the broad plateaus of the Snake River Plain. These features reflect a violent geologic history (Gillerman & Bonnichsen, 1990). The Snake River Plain is the result of unusual geologic conditions over the last 15 million years (McLeod & Welhan, 1991). A significant groundwater system, the Snake River Aquifer, lies below the Snake River Plain.

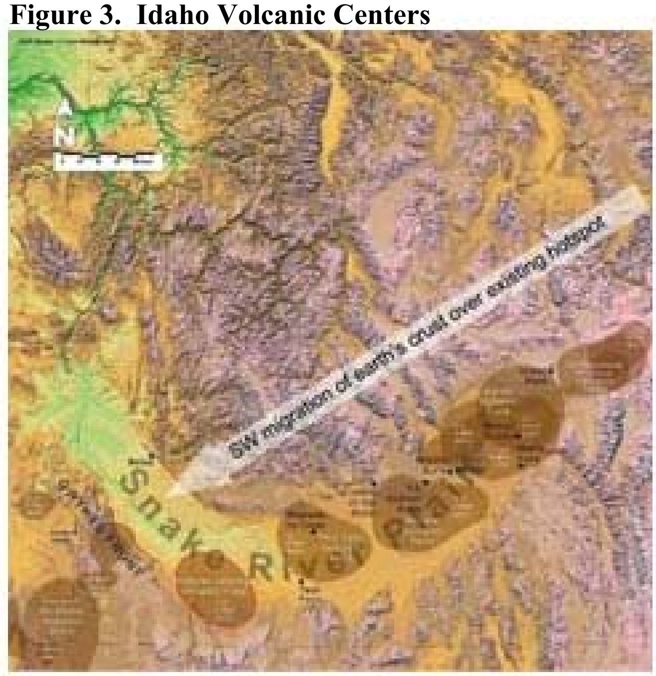


Figure 3. Idaho Volcanic Centers

About 12.5 million years ago, the area experienced enormous and intense volcanic explosions in the Bruneau-Jarbidge Volcanic Field (Figure 3). Voluminous and extensive rhyolitic ash-flow tuffs resulted from these eruptions. Subsequent volcanic activity produced widespread rhyolite lava flows. Withdrawal of rhyolitic magma from this area produced a 30-by-60 mile depression, or caldera. Faults and fractures formed on the perimeter of the caldera and small streams and lakes evolved in the valleys along the fault zones. Volcanism continued to alter the landscape as more than 40 basaltic shield volcanoes were erupted from deep-seated sources through the rhyolite in the eruptive center (Gillerman & Bonnichsen, 1990). The Bruneau-Jarbidge Volcanic Field is one of a series of calderas produced on the Snake River Plain over a distance of 230 miles.

Eight million years ago, Lake Idaho stretched from Twin Falls, Idaho, to Baker, Oregon. Thick layers of white and tan ash, clay, silt, sand, limestone, and gravel were deposited in the lake. Basalt that erupted into the lake produced distinct features that preserve compelling evidence of the former elevation of the Lake Idaho shoreline (Gillerman & Bonnichsen, 1990).

Extreme downcutting of streams into the volcanic terrain led to the creation of the Jarbidge Canyon. During the past 1.6 million years, Lake Idaho was drained by the Snake River and, as the waters lowered, the tributary streams to Lake Idaho, including the Bruneau-Jarbidge system, eroded the canyons and carved their deep gorges. When the Jarbidge Canyon was cut to its present depth, the top of the fault zone was exposed and allowed waters heated at depth to form Murphy Hot Springs (Bonnichsen, 1991).

The Snake River Plain covers an area of more than 10,000 mi^2 and the underlying aquifer is estimated to contain over twice the volume of water in Lake Erie (McLeod & Welhan, 1991). The groundwater resources of the Snake River Plain are a valuable resource asset. The plain is divided into eastern and western segments. The Jarbidge FO contains portions of the western segment.

The results of the area's geologic forces can be found in the mineral resources left behind. Bruneau jasper, rhyolite, and even gravel are evidence of the extreme geologic forces that created the landscape.

Lava flows are also present in the area, a result of past volcanism. The largest and most widespread rhyolite lava flow is the Dorsey Creek flow. It is about 8.1 million years old and extends 28 miles from Murphy Hot Springs to the Jarbidge River's confluence with the Bruneau River. Beneath the Dorsey Creek flow, the Poison Creek flow is exposed near Poison Creek, and the Long Draw flow is present at the confluence of the Bruneau and Jarbidge Rivers. About a mile north of the Bruneau-Jarbidge confluence, the Long Draw flow disappears beneath the cliffs at the southern edge of the Bruneau Jasper rhyolite flow. The Bruneau Jasper flow runs northward in the bottom of Bruneau Canyon for about 5 miles, until it disappears beneath the Sheep Creek flow. The Sheep Creek flow is the largest rhyolite lava flow in the Bruneau-Jarbidge area, containing at least 48 cubic miles (mi^3) of lava and covering more than 300 mi^2.

The Glenns Ferry Formation, a Plio-Pleistocene body of lake and stream deposits several thousand feet thick, lies in the northern part of the planning wall (Malde, 1987).

Trends
Geologic processes are long-term and continue to operate in the area.

Forecast
BLM management actions are not likely to affect large-scale geologic processes in the future.

Key Features
The erosion of the Bruneau and Jarbidge Rivers not only formed some of the most spectacular canyon views, it also exposed the volcanic history of the region in spectacular fashion. These exposures allow for unprecedented opportunity to study the eruptive materials and processes that started approximately 17 million years ago. Several rock layers are exposed in the walls of the Jarbidge Canyon: Jarbidge Rhyolite, Cougar Point Tuff, Dorsey Creek Rhyolite, lake and stream sediments, and the Diamond A Desert and Big Flat basalt flows (Bonnichsen, 1991). Evidence of several eruptive periods covering nearly 7 million years is found in the rhyolites and basalts exposed in the canyons.

Current Management
The 1987 Jarbidge RMP did not address any goals, objectives, or management actions for

geologic resources. Geologic resources are managed according to BLM policy.

Management Opportunities

Management of geologic resources could concentrate on preserving the unique record of volcanic activity that has shaped the land forms found in the planning area. The unprecedented access to the records of eruptions contained within the canyon walls is an aid to the scientific study of eruptions and a remarkable visual asset.

1.B.4. Paleontological Resources

Profile

Indicators

Paleontological resources, or fossils, constitute a fragile and non-renewable scientific record of the history of life on earth and represent an important and critical component of America's natural heritage. BLM manages paleontological resources for their scientific, educational, and recreational values, to mitigate adverse effects as necessary, and to vigorously pursue the protection of fossil resources from theft, destruction, and other illegal or unauthorized uses (BLM Manual 8270). Paleontological resources are not locatable, therefore, they cannot be prospected, explored, or developed under the General Mining Law of 1872.

The term "fossil" refers to the remains or traces of an organism preserved by natural forces in the earth's crust. It does not include what are commonly known as "fossil fuels" such as coal, oil and gas, bitumen, lignite, or tar sands. Fossils are integrally associated with specific geologic formations and may occur throughout those formations. For this reason, the condition of paleontological resources is directly linked to soil and landform stability.

Indicators of conditions that favor paleontological resources may include the following:

- The amount and distribution of organic ground cover such as plants, plant litter, and biological crusts at fossil localities are sufficient to support soil stability;
- Evidence of accelerated erosion at fossil localities in the form of rills, gullies, erosional pedestals, and terrace sloughing along stream channels is minimal for the soil type and landform; and
- Monitoring detects no evidence of illegal or unauthorized damage to fossil bearing deposits.

Current Condition

Paleontological resources within the planning area are overwhelmingly associated with the Glenns Ferry Formation, a geologic unit composed of poorly consolidated lake and stream deposits, inter-bedded by occasional basalt flows and volcanic ash. The Glenns Ferry Formation was deposited between the Pliocene and early Pleistocene Epochs and dates from approximately 5 million to 1.5 million years ago. The primary fossil-bearing deposits within this formation date to the Blancan land mammal age and range between three and four million years old, although some materials may be assigned to the earlier Hemphillian land mammal age of the Late Miocene Epoch. A variety of vertebrate and invertebrate species have been identified within the planning area. These include mastodon, camel, horse, llama, giant ground sloth, rhinoceros, sabre-tooth cat, many smaller mammals, suckers, minnows and other fishes, freshwater mollusks, and gastropods (snails). Plant fossils, represented primarily by petrified wood fragments, are less common but have been found at a few locations. The Glenns Ferry Formation, although capped by later formations, is exposed on slopes along the Snake River and its tributaries as far south as Notch Butte in northeast Owyhee County.

The 1987 Jarbidge RMP identified several areas where paleontological resources were concentrated and deserving of special protection. Two of these areas, the Hagerman Fossil Beds and the Sand Point area near Hammett, have been recognized as world-class paleontological sites since the early 20th century and were designated as ACECs in the RMP with the primary objective of protecting the fossil deposits. The Hagerman Fossil Beds were originally designated a National Natural Landmark in 1975. In 1988, the ACEC was designated a National Monument and was transferred to the NPS. BLM-administered lands are now located along the northern and southern borders of the Monument. The Sand Point ACEC, at the time it was established, was adversely effected by grazing, private collecting, OHV use, illegal digging, mining, and other activities (BLM, 1988). Vehicular access restrictions and construction of a range fence across the southern boundary have greatly reduced the level of surface disturbance attributable to livestock and human action in the ACEC since the mid 1990s.

The remaining known paleontological resources in the planning area generally cover small areas of less than one acre and are not well known outside professional paleontology circles. In 2003 and 2004, a paleontologist from Idaho State University recorded 13 previously known and 2 newly discovered fossil localities in the Rosevear Gulch area southeast of Glenns Ferry through a Challenge Cost Share agreement with BLM. Of the 15 sites, 2 had been damaged by roadwork and 2 by livestock trampling in wet conditions (Rapp, 2004). The remaining 11 sites were in good condition.

In addition to the Snake River corridor, the sedimentary geological deposits in the southwestern corner of the planning area have potential for paleontological resources. Although no fossil discoveries have yet been reported, this may reflect a lack of inventory data for the area. The remainder of the planning area consists of volcanic formations with very low potential for paleontological resources.

Trends

The paleontological resources located within the Sand Point ACEC are stable and plentiful. The physical condition of the landscape is improving, compared to 1987, due to changes in livestock management and limitations on human access due to private ownership of adjacent lands to the west and poor roads to the south. Solid baseline data is lacking for most of the paleontological localities in the planning area, and trend is not available.

Forecast

Conditions should continue to improve for paleontological resources within the Sand Point ACEC if access to the area remains limited. Improved access may lead to an increase in human-caused impacts and would likely require more intensive management to protect the fossil resources present. It is also reasonable to predict increasing human population in the region will result in increased demands for mineral materials, improved roads, and desert-based recreation. Proper planning, including inventories of paleontological resources, would help to mitigate adverse effects related to future growth. It is likely that normal geologic processes will expose new paleontological localities over time.

Key Features

The 1987 RMP identified known fossil bearing localities. Fossil sites are located in Rosevear Gulch, Pasadena Valley, near Dove Springs, Deer Gulch, Pilgrim Spring, Glenns Ferry, and within Sand Point ACEC. Many of these sites need to be revisited and formally recorded. An important new fossil locality was discovered near Notch Butte in 1996 (Akersten et al., 1999).

Paleontological resources in the planning area are most often associated with the Glenns Ferry Formation geologic unit. Fossils may be found anywhere that the formation is exposed.

Current Management

A Paleontological Management Plan was developed for the Sand Point Paleontologic ACEC in 1988. Protection and management of the area is ongoing and human impacts to the area have decreased. A range fence was constructed in 1997 to limit livestock access to the ACEC. Although no mining activity has occurred since the mid 1980s, the area has not been withdrawn from the mining laws making it vulnerable to mining impacts.

Management Opportunities

Revision of the Sand Point Paleontologic ACEC Management Plan should be considered to reflect changes since 1988. Quantitative monitoring protocols for paleontological resources could be developed with an increase in the frequency of monitoring visits.

Some important paleontological sites have been discovered since the 1987 Jarbidge RMP, and some previously listed sites are no longer part of the planning area due to administrative and boundary changes. An updated list of fossil localities in need of protection and classification of public lands based on their potential to contain fossils could aid in implementation-level planning.

1.B.5. Cave Resources

Profile

A cave is defined as any naturally occurring void, cavity, recess, or system of interconnected passages occurring beneath the surface of the Earth or within a cliff or ledge large enough to permit an individual to enter, whether or not the entrance is naturally formed or man-made (FCRPA, Sec. 3(1)). In the planning area, caves are most commonly formed by the weathering of rock through water and wind erosion (erosional caves) or through the solidification of lava over and around a still flowing laval stream which results in a long, hollow channel (lava tube). Caves were often used by Native Americans as temporary living quarters, storage areas, shelter, and game traps.

Cave resources are fragile due to their association with other resources such as groundwater hydrologic systems and biological communities (Moore & Sullivan, 1997). They may also be considered non-renewable due to paleontological and archaeological deposits, speleothems (formations inside caves), and biological resources.

The Federal Cave Resources Protection Act (FCRPA) of 1988 was the first Federal legislation to recognize caves and their contents as whole, integrated ecosystems. FCRPA declares significant caves on Federal lands as an invaluable and irreplaceable part of the Nation's heritage. Improper use, increased recreational demand, urban spread, and a lack of specific statutory protection threaten caves. The purpose of FCRPA is to secure, protect, and preserve significant caves on Federal lands for the perpetual use, enjoyment, and benefit of all people, and to foster increased cooperation and exchange of information between governmental authorities and those utilizing caves located on Federal lands for scientific, educational, or recreation purposes. DOI implementation regulations for FCRPA require Federal lands be managed in a manner that, to the extent practical, protects and maintains significant caves and cave resources (43 CFR Part 37.2).

BLM policy and guidance for managing cave resources is to protect sensitive, fragile, biological, ecological, hydrological, geological, scientific, recreational, cultural, and other cave values from damage and to ensure they are maintained for the use by the public, both now and in the future (BLM Manual 8380).

Indicators

Indicators of cave condition are dependent on the resources the cave possesses, including:

- <u>Biota</u> – The cave serves as seasonal or yearlong habitat for organisms or animals or contains species or subspecies of flora or fauna native to caves, or are sensitive to disruption, or are found on State or Federal Sensitive, Threatened, or Endangered species lists.
- <u>Cultural</u> – The cave contains historic or archaeological resources included in or eligible for inclusion in the National Register of Historic Places because of its research importance for history or prehistory, its historical association, or other historical or traditional significance.
- <u>Geological/Mineralogic/Paleontologic</u> – The cave possesses one or more of the following features: geologic or mineralogic features that are fragile or exhibit interesting formation

processes, or are otherwise useful for study; deposits of sediments or features useful for evaluating past events; or paleontological resources with potential to contribute useful education and scientific information.

- Hydrologic – The cave is part of a hydrologic system or contains water important to humans, biota, or development of cave resources.
- Recreational: The cave provides or could provide recreational opportunities or scenic values.
- Educational or Scientific – The resource offers opportunities for educational or scientific use or is in a virtually pristine state, lacking evidence of contemporary human disturbance or impact, or the length, height, volume, total depth, or similar measurements are notable (43 CFR Part 37).

Specific indicators may include the presence of indicator species, the amount of ground disturbance, water quality, and the amount and type of recreational use.

Current Condition

Cave resources in the Jarbidge FO have been largely unrecognized except by local cave enthusiasts. A quantitative inventory of caves in the Jarbidge FO compiled by the Boise District BLM in 1990 revealed the location of approximately 20 caves identified as lava or erosional caves and approximately 80 others in need of identification. Two known caves are lava tube cave formations, one of which is located on state land within the planning area. Erosional caves make up the majority of cave resources within the planning area and typically occur along the rock cliffs of canyon walls. Spotted bats (*Euderma maculata*) sightings along the rock cliff and canyon wall areas within the planning area suggest these BLM-Sensitive bats utilize caves located along them.

Trends

Qualitative trend data for cave resources in the planning area are not available. Recreational cavers, or spelunkers, constitute the majority of cave users. Animal and human visitations into caves, even by competent, careful cavers, impact these resources to some degree. Caves are a target of looters in the planning area, and a few are exposed to livestock seeking shelter from the elements. A decline in the amount reports of vandalism received by the Jarbidge FO in the last twenty years suggests a downward trend in cave vandalism in the planning area.

Forecast

Given the lack of condition or trend data collected for caves in the planning area, predicting changes given current management is not possible.

Key Features

Should any significant caves, as defined in 43 CFR Part 37, exist in the planning area, they would be subject to cave management rules under BLM Informational Bulletin ID-99-210.

Current Management

The 1987 Jarbidge RMP did not address any management actions for cave resources in the planning area. Cave resources are managed according to BLM policy. The BLM developed a

Memorandum of Understanding (MOU) with the National Speleological Society and Cave Research Foundation in 2006 to support BLM management of cave resources.

Management Opportunities

Cave resource management is a relatively new and emerging field. Guidelines to be considered in addressing resource demands include, but are not limited to: a regulation of surface disturbance in regard to future renewable energy developments, the avoidance of future right-of-way (ROW) actions through any cave areas deemed to be significant, attempts to acquire resources through exchange, implementing fire suppression restrictions and geophysical exploration restrictions to comply with OHV restrictions, and management under Visual Resource Management (VRM) Class II, III, and IV guidelines as identified for each cave unit.

Cave resources could be monitored for degradation. Managers may evaluate the desirability and practicality of various monitoring strategies including, but are not limited to, photo monitoring, water quality monitoring, and a periodic census of indicator species. In order for degradation to be noted, a baseline condition should be established. Visual impact evaluations could be conducted to determine the degree of impacts based on evidence of litter in or around the resource, graffiti, trails and trampling by human or animal activity, speleothem damage, modification of passages or entrances, and disruption of any cultural resources in or around the area. If monitoring indicates degradation of the resource, the RMP should have an adaptive management element to address the particular nature of degradation as appropriate. Addressing such resource management in the Jarbidge RMP by establishing values and procedures for cave management and protection will lessen the incremental loss of caves and the degradation of other fragile resources within them.

An inventory of cave resources within the Jarbidge planning area could be conducted to identify and compile qualitative data on these resources. Determination of cave significance and classification should be a component of such an inventory.

Management policies and guidelines should be established for cave resources specific to the planning area identifying how to manage the land around the resources including policies related to travel management, gates or barricades, erosion, appropriate recreation use, and resource protection.

1.B.6. Cultural Resources

Profile

Cultural resources consist of definite locations of human activity, occupation, or use identified through field inventory, historic documentation, or oral evidence. The term includes archaeological, historic, and architectural properties and sites or places of traditional cultural or religious importance to Native American Tribes or other social or cultural groups. The BLM is responsible for identifying, protecting, and managing cultural resources located on public lands and on non-Federal lands that may be affected by BLM actions.

Cultural resources in the planning area are managed in accordance with existing laws, regulations, Executive Orders, and policy guidelines. The principal Federal law addressing cultural resources is the National Historic Preservation Act (NHPA) of 1966, as amended, and its implementing regulations (36 CFR 800). NHPA describes the process for identifying and evaluating historic properties, defined as cultural resources eligible for or listed in the National Register of Historic Places; assessing the effects of Federal actions on historic properties; and consulting to avoid, reduce, or minimize adverse effects. Since 1998, the Jarbidge FO has met its NHPA responsibilities through a protocol agreement with the Idaho State Historic Preservation Office, in accordance with the National BLM Programmatic Agreement. The process also requires a reasonable and good faith effort to consult with Native American Tribes that might attach cultural or religious significance to affected resources. BLM consults with the Shoshone-Paiute Tribes of Duck Valley through the Wings and Roots process (monthly, formal, face-to-face consultation) and with the Shoshone-Bannock Tribes of Fort Hall through the Fort Hall Business Council. Other important cultural resource authorities include the Archaeological Resources Protection Act, the Native American Graves Protection and Repatriation Act, the American Indian Religious Freedom Act, and Executive Order No. 13007, “Indian Sacred Sites.” A more complete list of authorities is included in Appendix 1.

Indicators

Cultural resources are recognized as fragile, irreplaceable resources with potential scientific, public, and traditional uses. Ground-disturbing activities, both authorized and unauthorized, as well as natural forces have the potential to disturb or destroy these resources.

Indicators that reflect good physical condition of cultural resources include:

- The amount and distribution of natural ground cover such as plants, plant litter, and biological crusts in the vicinity of cultural resource localities are sufficient to support soil stability;
- Evidence of accelerated erosion at archaeological or historic sites in the form of rills, gullies, erosional pedestals, or terrace sloughing along streams is minimal for the soil type and landform; and
- Monitoring detects no evidence of illegal or unauthorized damage to cultural resources.

Current Condition

Cultural resource survey work in the planning area began in the late 1950s, but was not common until professional BLM archaeological staff were hired in the mid 1970s. Over the years, hundreds of cultural resource inventories were conducted in the area ranging from large-scale fire stabilization and rehabilitation inventories to small-scale surveys for livestock water systems, range fences, ROWs, and land use permits. Not all inventories were associated with ground disturbing projects; a few studies have also been conducted for planning purposes and for scientific research. Notable among these is the *Class II Cultural Resource Inventory of the Boise District, BLM* (Young, 1984) which formed the basis for some of the cultural resource management actions in the 1987 RMP. At present, approximately 17% of the planning area is inventoried at the Class III level. These are intensive inventories with transect intervals no greater than 100 ft. As a result, approximately 4,100 cultural resources are recorded. These represent a wide variety of site types and chronological periods. The recorded resources include 3,100 prehistoric sites (Native American sites that predate European contact), and 1,000 historic sites (post-contact Native American, Euro-American, Chinese, or Basque sites up through World War II). Together, these resources document an almost continuous record of human occupation in the planning area for the past 12,000 years.

One category of cultural resources is the traditional cultural property. These are places eligible for inclusion in the National Register because of their association with cultural practices or beliefs of a living community rooted in the community's history. These places are important in maintaining the continuing cultural identity of the community and are identified through scoping and are consultation rather than field inventory.

Lithic scatters are the most common type of prehistoric site found in the planning area. These sites contain stone tools and/or stone flakes produced during the manufacture or maintenance of stone tools and may represent short-term hunting camps, tool manufacturing or repair locations, or butchering sites. Other prehistoric site types include streamside camps, cave and rock shelter camps, hunting blinds, rock alignments and cairns, vision quest sites, tool-stone quarries, and rock art sites.

Most of the historic sites in the planning area are related to the early livestock industry (ca. 1880 to World War II) and are represented by cow and sheep camps, herder's monuments, rock fences and corrals, and a few abandoned line shacks. Other historic period sites include failed homesteads, trash dumps, irrigation ditches, miners' cabins, and transportation systems. The latter category includes the nationally significant Oregon National Historic Trail (NHT) (see National Historic Trails) and regionally significant portions of the Kelton and Toana Freight Roads (Figure 33).

The condition of cultural resources in the planning area varies with terrain, access, and visibility, as well as past and current land use patterns. Because cultural resources are exposed on the earth's surface, they are subject to natural and human forces that can damage their integrity. Natural forces such as erosion, animal burrowing, wildfire, deterioration and decay, as well as concentrated livestock use and inadvertent and purposeful human damage, are known to have impacted sites administered by the Jarbidge FO in the past. On the other hand, not all human or natural impacts are negative. For instance, numerous sites have been protected through riparian exclosure and gap fencing projects, while natural wind and water deposition has covered exposed sites with protective sediments.

Based on a preliminary analysis of site form documentation that occurred during initial site recording, approximately 55% of sites in the planning area were in good or excellent condition when discovered, 31% were in fair condition, and 14% were in poor condition[1 2]. More thorough analyses of the Jarbidge site data are being conducted.

Trends

Since the 1987 RMP was approved, several broad changes have occurred that affected cultural resource site conditions, some of which may be viewed as beneficial. First, less land is leaving Federal ownership than in the past when large blocks of public land were disposed of with only cursory consideration (by current standards) of cultural resource values. Second, over the last ten years, fewer range infrastructure have been constructed, which, in the case of pipelines, means fewer new roads are created. While pipelines and roads are designed to avoid direct impacts to cultural resources, they can serve to increase access to remote areas, making previously undisturbed sites more susceptible to damage from artifact theft, vandalism, or inadvertent ground disturbance. Many projects consist of exclosures and gap fences, which directly benefit cultural resources by restricting livestock access and allowing damaged sites to recover by allowing vegetation to reestablish, thus protecting soils and associated archaeological deposits. Finally, while looting (illegal digging) of archaeological sites appears to be less prevalent than it was in past decades, it remains a serious problem. Since 1987, less than ten episodes of recent looting have been detected by or reported to BLM staff. This trend may be credited to effective public outreach efforts and successful law enforcement measures. Other changes such as the growth in motorized OHV use and river-based recreation, increased levels of livestock use, and improved access may offset the positive effects of the changes noted above.

Wildfires in the planning area continue to impact cultural resources, primarily through the effects of heat on artifacts and structures, but also through post-fire wind erosion related to the lack of soil-stabilizing vegetative cover. Wildfires have increased impacts to critical visual corridors along the Oregon NHT over the past 20 years, including the replacement of native vegetation with annual grasses and weeds and/or crested wheatgrass seedings. On the positive side, archaeological inventories for fire stabilization and rehabilitation projects have greatly increased our knowledge of aboriginal and Euro-American land use in the planning area.

Forecast

Steady population growth will likely lead to increasing demands on public land resources within the planning area, including cultural resources. Under current management, adverse effects to cultural resources located in areas open to unrestricted cross-country motorized travel are anticipated to increase. As more people engage in river-based recreation, threats to cultural resources in stream-side settings are expected to increase.

Key Features

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[1] These are qualitative assessments made by a variety of researchers over a number of years. Data collection during site recording includes a summary assessment of site condition, an estimate of the percentage of the site area that is disturbed , and identification of the impacting agents. The following criteria, taken from the Intermountain Antiquities Computer System User's Guide (University of Utah et al., 1990) define the condition classes: excellent = virtually undisturbed, good = 75% undisturbed, fair = 50-75% undisturbed, and poor = more than 50% disturbed.
[2] These data were not generated from a random sample of landforms, but drawn largely from fire rehabilitation surveys. The canyon lands, Diamond A area, and Jarbidge Foothills are poorly represented because they had suffered fewer fires (Figure 26) and fewer fire stabilization and rehabilitation projects.

Cultural resources, as the physical manifestation of human activity, are distributed in a non-random pattern throughout the planning area. Water sources were key terrain features for both aboriginal and Euro-American populations. Archaeological site density is normally greatest within a quarter mile of live streams and major intermittent streams, along playa shorelines, and at spring sites. Other natural attractions include cave and rock shelter locations, tool stone sources, hill tops, and high ridges. Remnants of the Oregon NHT, Kelton Road, Toana Road, and associated sites are also key features of the cultural landscape.

Current Management

Figure 4. Post Office

The 1987 RMP included several management decisions aimed specifically at protecting important cultural resources and site concentrations called "complexes." Decisions included marking and protecting remnants of the Oregon NHT, protecting eight cultural resource complexes (Dove Spring, Pot Hole, Juniper Ranch, Clover Creek, Devil Creek, Cougar Creek, Post Office, and Dry Lakes/Bruneau River) totaling approximately 320 sites through special designation and management, nominating the Dry Lakes/Bruneau River Complex and the Devil Creek Complex to the National Register of Historic Places as archaeological districts, and developing cultural resource management plans (CRMPs) for each of the eight complexes. A CRMP was developed for Sand Point ACEC. Other plans have not been completed due to a change in management emphasis away from preparing program-specific plans. Cultural resources also form important components of the Sand Point and Bruneau-Jarbidge Rivers ACECs.

Management Opportunities

The 1987 RMP identified eight archaeological complexes and planned separate CRMPs for each. New inventory information indicates numerous other archaeological "complexes" of equal or greater significance exist in the planning area. It would be impractical and unnecessary to prepare separate plans for each of these. Instead, land use restrictions designed to protect cultural resources that can be applied to the entire planning area could be developed. CRMPs could be prepared for specific areas if future conditions warrant.

The Bruneau River Canyon, the Post Office Complex, Arch Canyon, and Dry Lakes contain important concentrations of cultural resources that continue to be worthy of protection. Special use restrictions could be developed to protect sensitive cultural landscapes including canyons and playas. Cultural resources would be allocated to scientific, conservation, traditional, public, experimental, or discharged use (BLM Handbook H-1601-1). Quantitative monitoring protocols for cultural resources could be developed.

Placing sites or site districts on the National Register is not a unilateral BLM decision. It may be more appropriate to make cultural resource protection a primary objective for management of the Bruneau Canyon and Dry Lakes areas and the Devil Creek Complex, instead of focusing on placing sites on the National Register.

Decisions in the revised Jarbidge RMP could include updated and strengthened measures for protecting the Oregon NHT.

1.B.7. Visual Resources

Profile

VRM addresses the visual quality of landscapes for views of native landscapes and unique areas with high visual quality. Through a broad range of authorities, BLM is required to manage BLM-administered lands in a manner that will preserve scenic values. The Federal Land Policy and Management Act of 1976 (FLPMA) and the National Environmental Policy Act of 1969 (NEPA) include Federal mandates for VRM, while other guidance can be found in BLM Manual 8400, BLM Handbook H-8410-1, and BLM Handbook H-1601-1. BLM's VRM classification system consists of three phases: the visual resource inventory, establishment of management classes through land use plans, and analysis of management actions to ensure compliance through Visual Resource Contrast Rating. VRM management classes are established through the RMP process, and adjustments are made to reflect resource allocation decisions made in the RMP. The intent of VRM is to minimize the visual impacts of all surface-disturbing activities regardless of the class in which they occur.

Indicators

BLM categorizes visual resources into four distinctive classes, which are based on scenic quality evaluations, sensitivity level analysis, and the delineation of distance zones. The classes are as follows:

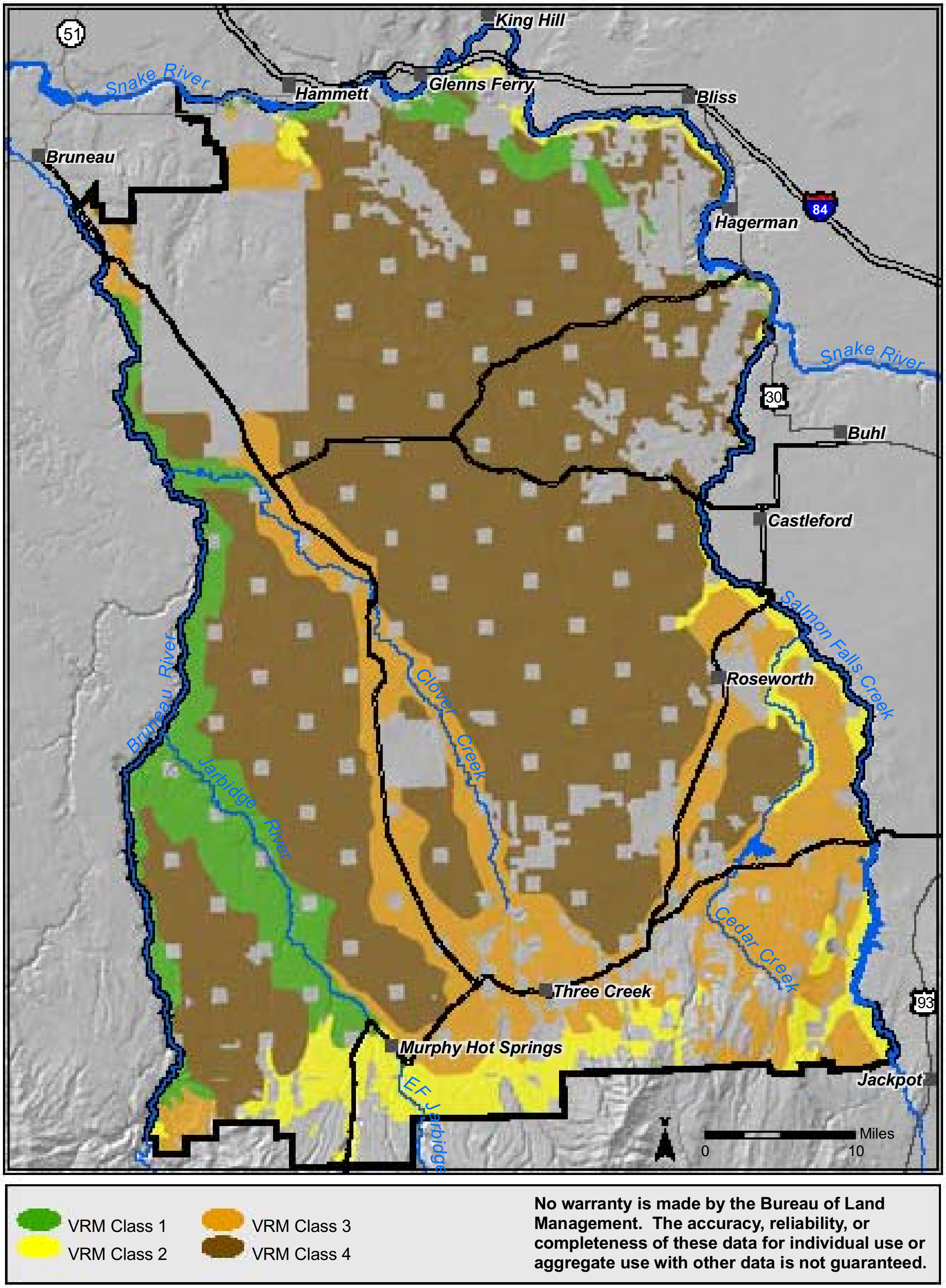
- Class I – Changes are generally not seen, do not attract attention, and do not change or modify the existing character of the landscape.
- Class II – Changes within the basic elements (form, line, color or texture) should not be evident in the characteristic landscape.
- Class III – Changes in the basic elements (form, line, color or texture) may be evident in the characteristic landscape; however, changes must remain subordinate to the visual strength of the existing character.
- Class IV – Changes may be dissimilar from the original composition and character, but must reflect what could be a natural occurrence within the characteristic landscape.

Current Condition

The overall landscape of the planning area consists of lowland rolling hills and desert in the northern portion and an upland hill environment in the higher elevations to the south. Significant rock outcrops are present along many of the slopes. Canyons are found within the planning area, characterized by nearly vertical, precipitous walls exhibiting a variety of geological formations. Flowing rivers or streams generally bisect the canyon floors and are visually dominant elements within the canyons.

The VRM classes for the planning area were established with the 1987 Jarbidge RMP (Figure 5). The majority of the planning area is characterized as Classes III and IV, with WSAs and the Oregon NHT segments designated as Class I.

Figure 5. VRM Management Classes Established in the 1987 Jarbidge RMP



JARBIDGE FIELD OFFICE

VRM management classes established in the current plan have been managed accordingly. BLM management actions in the Jarbidge FO have generally been small scale, usually involving range improvement projects such as pipelines and fences and landform modifications from road construction. Minor structure modifications involving utility work on ROWs also commonly occur.

Trends

The most significant impact to existing VRM classes in the planning area has been wildland fire. Nearly 700,000 unique acres, associated with approximately 320 fires, burned since 1987. This has greatly affected the vegetation factor of the scenic quality evaluation component from an inventory standpoint. The rating criteria for vegetation give primary consideration to the variety of patterns, forms, and textures created by plant life. With the frequency and scale of wildland fire events, low diversity of vegetation types in the northern half of the planning area has produced little to no variety or contrast.

Recreational OHV use increased in the planning area, creating noticeable visual impacts in some locations. Visual impacts produced by OHVs include trails and roads most visible on steep or erosive soils. The Paradise OHV area near Glenns Ferry and localized small areas near Yahoo Gulch, Toana Gulch, Balanced Rock, and Murphy Hot Springs are known areas with impacts to scenic quality from OHV use.

Forecast

Several actions could alter visual resources in the planning area. Renewable energy, specifically wind turbine facility development, would dramatically change visual resources in the planning and geographic area. Although the RMP process will allocate areas where wind energy development will be allowed, not allowed, or restricted, the demand for development of these facilities and associated infrastructure will depend on various factors beyond the scope of this planning effort such as technology and development on private property. Proposed utility corridors, including interstate transmission lines that could traverse the planning area, could also affect visual resources in the planning area. Access routes and recreational OHV use will continue to be a VRM concern in areas where decisions are made to maintain the natural landscape qualities. Road and trail designations in conjunction with a comprehensive travel planning effort could reduce or mitigate some of these impacts. Range improvement projects in support of livestock grazing, such as fences and pipeline systems, can also affect visual quality by introducing new visual elements into the landscape. The frequency of wildland fires will continue to alter vegetation components of the landscape. Depending on the size of fires, the scenic quality could be affected from one growing season to the next. Vegetation rehabilitation and other habitat improvement projects could, over time, improve the characteristic landscape of many areas of the planning area.

Key Features

The main locations within the planning area possessing outstanding scenic quality include, but are not limited to:

- Jarbidge River WSA (including the Bruneau-Jarbidge River ACEC)
- Bruneau River-Sheep Creek WSA

- Lower Salmon Falls Creek WSA (including the Salmon Falls Creek ACEC)
- Oregon NHT
- Jarbidge Foothills Area
- Snake River Canyon Area (Thousands Springs to Hammett)

Current Management

Visual resources are managed according to the assigned VRM class of II, III and IV, with WSAs and the Oregon NHT segments managed as Class I. Visual and scenic values are considered when physical actions are proposed on public lands.

Management Opportunities

VRM objectives should be considered in all projects or actions that would affect VRM classes. Surface-disturbing activities could be designed to meet VRM objectives. When this is not possible, mitigation efforts could take place. Monitoring of visual intrusions on public land could occur and, if discovered, intrusions could be removed or impacts mitigated.

Management classes in the planning area could be revisited in perspective of other planning decisions.

1.B.8. Wilderness Characteristics

Profile

Wilderness characteristics are identified as naturalness, undeveloped, and outstanding opportunities for solitude or primitive and unconfined recreation. In addition, wilderness characteristics are considered in undeveloped areas of sufficient size to be practical to manage. Data on naturalness, development, and opportunities for solitude or primitive and unconfined recreation were collected in 2006 and 2007. As of the date of this document, those data are still being analyzed.

Current Management

The 1987 Jarbidge RMP did not address any management actions for wilderness characteristics in the planning area. Wilderness characteristics are managed according to BLM policy.

Management Opportunities

BLM has authority under FLPMA Section 201 to inventory public land resources and other values, including wilderness characteristics. Wilderness characteristics may be considered in land use planning when BLM determines those characteristics are reasonably present, of sufficient value and need, and are practical to manage. The revised RMP could identify areas with wilderness characteristics and prescribe goals, objectives, and management actions that would maintain those characteristics.

1.B.9. Water Resources

Profile

Many factors affect the quality of water resources within the planning area. Potential sources of pollutants affecting water quality can be referred to as point sources or non-point sources. Point-source pollutants originate from a direct source such as permitted industrial discharges, sewage plant discharges, and direct runoff from feed-lot operations. Non-point source pollution comes from many diffuse sources such as rainfall, snowmelt, or surface water moving over and through the soil. As surface runoff moves, it picks up and carries away natural and human-made pollutants and may deposit them into streams, lakes, reservoirs, wetlands, and aquifers. Designated beneficial uses and general water quality can be negatively affected by these point and non-point pollutants. An excess of these pollutants can result in non-compliance with State surface and groundwater quality standards.

Runoff containing sediment and associated pollutants generally occurs as a result of two environmental factors. One is winter/spring snow melt and heavy rainfall periods occurring on saturated or frozen soils and in areas with rangeland soil surfaces lacking adequate vegetative ground cover to prevent excess erosion and sediment delivery off site. The other can occur after wildfire events on exposed rangelands during the summer months where intense summer cloudbursts impact large areas of unprotected soil resources due to a lack of plant and litter cover. Activities including, but not limited to, livestock grazing, OHV use, and fire suppression can affect sediment and other pollutants in the water.

Indicators

The water quality standards for the State of Idaho are the benchmark standards DEQ uses in order to protect, maintain, or improve surface water resources in Idaho. These standards support other Federal laws such as the Clean Water Act of 1977, the Water Resources Planning Act of 1962, the Pollution Prevention Act on 1990, and the Safe Drinking Water Act of 1977. The Idaho water quality standards are used to ensure the protection of the beneficial uses of water including cold water fisheries, recreation, and agriculture. Idaho BLM adopted these water quality standards to protect public health and welfare and enhance the quality of the water on public lands within the State of Idaho.

If water resources are in good condition, Standards 2 (Riparian Areas and Wetlands), 3 (Stream Channel/Floodplain), and 7 (Water Quality) 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 on 44 allotments on a total of 840,000 acres within the planning area. Standards for riparian areas and wetlands (Standard 2), stream channel/floodplain (Standard 3), and water quality (Standard 7) did not apply to nearly half of the acres assessed. The majority of the acres where Standards 2,3, and 7 did apply did not meet those standards (Table 1).

Table 1. S&G Determinations for Standards 2, 3, and 7, 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%
7 – Water Quality	2%	0%	14%	29%	43%

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

DEQ indicators for water quality include sediment, water temperature, dissolved oxygen (DO), *E. coli* (*Escherischia coli)*, streamflow alterations/diversions, nutrients, and mercury. The DEQ criteria for each of these indicators are displayed in Table 2.

Table 2. Indicators and Standards for Monitoring Watershed Water Quality

Indicator	Measurement	DEQ Standards
Sediment	Total suspended solids	50-52 mg/L (average monthly)
		80 mg/L (weekly max)
Temperature	Maximum instantaneous temperature	72°F
	Maximum daily average temperature	66°F
Dissolved Oxygen	DO (mg/l)	> 6.0 mg/l
E. coli	*E. coli* (cfu/100ml)[A]	less than 126 cfu/100ml
Streamflow Alteration/Diversions	Presence/absence of dewatering	no dewatering
Nutrients	Ammonia	The 30 day average of total ammonia nitrogen is not to exceed the Criterion Continuous Concentration[B] more than once every 3 years.
	Total Phosphorous	0.100 mg/L free-flowing streams, 0.050 mg/L mouth of streams into lake/reservoir, 0.025mg/L lake/reservoir
Mercury	Methyl Mercury	0.3mg/kg of fresh weight fish tissue

[A] The concentration of *E. coli*, based on a minimum of 5 samples during any 30-day period, must not exceed a geometric mean of 126 per 100 mL, nor may more than 10% of total samples during any 30-day period exceed 410 per 100 mL.
[B] See IDAPA 58.01.02 for formula to calculate Criterion Continuous Concentration.
Source: IDAPA 58.01.02

Sediment

Fine sediments in the water can increase the amount of turbidity and suspended solids and factor into raising water temperatures, decreasing DO, and detrimental impacts to fish and other aquatic organisms. As the suspended solids settle on the streambed, fine particles can accumulate and cover gravel and cobble on the streambed. This decreases the amount of available spawning habitat for a variety of fish such as bull trout, redband trout, and white sturgeon. Increases in fine particles reduce the amount of habitat available for aquatic insects and other macroinvertebrates.

Sediment is a major limiting factor for water quality in the planning area. Increased instream fine sediments are linked to the unstable streambanks and a lack of upland and riparian vegetation that filters surface-water runoff from the uplands. Potential sources of upland surface water include spring snowmelt, summer cloudbursts, roads and drainage ditches, areas burned by wildfire, and areas with concentrated livestock use.

Water Temperature

Water temperature is a limiting factor for distribution and abundance of aquatic organisms. Many aquatic species can only inhabit and reproduce successfully within a specific range of water temperature. Elevated water temperatures can be harmful or lethal, isolate species by creating a thermal migration barrier, and decrease the amount of DO in the water.

High water temperatures and increased nutrient levels can create large algal blooms in popular recreation areas such as the Snake River and Salmon Falls Creek Reservoir. The increase of water temperature may be attributed to lack of overhead vegetation, decreased streamflows from irrigation diversions, warm irrigation return water, decreased amounts of spring and groundwater water discharge, and human-caused or natural low flows in the summer.

Water temperatures are highly variable during the day and throughout the year. Temperatures are generally low from the fall through the spring and increase in the summer. Water temperature is usually warmer in summers due to lower flows from drought. Daily changes in water temperature between highs and lows are greatest in the summer.

Dissolved Oxygen

Aquatic species require a certain amount of DO in surface water to perform biological functions such as respiration, and successful reproduction. Low amounts of DO can limit the distribution of aquatic species or can be lethal at substantially reduced levels. Potential sources of low DO levels include high water temperatures, decreased surface water flows, elevated nutrient levels, high suspended solids, and large colonies of bacteria within the sediments of a streambed.

E. coli

The presence of *E. coli* in the water indicates it has been in contact with or contaminated by fecal matter. High amounts of *E. coli* bacteria pose a risk to recreational users and may be stressful to aquatic organisms sensitive to bacterial outbreaks. Ingestion of this bacterium by humans and livestock can lead to severe illness. *E. coli* contaminations of water are caused by improper disposal of human waste and the presence of livestock waste in the riparian area. In addition to *E. coli*, a number of other bacteria may be present including *Salmonella*, fecal coliform, and fecal streptococcus (Tiedemann et al.

1987). *Giardia*, a protozoan, can cause illness when ingested. *E. coli* may not be a suitable indicator to detect the presence of *Giardia* (Tiedemannn et al., 1987).

Streamflow Alteration/Diversions
DEQ criteria for streamflow are based upon the presence or absence of the dewatering of streams. Streamflow affects many critical factors associated with aquatic organisms. Reduced streamflows can increase temperature, decrease DO levels, cause fine sediments to accumulate in the streambed, concentrate bacteria and nutrients in the streambed, and alter the composition of the riparian vegetation. Riparian plant species, which stabilize streambanks and provide cover and forage for fish and wildlife, demonstrate low vigor and cannot persist when streamflows are substantially reduced or absent. The diversion of surface water for agriculture and livestock use can deplete, and in many cases completely dewater, entire reaches of a stream. This destabilizes stream habitats and alters migration corridors, limiting the distribution of aquatic species.

The annual amount of precipitation directly influences streamflows and can lead to severely reduced surface flows or drought-like conditions. As streamflows are reduced, aquatic species are concentrated into areas with remaining water, making them more susceptible to disease and predation. Diversions can substantially alter the recharge of groundwater sources and the seasonal streamflow regime. Over time, native fish species evolved under natural flow regimes and may not be able to adapt to rapid fluctuations in streamflow. In addition, fish and other aquatic species may be displaced into irrigation diversions and canals where the environment is not suitable for long-term survival.

Nutrients
Nutrients can increase the productivity of surface water in rivers and streams. This increase in productivity can lead to large algal blooms that rapidly reduce DO levels and decrease the visual value of a body of water. Some non-native species, such as small mouth bass, thrive in nutrient rich waters, enabling them to out-compete native fish that evolved in a low nutrient aquatic environment.

Increased nutrients may be derived from agricultural runoff into the water system. DEQ identified nutrients as a factor in the Snake River, Bruneau River, Cedar Creek, Roseworth Reservoir, and Salmon Falls Creek and Reservoir. BLM does not have data on aquatic nutrient levels within the planning area.

Mercury
Mercury occurs naturally in the environment. Presence of mercury in a water system can lead to bioaccumulation within the fatty tissue of fish and other aquatic species. Some of these species are game fish harvested by recreationists for consumption. Large amounts of mercury consumption is harmful to humans, especially pregnant women and unborn children. The organic form of mercury, methyl mercury, is more toxic to humans than the inorganic form.

Potential sources of mercury include atmospheric fallout from volcanic activity, active or abandoned mine lands, and a variety of industrial pollutants. Within the planning area, DEQ identified mercury as a factor in the Snake River and Salmon Falls Creek Reservoir. DEQ is responsible for monitoring mercury levels throughout Idaho.

Current Condition

There are three primary drainage basins or "watersheds" within the Jarbidge planning area: the Bruneau River Watershed, the Salmon Falls Creek Watershed, and the Snake River Watershed. The current condition of water quality in these watersheds is affected by land uses on BLM managed lands and lands not managed by BLM. Many of the water courses within the planning area flow through private, State, and other managed lands. Practices increasing sedimentation, water temperature, *E. coli*, nutrients, and mercury levels, and decreasing DO levels on lands not under BLM management affect water quality on BLM-managed land. In many cases, BLM can only address water quality related issues that arise from activities on BLM-managed land.

Streams listed by DEQ as water quality limited (impaired) for one or more of the indicators (also known as Clean Water Act (303)d-listed streams) are listed in Table 3 and displayed in Figure 6.

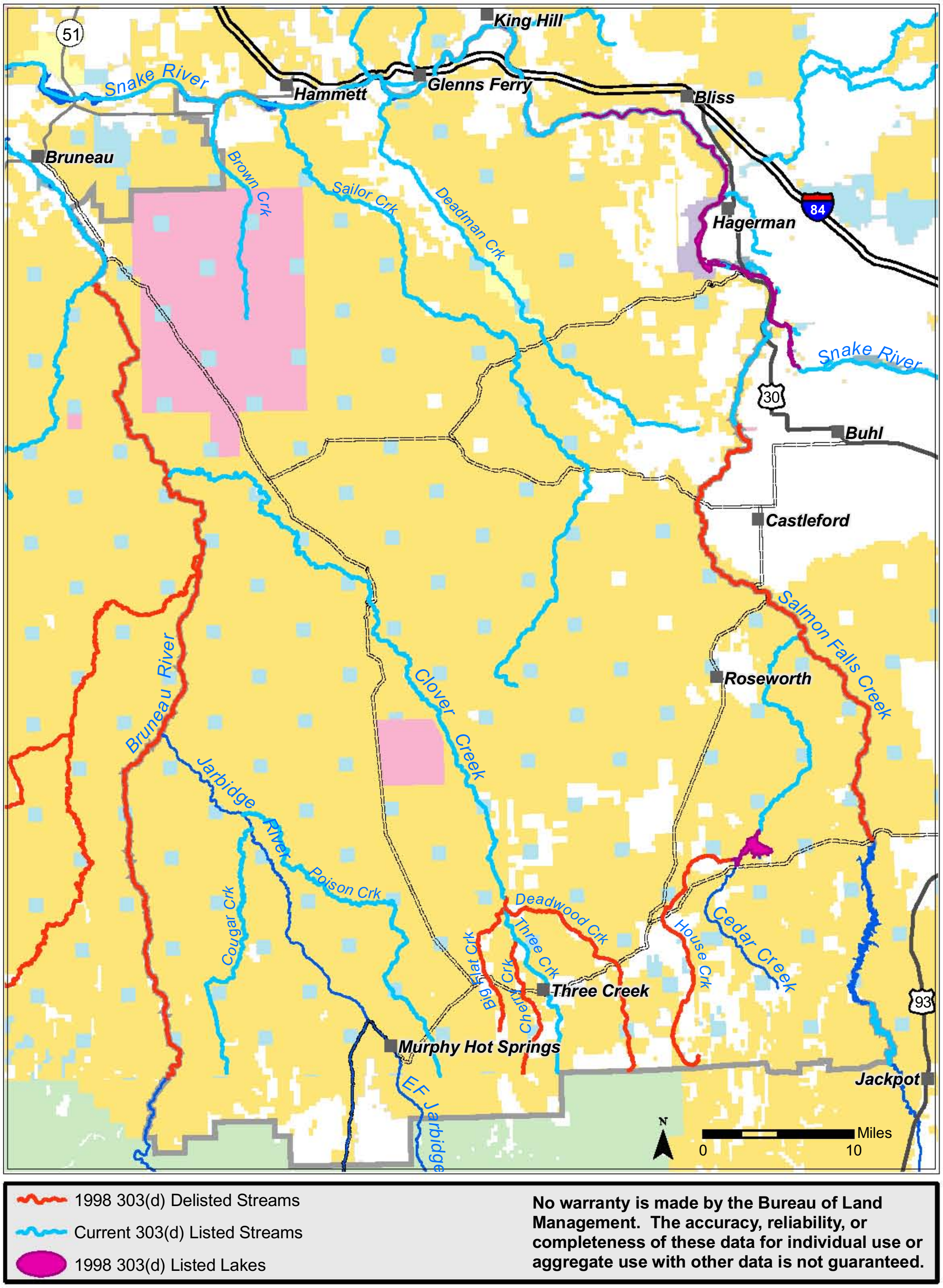
Table 3. 303d Water Quality Limited Streams

Watershed/River	Sediment Limited	Temperature Limited	Nutrient Limited
Bruneau River Watershed			
Bruneau River	X	X	X
Clover Creek	X		
Three Creek	X		
Poison Creek	X		
Cougar Creek	X		
Jarbidge River		X	
East Fork Jarbidge River		X	
Salmon Falls Creek Watershed			
Salmon Falls Creek	X	X	X
Cedar Creek	X		X
Salmon Falls Reservoir			X
Cedar Creek Reservoir			X
Snake River Watershed			
Snake River	X	X	X
Sailor Creek	X		
Browns Creek	X		
Deadman Creek	X		

<u>Bruneau River Watershed</u>

The primary tributaries of the Bruneau River Watershed are the Jarbidge River and the East Fork of the Bruneau River (Clover Creek). The tributaries of the Jarbidge River are Dave Creek, Jack Creek, Deer Creek, Buck Creek, Columbet Creek, Dorsey Creek, Poison Creek, Cougar Creek, and the East and West Forks of the Jarbidge River. The tributaries of Clover Creek are Big Flat Creek, Cherry Creek, Three Creek, Deadwood Creek, Deer Creek, and Pole Creek.

Figure 6. Water Quality Limited Streams



JARBIDGE FIELD OFFICE

Currently, this watershed includes a recently completed Bruneau Subbasin Assessment and Total Maximum Daily Load Plan, which is in the implementation stage. This plan was approved by EPA in March 2001 and assessed nine water bodies, four of which are in the Boise District, and 19 pollutants listed on the 1998 303(d) list. The five streams involved in the Jarbidge planning area include Cougar Creek, Poison Creek, Three Creek, Clover Creek, and the Bruneau River; however, since Cougar Creek and Poison Creek were classified as intermittent, no Total Maximum Daily Loads (TMDLs) were developed for them. Pollutants of concern for which TMDLs have been developed include nutrients, sediment, and bacteria for the Bruneau River, Three Creek, and Clover Creek, respectively. Sediment was determined to be the most common listed pollutant in the watershed (Lay, 2000).

Sediment
DEQ identified the Bruneau River, Clover Creek, Three Creek, Poison Creek, and Cougar Creek as water quality limited due to sediment. BLM has limited data on the amount of Total Suspended Solids (TSS) in streams in the Bruneau River Watershed. Data collected on TSS determines the amount of very fine sediments suspended in the water column. The creeks surveyed by DEQ for TSS include Buck Creek, Cherry Creek, Deer Creek, Deadwood Creek, Dave Creek, Flat Creek, Jack Creek, the Jarbidge River, and Three Creek (Table 4). All creeks sampled by BLM passed according to the State water quality standard for TSS; however these data largely reflect one-point-in-time samples for individual streams.

In 2006, BLM measured the number of pools dominated by fine sediments in the tributaries of Clover Creek containing redband trout (Table 5). Three Creek, Deadwood Creek, Deer Creek, and Pole Creek had less than 20% of their pools dominated by fine sediment. Big Flat Creek was the only tributary surveyed to exceed this amount, with 21% of its pools dominated by fine sediment.

Table 4. Results of Monitoring in Bruneau River Watershed

Stream Name	Year	DO (mg/l)	TSS (mg/l)	*E. coli* (cfu/100ml)
Big Flat Creek (Lower)	1998	N/A	-	46.00
Big Flat Creek (Upper)	2002	7.90	-	N/A
Buck Creek	1997	6.75	8	N/A
Buck Creek (Lower)	2002	8.80	8	130.00
Cherry Creek	2000	8.70	9	N/A
Clover Creek (Lower)	1997	N/A	-	N/A
Clover Creek (Middle)	2003	N/A	-	N/A
Clover Creek (Upper)	1998	N/A	-	N/A
Columbet Creek	1998	N/A	-	145.00
Dave Creek	2002	8.70	9	5.50
Deadwood Creek	2002	9.20	9	397.00
Deer Creek (by Three Creek Highway)	2002	8.60	2	N/A
Dorsey Creek (Middle)	1997	7.23	-	N/A
Dorsey Creek (Upper)	1997	6.51	-	N/A
Flat Creek	2004	N/A	8	N/A
Jack Creek	2002	9.40	1	0.09
East Fork Jarbidge River (at campground)	2004	N/A	2	N/A
Jarbidge River (at East and West Forks)	2001	9.10	2	N/A
Jarbidge River (Upper)	1997	6.58	2	N/A
Pole Creek by Nevada/Idaho border (Tributary to Flat Cr.)	1998	12.05	-	N/A
Pole Creek (Tributary to Deer Creek)	1998	N/A	-	N/A
Three Creek (Lower)	1996	11.20	5	N/A
Three Creek (Middle)	2001	8.10	5	220.00
Three Creek (Upper)	1999	9.60	11	N/A
-: These streams are in the process of being reevaluated as the majority of them are intermittent, ephemeral, or dewatered by diversions. N/A: Data not available				
These measurements were taken from the most recent survey done by the BLM or the Idaho DEQ Beneficial Use Reconnaissance Project (BURP). Standards for these indicators are outlined in Table 2.				

Table 5. Data from Redband Trout Surveys in the Bruneau Watershed, 2006

Stream Name	Stable stream banks	Covered stream banks	Fine sediment
Deadwood Creek	64%	71%	0%
Deadwood Creek Upper East	85%	85%	0%
Deadwood Creek Upper West	92%	92%	0%
Deer Creek	64%	68%	5%
Flat Creek	80%	80%	15%
Pole Creek	61%	61%	14%
Shack Creek	95%	95%	5%
Three Creek Lower	79%	82%	19%
Three Creek Middle	53%	67%	0%
Three Creek Upper	50%	50%	0%

Temperature
DEQ identified the Bruneau River, Jarbidge River, and the East Fork of the Jarbidge River to be limited by water temperature. All creeks surveyed passed the maximum temperature standard except for the lower reach of the Jarbidge River, Clover Creek, Three Creek, Deer Creek, and Big Flat Creek. All creeks measured for the maximum average daily temperature passed except the lower Jarbidge River. Measurements were also taken on Clover Creek, Three Creek, Deer Creek, Deadwood Creek and Big Flat Creek; however, maximum daily average temperature was not calculated (Table 6).

Table 6. Bruneau River Watershed Temperatures.

Tributary	Year Measured	Maximum Temperature (°F)	Maximum Daily Average Temperature (°F)	Maximum Monthly Average Temperature (°F)
Jarbidge River	2006	78	73	
West Fork Jarbidge River	2006	70	62	
Buck Creek	2006	68	64	
Jack Creek	2006	63	58	
Dave Creek	2006	66	63	
Clover Creek	2001	80		
Three Creek	2002	77		66
Deer Creek	2002	74		58
Deadwood Creek	2002	69		57
Big Flat Creek	2002	78		66
These are the most current measurements documented. Maximum monthly average temperature is not an Idaho water quality standard.				

Dissolved Oxygen
DEQ and BLM collected and measured DO levels in a number of creeks in the Bruneau River Watershed (Table 4). According to these data, all creeks sampled are in compliance with the criteria set by DEQ for DO; however, the majority of DO sampling occurred in the spring and fall when thermographs were being placed and retrieved.

E. coli
E. coli measurements were taken by DEQ in the Beneficial Use Reconnaissance Project (BURP). This information and *E. coli* data collected by BLM are summarized in Table 4. Flat Creek, Buck Creek, Cherry Creek, Clover Creek, Columbet Creek, Dave Creek, Deadwood Creek, Deer Creek, Dorsey Creek, Jack Creek, the Jarbidge River, the East Fork of the Jarbidge River, and Three Creek were sampled. Lower Buck Creek, Columbet Creek, Deadwood Creek, and the middle reach of Three Creek did not meet *E. coli* state water quality standards.

Streamflow Alteration/Diversions
Known sources of surface water dewatering the Bruneau River Watershed occur on Buck, Cougar, Dorsey, Columbet, Sanovia, Flat, Three, Cherry, Deer, Clover, and Deadwood Creeks. Due largely to historic water right permits, these diversions often take a majority of the water in these streams for agriculture and livestock use, frequently leaving the lower reaches of these streams completely dewatered.

Nutrients and Mercury
Neither nutrients nor mercury are considered to be limiting factors of water quality for any of the tributaries in the Bruneau River Watershed; however, the Bruneau River is listed by DEQ as water quality limited due to nutrients. BLM does not have information pertaining to the nutrient or mercury levels in the Bruneau Watershed.

<u>Salmon Falls Creek Watershed</u>
The primary tributaries of the Salmon Falls Creek Watershed include Bear Creek, Shack Creek, China Creek, Corral Creek, Browns Creek, Cedar Creek, and the North Fork Salmon Falls Creek (Timber Canyon Creek). Tributaries of Cedar Creek include House Creek and Little House Creek. Player Creek is a tributary to China Creek. Rocky Canyon Creek and Chimney Creek are tributaries to the North Fork of Salmon Falls Creek.

Currently, the Salmon Falls Creek Subbasin Assessment and Total Maximum Daily Load Plan is being developed for this watershed and may include some or all the above creeks and tributaries depending on the assessment determinations and public review process.

Sediment
DEQ identified Salmon Falls Creek and Cedar Creek as water quality limited streams due to sediment. BLM has limited data on the amount of TSS in streams in the Salmon Falls Creek Watershed. The creeks analyzed for TSS in this watershed include Cedar Creek, China Creek and House Creek (Table 7). All creeks sampled by BLM met the State water quality standard for TSS; however these data reflect one-point-in-time samples.

In 2006, BLM measured the number of pools dominated by fine sediments in the tributaries of Clover Creek containing redband trout (Table 8).

Table 7. Monitoring Results for Salmon Falls Creek Watershed Streams

Stream Name	Year	DO (mg/l)	TSS (mg/l)	*E. coli* (cfu/100ml)
Bear Creek	1997	8.02	-	N/A
Cedar Creek	2002	8.70	17	360
China Creek (Middle) by Road crossing	1999	8.36	-	170
China Creek (Lower) by Reservoir	1999	7.57	14.5	9
China Creek (Upper) on State Land	2002	N/A	14	6
Corral Creek	1998	10.24	-	-
House Creek	2002	7.30	5	65
House Creek (Upper)	2000	N/A	5	555
Little House Creek	1998	N/A	-	N/A
North Fork Salmon Falls Creek (below Confluence of Rocky/Timber Canyon)	1998	9.91	-	N/A
Player Creek	1998	9.03	-	N/A
Rocky Canyon Creek	2002	N/A	-	2,932
Salmon Falls Creek (Lower) near Hagerman	1994	11.40	-	130
Salmon Falls Creek (Middle) South End of Reservoir	1996	7.65	-	N/A
Salmon Falls Creek (Upper) in Nevada	2002	N/A	-	170
Shack Creek	2004	N/A	-	N/A
Timber Canyon Creek	2002	N/A	-	310
-: Streams being reevaluated as they are intermittent, ephemeral, or dewatered by diversions. N/A: Data not available				
These measurements were taken from the most recent survey done by the BLM or the Idaho DEQ BURP (Beneficial Use Reconnaissance Project). Standards for these indicators are outlined in Table 2.				

Table 8. Data from Redband Trout Surveys in the Salmon Falls Creek Watershed, 2006

Stream Name	Stable stream banks	Covered stream banks	Fine sediment
Bear Creek	78%	80%	0%
Cedar Creek	82%	86%	1%
Chimney Creek	81%	83%	0%
China Creek Lower	59%	71%	68%
China Creek Upper	78%	78%	0%
House Creek Upper	77%	87%	6%
House Creek Lower	86%	87%	0%
Little House Creek	89%	89%	0%
Rocky Canyon Creek	90%	90%	43%
Timber Canyon Creek	50%	79%	5%

Temperature

DEQ identified Salmon Falls Creek to be water quality limited due to elevated water temperature. Water temperature was only measured on Cedar Creek, China Creek and House Creek (Table 9). Of these creeks, only House Creek did not meet the maximum water temperature standard. Water temperature data has not been collected on these streams since 2002.

Table 9. Salmon Falls Creek Watershed Temperatures

Tributary	Year Measured	Maximum Temperature (°F)	Maximum Monthly Average Temperature (°F)
Cedar Creek	2002	70	59
China Creek	2002	72	61
House Creek	2002	79	67
These are the most current measurements documented. Maximum monthly average temperature is not an Idaho water quality standard.			

BLM planted cottonwood as part of fire rehabilitation along a portion of Salmon Falls Creek and along portions of Clover Creek to increase stream shading and provide a long-term source of large woody debris.

Dissolved Oxygen
DEQ and BLM collected and measured DO levels in a number of creeks in the Salmon Falls Creek Watershed, primarily in the early summer and fall (Table 7). DEQ identified Salmon Falls Creek, Cedar Creek below the reservoir, and Cedar Creek Reservoir to be water quality limited due to low levels of DO. All other creeks in the Salmon Falls Watershed are in accordance with the criteria set by the State of Idaho for DO.

E. coli
Bear Creek, Cedar Creek, China Creek, Corral Creek, House Creek, Little House Creek, North Fork of Salmon Falls Creek, Player Creek, Rocky Canyon Creek, Salmon Falls Creek and Shack Creek were surveyed for *E. coli* (Table 7). Cedar Creek, China Creek, upper House Creek, Rocky Canyon Creek, Salmon Falls Creek, and Timber Canyon did not meet *E. coli* standards.

Streamflow Alteration/Diversions
Known sources of dewatering in the Salmon Falls Creek Watershed include Cedar, China, Devil, Player, Antelope Springs, and House Creeks. Due largely to historic water right permits, these diversions often take a majority of the water in the streams for agriculture and livestock use, leaving lower reaches essentially dry.

Nutrients and Mercury
Nutrients are considered a water quality limiting factor in Salmon Falls Creek, Salmon Falls Creek Reservoir, Cedar Creek, and Cedar Creek Reservoir. BLM does not have information pertaining to the nutrient levels in these tributaries. DEQ considers both reservoirs as water quality limited for mercury.

In 2005, DEQ added the criteria to test methyl mercury levels in the fatty tissues of fish; however, this information has not yet been published. Although DEQ has yet to release any specific data concerning mercury levels in Salmon Falls Creek Reservoir, general warnings about possible high level mercury counts in fish taken from the reservoir have been identified in recent news media articles (Christensen, 2006).

<u>Snake River Watershed</u>
The primary tributaries of the Snake River include Salmon Falls Creek, the Bruneau

River, Sailor Creek, Yahoo Creek, Browns Creek, Deadman Creek, Ring Springs, Toana Gulch, Rosevear Gulch, Cassia Gulch, Big Pilgrim Gulch, and Deer Gulch.

There are very few other live surface waters in the northern region of the planning area except a few prominent springs including Coyote Springs, the primary source of water for Yahoo Creek. This major spring is centrally located within the Yahoo Allotment and normally discharges a volume of about 1 to 2 cubic feet per second (cfs) of water and flows for about four miles in a northeasterly direction to where it confluences with the Snake River near Dolman Rapids. This spring and creek water provides a water source for wildlife and livestock in the allotment.

Other important springs associated with the above-listed creeks or gulches include Ring, Toana, and Pilgrim Springs. Ring Springs discharges a lower flow of water into Salmon Falls Creek a little over a mile upstream of the Salmon Falls/Snake River confluence. It is the sole source of water for livestock in the Lower Salmon Falls Allotment. Toana Springs in Toana Gulch is a low volume spring in the Hagerman Allotment. Several water troughs supply water to livestock in the majority of pastures in the allotment. Pilgrim Spring lies in the lower end of Pilgrim Gulch. A fence generally keeps livestock from accessing this spring.

Browns Creek, Deadman Creek, Sailor Creek, Cassia Gulch, Deer Gulch, Pilgrim Gulch, and Rosevear Gulch are ephemeral drainages. Water runs sporadically in the spring when there is sufficient snow for run-off. These drainages carry sediment when they contain surface water.

Currently, this watershed includes a completed King Hill – C.J. Strike Reservoir Subbasin Assessment and Total Maximum Daily Load Plan 2006, which is now in the implementation stage. This plan was approved by EPA in April 1997 and originally assessed ten water bodies, five of which are in the Boise District, and 19 pollutants listed on the 1996 303(d) list. The five water bodies involved in the Jarbidge planning area include Browns, Deadman, and Sailor Creeks, the Snake River, and the C.J. Strike Reservoir; however, since all the creeks were classified as intermittent, no TMDLs were developed for them. Pollutants of concern for which TMDLs have been developed include nutrients, sediment, and DO for the Snake River and C.J Strike Reservoir. Sediment was determined to be the most common listed pollutant in the watershed, though most loading comes primarily from upstream segments (DEQ, 2006).

Sediment
DEQ identified the Snake River, Sailor Creek, Browns Creek, and Deadman Creek as water quality limited due to sediment. BLM has no data on the amount of TSS in streams in the Snake River Watershed.

Increased concentrated OHV use on BLM lands in Yahoo Creek and Rosevear Gulch resulted in areas with highly erosive soils stripped of vegetation. Rills and gullies from these high use areas increases the amount of sediment delivered to the Snake River.

Temperature
DEQ identified the Snake River as water quality limited due to temperature. Water temperature regimes in the Snake River are directly influenced by the operation of hydroelectric power plants managed by Idaho Power and the Bureau of Reclamation. BLM does not have water temperature data for the Snake River or any of the above mentioned tributaries.

Dissolved Oxygen
DEQ and BLM collected and measured DO levels in Browns Creek, a tributary to the Snake River (Table 10). DO levels in Browns Creek were 11.6 mg/l and passed the state water quality standards for DO.

Table 10. Monitoring Results for Snake River Watershed Streams

Stream Name	Year	DO (mg/l)	TSS (mg/l)	*E. coli* (cfu/100ml)
Browns Creek	1998	11.6	N/A	N/A
-: Streams being reevaluated as they are intermittent, ephemeral, or dewatered by diversions. N/A: Data not available				
Source: These measurements were taken from the most recent survey done by the BLM or the Idaho DEQ BURP (Beneficial Use Reconnaissance Project). Standards for these indicators are outlined in Table 2.				

E. coli
BLM has no data on the amount of *E. coli* in the Snake River Watershed.

Streamflow Alteration/Diversions
Due to the limited amount and sporadic nature of the flows in the major drainages, none of the flows are diverted from the above drainages. BLM has no data on the amount of diversions in the Snake River Watershed within the planning area.

Nutrients and Mercury
DEQ identified the Snake River as water quality limited due to nutrients. BLM currently has no data on the amount of nutrients and mercury in the Snake River Watershed.

Playas
Playas are naturally occurring depressions in the land that contain pools of water seasonally. Playas collect water from small basins and have no external drainage. The playas provide a water source for livestock and wildlife when water is present. Typically, the playas lack water from late June into December. BLM has no water quality data for any of the playas scattered across the area.

Groundwater
Groundwater sources in the planning area consist of a few government wells and include the following: AEC, Blue Butte, Browns Gulch, Buck Flat, Cheatgrass, Grindstone, Hammett, Notch Butte, Signal Butte, Three Creek, and Twin Butte Wells. All wells have or currently provide sufficient and important supplies of water throughout much of the planning area by means of intricate and elaborate storage, pipeline, and watering trough distribution systems. Although a few of these sources are rarely used because they have

been replaced with more dependable perennial creek water, they are still viable water sources. The other wells are dependable and used on a daily basis.

No water quality sampling or monitoring has been done by BLM on any of these groundwater wells. Information on well water resources within the planning area are summarized in Table 11.

Table 11. Groundwater Well Information

Name of Groundwater Well	Water Right Number	Number of Miles of Pipelines	Number of Troughs
AEC	51-07264	8.0	7
Blick	51-12714	0.0	1
Blue Butte	51-07276	29.0	21
Browns Gulch	51-07202	3.0	2
Buck Flat	51-12710	60.0	41
Cheatgrass	51-04059	7.0	6
Grindstone	51-12984	16.0	8
Hammett	51-02349	0.0	1
Notch Butte	51-04072B	22.0	12
Row	51-12344	0.0	1
Signal Butte	47-17179	21.0	18
Three Creek	51-02356	38.0	62
Three Island	51-04033	3.5	5
Deadman	51-04072A	9.9	8

Trends

Interpreting trends from water quality data can be difficult and sometimes misleading. Often, water quality measurements are taken at one point in time and do not encompass the annual, seasonal, and daily fluctuations in the water quality within a stream system. Specific run-off events, such as summer cloudbursts, can cause uncharacteristic changes in water quality for short or long periods of time depending on the location and magnitude of the run-off event. Single point data will not reveal the average or range of the indicators.

Indicators such as *E. coli* have a wide range of variability and spikes in *E. coli* levels can occur for a short period of time. Over a longer period of time such as one month, the average levels may be much lower and within an acceptable range. For this reason, an accurate *E. coli* trend cannot be calculated based on the data BLM has collected.

In 2006, BLM collected data on instream fine sediments for approximately 15 streams within the southern portion of the planning area (Table 4). This data indicates there is a wide range of instream fines for the streams sampled. In general, streams with reduced streambank stability ratings tended to have higher instream fines. This instream sediment data can provide a starting point for identifying sources and sinks for fine sediment within a watershed. The photopoints associated with this data can also be used to establish the current baseline sediment levels and for trend comparisons in the long-term.

Over the past ten years, the BLM implemented numerous habitat improvement projects designed to improve water quality within the planning area. Fencing projects restricting or excluding livestock access to streams have a beneficial effect on water temperature, sedimentation, DO, and nutrients because riparian vegetation can grow without being browsed and streambank alterations from hoof shearing, trampling, and compaction are reduced. These projects can also reduce the amount of *E. coli* levels in the protected stream reach by decreasing the amount of livestock waste entering the water.

Livestock trailing down steep slopes to water in streams is one source of sedimentation. Exclosures, fences preventing livestock from accessing portions of streams, were constructed by BLM on Cedar Creek and Columbet Creek in 2002. Gap fences, short sections of fence that tie into existing topography to prevent livestock from accessing a stream, were constructed by BLM on lengthy portions of Salmon Falls (1989), Clover (1987-1992), and Cedar (1998) Creeks. These fences are expected to improve riparian conditions and water quality in the long-term and may be used as reference areas for determining trends in the future.

Forecast

The BLM is working on an interagency bull trout recovery plan for the Jarbidge River Watershed. As part of this recovery plan, road improvements were implemented by the USFS along the Jarbidge River to decrease the amount of sediment, nutrients, and other contaminants entering the river. These improvements were started in the summer of 2006 and are expected to improve long-term water quality in the Jarbidge River.

<u>Sediment</u>

Human activities on public land are expected to increase. This will lead to creation of more roadways, increased OHV use, and increased risk of wildfires. An increase in development on private land and facilities and other structures on BLM-managed land is also expected. These factors may directly impact the amount of ground disturbance and sediment input into water resources throughout the planning area. Riparian exclosures and gap fences will stabilize the riparian vegetation and streambanks and are likely to reduce amount of point and non-point sediment delivery to streams to some extent. Sediment from areas with OHV use is expected to increase due to compacted soils. Sediment created at these sites will be transported to the Snake River in periodic pulses.

<u>Water Temperature and Dissolved Oxygen</u>

Water temperature and DO are expected to remain fairly constant due to the climate of the area. Areas expected to improve in water temperature and DO include Dave Creek, Salmon Falls Creek, Cedar Creek, and Clover Creek. Restoration projects, exclosures, and gap fences in these areas are expected to allow riparian vegetation to increase and provide more shading to these streams, which in turn restores more natural water temperature regimes and DO concentrations.

<u>E. coli</u>

E. coli levels are expected to remain the same or potentially decrease due to the development of more effective monitoring strategies. With increased knowledge of *E. coli* levels, BLM can concentrate monitoring efforts on improving areas with water quality concerns.

Streamflow Alteration/Diversions

Surface water availability and streamflow levels are expected to remain constant due to the continuation of current diversions in the planning area. Low flows and dry streambeds will continue to be a limiting factor of water quality in the future. The availability of surface water will also be influenced by annual precipitation amounts in the coming years.

Nutrients and Mercury

Nutrient levels in the water are expected to increase as a result of more human-related use on the public and private lands. The development of private land, new roads, increased off road vehicle use, and increased recreation creates more sources of nutrients for the watersheds within the planning areas.

Mercury levels in the environment are expected to remain constant. There are no new potential sources of mercury anticipated in the future.

Key Features

Streams containing special status species are a high priority for monitoring and managing water quality standards. Bull trout streams in the planning area include Jack Creek, Deer Creek, Buck Creek, Dave Creek, the Jarbidge River, and the East Fork of the Jarbidge River. Redband trout streams are located in the southern end of the planning area (see Aquatic Resources). White sturgeon inhabit the Snake River at the northern boundary of the planning area. Shoshone sculpin inhabit the springs and seeps entering the Snake River. Five Federally listed species of mollusks also inhabit the Bruneau and Snake Rivers (see Aquatic Resources).

Maintaining water quality is a concern for special status amphibians such as the Columbia spotted frog and western toad (see Special Status Wildlife). All areas with surface waters are important to maintaining populations of these amphibians; however, riparian systems are particularly important for the Columbia spotted frog.

Cold water springs and seeps, fed by underground aquifers, are important for moderating water temperatures and streamflow regimes in the three watersheds within the planning area. In arid ecosystems of the west, springs and seeps are a primary source of surface water during summer months and drought years. They also contribute an important source of minerals and nutrients to the system benefiting wildlife, riparian plant species, and aquatic organisms. Maintaining or improving these water sources is important for maintaining water quality in the planning area.

Wet meadows and beaver ponds are important features that capture, filter, and store surface water. Snow accumulation in the foothills of the Jarbidge Mountains is the major source of the water supply for the perennial streams and springs in the planning area and contributes to both groundwater recharge and surface flows. This stored water is gradually released into the ground and surface water limiting erosion potential. Maintaining water quality in these water storage areas is important for both fish and wildlife species.

Riparian areas with minimal livestock access are important for improving the water quality of the watersheds within the planning area. Maintaining the fences in these key areas should continue to improve water quality in and downstream of these protected reaches.

Current Management

Although there were no goals, objectives, or management actions for water quality in the 1987 Jarbidge RMP, more recently developed water quality guidance directs BLM to implement actions that improve water quality and the condition of other water resources within the planning area. These management practices, including restoration projects along perennial streams and riparian areas with various methods and techniques, mitigating range improvement projects, and managing proper grazing use, have been relatively successful at maintaining and/or improving water resources in the planning area. General field observations found these recent management practices reduced the effects of upland erosion and sediment contribution in many streams.

Management Opportunities

In order for BLM-managed public lands to be in compliance with current regulations as administered by the EPA, DEQ, *Idaho Standards for Rangeland Health and Guidelines for Livestock Grazing Management*, and ICBEMP, there are several areas where BLM could focus management efforts including: issuing new grazing permits that include best management practices (BMPs) to improve and restore water quality, monitoring livestock use on riparian vegetation along 303(d) streams (Table 3), conducting effectiveness monitoring on implemented BMPs, preparing water quality restoration plans for 303(d)-listed streams, and evaluating compliance with State of Idaho water quality criteria. These actions promote improvements in the quality of surface and groundwater resources within the planning area.

The following BMPs could be used to improve water quality within the planning area:

- Designating the location for livestock trailing corridors, seeding and/or planting burned areas;
- Resting burned areas with critical resource concerns (upland and riparian areas);
- Maintaining existing gap and exclosure fences and constructing new fences where water quality concerns are identified; and
- Careful planning of surface water uses (i.e. pipeline installations, water trough placement, spring developments).

1.B.10. Aquatic Resources

Profile

Aquatic resources within the Jarbidge planning area can be described in three broad categories:

- Aquatic species Federally listed under the ESA
- Aquatic species identified on the BLM Sensitive Species List for Idaho and Nevada
- All other native and non-native aquatic species present in the planning area.

Aquatic species included in the first two categories are discussed are broken down as either 'Fish" or "Aquatic Snails/Mollusks" and discussed in the Special Status Aquatic Resources section. Aquatic species included in the third category are discussed below under "Game and Non-Game Fish Species". Aquatic species found in the planning area are listed in (Appendix 10).

Indicators

The Jarbidge planning area contains a variety of fish not identified as special status species. These fish species are generally referred to as "game fish" or "non-game fish" and are broadly distributed throughout the streams and reservoirs in the planning area. Game fish populations are managed by IDFG and NDOW through angler harvest regulations and fish stocking programs. Non-game fish include the native fish not managed by angler harvest regulations due to their small size. They are protected through regulation and are important as forage fish for other fish and wildlife species.

Game fish including walleye *(Sander vitreus)*, large mouth bass (*Micropterus salmoides)*, small mouth bass (*Micropterus dolomieu)*, white crappie *(Pomoxis annularis)*, black crappie (*Pomoxis nigromaculatus*), yellow perch *(Perca flavescens),* brook trout (*Salvelinus fontinalis*), rainbow trout (*Oncorhynchus mykiss gairdeneri*), redband trout (*O. mykiss gibsii*), and mountain whitefish (*Prosopium williamsoni*) are commonly pursued by anglers. Except for mountain whitefish and redband trout, these fish are not native to the planning area, but are present in water impoundments such as Salmon Falls Reservoir and in the Snake River.

Non-game fish, such as the redside shiner (*Richardsonicus balticus),* Utah chub *(Gilia atraria)* and speckled dace (*Rhinichthys osculus),* are not actively managed by IDFG or NDOW through regulation, but are recognized by Federal and State agencies as an important food source for a variety of fish and wildlife species and necessary for a healthy aquatic ecosystem. These smaller non-game fish are native to the planning area and are rather limited in their distribution.

For aquatic wildlife, Standards 2 (Riparian Areas and Wetlands), 3 (Stream Channel/Floodplain), and 7 (Water Quality) 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. Standards for riparian areas and wetlands (Standard 2), stream channel/floodplain (Standard 3), and water quality (Standard 7) did not apply to nearly half of the acres assessed. The majority of the acres where Standards 2, 3, and 7 did apply did not meet the standards (Table 12).

Table 12. S&G Determinations for Standards 2, 3, and 7, 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%
7 – Water Quality	2%	0%	14%	29%	43%
Percentages were rounded to the nearest whole number and Standards may not total 100%. *Determination displayed as percent of 840,000 acres assessed.					

The 1987 RMP did not identify indicators for managing game and native non-game fish species within the planning area. Habitat indicators developed to benefit stream habitats for special status species will also benefit native non-game fish species.

Current Condition

The current distribution of game fish in the planning area is identified in Appendix 3. Many of these fish are not native to the planning area and have been stocked into reservoirs by IDFG to provide a recreational sport fishery for the public. On occasion, game fish have migrated to tributary streams where they compete with native fish for food and cover. Historically, hatchery rainbow trout were stocked in redband and bull trout streams by IDFG and NDOW.

Game fish within the planning area primarily occur in reservoirs, which have warmer water temperatures than stream habitats. Salmon Falls Creek Reservoir is managed as a multi-resource fishery for game fish species that tolerate both warm and cool water conditions. Rainbow trout and walleye are the primary game fish sought by fisherman in the reservoir. This reservoir is known as one of the best walleye fisheries in the State of Idaho, and the current state record for walleye was caught in the reservoir in the summer of 2006. Cedar Creek Reservoir is managed by IDFG as primarily a fishery for rainbow trout.

The Snake River and Salmon Falls Reservoir are the primary locations of the other game fish in the planning area. Largemouth bass, smallmouth bass, white crappie, black crappie, yellow perch, and other species inhabit the Snake River. Smallmouth bass, yellow perch, and black crappie are present in Salmon Falls Creek Reservoir.

Sixteen native non-game fish species are present in the Jarbidge planning area, and they represent members of the Cottidae (sculpin), Catostomidae (sucker), and Cyprinidae (Carp and Minnows) families (Appendix 3).

Four species of sculpin (Shoshone Sculpin, Mottled Sculpin, Paiute Sculpin, and Shorthead Sculpin) are present within the planning area. Members of the sculpin family are relatively short lived, requiring well-oxygenated water with good water quality. They are found in streams with fast to moderate flow, gravelly substrates, and relatively cool water temperatures (<70ºF) during summer months (Sigler & Sigler, 1987). These fish require stream substrates with low amounts of fine sediment for successful spawning and egg survival.

Three species of sucker are found within the Jarbidge planning area. One species, the large-scale sucker, can tolerate the warmer water temperatures commonly found in larger river systems like the Snake River. The other two species of sucker, mountain sucker and bridgelip sucker, are found in cool, fast-moving streams. They are broadcast spawners, but require gravelly to sandy substrates for spawning (Sigler & Sigler, 1987). Suckers primarily feed on algae and zooplankton, are relatively long lived (four to eight years), and provide no parental care for their off-spring.

Members of the minnow family are one of the most diverse groups in North America and are the largest component of the native non-game fish resource in the planning area. These species include chiselmouth, redside shiner, speckled dace, longnose dace, peamouth chub, leopard dace, northern pikeminnow, and Utah Chub. These species can occupy a variety of habitats and stream conditions and adapt well to different environments and temperature regimes.

Trends

The current status and trend for native non-game fish indicates a slow decline throughout their historic range as a result of increased human activity on the land. Human uses such as the diverting of surface flows, road construction, recreational uses, livestock grazing, and other soil-disturbing activities have cumulatively affected fish bearing habitats. The significance of this decline varies by species and geographic area. There are no known population losses for non-native fish in the planning area, but data describing their status or trend is limited.

Threats to the continued existence of native non-game fish are often related to the introduction of non-native fish that prey on native fish or directly compete with them for food and space and include activities that alter water quality, such as changes in water temperature; reductions in overhead cover; sedimentation of stream substrates; and channel widening as a result of streambank disturbance.

Forecast

Game fish populations, many of which are not native to the planning area, are not likely to experience declines as they are managed by IDFG and NDOW through regulations and hatchery stocking programs. The habitat used by these species could experience declines, such as reductions in water quality and introductions of sediment into spawning habitats, under the 1987 RMP. This could occur because the current plan does not include specific guidelines for protecting riparian areas and other aquatic habitats.

Declines in non-game fish species could be expected under the 1987 RMP as there are no management guidelines to protect the habitats they depend upon and their populations are not supplemented through State of Idaho or Nevada hatchery programs.

Key Features

Native non-game fish species such as dace, sculpin, shiners, and suckers occupy the lower elevation stream reaches in the planning area. Inventory and assessments are needed to determine the location of key spawning areas for these species so disturbance to the streambed from BLM permitted or other public land uses can be minimized when eggs and hatchlings are in the gravel. The annual recruitment of juveniles, combined with the maintenance of natural streamflow regimes, are the most important factors in maintaining fish populations over time. A list of streams that are important to these fish species is provided under "Current Condition of Fish," (Appendix 3).

Species of Conservation Concern

A number of aquatic species of conservation concern exist. Reasons for the concern could include broad changes in habitat, State or regional declining populations, or a general lack of information. Aquatic species appearing to have downward population trends in other regions may be categorized by BLM as Watch species. Aquatic species classified as Watch species do not receive any additional management emphasis by BLM general aquatic species. Currently, no aquatic species are classified as Watch species in Idaho. The Nevada BLM has identified the California floater as a Sensitive species. The California floater is suspected to be present throughout the Bruneau River, but surveys have not been conducted to confirm its presence (Coffin, 2007).

IDFG completed the Comprehensive Wildlife Conservation Strategy in 2005 (IDFG, 2005). The strategy identified 229 Species of Greatest Conservation Need (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 are considered general aquatic species unless they are designated by BLM and IDFG as Sensitive species or are classified as Candidate or listed under ESA by FWS. No aquatic SGCN are found in the planning area.

Aquatic species experience a number of crucial seasonal periods when resources can limit production, recruitment, and survival. These periods are commonly associated with spawning and incubation (Table 13).

Table 13. Aquatic Species Crucial Seasonal Periods

Species	Crucial Season(s)	Approximate Dates
Dace and minnows	Spawning Incubation	Spring through Fall[A] Spring through Fall[A]
Suckers	Spawning Incubation	May through June June through July
[A] Based on water temperature.		

Current Management

Riparian and fisheries habitat were to be maintained in current condition or improved. Fences were constructed in 2001 and 2002 in Saylor Creek/North Three Island, and River Bridge

Allotment to restrict livestock access to 1.8 miles of Snake River. Four miles of riparian fence in Lower Saylor Creek Allotment created a riparian pasture which limits livestock grazing on 3.5 miles of Snake River. A closure of part of Hagerman Allotment protects about 8 miles of Snake River. Approximately 200 cottonwood poles were planted along Clover Creek to improve aquatic habitat. Recent development of inventory and monitoring protocols and restrictions on livestock grazing in riparian areas to protect special status species have likely resulted in some riparian and fish habitat improvement

Gap fences are short sections of fence tied to rock outcrops or other topographic features to restrict livestock movements. Approximately half a mile of gap fence prevents livestock from accessing 4 miles of the lower Bruneau River. Approximately 6 miles of gap fence protects about 15 miles of Clover Creek. These fences have been reasonably successful in protecting targeted reaches of riparian habitat, also benefiting fish habitat.

Springs and reservoirs and pipeline systems for off-site livestock watering were to be developed away from riparian areas. Off-site water developments and fences that protect riparian habitats have likely resulted in some improvement to fish habitat.

Ongoing livestock grazing where livestock have access to the Snake River has been determined to be Likely to Adversely Affect Snake River snails; a Biological Opinion has been issued by the US Fish and Wildlife Service (FWS) (FWS, 2005).

The 1987 Jarbidge RMP prohibited surface occupancy for mineral projects within 500 feet of streambanks on perennial or intermittent streams or edges of reservoirs. This guideline for riparian protection also protects fish habitat. The guideline has been consistently applied to minerals projects.

Management Opportunities

Future management of aquatic resources should apply current ESA Consultation Streamlining Guidelines and establish procedures for completing consultation with the FWS in Boise, Idaho, and Reno, Nevada.

Management objectives to maintain riparian habitats in properly functioning condition and improve habitat that are functional-at risk or nonfunctional could be set. The following could be assessed to determine their impact on aquatic resources:

- The need to reduce recreational and OHV impacts to Snake River and tributaries and the Jarbidge and Bruneau Rivers;
- The effects of livestock grazing, fire, and roads on Clover Creek;
- The effects from irrigation diversions on fish distribution;
- The effects of roads in adding sediment to streams; and
- The effects of culverts in creating a migration barrier for fish.

Mitigation measures could be developed based on the results of these assessments and inventories. Mitigation measures could include the following:

- Spring sources could be protected when developed for livestock water,
- Fences could be used to protect stream reaches with native non-game fish species,

- Developments of livestock watering systems could be evaluated to ensure they are not diminishing surface flows to levels that reduce available fish habitat.

The revised RMP could include guidelines that reduce effects from BLM land management activities on water quality in the Snake River and Lower Bruneau River. Mitigation that reduces upland erosion and protect streamflows and water quality would reduce BLM-related effects on these Threatened and Endangered species.

1.B.11. Special Status Aquatic Resources

Profile

Special status aquatic 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) after reviewing current information within the state and adjoining states. Species are added to or removed from the Sensitive list periodically, typically every five to seven years. Idaho BLM ranks Sensitive aquatic species into four types.

- ***Type 1. Threatened, Endangered, Proposed and Candidate Species* –** These species are listed by FWS or NMFS as Threatened or Endangered, or they are Proposed or Candidates for listing under ESA.
- ***Type 2. Range wide/Globally Imperiled Species* –** These species are experiencing significant declines throughout their range with a high likelihood of being listed in the foreseeable future due to their rarity and/or significant endangerment factors.
- ***Type 3. Regional/State Imperiled Species* –** These species are experiencing significant declines in population or habitat and are in danger of regional or local extinctions in Idaho in the foreseeable future if factors contributing to their decline continue.
- ***Type 4. Peripheral Species* –** These species are generally rare in Idaho with the majority of the breeding range largely outside the state.

Idaho BLM also added a Type 5 (Watch) category. 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, species biology, or statewide trends. The Watch List includes species with insufficient data on population or habitat trends or where the threats are poorly understood. However, there are indications that these species may warrant special status species designation, and appropriate inventory or research efforts should be a management priority.

Indicators

Indicators for fisheries resources within the planning area were developed by assessing data for stream habitat conditions and fish distribution. A literature search was conducted to identify the most critical stream habitat features to a species of fish. The Natural Conditions Database (Overton et al., 1995) was used to predict what the stream habitat indicators should be based on the stream gradient and geology (volcanic). Once the indicators were identified, the appropriate condition for functioning properly, functioning at risk, or functioning at an unacceptable risk could be established.

This process for developing indicators for fisheries resources complies with current BLM management direction through an Interagency Memorandum, dated July 9, 2004, providing a framework for incorporating the aquatic and riparian component of the Interior Columbia Basin Strategy into BLM plan revisions (Quigley & Arbelbide, 1997).

The *Interior Columbia Basin Ecosystem Management Project: Scientific Assessment* is a broad-scale assessment using landscape information and standardized stream inventory data to define indicators for assessing the condition of aquatic habitats and fish populations in managed and unmanaged watersheds throughout the Columbia River Basin (ICBEMP, 1999). Development of the Scientific Assessment eventually led to the Interior Columbia Basin Strategy, a blueprint for land use plans throughout the basin. The guidance in *A Framework for Incorporating the Aquatic and Riparian Habitat Component of the Interior Columbia Basin Strategy into BLM and Forest Service Plan Revisions* was used to define the riparian habitat and fisheries indicators for the Jarbidge planning area.

The riparian habitat and fisheries indicators were consistent with the recommendations made by the NMFS (NMFS, 1997). This process uses a Matrix of Pathways and Indicators to define the biological requirements of the Federally listed species, evaluate the condition of the environmental baseline, and make determinations for how land management actions affect the Federally listed species and its habitat. The FWS has adapted this process to assess bull trout populations throughout the Columbia River Basin (FWS, 1998).

Standards 2 (Riparian Areas and Wetlands), 3 (Stream Channel/Floodplain), 7 (Water Quality), and 8 (Threatened and Endangered [T&E] Plants and Animals) of the S&Gs could serve as indicators for special status aquatic species habitat (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), stream channel/floodplain (Standard 3), and water quality (Standard 7) did not apply to nearly half of the acres assessed. The majority of the acres where Standards 2, 3, and 7 did apply did not meet the standards. 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 14).

Table 14. S&G Determinations for Standards 2, 3, 7, 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%
7 – Water Quality	2%	0%	14%	29%	43%
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.

Bull Trout

Figure 7. Columbia River Basin Bull Trout

Columbia River Basin bull trout (Figure 7), the only Federally listed fish within the planning area, were listed by the FWS as a Threatened species in June 1998 (63 FR 31647). Bull trout are present in suitable stream habitat in the upper Jarbidge watershed, but are not found in any other streams within the planning area.

The indicators used to assess bull trout populations include sub-population size, growth and survival, life history and diversity, isolation, and persistence and genetic integrity. The indicators used to assess bull trout habitat include: water temperature, sediment, chemical contaminants and nutrients, physical barriers, substrate embeddedness, large woody debris, pool frequency and quality, large pools, off-channel habitat, refugia, stream channel width/maximum depth ratio, streambank condition, floodplain connectivity, change in peak/base flow, increases in drainage networks, road density and location, disturbance history, riparian conservation areas and disturbance regimes.

Redband Trout

Redband trout are a BLM Sensitive fish species. The FWS was petitioned twice to list redband populations in the desert basins of southern Idaho, eastern Oregon, and northern Nevada as Endangered or Threatened under the ESA (60 FR 49819, 65 FR 14932). Redband trout were found in 18 stream reaches during 2006 surveys (Appendix 5). Redband trout are found in the Bruneau River and its tributaries, including the Jarbidge River. Redband trout are also present in Salmon Falls Creek and several of its tributaries.

Redband have been found in the headwater tributaries to Clover Creek, but there currently is no data confirming their presence in lower Clover Creek (Megargle et al., 2004).

Figure 8. Redband Trout

The indicators used to assess redband trout habitat in the planning area included pool frequency, large pools, streambank stability, water temperature, habitat connectivity/barriers, and watershed functional condition.

<u>White Sturgeon</u>
White sturgeon are a BLM Sensitive species found in the Snake River reaches within the planning area. This species of fish prefers deep pool habitat with a fine-bottom substrate (Quigley & Arbelbide, 1997). Historically, white sturgeon were present in the Snake River from its confluence with the Columbia River upstream to Shoshone Falls. The present distribution of white sturgeon is fragmented into sub-populations confined between the Upper Salmon Falls Dam, Lower Salmon Falls Dam, and Bliss Dam and Bliss rapids (Hanson et al., 1992). Habitat indicators have not been developed for white sturgeon.

<u>Shoshone Sculpin</u>
Shoshone sculpin are a BLM Sensitive species found in springs and spring-fed streams along the Snake River and in the Snake River near Bliss Bridge (Griffith & Daley, 1984). They are not found in the Snake River above Shoshone Falls, but have been found in numerous spring systems in the Hagerman Valley (Wallace & Griffith, 1982). They are also found above Bliss bridge upstream to the mouth of Salmon Falls Creek, in Crystal Springs (outside of planning area), and above Niagara Springs. Shoshone sculpin require habitats with clear, cool water with moderate water velocities. Habitat indicators have not been developed for Shoshone sculpin.

<u>Aquatic Snails/Mollusks</u>
Federally listed mollusks in the planning area include Bliss Rapids snail (*Taylorconcha serpenticola*), Utah valvata snail (*Valvata utahensis*), Idaho springsnail (*Pyrgulopsis idahoensis*), Bruneau Hot springsnail (*Pyrgulopsis bruneauensis*), and Snake River physa snail (*Physa natricina*). These Federally listed snails occur in suitable habitats in the Snake River and the lower Bruneau River. The habitat requirements for these snails generally include cold, well-oxygenated, flowing water with low turbidity.

Sensitive mollusks within the planning area include short-face lanx (*Fisherola nuttalli*), California floater (*Anodonta californiensis*), and the Columbia pebblesnail (*Fluminicola columbianus*). The short-face lanx is found in the Snake River from the Rupert area downstream to near King Hill. The California floater, a freshwater mussel, is found in the Snake River in scattered locations between Bliss and Alkali Creek. The Columbia pebblesnail is found in the Snake River below Lower Salmon Falls Dam and in the tailwaters of the Bliss Dam. There is very little site-specific information on the life history and habitat requirements for these species.

In 1995, the FWS prepared a recovery plan for Snake River aquatic species (FWS, 1995). This plan identified cold, well-oxygenated, flowing water with low turbidity as an important habitat element for Snake River snails, but did not develop indicators for the long-term recovery of these species.

Current Condition

In 2006, BLM compiled fisheries distribution information from a variety of sources, including IDFG, NDOW, DEQ, and the US Geological Survey. This information, as well as information from Idaho Power for the distribution of special status aquatic snails, is displayed on (Figure 9).

The designated status has changed for only one species of fish within the planning area since the 1987 RMP (Table 15). Jarbidge River bull trout were listed as Threatened under the ESA in April 1999 (64 FR 1710). The status for redband trout, White sturgeon, and Shoshone sculpin were updated to Sensitive – Type 2 in 2003. These species are experiencing significant declines throughout their range with a high likelihood of becoming Federally listed in the foreseeable future due to their rarity and/or significant endangerment factors. This includes species ranked by the CDC with global ratings of G1-G3 or species where recent data indicate the species is significant range-wide risk and this information is currently reflected by CDC global rankings.

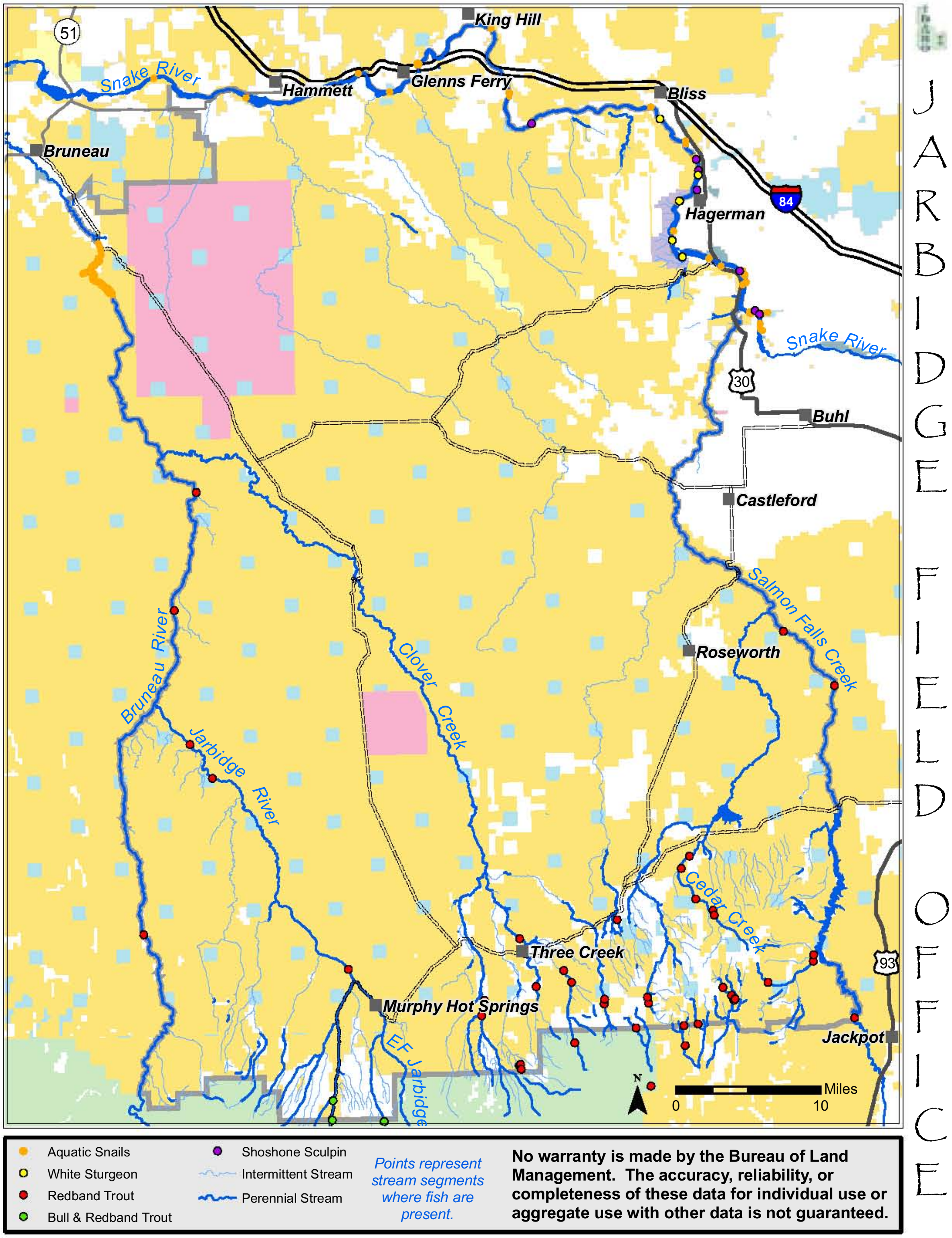
Table 15. Current Status of Special Status Fish Designated in the 1987 Jarbidge RMP

Common Name	Scientific Name	1985[A]	2006[B]	Rank[C]
Bull trout	*Salvelinus confluentus*	Not ESA listed	Type 1	G4/S3
Redband trout	*Oncorhynchus mykiss gairdeneri*	Sensitive	Type 2	G3/S2
White sturgeon	*Acipenser transmontanus*	Sensitive	Type 3	G4/S1
Shoshone sculpin	*Cottus greenei*	Sensitive	Type 4	G2/S2

[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
[C] G = Global ranking: 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

The Jarbidge River watershed contains migratory, or fluvial, bull trout and six local populations of resident bull trout occupying the East Fork Jarbidge River, including the East Fork headwaters, Cougar Creek, and Fall Creek; West Fork Jarbidge River, including Sawmill Creek; Dave Creek; Jack Creek; Pine Creek; and Slide Creek. Although Cougar, Fall, Sawmill, Pine and Slide Creeks are managed by the USFS, all are essential to the long-term conservation of the Jarbidge River Distinct Population Segment (DPS) of bull trout (FWS, 2004).

Figure 9. Locations of Special Status Fish and Aquatic Species



Dave Creek is a western tributary to the East Fork of the Jarbidge River. The creek originates on public land managed by the USFS then flows through private property to BLM-managed public land. Dave Creek contains a local population of resident (non-migratory) bull trout and may provide spawning and rearing habitat for fluvial bull trout. This creek supports the most extensively known suitable bull trout spawning and rearing habitat in the Jarbidge River Watershed, primarily due to its low stream gradient and abundance of spawning gravel. The local population of bull trout in Dave Creek could be a significant factor in future bull trout recovery efforts because of its suitability for spawning and connectivity to other suitable bull trout streams in the Jarbidge River Watershed.

Bull Trout

In 2002, the BLM completed stream habitat surveys on the East Fork Jarbidge River, West Fork Jarbidge River, Dave Creek, Deer Creek and Buck Creek. The surveys were completed on sections of stream that were representative of larger stream reaches with similar habitat characteristics such as stream gradient, width, and depth (Figure 9, Appendix 6).

Water temperature data for the Jarbidge River and its East Fork, Dave Creek, and Buck Creek indicate water temperatures in July and August exceed the 59^{o}F and was considered to be functioning properly for bull trout. The stream reaches with elevated water temperature can be reducing the ability of bull trout to migrate to or between headwater stream reaches that are suitable for bull trout spawning.

The streambank stability data for Dave Creek (74 % stable), Jarbidge River (77%), and East Fork Jarbidge River (77 % stable) indicate streambank stability is below levels considered good for bull tout. The streambank stability data for Buck Creek determined that 100% of the streambanks were stable and meeting the habitat requirements of bull trout. Instream sediment data for the East Fork Jarbidge River (>20%), Dave Creek (37%) and Buck Creek (25%) indicate the presence of fine sediments exceeding standards considered good for bull trout. Once the fine sediments enter a stream channel they can become embedded in the streambed and reduce the survival of bull trout eggs in the gravel. The substrate embeddedness data determined the East Fork Jarbidge River (>31%), Dave Creek (50-75%) and Buck Creek (50-75%) had embedded stream substrates at levels that were not functioning appropriately for bull trout.

The stream habitat survey determined there were 170 pools per mile in Buck Creek, 150 pools per mile in Dave Creek, and 142 pools per mile in Deer Creek. These streams meet the habitat requirements for bull trout. The East Fork Jarbidge River contained 51 pools per mile, less than what is considered functioning properly for bull trout. Pool habitats are created by large woody debris and large boulders in the stream channel. The amount of large woody debris in Dave Creek (97/mile) was functioning properly for bull trout but the amount of woody debris in Buck Creek (15/mile) and East Fork Jarbidge River (31/mile) are considered to be not functioning properly for bull trout. The occurrence of large pools (average maximum greater than 1.6 feet) important for bull trout rearing and overwintering, was at 73% of available habitat and functioning properly for Buck Creek. Large pools for Dave Creek (60% available habitat) and the East Fork Jarbidge River

(45% available habitat) were functioning at reduced levels for bull trout.

Bull trout populations in the Jarbidge River Watershed are patchy and variable between stream reaches and years. This distribution appears to be determined by seasonal fluctuations in water temperature (Warren & Partridge, 1993; Zoellick et al., 1996). The water temperature requirements for bull trout include temperatures ranging from approximately 39°F to 48°F for spawning and 39°F to 53°F for rearing. Generally, bull trout spawning occurs in the fall as water temperatures decline to 48°F. This decline varies from year to year based on climatic variables, usually occurring around the first week in September and continuing through the end of the spawning period in mid to late October. The Jarbidge FO has monitored water temperatures in the Jarbidge Watershed since 1992 with continuous water temperature recorders (BLM).

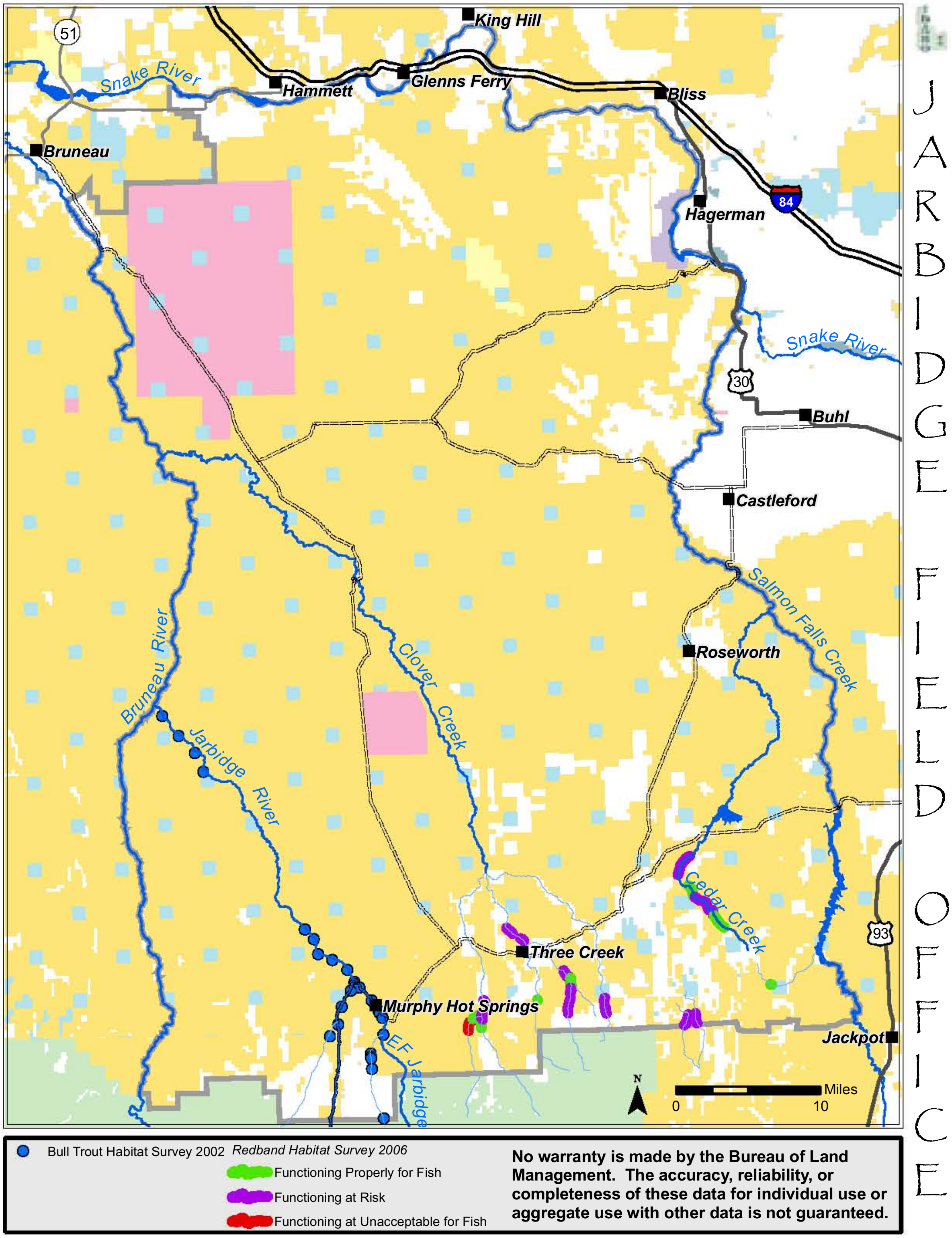
The current water temperature data suggests cooler, wetter summers may allow seasonal expansion of juvenile-rearing conditions for bull trout and distributions are narrowed in warmer, drier years. Dave Creek and Jack Creek have the most hospitable temperature regime for adult and juvenile rearing, while the Jarbidge River and its East Fork have limited potential and may serve as seasonal migration corridors or over-wintering areas for migratory bull trout. Adult bull trout have not been found in the lower Jarbidge River when water temperatures exceed 57ºF (Zoellick et al., 1996).

An interagency recovery team was established to identify habitat features limiting bull trout populations in the Jarbidge River Watershed. The recovery team is developing a recovery plan including inventory, monitoring, and habitat improvement objectives for bull trout.

Redband Trout

In 2006, stream habitat surveys were completed on 21 miles of 20 streams containing redband trout (Appendix 5). These streams were divided into reaches based on stream gradient, width, and depth. Twenty-four of the forty-eight streams reaches surveyed had streambank stability ratings of 80% or higher and are functioning properly for fish. The remaining 24 stream reaches had streambank stability ratings of 50% to 80% (21 reaches) or less than 50% (4 reaches). Figure 10 displays the condition of habitat suitable for redband trout in the planning area.

Figure 10. Condition of Redband Trout Habitat



The stream habitat surveys assessed the number of pools per mile for each reach. Pool frequencies in 43 stream reaches were rated as functioning appropriately for redband trout, two were rated as functioning at risk, and four were considered not functioning properly for redband trout. The highest pool frequencies were found in the headwater reaches of Cedar Creek (Reaches 5 - 7; 122 to127 pools/mile) and the lowest pool frequencies were found in Flat Creek (Reaches 1- 3; 34 to 41 pools/mile). In general, pool frequencies were higher in the headwater reaches that had boulders and large woody debris to form pools and lower in reaches with low stream gradient and limited boulders and instream woody debris. The standard for large pools, such as those that are 3 ft deep or more, was met in 25 of the stream reaches. Twenty-three of the stream reaches were function at risk or not functioning properly for redband trout due to their limited occurrence of large pools. Some of these reaches may have limited potential to form large pools due to low stream gradient.

Redband trout can be found in extreme temperature regimes from near freezing to 77˚F and can occur in alkali environments. Spawning temperatures occur between the temperatures of 39˚F to 57˚F usually during the months of May and June. There is evidence that large redband trout are affected more by thermal regimes than small redband trout, and that higher densities occur at higher elevations where thermal conditions are cooler (Rodnick et al., 2004; Zoellick et al., 2005). The temperatures in these redband streams are typical of this area, ranging from 59˚F to 73˚F (Johnson et al., 1985; Kunkel, 1976; Zoellick et al., 1996).

Water temperature recorded at the time of the habitat surveys indicate water temperature on 20 of the stream reaches was above the 65^{o}F considered to be functioning properly for redband trout. Water temperature on sixteen of the reaches was less than 65^{o}F. Water temperature was not recorded for twelve of the reaches due to low streamflow or an absence of fish. Water temperatures are naturally elevated during the hot summer months when air temperatures are high. Management actions that promote dense streambank vegetation and instream flows can reduce water temperature at some times of the year.

Thirty-two stream reaches contain natural or human-caused migration barriers that prevent redband trout from moving throughout a stream. The remaining sixteen stream reaches did not have migration barriers to that would inhibit or prevent fish movement.

White Sturgeon

The present distribution of white sturgeon in the Snake River is fragmented into nine discrete subpopulations. Of these subpopulations, only the Hells Canyon-Lower Granite and the Bliss Dam to C.J. Strike reaches currently support self-sustaining populations (Cochnauer et al., 1985). Snake River reaches above the Bliss Dam Reservoir, such as the Upper Salmon Falls Dam and Lower Salmon Falls Dam, have small populations with little or no detectable natural recruitment (Lepla et al., 2002). These dams block upstream migrations, decreasing the amount of suitable spawning areas and creating poor incubation environments for white sturgeon (Lukens, 1981).

The current population of white sturgeon between Upper Salmon Falls Dam and Lower

Salmon Falls Dam consists of potentially remnant native fish stocks and hatchery-reared fish. This population of fish is not self supporting and relies on the reproduction of hatchery-stocked white sturgeon (Jager et al., 2002). Nineteen white sturgeon were captured when this reach was last surveyed in 2004 (Lepla et al., 2004).

The Snake River reach from Bliss Dam to Lower Salmon Falls Dam was surveyed from March through August 2004. Thirty-eight sturgeon (5 wild and 33 hatchery) were captured below the reservoir between 1992 and 1994. A total of 45 sturgeon (9 wild and 35 hatchery) were captured were captured between 1992 and 2004 (Lepla et al., 2004). A low number of small fish captured during the last three stock assessments 1980 to1981 (Lukens, 1981), 1992 to 1993 (Lepla & Chandler, 1995), and 2004 (Lepla et al., 2004) suggests natural recruitment remains low and infrequent. Sturgeon growth rates in reaches between Bliss and Shoshone Falls remain higher when compared to lower reaches on the Snake River with viable populations (Lepla et al., 2004).

The limited availability of suitable spawning habitat is a factor in the status of white sturgeon in the planning area. White sturgeon typically require 10 to 15 years to reach sexual maturity and have a low natural recruitment of off-spring. IDFG regulations only allow for the catch and release of white sturgeon.

Shoshone Sculpin

Shoshone sculpin are found in 52 locations within 26 springs and streams in the Hagerman Valley (FWS, 1995). They also are found in Upper Salmon Falls Reservoir, below Upper Salmon Falls Reservoir, in Lower Salmon Falls Reservoir, and in Bliss Reservoir. These sculpin are not found in the Snake River above Shoshone Falls. The number of Shoshone sculpin captured during fisheries surveys by Idaho Power from 1986 to 1990 varied by reach in Upper Salmon Falls Reservoir (116), below Upper Salmon Falls Reservoir (7), Lower Salmon Reservoir (95), below Lower Salmon Falls Reservoir (20), and Bliss Reservoir (6) (Lepla & Chandler, 1995).

Shoshone sculpin require clear, cool streams with moderate streamflow. They live on the stream bed and spend daylight hours under cobbles and boulders, coming out to feed at night. Preferred summer temperatures vary from 55ºF to 65ºF (Sigler & Sigler, 1987). Spawning seasons occur from late winter to mid summer under rocks or ledges. Shoshone sculpin females deposit 20 to 120 eggs in nests created by the male. A male fans the eggs with his pectoral fins to keep the eggs supplied with oxygen, and protects the nest from predators.

Shoshone sculpin are only found in association with groundwater outflows or upwelling from stream bottoms. The occurrence of this fish decreases when there is less influence of spring water on water quality (Wallace & Griffith, 1982). Juvenile sculpin prefer vegetated areas with both adults and juveniles preferring low water velocities (<20 cm/sec) with temperatures near 59ºF (Wallace & Griffith, 1982).

Aquatic Snails/Mollusks

The Bliss Rapids snail, Utah valvata snail, Idaho springsnail, and the Snake River physa are present in the Snake River, and the Bruneau Hot springsnail is present in the lower Bruneau River. Since the 1987 RMP, several changes in the designated status for aquatic snails/mollusks have occurred within the planning area (Table 16).

Table 16. Current Status of Special Status Aquatic Snails/Mollusks Designated in the 1987 Jarbidge RMP

Common Name	Scientific Name	1985[A]	2007[B]	Rank[C]
Idaho springsnail	*Pyrgulopsis idahoensis*	Not listed	Type 1[D]	G1/S1
Utah valvata	*Valvata utahensis*	Candidate	Type 1	G1/S1
Snake River physa	*Physa natricina*	Candidate	Type 1	G1/S1
Bliss Rapids snail	*Taylorconcha serpenticola*	Candidate	Type 1	G1/S1
Bruneau Hot springsnail	*Pyrgulopsis bruneauensis*	Not listed	Type 1	G1/S1
Short-face lanx	*Fisherola nuttalli*	Not designated	Type 2	G2?/S1
California floater	*Anodonta californiensis*	Not designated	Type 3	G4/S?
Columbia pebblesnail	*Fluminicola columbianus*	Candidate	Type 3	GU/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.
[C] G = Global ranking: 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, ? = Uncertainty exists about stated rank
[D] Presently considered for delisting due to change in taxonomy.

The habitat requirements for Snake River snails include cold, clean, well-oxygenated, flowing water of low turbidity. With the exception of the Utah valvata snail and possibly Idaho springsnail, these snails prefer gravel to boulder-sized substrates. Despite this similarity, each of these species has slightly different habitat preferences. The Idaho springsnail and Snake River physa are found only in the free-flowing reaches of the Snake River. The Bliss Rapids snail and Utah valvata occur in both cold-water springs and Snake River habitats. The development of hydroelectric power for the Snake River system has changed the Snake River from a primarily free-flowing, cold-water system to a slower-moving, warmer water system. As of 2006, the Federally listed species occur mainly in the remaining free-flowing reaches or spring habitats of the Snake River.

Idaho Springsnail

The Idaho springsnail was listed by the FWS as Endangered on December 14, 1992. These snails are currently under a status review by the FWS for possible delisting because a recent clarification in taxonomy indicates the snail is more common that originally believed. This snail is small (0.24 to 0.3 inches), has a narrowly elongated shell, and is only found in the flowing waters of the Snake River in Idaho. This snail is not found in any of the Snake River tributaries or river margin cold-water springs (Taylor, 1982b). The Idaho springsnail is one of a few surviving snail species from the Pliocene Lake Idaho that covered parts of southwest Idaho and adjacent Oregon. Habitat for the Idaho springsnail includes mud or sand associated with gravel and boulders, and the snail is often found attached to vegetation in riffles (Taylor, 1982b).

Historically, the Idaho springsnail was found from Homedale, Idaho upstream to Bancroft Springs, Idaho; however, it has been extirpated from the headwaters of C.J. Strike reservoir downstream to Homedale (57 FR 58244). The current distribution is in fragmented, small populations from Bancroft Springs to the head of C.J. Strike Reservoir; a reduction of 80% of its historic range. BLM inventory and monitoring data is not available for this species, but inventories have been completed by Idaho Power.

Utah Valvata Snail
The Utah valvata snail was listed by the FWS as an Endangered species under the ESA on December 14, 1992. This snail is small (<0.2 inches) and lives in deep pools near rapids and habitats associated with large perennial spring complexes (57 FR 58244). They are found in mud, silt, and fine sand substrates in shallow shore-line water and in pools adjacent to rapids or perennial-flowing waters associated with large spring complexes and submerged vegetation. This species avoids areas with strong currents or rapids. These snails primarily feed on dead plant material, but are known to graze on zooplankton and algae on rocks and aquatic plants. Utah valvata snails require cold, clean, well-oxygenated water with low turbidity.

Historically, these snails were found from American Falls downstream to the Grandview area as well as Utah Lake, Utah (FWS, 1995). The current distribution includes a few sites in Hagerman Valley and scattered locations from American Falls Reservoir to King Hill Creek, Idaho.

Snake River Physa
The Snake River physa was listed by the FWS as Endangered on December 14, 1992. This snail is small (0.3 inch) and only found in the Snake River. It requires cold, clean, well-oxygenated, flowing water with low turbidity (57 FR 58244). The Snake River physa snails are found on the underside of gravel- to boulder-sized rock in swift current at the margins of rapids. Other life history information (reproduction, food habits) are largely unknown for this species. The Snake River physa snail is a relic survivor from the Pleistocene that once occurred in lakes and streams in northern Utah and southeastern Idaho (Taylor, 1982c).

Historically, Snake River physa snails occurred from near Grandview upstream to the Hagerman area (Taylor, 1988) and possibly up to Minico Dam. Presently, they are found in a few scattered sites between King Hill and Hagerman with a potential isolated population near Minidoka Dam (57 FR 58244). It is believed that fewer than 50 have been collected in the Snake River (Frest & Bowler, 1992). The BLM lacks inventory or site-specific data for Snake River physa.

Bliss Rapids Snail
The Bliss Rapids snail was listed by the FWS as a Threatened species on December 14, 1992. This snail is small (<0.1 inch) and found primarily on cobbles and boulders in swift current in rapids or boulder bars below rapids (Taylor, 1982a). It also can be found in

spring-influenced areas or along the edges of rapids that border the shoreline and is known to avoid surfaces with attached plants (57 FR 58244). It is present in the Snake River between the Upper Salmon Falls Dam and the Snake River at King Hill and in a few spring habitats in the Hagerman Valley.

Reproduction occurs October through February, and adults experience a seasonal die-off after reproducing (57 FR 58244). The Bliss Rapids snail appears to require cold, clean, well-oxygenated, flowing water with low turbidity (57 FR 58244). This species can be quite abundant, especially on smooth rock surfaces covered with red algae. These snails avoids daylight and prefers the darker undersides of rocks during the daylight (Bowler, 1990).

Historically, the Bliss Rapids snail was present in the Snake River from the Indian Cove Bridge upstream to an area east of American Falls. Currently, they are found in a few discontinuous areas in the Bliss Dam tailwaters to Lower Salmon Falls Dam tailwaters, a few unpolluted springs (Thousand Springs, Banbury Springs, Box Canyon Springs, and Niagara Springs), and one spring near American Falls (FWS, 1995).

Bruneau Hot Springsnail
The Bruneau Hot springsnail was listed by the FWS as an Endangered species on June 17, 1998. This snail is small (<0.25 inch) and is only found in warm water springs and seeps along a 5.5 mile reach of the lower Bruneau River near Hot Creek. It reproduces best in water between 75ºF to 95ºF and appears to be an opportunistic grazer, eating a variety of algae (Mladenka, 1992). This species of springsnail is found on rock, sand, silt, and algae substrates, and eggs are laid individually on rock at any time of the year (Mladenka, 1992).

Short-Face Lanx
The short-face lanx is an oval-outlined, flat cone-like, freshwater mollusk about 0.5 inches in diameter (FWS, 1995). The short-face lanx lives in steady to strong currents on the under surfaces of large rocks (Taylor, 1985). It is found in large rivers or in large springs in rapids and boulder bars below rapids (Taylor, 1985). The short-face lanx deposits seven to eight eggs in a jelly-like mass on the lower surfaces of rocks (FWS, 1995). This mollusk has neither lungs nor gills, but absorbs oxygen from a vascularized mantle bordering the foot. This species requires water with high amounts of oxygen (FWS, 1995).

The historic distribution of this species is in the Snake River from the Rupert area downstream to near King Hill, as well as major rivers in Washington and Oregon. The southern Idaho population is disconnected from the populations in Hells Canyon, the Salmon River, and the Columbia Rivers (Neitzel & Frest, 1990). The numerous dams on the Snake River have further fragmented the habitats used by Short-faced lanx. The BLM lacks any specific data for this mollusk.

California Floater

The California floater is a clam-like mollusk most commonly found in rivers, cold-water springs, or reservoirs in relatively stable, oxygenated mud to fine gravel beds (FWS, 1995). This species can be found in the Snake River immediately upstream or downstream of rapids in mud-sand substrates with good water quality and can reach a fairly large size of 6 to 9 inches in length. This mollusk is relatively sessile (attached to substrate) and exposes about one-third to one-half of the shell from the substrate with the opening of the shell facing upstream (FWS, 1995). California floaters have a larval and adult life form. The larval form appears to be an external parasite on fish for about three to six weeks. This species is long-lived, reaching 20 years of age (FWS, 1995).

Although there is some information on the distribution of this species in Idaho, little is known about the habitat requirements of this species. Frest and Bowler discovered this species can still be found in scattered locations between Bliss and Alkali Creek in the middle reaches of the Snake River; however, their distribution in this reach is very patchy (Frest & Bowler, 1992).

Columbia pebblesnail

The Columbia pebblesnail is a small freshwater snail with a turbinate (spiral) shell approximately 0.4 inches high. The pebblesnail lives in flowing waters and uses gravel- to boulder-sized substrate at the edges or downstream of rapids and whitewater areas (FWS, 1995). The habitat use, food habits, and other basic biological information for this species is largely unknown.

Prior to 1988, the Columbia pebblesnail was known only from the lower Snake, Columbia, Spokane, Little Spokane, and Payette Rivers. Recently, a single population of this species was discovered in the Snake River in the Wiley Reach upstream of the Bliss Dam (Neitzel & Frest, 1993).

Trends

<u>Bull Trout</u>

The primary factors affecting bull trout populations within the planning area are related to livestock grazing and road construction, maintenance, and use by removing riparian vegetation and altering streambanks by increasing fine sediments in the stream channel. These sediments further affect stream channels if they are not flushed through the stream system, and can cause a widening of the stream channel which can increase solar exposure and elevate water temperatures.

There is limited historic data on bull trout in the Jarbidge River Watershed that can be used to assess the trend for bull trout. The current understating of bull trout is increasing with the current ESA listing and ongoing bull trout recovery planning efforts. The additional collection of water temperature data, migration data, habitat surveys, spawning ground surveys, road maintenance improvements, and adjustments in livestock management will serve to provide the data necessary for a bull trout recovery planning effort. This data will provide a comprehensive understanding of how bull trout are using the Jarbidge River Watershed and identify where restoration and recovery efforts should be focused. It is expected bull trout populations should demonstrate an upward trend in the near future through this recovery framework.

Redband Trout

Populations of redband trout have declined across much of their geographic range because of impacts from agriculture, grazing, logging, dams, hybridization, and competition with nonnative fishes (Behnke, 1992; Williams et al., 1989; Zoellick et al., 2005). Although hybridization with other species is not identified as a concern within the planning area, other redband trout populations within the historic range have hybridized with non-natives (Allendorf et al., 1980; Knudsen et al., 2002; Williams et al., 1997).

Threats to redband trout within the planning area include livestock grazing, historic mining, dewatering streams for private land agriculture, recreation and OHV use in riparian areas, and energy development. These land uses can alter streambanks leading to an increase of fine sediments in redband spawning and rearing habitats, which can alter water temperature regimes. Mining outflows may affect water quality and lower the groundwater table. Recreational use of OHVs at stream crossings or the creation of new roads can impact stream hydrology and increase sediment inputs, reducing pool quality and quantity. The damming or diversion of streams for agriculture and hydroelectric power purposes can further isolate existing redband populations restricting their distribution within a watershed and preventing genetic exchange with other redband populations.

White Sturgeon

Current trends show remnant native populations between Lower Salmon Falls Dam and Bliss Reservoir (est. 400-700 sub-adults and adults) have limited spawning areas and documented natural spawning is rare. Stocking of white sturgeon by IDFG has resulted in hatchery-reared sturgeon captured within the section between Upper Salmon Falls Dam and Lower Salmon Falls Dam. Few natives were documented in recent surveys by Idaho Power.

The primary threat to white sturgeon is the development of the Snake River for hydroelectric power. These dams alter the natural flow of the Snake River and decrease water flows to levels that do not consistently provide adequate water velocities for successful spawning and egg survival. The changes in flow regimes reduce the natural recruitment of the species. The hydroelectric dams also create a migration barrier that prevents the passage of adult sturgeon between their historic spawning areas in the lower Snake River, Columbia River, and Pacific Ocean.

Shoshone Sculpin

A recent survey conducted by an American Fisheries Society, Idaho Chapter workshop found Shoshone sculpin populations within the Hagerman Valley were stable in 1995 compared with previous distribution data gathered in the early 1980s. Shoshone sculpin were found within Upper Salmon Falls Reservoir, Lower Salmon Falls Reservoir, and Bliss Reservoir between 1986 and 1990, indicating they may be found in locations within the Snake River other than spring seeps.

Threats to Shoshone sculpin populations include activities that increase water temperatures and nutrient levels in water and the diversion of water or development of springs. The development of the Snake River for hydroelectric power and private land developments for fish farming have dewatered or degraded springs and served as sources for non-native invertebrates, fishes, diseases, and parasites within occupied Shoshone sculpin habitats along the Snake River. This species will continue to be susceptible to these influences as development continues within the Snake River Canyon.

Aquatic Snails/Mollusks

Snake River snails, such as the Bliss Rapids snails, Utah valvata snails, Idaho springsnail, and Snake River physa, experienced declines as a result of the construction and operation of the Snake River dams (57 FR 59242). All experienced a reduction in their distribution and fragmentation of their habitat. The primary threats include dam construction, rapid changes in streamflows, agricultural related water withdrawals, and degraded water quality from irrigated agriculture runoff from feedlots and dairies, fish hatchery effluent, municipal sewage effluent, and non-point discharges (57 FR 59242).

The Bruneau Hot springsnail experienced declines in recent times. Mladenka noted increased sediment loading into Bruneau Hot springsnails' egg-laying habitat reduced the availability of this essential habitat considerably in recent years (Mladenka, 1992). Varriccione and Minshall found declines can also be attributed to agricultural-related groundwater withdrawals in the lower Bruneau River (Varriccione & Minshall, 1994). The number of springs and seeps where this species was found has declined from 131 in 1991 to 89 in 1998.

Sensitive snails and mollusks in the Snake River, such as the Columbia pebblesnail, California floater, and short-face lanx experienced population declines due to the conversion of the Snake River to a slow-moving, warm-water, shallow lake system. Threats common to these species include degraded water quality due to changes in water temperature, nutrient loading, siltation, agricultural chemicals, loss of suitable habitat, fragmentation of habitat, and reductions in water quantity due to the development of deep wells into the Snake River plain aquifer (FWS, 1995).

Forecast

Bull Trout and Redband Trout

Under the current management plan, populations of bull trout and redband trout could be maintained at their current levels or decline due to a lack of specific guidelines for improving the condition of the habitats these fish depend upon. BLM policy requires management plans provide for the conservation of Federally listed and BLM Sensitive species, including conservation strategies with specific habitat and population objectives and management actions to achieve those objectives (BLM Manual 6840.06).

White Sturgeon

This species is expected to remain static or decline under the current management direction. Lands administered by BLM and BLM authorized actions likely have an insignificant effect on the listing status of this species. White sturgeon populations will continue to be limited by the existing migration barriers in the Snake River reaches within the planning area.

Shoshone Sculpin
This species could experience further declines under the current management direction. Additional development along the Snake River altering streamflow and reducing water quality could further limit the distribution of Shoshone sculpin.

Aquatic Snails/Mollusks
These species could experience further declines under the current management direction. Without changes in management, further declines for these aquatic species are likely to occur. Lands administered by BLM or BLM-authorized actions likely have an insignificant effect on the listing status of this species.

Key Features

Bull Trout and Redband Trout
The southern region of the planning area along the Nevada border is an area of critical importance for native salmonids within the planning area. This area includes the headwaters for the watersheds of Salmon Falls Creek, Clover Creek, and the Jarbidge River and contains important cold water habitats for redband and bull trout. Upland riparian habitats containing mature aspen and aspen regeneration should be maintained for deposition of large woody debris into stream beds. Willow, dogwood, and herbaceous grasses, such as sedge, along the greenline should also be monitored within these sections. Streambank stability, channel width, pool frequency, pool depths, fine sediment, and thermal regimes for these areas should be closely monitored in relation to ongoing management activities within the planning area. Thermal refugia in the form of shade, deep pools, groundwater inputs for adults-juveniles, and spawning habitat limits these populations.

White Sturgeon
White sturgeon are only found within the Snake River Canyon along the north end of the planning area. Hydroelectric dams greatly limit the river reaches where these fish can successfully spawn in the Snake River Canyon from Shoshone Falls to C.J. Strike Reservoir. Key features to the distribution of white sturgeon include fast flowing water with cool water temperatures and high water quality. River reaches with high deposition of fine sediments can degrade sturgeon spawning habitats by filling interstitial spaces in which eggs and hatchlings develop, hide from predators, and take refuge during periods of high flows. The areas below rapids and pool tail-outs for white sturgeon spawning and deep pools for overwintering cover are essential to maintaining sturgeon populations in the Snake River.

Shoshone Sculpin
Shoshone sculpin are found in cold water springs and alcove habitats along the Snake River. Changes in streamflow regimes and reductions in water quality limit the amount of suitable habitat for this species. Shoshone sculpin are only found in association with groundwater outflows or upwelling from stream bottoms. The protection of this key

feature along the Snake River is essential to the long-term existence of the species.

Aquatic Snails/Mollusks

Key habitat features for Federally listed Snake River snails include cold, clean, well-oxygenated, flowing water of low turbidity. With the exception of the Utah valvata snail and possibly Idaho springsnail, these snails prefer gravel- to boulder-sized substrates. Each of these species has slightly different habitat preferences. The Idaho springsnail and Snake River physa are found only in the free-flowing reaches of the Snake River. The Bliss Rapids snail and Utah valvata occur in both cold-water springs and mainstem habitats. The Bruneau Hot springsnail requires well-oxygenated, flowing water of low turbidity warmed by geothermal influences. Management guidelines specific to the individual needs for each of these species will be important to maintaining their populations over time.

The Columbia pebblesnail and freshwater mollusks, such as the short-face lanx and the California floater, live in the Snake River but have slightly different habitat requirements. Management considerations should be given to each of these habitat types for managing these Sensitive aquatic snails and mollusks.

Current Management

The 1987 Jarbidge RMP directed the protection of aquatic habitat of Sensitive and Candidate species in the Snake River below Lower Salmon Falls Dam. The Bliss Rapids snail, Idaho Springsnail, Snake River physa, Utah valvata, White sturgeon, and Shoshone sculpin are present in the Snake River. Fences in the Saylor Creek/North Three Island, Three Island, and River Bridge Allotment restrict livestock access to the Snake River. The fences were constructed in 2001 and 2002 and protect about 1.8 miles of Federally listed snail habitat. About 4 miles of the Sand Point Riparian Fence in the Lower Saylor Creek allotment created a riparian pasture in 1999, limiting livestock grazing on 3.5 miles of Snake River. Completed ESA consultation resulted in a determination of Likely to Adversely Affect for several BLM livestock grazing allotments where cattle had access to the river. A biological opinion closed that portion of the Hagerman Allotment in MUA 4 to livestock grazing, protecting about 8 miles of the Snake River.

Management Opportunities

The revised RMP could include the following management actions specific to particular special status species. These actions are also expected to benefit game fish and native non-game fish species.

Bull Trout and Redband Trout

The revised RMP, including an aquatic species conservation strategy, is anticipated to place special emphasis on improving populations, protecting and improving existing occupied habitats, and implementing projects that promote the expansion of bull trout and redband trout into other suitable habitat where access is currently limited or habitat improvements are needed. Management objectives for the habitats of these fish will promote the maintenance of quality pool habitat with limited deposition of instream fine sediments, connectivity into adjoining tributaries with suitable habitat, and maintenance of natural water temperature regimes. Maintaining or improving these parameters will support management goals for these fish through the next planning period.

White Sturgeon

It is likely that interagency recovery planning efforts will be required to provide river flow regimes that meet white sturgeon requirements and population monitoring and supplementation to ensure these fish persist over time. The BLM could partner in this effort through the application of land management guidelines reducing sediment contributions from upland erosion, protecting streamside vegetation, and minimizing recreational impacts in areas adjacent to the Snake River.

Shoshone Sculpin

Future management guidelines for Shoshone sculpin are likely to emphasize maintaining or improving the Snake River spring sources where they currently exist, protect coldwater spring sources, and natural temperature regimes.

Aquatic Snails/Mollusks

Restoring a more natural flow regime in the Snake River and lower Bruneau River, reducing the introduction of fine sediments into these rivers, and protecting water quality and restoring water temperature regimes would all promote the long-term recovery of snails and mollusks in the Snake and Bruneau Rivers.

1.B.12. Riparian Vegetation

Profile

Riparian zones are vegetated areas along rivers and streams. They are important from an ecological standpoint because they provide a transition zone between aquatic and upland areas and provide cover and food for wildlife and fish. They provide water quality benefits by filtering out nutrients from runoff, maintaining stream temperature by providing shade, and controlling erosion.

Within the planning area, riparian areas and wetlands are generally associated with stream and river bottoms and springs/seeps. There are approximately 158 miles of intermittent streams and 570 miles of perennial streams within the planning area. Rivers and streams often have narrow riparian zones varying from 25 to 200 feet in width and confined by steep side slopes. Wetlands in the planning area include approximately 885 acres of playas or ponds, 208 seeps or springs, and an unknown acreage of wet meadows associated with these water features.

Data for riparian areas was collected during the summer of 2006; however, as of the date of this document, that data is still being analyzed.

1.B.13 Soil Resources

Profile

Indicators

Watershed health is the degree to which the soil, vegetation, water, and air, as well as the ecological and hydrological processes of the ecosystem, are balanced and sustained (The Task Group on Unity in Concepts and Terminology, 1995). Improving and maintaining healthy, properly functioning watersheds benefits grazing, wildlife, fisheries, water quality, and recreation programs. Soils are the basic building blocks for good watershed health. They provide the medium for most plant life forms and serve to capture, store, and supply water to support plant growth. The ability of the soil to function in rangeland ecosystems is a factor of the soil's physical, biological, and chemical properties. Natural events and various land management actions can affect these soil properties and alter the ability of the soil to support a healthy rangeland ecosystem.

If soil resources are in good condition, Standards 1 (Watersheds), 2 (Riparian Areas and Wetlands), and 3 (Stream Channel/Floodplain) 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. Standards for riparian areas and wetlands (Standard 2) and stream channel/floodplain (Standard 3) did not apply to nearly half of the areas assessed; the majority of the acres where Standards 2 and 3 did apply did not meet those standards (Table 17).

Table 17. S&G Determinations for Standards 1, 2, and 3, 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%
2 – Riparian Areas and Wetlands	3%	4%	8%	44%	41%
3 – Stream Channel/ Floodplain	3%	3%	8%	46%	42%
Percentages were rounded to the nearest whole number and Standards may not total 100%. *Determination displayed as percent of 840,000 acres assessed.					

The amount and distribution of bare ground is one of the most important contributors to site stability relative to site potential and is a direct indication of site susceptibility to accelerated wind and water erosion (Pellant et al., 2005). In general, a site with a lot of bare ground will be less stable compared to a site with a lot of ground cover.

A compaction layer is a near-surface layer of dense soil caused by repeated impacts upon the soil surface. Compaction is an important soil health indicator as it may directly affect and limit plant growth, water infiltration, or nutrient cycling processes (Pellant et al., 2005). Soil compaction may cause a breakdown of the soil structure and the development of a soil crust that physically restricts moisture infiltration and increases runoff probability.

Microbiotic soil crusts are also important indicators 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 are also affected by soil compaction. Microbiotic soil crusts are discussed in more detail under the Vegetative Communities section.

Current Condition

Soil information and classification for the planning area is obtained from the Natural Resource Conservation Service (NRCS) by means of four third-order soil surveys for southern Idaho and northern Nevada. These surveys consist of the following publications by the NRCS:

- Soil Survey of Elmore County Area, Idaho (1991)
- Soil Survey of Owyhee County Area, Part 1 (2003)
- Soil Survey of Jerome County and Part of Twin Falls County (2003)
- Soil Survey of Elko County, Northeast Part (1999)

The soils of the planning area are highly diverse, variable, and complex (Appendix 7). As with all soils, their makeup and composition are dependent on parent material, climate, location, topography, aspect, elevation, and time and age in place. The soils of the planning area range from very sandy and deep in the northern portion of the planning area to heavy with silts and clays and very shallow and rocky in the southern foothills region. Some soils contain a lot of organic material and are well developed, highly structured, and protected from erosion with plant and litter cover.

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. 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.

Protecting soils from water and wind erosion hazards and keeping them stabilized with proper vegetation and litter cover is of utmost importance. Approximately 20% of the planning area contains soils rated with greater than moderate wind erosion hazards. Another 30% of the area contains soils rated with greater than moderate water erosion hazards.

Plant pedestals and road rutting observed during S&G assessments indicate some wind and water soil erosion has occurred. This erosion is likely a result of blowing soil immediately following several wildfires, starting with the Centennial Fire in 1976, and water channeling down two-track roads. Some accelerated erosion events resulting from the quick melt and release of snow cover have been observed in several areas within the FO. Rill and gully erosion are estimated to be low over most of the planning area except on the sandy-alluvial soils of the Snake River Sediments and the clayey-rhyolitic soils of the Jarbidge Foothills. Many of these soils occur on steep, open, and poorly vegetated slopes.

Most areas with S&G assessments exhibited slight to moderate levels of bare ground, but there were also localized areas where bare ground was more evident and vulnerable to erosion. The amount of bare ground can vary seasonally, depending on the amounts of vegetation and litter, and annually, relative to weather conditions. The S&G data were collected during periods when conditions were either drier or wetter than normal, which may have had some effect on the amount of bare ground detected.

Most areas with S&G assessments exhibited none to slight soil compaction ratings. Areas with higher soil compaction ratings were localized, including portions of the Diamond A Desert, the north end of Browns Bench, and the 71 Desert. Winter grazing occurs in these areas, and soils are more likely to be wet from fall to spring. Moist soils are more easily compacted than dry or saturated soils (Hillel, 1998).

Trends

There is no trend data for soil resources in the Jarbidge FO; however, some conclusions can be drawn from field observations. Field observations suggest most soil erosion problems generally occur on the soils derived from sedimentary parent material. Much of this erosion is the result of wildfire, historic grazing practices, agricultural development, and recent OHV activities. Warmer local climate conditions and proximity to population areas have led to increased OHV use near Glenns Ferry and Hagerman for the past several years, areas that contain highly erosive soils.

Wildfires have negatively affected soils throughout the planning area as the removal of vegetation has increased soil exposure to wind and water. Soil loss has been observed by BLM staff immediately after wildfires. In certain areas, soil loss of as much as two inches resulted from wind exposure, leading to plant root exposure and death, complete loss of the A soil horizon, and partial loss of B soil horizons. Wildfires can cause hydrophobic soils, although not all fires produce a water-repellent layer in soil. Hydrophobicity reduces the amount of water infiltration resulting in increased runoff, which can cause soil loss, sedimentation, damaging flows in stream channels, and degraded water quality (NRCS, 2000).
Much of the northern and central portions of the planning area have been converted from native shrublands to annual or perennial grasslands, negatively affecting soil resources of the area. This vegetation conversion has been caused by fire consuming several hundred thousand acres, the spread of cheatgrass and other annuals, past seedings with grass-only mixtures, and the relatively poor success of shrub seedings. Studies have found that following conversion of sagebrush to grasslands, water infiltration into the soil decreased and run-off increased, resulting in increased erosion (Blackburn et al., 1986; Gifford, 1972; Sturges, 1994).

Livestock and OHV use can lead to soil compaction, especially when soils are saturated, but compaction can also be caused by fire vehicles, brush removal, seeding operations, or any other activities that repeatedly cause a physical impact to the soil. Layers of soil can be damaged by livestock where they trail or congregate (e.g., watering sites, gates, pasture corners). Trailing compaction can lead to serious gully formation depending on slopes and soil types encountered and may develop into escalating headcuts. Studies on grazing intensity consider heavy trampling by livestock to be more harmful to the watershed than excessive grazing of the plants (Rauzi & Hanson, 1966; Warren, 2001).

Forecast

As the population of the surrounding area continues to increase, public demand and use of the public lands will increase, adding to impacts on the soil resources of the planning area. In particular, soils could be negatively impacted by increasing OHV use and, on a lesser scale, mining operations. Concentrated livestock use will continue to impact the soils of the area, especially around water troughs, in and around gates, in pasture corners, and in trailing areas.

Soil condition in the planning area is likely to worsen if cheatgrass invasion and wildfires continue. Soils will contain less native vegetation and more annual vegetation, significantly reducing functionality and natural capability. If wildfires become larger and more frequent, more soil surface will be exposed to wind and water erosion until vegetation recovers naturally or rehabilitation seedings establish.

Key Features

Currently, most OHV use occurs on the highly erosive Snake River Sediment soils in the northern portion of the planning area. This use created several areas of severe and accelerated erosion problems, leading to on-site rill and gully formation and off-site sediment deposition. OHV use also leads to reduced moisture infiltration into the soil profile as compaction and bulk density increase at the soil surface.

Many of the soils in the Snake River Sediment region and the lower reaches of the Basalt Plains and Plateaus are associated with early seral or disturbed vegetation communities resulting from large and repeated wildfire events. In these areas, native vegetation is depleted and replaced with increaser shrubs, annual grasses, and non-native forbs. Because intact native plant communities help protect the soil from erosion, areas with native vegetation are important to consider with respect to soil conditions.

Current Management

The 1987 Jarbidge RMP did not address goals, objectives, or management actions for soil resources. Soils are managed to maintain productivity and to minimize erosion. Soil erosion can be minimized by maintaining perennial vegetation cover on all sites.

The BLM is required to comply with FLPMA, the Clean Water Act, Idaho S&Gs, and other related Federal and State laws, regulations, and policies regarding watershed health, soil stability, and water quality. Management guidelines for soil resources include:

- Adapted perennial grasses, forbs, and shrubs are seeded when needed to stabilize the soil, prevent weed invasion, restore wildlife habitat, and reduce the likelihood of future fires;
- Grazing management actions provide for adequate amounts of vegetative ground cover and litter (determined on an ecological site basis) to support infiltration and soil stability, protect resources, and maintain site productivity; and
- BMPs and/or standard operating procedures specific to minimizing soil erosion and sedimentation are applied to all surface-disturbing activities (NRCS, 2007).

Management Opportunities

Current soil management practices, which mainly include rehabilitating burned areas, mitigating range improvement projects, and managing proper grazing use, have had success at maintaining and protecting soils in the majority of the planning area. However, there are localized areas of concern for both soil loss and compaction, including areas affected by intensive OHV use, concentrated livestock use, wildfire, and annual vegetation. BLM should continue to consider the guidelines from FWS and the BMPs endorsed by DEQ for improved water quality and NRCS for better erosion control (DEQ, 1993; FWS, 2007; NRCS, 2007). Activities such as moving troughs or OHV play areas from erosive to non-erosive soils could be undertaken to improve the quality of the soils in the planning area.

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.

Figure 11. Biological Soil Crust

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 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 common[3] (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.

Figure 12. Crested Wheatgrass

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 occasional[4] (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 rare[5] (<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

	Determination*			
Standard	**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
	Unconsolidated Material	Barren	0	0.0
		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] *Site Potential for Biological Soil Crust Site Evaluation Sheet* 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 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%
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	*Lepidium papilliferum*	Not listed for the planning area	Type 1	G2/S2
Alkali cleomella	*Cleomella plocasperma*	Not listed for the planning area	Type 3	G4/SH
Least phacelia	*Phacelia minutissima*	Not listed for the planning area	Type 3, NV	G3/S2 (S2)
Spreading gilia	*Ipomopsis polycladon [syn. Gilia polycladon]*	Not listed for the planning area	Type 3	G4/S2
Desert pincushion	*Chaenactis stevioides*	Not listed for the planning area	Type 4	G5/S2
Rigid threadbush	*Nemacladus rigidus*	Not listed for the planning area	Type 4	G4/S2
White eatonella	*Eatonella nivea*	Sensitive	Type 4	G4G5/S3
White-margin waxplant	*Glyptopleura marginata*	Not listed for the planning area	Type 4	G4G5/S3
Perennial Forbs				
American wood sage	*Teucrium canadense var. occidentale*	Not listed for the planning area	Type 3	G5T5?/S2 (S2)
Bruneau River phlox	*Linanthus glabrum [syn. Leptodactylon glabrum]*	Sensitive	Type 3, NV	G2/S2 (S2)
Calcareous buckwheat	*Eriogonum ochrocephalum var. calcareum*	Not listed for the planning area	Type 3	G5T3/S2
Davis peppergrass	*Lepidium davisii*	Federal Category 2 /Sensitive	Type 3, NV	G3/S3 (S1)
Four-wing milkvetch	*Astragalus tetrapterus*	Not listed for the planning area	Type 3	G4G5/S1
Chatterbox orchid	*Epipactis gigantea*	Not listed for the planning area	Type 3	G3G4/S3
Greeley's wavewing	*Cymopterus acaulis var. greeleyorum*	Not listed for the planning area	Type 3	G5T2/S2
Janish penstemon	*Penstemon janishiae*	Not listed for the planning area	Type 3	G4/S2
Matted cowpie buckwheat	*Eriogonum shockleyi [syn. Eriogonum shockleyi var. shockleyi]*	Not listed for the planning area	Type 3	G5T4/S2
Owyhee milkvetch	*Astragalus yoder-williamsii*	Not listed for the planning area	Type 3, NV	G3/S3 (S1)
Packard's cowpie buckwheat	*Eriogonum shockleyi [syn. Eriogonum shockleyi var. packardiae]*	Not listed for the planning area	Type 3	G5T2/S2
Two-headed onion	*Allium anceps*	Not listed for the planning area	Type 3	G4/S2

Name	Scientific Name	1984 Status[A]	2007 Status[B]	Rank[C]
Newberry's milkvetch	*Astragalus newberryi var. castoreus*	Not listed for the planning area	Type 4	G5T5/S2
Simpson's hedgehog cactus	*Pediocactus simpsonii var. robustior*	Not listed for the planning area	Type 4	G4/S3
Snake River milkvetch	*Astragalus purshii var. ophiogenes*	Not listed for the planning area	Type 4	G5T3/S3
Spine-node milkvetch	*Peteria thompsoniae*	Not listed for the planning area	Type 4	G4/S2
Cusick's primrose	*Primula cusickiana var. cusickiana*	Not listed for the planning area	Type 5	G4T4/S2
Broadleaf fleabane	*Erigeron latus*	Federal Category 2	Type NV	G3/(S1)
Lewis buckwheat	*Eriogonum lewisii*	Not listed for the planning area	Type NV	G2G3Q/(S2 S3)
Mourning milkvetch	*Astragalus atratus var. inseptus*	Federal Category 2	Does not occur in planning area	NA
Owyhee mourning milkvetch	*Astragalus atratus var. owhyeensis*	Sensitive	Removed from Sensitive list	NA
Whitewoolly buckwheat	*Eriogonum ochrocephalum var. sceptrum*	Sensitive	Removed from Sensitive list	NA
Non-Vascular Plants				
Woven-spore lichen	*Texosporium sancti-jacobi*	Not listed for the planning area	Type 2	G2/S2
Earth lichen	*Catapyrenium congestum*	Not listed for the planning area	Type 4	G4/S2
Coral lichen	*Aspicilia fruticulosa*	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
	Simpson's hedgehog cactus
Low sagebrush with specialized habitats	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 exclosure 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	*Hyoscyamus niger*	I	X	X	X	X
buffalobur	*Solanum rostratum*	N	X	X	X	
Canada thistle	*Cirsium arvense*	I	X	X	X	X
dalmatian toadflax	*Linaria dalmatica*	I	X	X		
diffuse knapweed	*Centaurea diffusa*	I	X	X	X	X
field bindweed	*Convolvulus arvensis*	I	X	X	X	X
hoary cress (whitetop)	*Cardaria draba*	I	X	X	X	X
jointed goatgrass	*Aegilops cylindrica*	I	X		X	
leafy spurge	*Euphorbia esula*	I	X	X	X	
musk thistle	*Carduus nutans*	I			X	X
orange hawkweed	*Hieracium aurantiacum*	I	X			
perennial pepperweed	*Lepidium latifolium*	I		X		X
perennial sowthistle	*Sonchus arvensis*	I		X		
poison hemlock	*Conium maculatum*	I	X	X	X	
puncturevine	*Tribulus terrestris*	I	X	X	X	X
purple loosestrife	*Lythrum salicaria*	I	X	X		X
rush skeletonweed	*Chondrilla juncea*	I	X	X	X	X
Russian knapweed	*Acroptilon repens*	I	X	X	X	X
scotch thistle	*Onopordum acanthium*	I	X	X	X	X
spotted knapweed	*Centaurea maculosa*	I	X	X	X	X
toothed spurge	*Euphorbia dentata*	NI			X	
yellow starthistle	*Centaurea solstitialis*	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	*Hyoscyamus niger*	I	X	X	X	X
buffalobur	*Solanum rostratum*	N	X	X	X	
Canada thistle	*Cirsium arvense*	I	X	X	X	X
dalmatian toadflax	*Linaria dalmatica*	I	X	X		
diffuse knapweed	*Centaurea diffusa*	I	X	X	X	X
field bindweed	*Convolvulus arvensis*	I	X	X	X	X
hoary cress (whitetop)	*Cardaria draba*	I	X	X	X	X
jointed goatgrass	*Aegilops cylindrical*	I	X		X	
leafy spurge	*Euphorbia esula*	I	X	X	X	
musk thistle	*Carduus nutans*	I			X	X
orange hawkweed	*Hieracium aurantiacum*	I	X			
perennial pepperweed	*Lepidium latifolium*	I		X		X
perennial sowthistle	*Sonchus arvensis*	I		X		
poison hemlock	*Conium maculatum*	I	X	X	X	
puncturevine	*Tribulus terrestris*	I	X	X	X	X
purple loosestrife	*Lythrum salicaria*	I	X	X		X
rush skeletonweed	*Chondrilla juncea*	I	X	X	X	X
Russian knapweed	*Acroptilon repens*	I	X	X	X	X
scotch thistle	*Onopordum acanthium*	I	X	X	X	X
spotted knapweed	*Centaurea maculosa*	I	X	X	X	X
toothed spurge	*Euphorbia dentate*	NI			X	
yellow starthistle	*Centaurea solstitialis*	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, ; 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 considered 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	*Eremopyrum triticeum*	Numerous, locally dominant
barnyard grass	*Echinochloa crus-galli*	Uncommon[C]
bittersweet nightshade	*Solanum dulcamara*	Uncommon
bulbous bluegrass	*Poa bulbosa*	Numerous, locally abundant
bull thistle	*Cirsium vulgare*	Wide spread, common[D]
bur buttercup	*Ranunculus testiculatus*	Wide spread, locally dominant
burdock	*Arctium sp.*	Wide spread, uncommon
cheatgrass	*Bromus tectorum*	Wide spread, dominant in large areas
clasping pepperweed	*Lepidium perfoliatum*	Wide spread, locally abundant
cocklebur	*Xanthium sp.*	Wide spread, uncommon
common cocklebur	*Xanthium strumarium*	Uncommon
common dandelion	*Taraxacum officinale*	Wide spread, locally abundant
common mullein	*Verbascum thapsus*	Patchy, locally abundant
field pennycress	*Thlaspi arvense*	Patchy, locally abundant
flixweed	*Descurainia sophia*	Wide spread, locally dominant
halogeton	*Halogeton glomeratus*	Wide spread, common
Japanese brome	*Bromus japonicus*	Restricted, locally abundant
Kentucky bluegrass	*Poa pratensis*	Wide spread, locally dominant
littlepod false flax	*Camelina microcarpa*	Uncommon
meadow fescue	*Festuca pratensis*	Uncommon
Medusahead wildrye	*Taeniatherum caput-medusae*	Restricted, locally abundant
Missouri iris	*Iris missouriensis*	Uncommon
poverty weed	*Iva axillaris*	Patchy, locally abundant
prickly lettuce	*Lactuca serriola*	Wide spread, locally dominant
prostrate knotweed	*Polygonum aviculare*	Patchy, locally abundant
purple mustard	*Chorispora tenella*	Patchy, locally abundant
rabbitfoot grass	*Polypogon monspeliensis*	Uncommon
reed	*Phragmites australis*	Wide spread, locally dominant
reed canary grass	*Phalaris arundinacea*	Wide spread, locally abundant
Russian olive	*Elaeagnus angustifolia*	Wide spread, locally dominant
Russian thistle	*Salsola tragus*	Wide spread, locally abundant
Russian thistle, tumbleweed	*Salsola kali*	Wide spread, locally dominant
smooth brome	*Bromus inermis*	Patchy, locally abundant
soft brome	*Bromus mollis*	Restricted, locally abundant
stork's bill	*Erodium cicutarium*	Wide spread, locally dominant
tall oatgrass	*Arrhenatherum elatius*	Uncommon
Tamarisk (salt cedar)	*Tamarix sp.*	Uncommon, locally abundant
teasel	*Dipsacus sylvestris*	Wide spread, locally abundant
tumble mustard	*Sisymbrium altissimum*	Wide spread, locally abundant
western tansymustard	*Descurainia pinnata*	Wide spread, locally dominant

[A]Restricted=species limited to few areas; Numerous=species found in numerous areas; Wide spread=found over large areas.
[B]Dominant=readily dominates sites; Locally abundant=abundant in patches and may dominate small sites.
[C]Present in low amounts.
[D]Numerous 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		

[A]BM = 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.					

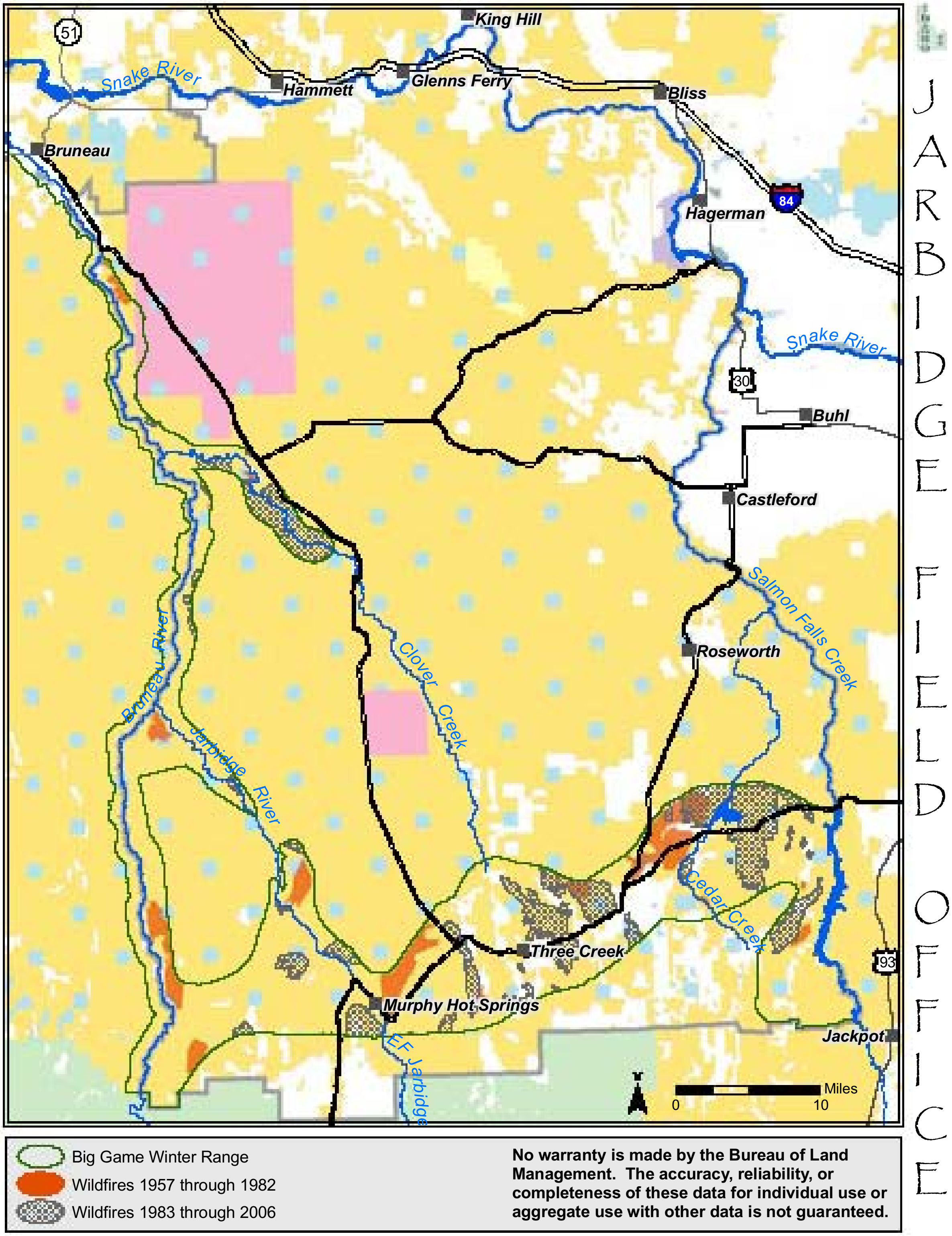
Current Condition

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.

<u>Amphibians</u>

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.

Figure 17. Bighorn Sheep Ewe

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	*Hypsiglenia torquata*	Sagebrush steppe, Canyons
Ringneck snake	*Diadophis punctatus*	Rocky canyons near perennial water
Birds		
Grasshopper sparrow	*Ammodramus savannarum*	Grassland
Long-billed curlew	*Numenius americanus*	Grassland
Pinyon jay	*Gymnorhinus cyanocephalus*	Juniper
Red-naped sapsucker	*Sphyrapius nuchalis*	Aspen
Sage thrasher	*Oreoscoptes montanus*	Sagebrush steppe
Scott's oriole	*Icterus parisorum*	Juniper
Swainson hawk	*Buteo swainsoni*	Open woodland
Virginia's warbler	*Vermivora virginiae*	Riparian, Mountain Mahogany
Western burrowing owl	*Athene cunicularia*	Sagebrush steppe, Grassland
Wilson phalarope	*Phalaropus tricolor*	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	*Recurvirostra americana*	Wetland
Black-crowned night heron	*Nycticorax nycticorax*	Riverine woodland
Black-necked stilt	*Himantopus mexicanus*	Wetland
Blue grosbeak	*Guiraca caerulea*	Riparian
Cattle egret	*Bubulus ibis*	Riverine woodland
Clark's grebe	*Aechmophorus clarkii*	Wetland/Riverine
Common loon	*Gavia immer*	Riverine, Lake
Great egret	*Ardea alba*	Riverine woodland
Juniper titmouse	*Baeolophus ridgwayi*	Juniper
Lesser goldfinch	*Carduelis psaltria*	Various, near riparian
Merlin	*Falco columbarius*	Aspen/Juniper bordering sagebrush steppe
Northern pintail	*Anas acuta*	Wetland/Riverine
Sandhill crane	*Grus canadensis*	Wetland
Short-eared owl	*Asio flammeus*	Grassland
Snowy egret	*Egretta thula*	Riverine woodland
Western grebe	*Aechmophorus occidentalis*	Wetland/Riverine
Mammals		
California myotis	*Myotis californicus*	Riparian/Sagebrush steppe
Merriam's shrew	*Sorex merriami*	Sagebrush steppe
Invertebrates (terrestrial)		
A tiger beetle	*Cicindela plutonica*	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).

Table 39. Wildlife Crucial Seasonal Periods

Species	Crucial Season(s)	Approximate Dates
Pronghorn	Winter Fawning	January 1 through May 1 May 1 through June 30
Mule Deer	Winter Fawning	January 1 through May 1 May 1 through June 30
Elk	Winter Calving	January 1 through May 1 May 1 through June 30
California bighorn	Breeding Winter Lambing	October 15 through December 31 January 1 through May 1 April 15 through June 30
Upland game birds	Breeding/Nesting Winter	March 20 through June 30 November 15 through February 28
Neo-tropical migratory birds	Breeding/Nesting	April 20 through Jul 15
Raptors	Pair formation/Nesting Fledging young	March 1 through Jun15 June 15 through August 1
Amphibians	Breeding Hibernation	April 1 through June 30 October 15 through April 15

Habitats identified in the planning area include the following general categories:

- Grasslands dominated by grass species with a minimal (e.g. less than 10% canopy coverage) shrub component (annual grassland, non-native perennial grassland, native grasslands)
- Sagebrush steppe, where a species of sagebrush is usually the most abundant shrub (e.g. greater than 10% shrub canopy coverage) (black greasewood, salt desert shrub, basin big sagebrush/annual, Wyoming big sagebrush/annual; Wyoming big sagebrush/short grass, Wyoming big sagebrush/tall grass, black sagebrush; low sagebrush [low elevation]; low sagebrush [high elevation], mountain big sagebrush, mountain shrub)
- Woodlands, where the woody species is usually more than 15 feet tall with a single stem (mountain mahogany woodland and aspen woodlands)
- Riparian zones (semi-wet meadows [dominated by grasses and grasslikes – sedges and rushes], riparian juniper, riparian deciduous tree [aspen/cottonwood], and riparian shrub [willow/dogwood])
- Specialized habitats of dune lands and canyons (cliff/talus)

Indicators

Standards 2, 3, 4, 5, and 7 of the Idaho Standards for Rangeland Health should be met as documented by S&Gs assessments (BLM, 1997). Standard 2 requires riparian-wetland areas are in properly functioning condition appropriate for the soil type, climate, geology, and landform to provide for proper nutrient cycling, hydrologic cycling, and energy flow. Standard 3 states stream channels and floodplains are properly functioning relative to the geomorphology (e.g., gradient, size, shape, roughness, confinement, and sinuosity) and climate to provide for proper nutrient cycling, hydrologic cycling, and energy flow. Standard 4 requires native plant communities to be healthy, productive, and diverse native animal habitat and populations of native plants are maintained or promoted as appropriate to soil type climate, and landform to provide proper nutrient cycling, hydrologic cycling, and energy flow. Standard 5 states rangelands seeded with mixtures, including predominantly non-native plants, are functioning to maintain life form diversity, production, native animal habitat, nutrient cycling, energy flow, and the hydrologic cycle. Standard 7 states surface and ground waters on public lands comply with Idaho Water Quality Standards.

Current Condition

Big Game

Mule deer

Mule deer are the most abundant and widespread big game animal in the planning area. Although mule deer numbers are increasing compared to 5 years ago, mule deer numbers are down in the planning area compared to the late 1980s. The habitat requirements of mule deer vary seasonally; typically spring/summer habitats are distinct from fall/winter habitats. Mule deer diets consist of some browse year round; particularly in the fall and winter. Greater amounts of grasses and forbs are consumed in the spring and summer. In the spring, mule deer fawning habitat is characterized by dense stands of deciduous or coniferous trees or shrubs with diverse herbaceous understory. Mule deer winter range is characterized by low elevation, southern exposed xeric and mesic sagebrush steppe and mixed shrub-grasslands. Aspen and mountain mahogany stands, mountain shrub communities, and riparian areas are important seasonal habitats for mule deer as fawning, foraging, security, and transition range. Livestock management including season of use, fence locations, and water developments in these habitats in portions of the planning area are not compatible with the biological needs of mule deer.

In several areas, four-, five-, and six-strand fences inhibit mule deer movements and, in some instances, result in direct mortality through entanglement. Harrington and Harrington and Conover found mule deer mortality in fences has two peaks. The first is in the late summer, after weaning, with mortality primarily among young mule deer, pronghorn, and elk too large to move under fences, but without the skill or strength to jump fences (Harrington, 2005; Harrington & Conover, 2006). The second peak occurred in the winter among all age classes. Harrington attributed the increase in mortality in the winter to a weakened condition (Harrington, 2005).

Pronghorn

Pronghorn are widely distributed throughout the planning area. Pronghorn are typically associated with sagebrush steppe habitats, but readily use grasslands if there are adequate amounts of forbs. In sagebrush steppe habitats, pronghorn diets consist of sagebrush and other shrubs during all seasons, particularly in the fall and winter (O'Gara & Yoakum, 2004). Forbs are highly preferred by pronghorn when available. Research demonstrated pronghorn production can be influenced by forb diversity and abundance (Pyrah, 1987). Pronghorn are adapted to large open expanses and rarely jump fences (Sheldon et al., 2006). Research in Wyoming indicates areas with increasing fence density are avoided by pronghorn. In the sagebrush steppe habitats in western Wyoming, fence density was 0.58 mi/mi^2, whereas fence density in areas used by pronghorn was less than 0.23 mi/mi^2 in the summer and 0.28 mi/mi^2 in the winter (Sheldon et al., 2006). Harrington and Sheldon et al. reported that where fences were present on both sides of the road, deer and pronghorn mortality was higher (Harrington, 2005; Sheldon et al., 2006). Fence density on public lands in the planning area is 1.02 mi/mi^2 and is higher when private land is considered.

Snow and/or accumulated weeds can make even fences built to wildlife-friendly specifications difficult or impossible for pronghorn to pass, further fragmenting habitat (Harrington & Conover, 2006). Tumblemustard and tumbleweed accumulate each fall and through the winter to make some fences impassible. Fences running north-south tend to collect more weeds than those running east-west. Accumulated weeds readily exceed 30 feet wide and 42 inches tall, forming total barriers to big game movements. Weeds also collect in the bottoms of draws, normal travel routes, and places where big game normally pass under fences. Weed accumulation is substantially less where native sagebrush steppe is present. Net wire and strand wire fences with five or more strands and the bottom strand lower than 16 inches generally form barriers to pronghorn movements.

Elk

Elk numbers increased in the area after elk were transplanted on USFS land in Nevada during the early 1990s. Forty-seven elk were released in the Jarbidge Mountains in 1990, 31 in 1991, and 15 in 1995. Ninety-eight elk were introduced into the Bruneau River area between 1994 and 1996. The projected population target for the Jarbidge Mountains was 250 to 300 adult elk following harvest by 1999 (NDOW, 1997).. NDOW is managing for a herd for 1,000 elk in the Jarbidge Mountains (NDOW, 2000). Current elk numbers are estimated to be about 1,500 in those hunt units (Martin, 2007). Elk numbers in the southern portion of the planning unit generally increase in the late fall and winter. Elk numbers decline to some extent as the majority of the elk move back to Nevada in the late spring to calve. IDFG does not have a specific population goal for elk in the planning unit at this time.

Elk are primarily grazers (Peek, 2003), but will consume forbs and browse. Browse is typically consumed in the winter if herbaceous vegetation is covered by snow. The conversion of sagebrush steppe to perennial grassland does not appear to hinder the expansion of elk in the planning area. However, most of the observations of elk in the central planning area have been in sagebrush steppe habitats year round. In the southern part of the planning area, elk have been observed in numerous canyons, aspen stands, and mountain mahogany woodlands.

Mountain Lion

Mountain lions are widespread at a low density in the planning area. Because mountain lions have territories with relatively large home ranges, mountain lion populations are naturally fairly low (approximately 0.6 lions per 62 mi^2) (Pierce & Bleich, 2003). In the planning area, the distribution of mountain lions is associated with the canyons and the proximity and abundance of big game (mule deer and bighorn sheep).

Big Game Winter Range

Wildfire degraded big game winter range throughout the planning area (Figure 15). Sagebrush and some of the other browse species in some areas have been removed due to the larger, more frequent wildfires with the exception of rabbitbrush (*Chrysothamnus* spp.) which responds by re-sprouting following burning (Tirmenstein, 1999a, 1999b).

Important browse species vary with habitat. Sagebrush, bitterbrush, serviceberry, chokecherry, and four-wing saltbush are important browse species on the big game winter range. Other species such as rabbitbrush, mountain snowberry, spiny hopsage, and shadscale can also be important browse species depending on winter severity. Winter range evaluations revealed Chokecherry and Utah serviceberry showed the most hedging followed by four-wing saltbush; a portion of this hedging could be attributed to fall and winter grazing by livestock. Wyoming big sagebrush and antelope bitterbrush showed moderate hedging at most plots. In addition to utilization levels, the relatively high amounts (10% to 29%) of rabbitbrush in winter ranges classified as salt desert shrub, low sagebrush, Wyoming big sagebrush, mountain big sagebrush, and mountain shrub is a concern. The majority of the shrubs were classified as mature; however, more than 20% of Wyoming big sagebrush was categorized as decadent or dead in most habitats. This may indicate that sagebrush in the winter range is old or receives more physical damage, or that recruitment of new shrubs is suppressed. There was no evidence of an insect outbreak to indicate that as a cause of decadence or mortality.

Junipers are slowly increasing in winter range in the canyon uplands. Because bighorn generally avoid woodlands, the juniper encroachment reduces bighorn access to otherwise suitable habitat.

In the 1960s and early 1970s, BLM chained, railed, or plowed large tracts of sagebrush habitat and seeded the treated areas to crested wheatgrass to improve forage for livestock and control cheatgrass, halogeton, and an agricultural pest, beet-leaf hoppers. The seedings were to provide fall, winter, and early spring forage and reduce the amount of cattle on native range further to the south. A large portion of the vegetation treatments, particularly in the northern portion of the planning area, have since burned by wildfires. Rabbitbrush and sagebrush are now approaching pretreatment levels in areas that burned in the 1960s and early 1970s and areas with old vegetation treatments. A few of the old burns are now dominated by non-native annual grasses. In several instances (areas of the Horse Butte, Inside Desert, Juniper Ranch, Juniper Butte, Buck Flat, Antelope Springs Allotments), rabbitbrush now makes up more than 50% of the shrub component. The late seral grasses and the majority of native forbs (hawksbeard, biscuitroot, arrowleaf balsamroot, fleabane, paintbrush, penstemon, etc.) are limited or lacking in the majority of old vegetation treatments. The combination of fire and subsequent rehabilitation to non-native perennial grasses converted sagebrush steppe habitats to non-native grasslands. This resulted in a net loss of sagebrush steppe habitat.

In addition to roads and jeep trails, range infrastructure and other human-caused disturbance are sources and/or conduits for the spread of invasive non-native species and noxious weeds. The non-native annuals readily establish in high disturbance areas and subsequently invade the adjacent areas. Impact areas around water troughs vary from about 40 feet to over 200 feet in radius. Livestock waters, ponds, and troughs may temporarily alter the distribution of some big game while water is present. Because a majority of the troughs contain water primarily when livestock are in the pasture, the benefits to wildlife are temporary. The benefits of livestock waters to big game populations are unknown (Lynn et al., 2006; Marshal et al., 2006; O'Brien et al., 2006). Livestock often use sagebrush and bitterbrush within 200 meters of water troughs. Upland shrubs in close proximity to water have many broken branches. Shrubs are damaged to a lesser degree in close proximity to salt/supplement locations.

Habitat alteration from water developments, fences, roads, and trails occurred throughout the planning area. Additional impacts include roads, power lines, towers, and gravel pits. Pasture fencing throughout the FO resulted in additional divisions within habitat. The mean pasture size is approximately 3,000 acres with a median pasture size is approximately 1,800 acres[6]. These numbers are actually smaller due to more than 20 subdivisions of larger pastures and the consideration of private land. Pronghorn are adapted to open spaces and escape predators by running long distances. Pronghorn are forced to go under fences, hindering their ability to rapidly outrun predators. Fence entanglement and strikes can be a source of mortality for big game (Autenrieth et al., 2006; Harrington & Conover, 2006) and birds (Allen & Ramirez, 1990). Although appropriate wire spacing and height can reduce impacts to big game, snow and weed accumulation in fences limit big game movements in some areas. Fencing can provide some benefit to big game when used to protect important habitats from resource use damage such as riparian fencing.

Power lines and communications towers are generally associated with population areas. At this time wind energy has been associated with private land in the northern portion of the planning area. At least one large wind energy development has been proposed in the Rogerson area just east of the planning area boundary. A ROW has been issued to evaluate wind energy in the southeastern portion of the planning area as well as in northern Nevada adjoining the planning area. Due to the significant infrastructure associated with constructing and operating a large-scale wind farm(roads, tower pads, turbines, maintenance buildings, powerlines, etc.), impacts to sage-grouse and their habitat is anticipated. At a minimum, some habitat will be lost and remaining habitat will be further fragmented.

Upland Game

The distribution of Gray partridge, California quail, Mourning dove, and Ring-necked pheasant is closely tied to agriculture throughout the planning area. Chukars are most commonly associated with deeply incised canyons such as Salmon Falls Creek, the Jarbidge River, and the Bruneau River, but also are present in areas with steep topography associated with some of the volcanic buttes such as Notch Butte and Twin Buttes.

Holechek et al. found herbaceous vegetation within 1 mile of water is available for livestock use unless a barrier blocks access (Holechek et al., 1998). Areas more than 2 miles from water are generally not used by livestock (Holechek et al., 1998). Approximately 800,000 (60%) acres of BLM land in the planning area are within 1 mile

[6] These numbers are likely overestimates. Only pasture fences were included in the calculations.

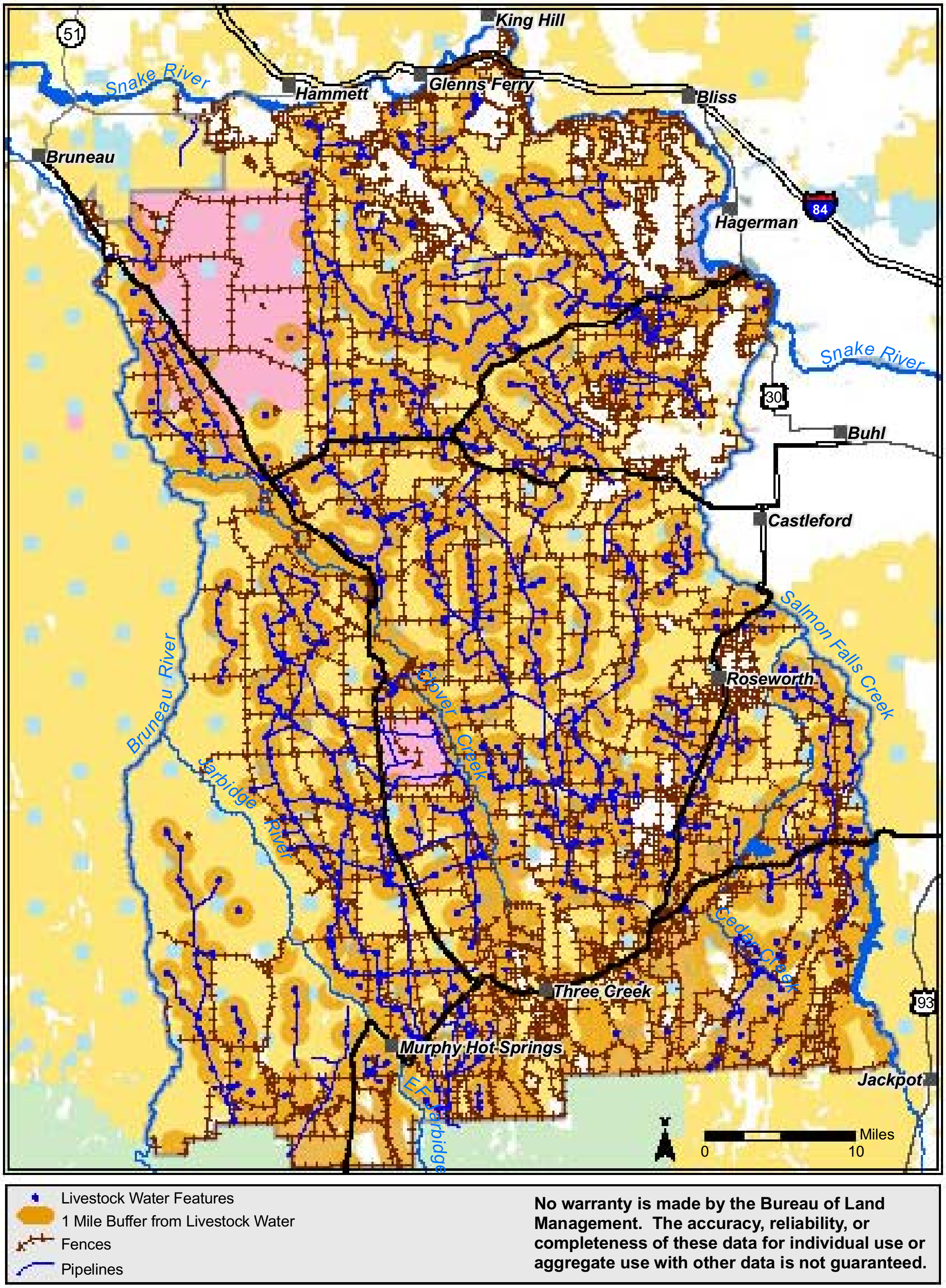
of a water source, whereas only 530,00 acres are more than 1 miles from water (Figure 18). These acreage values do not include seeps, springs, playas, or water haul troughs on public land or grazing and water developments on private land. Residual cover for bird nesting and wintering is reduced close to troughs and increases at further distances from troughs. The distribution of water developments in the planning area has implications for the availability of suitable residual cover required by ground-nesting birds.

Wildlife Tracts Program

From the 1960s into the 1980s, large acreages of formerly public lands were conveyed to private ownership through the Desert Land Act of 1877 and Carey Act of 1894 (CA). To mitigate for the loss of habitat, BLM retained scattered parcels of land to be managed for wildlife. The majority of these lands were designated as wildlife tracts under provisions of the Sikes Act of 1960, as amended. The planning area has 123 designated wildlife tracts, totaling approximately 13,000 acres. Designated tracts occur in three geographical areas: Blue Gulch has 78 tracts for 7,000 acres, Bell Rapids has 21 tracts for 3,000 acres, and Grindstone Farms has 24 tracts for 3,000 acres (Figure 19). A smaller acreage than expected was transferred using desert land entry (DLE) under the Desert Land Act of 1844 and CA due to a lack of water, resulting in a scattered tract pattern in several grazing allotments.

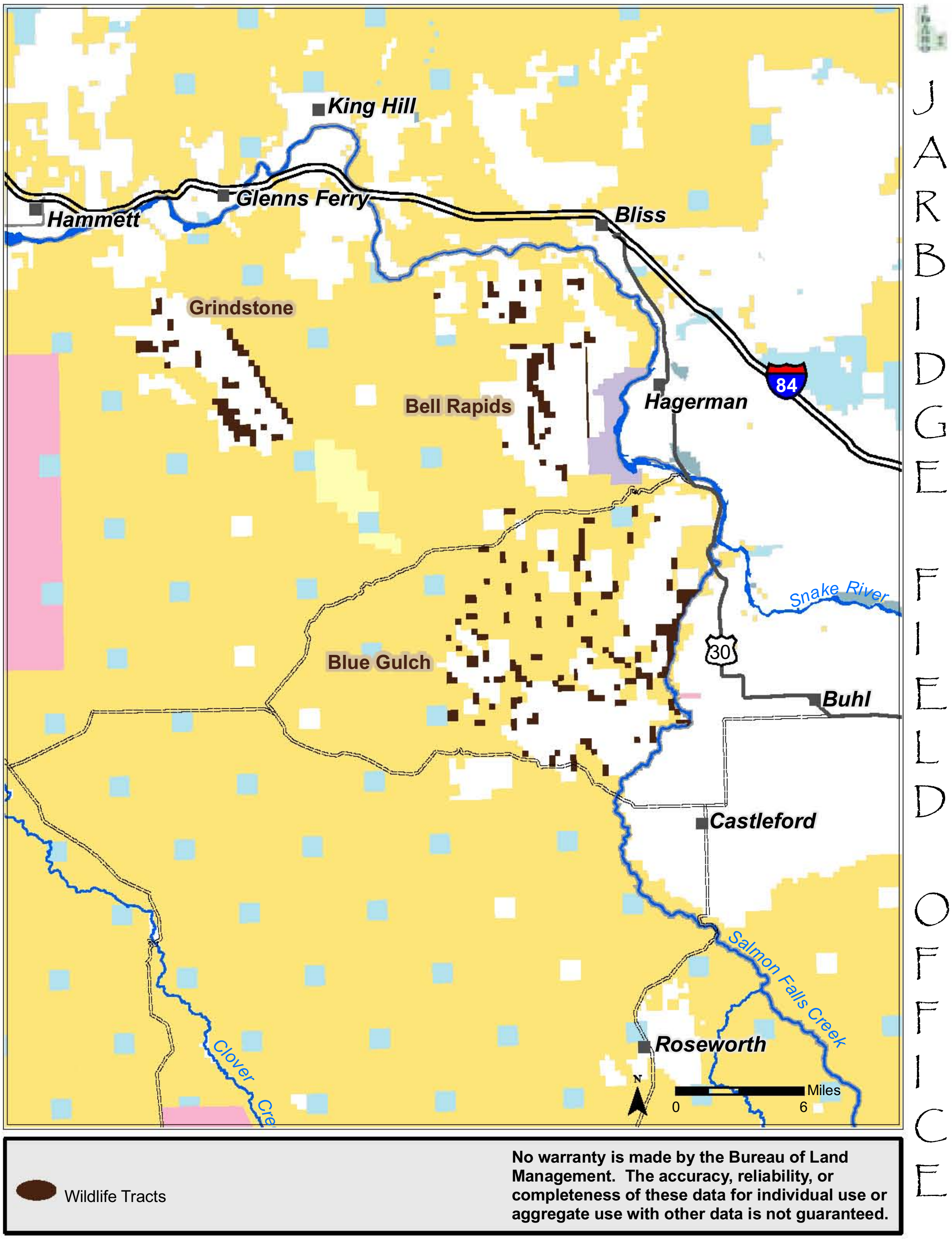
A Habitat Management Plan (HMP) outlined management for the tracts and identified various projects for completion. Eight guzzlers were installed on the tracts to provide wildlife with a water source. The existing guzzlers have limited value as they are old, require water hauled to their storage tank, and leak. Approximately 40% of the tracts are fenced. In the early 1980s, shrubs were planted on approximately 20 tracts to improve wildlife habitat. Shrubs were planted on several wildlife tracts in 2006.

Figure 18. Areas Within 1 Mile of Water



JARBIDGE FIELD OFFICE

Figure 19. Locations of Existing Wildlife Tracts in the Grindstone Farms, Bell Rapids, and Blue Gulch Areas



The Sikes Act Wildlife Tracts are managed jointly by BLM and IDFG with the primary emphasis on providing habitat for upland game. A grazing decision closed the wildlife tracts to livestock grazing; however, the HMP provides designated tracts can be periodically grazed with prior concurrence from IDFG. The division of MUA 7 into individual allotments by agreement did not address wildlife tracts. Table 40 lists the approximate acreage of tracts and the grazing allotments they are in. In areas adjacent to farmland, isolated tracts contain the only early spring, fall, and winter upland game habitat. However, because many tracts are small, upland game mortality may be high (Saunders et al., 1991).

Table 40. Allotment Tracts and Tract Acreage

Allotment Name	# Tracts	Total Tract Acres[A]
Grindstone	1	80
Hagerman Group	21	3,200
Kubic	52	4,900
Lower Salmon Falls	1	80
Noh Pasture	2	190
Thousand Springs	1	40
Notch Butte	5	440
Saylor Creek/North Three Island	2	80
Thompson	10 (parts)	200
Twin Buttes	3	240
Yahoo	7	840
Balance Rock	4	300
Devil Creek/Balanced Rock	4	220
Subtotal	**113[B]**	**10,810**
Tracts Not In Allotments	10	2,600
Total	**123**	**13,410**

[A] Acres have been rounded.
[B] This total includes 3 tracts that are split by allotment boundaries

Waterfowl

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. Historically, Toana Gulch was artificially recharged by irrigation through approximately 4 miles of irrigation canals and 30 acres of ponds on BLM land. The canals and ponds are now dry, and water flows in Toana Gulch are declining.

Furbearers

Furbearers such as badger, bobcat, and red fox are present throughout the planning area. A number of riparian zones including China Creek, Rocky Canyon, Dorsey, Columbet, and portions of Flat Creek show current occupancy by beaver. Beaver do not appear to be present in most of Cedar, Deadwood, Dave, Cherry, Upper Three, Pole, and portions of Flat Creeks. These streams have mixtures of aspen and willow riparian zones that could potentially support beaver. There is evidence that beaver have been present in the past. The habitat appears to be suitable, and beaver could potentially be introduced into some of the drainages. Otter and mink are present in portions of Salmon Falls Creek and the Bruneau, Jarbidge, and Snake Rivers.

Trends

Big Game

Mule Deer

Mule deer populations are static to trending downward since the mid 1980s (Hayden, Spicer, Wakkinen et al., 2006). Approximately, 56,000 acres of designated big game winter range burned since 1982. Some allotments have experienced an increase in livestock grazing on winter range during the winter since the late 1980s. Austin and the Western Association of Fish and Wildlife Agencies Mule Deer Working Group recommend livestock grazing on winter ranges be conducted in the late spring rather than the fall and winter to reduce competition and displacement of wintering big game (Stewart et al., 2002) at a critical time of year and to promote shrub production (Austin, 2000; "Mule Deer: Changing Landscapes, Changing Perspectives," 2003).

Pronghorn

Pronghorn populations are slowly trending downward since the mid 1980s (Figure 26) (Rachael et al., 2006); however, populations in northern Nevada appear to be increasing (Martin, 2007). Suspected reasons for the decline in numbers within the planning area include the failure of forbs, primarily alfalfa, to persist in crested wheatgrass seedings planted in the late 1970s and 1980s; conversion of sagebrush steppe to non-native annual and perennial grasslands and habitat fragmentation due to wildfires and rehabilitation; increased road and trail densities; and increased fencing which reduces pasture size. Fences can present complete or partial barriers to movements of pronghorn (Autenrieth et al., 2006). In the past three years, BLM has modified over 26 miles of six-strand fence and removed approximately 12 miles of net wire fence. Net wire, as well as five and six-strand wire fences, are still present in several areas. These fences strongly influence the movement of pronghorn to seasonal habitats, water sources, and feeding areas because pronghorn prefer to cross under, rather than over, fences. Non-native weeds and accumulated snow can make fences impassible for pronghorn.

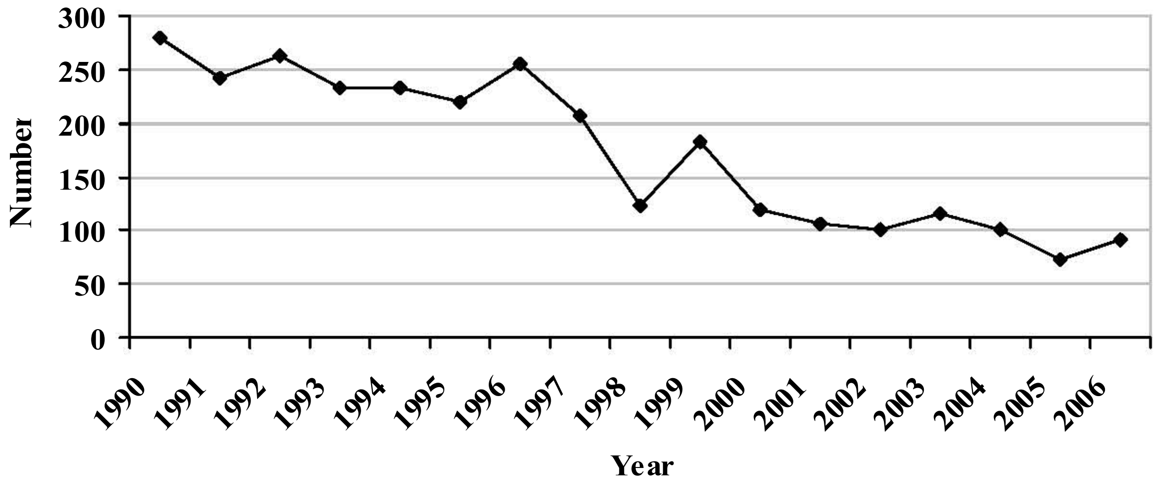
Elk

Elk numbers increased in the area since elk were transplanted on USFS land in Nevada during the early 1990s. As the elk population increases in Nevada, it is likely that more elk will immigrate to Idaho. Elk numbers in the Jarbidge Mountains are estimated to be around 1,500. Given the recent observations of elk in the central portion of the planning area, the population is likely increasing and will continue to extend its distribution into the planning area.

Mountain Lion

Mountain lion populations are static to trending downward since the mid 1980s (Hayden, Spicer, Crenshaw, Hickey et al., 2006).

Figure 20. Numbers of Pronghorn Observed During August and September Herd Compositions Surveys, 1990-2006[7]



Winter Range
There has been limited information collected on trends of winter range. There is not adequate information to determine a long-term trend. Four-wing saltbush, an important component of winter range, is being browsed at utilization levels of 90% or more in some areas.

<u>Upland Game</u>
Gray partridge, quail, dove, and chukar populations appear to have been stable throughout the planning area since 1985 (Hayden, Spicer, Crenshaw, Rachael et al., 2006). Ring-necked pheasant populations have been generally stable at lower numbers following a precipitous decline during the 1980s (Hayden, Spicer, Crenshaw, Rachael et al., 2006). Changes in farming practices such as the proliferation of sprinkler irrigation and subsequent loss of suitable habitat such as canal and ditch banks, seasonal wetlands, and residual grain stubble were major factors associated with the decline of pheasant populations. Changes to late fall and winter livestock grazing use combined with increases in range infrastructure have reduced nesting cover.

The timing and amount of spring and winter precipitation typically account for most of the annual variation observed in upland game bird populations. No specific information is available regarding the status of Dusky grouse (formerly blue grouse) populations in southern Idaho or Nevada. In general, cottontail rabbit numbers have declined due to the amount of sagebrush habitat converted to grassland.

A number of factors adversely impacted habitat quality of wildlife tracts including wildfire; the issuance of ROWs for communications sites, pipelines, and roads; unauthorized agricultural use; authorizations for gravel pits; and the proliferation of unauthorized routes. In a few instances, legal public access to specific tracts is lacking

[7] Numbers were standardized across all years for the Roseworth Reservoir to Poison Butte route. Source: ("IDFG Unpublished Data,")

because BLM did not retain an easement across the land when it was conveyed to private ownership. A few tracts have been used as dump sites for household trash and/or stone from agricultural land.

Waterfowl
Fencing of Cedar Mesa Reservoir, Columbet Creek, Camas Slough, Grindstone Farms, Heil Reservoir, Horse Pond, and 71 Draw Pond, among others, improved waterfowl nesting on roughly 1,000 acres of habitat. Other exclosures were constructed; however, water in the majority of these ponds does not persist long enough for waterfowl to successfully raise broods. The loss of water for irrigation at Bell Rapids resulted in a decline in waterfowl nesting habitat in the Toana Gulch area. Reduced water flows in Toana Gulch resulted in the loss of 3.3 miles of streamside wetlands.

Furbearers
There is no information on the population of most furbearers. Trapping license sales have increased statewide from 558 in 1999 to 1,022 in 2005 (IDFG, 2006).

Forecast

<u>Big Game</u>
Mule deer and pronghorn are expected to decline as wildfire continues to alter winter range habitats and non-native annuals increase in low elevation sagebrush steppe habitats. The increase in cheatgrass is expected to result in more fires in important wildlife habitat. Impacts to mule deer and pronghorn may be intensified in those areas if livestock grazing displaces mule deer and pronghorn or competes with them for forage in the late fall and winter. During the winter, particularly during periods when snow accumulation of more than 6 inches hardens, livestock forage on browse. Big game displacement from preferred winter habitat and direct competition for available browse has implications for big game survival and production. Increasing elk numbers may compete with both mule deer and pronghorn seasonally for forbs and during the winter browse. Modifying or removing four- or more strand barbed wire fences could benefit big game. Increases in fencing, even when built to wildlife specifications, will make pasture sizes small, further hindering big game movements.

<u>Upland Game</u>
Pheasants require dense tall grass for nesting and winter habitat. Changes in farming, as well as other man caused disturbances, reduces the quality of habitat for upland game. These disturbances are expected to continue, further changing the existing habitat. The wildlife tracts will still provide important habitat to upland game.

<u>Waterfowl</u>
Waterfowl populations are not expected to change. Fenced ponds continue to provide limited nesting habitat for waterfowl.

<u>Furbearers</u>
No forecast is made for furbearers due to a lack of data.

Winter range

Wildfire is expected to continue to burn in big game winter ranges at the present rate. With the large amount of rabbitbrush present on some portions of the winter range due to wildfire, rabbitbrush is expected to dominate more of the winter range in the future. Wildfires are expected to reduce or eliminate sagebrush and bitterbrush in winter range.

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.

Big game winter ranges are key features of the planning area. Winter ranges in the planning area include the Jarbidge Foothills and numerous canyons and adjoining upland plateaus within 1 mile of the Bruneau, Clover, Devil, Jarbidge, Cedar, Salmon Falls, and Snake River Canyons. The adjacent uplands offer flat topography for foraging, whereas the canyons offer escape terrain and thermal habitat. The distribution of wintering mule deer and pronghorn shifted in the planning area since the early 1980s. The boundary of designated mule deer and pronghorn winter range in the planning area needs to be amended and/or updated. Winter range boundaries have been identified for elk by NDOW introduced in northern Nevada that now winter in the southern portion of the planning area. IDFG is in the process of identifying winter range boundaries.

Current Management

The 1987 Jarbidge RMP directed big game habitat be managed to support mule deer, pronghorn, and elk. It also identified forage to be allocated to these species. Forage allocations were inadequate to meet the population objectives stated in the RMP.

The 1987 Jarbidge RMP directed the development of a Snake River Wildlife Tract HMP. A plan was drafted in 1992; however, a change in policy resulted in the plan not being finalized or implemented.

Present levels of upland game nesting and cover habitat were to be maintained in MUAs 6 and 7. One of seven sage-grouse leks is active in MUA 6 and 1 of 13 in MUA 7. The increase in livestock AUMs originally proposed for this MUA would not have allowed upland game nesting and cover habitat to be maintained. Wildfires, fire rehabilitation, the construction of numerous water pipelines, and increases in livestock AUMs and wild horse numbers have resulted in a reduction in upland game nesting and cover habitat in both MUAs. Remaining sagebrush steppe habitat in MUA 6 and 7 is highly fragmented and generally in early seral stage with an abundance of cheatgrass and a general lack of native forbs and grasses (BLM).

Nearly 4,000 acres in MUA 7 were to be managed for curlews. Pipelines and fences have impacted curlew habitat. Curlew mortalities occasionally occur in barbed-wire fences.

No projects have been implemented to improve big game habitat in MUA 11 or 15. Most of the remaining sagebrush steppe is highly fragmented in MUA 11. Issuance of temporary non-renewable grazing permits (TNR), increases in livestock AUMs, and changes in livestock seasons of use have increased livestock presence on winter range in the winter. Winter livestock use has damaged four-wing saltbush resulting in minimal seed production and plant mortality. In MUAs 15 and 16, fires have burned approximately 51,000 and 7,000 acres respectively. Crested wheatgrass and to a lesser extent four-wing saltbush were planted on identified winter range in several fire rehabilitation plans. Livestock use on four-wing saltbush has resulted in minimal seed production and mortality on individual plants. New routes, fences, and livestock water developments have altered habitat. Higher elevation habitats are generally better quality due in part to greater precipitation, resulting in fewer wildfires.

NDOW reintroduced elk on to USFS lands in Nevada during the early 1990s. Initially, the elk herd was capped at 300 elk, post harvest, by agreement. In the late 1990s, independent research indicated habitat would support substantially more than 300 elk. BLM did not amend the Jarbidge RMP to allocate AUMs and habitat to meet NDOW's elk population target because the elk were introduced on USFS land.

Management Opportunities

The 1987 Jarbidge RMP has few objectives and limited management guidelines for a variety of wildlife species or their habitat. The following could be considered for components of a desired outcome for maintaining wildlife populations and their habitats in the revised RMP:

- Populations of game species are stable to increasing based on population management objectives established by IDFG and NDOW.
- Condition for shrub steppe big game winter range is a mixture of seral stages, with most in late seral stage or PNC. Key shrub species such as sagebrush, bitterbrush, serviceberry, and mountain mahogany are recruited as represented by a diversity of age and cover classes. Less desirable shrubs such as rabbitbrush are not increasing. Browsing of key shrub species by livestock and big game is categorized at moderate or less. Use by livestock does not result in moderate to severe browsing or physical damage.
- Adequate residual herbaceous cover remains to meet wildlife forage as well as nesting winter cover requirements.
- Perennial streams are near normal in pool frequency and depth, width/depth ratios, sinuosity, large woody debris, amount of sediment, cobble embeddedness, and water temperature for the size of watershed and geomorphologic setting in which they occur. The composition and diversity of riparian trees and shrubs are adequate to provide streambank shading, trap sediment, protect soils during run off, and recruit woody debris.
- Acreages of aspen and mountain mahogany stands are not decreasing. Aspen stands

contain a variety of young, mature, and dead trees to meet wildlife needs. The understory in these woodlands contains a diversity of native grasses, forbs, and shrubs through the fall. The encroachment of junipers and other conifers is not suppressing the production of aspen, mountain mahogany, or the understory.

- Riparian areas provide adequate vegetation given stream type and potential in order to dissipate energy and meet a variety of wildlife and special status species needs.
- Herbaceous understories in wetlands/riparian zones contain a variety of late seral native forbs, grasses, and grasslike species and remain functional to meet wildlife needs. Late seral species such as wooly sedge, Nebraska sedge, and beaked sedge are not decreasing. Grazing tolerant species such as Kentucky bluegrass and Baltic rush are not increasing or replacing late seral species. Non-native annuals, noxious weeds, and upland vegetation are absent to rare and are not present to the water's edge.
- Acreages of sagebrush steppe habitat are maintained or increasing with an appropriate representation of late seral native bunchgrasses and an abundant and diverse native forb component appropriate for site potential.
- Restoration of habitat focuses on linking or expanding isolated, fragmented habitats with more contiguous blocks. Restoration activities include the use of a variety of native grasses, forbs, and shrubs. Priority will be given to restore shrubs in areas where the existing native grass/forb component is adequate and only shrub abundance and cover is lacking.

Since the mid 1990s, IDFG has urged BLM to realign the wildlife tracts with a no net loss of acreage to the tracts program to make larger tracts and reduce the tract acreage within allotments. If a realignment were to occur, an agreement with IDFG could be written to improve habitat on the tracts and protect the areas from dumping, unauthorized storage and roads, and agricultural trespass. Specific projects could include self-filling guzzlers, restoration of areas dominated by invasive non-native annuals, noxious weed control, fencing, and shrub plantings. With an updated plan, BLM and IDFG could be better able to work with local sportsmen groups as well as groups like Pheasants Forever to improve habitat primarily for upland game.

Livestock grazing seasons of use or pasture rotations could be altered so few livestock are present in big game fawning areas during the fawning period or winter range in the winter (Table 39). Livestock grazing could be encouraged on big game winter ranges from May 1 through July 30 to facilitate browse production and establishment. Grazing management guidelines that recognize the cover needs of upland game birds during nesting and winter could be adopted.

Pronghorn habitat in the southern half of the planning area could be restored using species including winterfat, low sagebrush, black sagebrush, globemallow, and Wyoming big sagebrush along with native grasses. Restoring burned crucial big game habitat within the planning area could be considered. Browse species to be considered may include antelope bitterbrush, chokecherry, serviceberry, sagebrush and four-wing saltbush depending upon the site potential. Adjusting big game winter range boundaries in light of new information provided by state agencies could be considered.

Adequate forage for elk population targets as established by NDOW could be reserved, recognizing some Nevada elk will winter in Idaho. Adequate forage for elk in Idaho could be reserved to meet IDFG management objectives.

Fences could be modified using Davidson clips or let down fences to facilitate big game movements (Karsky, 1988). Range infrastructure including troughs, corrals, and holding pastures could be removed and the impact areas could be restored.

Partnerships could be developed with the Mule Deer Foundation, Rocky Mountain Elk Foundation, Foundation for North American Wild Sheep to restore habitat as well as IDFG Mule Deer Initiative to restore habitat. Partnerships could be developed with IDFG and NDOW for inventory efforts.

2.B.18. Special Status Wildlife

Profile

Special status wildlife 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) after reviewing current information within the state and adjoining states. Species are added to or removed from the Sensitive list periodically, typically every five to seven years. Idaho BLM ranks Sensitive wildlife species into four types.

- **Type 1. Threatened, Endangered, Proposed and Candidate Species –** These species are listed by FWS or NMFS as Threatened or Endangered, or they are Proposed or Candidates for listing under ESA.
- **Type 2. Range wide/Globally Imperiled Species –** These species are experiencing significant declines throughout their range with a high likelihood of being listed in the foreseeable future due to their rarity and/or significant endangerment factors.
- **Type 3. Regional/State Imperiled Species –** These species are experiencing significant declines in population or habitat and are in danger of regional or local extinctions in Idaho in the foreseeable future if factors contributing to their decline continue.
- **Type 4. Peripheral Species –** These are species that are generally rare in Idaho with the majority of the breeding range largely outside the state.

Idaho BLM also added a Type 5 (Watch) category. 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, species biology, or statewide trends. The Watch List includes species with insufficient data on population or habitat trends or where the threats are poorly understood. However, there are indications that these species may warrant special status species designation, and appropriate inventory or research efforts should be a management priority. Species presently classified as Watch species are addressed in more detail under general wildlife.

Indicators

Standards 2 (Riparian Areas and Wetlands), 3 (Stream Channel/Floodplain), 4 (Native Plant

Communities), and 8 (Threatened and Endangered [T&E] Plants and Animals) of the S&Gs could serve as indicators for special status wildlife species habitat (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 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 41).

Table 41. S&G Determinations for Standards 2, 3, 4, and 8, 1998-2003

Standard	Determination[A]				
	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%
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%.
[A] Determination displayed as percent of 840,000 acres assessed.

BLM uses protocols established by IDFG when conducting wildlife monitoring. Data are submitted to the regional IDFG office for inclusion in the statewide databases. BLM, in cooperation with IDFG, annually monitors wintering eagle and some sage-grouse leks, and has periodically monitored ferruginous hawk nests over the last 15 years. CDC is the repository for special status species information for the State of Idaho through an MOU with the FWS, BLM, and USFS. When Sensitive species are documented in new areas, reports are submitted to CDC.

Current Condition

There are presently six Threatened or Endangered and two Candidate species listed by the FWS in the planning area (Table 42). The yellow-billed cuckoo and Columbia spotted frog are Candidate species. The bald eagle was removed from the Endangered species list in July 2007 (72 FR 37346)[8].

There are 38 animal species on the Idaho BLM Sensitive list in the planning area. The Sensitive species list includes a variety of mammals, birds, reptiles, amphibians, fish, and invertebrates

[8] New BLM, Global, and State ranks for the bald eagle have not yet been determined.

(Table 42). A number of the animals categorized as Sensitive species are sagebrush obligates, or species dependent on a variety of sagebrush steppe habitats throughout their life cycle. Designated plants, fish, and aquatic species are covered in the respective sections (see Vegetative Communities and Aquatic Resources).

Table 42. Special Status Wildlife Species

Common Name	Scientific Name	1985[A]	2006[B]	Rank[C]
Invertebrates				
Bruneau Dunes tiger beetle	*Cicindela waynei waynei*	Not designated	Type 2	G1/S1
Amphibians				
Columbia spotted frog	*Rana luteiventris*	Not listed	Type 1, NV	G4/S2[F]
Northern leopard frog	*Rana pipiens*	Not designated	Type 2	G5/S2
Western toad	*Bufo boreas*	Not designated	Type 3	G4/S2
Woodhouse toad	*Bufo woodhousii*	Not designated	Type 3	G5/S2
Reptiles				
Great Basin black-collared lizard	*Crotaphytus bicinctores*	Sensitive	Type 3	G5/S1
Longnose snake	*Rhinocheilus lecontei*	Sensitive	Type 3	G5/S2
Western groundsnake	*Sonora semiannulata*	Sensitive	Type 3	G5/S2
Birds				
American white pelican	*Pelecanus erythrorhynchos*	Not designated	Type 2	G3/S1
Black-throated sparrow	*Amphispiza bilineata*	Not designated	Type 4	G5/S2
Brewer's sparrow	*Spizella breweri*	Not designated	Type 3, NV	G5/S3
Calliope hummingbird	*Stellula calliope*	Not designated	Type 3	G5/S5
Columbian sharp-tailed grouse [D]	*Tympanuchus phasianellus columbianus*	Not designated	Type 3	G4/S1
Ferruginous hawk [D]	*Buteo regalis*	Sensitive	Type 3	G4/S3
Greater sage-grouse [D]	*Centrocercus urophasianus*	Not designated	Type 2	G4/S2
Lewis woodpecker	*Melanerpes lewis*	Not designated	Type 3	G4/S3
Loggerhead shrike	*Lanius ludovicianus*	Not designated	Type 3, NV	G4/S3
Long-billed curlew	*Numenius americanus*	Sensitive	Type 5	G5/S2
Mountain quail [B]	*Oreortyx pictus*	Sensitive	Type 3	G5/S1
Northern goshawk	*Accipter gentilis*	Not designated	Type 3, NV	G5/S3
Peregrine falcon	*Falco peregrinus*	Endangered	Type 3	G4/S2
Prairie falcon	*Falco mexicanus*	Not designated	Type 4	G5/S4
Sage sparrow	*Amphispiza belli*	Not designated	Type 3	G5/S3
Sage thrasher	*Oreoscoptes montanus*	Not designated	Type NV[G]	G5/S4[H]
Swainson's hawk	*Buteo swainsonii*	Sensitive	Type 5	G5/S3
Trumpeter swan	*Cygnus buccinator*	Not designated	Type 3	G4/S1
Western burrowing owl	*Athene cunicularia*	Sensitive	Type 5	G4/S2
Willow flycatcher	*Empidonax traillii*	Not designated	Type 3	G5/S5

White-faced ibis	*Plegadis chihi*	Not designated	Type 4	G5/S2
Yellow-billed cuckoo	*Coccyzus americanus*	Not listed	Type 1	G5/S2[G]
Mammals				
Bobcat	*Lynx rufus*	Sensitive	Removed	G5/S5
California bighorn sheep	*Ovis canadensis californiana*	Sensitive	Type 3	G4/S1
Fringed myotis	*Myotis thysandodes*	Not designated	Type 3	G4/S2
Kit fox	*Vulpes macrotis*	Sensitive	Type 4	G4/S1
Pallid bat	*Antrozous pallidus*	Not designated	Type NV	G5/S4[H]
Piute [Great Basin] ground squirrel	*Spermophilus mollis*	Not designated	Type 3	G5/S2
Pygmy rabbit [D]	*Brachylagus idahoensis*	Not designated	Type 2	G4/S2
River otter	*Lontra canadensis*	Sensitive	Removed	G5/S4
Spotted bat	*Euderma maculatum*	Sensitive	Type 3	G4/S3
Townsend big-eared bat	*Corynorhinus townsendii*	Not designated	Type 3, NV	G4/S3
Wyoming groundsquirrel	*Spermophilus elegans*	Not designated	Type 4	G5/S3

[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
S = State ranking: 5–secure, 4–apparently secure, 3–vulnerable, 2–imperiled, 1–critically imperiled
[D] Species for which the FWS received a petition to list the species as Threatened or Endangered and conducted a status review
[E] Presently under consideration for delisting
[F] The global ranking does not recognize subspecies or distinct populations
[G] This species is a Watch species in Idaho and discussed in the Wildlife section.
[H] Idaho state rank

Trends

Of the two species listed as Endangered in 1985, one was downgraded to Threatened and one was delisted. Columbia spotted frog and Yellow-billed cuckoo have been designated as Candidate species since 1985. A number of species in the planning area were petitioned for listing within the last decade including ferruginous hawk, mountain quail (68 FR 3000), greater sage-grouse (70 FR 2243), Columbian sharp-tailed grouse (65 FR 60391), and others (Table 42). Population declines as a result of habitat loss/conversion, fragmentation, degradation, and exploitation were factors evaluated in status reviews. The FWS found listing was not warranted for greater sage-grouse, mountain quail, Columbian sharp-tailed grouse, or ferruginous hawk based upon the status review.

Since 1985, Idaho BLM Sensitive species designations increased statewide and across all species groups, with several species found in the planning area (Table 42). Amphibian populations experienced global declines (Corn, 1994; Houlahan et al., 2000; Reaser, 1996). Potential factors linked to the declines include increases in UV radiation, pesticides, introduced species, chytrid fungus and chytridiomycosis, habitat degradation and fragmentation, or a combination of factors (Briggs et al., 2005; Diamond et al., 2002; Kupferberg, 1996; Rachowicz et al., 2006; Relyea et al., 2005; Trenham & Shaffer, 2005). Similarly, some special status birds and mammals experienced regional declines linked with the loss and increased fragmentation of habitat (IDFG, 2005; Paige & Ritter, 1999; Yensen & Sherman, 2001). Declines in migratory song birds may also be linked to impacts to their winter habitat (Rich et al., 2004).

Fragmentation occurs when a large fairly contiguous tract of a vegetation type is converted to other vegetation types or land uses such that only scattered fragments of the original vegetation type remain (Faaborg et al., 1995; Franklin et al., 2002) or when human-created structures or barriers partition fairly continuous habitats into smaller habitats. The level of landscape transformation necessary to fragment a habitat varies by species. Species adapted to living in large, non-fragmented habitats must deal with a loss of habitat and changes in levels of nest predation or parasitism, and increased competition from species adapted to the interface (edge) and the adjacent habitat (Faaborg et al., 1995). Fragmentation may be due to formation of barriers such as fences (Autenrieth et al., 2006), restricting movements of some species.

Special status species occupy a wide variety of habitats, from seeps in headwater streams to sparsely vegetated sand dunes (Appendix 11) and can be particularly vulnerable during certain periods of their life cycle. Appendix 11 contains brief descriptions of the special status wildlife species in the planning area including critical periods for the breeding and winter seasons.

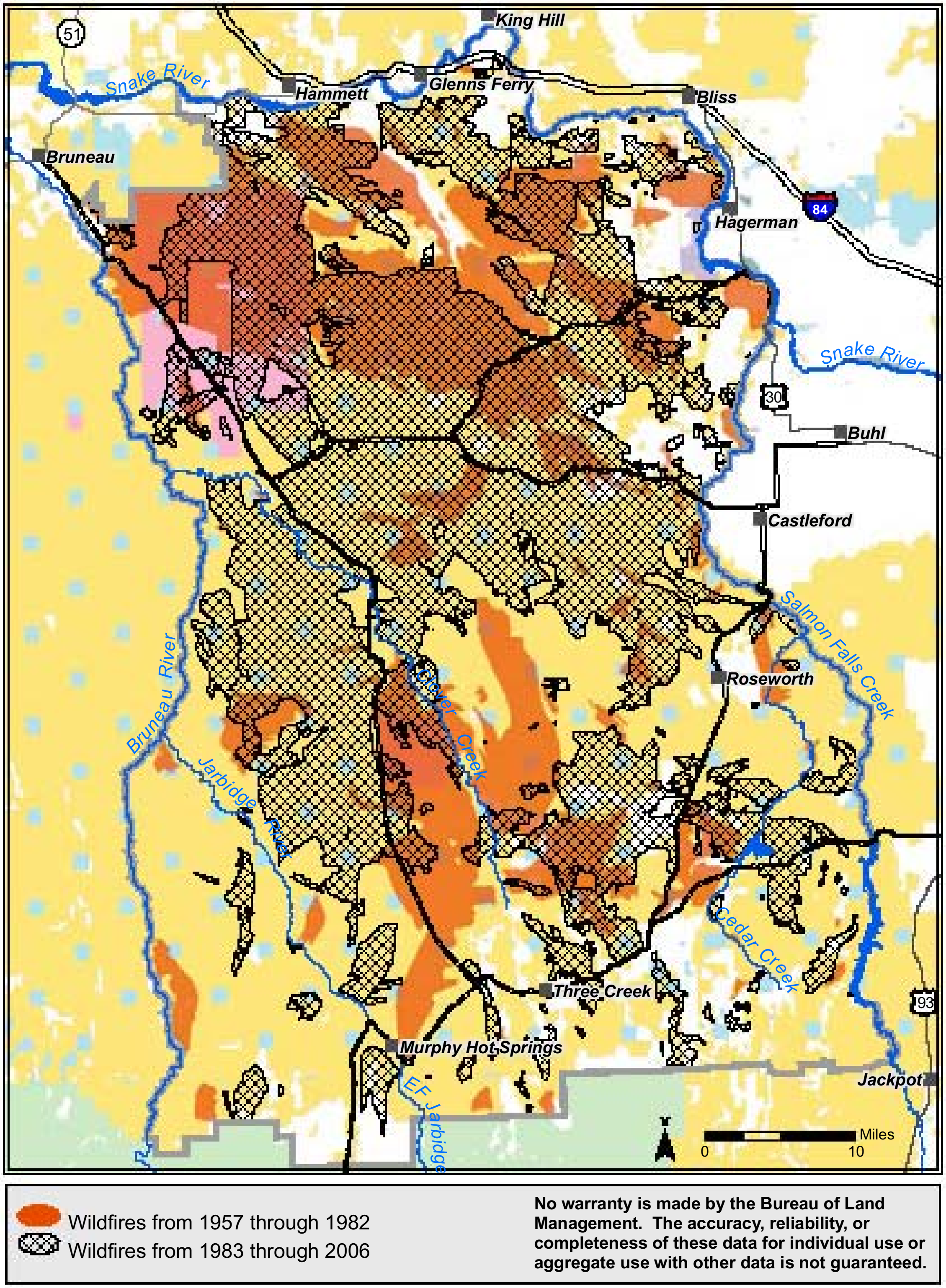
Wildfires altered sagebrush steppe habitat on approximately 800,000 acres (Figure 21). Relatively large blocks of sagebrush steppe habitat remain in the Diamond A area and higher elevation portions of the Jarbidge Foothills.

BLM has no population trend and limited distribution information for the majority of the animals on the Sensitive species list, including all bats, reptiles, ground squirrels, aquatic and terrestrial invertebrates, and most birds. No inventory was attempted on bats, due in part to the presence of existing distribution data. Lewis woodpecker, northern goshawk, prairie falcon, and peregrine falcon were not inventoried due to timing, cost, lack of an appropriate inventory technique, and emphasis on other higher priority species. The planning area contains little suitable habitat for goshawk and Lewis woodpecker.

<u>Invertebrates</u>

The Bruneau Dunes tiger beetle is found only in a small portion of Idaho (Leffler, 2001). The entire global population occurs in a roughly 3-by-11 mile strip of scattered habitat from just west of Bruneau Dunes State Park and east to Indian Cove (Baker & Munger, 1998). Bruneau Dunes tiger beetle declined throughout its narrow range from 1992 to 2000 (Baker & Munger, 2000). The Windmill Site is particularly vulnerable because it lies seven miles from the larger population at Bruneau Dunes State Park (Baker and Munger 2000). Invasion of non-native annuals into larval habitat is a threat to the species as is damage to larval burrows (Baker & Munger, 2000). In one study, only three passes by an OHV or one step by a cow were required to cause larval burrows to collapse and increase mortality on larval tiger beetles by approximately five fold (Bauer, 1991).

Figure 21. Areas Burned by Wildfire, 1957-1982 and 1983-2006



JARBIDGE FIELD OFFICE

Amphibians

FWS elevated the status of the Great Basin population of Columbia spotted frog from Candidate 9 to Candidate 3, noting declines in populations (66 FR 1295) ("Conservation Agreement and Strategy: Columbia Spotted Frog, Great Basin Population, Nevada," 2003). Within the planning area drainages occupied by Columbia spotted frog declined from four (Shack, Bear, Timber and Rocky Canyons) to two (Rocky and Timber Canyons; (BLM, ; Motychak & Barrett, 2006). Down-cutting in Shack and Bear Creeks and absence of stable beaver ponds in these drainages are suspected of contributing to Columbia spotted frog declines.

There is no range wide information regarding western toad. In Idaho, western toads are relatively common north of the Snake River; however, populations are believed to be declining south of the Snake River (BLM, ; McDonald & Marsh, 1995). Locally, documented drainages occupied by western toad declined from three (Yahoo Creek, Toana Gulch, and King Hill Canal) to one (King Hill Canal) (BLM). Reduced water flow in Toana Gulch, due to decreased irrigation on private land in the Bell Rapids area, is suspected of contributing to the decline in western toads in that drainage. Another factor may be competition from and predation by non-native bullfrogs (Boone et al., 2007; Hecnar & M'Closky, 1997; Kiesecker & Blaustein, 1998; Kiesecker et al., 2001; Lawler et al., 1999).

Reptiles

BLM attempted to inventory for a number of wildlife species between April and September 2006. During this time BLM documented a single Great Basin black-collared lizard (Figure 22) near the Bruneau Canyon (BLM). No black-collared lizards were found at an area with previously documented observations (BLM). No Sensitive snake species, long-nose snake or Western groundsnake, were encountered or trapped despite inventory efforts in apparently suitable habitat (BLM) within a few miles of documented observations (Beck & Peterson, 1995). This may be due in part to the limited catch effort (1,136 trap nights between June 10 and October 1), the overall rarity of the species, or other factors.

Figure 22. Black-Collared Lizard

Birds

Greater sage-grouse numbers declined range wide (Schroeder et al., 2004). Range vegetation manipulations conducted in the 1960s including herbicides, chaining, plowing, and seeding resulted in a loss of sage-grouse breeding habitat in portions of the planning area. Between 1983 and 2006, sage-grouse leks declined from 152 leks to 39 in the planning area. Only one of nineteen historic sage-grouse leks north of the Clover/Crows Nest/Balanced Rock roads remains. Habitat loss and fragmentation as a result of wildfires reduced the number of active sage-grouse leks north of the Three Creek Highway, but south of the Clover/Crows Nest/Balanced Rock roads, by 80% to 67 inactive and 16 active leks. In the Browns Bench/Monument Springs area, 10 of 27 leks are active. Only 11%, or 2 of 19, sage-grouse leks south of the Three Creek Highway between House Creek and the West Fork of the Jarbidge River are known to be active. Similarly, ten of twenty leks in the Diamond A area are known to be active based on aerial surveys conducted by IDFG in 2002, 2006, and 2007.

A switch to winter livestock grazing and an increase in animal unit months (AUMs) in the late 1980s and early 1990s coincided with the decline of active sage-grouse leks in a few pastures in the Bruneau Hill and Antelope Springs Allotments; the number of sage-grouse leks were stable in other parts of the planning area during that time. Wildfires throughout the planning area and subsequent habitat conversion to non-native annual and perennial grasslands reduced sage-grouse habitat. Sage-grouse declines in the Diamond A area occurred in the absence of large wildfires and prior to the spread of West Nile virus.

In addition to a decline in the amount of habitat, the number of sage-grouse preferred forbs was lower than expected. Sage-grouse preferred forbs were 1.3% of the vegetation (48 of 3,840 points) in seven sagebrush habitats evaluated in 2006. Sage-grouse preferred forbs (*Erigeron*, *Aster*, *Agoseris*, *Crepis*, *Lomatium*, *Cymopteris*, *Antennaria*, *Gayophytum*, *Astragalus*, *Phlox*, *Lithophragma*, *Orobanche*, etc.) should be 3% or more in xeric uplands and 5% or more in mesic upland habitats (Sather-Blair et al., 2000). Invasive non-native annual forbs (*Ranunculus testiculatus*, *Sisymbrium* sp., *Salsola* sp., *Descurainia* sp, *Halogeton glomeratus*, *Lepidium perfoliatum,* etc.) are present at nearly the same level (1.0%) as sage-grouse preferred forbs (BLM). An increase in invasive non-native annual forbs could reduce the native forb species and lead to an increase in fire frequency.

The Jarbidge Sage Grouse Local Working Group has assisted in implementing several projects on BLM lands to protect wet meadows. They have also successfully secured funding for similar projects with willing cooperators on private lands in the southern portion of the planning area. The group prepared a draft plan which called in part for an activation of a fire guard station at the Juniper Butte Training Range to help reduce fire size, making full suppression a priority in the Wyoming big sagebrush habitats, and establishing priorities for habitat restoration. The Juniper Butte guard station was established in 2005.

Seeding of sagebrush into burned areas has been largely unsuccessful. In a number of sites, sagebrush either failed to germinate or the young plants did not persist into the fourth year. In areas where sagebrush did establish, the restored areas burned in subsequent wildfires. The years when sagebrush established may coincide with snow on recently seeded areas and higher than normal precipitation in the following three years. Years when sagebrush seed did not establish may correspond to drier than normal winters and springs or drought for two to three years following seeding. Planting of both containerized or bare root stock has been successful in smaller areas.

Habitat for Brewer’s sparrow, sage sparrow, and loggerhead shrike declined by approximately 44% since 1982 due to wildfire. These species are found locally in sagebrush steppe habitats with sagebrush cover of at least 10% and shrub heights of at least 20 inches. Wildfires have eliminated the shrub component of the habitat, making the burned areas generally unsuitable for these species. During inventory work from early June to mid July 2006, sage and Brewer's sparrow nests and loggerhead shrikes were noted in areas with suitable Wyoming sagebrush habitat (BLM). These species were not typically encountered in non-native annual or perennial grassland sites (BLM) in part due to a lack of shrub cover and height. Usually, these species nest in the sagebrush canopy from 14 to over 35 inches above the ground. The single exception was a Brewer's sparrow in a patch of sagebrush of less than 2 acres in a crested wheatgrass seeding.

Junipers are encroaching into aspen stands and riparian zones in some areas. Juniper encroachment impedes the production of understory grasses and forbs and overstory plant composition and cover. Aspen stands and cottonwood forests are more suitable nesting habitat for northern goshawks and Lewis woodpeckers compared to Rocky Mountain juniper.

Transplants of Columbia sharp-tailed grouse on private lands in the House Creek area the from 1999 to 2005 have resulted in the establishment of two leks on BLM lands (Smith et al., 2006).

Mammals

Populations of California bighorn sheep experienced range-wide declines since the 1880s (Krausman & Bowyer, 2003). Re-introductions and supplementation efforts since the 1940s resulted in the establishment of viable populations in parts of California, Idaho, Oregon, Washington, Nevada, and South Dakota (Krausman & Bowyer, 2003). California bighorn sheep populations are believed to be stable range wide at approximately 5,000 (Krausman & Bowyer, 2003). Locally, California bighorn sheep numbers peaked in the planning area at 248 in mid 1990s, declined to approximately 50 in 1999, and have steadily increased since (Crenshaw et al., 2006). Poor lamb recruitment as a result of a disease outbreak is the suspected reason for the decline (Crenshaw et al., 2006). Prior to 1983, about 5,800 acres of bighorn habitat were burned in wildfire. From 1983 to 2006, a little more than 6,200 acres burned in wildfires. Non-native annual vegetation now dominates the majority of the approximately 12,000 burned acres. Rehabilitation did not occur in those acres, most of which was within the WSA.

Pygmy rabbits and potential pygmy rabbit burrows were noted during the 2006 inventory in areas categorized as sagebrush steppe and in mountain shrub habitats. No evidence of pygmy rabbits were found in non-native grasslands (either annual or seedings), mountain mahogany, aspen, riparian zones, or canyon lands. No small mammals on the Idaho BLM Sensitive list were trapped during the 2006 field season. Small mammal trapping began in early June at the time the majority of ground squirrels were preparing for summer hibernation. Because a generalized trapping survey for small mammals was completed, focused efforts were not made specifically on ground squirrels. Both Great Basin and Wyoming ground squirrels were observed infrequently in the southern portion of the planning area, although positive identification was not made.

Data provided by the USAF (Rudeen, 2006) indicated kit fox are present in the planning area in the Inside Desert. These kit fox records are over 24 miles from other documented kit fox reports in the planning area. There are no trend data for this species.

Limited bat inventory efforts documented several bat (spotted bat, Townsend big-eared, California myotis) species to be present in several of the major canyons in the planning area. Williams et al. noted more than 50% of bat locations were in riparian zones, accounting for less than 1% of the habitat in their study area in Nevada (Williams et al., 2006).

Forecast

<u>Invertebrates</u>

Bruneau Dunes Tiger beetles are likely to become extirpated at the Windmill Site due to the continued invasion by non-native annuals and trampling impacts from livestock and unrestricted motorized vehicle use. Bruneau Dunes tiger beetle may continue to persist in the more protected setting of Bruneau Dunes State Park; however, non-native annuals are also increasing within the park.

<u>Amphibians</u>

Columbia spotted frogs are restricted to two adjoining drainages in the headwater of the North Fork Salmon Falls Creek. Impacts to riparian vegetation, stream hydraulics, or stream channel stability in either drainage may eliminate this species from the planning area. Known occurrences of western toads are restricted to two areas in a 2-mile reach of the King Hill Canal. Woodhouse's toad and northern leopard frog may be extirpated from the planning area. Columbia spotted frog and western toad are likely to be extirpated from the planning area without habitat improvement and possible re-introductions.

<u>Reptiles</u>

The lack of captures of the longnose snake and western groundsnake in the planning area is not completely unexpected. These secretive species have been documented in Bruneau Dunes State Park and should be present on the adjacent BLM lands. In reptile sampling in other areas of Idaho, rare species (night snakes) may be found only in one year out of three (Peterson, 2006). Great Basin black-collared lizards are present at low levels. In southern Idaho, this species is believed to be naturally less abundant than other large lizards such as leopard lizards or western whiptail. This species is vulnerable to extirpation from the planning area due to small population size in small, scattered habitats.

<u>Birds</u>

If current trends in habitat continue, sage-grouse and other special status sagebrush obligates such as sage sparrow, Brewer's sparrow, and loggerhead shrike will be restricted to approximately 20% or less of their historic range within the planning area due to habitat loss, degradation, and fragmentation. Current habitat is highly fragmented throughout the northern two-thirds of the planning area. Shepard found sage-grouse nesting in fragmented habitats had lower nesting success than sage-grouse nesting in areas with more contiguous sagebrush habitat. The open areas of grassland generally lack desirable native forbs and are not suitable for wintering or nesting sage-grouse. Native islands in crested wheatgrass seedings will continue to be degraded by invasive non-native annuals (Figure 23) collecting within the native islands (Shepherd III, 2006). The non-native annuals increase fuel load, and their seed competes with the establishment of native plants. Sagebrush islands are likely to be eliminated by wildfire in the future (Knick & Rotenberry, 1997). Humple and Holmes reported that fragmentation of habitat contributed to a 50% reduction in nest success for loggerhead shrikes (Humple & Holmes, 2006).

Figure 23. Degradation of Sagebrush Steppe Island by Non-native Annuals (Tumble Mustard and Tumbleweed).

Mammals

Pygmy rabbit populations are expected to decline if habitat loss and fragmentation continues. Pygmy rabbit populations in isolated island areas are vulnerable to extirpation over time. Hanser and Huntly found specialized small mammals were more likely to be extirpated from islands of habitat compared to generalist small mammals in fragmented islands of sagebrush steppe in Idaho (Hanser & Huntly, 2006). In situations where islands of suitable habitat are separated by 5 or more miles, pygmy rabbit recolonization is unlikely.

California bighorn sheep presently occupy about two-thirds of the available habitat in the Bruneau and Jarbidge River Canyons. Burned areas in the Bruneau-Jarbidge River ACEC are dominated by non-native, invasive annuals. This decreases the quality and availability of forage for bighorn. Areas in the Bruneau-Jarbidge River ACEC have been invaded by cheatgrass following wildfires. Cheatgrass influences the rate of spread, fire size, fire frequency, and time of year when fires burn. The result is more wildfire and more cheatgrass. Canyon portions of the habitat are too steep and rocky to use traditional restoration equipment and methods; however, some areas of the upland plateaus would be suitable for restoration. A hard winter and/or a severe pneumonia outbreak could result in the reduction or extirpation of the bighorn population.

The impact of seeding large areas to non-native perennial grasslands on bats is not known. The majority of bats forage on a variety of nocturnal insects including moths. The reduction of native flowering plants (primarily forbs) through wildfire and rehabilitation may impact the insect prey base on which bats forage (Williams et al., 2006).

Key Features

The extent of habitat loss and fragmentation is a major concern for the continued existence of the special status species within the planning area. Restoration of sagebrush steppe habitat is critical for a number of special status species including greater sage-grouse, pygmy rabbit, ferruginous hawk, mountain quail, Brewer's sparrow, loggerhead shrike, and Columbian sharp-tailed grouse. Riparian habitat and stream channel restoration will benefit a variety of special status species including the yellow-billed cuckoo, sage-grouse, mountain quail, western toad, northern leopard frog, and Columbia spotted frog. Developing methods to delay 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 islands will continue to 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. Restoration of poor condition sagebrush steppe and non-native grasslands to connect islands with larger contiguous blocks of native vegetation will also benefit a variety of special status species. Restoration should include planting native grasses (Sandberg bluegrass, Thurber needlegrass, bluebunch wheatgrass), forbs (phlox, hawksbeard, globemallow, balsamroot, etc.), and big sagebrush to improve native plant diversity and reduce the amount of bare ground by restoring and protecting biological soil crusts (Wisdom et al., 2000). A diverse community of native plants including forbs is also more effective in reducing the spread or reinvasion of invasive plants (Pokorny et al., 2005; Sheley & Half, 2006).

Transplanting Sensitive species into areas with suitable unoccupied habitat proved effective for Columbian sharp-tailed grouse (Smith et al., 2006) and California bighorn sheep (Crenshaw et al., 2006). Transplanting to areas of suitable habitat could benefit a number of Sensitive species including Columbia spotted frog, western toad, northern leopard frog, mountain quail, and Columbian sharp-tailed grouse. Transplants should be consistent with state wildlife agency goals and be conducted only after habitats are carefully evaluated and/or restoration has been successful.

Current Management

The 1987 Jarbidge RMP provided for the aquatic habitat of Sensitive and Candidate species in the Snake River below Lower Salmon Falls Dam. Bald eagles were listed as Endangered at the time the 1987 Jarbidge RMP was prepared; however, this species was removed from the Endangered species list in July 2007 (72 FR 37346). Yellow-billed cuckoo is presently a Candidate species and occurs in MUA 4. A number of invertebrates and white sturgeon are still Sensitive species and present in the area. Fences in the Saylor Creek/North Three Island, Three Island, and River Bridge Allotments restrict livestock access to the Snake River. The fences were constructed in 2001 and 2002 and protect about 2 miles of Federally listed snail habitat. About 4 miles of the Sandpoint Riparian Fence in 1999 in the Lower Saylor Creek allotment created a riparian pasture which limits livestock grazing on approximately 4 miles of Snake River. A biological opinion closed a portion of the Hagerman Allotment in MUA 4 to livestock grazing. This protects about 8 miles of Snake River.

The 1987 Jarbidge RMP prohibited any actions that would adversely affect the habitat of Sensitive, Candidate, or Endangered species in that area. Priority for habitat management in the 1987 Jarbidge RMP was given to habitat for listed and Candidate Threatened, Endangered, and

Sensitive species. One wetland was fenced to benefit spotted frogs. No actions have been taken to benefit the remaining Sensitive species or their habitat. In some instances, sagebrush was seeded following wildfire; however, in many cases success has been limited. The Jarbidge Sage Grouse Local Working Group obtained funding for constructing about a dozen exclosures around wetlands on both Federal and private lands.

Big game habitat was to be managed to support 364 bighorn sheep; however, the AUMs allocated for bighorn sheep were inadequate to meet population objectives. IDFG changed the existing population of bighorn by transplanting 21 bighorns in 1993. Later discussions with IDFG determined more bighorn would not be introduced into the area due to the proximity of domestic sheep. The 1987 Jarbidge RMP specified special designation and management as tools to protect existing and potential bighorn sheep habitat. The Bruneau-Jarbidge ACEC was created in 1987. No projects have been implemented to improve bighorn sheep habitat in MUA 16.

Sage-grouse nesting habitat was to be improved through restoration. There has been a net loss of 800,000 acres of sage-grouse habitat since 1982, primarily due to wildfire and subsequent rehabilitation. Much of the remaining sagebrush steppe habitat is highly fragmented. In some areas the habitat contains late seral grasses but other sites have few native forbs and large, native bunchgrasses. A few projects were implemented that specifically targeted improving sage-grouse nesting habitat, including fencing two wetlands in MUA 2 and three wetlands in MUA 15. A wetland in MUA 13 was fenced in cooperation with the local sage-grouse working group. Livestock watering at playas has impacted the adjacent uplands due to trailing. Winter livestock use leaves less residual herbaceous nesting cover for sage-grouse adjacent to the playas, particularly where the understory is dominated by Sandberg bluegrass.

Since the 1987 Jarbidge RMP, national guidance for sage-grouse habitat as well as a state sage-grouse plan was written, and the Jarbidge Sage Grouse Local Working Group plan was drafted. The local work group plan divided the planning area into six areas. The plan recommends restoration of habitat to connect islands of fragmented habitat, restoration and protection of seeps, wetlands and wet meadows for late brood rearing habitat, as well as setting a higher priority for fire suppression in areas with Wyoming big sagebrush in five of the areas.

Management Opportunities

The 1987 Jarbidge RMP had few objectives and limited management guidelines for a variety of Sensitive species or their habitat. The following could be considered for components of a desired outcome for maintaining special status species and their habitats in the revised RMP:

- Stable or increasing populations of special status species to meet or exceed the level of the early 1990s.
- Stable or increasing quantity and quality of habitats for special status species. Habitat loss, degradation, and fragmentation are decreasing over time.
- Stable or increasing net acreages of aspen and mountain mahogany stands. Aspen stands contain a variety of young, mature, and dead trees to meet wildlife needs. The understory vegetation in these woodlands maintains a diversity of native grasses, forbs and shrubs through the fall. The encroachment of junipers and other conifers should not suppress the production of aspen or mountain mahogany or the understory.
- Riparian areas provide adequate vegetation given stream type and potential in order to

dissipate energy and meet a variety of wildlife and special status species needs.

- Herbaceous understories in wetlands/riparian zones contain a variety of late-seral native forbs, grasses, and grass-like species and remain functional to meet wildlife needs. Late-seral species (wooly sedge, Nebraska sedge, beaked sedge, and others) are not decreasing. Species such as Kentucky bluegrass, Baltic rush are not increasing and are in amounts appropriate for the site. Exotic annuals, non-native perennials (reed, reed canarygrass, tamarisk, etc.), noxious weeds, Russian olive, and upland vegetation are absent to rare in the floodplain and are not increasing.
- Adequate residual herbaceous cover remains to provide for suitable wintering, breeding, and nesting birds; mammals; and other special status species.
- Uses do not disrupt special status species during critical periods like breeding, nesting, and wintering.
- Range infrastructure does not contribute to habitat loss, fragmentation, or degradation.
- Sagebrush and other shrub cover as well as desirable perennial forbs (as site conditions dictate) occur on the landscape in a mix of seral stages and sagebrush cover densities to meet the needs of shrub steppe wildlife.

Shrubs could be restored to areas near farmland to improve habitat for upland game. As appropriate BLM should consider the recommendations contained in the Jarbidge Sage Grouse Local Working Group plan and the Conservation Plan for Greater Sage-grouse in Idaho to aid in securing funding for habitat restoration, protection and conservation. Altered sage-grouse habitat could be restored in the southern half of the planning area. Restoration may include planting sagebrush, native grasses, and a variety of forbs.

The big game AUM allocations in the 1987 RMP do not allow for the present numbers of big game in the planning area. These allocations could be adjusted to reflect big game population numbers and objectives. Range infrastructures including troughs, corrals, and holding pastures could be removed from the Bruneau-Jarbidge ACEC and impacted areas could be restored. Areas impacted by wildfire and other factors could also be restored. Restoration on big game winter range could be conducted in cooperation with IDFG and NDOW and may include planting native grasses, winterfat, low or black sagebrush, and forbs, depending on site potential. Specific roads and trails encroaching in the ACEC could be closed and restored to native vegetation. Routes within the ACEC could be formally designated and signed. Junipers could be treated through thinning where they have encroached to create travel corridors for bighorn sheep.

2.B.19. Wild Horses

Profile

Figure 24. Wild Horses

According to local history, the foundations of the Saylor Creek Horse Herd date back to the early 1960s when mares were captured near Challis, Idaho, and transported to an area south of Glenns Ferry, Idaho. Small bands of horses could be found in the vicinity of Dove Springs and the Sailor Creek seep. A registered stud was purchased and turned out with the mares, and colts were captured in annual roundups. This practice ended when the Saylor Creek Herd was established in accordance with the Wild and Free-Roaming Horse and Burros Act of 1971.

Indicators

The primary resource indicators within the HA used to judge effectiveness of management of the wild horse herd are the sustainability of the rangeland resources and herd health.

Rangeland Resource

The integrity of soils, hydrologic, and biotic functions are the critical elements necessary to maintain a sustainable environment. A healthy environment will provide the forage, water, and security necessary to support a viable, healthy wild horse herd in a thriving ecological balance with the rangelands in the HA.

Technical Reference 1743-6, *Interpreting Indicators of Rangeland Health*, is a qualitative assessment that provides information to "the degree to which the integrity of the soil, vegetation, water, and air, as well as the ecological processes of the rangeland ecosystem are balanced and sustained" (Pellant et al., 2000). The use of this qualitative assessment, combined with more quantitative monitoring such as utilization and trend, allows for the evaluation of site protection indicators of soils, hydrology, and biotic integrity in their ability to protect the sustainability of the resource.

Herd Health

BLM regulations and policy state wild horses (Figure 24) shall be managed as viable, self-sustaining populations of healthy animals in balance with other multiple uses and the productive capacity of their habitat (CFR 4700.0-6). A healthy and viable wild horse population will survive and be successful within the HA during years when the habitat is limited by severe winter conditions, drought, or other uncontrollable and unforeseeable environmental influences. Disease, in particular West Nile Virus, is another indicator of herd health.

Population viability may become a concern when population numbers fall below 100 adult (breeding-age) animals, or when the adult breeding population is less than 50 reproductive pairs of animals in any given year. Over several generations, small herd size may result in reduced genetic diversity and increase the possibility inbreeding characteristics will occur, reducing herd health or survivability (Coates-Markle, 2000).

Populations should be managed and evaluated to assure that the loss of genetic material will not impair fitness and to preserve and enhance physical and biological characteristics that are of historical significance to the horse herd.

Current Condition

One unique feature of the Saylor Creek HA, as compared to other HAs in western States, is the insufficient occurrence of natural water to support the wild horse numbers identified as the Appropriate Management Level (AML) in the 1987 RMP or the current population. Two small, relatively unproductive seeps occur in the Dove Springs and Sailor Creek drainages. Water developments have been installed over the years to both facilitate management of livestock and supplement the horse herd.

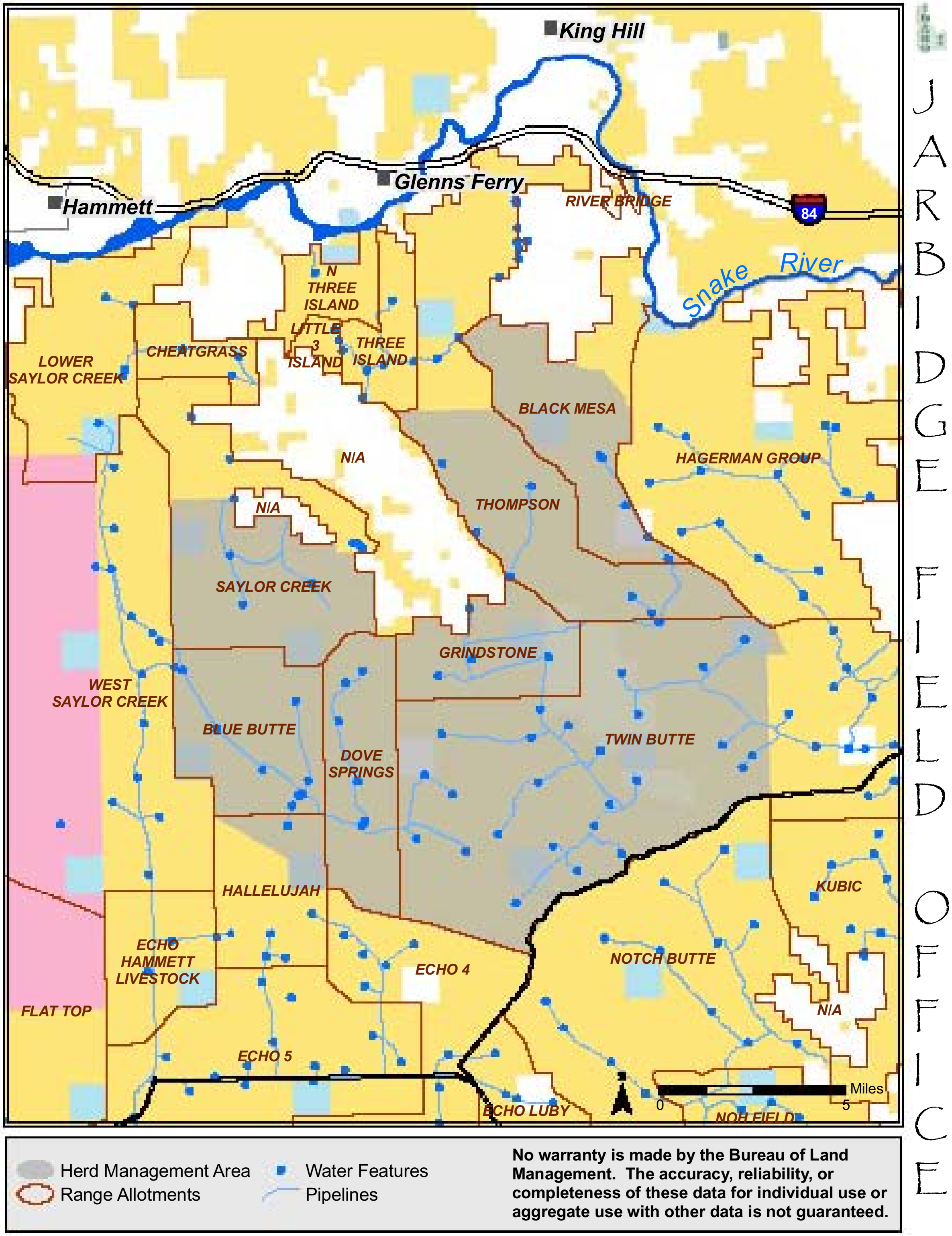
Currently, the HA has approximately 90 miles of pipelines supplied by wells and 70 troughs providing water to domestic livestock and the wild horse herd (Figure 25). All pipelines are supplied by wells. Three pipelines provide the majority of the water to the home range areas. The Blue Butte pipeline provides water to parts or all of the Blue Butte and Dove Springs Allotments and portions of the Hallelujah and Twin Buttes Allotments. The Grindstone Pipeline provides water to the Grindstone, Twin Buttes, Thompson, and Black Mesa Allotments. The Toana and Twin Buttes Pipelines provides water to the Twin Buttes Allotment.

The Toana Pipeline provides water to the largest portion of the wild horse herd. Since the summer of 2005, this pipeline has become unreliable and is a significant liability to management and administration of the herd. During FY 2006 alone, BLM spent in excess of $110,000 maintaining this pipeline. This figure is a conservative estimate, as it does not include the costs incurred by permittees for maintaining and repairing the pipeline due to wear and tear caused by wild horse use. A major contributing factor to the high maintenance cost is the increased level of use created by wild horses following the 2005 Clover Fire, which burned a significant portion of the HA. It was necessary to conduct an emergency gather and redistribute the herd into approximately half of the HA as a result of that fire. The Toana Pipeline has since received a high amount of use.

Rangeland Health

There are few remaining acres within the HA not significantly altered by repeated wildfires, fire rehabilitation projects, and rangeland vegetation manipulations. The majority of the HA is classified as Herbaceous, Perennial and Annual Graminoid with the vegetation communities dominated by crested wheatgrass or cheatgrass. There are remnant stands of Evergreen Shrublands represented predominantly by rabbitbrush/bluegrass, rabbitbrush/crested wheatgrass, Wyoming sagebrush/bluegrass, and Wyoming sagebrush/crested wheatgrass. Regardless of the vegetation communities, all have a considerable cheatgrass component.

Figure 25. Saylor Creek Herd Management Area



Monitoring data collected in the HA indicates wild horse use in specific areas has negatively affected rangeland health by decreasing plant vigor, increasing bare ground, and increasing soil movement through wind and water erosion. The limited ability to manage distribution, as well as the timing and frequency of grazing by horses, is the primary cause of elevated impacts. Year-round access to favored areas (i.e., the home range) allows repeated grazing and trampling of high impact areas.

Herd Health
When 98 horses were returned to the HA following the emergency gather in February 2006, there were 32 studs, 33 mares, and 33 yearlings. Ten to fifteen horses eluded capture during the emergency gather and remained on the HA. Since the release, 15 foals were born and survived, bringing the total count to approximately 129. Frequent observations of the herd indicate all are in good health in terms of body condition, lameness, and disease.

Trends

Prior to the passage of the Wild and Free-Roaming Horses and Burros Act of 1971, human encroachment involving development of agricultural lands in the Sailor Creek[9] and Black Mesa areas marked the beginning of a number of activities that would influence the configuration and the distribution of wild horses within the future Saylor Creek HA. Agricultural development tied to applications filed under DLE continued well into the 1980s. Agricultural development in these two areas, water distribution, and increasing OHV activity contributed to the present home ranges in parts of the Twin Buttes and Dove Springs allotments (Figure 25). The historic water sources at Dove Springs and Saylor Creek seeps, along with the development of water sources in the 1960s and 1970s influenced the horses' selection of these areas as their home range.

Since the completion of the 1987 Jarbidge RMP, much of the exterior boundary of the approximately 106,000-acre HA was fenced. Construction of interior fencing also occurred within the HA, forming pasture and allotment boundaries to improve management of livestock grazing. The combination of the exterior and interior fences has limited the opportunity for out-migration or significant expansion of the present home range. Increases in other human activities, primarily motorized recreation, in the northern reaches of the HA have caused the home range to shift south within the HA.

According to the 1985 Jarbidge Proposed RMP/Final EIS, approximately 87 % of the HA, as inventoried in 1981-82, was identified as seedings, 5% as burns, and 8% as poor condition native sagebrush rangeland. The seedings and burns were not given a condition rating at that time. Currently the HA is 40% recent burn, 26% annual grassland, 27% crested wheatgrass seeding, and 7% bluegrass and Wyoming sagebrush/Thurbers needlegrass. Long-term trend studies have not been initiated within the Black Mesa, Grindstone, Hallelujah, and Thompson Allotments; therefore, regular, long-term vegetation trends are unavailable in these allotments.

Large-scale wildland fire rehabilitation seeding, and range improvement projects since the 1960s

[9] Sailor Creek is the name of an intermittent stream within the HA, as shown on USGS topographic quadrangles. Saylor Creek is the name that has been used for many years to identify the allotment and Wild Horse Herd Area in the area.

resulted in substantially increased vegetative production. To a much lesser extent, historic range improvement projects, in concert with policy at the time of their installation, were used to replace stands of sagebrush having a depleted understory with crested wheatgrass seedings. As a result, additional vegetative production is available for allocation to wildlife, wild horses, livestock, and other non-consumptive uses, as evidenced by production data and historic actual use records.

Until the emergency gather following the 2005 Clover Fire, no gathers or adjustments in AML occurred since the completion of the 1987 Jarbidge RMP. The population grew from the 1987 herd size of 50 head to an estimated 360 animals at the time of the emergency gather. Following the gather and adoption of excess horses, 98 horses were released into the HA.

Forecast

Wildfires are anticipated to continue, particularly in areas with a predominance of cheatgrass. There is growing interest in management options to manipulate the frequency of wildfire in the Jarbidge FO, particularly in regard to maintaining and increasing the abundance of sagebrush. However, the majority of the plant community types, seedings and annual grasslands, in the HA are in a stable state and are not likely to change without major mechanical and/or chemical manipulations. Seed availability and technology will influence the extent of the rehabilitation and restoration that will occur.

Though monitoring data indicates horses have localized impacts on vegetation in areas near water, relative to drought and wildfire, current management of the horse herd will have an insignificant effect on these vegetation communities. Numerous fire rehabilitation projects have occurred within the HA in recent years. Managing the distribution and grazing utilization by horses will be critical to the long-term success of these seedings.

With the administration of fertility control methods, the population is expected to increase at a rate of 15% annually, slower than in the past. All but three mares were treated with a revised immuno-contraceptive vaccine, porcine Zona pellucida (PZP) prior to release in 2006. A single injection will provide up to two years of contraception at approximately 94% efficiency (BLM, 2005a). Treated mares were freeze-branded with “A-#”. Contraceptives may become a more common tool in limiting the growth of the horse herd depending on results of effectiveness monitoring. Scheduled, periodic gathers will continue in order to maintain population numbers in the targeted range of the AML.

Key Features

Wild horse herds should be managed in a thriving, natural ecological balance according to the Wild Horse and Burro Act. The primary natural resource feature that should guide management of the wild horse herd is rangeland health. Almost all soils within the HA are moderately to severely erosive. Close consideration of the effects of horse grazing on ground cover, as well as the effects of existing and future range infrastructure in association with management of the wild horse herd, will be necessary. Standard and Guides assessments, long-term trend, and annual monitoring will provide the information necessary to evaluate the effectiveness of herd management in meeting the goals and objectives identified in the RMP.

Current Management

The 1987 Jarbidge RMP directed forage to be provided to support a herd of 50 wild horses in the 83,540-acre Saylor Creek Wild Horse Herd Area; specifically, 600 AUMs in MUA 7. Approximately 2,000 AUMs are currently used by 152 horses[10]. The 1987 Jarbidge RMP also directed the creation of a Wild Horse Management Plan and the designation of Saylor Creek HA as a Herd Management Area (HMA). Those actions have not yet been finalized.

Management Opportunities

In order to address forage needs for the wild horse herd, the appropriate population range needs to be established in accordance with the current carrying capacity. The 1987 RMP established an appropriate management level (AML) of 50 head. The increase in available forage due to extensive seedings has increased the carrying capacity of the HA for wildlife, wild horses, and livestock.

The HA should be evaluated on its merits of being able to provide sufficient genetic viability, and its ability to provide a natural environment with minimal human input in the revised plan.

The revised RMP will address OHV management within the HA through travel management designations.

[10] 1 Horse = 1.25 AUMs (BLM Manual Handbook H-4410-1).

2.B.20. Wildland Fire Ecology and Management

Profile

Indicators

National and State BLM fire policy requires current and desired resource conditions related to fire management be described in terms of three condition classes and five fire regimes (Table 43). The Fire Regime Condition Classification System (FRCC) measures the vegetation's degree of departure from reference conditions, or how different current vegetation is from a particular reference condition. This could result in changes to key ecosystem components such as vegetation characteristics; fuel composition; fire frequency, fire severity and pattern; and other associated disturbances, such as insects and disease mortality (Table 44). FRCC is used to classify existing ecosystem conditions and to determine priority areas for treatment as mandated by national direction.

Table 43. Historic Fire Regime Definitions

Historic Fire Regime	Fire Frequency	Severity
I	0-35 years	Low (surface fires most common) to mixed severity with less than 75% of the dominant overstory vegetation replaced.
II	0-35 years	High (stand replacement) severity with greater than 75% of the dominant overstory vegetation replaced.
III	35-100+ years	Mixed severity with less than 75% of the overstory vegetation replaced.
IV	35-100+ years	High (stand replacement) severity with greater than 75% of the dominant overstory vegetation replaced.
V	200+ years	High (stand replacement) severity.

Table 44. FRCC Descriptions

FRCC	Condition Class Description
1	Fire regimes are within historic timeframes, and the loss of key ecosystem components from the occurrence of fire is low. Areas are considered to be healthy and functioning adequately.
2	Fire regimes have been moderately altered from their historic timeframes by either increased or decreased fire frequency and are at moderate risk of losing key ecosystem components. Areas are considered to be unhealthy, and their rate of deterioration is expected to increase moderately to rapidly.
3	Fire regimes have been significantly altered from their historic timeframes, and the loss of key ecosystem components is high. Areas are considered to be unhealthy and nonfunctioning.

FRCC is not an appropriate indicator for Wildland Urban Interface (WUI) areas since WUI areas may be maintained in an altered vegetative state to protect life and property. *The Idaho Interagency Assessment of Wildland Fire Risk to Communities*, finalized in 2007, maps communities most at risk from wildland fire in Idaho. Relative Risk Ratings are assigned using Hydrologic Unit Codes (HUC), with rating categories of Low, Low-Moderate, Moderate, Moderate-High, and High.

Current Condition

Between 1987 and 2006, more than 45,000 acres burned in the planning area each year on average, with a total of more than 900,000 acres burning during that 20-year period (Table 45); 170,000 of these acres burned more than once (Table 46). These figures reflect all burned acres within the planning area regardless of ownership.

Table 45. Number of Acres Burned and Ignitions for Fires Greater than Ten Acres, 1987-2006

Fire Year	Acres Burned[A]	Total Number of Fires
1987	71,000	21
1988	3,700	2
1989	2,300	8
1990	3,800	11
1991	11,000	11
1992	21,000	11
1993	720	3
1994	19,000	13
1995	170,000	35
1996	92,000	32
1997	8,100	17
1998	6,900	15
1999	69,000	39
2000	73,000	14
2001	32,000	14
2002	25,000	24
2003	4,900	4
2004	1,600	6
2005	220,000	20
2006	73,000	18
Total	**908,020**	**318**
Average per year	**45,401**	**15.9**

[A] Acres have been rounded.

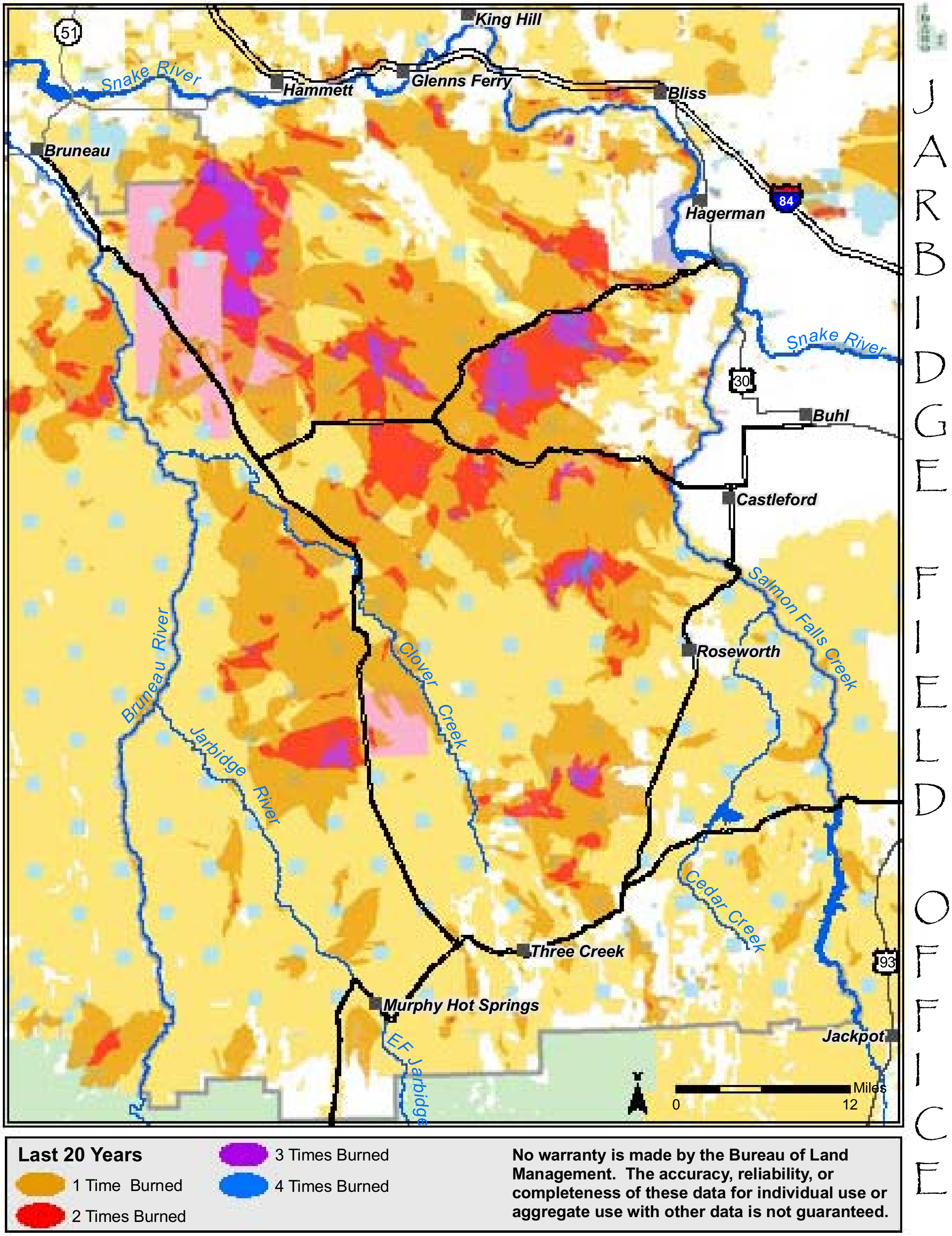
Between 1987 and 2006, 2,20 acres within the planning area burned four times (Table 46; Figure 26). The majority of burned acres, 526,786, only burned once during this 20-year period.

Table 46. Fire Frequency, 1987-2006

Fire Frequency	Acres[A]
Acres burned only once	530,000
Acres burned twice	130,000
Acres burned 3 times	37,000
Acres burned 4 times	2,200
Total Acres	**699,200**

[A] Acres have been rounded.

Figure 26. Fire Frequency, 1987-2006



Between 1987 and 2006, the majority of fire starts within the planning area, 347 out of 625 starts, were caused by lightning (Table 47). This includes all fire starts and not just those that resulted in fires greater than ten acres.

Table 47. Fire Ignitions by Source, 1987-2006

Cause	Number
Human	261
Natural	347
Unknown	17
Total	**625**

Table 48 describes the current vegetation types within the planning area and the historic fire regime they occupy by using Potential Natural Vegetation Group (PNVG). For example, annual grasses, dominated by cheatgrass (*Bromus tectorum*) within the planning area, did not historically occupy any areas. The area currently occupied by cheatgrass would have been sagebrush steppe, giving it a historic fire regime of IV (Table 43).

Appendix 12 outlines the overall FRCC classification for the planning area by PNVG. Two ratings, Fire Frequency-Severity Departure Rating and Vegetation-Fuel Stand Condition Class, are combined to reach an overall Stratum FRCC rating using standard methodology for FRCC[11]. Fire-Frequency-Severity Departure Rating is a representation of the contrast between the existing fire frequency and fire severity and the reference conditions. Vegetation-Fuel Stand Condition Class is a representation of the contrast between the existing condition of a vegetation-fuel class and the reference condition of that class. The greater of those two ratings determines the general FRCC rating for the PNVG type.

The analysis process provides the opportunity to break down the Vegetation-Fuel Stand Condition Class by successional class. Appendix 12 shows the individual class ratings for each PNVG. This appendix demonstrates individual classes may be in FRCC 1 either because there are sufficient or not enough acreage totals in that class. Some portions of the same PNVG are in a FRCC3 because there are too many acres in that successional class or because they are in a successional class that does not normally occur within that historical vegetation type (e.g., cheatgrass or crested wheatgrass). By doing this, the vegetation classes in need of treatment can be identified.

The largest potential vegetation type is Wyoming Sagebrush Steppe. As a whole, this vegetation type is given an overall condition class rating of 2, even though 55.4%, 688,400 acres, of that vegetation type are classified as uncharacteristic and given an individual rating of Condition Class 3.

The Vegetation-Fuel Stand Condition Class is higher than the Fire Frequency-Severity Departure Rating across all vegetation types within the planning area. This means alteration to the vegetation successional classes has had more influence than the changes in fire frequency and severity.

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[11] For more information, see the Interagency FRCC website at www.frcc.gov. The Interagecy Fire Regime Condition Class Guidebook can be found at www.frcc.gov/docs/1.2.2.2/Complete_Guidebook_V1.2.pdf.

Table 48. Historic Fire Regimes by Current Vegetation Type Crosswalked to PNVGs

Vegetation Communities[A]	PNVGs	Historic Fire Regime
Agriculture Land	Not Classified	Not Rated
Aspen	Stable Aspen (R2ASPN)	I
Basin Big Sage	Basin Big Sagebrush (R2SBBB)	IV
Barren	Not Classified	Not Rated
Black sage/ bluebunch	Black and Low Sagebrush (R2SBDW)	III
Black sage/bluebunch/Idaho fescue	Black and Low Sagebrush (R2SBDW)	III
Black sage/Idaho fescue	Black and Low Sagebrush (R2SBDW)	III
Bluegrass	Not Classified (160 acres)	Not Rated
Breaks	Not Classified	Not Rated
Evergreen Mountain Brush	Mountain Shrub with tree (R2MSHBwt)	I
Greasewood/Basin Wild Rye	Salt Desert Shrub (R2SDSH)	V
Low sage/Idaho Fescue	Black and Low Sagebrush (R2SBDW)	III
Mountain Big Sage/bluebunch/Idaho fescue	Mountain Big Sagebrush (R2SBMT)	IV
Mountain Big Sage/Idaho Fescue	Mountain Big Sagebrush (R2SBMT)	IV
Mt. Mahogany	Curlleaf Mountain. Mahogany (R2MTMA)	III
No Data	Not Classified	Not Rated
Salt Desert Shrub	Salt Desert Shrub (R2SDSH)	V
Sand Dunes	Not Classified	Not Rated
Semi Wet Meadow	Not Classified	Not Rated
Water	Not Classified	Not Rated
Winterfat/Ricegrass	Salt Desert Shrub (R2SDSH)	V
Wyoming Sage/Bluebunch	Wyoming Sagebrush Steppe (R2SBWYse)	IV
Wyoming Sage/Bluebunch/annual	Wyoming Sagebrush Steppe (R2SBWYse)	IV
Wyoming Sage/Ricegrass	Wyoming Sagebrush Steppe (R2SBWYse)	IV
Wyoming Sage/Thurbers	Wyoming Sagebrush Steppe (R2SBWYse)	IV
[A] See Table 19		

The number of fuels and restoration projects within the planning area is increasing in order to help address vegetation issues within the FO. Projects within the fuels program in the past five years have focused on achieving two goals: reducing fire hazard with an emphasis on WUI areas and restoring and/or improving FRCC within the planning area. Since the completion of the 1987 RMP, a approximately 642,000 acres[12] were treated using chemicals, seeding, chaining, and prescribed fire (Table 49). These treatments were completed for a variety of reasons including

[12] This number does not reflect unique acreage. Acres could have been seeded in multiple years.

fuels reduction, WUI, post-fire emergency stabilization and rehabilitation (ESR) and range infrastructure. Records on past vegetation treatments do not consistently identify the reason for those treatments. The majority of treatments were seedings; a total of 588,424 acres[13] were seeded with native or non-native species since 1987.

An active ESR program exists within the planning area. The size of the ESR program is in proportion to the severity of the wildfire season. Emergency stabilization is defined as "planned actions to stabilize and prevent unacceptable degradation to natural and cultural resources, to minimize threats to life and property resulting from the effects of a fire, or to repair/replace/construct physical improvements necessary to prevent degradation of land or resources" (620 DM 3.3E). These actions must be taken within one year following containment of a wildland fire. The objective of emergency stabilization is "to determine the need for and to prescribe and implement emergency treatments to minimize threats to life or property or to stabilize and prevent unacceptable degradation to natural and cultural resources resulting from the effects of a fire" (620 DM 3.4A).

Rehabilitation is defined as "efforts undertaken within three years of containment of a wildland fire to repair or improve fire-damaged lands unlikely to recover naturally to management approved conditions, or to repair or replace minor facilities damaged by fire" (620 DM 3.3M). The objectives of rehabilitation are: 1) to evaluate actual and potential long-term post-fire impacts to critical cultural and natural resources and identify those areas unlikely to recover naturally from severe wildland fire damage; 2) to develop and implement cost-effective plans to emulate historical or pre-fire ecosystems consistent with approved land management plans, or, if that is not feasible, to restore or establish a healthy, stable ecosystem in which native species are well represented; and 3) to repair or replace minor facilities damaged by wildland fire (620 DM 3.4B).

Restoration is the continuation of post-fire rehabilitation beyond the initial three years following a wildfire and is outside the scope of the ESR program (620 DM 3.3 N).

Table 49. Vegetation Treatments, 1987-2006

Treatment Type	Acres
Prescribed Fire	6,000
Mechanical	100
Chemical	46,000
Seeding	590,000
Total	**642,100**

The TFD Fire Management program covers BLM and State lands within the Jarbidge FO boundary, as well as fires on private land within the planning area. The staff handles fire management responsibilities such as preparedness, suppression, and extended attack, with dispatching occurring from the South Central Idaho Dispatch Center in Shoshone, Idaho.

The suppression strategy currently in place for the planning area calls for Appropriate Management Response (AMR) on all wildland fires in accordance with management objectives

[13] This number does not reflect unique acreage. Acres could have been seeded in multiple years.

and based on current conditions and fire location. Every wildland fire is assigned an AMR to protect firefighters, the public, and values at risk and to minimize suppression cost. The protection of human life is the single overriding priority, with other priorities such as communities, property and improvements, natural and cultural resource values, human health and safety, and the costs of suppression. AMR can vary from aggressive initial action to monitoring. Currently, no areas within the Jarbidge FO are identified for Wildland Fire Use (WFU), the management of naturally ignited fires to achieve resource benefits where fire is a major component of the ecosystem.

Fire and fuels management activities in the planning area are described in the BLM's Fire Management Plans, which are updated yearly. These documents provide for firefighter and public safety and include fire management strategies, tactics, and alternatives (AMR to wildland fires and identification of areas for WFU). The plan identifies values to be protected and public health issues, describes fuels and restoration projects, and is consistent with resource management objectives. Suppression tactics outlined within the Jarbidge FO Fire Management Plan vary by vegetation type and resource values at risk. Land use management direction from the 1987 RMP is used to drive the direction of the Fire Management Plans.

WUI issues were not addressed in the 1987 RMP; they have emerged as the population begins to expand. Two communities at risk (CAR) within or near the boundaries of the planning area are listed in the Fire Management Plan including Hot Springs[14] and Three Creek. For purposes of the RMP, CAR includes only those listed in the Federal Register on August 17, 2001 (66 FR 43384). Two Community Wildfire Protection Plans were completed within the planning area, one for Twin Falls County and one for Owyhee County. These plans are completed on an interagency basis with participation by BLM.

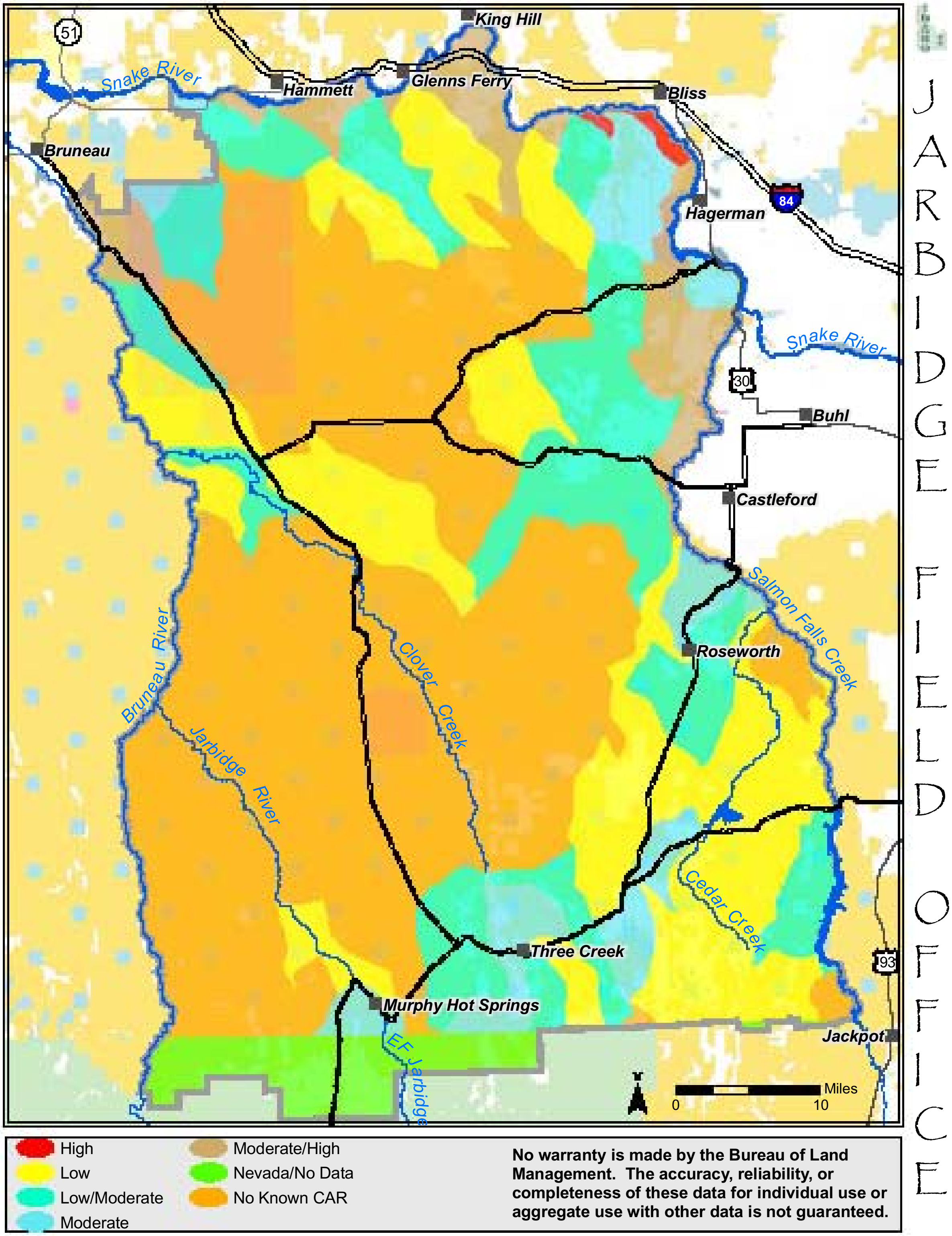
The *2007 Idaho Interagency Assessment of Wildland Fire Risk to Communities* identifies the number of acres in each hazard risk category for the Jarbidge FO, excluding Nevada. Approximately 225,800 acres are rated moderate or higher within the planning area boundary (Table 50, Figure 27).

Table 50. Hazard Risk Rating Acres

Hazard Risk Rating	Acres
Not Rated (Outside inhabited area)	830,000
Low	390,000
Low-Moderate	310,000
Moderate	110,000
Moderate-High	110,000
High	5,800
No data (Nevada acres)	72,000
Total	**1,827,800**
[A] Acres have been rounded.	

[14] The community of Hot Springs is listed in the Fire Management Plan and Federal Register Notice as Bruneau Hot Springs.

Figure 27. Hazard Risk Rating Map



The BLM works with local rural fire departments when possible to reduce the risk of wildland fire in these communities, thereby protecting homes and adjacent Federal lands. The BLM provides wildland firefighter training and assistance with Community Fire Plan development. BLM personnel provide public education through programs including Smokey Bear and fire education programs in schools, Fire Wise programs, and open houses focusing on fire education, fire-safe homes, and WUI community awareness.

Trends

The Potential Natural Vegetation map (Table 22; based on soils information, SSURGO) for the planning area shows the historical dominant vegetation type was Wyoming big sagebrush/Thurbers needlegrass, occupying a total of 48% of the planning area. The current vegetation map shows it occupying only approximately 35,000 acres or 2.2% of the planning area. Conversely, the most significant increase in vegetation type from potential within the planning area is with crested wheatgrass vegetation types. The crested wheatgrass vegetation type increased from 0 potential acres to approximately 300,000 current acres, or 19.6%, while the Wyoming big sagebrush/crested wheatgrass type increased from 0 potential acres to approximately 57,000 current acres, or 3.7%.

The connection between current and historical vegetation, FRCC, and land treatments are apparent. The low elevation shrub type (e.g., Wyoming sagebrush) is classified as FRCC 2, indicating the area burns too frequently. The majority of the historic Wyoming sagebrush vegetation type was reseeded after fires using crested wheatgrass and is now following the fire regime for perennial grasses, Fire Regime 2. The reference fire frequency for Wyoming sagebrush is 75 years and the current fire frequency based on fire polygons is 43.68 years.

Figure 28 shows the acres burned annually from 1970 to the present. Fire records became consistent in 1970, making it the logical choice for a starting date. There is no statistically significant trend[15] in the number of acres burned that time period.

The average annual acreage burned for the 15-year period from 1971 to 1985 (Green, 1985) is similar to the average annual acreage burned from 1992-2006. The average annual acreage from 1971 to 1985 was approximately 67,000, decreasing to approximately 54,000 acres from 1992-2006. There is a slight increase in the average annual ignitions based on a 12-year average from 1974-1985 to 1995-2006. The average annual ignition from 1974-1985 was 16.6, increasing to 19.8 from 1992-2006. Acreage differences could be a result of improved mapping and an increase in fire suppression capabilities. This would have a direct impact on the size of the fire, but not necessarily the number of ignitions.

[15] r=.081

Figure 28. Acres Burned by Year, 1970-2006

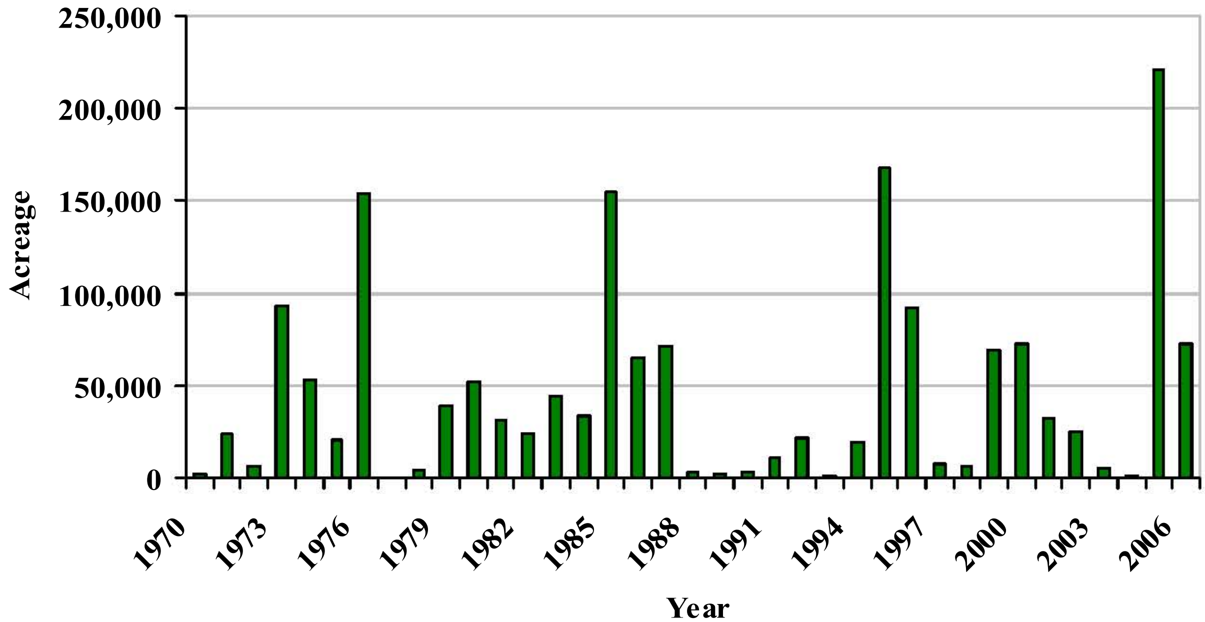


Figure 29 shows fire ignitions by year from 1970 to the present. Once again, 1970 was chosen as the starting year since it is the point at which the recording of fire ignitions for the district became consistent. There is no statistically significant trend for ignition data[16].

There is a correlation between the number of acres burned and precipitation. Data provided by the National Weather Service for the Twin Falls area for 1970 to 2006 show the year following a high precipitation year tends to have more acres burned. Years with lower precipitation tend to have fewer acres burned the following year. This could be explained by the lack of fine grasses present to carry fire due to the low precipitation (Figure 30).

[16] r=.067

Figure 29. Fire Ignitions by Year 1970-2006

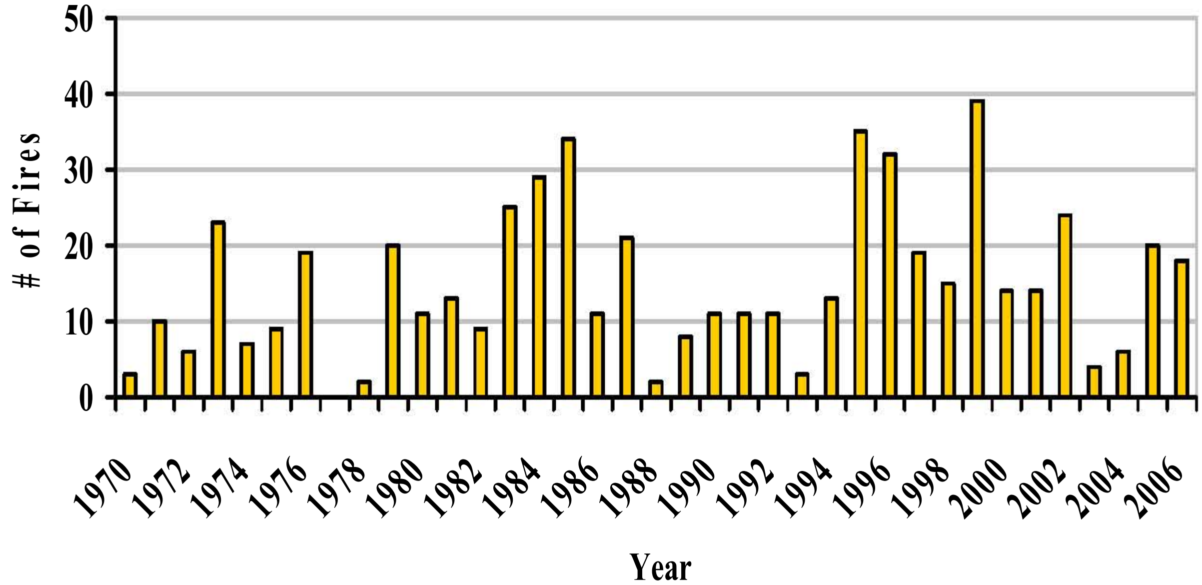
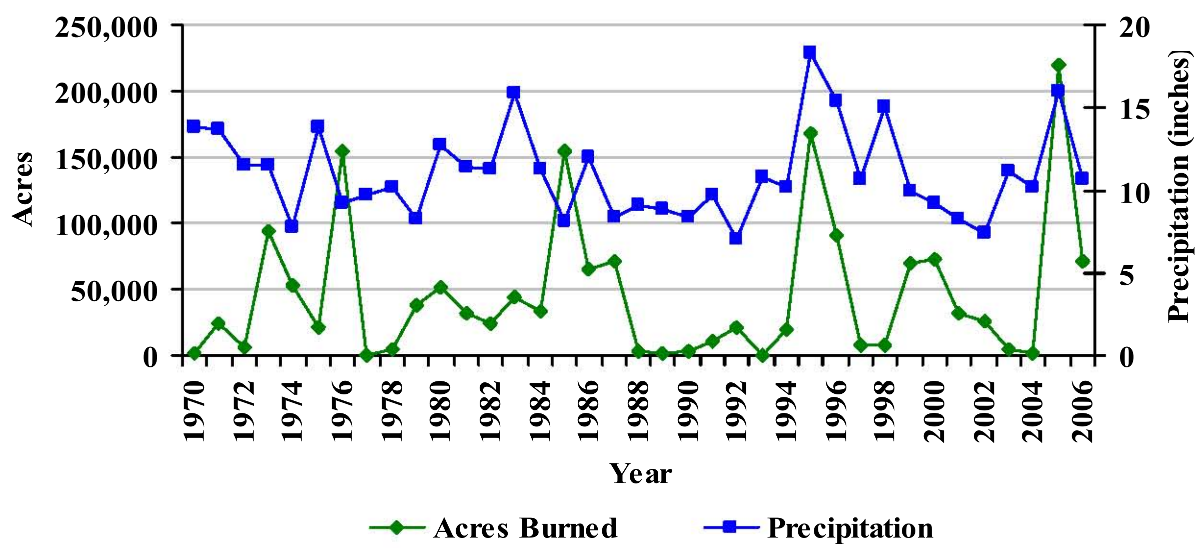


Figure 30. Precipitation and Fire Acreage Burned



Forecast

Current management does not lend itself to dealing with fires within the planning area. The total numbers of acres treated yearly under the fuels and ESR programs do not address large-scale ecosystem management issues such as the loss of soil and native vegetation. Increased fire frequency, limited funds for ESR and fuels treatment projects, limited seed availability, and the changing climatic conditions make restoration of damaged ecosystems difficult.

It is unknown whether actions taken on the ground within the northern portion of the FO using current management direction would result in a change in condition class within the life of the revised RMP. Some literature challenges our ability to return areas converted to non-native annual grasses to the original natural vegetation group as a result of long-term climate change and the passing of a physical or biotic threshold that will not allow transition back to the previous state (Roundy, 2005; West, 1999). There are nearly 170,000 unique acres within the planning area that burned at least twice between 1987 and 2006 (Table 46). Acres that have burned numerous times may have crossed the threshold for restoration potential.

The majority of areas currently classified as FRCC 2 and 3 will most likely continue in an accelerated fire-return interval under current management practices. Areas classified as FRCC 2 may gradually shift to FRCC 3, especially given the full suppression strategies and fuels capabilities outlined in the current Fire Management Plan. Without an increase in the prescribed fire and mechanical treatment programs in FRCC 2 areas, especially those concentrated in the southern portion of the planning area, fuel loads will continue to build and, more than likely, burn under stand replacement conditions. Vegetation within those areas could be permanently altered without proper rehabilitation treatments following wildland fire.

WUI issues are expected to increase within the planning area as the population base and interest in public land use grows. While the majority of the planning area is far removed from private land, it is currently used by members of the public for hunting, fishing, recreation, and other authorized and permitted uses. Ensuring the public understands the importance of BLM land, native vegetation, and the role fire plays in ecosystem management will be crucial as the population grows and use increases.

Key Features
Vegetation values are the most applicable drivers for determining key features associated with fire within the planning area, especially areas with an intact native vegetation component.

The Jarbidge River, Salmon Falls Creek, and Bruneau River/Sheep Creek WSAs require alternative fire suppression techniques, as well as special attention during fuels and ESR projects. These areas should be managed to ensure suitability for wilderness designation.

Three ACECs within the planning area require special attention to fire management. The Sand Point, Bruneau-Jarbidge River, and Salmon Falls Creek ACECs currently call for suppression using Minimum Impact Suppression Techniques (MIST). MIST techniques should also be applied when working within the Oregon NHT corridor. Examples of MIST techniques include using the minimum amount of line construction necessary to suppress the fire, cutting brush and trees flush to the ground, minimizing the number of snags felled, and using natural barriers where possible to create a firebreak. Suppression, ESR treatments, and fuels reductions projects within these areas should be modified to address the special features for which the ACEC was created.

Current Management
The 1987 Jarbidge RMP prescribed full fire suppression for the entire FO. The FO is currently

managed under AMR, which includes full suppression and a range of suppression techniques. A Fire Management Plan is completed and updated yearly. The plan includes prohibiting mechanized equipment on Oregon NHT segments, specific paleontological sites, WSAs, river canyons, and ACECs. Fire lines are also prohibited across the Oregon NHT. Priorities for fire suppression are safety, personal property, and resource values.

The 1987 Jarbidge RMP identified acreage amounts for rehabilitation of existing burns. The need for fire rehabilitation is assessed on each fire. Acreage targets under the 1987 RMP have been exceeded.

Management Opportunities

Current management direction does not address changing conditions on the landscape and management actions such as fuels and ESR treatments that may take place to address the landscape level issues. Desired outcomes need to address the altered fire return intervals within the planning area as well as how management affects the FRCC of the landscape.

Fire suppression for Saylor Creek Range and Juniper Butte Range are managed under an agreement with MHAFB (see Military).

While the 1987 Jarbidge RMP called for full fire suppression, some areas of the FO, especially those in FRCC 2, could use prescribed or wildland fire under appropriate conditions to maintain their condition class or move to a lower class. Options to use AMR in Fire Management Plans could allow suppression strategies ranging from full suppression to monitoring.

Prohibitions on mechanized equipment for fire suppression and fuels treatments could be expanded to include habitats for special status species including sage-grouse, pygmy rabbits, and slickspot peppergrass.

ESR efforts could focus on maintaining those areas with an intact native vegetation component. Restoration efforts could focus on areas previously converted to seedings and non-native annual grass. In general, native vegetation should be managed to promote ecosystem diversity and ensure connectivity between the remnant native patches.

2.C. Resource Uses

2.C.1. Livestock Grazing

Profile

Livestock grazing use in the Jarbidge FO area began around 1871 (Blossom et al., 1988). In the 1870s and 1880s, the range was used by large livestock operations. Livestock grazed in the lower elevation areas in the winter and the higher elevation areas in the summer. A severe winter in 1989 resulted in a reduction of cattle use, leaving much of the rangeland unused. Large transient sheep operations moved their sheep south through the area in the spring and back north over the same rangeland in the fall. Intensive grazing management on the public lands, established livestock numbers, and seasons of use did not exist during this early settlement period. As a result, the number of cattle, sheep, and horses rapidly increased until the early 1900s. During this period of rapid stock increase, livestock grazing became a regulated and permitted activity on National Forests. However, non-forest Federal lands continued to be common areas in which those who moved their stock onto the range first each season secured the use of new forage growth. Rangeland resources and ecological conditions experienced significant harm from overgrazing during this period of unregulated use (Hull Jr. & Hull, 1974; Voight Jr., 1976; Young & Sparks, 1985). Overgrazing resulted in changes to vegetation communities, especially at lower elevations used for winter and early spring grazing. Control of these ranges did not occur until after 1934 with the enactment of the Taylor Grazing Act. Grazing allotments were created and the number and kind of livestock and season of use were established for the area (Blossom et al., 1988).

Range surveys were completed on the public lands during the 1960s to determine the amount of forage produced. Grazing capacity for the allotments was adjudicated by the BLM Boise District with recommendations from the District Grazing Advisory Board following these surveys. The number of livestock authorized on most of the allotments was based on the sustained rangeland production at that time. A Federal Court agreement on April 11, 1975, required BLM to prepare 142 Grazing EISs on public grazing lands over a ten-year period. The Jarbidge RMP/EIS prepared in 1985 complied with this agreement.

Vegetation treatments during the 1960s, primarily plow and seed, were implemented to improve the production of the rangeland. The Clover Flat Fire burned approximately 34,000 acres in 1974. In 1976, approximately 145,000 acres burned in the Bicentennial Fire. Rehabilitation efforts following these fires included seeding large areas to crested wheatgrass and intermediate wheatgrass. Since 1976, the increase in fire rehabilitation seedings, such as the approximately 65,000 acres seeded following the Bicentennial Fire, resulted in a reduction of plow and seed projects or brush control projects. Rehabilitation projects established seedings of non-native perennial plants like crested wheatgrass and intermediate wheatgrass to prevent soil loss, provide forage for livestock, and compete against the invasion of cheatgrass and other invasive plants.

In the 1990s, seedings used perennial native cultivars like Snake River wheatgrass and bluebunch wheatgrass varieties (Goldar, Whitmar, and Anatone) instead of crested wheatgrass. The establishment of seedings over the last 30 years increased livestock forage production in the planning area.

Heavy grazing depleted the native plant communities that preceded the seedings prior to the Taylor Grazing Act of 1934 and produced less vegetation palatable to livestock. Vegetation manipulation seeding projects and fire rehabilitation seeding projects, including plow and seed and fire rehabilitation seedings, established palatable vegetation like crested wheatgrass, intermediate wheatgrass, Snake River wheatgrass, and bluebunch wheatgrass, increasing the carrying capacity for livestock grazing.

The 1987 Jarbidge RMP recognized but did not allocate additional forage because BLM policy was not to allocate forage to livestock based on a one-point-in-time range inventory (BLM, 1987). Other factors affecting forage allocation included: 1) the lack of infrastructure, water developments, and fences to support use of these AUMs; 2) relatively large areas managed as common use grazing units rather than defined grazing allotments; and 3) approximately 160,000 acres encumbered with application for agricultural development under DLE and CA, creating uncertainty of available future use (Jones, 2005). The 1987 RMP stated, “Increased use would not be authorized unless further monitoring studies indicate that the basic soil, vegetation and wildlife resources are being protected and additional forage is available.” The additional forage production was authorized as TNR in accordance with 43 CFR 4110.3-1(a).

To address the on-going nonrenewable grazing authorizations, an environmental assessment (EA) for nonrenewable livestock grazing use in the Jarbidge FO was approved in June 1996. The EA analyzed a process by which nonrenewable grazing use could be authorized. One allotment received an increase in grazing preference following the preparation of an EA and final grazing decision. In 2002, Western Watersheds Project challenged BLM’s decision to continue the authorization of nonrenewable grazing use under the 1996 EA by seeking relief in District Court (Williams 2002). As a result of this lawsuit, BLM agreed not to authorize nonrenewable grazing use based on the process outlined in the 1996 EA. Interim grazing management was put in place for the 30 allotments involved in the lawsuit. This management included levels of grazing use, utilization of riparian areas and uplands, and seasons of use.

In response to grazing permittees concerned that no nonrenewable use could be authorized, Congress has included a rider, referred to as Section 123, in DOI’s appropriations act for each year since Fiscal Year 2004 directing BLM to authorize TNR in the Jarbidge FO to the level of the latest authorization between 1997 and 2003. Section 123 does not apply to allotments involved in litigation.

In 2003 and 2004, BLM prepared four EAs under the grazing regulations in 43 CFR 4110.3-1(b)[17] to analyze vegetation allocation on 30 allotments where nonrenewable grazing use was authorized. Final grazing decisions were issued between September 2003 and December 2004 for 28 of the 30 allotments. Of those, preference was increased in 19 allotments, and the preference remained unchanged in 9 of the allotments. This increase in active use on grazing permits was within the historical AUMs allowed under nonrenewable authorizations in most cases. The remaining two allotments remain under interim grazing measures outlined in a Judge Williams District Court Memorandum of Order dated April 11, 2003.
Western Watersheds Project returned to District Court in 2004 to challenge the validity of the

[17] 43 CFR 4110.3-1(b) states, “When the authorized officer determines that additional forage is available for livestock use on a sustained yield basis, he will apportion it.”

EAs analyzing the grazing management implemented in the 28 allotments. The result of this lawsuit was a stipulated settlement agreement (SSA) between the Plaintiffs, Intervenors, and BLM. The SSA includes the completion of the revised Jarbidge RMP by September of 2009. It also outlines interim grazing measures to occur on 28 allotments until the RMP and grazing permit renewal process is completed.

Current Level and Locations of Use

The Jarbidge FO is divided into 93 grazing allotments with 59 permit holders (permittees) on approximately 1,500,000 Federal acres; 1,400,000 acres are BLM-managed public land within the planning area and 92,000 acres are military withdrawn and 5,800 acres are BOR withdrawn land. BLM manages grazing on the military withdrawal land for the Air Force in accordance with Public Land Order 1027 as amended by Public Land Order 4902. The grazing permits in allotments in the military withdrawal do not differentiate the AUMs on military land and BLM public land. In 2006, there were 188,802 AUMs of permitted grazing use on BLM-managed land, military withdrawn lands, and BOR withdrawn lands. The 1987 RMP included a decision to increase grazing use from 149,650 AUMs to 166,096 AUMs initially and to 254,211 AUMs in 20 years[18]. Some of the allotments presented in the 1987 RMP have been divided into separate allotments or pastures (Appendix 13).

The total allowable grazing use in the Jarbidge FO is 205,580 AUMs of active use. Of this active use, 112,620 AUMs are part of interim management resulting from two lawsuits filed against the Jarbidge FO (Table 51). The 30 allotments under the interim grazing measures in the SSA and Judge Williams order are only allowed nonrenewable use as described in the interim measures. Eighteen other allotments have authorized nonrenewable use for an additional 16,786 AUMs of grazing use beyond those authorized under current permits (Appendix 13).

Table 51. AUMs Authorized in the Jarbidge FO, 2006

Legal Obligation	Allotments	Current Permits (AUMs)	Nonrenewable Authorizations (AUMs)
Williams Order	2	27,888	0
Stipulated Settlement Agreement – Winmill's Order	28	84,732	0
Non-renewable grazing use under Section 123	18	25,896	16,786
Other allotments	45	48,862	0
Total	**93**	**188,802**	**16,786**

Actual grazing use since the 1987 RMP has been as high as approximately 217,000 AUMs in 1997 and as low as approximately 109,000 AUMs in 1998. In the last five years, the average actual use since 1987 is approximately 173,000 AUMs.
BLM conducts rangeland monitoring to track progress toward meeting or making progress

[18] The 1987 RMP included a decision to increase grazing use from 166,269 AUMs to 280,501 AUMs in 20 years. In 1991, the allotments in MUA 1, 2 ,3 and parts of MUA 4 and 5 were reassigned to the Four River FO. Without these allotments in the current planning area, the 1987 RMP AUMs were changed from 149,650 AUMs to 254,211 AUMs in 20 years.

toward meeting the Standards for Rangeland Health and management objectives. Monitoring includes collecting data for vegetation trend, livestock utilization and actual use, production, and climate. Active grazing use authorizations and management actions in each allotment are periodically evaluated, based on the monitoring data. If monitoring shows progress towards objectives, management would continue. However, if progress is not being made, the management is adjusted. Adjustments are made by grazing decision after discussions with the permittees in accordance with legislation, regulations, and policy so public land resources are maintained or improved.

Rangeland Status

Three selective management categories were developed in 1981 to prioritize grazing allotments according to management needs. All allotments have been placed into these categories according to management needs, resource conflicts, potential for improvement, and Bureau funding/staffing constraints. Improve category allotments are managed to improve current unsatisfactory resource conditions and receive the highest priority for funding and management actions. Maintain category allotments are managed to maintain current satisfactory resource conditions and are actively managed to ensure that resource values do not decline. Custodial category allotments are managed by the BLM to protect resource conditions and values. The planning area has 69 Improve category allotments, 24 Maintain category allotments, and 2 Custodial category allotments. Appendix 14 provides allotment-specific information including acres by ownership and management category.

The modified grazing regulations issued in 1995 included Standards for Rangeland Health. It directed BLM to establish Resource Advisory Councils (RACs) to develop standards for rangeland health in local areas. In 1996, the RACs developed the standards for Idaho. The regulation required BLM to assess allotments for their status in meeting these Standards. As of 2006, assessments for Rangeland Health have been completed on 44 of the 95 allotments and 61% of the acreage in the Jarbidge FO. Table 52 summarizes the determination of status of the allotments in meeting or making progress toward meeting the Standards for Rangeland Health.

Table 52. Status of Allotments in Meeting the Standards for Rangeland Health

Description	# of Allotments	Acres[A]
Allotments meeting all standards or making significant progress toward meeting the standard	0	0
Allotments not meeting all standards or making significant progress toward meeting the standards, and livestock is a significant factor.	28	590,000
Allotments not meeting all standards or making significant progress toward meeting the standards due to causes other than livestock grazing.	16	250,000
Total number of allotments that have been assessed.	44	840,000
[A] Acres have been rounded.		

As one of the conditions of the SSA, the BLM was to re-sample sites established in the

1981-1983 ESI. The Soil-Vegetation Inventory Method (SVIM) used during the 1981-1983 ESI is similar to the current BLM-approved method in how production and plant community composition is determined. However, the manner in which the condition rating of plant communities is determined has changed; therefore, the condition ratings should not be compared.

The data gathered in the early 1980s rated condition based on four components of the range site: 1) the status of the site's composition by weight expressed in percent of the site's potential; 2) the stability of the soil against accelerated erosion; 3) the stand for site (description of species present) compared to species in a climax community; and 4) the percent of the preferred species (the dominant grass in most cases) on the site (e.g., more than 30%, 20-30%, 10-20%, or less than 10%). Table 53 shows the condition rating of the native vegetation sites in 1981-83.

Table 53. Condition Rating of Native Plant Communities at SVIM Sites, 1981-1983

1981-83 Condition Class	Number of Sites	% of Sites
Poor	71	38.4
Fair	58	31.4
Good	32	17.3
Excellent	24	13.0
Total	**185**	**100**

Under current policy, condition of native rangelands is rated based on seral stage using a similarity index compared to PNC and expressed in terms of ecological condition: PNC, late seral, mid-seral and early seral ecological condition (Habich, 2001). These ratings compare the production of species to the production of a site in PNC, determined from reference sites, with no additional factors used to adjust this rating. Table 54 shows the ecological condition rating of the native vegetation sites in 2006. The data in Table 53 and Table 54 are not comparable due to a change in the sampling and analysis methods.

Table 54. Ecological Condition Rating of Native Plant Communities, 2006

2006 Ecological Condition	Number of Sites	% of Sites
Early	48	19.1
Mid	125	49.8
Late	63	25.1
PNC	15	6.0
Total	251	100

Grazing use is dependent on management fences separating allotments and pastures within allotments. The Jarbidge FO contains complex pipeline systems fed by creeks, springs, and wells that provide water through most of the planning area. In addition to providing water for livestock, these pipeline systems distribute water used in wildfire suppression activities and serve as a source of water for wild horses and wildlife. Reservoirs were developed by dam construction and excavating pits in playas. Table 55 shows the range infrastructure currently in the planning area.

Table 55. Types and Amount of Existing Range Infrastructure

Type of Rangeland Improvement	Amount
Cattle guards (#)	130
Fences (miles)	2,012
Seedings (acres)	679,627
Reservoirs and Stock Ponds (#)	97
Spring Developments (#)	24
Pipelines (miles)	894
Wells (#)	13

Forecasted Use

Improvement of habitat for wildlife and special status species may include vegetation treatment projects that increase sagebrush and forbs in non-native grass stands. These treatments would likely require, at a minimum, short-term changes in grazing use such the location, timing, and amount of grazing. The increased presence of sagebrush in these communities may reduce the level of forage production for livestock grazing use. Restoration of sage-grouse habitat could increase the demand for grazing in areas currently dominated by crested wheatgrass seedings and annual grasses.

Riparian areas would continue to be protected from damage by livestock through methods such as installing fences, placing water troughs away from riparian areas, and adjusting the timing of grazing.

Livestock grazing use will continue into the foreseeable future; however, conflict over livestock grazing in the western United States has increased as the land base in the West is used to support a rapid population increase, urban sprawl, and lessened ties of much of the public to agricultural production. Anti-grazing activists are making considerable use of the legal systems and media to further their cause. At the same time western ranchers have gained staunch supporters and stiffened their resolve to preserve their ranching heritage (Holechek et al., 2006). There is also a trend toward amenity ranching by owners not normally in the ranching business (Gosnell & Travis, 2005).

Key Features

Livestock grazing use occurs within the planning area year long. Generally, the lower elevation rangeland of the northern third of the planning area is grazed in the fall, winter, and spring. The higher elevation in the middle third is grazed in the spring, summer, and fall, and the high elevations in the southern third is grazed primarily in the summer and fall.

Larger ranch operations graze livestock on public land year long. Their permitted use areas range from the north to the south and are used along with USFS grazing permits on the Humboldt-Toiyabe National Forest adjacent to the southern boundary of the planning area. Livestock are wintered in the allotments in the central and northern portions of the planning area. Cattle are gradually moved south through the spring to foothills on the southern portion of the planning area and USFS land. In the fall, cattle are gradually moved back north for the winter. Smaller ranch operations generally use the allotments based on their location as described above.

Avoiding defoliation during the growing season for bluebunch wheatgrass, a native grass, is essential if enhancement of vigor is an objective (Anderson, 1991). In order to prevent livestock from eating native vegetation during the plants' critical growth period, livestock can graze in areas with crested wheatgrass during this time. There are approximately 370,000 acres of crested wheatgrass seedings, not including seeded areas that burned in 2005 and 2006, providing a large amount of forage.

Areas receiving higher grazing use are near available water and areas of preferred vegetation. Concentrated use areas occur around troughs and ponds in the uplands. Livestock are attracted to riparian areas for water and the lush forage resulting from the constant availability of water, especially during the hot summer season. Livestock will congregate in the brush and trees within riparian areas and in aspen stands in the foothills on warm days. Available water includes live streams, reservoirs, pit reservoirs, playas, springs, and pipeline and trough systems. Grazing utilization lightens as distance increases from available water.

Current Management

The 1987 Jarbidge RMP directed the maintenance of existing vegetative improvements. Additional crested wheatgrass seedings have been established since the completion of that RMP. Seedings have not been actively maintained, primarily due to wildfires and, to a lesser extent, periodic heavy grazing use that reduces the occurrence of wolf plants.

The 1987 RMP directed lands in good or excellent ecological condition in MUA 10, based on the 1981-1983 range inventory, be maintained. These terms "good" and "excellent" and the methods to determine those ratings are no longer used in the rating of native vegetation. Data collected in 2996 indicate areas in MUA 10 are in late seral ecological condition overall.

Formal grazing systems were established for the following allotments rated in fair condition in 1987: Inside Desert, Poison Butte, Seventy-one Desert, Juniper Butte, Crawfish, Three Creek #8, and Juniper Ranch. These grazing management systems, excluding Juniper Ranch, are currently part of the SSA. Current and past condition ratings were not done in the same protocol, but the existing trend information indicates a static trend.

A final grazing decision was issued in 2002 outlining management for the Lower Saylor Creek allotment was developed in 2001. Grazing agreements to protect Snake River snails were entered into in 2003 for the Hagerman, Little Three Island, Saylor Creek/North Three Island, Thompson, and Three Island Allotments.

The Saylor Creek West MUA was divided into separate allotments in 1987 as directed by the 1987 Jarbidge RMP.

The 1987 Jarbidge RMP identified AUMs of forage to be allocated for livestock. AUM allocations are listed by allotment in Appendix 13.

The 1987 Jarbidge RMP identified acres for seedings, maintenance, interseeding or reseeding, brush control, and brush control and seedings. Actual acres for each of these actions are identified in Table 56. The number of acres seeded are largely due to fire rehabilitation. Table 57 outlines the number of miles of pipelines, reservoirs or wells, water developments, and fencing completed.

Table 56. Completion of Vegetative Treatments Planned in the 1987 RMP

Vegetation Treatment	Planned	Completed[A]
Acres of Seedings Maintained	348,949	400,000
Acres to be Seeded	75,900	270,000
Acres Interseeded or Reseeded	9,400	0
Acres of Brush Control	31,600	0
Acres of Brush Control and Seeding	13,600	2,600
[A] Acres have been rounded.		

Table 57. Completion of Range Infrastructure Planned in the 1987 RMP and 1989 RMP Amendment

Range Improvement	Planned	Completed
Pipelines (miles)	419	262
Water Developments (#)	10	1
Fences (miles)	242	274

The 1987 RMP directed several actions concerning fencing. Approximately 23 miles of five- and six-strand fences have been modified in MUA 12. Approximately 6 of the 10 miles of woven-wire fence have been removed. Several miles of woven-wire fence still need replaced. BLM is currently modifying these fences. Fences in MUA 7 need to be modified to minimize wild horse movement conflicts. Since 1987, approximately 37 miles of gap fences have been built. Fences on Mosquito Lake Reservoir, Rattlesnake Pond and an area of Poison Creek have been constructed with funds from the Jarbidge Sage Grouse Local Working Group. The permittee constructed fence on private land to protect Bear Creek and Shack Creek. He manages them as a riparian pasture for sheep only. A small exclosure has also been built at Antelope Spring.

Adaptive management has been adopted in 30 allotments to address concerns with wildlife crucial habitats. This includes establishing management guidelines that provide parameters on livestock grazing use of browse species. Meeting the parameters set in these guidelines would indicate a need for change in grazing use.

Management Opportunities

A desired outcome for livestock grazing within the planning area would be developed through the RMP process, possibly requiring livestock grazing use to be adapted to meet the desired condition. Implementing adaptive management could provide for opportunities for livestock to be a positive part of meeting the desired condition. For example, reducing frequency and intensity of wildfire could be necessary to re-establish the sagebrush steppe habitat. Livestock grazing use can be used to reduce fuel loads providing for less intense wildfire that can be more easily controlled. This management, however, must consider the needs of the watershed, wildlife, and recreation. It would not include, for instance, heavy grazing use during the critical growing season for plants or the nesting season for sage-grouse. It could include the development of threshold indicators such as utilization levels, use of browse species like sagebrush and bitterbrush, rest, and deferment of nesting habitat.

Adaptive management indicators could be considered for authorizing grazing use. Decisions would be based on a desired outcome using a range of identified management activities for achieving that outcome. Adaptive management could be used to develop grazing schemes to resolve conflicts with fish and wildlife. For example, management schemes could outline seasons of use that do not conflict with wildlife use of crucial winter range and/or nesting of sage-grouse. Indicators would be developed to determine when management changes should be made. Regular monitoring would be established to indicate when thresholds are met, initiating an adjustment in grazing management. Additional forage could be allocated after needs are met for watershed, wildlife, and other uses.

The allocation of vegetation should include meeting watershed needs, wildlife habitat needs, wild horse needs, and livestock needs in that order of priority. This allocation needs to be done in consideration of the desired condition and potential of the resource. For example, it would be necessary to re-establish sagebrush to reduce fragmentation of sagebrush steppe habitat. Ecological sites are only capable of producing a certain amount of vegetation with the constraints of precipitation and in the soil capabilities to hold moisture. Therefore, re-introducing sagebrush, preferred by many wildlife species but not by livestock, would partially replace the grass species preferred by livestock. Any allocation would require projecting the change in useable livestock forage over time as a result of re-introducing sagebrush (Frischknecht, 1963).

Grazing use agreements set up for the protection of Snake River snails could be formalized through the permit renewal process with a grazing management system. Livestock grazing management could be established through permit modification as a result of a monitoring and evaluation process which includes Standards for Rangeland Health and a grazing decision.

Range infrastructure within the planning areas could be re-evaluated to determine the amount of additional water developments, pipelines, and fences needed. The value of installing fences, pipelines, troughs and other water developments could be considered in relation to improving riparian areas and special habitats like slickspot peppergrass and sage-grouse habitat and protecting remnant sagebrush stands. Some improvements may need to be moved to protect or improve these and other resource values. Areas in need of gap fencing could be identified to allow livestock to water while improving riparian areas and protecting cultural resources.

Range improvement projects would be needed to make necessary changes in grazing management to meet the desired condition. Additional pasture fencing may be needed to provide options for management of livestock grazing in these habitats. Gap fencing could be considered in riparian areas not currently fenced. New fences would be constructed and existing fences need to be modified to minimize impacts to wildlife by following BLM standards.

The selective management categories assigned to the allotments could be reviewed and modified, if necessary.

The 1987 Jarbidge RMP directed land in "good" and "excellent" ecological condition to be maintained. Ecological condition can be better described in terms of PNC (see Upland Vegetation). Descriptions of desired plant communities could be developed, especially in areas seeded with non-native perennial species.

2.C.2. Minerals

Profile

Current Level and Locations of Use

The BLM manages the Federal mineral estate for the United States. The land surface overlying this estate is often managed by a Federal agency other than BLM or is owned by a non-Federal entity such as the State of Idaho or private interests. The Jarbidge FO administers the surface of 1,400,000 acres of public lands within the FO boundary and all or part of the mineral estate. These "split-estate" lands present minerals management challenges that require close coordination and cooperation. Cooperation with the surface interests is integral in developing mineral resources and in protecting other resource values and uses on these lands.

Minerals managed by the BLM are categorized according to the laws under which they are managed as leasable, salable, or locatable. Although similar in many ways, each classification is administered differently and may also have different requirements for acquisition, exploration, and development.

<u>Leasable Minerals</u>

Leasable minerals can be explored for and developed under the Mineral Leasing Act of 1920, as amended, other leasing acts, and regulations at 43 CFR 3100, 3200, 3400, and 3500. Leasable minerals include energy mineral resources, such as oil, gas, coal, geothermal steam, and associated geothermal resources, and some non-energy minerals, such as phosphate, sodium, potassium, and sulfur. All minerals on acquired lands are leasable. BLM uses discretionary authority in deciding whether to lease mineral resources for exploration and development. Where the Federal government owns the mineral estate and an agency other than BLM manages the surface, BLM will consult with that agency prior to leasing or approving an operations plan. In some situations, BLM must obtain concurrence as required by law. There is no current leasable mineral activity within the planning area.

<u>Salable Minerals</u>

Salable minerals, or mineral materials, are common varieties of minerals and building materials such as sand, stone, gravel, pumice, pumicite, cinders, and clay. Generally, salable minerals are widespread, of low unit value, and often used for construction or landscaping materials. Their value depends largely on market factors, quality of the material, availability of transportation, and transportation costs. BLM management of salable minerals is under the Materials Act of July 31, 1947 (61 Stat. 681), amended by the Acts of July 23, 1955 (PL 167; 69 Stat. 367), and September 28, 1962 (PL 87 713) and regulations at 43 CFR 3600. BLM is authorized to dispose of mineral materials either through a contract of sale or a free-use permit. BLM has discretionary authority to issue permits for the disposal of salable minerals.

There is ongoing use of salable minerals at several locations in the planning area. Two community pits for rhyolite are located in the Browns Bench and China Creek areas. Community gravel pits include the Balanced Rock North, Big Flat Creek, Magic Waters, and Pasadena Valley #1. Highway districts use gravel from the Big Flat Creek, Magic

Water, Devil Creek, and Three Island pits. The need for housing and related infrastructure has increased as the population in the area increases. BLM and highway districts continue to develop sources of borrow, sand, and gravel for road maintenance projects.

Locatable Minerals

Locatable minerals, those not classified as leasable or salable, are managed under the General Mining Law of 1872 (17 Stat. 91, as amended) and regulations at 43 CFR 3700 and 3800. They include gold, silver, copper, gemstones, lead, zinc, barite, gypsum, and certain varieties of high-calcium limestone, and other uncommon variety minerals. The General Mining Law of 1872 provides United States citizens the right to prospect, explore, and develop these minerals on public domain lands not "withdrawn" from mineral entry by Congress or the Secretary of the Interior. The law also provides for necessary access across public land to conduct these activities. Depending on the stage of exploration or development, reasonable access can range from unimproved temporary roads for prospecting or drilling to more permanent improved roads for full mine development and transportation of ore.

Exploration for and development of locatable mineral resources under the General Mining Law of 1872 are nondiscretionary activities, meaning the BLM cannot prohibit reasonably necessary activities required for the prospecting, exploration, and development of valuable locatable mineral deposits. Since the January 1, 1981 issuance of 43 CFR 3809 regulations, the BLM has had the authority to regulate these activities and require mitigation or changes in operational practices to ensure activities do not result in "unnecessary or undue" degradation of the environment (43 CFR 3809.4). Prior to 1981, BLM had no authority to regulate locatable mining activity. Now, BLM's Abandoned Mine Lands Program addresses those mining impacts. The 43 CFR 3809 regulations ensure a proposed mineral exploration or development activity conforms to reasonable industry standards for that type of activity, based on the appropriate stage of operation development. If the BLM concludes the proposed activity is not reasonable, it would not be approved under 43 CFR 3809.

A variety of locatable minerals are found within the planning area due to its geologic diversity; however, the area generally lacks any known large, economically viable metallic deposits. There are four active mining claims on public lands, all of which involve Bruneau Jasper, a semi-precious decorative stone. All four are in the Bruneau River Canyon at Indian Hot Springs. There are numerous historic mining claims, the majority of which are placer claims concentrated in the river drainages throughout the planning area. There are no active metal mines despite occurrences of gold, silver, copper, lead, mercury, and other minerals.

Recreational panning and placer mining for gold occur in the planning area. The State of Idaho administers permits for mechanized gold collection, or dredging, in rivers. The Snake River contains placer deposits from American Falls Reservoir downstream to the Idaho/Oregon border. There are no active placer claims in the planning area.

Base metal deposits, which consist of copper, lead, zinc, manganese, and minor molybdenite, are rare in the planning area. There are no active base metal mines in operation and no known commercially viable deposits located within the planning area.

Industrial minerals are those utilized in industrial processes. Examples of industrial minerals are limestone, zeolites, silica, sulfur, perlite, pumice, and peat. There is no current activity related to industrial minerals in the planning area.

Forecasted Use

Salable Minerals

Sand and gravel is found adjacent to the Snake River on the north and Salmon Falls Creek in the east. Over the last six years, an average of 29 permits per year were sold to the public for an average of about 280 cubic yards per permit. The need for sand and gravel will continue for both sales and free-use permits. As population increases, demand for material for road and canal maintenance, as well as for individual use, will also increase. The demand for material will likely be greater closer to populated areas due to lower transportation costs. Sources of material will need to be identified to replace exhausted sites.

Decorative stone is found in the southeastern portion of the planning area near the Browns Bench area adjacent to Salmon Falls Creek Reservoir. An average of 13 tons per year of decorative stone was sold in the last six years, averaging about two tons per permit. As with sand and gravel, the increase in population will increase the demand for decorative stone. Other sites and stone types may need to be identified if the current site in Browns Bench is exhausted.

Leaseables

Oil and Gas

The Jarbidge FO contained up to 251 oil and gas leases up until 1995. Non-competitive oil and gas leasing activity was widespread in southern Idaho particularly during the 1970s. The activity was extremely speculative and prompted, in large part, by the accelerated exploration activity in the western US spurred by oil crises of the 1970s. The scarcity of drilling data in Idaho resulted in blanket lease applications over this widespread and geologically varied area. There are no records of production from any of the leases, and it is assumed there was no finding of oil or gas that would have led to production. There is little potential in the planning area for oil or gas. No leases have been sold since 1995, nor has there been any interest in lease sales. Exploration in the 1970s revealed the Western Snake River Plain contains structures that could contain oil and gas reservoirs. Four relatively shallow exploratory wells were drilled in the vicinity of Glenns Ferry between 1950 and 1973. There are reports exploratory drilling in southwest Idaho found small amounts of natural gas, but they were too small to be worth further exploration or development at the time (McLeod, 1992). The absence of oil and gas is attributed to two possibilities: a lack of organic material from which oil and gas could have been generated despite the structure present that could lead to oil and gas reservoirs, and volcanism passing through the area drove off, or "cooked," the oil and gas present (McLeod, 1992).

Geothermal Resources
The Snake River Plain crossing the northern half of the Jarbidge FO planning area is generally favorable for low-temperature (< 194^{o}F) geothermal waters. Immediately west of the planning area, the Bruneau area has numerous domestic "thermal" (68 to 104^{o}F) wells. Indian Hot Spring, located along the Bruneau River (160^{o}F), and Murphy Hot Springs (125^{o}F) are notable hot springs in the planning area. While some low-temperature direct utilization is possible, there are no areas with temperatures attractive for energy production with today's technology and the aquifer is experiencing declines due to increased use (USGS, 2007), making geothermal leasing potential low.

Coal
No coal deposits are known to exist in the planning area. There are no Federal coal leases within the Jarbidge FO.

Oil Shale
Oil shale has not been located within the Jarbidge FO.

Sodium and Nitrate
There are no Federal sodium or nitrate leases in the planning area, and none are expected. No commercially valuable deposits have been identified.

Other Leasable Minerals
There are no other known leasable minerals in quantities sufficient to be economically extracted.

Locatable
Operations at the Bruneau Jasper mines are expected to continue. Each of these operations is a family-run, part-time endeavor (Figure 31). Current activity is comprised of blasting small areas, bulldozing waste rock, and hand collecting the jasper.

Figure 31. Bruneau Jasper Mine

No mining activities are allowed in the segments of the Bruneau and Jarbidge Rivers suitable for inclusion in the WSR system. Mining records held by the BLM Idaho State Office indicate placer mining in the river drainages occurred in the past. If the river corridors are reopened to mineral entry, mining activity could resume.

Historic records of mining activity in the planning area indicate there is not a great amount of locatable minerals. If precious metal prices increase or technology improves, there could be renewed interest in exploration activities, particularly for gold. Little information exists on other locatable mining activity, and little or no activity is anticipated.

Key Features

Oil and Gas

The area of highest potential is adjacent to the Snake River Plain where Lake Idaho and Lake Bruneau sediments are found. The edge of the Snake River Plain, along the northern edge of the planning area, has these characteristics needed for source rock, but no direct evidence of petroleum potential.

Geothermal Resources

The Snake River Plain crossing the northern part of the planning area is associated with some potential for low-temperature geothermal resources. Leasing potential is considered minor due the lack of significant geothermal anomalies.

Current Management

Lands not specifically withdrawn are open to mineral entry. The 1987 Jarbidge RMP identified acres available and recommended for withdrawal for minerals exploration and development, non-energy mineral development, mineral use sites, and leasable minerals. Surface occupancy is not permitted in MUA 16 during winter periods.

Management Opportunities

Directional drilling allows for exploration in otherwise inaccessible areas. Drilling technologies could be analyzed to consider increasing the buffer zone around disturbed areas.

As withdrawals are currently in place to protect portions of the Bruneau and Jarbidge River canyons. Potential withdrawals could be considered to protect more area. Areas already disturbed and near populated areas could be considered for future material use sites to meet BLM, county, and public needs.

2.C.3. Recreation

Profile

BLM provides opportunities for outdoor recreation and nature-based tourism under the concept of multiple-use management. Recreational activities on public lands are multi-faceted and include consumptive and non-consumptive activities. Federal lands within the planning area provide a broad spectrum of outdoor opportunities affording visitors the freedom of recreational choice with minimal regulatory constraints.

Current Level and Locations of Use

BLM accounts for different types of annual recreation use through the Recreation Management Information System (RMIS). RMIS measures recreation participation in 65 types of recreation activities, including visitation. RMIS data sources for most of these activities depend entirely upon observations and professional judgment. In Fiscal Year 2006, the Jarbidge Field Office had approximately 39,000 visitors for a total of approximately 24,000 visitor days[19].

Recreation Management Areas

Recreation Management Areas are BLM's primary means of managing recreational use of the public lands. Public lands are designated as a Special Recreation Management Area (SRMA) or Extensive Recreation Management Area (ERMA). SRMAs require a recreation investment where more intensive recreation management is needed and where recreation is a principal management objective. These areas often have high levels of recreation activity, contain valuable natural resources, or require recreational settings that need special management. ERMAs constitute all public lands outside SRMAs and are areas where recreation is non-specialized, dispersed, and does not require intensive management. Recreation may not be the primary management objective in these areas, and recreational activities are subject to few restrictions. Five SRMAs are identified in the 1987 RMP (Table 58); however, specific boundaries were not delineated, and activity plans were never created.

Table 58. SRMAs Identified in the 1987 Jarbidge RMP

SRMA	Acres	Rationale	Use Trend
Owsley Bridge	2,680	recreational and off-road vehicle values	High
Jarbidge Forks	4,320	wildlife, fisheries, and recreational values	Moderate (slight increase annually)
Bruneau-Jarbidge River	57,000	natural and cultural resources; whitewater recreation	Low to Moderate (depends on water levels)
Salmon Falls Creek	5,600	natural and scenic values	Low
Oregon NHT	16,384	preservation and interpretation	Low (impacts are occurring to remaining ruts and trail features)

Special Recreation Permitting

Five types of uses requiring special recreation permits (SRPs) are authorized by the

[19] One visitor day is equivalent to 12 hours spent in the planning area.

Federal Lands Recreation Enhancement Act of 2004: commercial, competitive, vending, individual or group use in special areas, and organized group activity and event use. SRPs are issued to manage visitor use, protect natural and cultural resources, and accommodate commercial recreational uses and may be issued for ten years or less with annual renewal. Commercial SRPs are issued to outfitters, guides, vendors, recreation clubs, and commercial competitive event organizers providing recreational opportunities or service without employing permanent facilities. SRPs for competitive and organized group events are also included in this category. The Jarbidge planning area has four SRPs authorized for commercial river use. BLM issues SRPs for noncommercial use in certain special areas, including wilderness, rivers, and backcountry hiking or camping areas. Two noncommercial permits have been issued in the past ten years for organized group camping/OHV activities. The maximum number of commercial SRPs in place at one time during last twenty years was six. In 2006, four commercial SRPs were in place for the Jarbidge FO.

Whitewater Boating

Whitewater recreation activities on the Jarbidge and Bruneau River systems continue to be popular locally, regionally, and nationally. These rivers have a growing national reputation for those attracted to remote, wild, and spectacular canyons and challenging whitewater.

The float season lasts approximately one month, with the peak use occurring during the latter part of May. Water runoff from the Jarbidge Mountains snowpack usually dictates the optimum flows for this activity. In 1983, the Jarbidge FO implemented a mandatory registration system for private boaters on the Jarbidge and Bruneau Rivers, which provides some use data. While the Jarbidge FO administers outfitting on the Jarbidge River, maintenance of facilities and accountability for visitor use are shared with the Bruneau FO. The recorded use number for 2005 was 170 individuals, with kayaks as the primary mode of transportation. In 2006, the recorded use number was 320 individuals; the increase in boater registrations was due to an above-average water year.

Developed Recreation

Developed recreation sites incorporate visitor use infrastructure such as roads, parking areas, and facilities to protect the resource and support recreational users in their pursuit of activities, experiences, and benefits. Visitor use infrastructure is a management tool that can minimize resource impacts, concentrate use, and reduce visitor conflicts.

There are six developed sites within the planning area, none of which are fee sites. None of the sites has potable water or trash service in the form of trashcans or dumpsters. The following list outlines these sites and their amenities:

- Bruneau Canyon Overlook (Figure 32) – Parking area, interpretive kiosks, and protective fence structures
- Bruneau River Launch Site, East – Parking and information kiosk

- Bruneau River Take-out – Information kiosk
- Cedar Creek Reservoir (Roseworth) – Parking area, vault restrooms, and docks
- East Fork Jarbidge River Recreation Sites (4 sites) – Vault restrooms, picnic tables, and fire rings with grills
- Jarbidge River Recreation Site – Parking area and launch facilities for whitewater boating

Figure 32. Bruneau River Overlook

Dispersed Recreation

Hunting is the major dispersed recreation use across the entire planning area. In 2005, hunters spent more than 5,600 days in pursuit of mule deer, pronghorn, and elk in the planning area (IDFG, 2006). The number of hunters recreating in the planning area has remained relatively stable over the past five years (IDFG 2006).

Additional designated trail systems have not been necessary due to large amounts of historic and user-created roads and trails in the planning area. Only two recognized trails exist within the planning area. The Idaho Centennial Trail is used for both hiking and motorized vehicles; use of the segment within the planning area is generally low because much of the trail is in remote terrain with difficult access. The Roberson Trail is located in the Bruneau Canyon, and the general landscape dictates a non-motorized use (Figure 33). This trail is used in the spring and early summer by whitewater boaters accessing the Five Mile Rapids, a series of Class IV rapids on the Bruneau River.

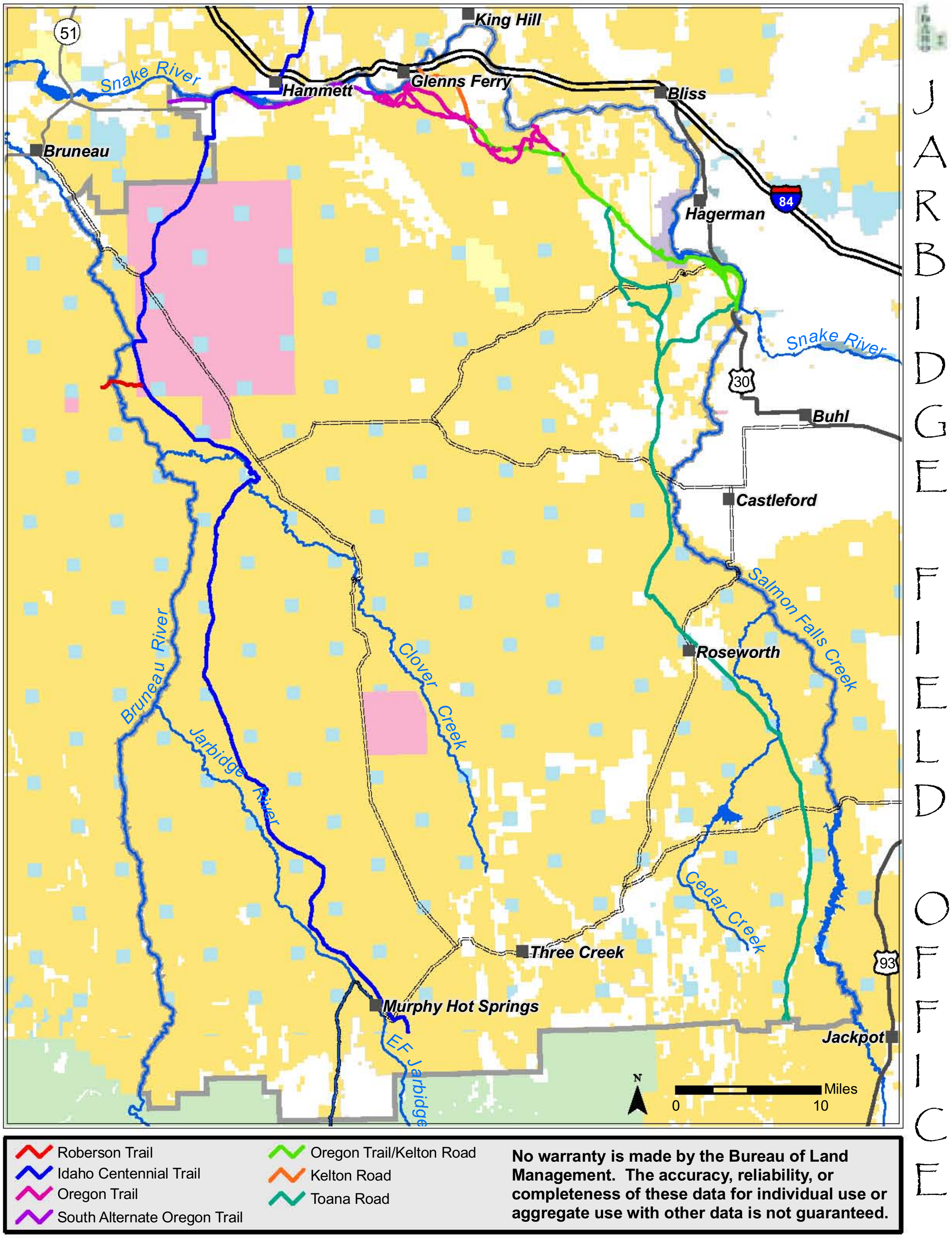
OHV Use

OHV use is one of the fastest growing recreation opportunities in the planning area. Because of its relationship to transportation and access issues, further discussion of OHV use can be found in the Transportation and Access section of this document.

Forecasted Use

Changes have occurred within the planning area in regards to recreational use since the completion of the 1987 Jarbidge RMP. Increased visitor use in certain areas affects soil, visual resources, and vegetation. Additionally, the potential for conflicts between recreationists, livestock permittees, private landowners, and wild horses are increasing. The Jarbidge FO regularly receives an increasing number of complaints regarding OHV. These complaints concern resource and wildlife impacts, conflicts with other OHV users and irresponsible OHV use, motorized use in non-motorized areas, conflicts with grazing management activities, failure to close gates, vandalism to fences, and litter and noise impacts to private landowners adjacent to BLM lands.

Figure 33. Trails and the Oregon NHT



Dispersed camping use is increasing at certain sites within the planning area. This increase in camping and associated impacts is especially obvious on the west side of Salmon Falls Creek Reservoir and selected fishing areas along the Snake River. Impacts include soil compaction and vegetation loss, rock fire rings, user-created routes, and littering. As OHV use continues to increase, potential conflicts with users will increase, and impacts to wildlife, archaeological resources, wild horses, and soil and vegetation resources will increase. The increase in OHV use requires updated management tools and active OHV management.

Recreational use overall is likely to increase, especially motorized recreation. Some recreation users are advocating trail development in the planning area, particularly a trail system in the Glenns Ferry area. There is an opportunity for interpretive recreation at some cultural sites such as the Oregon NHT and historical sites in the Murphy Hot Springs/Jarbidge area to educate visitors on cultural resource values.

Key Features

Areas with moderate to high recreational use include:

- Salmon Falls Creek Reservoir (west side)
- Jarbidge Foothills and Diamond A Desert
- Owsley Bridge (Yahoo) OHV area
- Snake River Canyon (Hagerman to King Hill)
- Rosevear Gulch/Paradise Valley OHV area

Current Management

The 1987 Jarbidge RMP called for Recreation Activity Management Plans (RAMPs) to be developed for various locations within the planning area. RAMPs were written for recreation sites on the Jarbidge River and East Fork of the Jarbidge River.

The Jarbidge River North Forks was designated an SRMA following the 1987 Jarbidge RMP. Three recreation sites, Big Cottonwood, Juniper Grove, and Forks, were developed along the East Fork of the Jarbidge River to reduce public health concerns and resource damage. A whitewater put-in was installed just below the east Fork Jarbidge confluence to reduce resource damage caused by whitewater recreationists.

Management Opportunities

Specific management initiatives such as travel plans, recreation zoning, Travel Management Areas, developed sites, and improved interpretation and education could be considered to improve opportunities and reduce conflict. Opportunities exist to partner with interest groups; communities; and Federal, State, and local agencies to enhance or contribute to achieving desired recreation outcomes.

Existing SRMAs were designated primarily because of traditional and estimated demands at the time of 1987 RMP. The current planning process should consider a framework that will identify existing recreation niche opportunities and determine the viability of listed SRMAs and new SRMAs. SRMAs would assist in protecting resources from the impacts of recreation use and in improving recreational opportunities, experiences, and benefits for the recreationist.

Recreation along travel corridors and developed sites remains popular. As potential visitation to these sites increases, management of the areas may need to focus more on providing defined recreation experiences.

Different recreation experiences and opportunities exist for the Salmon Falls Creek Reservoir area and the Jarbidge River. Recreation is becoming the principal management objective for the Salmon Falls Creek area. Recreation niche opportunities should be evaluated and identified. Interdisciplinary management objectives and guidelines should be developed and SRMA viability for existing and potential recreation activities should be determined. Similar actions should take place for the Jarbidge River focusing on its dispersed recreation opportunities.

Benefits-based Management (BBM) is an innovative framework for guiding recreation and visitor services planning and management as it is an outcome-based, collaborative, and business-oriented approach to managing recreation. BBM engages recreation service providers as partners in managing quality recreation settings to produce desired recreation experiences, and personal, social, economic, and environmental benefits. Recreational opportunities are provided to benefit communities, economies, and the environment. The revised Jarbidge RMP could incorporate elements of BBM.

2.C.4. Renewable Energy

Profile

Current Level and Locations of Use

There are no renewable energy developments on public lands within the planning area for either geothermal, wind, hydroelectric, or solar power. However, within the last five or six years, the Jarbidge FO has had several inquiries for wind energy-related interests on public land. The only authorized use granted to date is the 2004 Renewable Energy Systems (RES) ROW for wind velocity test towers on China Mountain. The authorization allowed RES to construct four anemometer sites within the 13,000-acre ROW area. In May 2007, RES submitted an application to construct a wind farm in portions of the Jarbidge and Elko FOs. The proposed wind development would produce 425 megawatts on approximately 13,000 acres[20]. The Jarbidge FO received an application for an upgrade on a road that will support another wind farm on private land in the Bell Rapids area. Other applications are being submitted for related uses on private land and interest in wind farms on other public land within the Jarbidge FO and elsewhere in the TFD.

Forecasted Use

The Idaho Public Utilities Commission is in the process of determining who must pay for costs related to upgrading the power transmission system to handle new power generating projects (Sterling, 2006). Proposed projects in the Hagerman/Bell Rapids area, if approved, would require a power transmission system upgrade for the Boise metropolitan area. Idaho Power has petitioned for the companies proposing to build wind power generating facilities to pay for the upgrade.

<u>Geothermal Energy</u>

Available data suggests that there is insufficient heat energy in the geothermal resources of the FO to generate electricity. Advances in technology could change that in the foreseeable future. Historically, there has been one Known Geothermal Resource Area (KGRA) in the planning area. The Bruneau KGRA was established in 1975. While geothermal interest decreased in the subsequent 25 years, a subtle re-emergence of interest in alternative energy sources is now occurring in the western US. Generating electricity is not the only use of geothermal energy. Non-energy producing activities currently being pursued in Idaho include fish farming and recreational resorts or spas. If this trend continues, it is anticipated that the Jarbidge FO could receive one or two geothermal exploration proposal and one geothermal lease applications during the life of the revised RMP.

The northern portion of the planning area is the most conducive to geothermal energy development. The area is within the southern portion of the Western Snake River Plain physiographic province. The Western Snake River Plain is a fault-bounded valley, or graben, that is dropped down relative to the northern and southern edges. The geology is made of rocks differing in age and composition. The youngest are gravels currently being deposited in streams and rivers throughout the planning area. In the Glenns Ferry

[20] The acreage in the plan of the development is subject to change.

Formation, sedimentary rock units have been dated back ten million years. These sedimentary units were deposited in both lake and river settings mixed with volcanic ash layers of varying age. Igneous and metamorphic rocks thought to be at least 70 million years old lie beneath the sedimentary rocks. The greatest potential for geothermal resources is located where faulting has allowed waters to penetrate as far as the basement rocks.

Geochemical thermometer methods indicate that aquifers do not exceed 300^{o} F (Young et al., 1974). Hot springs in the area are not uncommon in the planning area. Several have been developed using the geothermal energy directly, in the form of recreation and agriculture. To date, no thermal resources have been sufficient for the production of electrical energy.

The level of potential geothermal exploration and development will be determined by the temperature, reservoir characteristics, and extent of the geothermal resource as defined by exploration. Other financial, technological, and practical considerations will also impose limits.

Wind Energy

Wind energy has become a higher visibility component of the search to find clean, renewable energy sources. In 2005, BLM prepared a national Programmatic Environmental Impact Statement (PEIS) for wind energy, which amended the 1987 RMP.

The need for energy in the western United States will probably increase due to increase in the population. According to Census Bureau records, Idaho's population increased 29% between 1990 and 2000, and 10% from 2000 to 2005. Interest in wind energy is increasing, as shown by the recent Cotterel Mountain project in the neighboring Burley FO. That project is expected to contain as many as 130 towers producing 190 to 240 Megawatts. There are numerous other small installations in southwest Idaho, all on private property.

Unlike geothermal resources, which are managed as leasable minerals, wind energy developments are managed through land use authorizations. Although the Jarbidge FO has only two wind farm related projects being processed at this time, it is anticipated the FO will receive several applications for wind energy exploration and development during the life of the revised RMP.

The China Mountain area in the southeast portion of the planning area has high wind production. The National Renewable Energy Laboratory, which is part of the Department of Energy (DOE), has produced maps showing wind resources at 50 meters in altitude (Figure 34, Figure 35, Figure 36, Figure 37). This map shows that parts of the China Mountain area to be excellent to outstanding in wind production potential.

Figure 34. National Renewable Energy Laboratory Wind Energy Resource Map of Idaho

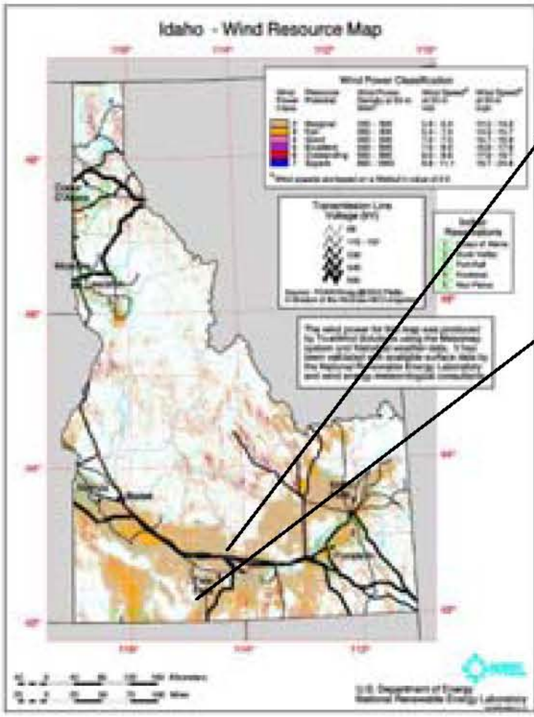
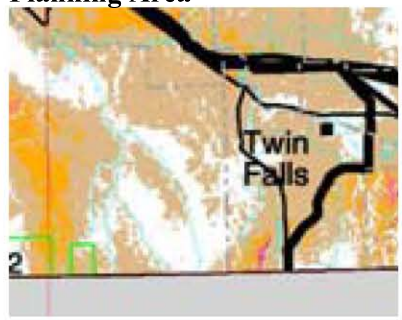


Figure 35. Close Up of Planning Area



Several areas in the planning area are rated fair for wind energy potential. The fair category areas are mostly adjacent to the Snake River south of Hagerman, where the existing Fossil Gulch Wind Park is located. This seven turbine wind farm, operation since January 2005, sells electricity to Idaho. Most of the remainder of the planning area is rated marginal.

Figure 36. National Renewable Energy Laboratory Wind Energy Map of Nevada

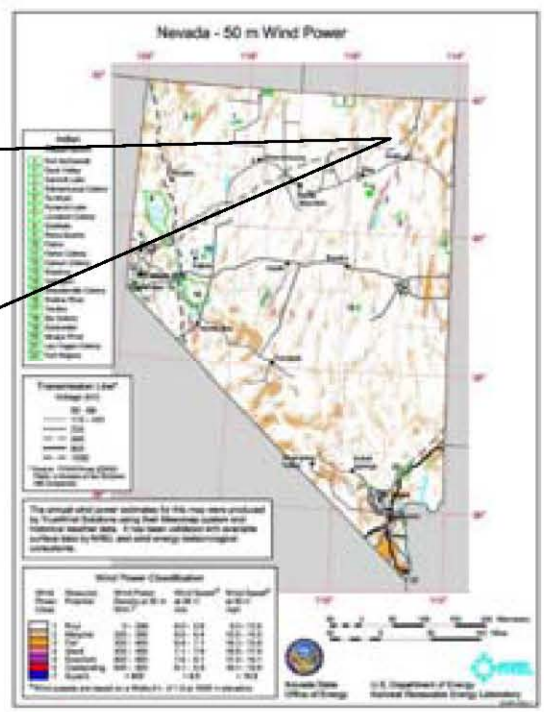
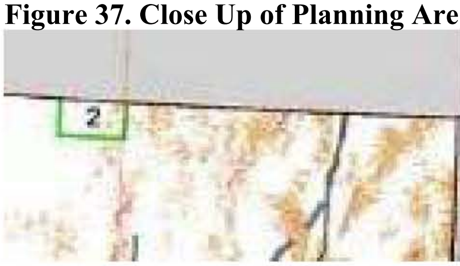


Figure 37. Close Up of Planning Area



Hydroelectric Power

Studies done by the Idaho National Laboratory (INL) suggest Idaho has as much as 1,600 Megawatts (MW) of electrical energy potential in hydroelectric power that is not being utilized (Conner et al., 1998). The Jarbidge FO has no hydroelectric power plants on public land, although the FO borders several miles of reservoirs related to Idaho Power hydroelectric projects on the Snake River.

Potential sites for high power output hydroelectric developments are limited to those with the most water available, which are associated with the Bruneau, Jarbidge, and Snake Rivers and Salmon Falls Creek. If the current Wild and Scenic River eligibility and suitability recommendations remain in place for the Jarbidge and Bruneau Rivers and Salmon Falls Creek, or if those river segments are designated, it is anticipated that the only foreseeable development for high power output would be in the Snake River. Other sources of water that could be utilized are irrigation canals and drainages. Diverting these waters through a penstock and turbine where the water would normally be discharged into the river could harness otherwise wasted energy potential. The amount of potential energy output would depend on the water quantity and head distance.

Microhydro development could occur throughout the planning area. The low power output allows for a greater flexibility in placement of the power generating equipment. The most likely projects would be for small independent operations in remote locations.

Solar Energy

Unlike hydroelectric power, solar energy does not require water storage or a transport mechanism. Unlike wind-driven turbines, there are no moving blades that can harm airborne animals. Solar energy projects require large areas of land, possibly affecting wildlife habitat.

The only requirement for a solar energy production site is relatively flat land to construct the energy plant. The site would be located away from mountains or hills that would limit the exposure to the sun.

There is no current interest in commercial quantity solar energy projects. There have been small photovoltaic (PV) units powering remote electrical fences and other facilities throughout the planning area. With advances in technology, it is anticipated that interest in commercial applications of solar energy could occur in the future. The most likely scenario for solar energy development will be for isolated home or ranch power needs. Any commercial installation would need to be relatively close to the existing power grid to minimize transmission line costs. This would limit the possible locations to the corridors near Salmon Falls Creek up to the Snake River, and along the Snake River itself.

Key Features

Geothermal

The most likely area of use would be in the northern portion of the planning area. There are geothermal occurrences in the middle and southern areas, but exploiting the potential energy would be prohibitively expensive because of a lack of infrastructure and transmission.

Wind

The China Mountain area has the highest wind energy potential. The high energy potential combined with relatively close electrical transmission lines could lead to development. Wind energy development is also likely in the area adjacent to the Snake River, as wind energy potential along the river generally falls into the moderate category.

Hydroelectric Power

The Snake River would be the most likely area for larger sized hydroelectric power projects due to the high power capacity and the proximity to existing transmission lines. Projects on any of the drainages that feed into the Snake River would be less likely the farther they are from the existing infrastructure.

Solar

The northern portion of the planning area would be the most likely area for a solar project due to the relatively flat lands and proximity to the existing electrical transmission lines would be the primary reason.

Current Management

The 1987 Jarbidge RMP did not address any management actions for renewable energy. Renewable energy resources are managed according to BLM policy.

Management Opportunities

With increasing interest in renewable energy and rising energy prices, there is an opportunity for proactive management of these resources. Areas could be allocated as open, open with moderate or major constraints, or closed for geothermal exploration and development. ROW development, avoidance, and exclusion areas could be identified for wind or solar energy projects. Withdrawals could be considered for areas with hydroelectric power potential. Approval of energy leases and/or facilities could be dependent on securing a buyer.

2.C.5. Transportation and Access

Profile

Current Level and Locations of Use

Transportation involves access to public lands and infrastructure management. Within the planning area, local dependence on public land to meet transportation needs occurs mostly in terms of access to public and private lands, in contrast to town-to-town or city-to-city destination type travel. Development of the existing transportation system in the planning area has been associated with providing access for resource uses such as livestock grazing and recreation. Increased demand for access to public lands, combined with research on impacts of roads and trails to resources and resource uses, requires a well-designed and managed transportation system.

The transportation system includes county and BLM system roads, some of which receive regular maintenance. Various government entities and individuals acquire ROWs from BLM for portions of the transportation system roads that cross BLM-administered land. Issuance of ROWs is based on access needs and resource considerations. County roads are usually constructed and maintained to higher standards than BLM roads and provide the local road systems for access to and through BLM lands, supporting a higher volume of traffic than other roads in the FO. These roads are maintained by the six local highway districts and, in some areas, by the USAF if higher standards are required for operations connected with training ranges (see Military section).

In addition to these collector and local routes, numerous smaller routes are laced throughout the planning area connecting more remote locations to the larger roads. These resource roads are used for administrative access, recreational purposes, access to inholdings, and access to range infrastructure. Some of these routes are maintained as needed and are of native surface: dirt, gravel, or sand. There are an estimated 4,400 miles of mapped routes. Some Geographic Information System (GIS) files suggest this number may be considerably understated, and the actual figure could be as much as twice this estimate based on field observations and recent aerial photography.

Public concern over management of these non-collector and non-local routes has increased in the past decade. One issue concerns potential ROWs and management responsibility. Revised Statute 2477 (RS-2477), contained in the Mining Law of 1866, was intended to facilitate settlement of the West by granting the ability for State and local governments to assert a "right-of-way for the construction of highways over public lands." Congress repealed RS-2477 when FLPMA was enacted in 1976. Since then, determining which routes were developed under the RS-2477 authority and are the responsibility of the counties has been an ongoing issue between the Federal government and Western States and counties. In 1997, Congress directed the Department of the Interior not to issue any new regulations on RS-2477. In *Southern Utah Wilderness Alliance v. Bureau of Land Management* (2005), the Tenth Circuit Court of Appeals determined only a court of law could make a binding determination on the validity of an RS-2477 right of way.

One backcountry airstrip in the planning area, near Murphy Hot Springs, was leased to the Idaho

Transportation Department's Division of Aeronautics in 1993 and is managed by that agency.

OHV

For many years, the term "off-highway vehicle" (OHV) has been used by the public, industry, and the BLM interchangeably with the term "off-road vehicle" (ORV). The term "off-road vehicle" has a legally established definition in the Presidential Executive Order 11644 (1972) and BLM regulations. BLM has chosen to use OHV, partly because it is a more popular term, but also because the regulations address vehicles that use roads and trails on BLM-administered land, and are therefore not just "off-road."

The national BLM objectives for OHV management are to protect the resources of public lands, promote the safety of all users of those lands, and minimize conflicts among the various uses of those lands (BLM, 2001). OHVs are defined as "any motorized vehicle capable of or designated for, travel on or immediately over land, water, or other natural terrain, excluding (1) any nonamphibious registered motorboat; (2) any military, fire, emergency or law enforcement vehicle when being used for emergency purposes; (3) any vehicle whose use is expressly authorized by the authorized officer, or otherwise officially approved; (4) vehicle in official use; and (5) any combat or combat support vehicle when used in times of national defense emergencies" (43 CFR 8340.0-5).

OHV Designations

Areas and routes are designated during the planning process in accordance with BLM regulations and include the following three management categories:

- ***Open*** – An area where all types of vehicle use are permitted at all times, anywhere within the designated "open" area. This refers to cross-country travel both on and off roads.
- ***Limited*** **–** Areas where vehicle use is restricted at certain times, in certain areas, and/or to certain vehicular use in order to meet specific resource management objectives. These limitations may include: limiting the number or types of vehicles; limiting the time or season of use; permitted, administrative, or licensed use only; use on existing roads and trails; and limiting use to designated roads and trails.
- ***Closed*** – Motorized vehicles are permanently or temporarily prohibited. The use of motorized vehicles in closed areas may be allowed for certain reasons; such use shall be made only with the approval of the BLM authorized officer.

OHVs are used within the planning area for recreational and nonrecreational purposes. Much of the nonrecreational OHV use, or administrative use, involves BLM administrative activities and grazing administration by ranchers.

OHV use has become a popular method of recreation in itself, as well a means of transportation while pursuing other forms of recreation such as hunting, fishing, or camping. Antler gathering is an example of an increasing OHV use. Antlers shed by big game in their winter and spring ranges across most of the southern portion of the planning area are valuable. Many people participating in this activity use OHVs to cover more ground than can be done on foot or horseback. The Jarbidge FO has received reports of people who "grid" areas to increase their success in finding antlers.

In 2003, IDFG implemented restrictions for motorized vehicles used while hunting in the Jarbidge Foothills area (Unit 47). This rule applies to designated areas within the State and states, "hunters may only use motorized vehicles on established roadways which are open to motorized traffic and capable of being traveled by full-sized automobiles. Any other use by hunters is prohibited. All off-road use by hunters is prohibited" (IDFG, 2007). This rule does not apply to valid Handicapped Persons Motor Vehicle Hunting Permits, game retrieval, packing camping equipment, or use on private property.

Growth of OHV use has become an issue because of the number of users who participate in this recreation opportunity, as well as concerns related to the potential resource degradation resulting from high levels of unmanaged use in and near sensitive areas. During public scoping, more than 31% of comments received on resource uses related to transportation and access or OHV use.

Forecasted Use

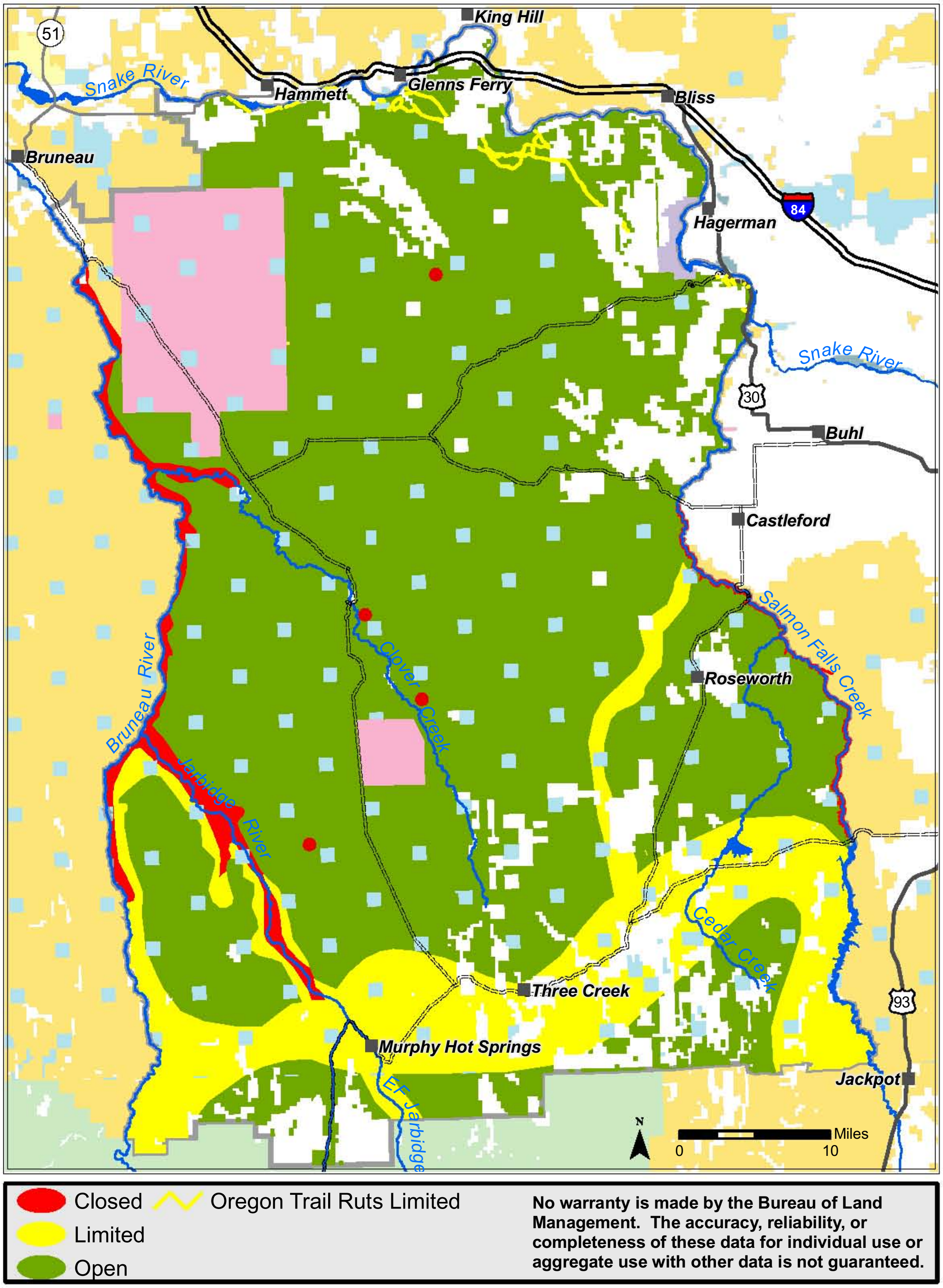
The number of OHV registrations for all-terrain vehicles (ATVs) and off-road motorcycles has grown significantly in Idaho over the past several years including registrations in Elmore, Owyhee, and Twin Falls Counties (Table 59). This data shows why OHV use is perceived as one of the fastest growing recreational activities. Visitation data on OHV use can be particularly difficult to collect because of the dispersed nature of the activities. Additionally, registration numbers may not accurately portray actual OHV use on public lands. The actual number of OHV users could be higher based on use of registered OHVs from outside the planning area. ATVs, off-road motorcycles, snowmobiles, and other OHVs are not registered or titled in Nevada.

Table 59. OHV Registrations by County, 2001-2005[A]

County	2001	2002	2003	2004	2005	2001-2005 % Change
Elmore	1,024	1,249	1,385	1,552	1,689	65%
Owyhee	393	531	628	677	735	87%
Twin Falls	2,912	3,364	3,888	4,118	4,746	63%
State of Idaho	**59,395**	**70,760**	**81,396**	**91,037**	**104,127**	**75%**
[A] Includes ATVs and Off-Road Motorcycles						

When the 1987 RMP was completed, the level of OHV use in the planning area did not warrant extensive management restrictions. As a result, much of the area is open to cross-county use. Although some use occurs along existing routes, ways, or other areas that are already disturbed, increased use in some areas has resulted in new conflicts. Conflicts between OHV use and livestock grazing, wildlife, Oregon NHT routes, private landowners, and other sensitive values were identified during public scoping.

Figure 38. Existing 1987 ORV Area Designations



JARBIDGE FIELD OFFICE

Key Features

Although most of the planning area is open to cross-county OHV use (Figure 38), some specific locations receive intensive OHV use based on landscape characteristics and accessibility. The Rosevear Gulch/Paradise Valley area is one example where intensive use has resulted in changes in management over the past ten years to lessen impacts from OHV use. A temporary emergency closure is in effect to address safety concerns from OHVs crossing a paved county road in that area.

Areas near Murphy Hot Springs, Diamond A Desert, and Jarbidge Foothills have become increasingly popular destination sites over the last five years. BLM staff have observed noticeable increases in use from OHV recreationists and reported resource impacts related to WSAs and ACECs.

Current Management

The 1987 Jarbidge RMP identified acres open, limited, and closed to motorized vehicles. Motorized vehicles were limited to designated roads and trails in the following areas: portions of MUAs 4 and 6; the Oregon NHT; bighorn sheep habitat; Dry Lake Beds/Bruneau River; Post Office Cultural Area; and Devil Creek, Juniper Ranch, and Clover Creek Cultural Areas. The 1987 Jarbidge RMP reserved the ability to place seasonal limitations on over-the-snow vehicles on crucial mule deer and pronghorn winter range if IDFG determined wildlife harassment is occurring. MUA 9 was designated an SRMA for its recreational and OHV values.

Management Opportunities

The majority of the transportation management decisions from the 1987 RMP are out of date. Existing OHV designations should be reviewed and modified where needed to meet changing levels of OHV use, existing resource condition, and changing resource objectives. Designations should be coordinated with adjacent land management agencies (State of Idaho, Humboldt-Toiyabe National Forest, and BLM Bruneau and Elko FOs).

Increases in OHV numbers do not allow for sustained resource protection, partially due to their facilitation of the spread of noxious weeds. “Play Areas” could be designated in specific locations. Wash stations, education, and route designation are other possible tactics for combating the spread of weeds.

The proliferation of OHV routes that cause substantial impacts to other resources could need additional management and attention. The temporary emergency closure for public lands north of the Pasadena Valley Road will need to be reviewed to determine if it should become a travel designation.

In order to better enforce limitations on motorized vehicles, focus should be placed on education and interpretation (BLM, 2001). Maps could be made available for popular riding areas with signs for route designations displayed. Partnerships with user groups should be a tool for educating OHV users. These tools could also be used to inform users of closed areas.

MUA 9 is a traditional use area for OHV riders due, in part, to its easy access from state and county roads. Mitigation measures could prevent erosion and sedimentation to Snake River. Routes could be maintained for public safety and an information plan on user ethics and the trail/area boundary should be developed. This issue provides another opportunity for utilizing partnerships.

The existing plan does not differentiate between other aspects of transportation, such as recreational, traditional, casual, agricultural, administrative, and commercial use of the transportation system. The planning process should establish principles or guidelines to be used in making adjustments to existing motorized route designations and/or a possible comprehensive travel system planning. Addressing these aspects of use in relation to the existing transportation system and resource values could provide for modifications to the transportation system to meet resource and use demands.

2.C.6. Land Tenure

Profile

Current Level and Locations of Use

Land tenure, or land ownership adjustment, refers to actions that result in the disposal of BLM lands or the acquisition of nonfederal lands or interests by BLM. BLM policy is to seek to retain and acquire lands in special management areas or with high resource value suitable for management by BLM through purchase, exchange, or donation. Land ownership adjustment proposals in the planning area are analyzed in project-specific reviews. Since the 1987 RMP, the Jarbidge FO disposed of 81.6 acres through exchange and 40 acres through sale. The Jarbidge FO acquired 952 acres through exchange and 295 acres through Land & Water Conservation Fund (LWCF) acquisitions. These acquisitions allowed BLM to acquire a large natural spring at the Dean Site, Morgan Property, and Three Island Crossing, important cultural and paleontological sites.

The Desert Land Act of 1877 was passed to encourage and promote the economic development of the arid and semi-arid public lands of the western US. Through the Act, individuals may apply for a DLE to reclaim, irrigate, and cultivate arid and semi-arid lands. Over 200 DLEs have been relinquished or rejected in the planning area since 1987, either by default or inability to support a profitable plan of development due to water rights reviews by the State of Idaho through the Snake River Basin Adjudication. The resolution of those entries placed the land back into retention status. There are currently three active DLE applications for 960 acres in the FO.

Forecasted Use

Areas adjacent to private lands, such as Bell Rapids, Black Mesa, Farm Development, and Three Creek, will still be desirable for land tenure adjustments. Many agricultural lands near the planning area are being placed in the Federal Conservation Reserve Program, which provides payments to farmers in lieu of crop production. This, along with the lack of available water, may result in fewer applications for DLE.

Key Features

As mandated by FLPMA, public lands are retained in Federal ownership, with the exception of public lands that have potential for disposal. Public lands have potential for disposal when they are isolated and/or difficult to manage. Lands identified for disposal must meet public objectives, such as community expansion and economic development. Other lands can be considered for disposal on a case-by-case basis. Disposal actions are usually in response to public request or application that results in a title transfer, wherein the lands leave the public domain.

Public land sales are managed under the disposal criteria set forth in Section 203 of FLPMA. Public lands determined suitable for sale shall be offered on the initiative of the BLM and sold at not less than fair market value. Public lands classified as withdrawn, reserved, or otherwise designated as not available or subject to sale are unavailable for sale or exchange.

Most requests from private individuals to acquire public land involve public lands surrounded by or adjacent to their private land. This is due to the proximity of farm operations, grazing, and residential properties and the need to either expand operations or make operations more efficient.

Individuals have inquired about lands located in Bell Rapids, Black Mesa, Saylor Creek, Farm Development, Magic Waters, Bruneau Arm, and Indian Cove in addition to requests for lands in the southern portion of the planning area.

The Federal Land Transaction Facilitation Act (FLTFA) of 2000, allows for the monies from the sale or equalization payments from exchanges of public lands to be used by the BLM to purchase additional public lands. This act applies to lands identified in land use plans as suitable for disposal as of July 25, 2000.

Current Management

The 1987 Jarbidge RMP identified 90,366 acres of public land for possible transfer from public ownership through sale, exchange, or DLE. Acres identified for sale, sale or exchange, or exchange are still available for those land tenure actions. A land exchange was completed to make acres available for DLE/CA development; however, under current policy the Jarbidge FO is no longer accepting DLE applications due to the moratorium on new water rights in the area. Acres identified for retention, including those in the Bruneau KGRA have been retained. The 1987 Jarbidge RMP identified acres closed to agricultural entry.

Management Opportunities

Acquisitions of lands with resource values needing protection, and disposal of lands of no special value or public interest or where administration is difficult or not cost effective due to access could be a focus of the Jarbidge FO acquisition and disposal program. Lands can be acquired through exchange, donation, or opportunities provided through means such as the LWCF.

Criteria could be developed in the RMP to identify and prioritize State or privately owned lands within the planning area that have important ecological value. This could be possible in the Bell Rapids area as it is now used for dryland grazing instead of irrigated farming.

A parcel of land not identified by legal description in the 1987 RMP can not be sold or exchanged without a plan amendment. The revised RMP could identify lands for disposal without identifying parcels by legal description through a zoning concept.

Some lands identified in the 1987 Jarbidge RMP still may be considered for sale or exchange; however, each parcel needs to be reviewed and evaluated to determine if the parcel should remain listed for disposal through sale. Some lands identified for sale or exchange in the 1987 RMP may be suitable for retention as some of the adjacent private lands will be used for different purposes than those at the time of the 1987 Jarbidge RMP. The revised RMP could consider opportunities to consolidate State lands through land exchanges.

The revised RMP may consider not accepting new applications under DLE/CA due to the current moratorium on water rights.

Land tenure decisions still valid from previous plans could be referenced in the new plan so that any funds generated from the sale or exchange of these lands would qualify under FLTFA.

2.C.7. Land Use Authorizations

Profile

Current Level and Locations of Use

The Jarbidge FO administers approximately 300 ROWs, land use permits, and. These existing grants are for a variety of different uses and are held by private individuals and groups, as well as by various business and government entities. Roads, power transmission lines, and telephone lines are the most common uses for ROWs and account for well over half of the total number of grants. Examples of additional types of ROW facilities authorized within the planning area include natural gas pipelines, communication sites, ditches, water facilities, and fiber optic lines. Wind energy developments are another type of ROW that is starting to occur within the FO (see Renewable Energy). The Jarbidge FO processes approximately 20 to 30 ROW actions annually, including new authorizations, amendments, assignments, renewals, and relinquishments. Since the 1987 Jarbidge RMP, there has been an increase in the number of utility services, power line upgrades, roads to private residences, communications sites, and upgrades to existing land use authorizations. Unauthorized uses have increased as well.

Twelve communication site ROWs, occupying seven different communication site locations, are authorized within the Jarbidge FO. Potential users are encouraged to locate within existing communication facilities, but the existing facilities can only accommodate a certain number of users. The two largest communication sites within the Jarbidge FO are the Yahoo Creek Communication Site and the Lower Salmon Communication Site, both of which have completed communication site plans. There are no site plans for any of the other communication site facilities because of their single-occupant status.

The 1987 RMP did not formally designated ROW corridors within the planning area. The West-wide Energy Corridor PEIS, authorized by the Energy Policy Act of 2005 (PL 109-58), may designate ROW corridors in the planning area (DOE). In general, attempts are made to group compatible facilities where possible. Special designation areas, such as ACECs and WSAs, restrict such development.

One lease under the Recreation and Public Purposes Act of 1954 (R&PP) within the Jarbidge FO was transferred to patent to the Idaho Department of Parks and Recreation in 1993 for the Three Island State Park southwest of Glenns Ferry. Three Island State Park contains the Oregon Trail crossing of the Snake River by settlers in the early 1840s through the late 1860s. The park is used by travelers and tourists from all over the world.

Section 302 of FLPMA authorizes the use, occupancy, and development of public lands through leases and permits for uses not authorized through other authorities. Applicants can be State or local governments or private individuals or entities. These authorizations of uses of public lands contribute to agricultural development, residential use under certain conditions, commercial use, advertising, and military training. Permits are usually short-term authorizations not to exceed three years. There are ten Section 302 FLPMA temporary land use permits within the Jarbidge FO. There is one airport lease and several access easements within the planning area.

Federal Energy Regulatory Commission (FERC) withdrawals on portions of the Snake River within the planning area have been reviewed and found no longer suitable for hydroelectric power. Six emitter sites are included as part of the Juniper Butte Training Range withdrawal by the USAF in addition to ancillary uses to these withdrawals, such as power lines, telephone lines, and roads. Other withdrawals in the Jarbidge FO include public water reserves, water power reserves, and power site reserves and classifications.

Forecasted Use

Based on staff observations, applications for roads, power lines, telephone lines, and communication site facilities will continue to increase as the population increases in and around the planning area. The need for rights-of-way across public land to privately owned lands may increase with some of the more populated areas in and around the planning area, such as Hagerman, Bell Rapids, King Hill Canal, Glenns Ferry, and Hammett. The need for easements to public land through private land will increase as well.

Key Features

Most land use authorizations involve private land bordering public land to service agricultural farms and residents. Communication site potential will increase in sites that have relatively high points that will allow for adequate line of site for the particular use.

Current Management

The 1987 Jarbidge RMP created utility avoidance areas at paleontologic sites at Glenns Ferry and Pasadena Valley. Utility avoidance and restricted areas were created in Saylor Creek Gunnery Range (now Saylor Creek Air Force Range), Sand Point Paleontological Area, the Oregon NHT, Dove Springs, 96 paleontologic sites, recommended suitable wilderness areas, ACECs, suitable Wild and Scenic River areas, the Dry Lakes/Bruneau River Complex, Post Office Cultural Area, Juniper Ranch Complex, Clover Creek Complex, and Devil Creek Complex.

Programmatic policies and BMPs in the *Final Programmatic Environmental Impact Statement on Wind Energy Development on BLM-Administered Lands in the Western United States* (BLM, 2005b) amended the 1987 RMP. Wind energy development is restricted from wildlife habitat where adverse effects cannot be mitigated.

Management Opportunities

The 1987 RMP analyzed the trends for public land uses and the need for ROWs, permits, and leases for the period it was written; however, no utility corridors were identified. The Westwide Energy Corridor EIS is proposes sites north of the planning area with an alternative route south of the Hagerman Fossil Beds National Monument running northwest through the Jarbidge FO. The Final PEIS will provide a plan amendment decision addressing numerous energy corridor related issues, including the utilization of existing corridors (enhancements and upgrades), identification of new corridors, supply and demand considerations, and compatibility with other corridor and project planning efforts. It is likely the identification of corridors in the PEIS will affect the Jarbidge planning area.

The revised RMP will need to determine where utility avoidance areas should located.

2.D. Special Designation

2.D.1. Areas of Critical Environmental Concern

Profile

Three ACECs are located in the Jarbidge FO (Figure 39).

Sand Point Paleontologic, Geologic, and Cultural Resources ACEC

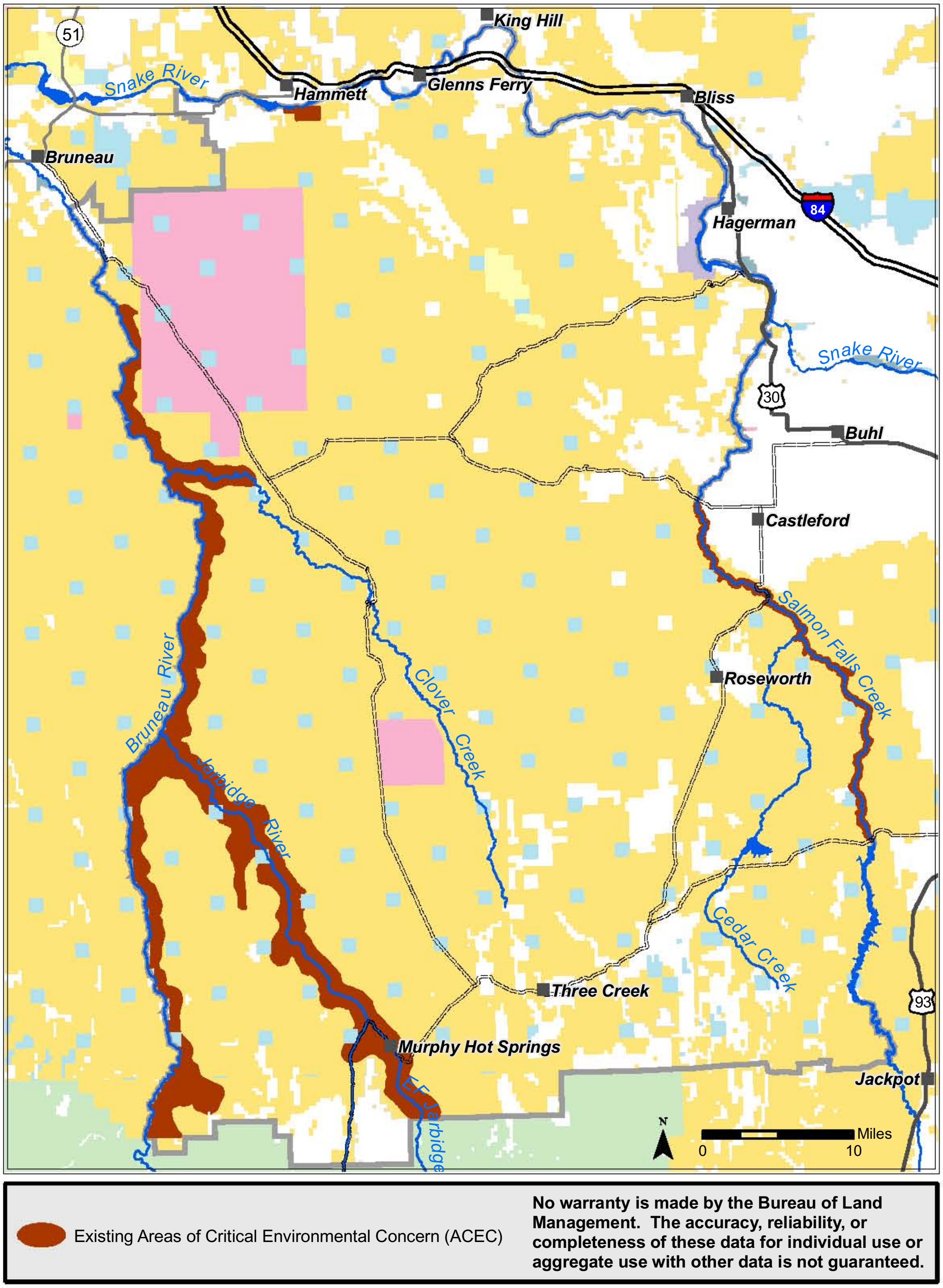
The Sand Point Paleontologic, Geologic, and Cultural Resources ACEC is located along the Snake River and consists of approximately 800 acres of BLM land near the mouth of Sailor Creek. The area contains an important paleontological area for aquatic invertebrates and fish of the Glenns Ferry Formation. The Sand Point ACEC meets the relevance criteria for ACEC due to the presence of important cultural values including prehistoric Native American habitation, the historic Medbury Ferry Crossing, and a 1-mile section of the Oregon NHT. Vehicle activity, previous mining, and amateur collection of artifacts have damaged the trail and cultural sites. The Snake River contains winter and foraging habitat for bald eagles, and year-round habitat for Idaho springsnail and white sturgeon. Bald eagles were delisted in July 2007 and Idaho springsnail are currently being assessed for delisting (72 FR 37346, 71 FR 56938).

Sand Point offers horizontal sediments with over 300 vertical feet of exposure. The site's elevational position is between the older Hagerman site and younger sites at Chalk Flat, Flat Iron Butte, and Grandview. The invertebrate specimens, vertebrate specimens and geologic setting continue to be important sources of information on Cenozoic biostratigraphy, paleoecology, and paleogeography (BLM, 1988) making the site nationally significant for studies on Cenozoic mollusk fossils. At least eight sites have been examined within the ACEC for paleontologic resources. Twenty-nine paleontologic articles have been published citing this area or specific fossils from this area.

Fossil-bearing layers extend east and westward from the Sand Point sites. The fish fossils are the most advanced and represent the last occurrence of a diversity of minnows, suckers, sculpins, catfish, and sunfish in western North America. The vertebrate fossils present at Sand Point are fragile, rare and an irreplaceable resource particularly vulnerable to loss and destruction (BLM, 1988). The Sand Point local fauna is among the largest Blancan (Pliocene - 3 million years before present) freshwater mollusk fauna in the United States in terms of abundance of specimens. The extensive molluscan fauna far exceeds the abundance found at any other Idaho Blancan localities.

The ACEC is vegetated with four general plant communities: black greasewood/annual grassland, non-native annual grassland, and a riparian zone. The entire Sand Point ACEC burned in 1984 in the Cheat II fire. A non-native perennial grassland (crested wheatgrass/four-wing saltbush seeding) was planted following the Cheat II fire. Wilson Grade, located on a steep slope with several small gullies and rills, is the main access into the ACEC. Half of the ACEC has soils on steep slopes categorized as severe for water erosion (SCS, 1991).

Figure 39. Locations of Current ACECs



JARBIDGE FIELD OFFICE

Incompatible uses or threats to resources in the ACEC are existing mining claims, development on the tableland above the rim, motorized use off existing roads, and, to a lesser extent, livestock trailing on steep slopes (BLM, 1987, 1988).

Bruneau-Jarbidge River ACEC for Bighorn Sheep and Cultural Resources

The Bruneau-Jarbidge ACEC includes the East Fork Jarbidge River from the Humboldt-Toiyabe National Forest boundary and extends northwest to the Bruneau-Jarbidge River confluence. It includes portions of Arch Canyon, Clover, Columbet, Dave, Deep, Dorsey, and Poison Creeks. The ACEC contains approximately 85,000 acres of BLM land, extending beyond the canyon rim to adjacent uplands in varying widths. Idaho Department of Lands owns 1,400 acres of land within the Bruneau-Jarbidge River ACEC boundary. Approximately 52,000 acres of the ACEC overlay the Jarbidge River and Bruneau-Sheep Creek. Relevance for the ACEC includes important wildlife, geologic, scenic, natural, and cultural values.

Fish and Wildlife Values

The bull trout population in the Jarbidge River is the southernmost existing population of bull trout in North America (FWS, 2004) and occupy a unique and unusual ecological setting. Their loss would result in a substantial modification of the species' range. These bull trout are the only species of fish within the planning area that are Federally listed under the ESA. The bull trout in the Jarbidge River are unique in that a portion of their habitat is in an area categorized as semi-arid desert. The Rocky Mountain juniper dominated riparian zone interspersed with aspen on BLM portions of the Jarbidge River grades into aspen and limber pine on USFS land, which is unique to the area. The majority of the other occupied bull trout stream habitat in other areas is in other coniferous forest types (e.g., Douglas fir and Englemann spruce) (see Special Status Aquatic Resources).

The Bruneau-Jarbidge River ACEC contains over 100 miles of canyon lands for a population of California bighorn sheep, a BLM Sensitive species. Approximately 20% of the Idaho population of California bighorn sheep, 120 sheep, are found in this ACEC. The Foundation for North American Wild Sheep and IDFG were instrumental in re-introducing California bighorn into the Bruneau and Jarbidge River canyons in the 1980s and early 1990s. The canyon lands provide for secure lambing habitat, and rivers in the canyon bottoms as well as occasional seeps from canyon walls provide water. Bighorn forage in both the canyons and adjacent uplands. The vast majority of bighorn observations are within the canyon and on the upland plateau about 1 mile from the canyon rim. Bighorn sheep typically avoid human disturbance and can be socially displaced from otherwise suitable habitat by concentrations of other ungulates, including elk and cattle (Wilson et al., 1983). Bighorn sheep are known to avoid portions of their habitat that have greater human disturbance. This can increase the risk of inbreeding and disease, as well as degradation of the higher-use portions of their habitat. California bighorn sheep tags for hunts in this area are in high demand and attract applicants from across the United States.

The ACEC contains habitat for a number of other Sensitive animal species including prairie falcon, mountain quail, peregrine falcon, sage-grouse, spotted bat, Townsend big-eared bat, and redband trout.

Habitat within the ACEC is regionally important to wintering big game from parts of Nevada and Idaho including mule deer, pronghorn, and elk. Bighorn sheep, mule deer, and pronghorn are featured big game species in Idaho, and mule deer and elk are featured species in Nevada. About half of the wintering mule deer in the planning area use portions of the ACEC as winter range. Wintering mule deer include both resident and migratory herds. Pronghorn wintering in the Diamond A are also a mix of resident and migratory herds. The majority of elk found wintering in the area are from Nevada.

Botanical Values
The vast majority of the global population of the endemic Bruneau River phlox, an Idaho BLM Sensitive species, is present within the ACEC. The Bruneau River phlox is an endemic plant unique to the area. Nearly all of the known global occurrences for this species are present in the Bruneau and Jarbidge River Canyons in Idaho. Bruneau River phlox is ranked as critically imperiled throughout its range based on its rarity with a total estimated population of approximately 400 plants. The Idaho populations are currently relatively stable (Rosentreter et al., 2007).

The ACEC also contains the only known population of Cusick's primula in Nevada. Cusick's primula "complex" is categorized as a Watch species in Idaho, and may become a Sensitive species in the future. Cusick's primula is not known in any other location within the planning area.

Scenic Values
The canyon complex has exceptional rugged desert scenic and natural qualities. The canyons plunge from 300 to over 900 feet from the adjacent upland plateaus to the rivers below. They include both basalt and rhyolite forms of volcanic material, and rhyolite columns and spires are present through much of the Jarbidge River Canyon. The lower portion of the Bruneau River contains basalt canyons and rims. Arch Canyon contains a unique large natural arch composed of rhyolite that spans Cougar Creek. Scenic values are outstanding and the rivers have been recommended as suitable for Wild and Scenic River designation. Several access locations are available for public viewing into the canyon. Areas such as Arch Canyon, the Jarbidge River, and Bruneau River attract visitors from across the west. The Bruneau and Jarbidge Rivers provide a nationally known white water recreation experience.

Cultural Resource Values
Native Americans occupied the area for the past 12,000 years or more. Previous inventories documented a number of important archaeological sites. Regionally significant cultural resources are present within the ACEC including rock art, rock shelters, and other archaeological sites. The geologic landforms provided habitation as well as habitat for a variety of food sources used by the indigenous people including elk, bighorn sheep, mule deer, pronghorn, other fish and wildlife, and a wide variety of plants used as food, for medicinal purposes, twine, and other uses. The area is important to the

Shoshone-Paiute and Shoshone Bannock Tribes.

Habitat Evaluation
Plant communities within this ACEC consist of non-native annual grassland, non-native perennial grassland, black sagebrush/Sandburg bluegrass, low sagebrush/Idaho fescue, Wyoming big sagebrush/Sandburg bluegrass and/or bluebunch wheatgrass, mountain big sagebrush/Idaho fescue, mountain shrub and salt desert shrub habitats.

Fifty random points were generated in 2006 to assess the habitat quality in the Bruneau-Jarbidge River ACEC. Eight of the points were on cliffs and talus slopes within the Bruneau and Jarbidge River Canyons and were not evaluated due to difficult access. BLM field crews checked 42 of 50 points and placed them in habitat categories. The line-point method was used to collect data on shrubs, native grass, non-native annual grasses, non-native perennial grasses, native forbs, non-native forbs, rock, litter on the ground, biological soil crusts, and bare ground.

Two habitats, Wyoming big sagebrush and salt desert shrub, were the most common of the habitats on the upland plateau totaling 42% of the plots sampled. Non-native habitats were present at about 26% of the sampled locations.

Approximately 7% of the ACEC burned in wildfires between 1957 and 1982. Since 1983, another 7% of the ACEC burned; most of which had not burned between 1957 and 1982. The majority of the fires within the ACEC were not rehabilitated because much of the area is in WSA. As a result, many areas in the ACEC are dominated by non-native vegetation.

Native perennial grasslands contain the highest amount of cheatgrass of the native sites sampled. Fires facilitated the invasion by non-native annuals. At unburned native sites, shrub cover averaged about 20%. In salt desert shrub habitats, there was a mixture of shrubs including Wyoming big sagebrush, spiny hopsage, shadscale, and rabbitbrush. Vegetative cover at salt desert shrub habitats was relatively low, less than 35% (Table 60). Typically, salt desert shrub communities have naturally low precipitation (7-10 inches per year) and more alkaline soils, which influence vegetation. The amount of rock in these sites was also relatively high at 19%. Due to the time of year the sampling was conducted, grasses species were not identified, and native forbs may be somewhat under-represented.

Two of the plots were near playas. Livestock concentration in these areas has resulted in more bare ground and an increase in non-native plants compared to the same habitat more than 1 mile from water.

OHV use near Murphy Hot Springs, into Dave Creek Canyon, and along the northern ACEC boundary has encroached into the ACEC. Approximately 1 mile of new trail have been pioneered since the late1990s. This trail is on steep slopes and exhibits rill and gully erosion in the trail.

Table 60. Cover by Category for Plant Communities in the Bruneau-Jarbidge ACEC

Habitats	% cover by category										
	Shrub Cover	Rabbitbrush cover	Native perennial grass	Native forbs	Litter on ground	Bare ground	Rock	Biological soil crust	Crested Wheatgrass	Non-native annual grass	Non-native annual forbs
Non-native annual grassland	1	1	12	3	15	22	4	4	0	66	19
Non-native perennial grassland	2	1	9	1	11	35	1	12	39	1	1
Native perennial grassland	2	1	42	0	34	36	5	2	0	11	10
Rabbitbrush/native grassland	1	8	47	3	45	26	8	4	0	1	2
Salt desert shrub	16	4	9	1	10	42	19	14	0	0	0
Low sagebrush	17	6	5	0	14	30	12	13	0	0	2
Wyoming big sagebrush	19	1	30	0	20	22	9	22	0	3	0
Due to multiple layers being sampled, total percent cover can exceed 100% (e.g. at one point a shrub, grass, and biological soil crust may have been hit). Percentages are rounded to the nearest whole number. Time of year and access precluded all plant communities from being evaluated.											

Livestock trailing in the ACEC near Murphy Hot Springs has resulted in an increase of non-native annuals along a portion of the trailing corridor (about 0.8 miles). Other non-native invasive species such as reed canary grass have established in the riparian zone along portions of the Bruneau River near the Bruneau-Jarbidge confluence, at Roberson Trail, and in the vicinity of Hot Creek. A few Russian olive and tamarisk have been documented within the canyons. Noxious weeds, Scotch thistle, Canada thistle, puncture vine, and Russian knapweed have been detected in the vicinity of Indian Hot Springs. Spotted knapweed is present at the Jarbidge Forks Recreation Site.

Salmon Falls Creek ACEC

The Salmon Falls Creek ACEC lies within Salmon Falls Creek Canyon extending from private land near the dam downstream to Balanced Rock Park. The ACEC contains about 5,000 acres (BLM, 1989). Approximately 3,300 acres of the Salmon Falls Creek ACEC overlays the Salmon Falls Creek WSA. The area of overlap runs from Lily Grade to the mouth of Antelope Spring Creek, just north of Salmon Falls Dam. Relevance for the Salmon Falls Creek ACEC includes pristine, scenic, natural features; the area was previously categorized as an Outstanding Natural Area (BLM, 1987).

Scenic Values

Salmon Falls Creek was determined eligible for inclusion in the National Wild and Scenic Rivers System in 1993. This determination applies only to the land within 0.25 miles on either side of Salmon Falls Creek. Balanced Rock Park is adjacent to the north end of the existing ACEC. The scenic view from Salmon Falls Dam downstream is impressive and has been frequently photographed. In some areas, basalt lava flows are separated by layers of sediment. Other areas of the canyon are dominated by rhyolite columns and spires. A few springs on the lower portion of canyon walls provide a contrast with the typical upland vegetation. Currently, the only significant threat to the scenic qualities is wildfire. A wildfire in 2005 burned into the canyon. Burned uplands are now dominated by cheatgrass and invasive annual grass. The topography of the canyon is too steep for rehabilitation using mechanized equipment.

Fish and Wildlife Values
The canyon supports a variety of BLM Sensitive species, including redband trout, prairie falcon, and habitat for spotted and Townsend's big-eared bats. Other wildlife values associated with the ACEC include habitat for a variety of canyon-nesting species, including white-throated swift, canyon wren, rock wren, cliff swallow, violet-green swallow, and barn swallow. Waterfowl nest in the lower gradient areas. Other raptors found in the canyon include western screech owl, long-eared owl, great horned owl, American kestrel, red-tailed hawk and golden eagles. A number of mule deer reside in the canyon, and more mule deer winter on the plateau adjacent to the canyon rim. Mule deer from the southern portion of the planning area are funneled to the area by Cedar Creek and Salmon Falls Creek canyons. The canyons offer some protection from winter storms. Native vegetation including sagebrush and grasses, when not covered with snow, provide forage for wintering big game.

Habitat Evaluation
Two wildfires burned into the ACEC since the late 1980s, removing sagebrush from about 200 acres. In the uplands, burned areas are dominated by cheatgrass. One small basin in a high disturbance area at Lily Grade is also dominated by cheatgrass. As part of the fire rehabilitation for the 2005 Clover Fire, cottonwood poles were planted to replace the burned junipers. The Salmon Falls Creek ACEC was briefly checked in 2006 at Lily Grade; however, site-specific data were not collected. A comparison of slides taken at the same locations in 1981 and 1992 indicated riparian habitat had improved. Removal of the monitoring markers, as well as the height of willow, reed, and reed canary grass, precluded photos at the same locations in 2006. Reed and reed canary grass have expanded in the riparian zone. Both plant species are present from upstream of Lily Grade down through Balanced Rock Park. This invasive non-native species is replacing the native sedges, rushes, cattails, and other herbaceous species in the riparian zone. A few scattered Russian olive are also present. The noxious weed Canada thistle is widely scattered in the ACEC riparian zone.

Current Management

<u>Sand Point Paleontologic, Geologic, and Cultural Resource ACEC</u>
The Sand Point ACEC was designated and a Management Plan was completed in 1988. Protection of the paleontologic and cultural resources within the ACEC from destruction, loss, and erosion is ongoing. While the 1987 Jarbidge RMP directed that scenic and wildlife values be maintained within the ACEC, wildfires have increased invasive non-native annuals and Russian olives have encroached in the riparian zone. Fences were constructed to minimize livestock trailing down steep, erosive slopes in order to ensure vegetative cover is maintained to minimize wind erosion. Fences near the southern boundary of the ACEC have reduced livestock trailing through fossil area. A riparian

pasture grazed every third year has allowed recovery of the stream side vegetation. Since the construction of the fence creating the riparian pasture, the old trailing rills are stabilizing and revegetating.

The management plan for the Sand Point ACEC restricted the use of bulldozers and other mechanical equipment within the ACEC for fire suppression to protect fossil deposits. Surface disturbances are allowed when directly related to studies or research on the cultural, paleontologic, or geological resources present. No research is currently being conducted on fossils in the ACEC. Surface disturbances must be mitigated to blend with the existing topography and visual aspects of the site so as to be substantially unnoticeable (BLM, 1988). The area has not been withdrawn from mineral entry as directed in the 1987 RMP. New buildings have not been constructed in the ACEC.

The 1987 Jarbidge RMP directed the BLM to obtain an easement through private lands to ensure access to the Sand Point ACEC. While the easement has not been obtained, the private landowner has agreed to let BLM have administrative access.

<u>Bruneau-Jarbidge River ACEC for Bighorn Sheep and Cultural Resources</u>
The Bruneau-Jarbidge ACEC was designated; however, a management plan was not prepared due to a change in policy that de-emphasized HMPs. The 1987 Jarbidge RMP directed bighorn sheep habitat be protected, maintained, or improved to a good ecological condition class in the Bruneau-Jarbidge River ACEC. The lack of fire rehabilitation and spread of cheatgrass has resulted in a downward vegetation change over several thousand acres because the native vegetation did not recover.

The 1987 Jarbidge RMP directed the protection and enhancement of approximately 84,000 acres of California bighorn sheep habitat in the Bruneau-Jarbidge ACEC, including the West Fork of the Bruneau River and the Jarbidge River system and the Arch Canyon area. Wildfires and subsequent lack of rehabilitation have resulted in an increase in exotic annuals in several locations. In at least one area near Murphy Hot Springs, livestock trailing is contributing to an increase in exotic annuals. The majority of the grazing allotments allow late season winter grazing, which overlaps critical periods for bighorn sheep and other wintering big game, reduces forage available for big game, and displaces big game from preferred habitats.

The management priority for the canyons is for bighorns and other wildlife in the Bruneau-Jarbidge ACEC. Livestock management measures were to be implemented where necessary to prevent livestock access to canyons. Maintenance of the fence near the Albert Taylor Cabin has reduced livestock incursions down Columbet Creek in the ACEC. Livestock water sources were not to be developed within 1 mile of bighorn sheep habitat in the Bruneau-Jarbidge ACEC unless adverse effects could be mitigated. This buffer is intended to function to maintain separation between bighorn and livestock (BLM, 1987). Thirteen new livestock water developments, some stock water haul, and an unknown number salt/supplement sites are within the ACEC and the 1-mile buffer. No mitigation was implemented for water development projects. The plant communities near these water sources, as well as natural waters (playas), now contain invasive species due, in part, to livestock concentrating at these sites. Other impacts include increased competition for forage and displacement of bighorn to more marginal habitat.

No conversions from cattle to sheep are allowed in allotments containing bighorn sheep habitat in the Bruneau-Jarbidge ACEC, unless a satisfactory separation can be maintained by fences or topographic features. No conversions from cattle to sheep have occurred.

Public lands within bighorn habitat in the Bruneau-Jarbidge ACEC have been retained in Federal ownership. No surface occupancy is allowed for oil and gas and geothermal exploration or development within the habitat area of the ACEC. The existing jasper mines in the canyon predate the creation of the ACEC.

Activities or developments which would impair the scenic quality of the Bruneau-Jarbidge ACEC area are not allowed and the area is managed as VRM Class I or II.

The 1987 Jarbidge RMP directed motorized vehicle allowed only on designated roads and trails in the Bruneau-Jarbidge ACEC. Routes were never designated, and a number of new trails have appeared. Others have been extended within the ACEC.

<u>Salmon Falls Creek ACEC</u>
A land use plan amendment created the Salmon Falls Creek ACEC in 1989 with a rim-to-rim designation to protect the Salmon Falls Creek Canyon for its natural and scenic values.

<u>Hagerman Paleontologic ACEC</u>
The Hagerman Paleontologic ACEC was designated; however the areas was transferred to the NPS in 1988 and is now the Hagerman Fossil Beds National Monument.

Management Opportunities

Public and internal scoping comments included recommendations to increase the number of ACECs and modify existing ACECs. All nominated and existing ACECs and proposed changes to existing ACECs will be reviewed and evaluated for meeting relevance and importance criteria. Nominated ACECs meeting relevance and importance criteria will be considered as proposed ACECs and will be assessed for whether special management is required for any relevant and important values. ACEC designations and any special management identified for them apply only to public lands. In the event private or state land within the ACEC boundary is acquired, the acreage would be added to and managed as part of the ACEC.

<u>Nominated ACECs</u>
Nominated modifications to existing ACECs

<u>Sand Point ACEC:</u> An extension to the Sand Point ACEC was nominated through internal scoping. The extension would consist of a 148-acre parcel BLM acquired in 2001 to the north and east of the existing Sand Point ACEC, referred to as the Morgan Property. The enlarged Sand Point ACEC would include a total of approximately 960 acres of public land.

<u>Salmon Falls Creek ACEC:</u> An extension to the Salmon Falls Creek ACEC was

nominated by IDFG. The western boundary of the ACEC would be expanded 1 mile west of the canyon rim from Salmon Falls Dam to the Cedar Creek Canyon confluence. The extension would cover an additional 9,600 acres of public land and include approximately 15,000 acres of public land.

Bruneau-Jarbidge River ACEC: Two nominations concerning modifications to the Bruneau-Jarbidge River ACEC were received during scoping. The first modification was nominated by C.E. Brackett Cattle Co., Chet and Kim Brackett, Brackett Livestock Inc., Brackett Ranches Limited Partnership, Bert and Paula Brackett, Ira and Kim Brackett, Gus and Kimberly Brackett, Jake Brackett, and a representative of Simplot Livestock Company. This nomination would restrict the Bruneau-Jarbidge River ACEC to a rim-to-rim designation north of Sheep's Head Draw to the current northern boundary of the ACEC and would drop ACEC designation south of the WSA boundary on the Bruneau and Jarbidge Rivers. This change would reduce the current ACEC by approximately 28,000 acres to approximately 57,000 acres of public land.

A second modification nominated by Western Watersheds Project was an expansion of the Bruneau-Jarbidge River ACEC. One new ACEC nominations discussed below, the Jarbidge Forks ACEC, reflects a potential expansion of the Bruneau-Jarbidge River ACEC.

New areas nominated as ACECs

Purple Sage ACEC: The Purple Sage ACEC was nominated through internal scoping. It would run from the northern boundary of the current Bruneau-Jarbidge River ACEC north to the private land boundary and would include the canyon and breaks up to an existing route. The Purple Sage ACEC would include approximately 970 acres of public land.

Sagebrush Sea ACEC: The Sagebrush Sea ACEC was nominated by Western Watersheds Project. The Sagebrush Sea ACEC would extend from Salmon Falls Creek on the east to the Bruneau River on the west, from the southern boundary of the planning area north to the road extending from Balanced Rock to Crows Nest, southwest along the road to the private land known as Clover Crossing, then follow the east canyon rim of Clover Creek to its confluence with the Bruneau River. The nominated ACEC would include the Diamond A Desert, Inside Desert, and Jarbidge Foothill areas. The Sagebrush Sea ACEC would encompass approximately 960,000 acres of public land. The ACEC would overlap portions of the existing Bruneau-Jarbidge River and Salmon Falls Creek ACECs and the nominated Jarbidge Foothills, Jarbidge Forks, Inside Desert, and Inside Lakes ACECs.

Jarbidge Foothills ACEC: The Jarbidge Foothills ACEC was nominated by CDC and through internal scoping. The nominated ACEC would extend from Salmon Falls Creek on the east to the existing boundary of the Bruneau-Jarbidge River ACEC on the west, and from the southern boundary of the planning area north to the Three Creek Highway. The Jarbidge Foothills ACEC would encompass approximately 140,000 acres of public land.

Inside Desert ACEC: The Inside Desert ACEC was nominated by CDC, Western Watersheds Project, and the Wilderness Society, as well as through internal scoping. This nominated ACEC lies roughly between Clover Butte to the north, Middle Butte to the south, Clover Creek on the east, and the current Bruneau-Jarbidge River ACEC boundary to the west; most of this area is occupied by slickspot peppergrass. The Inside Desert ACEC would include approximately 58,000 acres of public land.

Jarbidge Forks ACEC: The Jarbidge Forks ACEC was nominated through internal scoping; this ACEC also addresses the request by Western Watersheds Project to expand the Bruneau-Jarbidge River ACEC. The Jarbidge Forks ACEC would extend from the confluence of the Jarbidge River and its East Fork, upstream on both forks. The ACEC would generally be a rim-to-rim designation, but would also cover some side drainages and tributaries and some of the uplands between the tributaries and the Jarbidge Rivers. Tributaries to the Jarbidge River include portions of Dave, Buck, Deer, and Jack Creeks as well as Morgan Draw. The Jarbidge Forks ACEC would include approximately 11,000 acres of public land, nearly 5,000 acres of which are within the current Bruneau-Jarbidge River ACEC.

Inside Lakes ACEC: The Inside Lakes ACEC was nominated by CDC and Western Watersheds Project and through internal scoping. This ACEC would consist of 25 playas in the northern portion of the Diamond A Desert and an upland area east of the Jarbidge River and Bruneau River Canyons, most of which are occupied by Davis peppergrass. Playas would be buffered by 0.5 miles for habitat protection. The Inside Lakes ACEC would include approximately 13,000 acres of public land.

Middle Snake River ACEC: The Middle Snake River ACEC was nominated by CDC and through internal scoping. The Middle Snake River ACEC would lie along the Snake River between Hagerman Fossil Beds National Monument on the east and the private boundary just north of Interstate 84 on the west. The ACEC would extend south about 5 miles and would include all of the BLM-managed islands in the Snake River from Lower Salmon Falls Dam to the Pasadena Valley area. This ACEC would include approximately 7,000 acres of public land.

2.D.2. Scenic and Back Country Byways

Profile

The BLM Byway program was developed as a component of the National Scenic Byway Program. These byways highlight the spectacular nature of the western landscapes. BLM byways vary from narrow, graded roads, passable during only a few months of the year, to two-lane, paved highways providing year-round access. BLM Scenic Byways complement the National Scenic Byway Program by focusing on scenic corridors along major primary and secondary highways. A scenic byway has roadside corridors of special aesthetic, cultural, or historic value. BLM Back Country Byways are also a component of the National Scenic Byway Program, focusing primarily on corridors along back country roads with high scenic, historic, archaeological, or other public interest values. The road may vary from a single-track bike trail to a low speed, paved road that traverses back country areas. There are no scenic or back country byways in the planning area.

The Thousand Springs Scenic Byway begins at Interstate 84 near Bliss, Idaho, and follows US 30 southeast through Twin Falls, Idaho. The Idaho Department of Transportation administers this highway, and contact with small parcels of land administered by the Jarbidge FO occurs near the Thousand Springs area. This byway is a State byway and not a component of the BLM scenic byway program.

In order to designate a BLM byway, routes must go through a nomination and designation process. During the nomination process, proposals for BLM byway designations should be encouraged from all sources including citizen organizations, State and local government, and private individuals. Only those nominations consistent with BLM, State, local, and other agency land use plans should be forwarded to the BLM State Director for approval. The designation of byways is normally done through an RMP or RMP amendment. A site-specific EA must be completed for each byway proposal not done as part of an RMP or RMP amendment. Byways should be approved through State coordinating organizations before designation. Ideally, the State and BLM would designate byways jointly and concurrently.

Current Management

The 1987 Jarbidge RMP did not contain objectives or management actions related to scenic or back country byways. Scenic and backcountry byways are managed according to BLM policy.

Management Opportunities

Several areas could be considered as potential byways:

- Oregon Trail Back Country Byway: A route traveling northwest from Thousand Springs, Idaho, to Glenns Ferry, Idaho. Historic and interpretation relevance associated with Oregon NHT.
- Jarbidge Foothills Scenic Byway: A route traveling west of Rogerson, Idaho to Jarbidge, Nevada. Scenic and historic relevance.

2.D.3. National Trails

Profile

On November 10, 1978, Public Law 95-625 amended the National Trails System Act (NTSA) and designated the Oregon Trail as a NHT. The Oregon NHT follows the primary route of the Oregon Trail based upon travel that occurred between 1841 and 1848. The Trail enters the planning area where Salmon Falls Creek meets the Snake River leaves the planning area when it enters the Snake River Birds of Prey National Conservation Area. In all, there are approximately 47 miles of the Oregon NHT managed by the Jarbidge FO (Figure 33).

During the 20th century, portions of the Oregon Trail in the planning area were destroyed by agricultural development and highway construction projects. Prior to the passage of the NTSA, FLPMA, and NEPA, the visual corridor of the trail was altered in portions of the Jarbidge FO by the construction of major overhead transmission lines between Hagerman and Glenns Ferry. Measures have been put in place to protect the Trail from destruction and trail conditions are good in more remote, undeveloped settings. Trail and visual corridor conditions are deteriorating in areas where unrestricted OHV use overlaps with the historic route. Trail segments located southeast of Glenns Ferry are currently threatened by heavy OHV use. Livestock salting adjacent to the trail has also caused physical and visual impacts in a few areas. Wildfire and fire line construction continue to affect the Trail and its visual landscape.

Current Management

In 1981, the NPS completed a comprehensive management and use plan for the Oregon NHT that identified the significant resources to be preserved, measures needed for their protection, interpretation, and management and the method for marking the route (NPS, 1981). Based on that plan, BLM produced an *Oregon Trail Management Plan* (BLM, 1984) for southwestern Idaho. This document provides more detailed management direction for Trail segments within the planning area.

The 1987 Jarbidge RMP provided for protection and management of the Oregon NHT to preserve all remaining ruts and trail features and to develop an interpretive marker program for the trail. Trail markers have been installed and maintained. Trail protection is addressed during NEPA analysis and documentation for project proposals and permit applications.

The 1987 Jarbidge RMP directed the Trail to be designated as a NHT, SRMA, and placed on the National Register. The Oregon NHT has been determined eligible for the National Register, but segments within the planning area have not been formally nominated. Oregon Trail guidebooks, brochures, and maps were developed to serve trail users. A cultural plan and resource activity management plan were completed as components of the *Oregon Trail Management Plan* in 1984.

Management Opportunities

The Oregon NHT is a resource of national significance. Its protection is required under the NTSA and the NHPA. The Trail is currently marked and the markers are actively maintained. More resources could be dedicated to proactive management of the Trail segments. Management measures may include more intensive monitoring, data recovery and site stabilization at threatened sites, increased public outreach and interpretation, and rehabilitation projects to mitigate the effects of wildfires and OHV activity within the Trail's visual corridor.

The *Oregon Trail Management* plan could be updated to reflect changes in recreation use and OHV management.

The continuation of the SRMA designation could help with future Trail management and would complement management strategies in adjacent FOs.

2.D.4. Wild and Scenic Rivers

Profile

There are no designated Wild and Scenic Rivers within the Jarbidge FO. Previous studies evaluated a few rivers at varying levels of eligibility, classification, and suitability according to the requirements of the 1968 Wild and Scenic Rivers Act (WSRA; Table 61).

Section 5(a) of the WSRA listed the Bruneau River as one of 27 rivers to be considered for addition to the National Wild and Scenic Rivers System (NWSRS). In 1973, the Bureau of Outdoor Recreation led a seven-member Federal-State Bruneau River study team which included representatives from the Idaho Governor's Office, IDFG, IDWR, Idaho Department of Parks and Recreation, BLM, and USFS. The Act named the entire main stem of the Bruneau River in Idaho for study. The study was enlarged to include major tributaries after initial field reconnaissance revealed their outstanding qualities. Based on this study, 100 miles of the Bruneau River and tributaries in the planning area were found to be suitable for inclusion in the National Wild and Scenic Rivers System: 71 miles of the Bruneau River from Blackrock Crossing downstream to Hot Creek, and 29 miles of the Jarbidge River from the East Fork of the Jarbidge River confluence downstream to the Bruneau River confluence. These segments were tentatively classified as "wild", except for the upper 11 miles of the Bruneau River, which was tentatively classified as "scenic."

The Bruneau River upstream from Blackrock crossing, the East Fork of the Bruneau, the East Fork of the Jarbidge River, and the Jarbidge River above the East Fork confluence did not qualify during this study. These segments were noted as lacking sufficient scenic and recreational interest and having insufficient volume of water to permit the full enjoyment of water-related recreational activities during most of the recreation season. The Bruneau River from Hot Creek downstream to C.J. Strike reservoir also failed to qualify because of shoreline developments, irrigation diversions, and bridge and fence crossings.

WSR eligibility and tentative classifications for Snake River segments were initiated in 1991 by the Shoshone District Office for consideration within the Bennett Hills RMP. Two of these eligible segments of the Snake River are shared with the Jarbidge FO. The eight miles of the Snake River from Lower Salmon Falls Dam downstream to Bliss Dam Reservoir (the Hagerman Reach) and the thirteen miles of the river from Bliss Dam downstream to the King Hill Bridge (the King Hill Reach) were both found to be eligible and were tentatively classified as "recreational." Suitability studies were deferred to the implementation of the Bennett Hills RMP, which was not completed.

WSR eligibility and tentative classifications for Idaho segments of Salmon Falls Creek were initiated in 1992 by the Burley District Office for the Burley RMP. These segments of Salmon Falls Creek form the majority of the eastern boundary of the Jarbidge FO. Nine miles of Salmon Falls Creek from the Nevada border downstream to Salmon Falls Creek Reservoir and the 44 miles of Salmon Falls Creek from Salmon Falls Dam downstream to the Snake River confluence were identified as eligible. The upper segment was tentatively classified as "recreational" and the lower segment as "scenic." The lower 14 miles of Salmon Falls Creek, from Balanced Rock Park downstream, was re-examined and was deemed ineligible because of the lack of free-flowing character. A suitability study for Salmon Falls Creek was never completed, as the Burley RMP was started, but not finished.

Table 61. Existing Eligible and Suitable River Segments

River	Segment Description	Length (miles)	Outstandingly Remarkable Values	Tentative Classification	Current Status	Previous Study
Salmon Falls Creek	Nevada border to Salmon Falls Creek Reservoir	9	Recreational	Recreational	Eligible[A]	Burley RMP (1993)
Salmon Falls Creek	Salmon Falls Dam to Balanced Rock Park	30	Scenic, Recreational, Geological	Scenic	Eligible[A]	Burley RMP (1993)
Snake River, Hagerman Reach	Lower Salmon Falls Dam to Bliss Dam Reservoir	8	Recreational, Geological, Fish, Wildlife, Historical	Recreational	Eligible[A]	Bennett Hills RMP (1991)
Snake River, King Hill Reach	Bliss Dam to the King Hill Bridge	13	Recreational, Geological, Fish, Wildlife	Recreational	Eligible[A]	Bennett Hills RMP (1991)
Bruneau River	Blackrock Crossing to 11 miles downstream	11	Scenic, Recreational, Geological, Fish, Wildlife, Cultural, Vegetation[B]	Scenic	Suitable	Bruneau WSR Study Report (1976)
Bruneau River	11 miles downstream from Blackrock Crossing to Hot Creek	60	Scenic, Recreational, Geological, Fish, Wildlife, Cultural, Vegetation[B]	Wild	Suitable	Bruneau WSR Study Report (1976)
Jarbidge River	East Fork, Jarbidge River confluence to Bruneau River confluence	29	Scenic, Recreational, Geological, Fish, Wildlife, Cultural, Vegetation[B]	Wild	Suitable	Bruneau WSR Study Report (1976)
	Total	**160**				

[A] The Bennett Hills and Burley RMPs were never completed; thus, suitability studies for these segments have not been conducted.
[B] Outstandingly remarkable values for Bruneau and Jarbidge River segments were inferred from the narrative in the Bruneau WSR Study Report (1976).

As part of the current Jarbidge RMP planning effort, all river segments in the interior of the planning area, as well as those river segments forming the planning area boundary that were previously considered ineligible, are being inventoried for eligibility for inclusion in the NWSRS, in accordance with BLM Manual 8351, Wild and Scenic Rivers, and BLM Handbook H-1601-1, Land Use Planning. River segments are deemed eligible if they are free-flowing and possess one or more outstandingly remarkable value, including scenic, recreational, geological, fish and wildlife, historical, cultural, or other river-related values.

After identifying the 42 river segments to be included in the inventory, the ID Team conducted a preliminary evaluation of each segment's free-flowing character, as well as whether the segment may possess any outstandingly remarkable values, in November 2006. As a result of that review, 8 rivers were determined not to be free-flowing, and 24 additional rivers were determined not to possess any potential outstandingly remarkable values. The potential outstandingly remarkable values on the remaining 11 river segments were examined once again by the ID Team in April 2007; four rivers and river segments were found to not possess an outstandingly remarkable value when evaluated in the larger regional context. The remaining seven river segments will undergo further study, evaluation, and review prior to making a final determination of their eligibility and tentative classification. These potentially eligible river segments are shown in Table 62.

Table 62. Potentially Eligible River Segments

River	Segment Description	Outstandingly Remarkable Values	Length (miles)
Cougar Point Creek	Jarbidge FO boundary to East Fork, Jarbidge River confluence	Scenic	1.0
Dave Creek	Private boundary to East Fork, Jarbidge River confluence	Fish	2.7
Jarbidge River, East Fork	Jarbidge FO boundary to Murphy Hot Springs	Fish	7.4
Jarbidge River, East Fork	Murphy Hot Springs to Jarbidge River confluence	Fish	2.2
Jarbidge River	Jarbidge FO boundary to East Fork, Jarbidge River confluence	Scenic, Fish	10.2
Rocky Canyon Creek	Headwaters to North Fork, Salmon Falls Creek confluence	Wildlife	1.5
Snake River, Three Island Reach	King Hill Bridge to Hwy 51 Bridge	Recreational, Fish, Historical, Cultural	25.0
		Total	**50.0**
These segments are potentially eligible pending further study, evaluation, and review.			

Current Management

The 1987 Jarbidge RMP did not contain any decisions or guidelines specific to management of eligible and suitable river segments. BLM policy for management of eligible and suitable river segments can be found in BLM Manual 8351, Wild and Scenic Rivers.

Eligible rivers and their corridors on Federal lands are provided interim protection until the suitability phase is complete. Rivers recommended as suitable are protected as potential additions to the NWSRS until Congress or the Secretary of the Interior determines whether the suitable river will be included in the NWSRS. The characteristics of eligible and suitable segments are managed as described below:

- **Free-flowing values.** The free-flowing characteristics of eligible river segments cannot be modified to allow stream impoundments, diversions, channelization, or riprapping to the extent authorized under law.
- **River-related values.** Each segment is managed to protect outstandingly remarkable values, subject to valid existing rights; to the extent practicable, such values are enhanced.
- **Classification impacts.** Management and development of the eligible river and its corridor cannot be modified, subject to valid existing rights, to the degree that its eligibility or classification would be affected.

These interim management measures are applicable to the previously determined eligible and suitable segments of the Bruneau, Jarbidge, and Snake Rivers and Salmon Falls Creek, as well as any river segments determined to be eligible through the current inventory and evaluation process. These measures would be discontinued if subsequent suitability studies determine an eligible segment to be unsuitable or if Congress decides not to designate a suitable segment for inclusion in the NWSRS.

Management Opportunities

The decision to designate river segments for inclusion in the National Wild and Scenic River System is outside the scope of the RMP, as these designations can be made only by Congress or the Secretary of the Interior.

BLM's policy, as stated in BLM Manual 8351, Wild and Scenic Rivers, is to protect and, where possible, enhance any identified outstandingly remarkable river values pending a subsequent suitability determination and/or designation decision by Congress. Management guidelines to attain this goal may include limiting or providing special stipulations for developments such as dams, diversions, recreational improvements and use, roads, pipelines, fences, and mineral extractions.

2.D.5. Wilderness

Profile

The Wilderness Act of 1964 established a national system of lands for the purpose of preserving a representative sample of ecosystems in a natural condition for the benefit of future generations. With the passage of FLPMA in 1976, Congress directed BLM to inventory, study, and recommend which public lands under its administration should be designated wilderness. Currently, there is no designated Wilderness in the Jarbidge FO, although there are three WSAs pending Congressional action (see Wilderness Study Areas).

Current Management

There are no Wilderness Areas within the planning area.

Management Opportunities

Decisions concerning Wilderness can only be made after Congress has designated Wilderness.

2.D.6. Wilderness Study Areas

Profile

The wilderness review required by Section 603 of FLPMA focuses on roadless areas of 5,000 acres or more and roadless islands. The BLM used its general management authority under Sections 302 and 202 of FLPMA to include other roadless areas in the wilderness review including:

- Areas smaller than 5,000 acres that are not islands,
- Areas less than 5,000 acres that have wilderness characteristics in association with contiguous roadless lands managed by another agency, and
- Lands placed under BLM administration after the wilderness inventory was conducted in 1978-80.

WSA is the term given to land under wilderness review identified by one of the following three methods: wilderness review required by FLPMA, Congressional legislation, or the land use planning process in Section 202 of FLPMA.

There are currently three WSAs within the Jarbidge FO (Figure 40). The Jarbidge River WSA is located in Owyhee County, Idaho. The Jarbidge River and lower West Fork of the Bruneau River are encompassed within this area. The Jarbidge River WSA contains lands managed by the Jarbidge FO and the Bruneau FO, including 64,112 acres of BLM-managed land in the Jarbidge FO.

The Bruneau River-Sheep Creek WSA is located in Owyhee County, Idaho. The Bruneau River mainstem and Sheep Creek are contained within this WSA. The Bruneau River-Sheep Creek WSA contains lands managed by the Jarbidge FO and the Bruneau FO, including 28,161 of BLM-managed land in the Jarbidge FO.

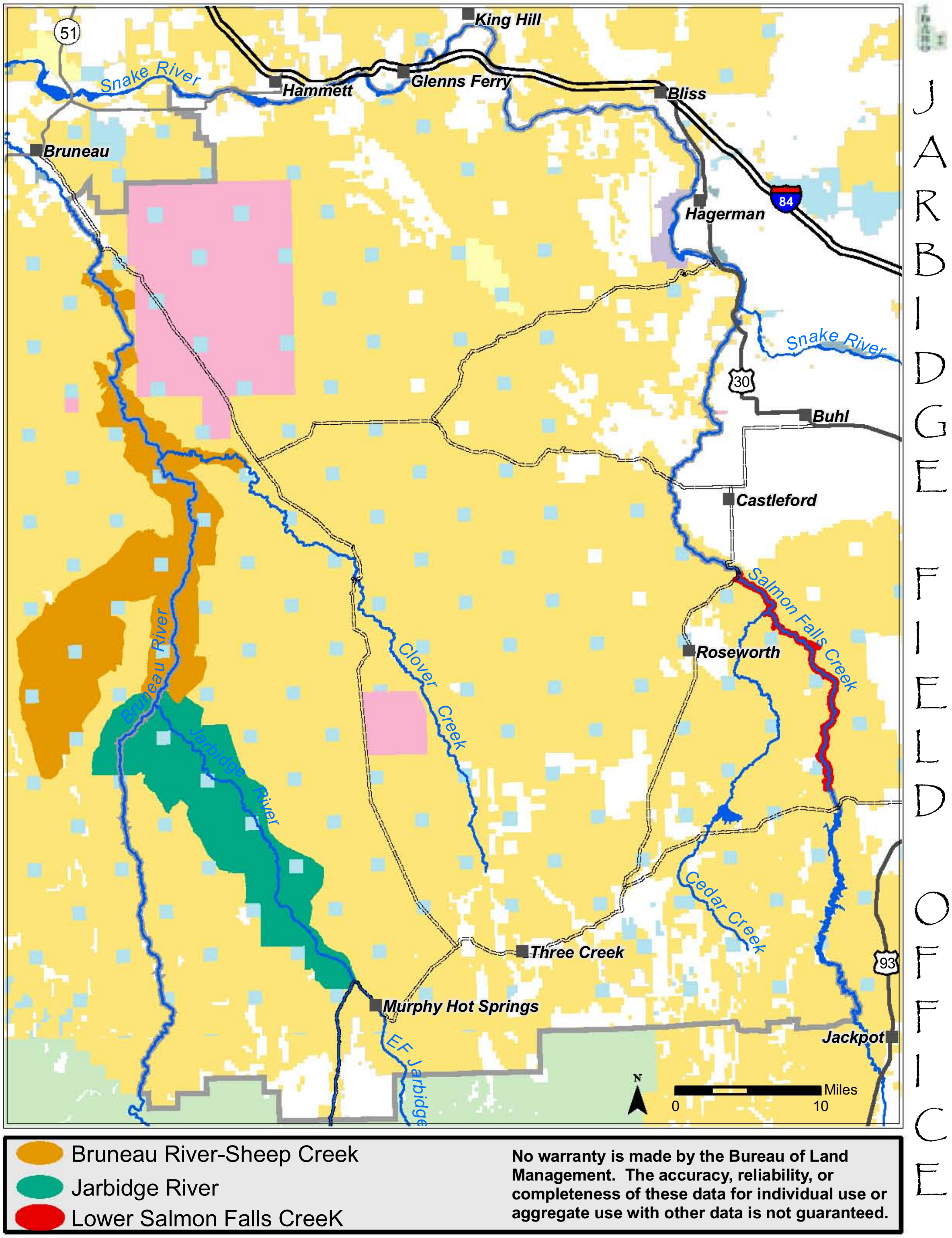
The Lower Salmon Falls Creek WSA is located in Twin Falls County, Idaho. This WSA includes Salmon Falls Creek from Salmon Dam downstream to Lily Grade crossing. Lands of the Lower Salmon Falls Creek WSA are located in the Jarbidge and Burley FOs, including 1,681 acres of BLM-managed land in the Jarbidge FO.

Once Congress acts on these wilderness recommendations, the Jarbidge FO WSAs are subject to specific release direction as stated in the 1987 Jarbidge Wilderness Final EIS, the 1987 Jarbidge RMP, and any accompanying legislative language.

Current Management

WSAs are managed according to BLM Handbook 8550-1, Interim Management Policy (IMP) for Lands under Wilderness Review until Congress acts on the wilderness recommendations. The 1987 Jarbidge RMP called for the creation of a Wilderness Management Plan for designated wilderness the Jarbidge River WSA; however, this has not been completed because it is not required until the WSA is designated as wilderness by Congress. The Jarbidge Wilderness EIS contains guidance for any lands within WSAs released by Congress.

Figure 40. Wilderness Study Areas



Management Opportunities

Attention could be given to developing a WSA management and monitoring plan in coordination with the Bruneau and Burley FOs to minimize incursions within these boundaries. Uses such as roads, recreation, OHVs, grazing, pipeline and trough use, energy development, and minerals extraction could potentially impacts these lands. Development of a WSA management plan would be inherently ineffective without a consistent monitoring program to enforce the Wilderness IMP. Release guidance within the Jarbidge Wilderness EIS could be re-evaluated in the context of changes in resource conditions and uses.

2.E. Social and Economic Features

2.E.1. Public Safety

Profile

The safety of visitors to public land is a concern for the Jarbidge FO. When addressing public safety, the BLM is required to address abandoned mines, target shooting, unexploded ordnance, and hazardous waste. The primary concern for public safety in the Jarbidge FO is the illegal use and storage of hazardous materials and their disposal within the FO boundaries.

Abandoned Mines

The Abandoned Mine Lands Program is a national and state BLM safety priority. Emphasis has been placed on ensuring public safety and protecting watersheds from hazardous materials and mine drainage. At the FO level, the purpose of the program is to identify and characterize inactive mine sites. Hazards or potential hazards to human health, safety, and the environment are inventoried, and data are stored in a national or state database. Specific sites may be closed or remediated in order to protect human health or the environment. There are no abandoned mine lands in the planning area.

Target Shooting

There are no designated target shooting areas on public lands managed by the Jarbidge FO; however, target shooting is generally allowed on public lands. The planning area has several unofficial shooting areas in old barrow pits, gravel pits, or other disturbed areas where there is a history of such use. Clean up of targets, shell casings, and trash is required. Due to public safety concerns, shooting is specifically prohibited at developed recreation sites and at other areas as posted.

Unexploded Ordnance (UXO)

The amount of UXO on the SCAFR is unknown. It is assumed that entrances to areas on the SCAFR where inherent UXO dangers exist would continue to be restricted. In areas where the public has access, any UXO reported and identified would be cleared and disposed of according to applicable policies and procedures of the USAF.

Hazardous Materials

There are no approved hazardous waste disposal facilities within the planning area. Hazardous material is defined as any material that, because of its quantity, concentration, or physical or chemical characteristics, may pose a real hazard to human health or the environment. Hazardous materials include flammable or combustible material, toxic material, poisonous and infectious materials, corrosive material, oxidizers, aerosols, biohazards, and compressed gases.

Hazardous materials may legitimately be brought onto BLM-administered lands during authorized weed and insect control or resource development projects. The types of hazardous materials used for weed and insect control include herbicides, algaecides, and pesticides. The general types of hazardous materials that may be present during resource development projects include, but are not limited to, petroleum products (fuels and lubricants), solvents, surfactants, paints, explosives, batteries, acids, biocides, gases, and antifreeze.

Many hazardous material incidents are a result of hazardous materials illegally disposed of on public land. These types of materials include, but are not limited to, petroleum products, household wastes, paints, biocides, and methamphetamine manufacturing wastes. The majority of the illegal dumping activity within the Jarbidge FO is of solid waste, which may not contain hazardous materials but is a problem nonetheless.

Current Management

The 1987 Jarbidge RMP did not contain goals, objectives, or management actions related to public safety. Public safety is managed according to BLM policy.

Management of hazardous materials; substances; and waste, including storage, transportation, and spills, will be conducted in compliance with 29 CFR 1910, 49 CFR 100-185, 40 CFR 100-400, Comprehensive Environmental Response Compensation and Liability Act, Resource Conservation and Recovery Act, Superfund Amendment Reauthorization Act, Toxic Substances Control Act, Clean Water Act, and other Federal and State regulations and policies regarding hazardous materials management.

The Jarbidge FO responds to illegal dumping of materials through law enforcement, hazardous materials response procedures, and contractor personnel. Any response to hazardous materials incidents is in conformance with approved BLM plans and procedures conforming with National and State guideline.

The Jarbidge FO ensure that lessees, permittees, and operators on land within the planning area are in compliance with all laws and regulations that pertain to hazardous materials. The Jarbidge FO provides updates to the Idaho Hazardous Materials Incident Command and Response Support Plan and the Idaho BLM Contingency Plan for Hazardous Materials Incidents. The plans are periodically reviewed by the Jarbidge FO and updated as needed to maintain compliance with all applicable laws and regulations that pertain to hazardous materials.

Management Opportunities

Illegal dumping will most likely continue in the future. Educating the public about the dangers of this issue and increased law enforcement presence and cooperation could help to resolve this problem. Hazardous waste disposal facilities should not be allocated or approved within the planning area in order to protect public safety and natural resources in the planning area.

GIS could assist the Jarbidge FO in managing hazardous materials by consolidating information regarding illegally disposed materials within the planning area. The use of Federal and State databases containing information regarding hazardous materials storage, use, production, and violation could help the BLM Environmental Protection Specialist remain aware of small businesses with the potential to create or use hazardous materials within the planning area. These databases could also help identify areas where illegal dumping is ongoing and where physical closures could be used to prevent the situation and reduce clean-up costs.

2.E.2. Social and Economic Conditions

Profile

The Jarbidge FO is sparsely populated with several ranches and the unincorporated towns of Hot Spring, Indian Cove, Murphy Hot Springs, Roseworth, and Three Creek. With populations under 100 people, none of the communities within the planning area has a store. Because the Jarbidge FO is so sparsely populated and its boundaries do not conform to common data collection areas, it is difficult to get statistics specific for the FO. The FO includes parts of four counties: Elmore, Owyhee, and Twin Falls Counties in Idaho and Elko County in Nevada. Statistics for those four counties were aggregated to provide some insight into the Jarbidge FO, as it is assumed residents of those counties are the most common users of the resources in the FO and are the most impacted by decisions in the FO.

Population of the County Aggregation

The population of the county aggregation grew by 48,432 people from 1982 to 2004, a 32% increase in population. The annual growth rate of 1.9% during this time is faster than the national rate ("Economic Profile System," 2006). The 2005 population for the four counties is 154,696 (US Census Bureau, 2007). Hispanics are the largest minority group in the four counties (6.4%) (US Census Bureau, 2007).

The population of the county aggregation aged since 1990. The median age in 2000 was 32.1, up from 30.6 in 1990. The 15-to-19 year age category makes up the largest percent of the population; however, the 45-to-49 year age category has grown the fastest ("Economic Profile System," 2006).

Employment in the County Aggregation

Over the past 34 years, job growth in the county aggregation was faster than in the Nation as a whole. Average earnings per job, adjusted for inflation, rose from $31,263 in 1970 to $33,012 in 2004. In 2004, average earnings per job were lower than the national average of $44,503 ("Economic Profile System," 2006).

While proprietors[21] contributed to 18% of new employment between 1970 and 2004, they represented a smaller share of total employment, a drop from 21.5% to 19.7% (Table 63). The number of farm proprietors decreased by 197 between 1970 and 2004. ("Economic Profile System," 2006).

Wages and salary are monetary compensations to employees, including employee contributions to certain deferred compensation programs, such as 401(k) plans. Between 1970 and 2004, wage and salary disbursements in the four counties grew at an annual rate of 2.5%, while proprietors' income grew at an annual rate of 0.7%, 1.2% for nonfarm proprietors and 0.1% for farm proprietors ("Economic Profile System," 2006).

The service category gained the most as a share of total employment, from 24.4% in 1977 to 31.4% in 1997. The retail category shrank the most, from 31.2% in 1977 to 25.0% in 1997. Agriculture remained stable at 1.7% of total employment ("Economic Profile

[21] Includes sole proprietorships, partnerships, and tax-exempt cooperatives.

System," 2006).

Table 63. Total Employment in Elmore, Owyhee, and Twin Falls Counties, Idaho, and Elko County, Nevada, 1970 and 2004

	1970	% of Total	2004	% of Total	New Employment	% of New Employment
Wage and salary jobs	30,852	78.5%	68,611	80.3%	37,749	81.9%
Number of proprietors	8,461	21.5%	16,810	19.7%	8,349	18.1%
Number of nonfarm proprietors	5,338	13.6%	13,884	16.3%	8,546	18.5%
Number of farm proprietors	3,123	7.9%	2,926	3.4%	-197	NA
Total full-time and part-time employment	39,313	100%	85,421	100%	46,108	100%

The unemployment rate for the county aggregation was 3.7% in 2005, compared to 5.1% for the Nation. The unemployment rate varied seasonally from a high of 5.0% in January 2005 to a low of 2.9% in October 2005 ("Economic Profile System," 2006).

Agriculture and Ranching
Agriculture is big business in Elmore, Owyhee, and Twin Falls Counties, compared to most areas of Idaho. Net farm income was $180 million in 2003 on cash receipts of $805 million. Two-thirds of these receipts were from livestock. That share has grown dramatically over time, led by the growth in the number of dairies and dairy cows in the region surrounding the planning area. The crop share of receipts dropped from 48% in 1970 to 28% in 2003. Government payments have dropped over time both in amount and share of farm receipts (Gardner & Martin, 2006).

The cattle ranching and farming sector in Elko County, Nevada comprised 2.5% of Elko County employment in 2005. Net income was $8.6 million on average and average annual cash receipts and other income for this sector was $58.5 million between 1994 and 2004 (Vusovic & Harris, 2006).

Livestock grazing has been an important social and economic activity in the Jarbidge FO since the 1870s (see Livestock Grazing). Some families have been raising cattle in the Jarbidge FO for six generations. Scoping comments expressed the opinion that the practice of ranching in the FO will preserve open space from development, an important social value in the area.

Participants at the Jarbidge Community Economic Workshop, held in September 2006, described differences in agricultural practices within the Jarbidge FO. Farms with cropland surround the Jarbidge FO. Workers commute to and from the Jarbidge FO to work in neighboring dairies, farms, and communities. In the north, hay, potatoes, mint, and wheat are grown in rotation in the Grindstone Butte area. The hay is often sold to dairies outside the Jarbidge FO. Barley, sugar beets, dry beans, oats, and corn for silage and feed are grown in the Indian Cove area. There is one dairy in the Blue Gulch area (Gardner, 2006).

Inequality

For every household in the county aggregation that made over $100,000 in 1999, there were 6.2 households that made under $30,000. Ten years earlier, for every household that made over $100,000, there were 27.3 households that made under $30,000[22] ("Economic Profile System," 2006). This is an indication of a decline in inequality.

The housing affordability index measures the affordability of a home. An index of 100 or above means the median family can afford the median house. The affordability index for the county aggregation is 150, suggesting the median family can afford the median house. The housing affordability index score dropped from 154 in 1990, indicating housing became less affordable in the last decade ("Economic Profile System," 2006).

Access to Services

Mid-level practitioners in community health clinics are available in cities such as Glenns Ferry or Hammett. More serious health care needs can be addressed at hospitals in Boise, Mountain Home, Gooding, or Twin Falls (Gardner, 2006).

Dependence on the Federal Government

ICBEMP identified communities within the Interior Columbia Basin that may be economically and socially vulnerable to shifts in the management of USFS- and BLM-administered lands. Glenns Ferry, Mountain Home, Bliss, Gooding, Hagerman, and Wendell, Idaho were chosen as communities of interest based on their geographical isolation, industries in which the community specialized, and the relationship of the community to USFS- and BLM-administered lands (ICBEMP, 1998). These communities lie to the north and east of the Jarbidge FO.

BLM disbursements coming out of the Jarbidge FO in Fiscal Year 2006 include approximately $500 in recreation permits, $223,500 in grazing receipts, $3,500 in mineral material sales, and $46,500 in land use authorizations and ROW collections. Total collections from grazing on BLM-managed land in Idaho was approximately $1.6 million in fiscal year 2006. The Jarbidge FO represented nearly 15% of that total. Revenues from livestock grazing fees collected within the Jarbidge FO are significant in relation to other areas of the State.

BLM disburses Payments-In-Lieu of Taxes (PILT) to counties for all Federal lands. Congress appropriates PILT payments each year for tax-exempt Federal lands administered by the BLM, NPS, FWS, USFS, Federal water projects, and some military installations. PILT payments are in addition to other Federal revenues transferred to the states such as oil and gas leasing, livestock grazing, and timber harvesting. These payments help local governments carry out vital services such as firefighting and police protection, construction of public schools and roads, and search-and-rescue operations. The formula used to compute the payments is contained in the PILT Act and is based on population, receipts-sharing payments, and the amount of Federal land within an affected county. BLM PILT payments amounted to $1,373,305 for Elmore County, $729,305 for Owyhee County and $928,459 for Twin Falls County from all BLM FOs in those

[22] Numbers not adjusted for inflation.

counties for 2006 (Gardner & Martin, 2006). Elko County received $1,817,553 in PILT payments from all BLM FO in that county for 2006 ("PILT Payments (in Dollars) for Counties in Nevada," 2007).

Social Values

Participants in the Jarbidge Community Economic Workshop identified the Malad Gorge, Billingsley Creek State Park, Miracle and Sligar's Hot Springs, and the Thousand Springs Scenic Byway as culturally and socially significant places and areas. Participants also identified what they appreciated about the Jarbidge FO. Responses included solitude, livestock, wildlife, scenery, recreation opportunities, hunting, and cultural aspects (Gardner, 2006). Areas important to the Shoshone-Paiute Tribes and the Shoshone-Bannock Tribes exist within the Jarbidge FO boundaries (see Tribal Treaty Rights and Trust Responsibilities). Families with grazing permits in the planning area use the public land for purposes other than grazing, including scientific, educational, spiritual, aesthetic, and recreational purposes (Black & Black, 2006; Brackett et al., 2006; Lehmann et al., 2006).

Current Management

The 1987 Jarbidge RMP did not address any goals, objectives, or management actions for social and economic conditions in the planning area. These activities are managed according to BLM policy.

Management Opportunities

The revised Jarbidge RMP will evaluate the effects of each alternative on the social and economic systems surrounding the Jarbidge FO. Actions and guidelines related to the social and economic sustainability of communities could be considered as well.

2.E.3. Interpretation, Outreach, and Environmental Education

Profile

Interpretation

Interpretation is a voice for all resource management programs within BLM. Although BLM has had some interpretive facilities, programs, and products in place since the early 1970s, the interpretive program is relatively young. Red Rock Canyon National Conservation Area Visitor Center in Nevada was one of the first BLM visitor centers when it was completed in 1982. That same year, BLM established a partnership with its first interpretive cooperating association. As of 2006, BLM is an active partner in 46 visitor centers, l8 of which BLM owns and manages.

Figure 41. Informational Kiosk for the Owyhee Canyon Lands

BLM's interpretive program focuses on the Nation's public lands and the interrelationship between the physical elements, biological systems, and cultural and historical events. Management issues are addressed within the interpretive story in a way that relates those issues to visitor experiences. Interpretive planning is done collaboratively with internal and external groups, and clear objectives are established to measure the program's costs, benefits, and effectiveness. BLM's interpretive program aims to respect and serve people with diverse backgrounds and abilities.

Five interpretive kiosks are located throughout the Jarbidge FO (Figure 41). Three kiosks display geologic information, safety tips, and maps for kayakers and rafters in the Jarbidge and Bruneau River canyons. The other kiosks feature information about the Oregon NHT at Pilgrim Station and geologic features at the Bruneau Overlook.

Outreach

Public land resources play an integral part in people's lives, and Jarbidge FO staff work to protect the value of these resources for all generations. Outreach efforts within the Jarbidge FO are varied and have reached a significant number of people over the years. The following activities are examples of ongoing outreach projects:

- Jarbidge FO staff hand out fire, cultural resource, rangeland management, planning, recreation, and Wild Horse and Burro program information at the Twin Falls County Fair. In 2006, over 3,079 people visited the booth, operated in cooperation with the USFS, IDFG, NPS, and FWS.
- Outreach to area OHV groups occurs through Jarbidge FO staff attendance at

meetings and trail rides and through organizing clean-up efforts. These efforts occur in areas that experience a high degree of use.

- Fire staff members educate homeowners in the Jarbidge FO WUI about the dangers of wildfire. Fire education presentations have been held at the Three Creek, Buhl, and Castleford schools, and recruitment programs have taken place in Buhl and Castleford. KMVT, the local CBS affiliate, recently recorded a segment featuring the life of a firefighter stationed at the Juniper Butte Guard Station.
- Idaho Public Television filmed a segment on the Salmon Falls Recreation Area, including highlights from the Jarbidge FO. They recently traveled to the Arch to film footage for a "Desert Hideaways" special program to air on *Outdoor Idaho* in 2007.

Environmental Education

Outdoor classrooms are effective tools to awaken curiosity. Environmental education efforts within the Jarbidge FO enhance understanding, increase skills, and develop an appreciation for effective land management techniques. The following activities illustrate effective partnerships that occur within the environmental education arena:

- Jarbidge FO staff partnered with local ranchers in 2006 to host outdoor educational opportunities for area elementary students in celebration of Earth Day. Students and staff planted willow cuttings in the southern portion of the Jarbidge FO, and were treated to informative natural resource preservation presentations.
- Jarbidge FO staff partner with members of the Oregon-California Trail Association to equip volunteers with resources to place trail markers along sections of the Oregon NHT. Maintenance of trail markers is critical to BLM's management of this component of the National Scenic and Historic Trails System. Over 40 miles of trail have been marked since the partnership began in 2003.
- The BLM Adventures in the Past outreach program features different educational programs during Idaho Archaeology and Preservation Month. The Jarbidge FO staff is actively involved in this program by offering presentations to area elementary schools, civic organizations, and various interested groups.

Current Management

The 1987 Jarbidge RMP did not address any goals, objectives, or management actions for interpretation, outreach, or environmental education in the planning area. These activities are managed according to BLM policy.

Management Opportunities

Interpretation, outreach, and environmental education efforts should foster an appreciation for resources and an understanding about the relationships between people and the public lands. Outreach activities for the Jarbidge FO could include information about use authorizations, safety, orientation, recreation, fire rehabilitation and potential closures, noxious weed and invasive plant identification and control, and opportunities for volunteerism. Outreach efforts could focus on area residents and users residing outside the TFD. Future interpretation, outreach, and environmental education should focus on protecting the segments of the Oregon NHT and historic and archaeological resources, as well as educating the public about fire prevention, special status species, complex ecosystems, and resource protection.

Partnering with the different user groups to form educational and outreach programs could allow BLM to reach interested target audiences. Examples include "Appreciation Day," where area 4th or 5th graders are invited to experience natural resource management through hands-on activities and events coinciding with National Public Lands Day or The Great American Clean-Up. Efforts could also be tied to national-level initiatives, priorities, and programs such as the national weeds initiative, Leave No Trace, and Tread Lightly!.

2.E.4. Military

Profile

<u>Saylor Creek Air Force Range</u>

Location

Saylor Creek Air Force Range (SCAFR) consists of approximately 110,000 acres located in Owyhee County in southwestern Idaho, approximately 20 miles southeast of Mountain Home Air Force Base (MHAFB). SCAFR is located in the relatively flat upland of the Bruneau Desert at an average elevation of 3,700 feet. This area is bordered on the north by the Snake River Canyon and on the west by the Bruneau Canyon.

History

MHAFB was established in 1943 to provide US Army Air Corps bombardment training during World War II. In 1953, the Army established Saylor Creek Bombing Range (now SCAFR). In 1954, principal training was conducted at the Saylor Creek Bombing Range and four Precision Bombing Ranges in southwestern Idaho. Between 1943 and 1992, MHAFB changed missions and commands several times. The Precision Bombing Ranges were returned to the public domain in 1959 and the 400,000-acre gunnery range was reduced to its present size of approximately 110,000 acres in the early 1960s due to changes in tactics and technology. After World War II, SCAFR continued to be used to train reconnaissance aircraft, transport wing, and bombers.

Purpose

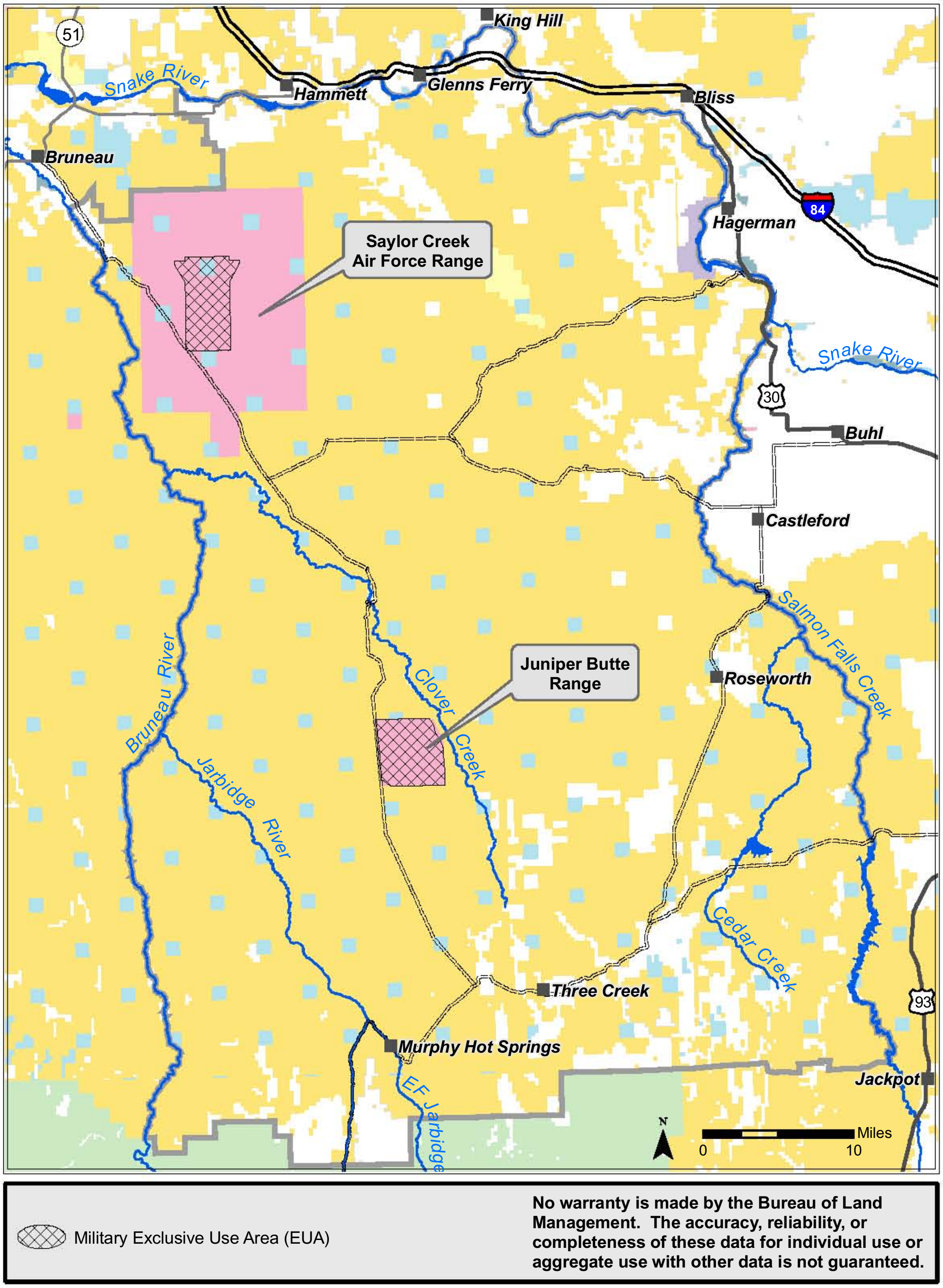
SCAFR has been used since 1944 for training activities including artillery, air-to-air and air-to-ground gunnery, precision bombing, and tactical air-to-ground reconnaissance. A 12,200-acre EUA is located within the center of SCAFR and contains multiple targets of various types, including a mock airfield, military convoys, and building targets and two strafe pits used for conventional air-to-ground training.

Management Responsibilities

SCAFR is reserved for the use of USAF. Overall management and use of the withdrawn lands are the responsibility of USAF, including prevention and suppression of range fires, clean-up of ordnance, and rehabilitation.

USAF is required to take all reasonable precautions to prevent and suppress brush and range fires occurring within the withdrawn lands during military use or outside the withdrawn lands resulting from military use. The EUA is fenced and has a 100-foot-wide, bare-ground firebreak that is maintained around its perimeter. The public land orders that created SCAFR permit USAF to enter into agreements with the BLM for fire suppression and reseeding. Under the Support Agreement Between the United States Air Force 366th Wing Mountain Home Air Force Base, Idaho and the United States Department of Interior BLM Twin Falls District Office, dated December 2006, BLM is responsible for fire protection outside the EUA (approximately 97,000 acres). Fire protection responsibilities involve preparedness, suppression, and post-suppression actions including, but not limited to, detection and patrol, construction of fuel breaks, fire rehabilitation, and reseeding.

Figure 42. Saylor Creek Air Force Range and Juniper Butte Range.



JARBIDGE FIELD OFFICE

USAF is required to prevent the destruction of range resources and range infrastructure and provide for reseeding or other restoration work if the lands or improvements are damaged by military use. Necessary restoration will be accomplished under a cooperative agreement between USAF and the BLM. USAF is also required to prevent the pollution of waters on or in the vicinity of the withdrawn lands.

With the exception of the EUA which is used for gunnery, livestock grazing is permitted on SCAFR and managed by BLM. The USAF and BLM have worked cooperatively to allow grazing year round provided it does not interfere with the military use of the lands.

Juniper Butte Range

Location

Juniper Butte Range (JBR) is located approximately 25 miles southeast of Saylor Creek Range in Owyhee County, Idaho. The approximately 13,000-acre range, including an 11,000-acre EUA, is located in gently rolling uplands of the Inside Desert. The area is bordered to the east by Clover Creek and to the south by Juniper Butte.

History

Congress established JBR with the Juniper Butte Range Withdrawal Act (JBRWA) in 1998 as an addition to Saylor Creek Range and to enhance the 366th Fighter Wing's ability to conduct realistic training close to MHAFB. The area was traditionally used by ranchers, hunters, and Native Americans from the Duck Valley Reservation.

Purpose

JBR is used by the USAF for ordnance delivery and electronic combat. Activities within this area include dropping non-explosive training ordnance with cold spot or no-spot charges; electronic warfare, tactical maneuvering, and air support; and other defense-related purposes.

Management Responsibilities

The JBRWA withdrew JBR from all forms of appropriation under the public land laws, including the General Mining Law of 1872 and the mineral and geothermal leasing laws. BLM provides fire suppression assistance for all withdrawn and leased acreage at the request of MHAFB, including the EUA and 960 acres of State-leased land.

Emitter Sites

Location

There are 30 emitter sites established in Owyhee and Twin Falls Counties. Fourteen emitter sites are located in the Jarbidge FO: nine quarter-acre sites, and five one-acre sites. One five-acre No-Drop target is also within the Jarbidge FO. Seven quarter-acre sites are on State land within the Jarbidge FO. The quarter-acre sites consist of an unfenced, gravel parking area designed to support temporary use. The one-acre emitter sites are fenced and graveled and contain one 400-square-foot building approximately 15 feet in height. Emitter sites are not continually manned or occupied, but are temporarily manned on a rotational or intermittent basis to support training missions. On average, five to eight emitter sites are used each weekday.

History
Withdrawals for the one-acre and five-acre sites were issued in October 1998. ROWs for the quarter-acre emitter sites were issued in January 1999.

Purpose
Electronic emitter sites simulate enemy threats. During training, aircrews detect and respond to simulated threats created by emitters. In combination with No-Drop targets and ranges, emitter sites help to provide a variety of realistic training scenarios.

Management Responsibilities
The quarter-acre emitter sites are used by the USAF through a BLM ROW authorization. As part of the ROW authorization for the quarter-acre sites, BLM has made the Air Force responsible for reseeding disturbed areas and identifying and controlling noxious weeds within the issued ROWs. The larger emitter sites are withdrawn from public use and are under the management of the USAF.

Airspace
MHAFB controls and operates the Mountain Home Range Complex airspace comprised of four Military Operating Areas (MOAs). MOAs are special-use airspace designated by the Federal Aviation Administration (FAA) to identify areas where non-hazardous military operations are conducted and to separate these activities from nonparticipating civil and military air traffic. MOAs provide the horizontal and vertical space to permit military aircraft to maneuver and train. The Jarbidge MOA covers the majority of the portions of the Jarbidge FO within Owyhee County, including airspace between 100 feet above ground level and 17,999 feet above mean sea level. SCAFR and JBR are restricted airspaces within the Jarbidge MOA. Restricted areas separate potentially hazardous military activities, such as air-to-ground training, from other aviation activities. Aircraft must have permission from air traffic control to enter a restricted area when active.

Current Management
The 1987 Jarbidge RMP did not contain goals, objectives, or management actions related to the military. The relationship with the military is managed according to BLM policy and agreements with MHAFB.

Management Opportunities
The Jarbidge FO could seek to improve communication and cooperation with USAF regarding management of SCAFR and BLM lands adjacent to JBR and the associated facilities.

CHAPTER 3. AREAS OF RELATIVE ECOLOGICAL IMPORTANCE

The Jarbidge FO contains three areas identified to be of relative ecological importance.

3.A. Bruneau-Jarbidge River Corridors

The canyon lands of the Bruneau-Jarbidge Rivers provide important habitat for a variety of fish and wildlife. Canyon habitats provide ideal breeding and nesting habitat for raptors and migratory songbirds. Weather and geologic characteristics of canyons produce suitable thermal conditions for foraging soaring birds. Riparian zones associated with most of the canyons provide migration routes for birds. Birds utilizing canyon habitats include cliff swallow, canyon wren, rock wren, chukar, and white-throated swift. The canyons also provide roosting and foraging areas for a variety of bats.

Recent IDFG data indicate the uplands adjacent to canyons provide important habitat for wintering mule deer and pronghorn and year round habitat for bighorn. Winter flights in 2004-2005 and 2005-2006 consistently documented big game within 1 mile of canyon rims, beyond what was previously considered winter range. Canyon habitats provide ideal security and thermal cover for big game.

The Bruneau and Jarbidge canyon lands maintain population connectivity for California bighorn sheep in southwestern Idaho. California bighorn sheep lambing areas are often associated with Jarbidge River side canyons and terraces between cliffs. Winter habitat is generally the western slopes and adjacent plateau areas to over a mile from the canyon rim in the planning area.

Small and large mammals such as woodrats, canyon mice, and spotted skunk use riparian zones in the canyons for movement corridors during the spring and fall.

The Bruneau River is home to the Endangered Bruneau Hot springsnail (*Pyrgulopsis bruneauensis*). The Bruneau Hot springsnail is only found in hot springs and seeps along a 5.5 mile reach of the lower Bruneau River near Hot Creek, making this reach a key ecological area for this Endangered snail. Some of these hot springs and seeps have decreased in flow over the years, with a matching decline in the number of snails (Myler, 2005). Natural geothermally influenced water temperature regimes in the lower Bruneau are important for Bruneau Hot springsnails.

Resident and migratory populations of Threatened bull trout populations are present on BLM managed lands in the Jarbidge River, East Fork Jarbidge River, Dave Creek, and Jack Creek. Maintaining connectivity between these streams and other bull trout occupied streams managed by USFS such as Cougar, Fall, Sawmill, Pine, and Slide Creeks would be essential to the successful reproduction and long-term conservation of bull trout in the Jarbidge River. Dave Creek is believed to have the highest concentration of bull trout spawning in the Jarbidge River Watershed. The Jarbidge River and its east fork may be important to the seasonal migration of bull trout.
The canyon lands of the Bruneau and Jarbidge Rivers contain important cultural resources in the

form of stream terraces, rock shelters, and caves in the canyon bottoms, as well as the canyon rims and shelves above.

3.B. Snake River Corridor

The Snake River provides important nesting and brood-rearing habitat, migratory resting areas, and winter habitat for waterfowl, shore birds, and wading birds. The steep and rocky nature of the canyon provides ideal breeding and nesting habitat for a number of raptors and migratory song birds. Raptors commonly found in this area are known to migrate to the Great Plains and the desert southwest following fledging of young. Tens of thousands of migratory geese and ducks are present in the canyon corridor from October through March and Threatened wintering bald eagles are present in the area. Open water sites are used as foraging and loafing areas. Weather and geologic characteristics of the canyon produce suitable thermal conditions for foraging soaring birds.

Riparian habitats along the Snake River provide important breeding and nesting habitat for songbirds as well as important foraging habitat, breeding habitat, and travel corridors for small mammals, reptiles, and amphibians.

The Snake River also contains important habitat for aquatic resources. The reaches of the Snake River on the northern boundary of the planning area are habitat for Snake River Snails, including the Endangered Snake River physa, Threatened Bliss Rapids snail, Endangered Utah valvata, and Endangered Idaho springsnail. Key habitat features for Federally listed Snake River snails include cold, clean, well-oxygenated, flowing water of low turbidity. With the exception of the Utah valvata snail and possibly Idaho springsnail, these snails prefer gravel- to boulder-sized substrates. Each of these species has slightly different habitat preferences. The Idaho springsnail and Snake River physa are found only in the free-flowing reaches of the Snake River. The Bliss Rapids snail and Utah valvata occur in both cold-water springs and mainstem habitats. The Columbia pebblesnail and freshwater mollusks, such as the short-face lanx and the California floater, live in the Snake River but have slightly different habitat requirements.

White sturgeon are found within the Snake River Canyon. Hydroelectric dams greatly limit the river reaches where these fish can successfully spawn in the Snake River Canyon from Shoshone Falls to C.J. Strike Reservoir. Key features to the distribution of white sturgeon include fast flowing water with cool water temperatures and high water quality. River reaches with high deposition of fine sediments can degrade sturgeon spawning habitats by filling interstitial spaces in which eggs and hatchlings gain strength, hide from predators, and take refuge during periods of excessive high flows. The areas below rapids and pool tail-outs for white sturgeon spawning and deep pools for overwintering cover are essential to maintaining sturgeon populations in the Snake River.

Shoshone sculpin are found in cold water springs and alcove habitats along the Snake River. Changes in streamflow regimes and reductions in water quality limit the amount of suitable habitat for this species. Shoshone sculpin are only found in association with groundwater outflows or upwelling from stream bottoms and the protection of this key feature along the Snake River is essential to the long-term existence of the species.
The northern Snake River Sediments area of the planning area contains highly erosive and easily

disturbed soils. Even minor disturbances may reduce litter and soil structure resulting in soil loss from either wind or water and intense management for proper care and improvement.

The Snake River corridor provides habitat that supports populations of several of Sensitive plants including Snake River milkvetch, Greeley's wavewing, calcareous buckwheat, Janish penstemon, and Shockley's matted cowpie buckwheat. There are known populations of Snake River milkvetch, Greeley's wavewing, calcareus buckwheat, Janish penstemon, and Shockley's matted cowpie buckwheat.

Fossil bearing geologic strata appear to be limited to the northern portion of the Jarbidge planning area. In particular, those areas with exposed deposits of the Glenns Ferry Formation have very high potential for paleontological resources.

3.C. Jarbidge Foothills

The Jarbidge Foothills extend from Salmon Falls Creek on the east to the existing boundary of the Bruneau-Jarbidge River ACEC on the west, and from the southern boundary of the planning area north to the Three Creek Highway.

During the spring and fall, the Jarbidge Foothills are used by migratory birds moving from the central mountains of Idaho across the Snake River plain down through Nevada.

The Jarbidge Foothills provide important big game habitat extending to the north 20 miles from the FO boundary or more. The foothills provide mule deer and pronghorn fawning habitat and elk calving habitat, as well as winter range for all big game. Winter ranges are important to maintaining the nutritional health of wintering wildlife including pregnant females. The transitional ranges to summer habitat are important for maintaining high nutrition for females as they get ready to give birth and lactate.

The Jarbidge Foothills contain a variety of habitats supporting a number of non-game wildlife and amphibians, including several Sensitive species. Columbia spotted frog are present in the China Mountain area. The area is the best remaining population stronghold for sage-grouse and provides connectivity with sage-grouse populations in Shoshone Basin to the east, northern Nevada to the south, and Owyhee Plateau to the west. This area also contains high elevation wintering habitat for sage-grouse, Columbian sharp-tailed grouse, and at least four other Sensitive species.

Several perennial streams provide habitat for redband trout and other fish species including China Creek, Rocky Canyon, Cedar Creek, and House Creek.

The Jarbidge Foothills contain some of the largest contiguous blocks of sagebrush steppe habitat left in the planning area. Wyoming big sagebrush communities are particularly important from an ecological perspective. These habitats support many sagebrush obligate and Sensitive plant and animal species, and are important for hydrologic cycling and maintaining the natural fire cycle. From an acreage perspective, Wyoming big sagebrush communities experienced the greatest loss in the planning area. Based upon the relevant soil surveys, 86.7% of the planning area should be covered with shrubs. These plant communities now occupy approximately 39.8%.

Important ecological and soil-specific Sensitive plants found within the Jarbidge Foothills include Simpson's hedgehog cactus and white-margined wax-plant. CDC general location data identifies possible populations of two-headed onion, four-wing milkvetch, and Newberry's milkvetch in the Browns Bench area. The Jarbidge Foothills contain a variety of vegetation habitats that support several Sensitive species. Plant communities supporting Sensitive species or their habitats would have the greatest ecological importance in the planning area. Other plant communities like aspen and mountain mahogany, occupying less than 2% of the planning area, are found in the Jarbidge Foothills.

CHAPTER 4. CONSISTENCY/COORDINATION WITH OTHER PLANS

According to guidance found in FLPMA (43 CFR 1610), BLM RMPs and amendments must be consistent, to the extent practical, with officially approved or adopted resource-related plans of other Tribal, Federal, State, and local governments so long as the guidance and RMPs are compatible. BLM RMPs must also be consistent with the purposes, policies, and programs of FLPMA and other Federal laws and regulations related to public lands, including Federal and State pollution control laws (43 CFR 1610.3-2 [a]). If these other entities do not have officially approved or adopted resource-related plans, them BLM RMPs must, to the extent practical, be consistent with those entities' officially approved and adopted resource-related policies and programs. This consistency will be accomplished so long as BLM RMPs incorporate the policies, programs, and provisions of public land laws and regulations and Federal and State pollution control laws (43 CFR 1610.3-2 [b]).

The Jarbidge RMP will strive for consistency with plans and their revisions pertaining to lands included in and surrounding the planning area including, but not limited to, the following:

County Plans

- Elko County Federal Land Use Plan, Elko County Code Title 12, Chapter 3
- Elko County General Plan of 1971
- Elko County Open Space Master Plan of 2006
- Elmore County 2004 Comprehensive Growth and Development Plan
- Owyhee County Comprehensive Plan, 2002
- Twin Falls County Comprehensive Plan, 2007

State Agency Plans and Comprehensive Wildlife Conservation Strategies

- Idaho Comprehensive Wildlife Conservation Strategy, 2005
- Idaho State Water Plan
- Idaho Transportation Plan, 2004
- Working for Recreation: The 2006-2010 Idaho Department of Parks and Recreation Strategic Plan

Federal Agency Plans

- Bennett Hills/Timmerman Hills Management Framework Plan, 1976
- Bruneau Management Framework Plan, 1983
- Cascade Resource Management Plan, 1988
- Juniper Butte Range Integrated Natural Resource Management Plan, 2000
- Final General Management Plan/EIS, Hagerman Fossil Beds National Monument, Idaho, 1996
- Humboldt Land and Resource Management Plan, 1986
- Interior Columbia Basin Ecosystem Management Project: Scientific Assessment, 1997
- Kuna Management Framework Plan, 1983

- Monument Resource Management Plan, 1986
- Mountain Home Air Force Base Integrated Natural Resource Management Plan, 2004
- Owyhee Resource Management Plan, 1999
- Toiyabe Land and Resource Management Plan, 1986
- Twin Falls Management Framework Plan, 1981
- Wells Resource Management Plan, 1985

Before BLM approves RMP decisions, the Governor has 60 days to identify inconsistencies between the proposed plan and State plans and programs and to provide written comments to the BLM State Director. BLM and the state may mutually agree on a shorter review period. If the Governor does not respond within this period, it is assumed that the proposed RMP decisions are consistent. If the Governor recommends changes in the proposed plan or amendment that were not raised during the public participation process, the State Director shall provide the public with an opportunity to comment on the recommendations (43 CFR 1610.3-2 [e]). This public comment opportunity will be offered for 30 days and may coincide with the 30-day comment period for the Notice of Significant Change. If the State Director does not accept the Governor's recommendations, the Governor has 30 days to appeal in writing to the BLM Director (43 CFR 1610.3-2 [e]).

The Jarbidge FO will consult with Tribal governments throughout the RMP process, primarily the Shoshone-Paiute Tribes of the Duck Valley Reservation and the Shoshone-Bannock Tribes of the Fort Hall Reservation. Consultation on the Jarbidge RMP with the Shoshone-Paiute Tribes is conducted through the Twin Falls District's established government-to-government consultation process, the Wings and Roots Native American Campfire. The Jarbidge RMP was discussed at fifteen Wings and Roots meetings between December 2005 and April 2007. The Shoshone-Paiute tribal staff also toured the southern portion of the planning area with Jarbidge FO staff on August 10, 2006.

Formal government-to-government consultation with the Shoshone-Bannock Tribes is conducted through the Fort Hall Business Council, coordinated with the Shoshone-Bannock environmental staff. A brief introduction to the Jarbidge RMP was given to the Fort Hall Business Council on April 27, 2006. A briefing was given in January 2007.

The Jarbidge FO will also collaborate with other Federal, State, and local agencies and governmental entities throughout the RMP process. A number of agencies were invited to participate in the RMP planning process as cooperating agencies (Table 64). To date, seven agencies have accepted the BLM's invitation and are working to finalize an MOU to formally establish the relationship: Idaho State Department of Agriculture, IDFG, Idaho Department of Lands, Idaho Department of Parks & Recreation, the National Park Service – Hagerman Fossil Beds National Monument, the Twin Falls County Board of Commissioners, and the Elko County Board of Commissioners. The Owyhee County Commissioners have indicated they will participate in the Jarbidge RMP through their existing coordination agreement with the Twin Falls District.

Table 64. Agencies Invited to Establish Cooperating Agency Status for the Jarbidge RMP.

Federal Agencies	State Agencies	Local Agencies
Mountain Home Air Force Base	Idaho Department of Fish and Game	Elko County Board of Commissioners
National Park Service – Hagerman Fossil Beds National Monument	Idaho Department of Lands	Elmore County Board of Commissioners
Natural Resources Conservation Service	Idaho Department of Parks and Recreation	Owyhee County Commissioners
US Fish and Wildlife Service-Boise	Idaho Department of Transportation	Three Creek Highway District
US Fish and Wildlife Service-Reno	Idaho Department of Water Resources	Twin Falls County Commissioners
US Geological Survey-Forest and Rangeland Ecosystem Science Center	Idaho Governor's Office of Species Conservation	
US Geological Survey-Water Resources Division	Idaho State Department of Agriculture	
	Idaho State Historic Preservation Office	

CHAPTER 5. SPECIFIC MANDATES AND AUTHORITY

The development of the revised Jarbidge RMP will follow all applicable laws, regulations, and policies, including, but not limited to, those listed in Appendix 1. The ID Team will continue to refine this list throughout the planning process. For more detail on what is required by these documents, please refer to the original document.

CHAPTER 6. SUMMARY OF SCOPING REPORT

Scoping Meetings

Scoping is the term used to describe the early and open process for identifying the issues to be addressed in the planning process. A Notice of Intent (NOI) to prepare the Jarbidge RMP was published in the Federal Register on January 10, 2006. This notice served as the beginning of BLM's formal scoping process for the RMP. It included the following internally identified issues:

- Tribal treaty rights and trust responsibilities;
- Availability and management of public lands for commercial uses (e.g., livestock grazing, minerals development);
- Vegetation management including invasive species, noxious weeds, riparian areas, and wetlands;
- Fire and fuels management;
- Management of habitat for wildlife and special status species;
- Management of transportation, public access, and recreational opportunities;
- Land tenure adjustments and rights of way including wind energy and utility corridors;
- Wild horses; and
- Management of areas with special values.

Open house scoping meetings were held in Twin Falls, Buhl, Glenns Ferry, and Three Creek, Idaho, in May 2006. Fifty-six individuals participated in these meetings (Table 65). The open house format was used to encourage two-way dialogue and discussions about issues to be addressed in the plan, concerns about the process, the planning criteria, and the development of the range of alternatives to be analyzed in the draft RMP/EIS. At each open house, at least five members of the RMP ID Team plus at least one manager from the Twin Falls District were available to answer questions from the public. Maps and posters were displayed around the room to facilitate discussion between the BLM staff and the public. Some attendees submitted written comments at the open houses. In addition, following each open house, ID Team members documented the issues and concerns they discussed with various publics.

Table 65. Open House Scoping Meeting Schedule and Attendance.

Location	Date	Number of Attendees
Twin Falls	May 16, 2006	18
Buhl	May 18, 2006	9
Glenns Ferry	May 23, 2006	17
Three Creek	May 24, 2006	12

Several methods were used to advertise the open house meetings and the scoping period for the Jarbidge RMP. First, an e-mail address and website for the RMP were created when the NOI was published. The website provided information regarding the open houses and instructions for submitting scoping comments. Next, ID Team members compiled a mailing list for the RMP, including individuals and organizations on other BLM mailing lists; Jarbidge FO permit and lease holders; Tribes; Federal, State, and local government agencies; mailing list requests; and other individuals or organizations thought to be interested in the Jarbidge planning effort.

A one-page mailing was sent to the mailing list on April 28, 2006, that informed recipients of the open house schedule and how to submit comments. These same parties were sent the Jarbidge RMP First Newsletter on May 12, 2006. The newsletter provided more information about the planning process, public participation in the RMP, and the open house schedule. The newsletter also contained a postage-paid reply card that could be returned as a request to remain on the mailing list and used to provide scoping comments[23]. Copies of the newsletter were distributed to attendees at meetings and briefings and were also available to the public at the Jarbidge, Shoshone, and Burley FOs.

A press release on the open houses and scoping process was sent to contacts from the Twin Falls District Media Distribution List the week of May 8, 2006 (Table 66 and Table 67); two newspapers printed stories and one radio station aired a story based on the press release. The local CBS affiliate, KMVT, produced a short segment on the Jarbidge RMP that aired during the evening newscasts on May 15, 2006. Print ads were also placed in six newspapers prior to the open houses.

Table 66. BLM Idaho, Twin Falls District, 2006 Print Media Distribution List.

Name	Location	Scoping Coverage
Daily Newspapers		
Times News	Twin Falls	Ad (5/12, 5/14, 5/15, 5/17)
South Idaho Press	Burley	
Idaho Statesman	Boise	
Weekly Newspapers		
Minidoka County News	Rupert	
Buhl Herald	Buhl, Castleford, Filer	Story (5/17); Ad (5/10, 5/17)
North Side News	Jerome	Ad (5/11)
Gooding County Leader	Gooding	Ad (5/11)
Lincoln County Journal	Shoshone, Richfield, Dietrich	
Wood River Journal	Hailey	
Idaho Mountain Express	Ketchum	
Arco Advertiser	Arco	
Mountain Home News	Mountain Home	Ad (5/17)
Owyhee Avalanche	Homedale	Story (5/10); Ad (5/17)

[23] To avoid sending unwanted mail, those who have not participated in scoping either by submitting comments, attending an open house or briefing, or requesting to remain on the mailing list will be removed from the mailing list at the end of the scoping period. Organizations, government agencies, and holders of permits or leases in the Jarbidge FO will remain on the list regardless of their present level of participation.

Table 67. BLM Idaho, Twin Falls District, 2006 Broadcast Media Distribution List.

Name	Location	Scoping Coverage
Television Stations		
KMVT Channel 11 (CBS)	Twin Falls	Story (5/15)
KTFT Channel 38 (NBC)	Twin Falls	
KTVB Channel 7 (NBC)	Boise	
KPVI Channel 6 (NBC)	Pocatello	
KSAW Channel 52 (ABC)	Boise	
Radio Stations		
KART 1400 AM, KMVX 102.9 FM	Jerome	
KBAR 1230 AM, KZDX 99.9 FM, KFTA 970 AM, KKMV 92.5 FM	Rupert	
KSKI 103.7 FM, KECH 95.3 FM	Ketchum	
KLIX 1310 AM, KLIX 96.5 FM, KEZJ 95.7 FM, KTFI 1270 AM , KBSW 91.7	Twin Falls	Story (KBSW)

Other Briefings and Coordination Efforts

Members of the ID Team and the Twin Falls District managers have conducted briefings and presentations on the Jarbidge RMP for a variety of groups. Many of these presentations were provided at regularly scheduled coordination meetings, but others were given at the group's request. These presentations and meetings include:

- "71" Livestock Association (Buhl, ID – February 28, 2006 and Three Creek, ID – June 13, 2006)
- Nevada Division of Wildlife (Elko, NV – April 11, 2006)
- Owyhee County Commissioners (Murphy, ID – April 17, 2006)
- Twin Falls District Resource Advisory Council (Twin Falls, ID – May 9 and June 29, 2006, and Shoshone, ID – August 8, 2006)
- Twin Falls Chamber of Commerce Government Affairs Committee (Twin Falls, ID – May 26, 2006)
- Bull Trout Recovery Team (Jarbidge, NV – June 21-22, 2006)
- Idaho Congressional Briefing (Twin Falls, ID – June 22, 2006)
- The Wilderness Society (Twin Falls, ID – June 29, 2006)
- US Fish and Wildlife Service (Boise, ID – June 29, 2006)
- Idaho ATV Association Inc., Southern Idaho Desert Racing Association, Treasure Valley Trail Machine Association (Boise, ID – July 17, 2006)
- Buhl Kiwanis (Buhl, ID – July 19, 2006)
- Twin Falls Monarch Lions Club (Twin Falls, ID – July 20, 2006)
- Mid-Snake Resource Conservation and Development Council (Twin Falls, ID – July 25, 2006)
- Mayors, Administrators, and City Councils Organization (Gooding, ID – July 27, 2006)
- Elko County Board of Commissioners (Jarbidge, NV – August 16, 2006)
- Twin Falls County Fair (Filer, ID – August 30 through September 4, 2006)

In addition, BLM staff engaged in regular coordination with representatives of the Plaintiffs and Intervenors in the case of Western Watersheds Project v. K Lynn Bennett, under the jurisdiction of the District Court, District of Idaho. BLM mangers and staff have also been in regular contact with program leads from the Idaho BLM State Office as well as the Idaho BLM State Leadership.

Scoping Comment Analysis

Scoping comments were submitted to the Jarbidge FO via mail, e-mail, or in person. After the June 15, 2006, "to be most helpful" date, the ID Team read each comment and gathered to discuss comments received in writing and those provided at scoping events such as the open house scoping meetings. Issues and concerns identified from the submitted comments were placed in one of three categories: issues and concerns that may be resolved in the plan, issues and concerns that may be resolved through policy or administrative action, or issues and concerns beyond the scope of this plan.

Following this discussion, a database was created to catalog participants, contacts, and comments. "Participants" were defined as individuals or organizations that submitted comments through any of the methods mentioned above. "Contacts" referred to a specific commenting event (e.g., an e-mail, a letter). "Comments" were any individual, substantive comment made within a particular contact. One contact could contain more than one comment, and one participant could make more than one contact.

As comments were entered into the database, they were assigned comment codes. These codes facilitated analysis of the comments by categorizing them by major topic area and subcategories. Through this process, several concerns were identified that were not previously identified by the ID Team. Most of these new concerns were subsets of preliminary planning issues established at the beginning of the planning process. These new concerns include:

- Adjustment/division/correction of allotment boundaries,
- Wilderness character,
- Habitat fragmentation,
- Juniper control,
- Management of SRPs,
- Microbiotic crusts, and
- Management of released WSAs.

Summary of Public Comments

Public comments came from a variety of individuals representing an array of locations and organizations. Fifty-six individuals attended open house public meetings and 135 individuals submitted comments in writing. Table 68 contains states represented in the submitted comments.

Table 68. States Represented by Comments during 2006 Scoping

State	Count	State	Count
Alaska	1	New Mexico	2
Arizona	1	Nevada	12
California	4	Oklahoma	2
Colorado	2	Oregon	1
Florida	1	Tennessee	1
Idaho	91	Texas	3
Illinois	1	Utah	2
Kentucky	1	Virginia	1
Maryland	1	Washington	2
Montana	1	Unknown	4
North Carolina	1		

Most individuals submitting public comments resided in the State of Idaho. Table 69 contains the Idaho communities represented through public comments.

Table 69. Idaho Communities Represented by Comments during 2006 Scoping

Community	Count	Community	Count	Community	Count
Boise	24	Grand View	1	Meridian	1
Bruneau	1	Grangeville	1	Middleton	1
Buhl	5	Hagerman	4	Mountain Home	6
Caldwell	1	Hailey	2	Nampa	2
Castleford	5	Hammett	1	Pocatello	4
Clayton	1	Jerome	1	Rogerson	3
Eagle	1	Kimberly	3	Shoshone	1
Filer	2	King Hill	2	Twin Falls	12
Glenns Ferry	1	Lenore	1	Wendell	2
Gooding	1	Lewiston	1		

Participants in the scoping process represented themselves, a government agency or office, or an organization or business (Table 70). Participants were classified as an organization or business when they provided an organization or business name as part of their signature, on their comment card, or submitted their comment on letterhead. Ranchers with allotments in the FO who provided their ranch or business name on their scoping comments were classified as businesses.

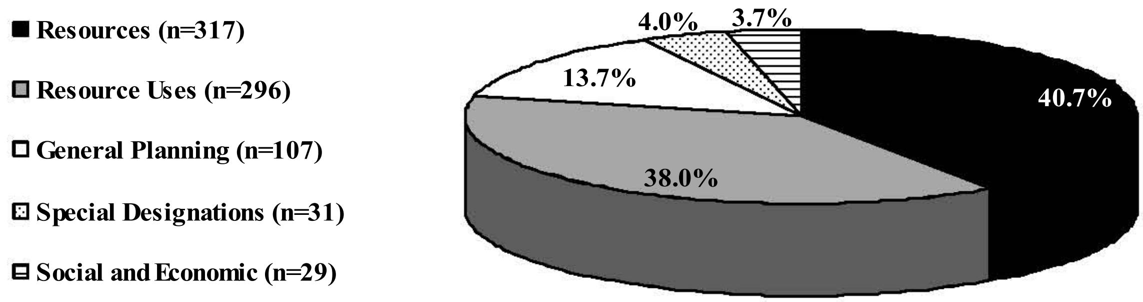
Table 70. Type of Participant Submitting Comments during 2006 Scoping

Type of Participant	Count
Individual	56
Government Agency (Federal, State, or Local)	23
Organization or Business	60

These individuals produced 160 contacts, resulting in 780 comments. Nineteen contacts were variations of one identified form letter. Sixty-six contacts were solely requests to be included on the Jarbidge RMP mailing list.

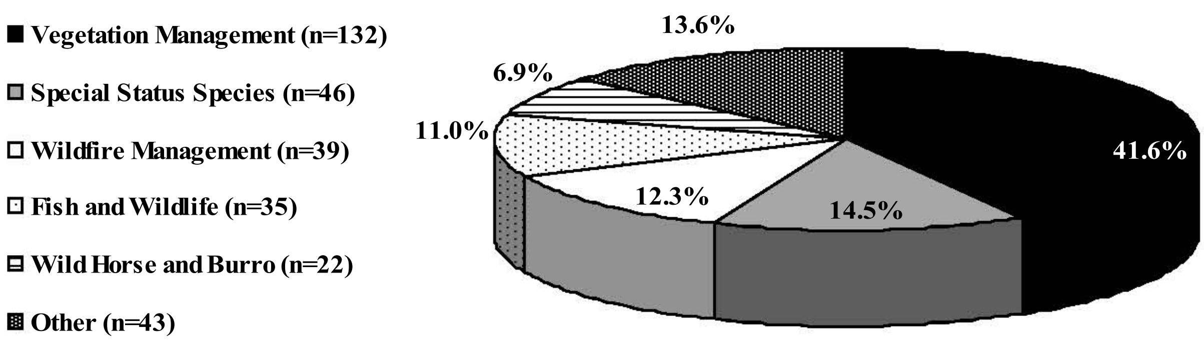
Comments were grouped into major topic areas and then further divided into subcategories. Most comments concerned "Resources" (40.7%) and "Resource Uses" (38.0%; Figure 43).

Figure 43. Percentage of 2006 Scoping Comments by Major Topic Area



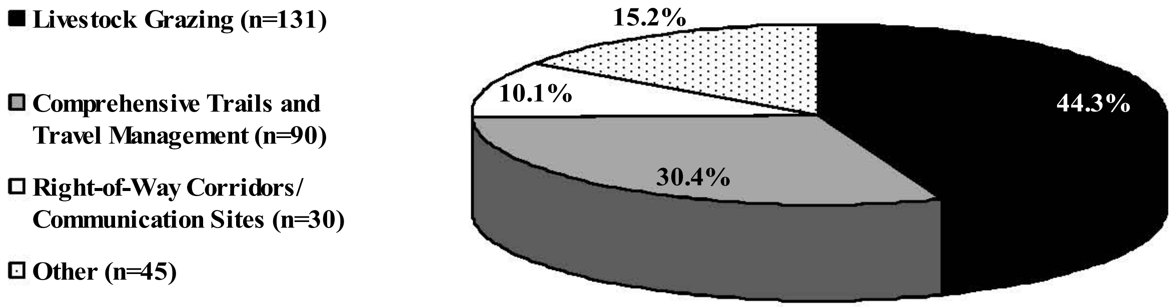
Among subcategories in the "Resources" category, "Vegetation Management" (41.6%) received the most comments (Figure 44). Topics in the "Other" subcategory (13.6%) included "Air Quality," "Soils," "Cultural Resources," "Paleontological Resources," "Visual Resources," "Water Resources" and "Wilderness Characteristics."

Figure 44. Percentage of 2006 Scoping Comments by "Resources" Subcategories



Among subcategories in the "Resource Uses" category, "Livestock Grazing" (44.3%) and "Comprehensive Trails and Travel Management" (30.4%) received the most comments (Figure 45). The "Other" subcategory (15.2%) included topics such as "Minerals," "Recreation Visitor Use and Safety," "Renewable Energy," "Land Tenure Adjustment," and "Military."

Figure 45. Percentage of 2006 Scoping Comments by “Resource Uses” Subcategories



APPENDIX 1. SPECIFIC MANDATES AND AUTHORITY

Document Name
Laws
General Mining Law of 1872, as amended (30 USC 21)
Antiquities Act of 1906 (16 USC 431-433)
Migratory Bird Treaty Act of 1918 (16 USC 703 et seq.)
Mineral Leasing Act of 1920, as amended (30 USC 181)
Recreation and Public Purposes Act of 1926, as amended (43 USC 869)
Taylor Grazing Act of 1934, as amended (43 USC 315)
Soil Conservation and Domestic Allotment Act of 1935 (16 USC 590)
Food, Drug, and Cosmetic Act of 1938 and the Miller Amendment to the Act (21 USC 301 et seq.)
Federal Insecticide, Fungicide, and Rodenticide Act of 1947, as amended (7 USC 136 et seq.)
Appropriations Act of 1952, McCarran Amendment (43 USC 666)
Watershed Protection and Flood Prevention Act of 1954, as amended (16 USC 1001 et seq.)
Sikes Act of 1960, as amended (16 USC 670 et seq.)
Water Resources Planning Act of 1962 (42 USC 1962 et seq.)
Classification and Multiple Use Act of 1964 (43 USC 1411-18)
Land and Water Conservation Fund Act of 1964, as amended (16 USC 460 et seq.)
Wilderness Act of 1964 (16 USC 1131 et seq.)
Fish and Wildlife Coordination Act of 1965 (16 USC 661 et seq.)
National Historic Preservation Act of 1966, as amended, (16 USC 470) in accordance with the National Programmatic Agreement*, the Idaho State Protocol Agreement, and implementing regulations 36 CFR 60 and 36 CFR 800
National Trails System Act of 1968 (16 USC 1241-1251)
Wild and Scenic Rivers Act of 1968, as amended. (16 USC 1271 et seq.)
National Environmental Policy Act of 1969 (42 USC 4321 et seq.)
Mining and Mineral Policy Act of 1970, as amended (30 USC 21)
Clean Air Act of 1970, as amended (42 USC 7401 et seq.)
Control of Pollution from Federal Facilities Act of 1970 (33 USC 1323)
Horse Protection Act of 1970 (15 USC 1821 et seq.)
Wild and Free-Roaming Horses and Burros Act of 1971 (16 USC 1331 et seq.)
Federal Environmental Pesticide Control Act of 1972 (7 USC 136 et seq.)
Endangered Species Act of 1973 (16 USC 1531 et. seq.)
Archaeological and Historic Preservation Act of 1974 (16 USC 469)
Federal Noxious Weed Act of 1975 (7 USC 2801 et seq.)
Federal Land Policy and Management Act of 1976, as amended (43 USC 1701 et seq.)

Document Name
Surface Mining Control and Reclamation Act of 1977 (30 USC 1201)
Clean Water Act of 1977, as amended (30 USC 1251)
Safe Drinking Water Act Amendments of 1977 (42 USC 201)
Soil and Water Resources Conservation Act of 1977 (16 USC 2001)
American Indian Religious Freedom Act of 1978 (42 USC 1996)
Public Rangelands Improvement Act of 1978 (43 USC 1901 et seq.)
Migratory Bird Conservation Act of 1979, as amended (16 USC 715)
Archaeological Resources Protection Act of 1979, as amended (16 USC 470 et seq.); implementing regulations 43 CFR 7
Emergency Wetland Resources Act of 1986 (16 USC 3901)
Federal Cave Resources Protection Act of 1988 (16 USC 4301 et seq.)
Native American Graves Protection and Repatriation Act of 1990 (25 USC 301) and implementing regulations 43 CFR 10
Pollution Prevention Act of 1990 (42 USC 13101 et seq.)
Energy Policy and Conservation Act Reauthorization of 2000, as amended (PL 106-469)
Energy Policy Act of 2005 (PL 109-58)
Wild Horse and Burro Sale-Authority, within Consolidated Appropriations Act of 2005 (PL 108-447, Sec 142)
Executive Orders and Memoranda
Executive Order of April 17, 1926, Public Water Reserve No. 107
Executive Order 11514, Protection and Enhancement of Environmental Quality, March 5, 1970 (35 FR 4247)
Executive Order 11593, Protection and Enhancement of the Cultural Environment, May 13, 1971 (36 FR 8921)
Executive Order 11644, Use of Off-Road Vehicles on Public Lands, February 8, 1972 (37 FR 2877), as amended by Executive Order 11989
Executive Order 11738, Providing for administration of the Clean Air Act and the Federal Water Pollution Control Act with respect to Federal contracts, grants or loans, September 10, 1973 (38 FR 25161)
Executive Order 11752, Prevention, control, and abatement of environmental pollution at Federal facilities, December 17, 1973 (38 FR 34793)
Executive Order 11987, Exotic Organisms, May 24, 1977 (42 FR 26949)
Executive Order 11988, Floodplain Management, May 24, 1977 (42 FR 26951), as amended by Executive Order 12148
Executive Order 11990, Protection of Wetlands, May 25, 1977 (42 FR 26961)
Executive Order 12088, Federal Compliance with Pollution Control Standards, October 17, 1978 (43 FR 47707)
Executive Order 12372, Intergovernmental Review of Federal Programs, July 14, 1982 (47 FR 30959)

Document Name
Executive Order 12898, Federal actions to address environmental justice in minority populations and low-income populations, February 11, 1994 (59 FR 7629)
Executive Order 12962, Recreational Fisheries, June 7, 1995 (60 FR 30769)
Executive Order 13007, Indian Sacred Sites, May 24 1996 (61 FR 104)
Executive Order 13084, Consultation and Coordination with Indian Tribal Governments, May 14, 1998 (63 FR 27655)
Executive Order 13112, Invasive Species, February 3, 1999 (64 FR 6183)
Executive Order 13186, Responsibilities of Federal Agencies To Protect Migratory Birds, January 10, 2001 (66 FR 3853)
Executive Order 13287, Preserve America, March 5, 2003 (68 FR 43)
Executive Memorandum, Government-to-Government Relations with Native American Tribal Governments, April 29, 1994
Regulations
40 CFR 1500-1508
43 CFR 37.2, Cave Management Policy
43 CFR 1600
43 CFR 1610.4, Resource Management Planning Process
43 CFR 1610.7-2, Designations of Areas of Critical Environmental Concern
43 CFR 2200.0-6 (b), Exchanges
43 CFR 2801.2 (c), Objective of BLM's Right-of-Way Program
43 CFR 2802.10, Lands Available for FLPMA Grants
43 CFR 8340, Off-Road Vehicles
50 CFR 400, Interagency Cooperation under the ESA
Departmental Guidance
Secretarial Order 3602, American Indian Tribal Rights, Federal Tribal Trust Responsibilities, and the ESA
BLM Manuals
BLM Manual 1553, Planning and Creating Graphics
BLM Manual 1610, Land Use Planning
BLM Manual 1613, ACECs
BLM Manual 1737, Riparian and Wetland Management
BLM Manual 1790, NEPA
BLM Manual 3031, Energy and Mineral Resource Assessment
BLM Manual 4180, Rangeland Health Standards
BLM Manual 4700, Wild Free-Roaming Horse and Burro Management
BLM Manual 6500, Wildlife and Fisheries Management

Document Name
BLM Manual 6521, State Agencies
BLM Manual 6525, Sikes Act Wildlife Programs
BLM Manual 6600, Fish, Wildlife, and Special Status Plant Resources Inventory and Monitoring
BLM Manual 6840, Special Status Species Management
BLM Manual 7000, Soil, Water, and Air Management
BLM Manual 8110, Identifying Cultural Resources
BLM Manual 8120 and Handbook H-8210-1, Tribal Consultation under Cultural Resources
BLM Manual 8160, Native American Coordination and Consultation
BLM Manual 8300, Recreation Management
BLM Manual 8170, Interpreting Cultural Resources for the Public
BLM Manual 8270 and Handbook H-8270-1, Paleontological Resource Management
BLM Manual 8351, Wild and Scenic River Policy
BLM Manual 8400-1, Visual Resource Management
BLM Manual 9211, Fire Planning
BLM Handbooks
BLM Handbook H-1601-1, Land Use Planning Handbook
BLM Handbook H-1624-1, Planning for Fluid Mineral Resources
BLM Handbook H-1790-1, National Environmental Policy Act Handbook
BLM Handbook H-3070-1, Economic Evaluation of Coal Properties
BLM Handbook H-3070-2, Economic Evaluation of Oil and Gas Properties
BLM Handbook H-3600-1, Mineral Materials Disposal
BLM Handbook H-4120-1, Grazing Management
BLM Handbook H-4180-1, Rangeland Health Standards
BLM Handbook H-8120-1, General Procedural Guidance for Native American Consultation
BLM Handbook H-8410-1, Visual Resource Inventory Handbook
BLM Handbook H-8550-1, Interim Management Policy for Lands under Wilderness Review
BLM Handbook H-9211-1, Fire Management Activity Planning
BLM Handbook H-9214-1, Prescribed Fire Handbook
BLM Instruction Memoranda
IM 1998-164, Summary of Visual Resource Management (VRM) Issues Discussed In Southern Utah Wilderness Alliance et. al., 144 IBLA 70 (1998)
IM 2000-022, including Change 1 Compliance with NEPA – Addressing Alternatives for Livestock Grazing Permit Renewals
IM 2000-096, Use of Visual Resource Management Class I Designation in Wilderness Study Areas
IM 2000-153, Standards Assessment Procedures and Guidance

Document Name
IM 2000-162, Land Use Plan Evaluations – Interim Guidance
IM 2001-030 including Change 1, Military Activities On and Over Public Lands
IM 2001-038 including Change 1, Development/Approval of Preparation Plans for New Planning Starts
IM 2001-078, Federal Register Documents
IM 2001-158, Consultation with the National Marine Fisheries Service on Federal Actions Adversely Affecting Designated Essential Fish Habitat
IM 2001-179, Guidance on Preparing Federal Register Notices
IM 2002-034, Fire Management Planning
IM 2002-100, Review Requirements for Land Use Planning Efforts
IM 2002-041, Expediting Appeals Resolution in OHA when NEPA Challenges are the Cause of Appeal
IM 2002-053, Preparation of a Statement of Adverse Energy Impact
IM 2002-108 Change 2, Process for Tracking Litigation Costs in BLM
IM 2002-124, Timing of Decision following Standards Achievement and Guideline Conformance Determinations
IM 2002-143, Competitive Sale of Public Lands
IM 2002-161, Federal Register Notice Publication Policy
IM 2002-164, Guidance to Address Environmental Justice (EJ) in Land Use Plans and Related National Environmental Policy Act Documents
IM 2002-167, Social and Economic Analysis for Land Use Planning
IM 2002-196, Right-of-Way (ROW) Management-Land Use Planning
IM-2002-209, Federal Register Notice Review Policy
IM-2002-216, Federal Register Notice Instructions
IM 2003-054, Identification of State Data Steward for Land Use Planning Boundaries
IM 2003-070 including Change 1, Clarify policy and procedures for the resolution of protests to land use plans
IM 2003-169, Use of the Economic Profile System in Planning and Collaboration
IM 2003-195, Rescission of the National Level Policy Guidance on Wilderness Review and Land Use Planning
IM 2003-232, Full Force and Effect Decision Authority for Wildland Fire Management Decisions
IM 2003-238, Guidance for Data Management in Land Use Planning
IM 2003-274, BLM Implementation of the Settlement of Utah v Norton Regarding Wilderness Study
IM 2003-275, Consideration of Wilderness Characteristics in Land Use Plans (Excluding Alaska)
IM 2004-005, Clarification of OHV Designations and Travel Management in the BLM Land Use Planning Process
IM 2004-007, Land Use Plan and Implementation Plan Guidance for Wildland Fire Management
IM 2004-049, Clarification of the Range Improvement Program

Document Name
IM 2004-052, Assessing Tribal and Cultural Considerations as Required in IM-2003-233, Integration of the Energy Policy and Conservation Act (EPCA) Inventory Results into the Land Use Planning Process
IM 2004-079, Land Use Plan Decisions, Implementation Decisions, and Administrative Remedies
IM 2004-089, Policy for Reasonably Foreseeable Development Scenario for Oil and Gas
IM 2004-096 including Change 1, Federal Register Notices of Availability for Records of Decision
IM 2004-105, Cooperating Agency: Proposed Planning Rules Change
IM 2004-148, Federal Register Notice; Solicitor's Edits
IM 2004-196, Clarification of Policy in the BLM Manual Section 8351, Wild and Scenic Rivers, with Respect to Eligibility Criteria and Protective Management
IM 2004-220 including Change 1, Guidance on Preparing Federal Register Notices
IM 2005-037, New Department of the Interior Requirements; Use and Further Distribution of A Desk Guide to Cooperating Agency Relationships
IM 2005-249, *Federal Register* Notice Templates for Land Use Plans
IM 2005-056, Plan Schedule Changes
IM 2005-058, New Cooperating Agency Reporting Procedures/Requirements for EISs and EAs
IM 2006-047, Transmittal of Technical Reference 1734-6, Interpreting Indicators of Rangeland Health, Version 4
IM 2006-073, Weed-Free Seed use on Lands Administered by the Bureau of Land Management
IM 2006-100, Cooperative Monitoring Implementation Guidance
IM 2006-112, Minimum Qualifications for Socio-economic Contractors
IM 2006-114, State Wildlife Action Plans
IM 2006-149, Livestock Grazing Allotment and Pasture Spatial Database Standards
IM 2006-159, Non-Binding Determinations of RS 2477 Right-of-Way Claims
IM 2006-173, Implementation of Roads and Trails Terminology Report
IM 2006-204, Consideration of Large Fire Suppression Costs at all Planning Levels
IM 2006-214, Establishment of Geospatial Standards for Land Use Planning Boundaries
IM 2006-216, Wind Energy Development Policy
IM 2006-225, Standardized Guidance on Compiling a Decision File and an Administrative Record
IM 2007-030 Clarification of Cultural Resource Considerations for Off-Highway Vehicle (OHV) Designation and Travel Management
IM 2007-097 Solar Energy Development Policy
IM 2007-112 Obtaining Regional or Field Solicitor Participation and Review of Resource Management Plans (RMPs" and Supporting Environmental Impact Statements (EISs)
BLM Information Bulletins
IB 1998-135, VRM Policy Restatement
IB 2002-054, IT in Support of Land Use Planning Project

Document Name
IB 2002-056, Recommended Formats for Land Use Plans, Records of Decision, and Their Supporting Environmental Impact Statements
IB 2002-101, Cultural Resource Considerations in Resource Management Plans
IB 2003-020, Minimum Content for RMP Scoping Reports
IB 2003-058, Preparing to Prepare a Land Use Plan
IB 2003-074, Sampling Filing Plan for Land Use Planning Records
IB 2003-078, DOI Memoranda in Effect
IB 2003-113, The Manager's Role in the Land Use Planning Process
IB 2004-046, Memorandum of Understanding, Science in Support of Land Use Planning
IB 2004-087, New Department of the Interior Environmental Statement Memoranda
IB 2005-140, Council on Environmental Quality (CEQ) Guidance on Cumulative Effects Analysis
IB 2005-159, Public Comment Periods for Planning and Environmental Documents
Other BLM Plans, Policies, and Strategies
Northwest Area Noxious Weed Control Program EIS (1987)
Vegetation Treatment on BLM Land in the 13 Western States EIS (1991)
Management and Use Plan Update/Final Environmental Impact Statement: Oregon National Historic Trail (1999)
Wind Energy Programmatic EIS (2005)
Westwide Energy Corridor EIS (in progress)
Federal Wildland Fire Management Policy (1995)
BLM National Off-Highway Vehicle Management Strategy (2001)
BLM National Mountain Bicycling Strategic Action Plan (2002)
BLM's Priorities for Recreation and Visitor Services, BLM Workplan, Fiscal Years 2003-2007
National Sage-Grouse Habitat Conservation Strategy: 1.3.1 Guidance for Addressing Sagebrush Habitat Conservation in BLM Land Use Plans (2004)
BLM National Scenic and Historic Trails Strategy and Work Plan (2006)
Interagency Standards for Fire and Fire Aviation Operations (Red Book; 2006)
Idaho BLM Instruction Memoranda
IM ID-2000-059, Guidance Implementing the Draft Sage-grouse Habitat Assessment Framework for Lands Administered by the Bureau of Land Management (BLM) in Idaho
IM ID-2003-042, Policy for Managing Livestock during Drought
IM ID-2003-057, Special Status Species
IM ID-2004-083, Change 1 Endangered Species Act (ESA), Section 7 Consultation for Reissuing and Issuing Livestock Grazing Permits and Leases
IM ID-2004-086, Reissuing and Issuing Livestock Grazing Permits and Leases

Document Name
IM ID-2006-049, Interagency Implementation Team (IIT)(PACFISH/INFISH) Implementation Monitoring for FY 2006
Idaho BLM Information Bulletins
IB ID-2003-062, Interagency Memorandum of Understanding (MOU) to Implement the Interior Columbia Basin Strategy
IB ID-2004-148, ESA Consultation, Applicant Status
Other Idaho BLM Policies, Plans, and Guidance
Idaho Standards for Rangeland Health and Guidance for Livestock Grazing Management (1997)
South Central Idaho Fire Planning Unit Fire Management Plan (2005)
The Current Normal Fire Rehabilitation Plan
Oregon Trail Management Plan, Boise District (1984)
Boise District Noxious Weed Control Program Environmental Assessment (1999)
Other Federal Policies, Plans, and Guidance
Comprehensive Management and Use Plan for the Oregon and California National Historic Trails (1999)
Interim Guidelines to Avoid and Minimize Wildlife Impacts from Wind Turbines, US Fish and Wildlife Service (2003)
Framework for Incorporating the Aquatic and Riparian Component of the Interior Columbia Basin Strategy (BLM/FWS/EPA/NOAA Fisheries Memorandum, July 9, 2004)
Coordinated Implementation Plan for Bird Conservation in Idaho (2005)
Fish & Wildlife Public Land Order 4153
Jarbidge Bull Trout Recovery Plan (Draft)
State Laws
Idaho Cave Protection (Title 18, Chapter 70, Idaho Code, Section 18-7035 - Damaging Caves or Caverns Unlawful)
Idaho Stream Channel Protection Act (Title 42, Chapter 38, Idaho Code)
Other State Policies, Plans, and Guidance
Bighorn Sheep Species Management Plan, IDFG (1991)
Pronghorn Antelope Species Management Plan, IDFG (1991)
Bull Trout Conservation 1996
White-tailed Deer, Mule Deer, and Elk Species Management Plans, IDFG (1999)
Fisheries Management Plan, IDFG 2001-2006
Candidate Conservation Agreement for Slickspot Peppergrass (Lepidium Papilliferum), 2003
Conservation Plan for the Greater Sage-grouse in Idaho, IDFG (2006)
State Comprehensive Outdoor Recreation and Tourism Plan 2006-2010 (SCORTP)
Nevada Administrative Code, Surface Water Quality Standards (Chapter 445A.118-445A.225)

APPENDIX 2. IDAHO STANDARDS FOR RANGELAND HEALTH AND GUIDELINES FOR LIVESTOCK GRAZING MANAGEMENT

The Idaho Standards for Rangeland Health are used as BLM's rangeland management goals. Rangelands should meet the Standards for Rangeland Health or be making significant progress toward meeting the standards to provide for proper nutrient cycling, hydrologic cycling, and energy flow. Appropriate to soil type, climate, and landform, indicators are a list of typical physical and biological factors and processes that can be measured or observed (e.g., photographic monitoring). They can be used in combination to provide information necessary to determine the health and condition of the rangelands. The eight Standards for Rangeland Health, and their indicators, are listed below.

Standard 1 – Watersheds

Watersheds provide for the proper infiltration, retention, and release of water appropriate to soil type, vegetation, climate, and landform to provide for proper nutrient cycling, hydrologic cycling, and energy flow. Indicators may include, but are not limited to, the following:

1. The amount and distribution of ground cover, including litter, for identified ecological site(s) or soil-plant associations are appropriate for site stability.
2. Evidence of accelerated erosion in the form of rills and/or gullies, erosional pedestals, flow patterns, physical soil crusts/surface sealing, and compaction layers below the soil surface is minimal for soil type and landform.

Standard 2 – Riparian Areas and Wetlands

Riparian-wetland areas are in properly functioning condition appropriate to soil type, climate, geology, and landform to provide for proper nutrient cycling, hydrologic cycling, and energy flow. Indicators may include, but are not limited to, the following:

1. The riparian/wetland vegetation is controlling erosion, stabilizing streambanks, shading water areas to reduce water temperature, stabilizing shorelines, filtering sediment, aiding in floodplain development, dissipating energy, delaying flood water, and increasing recharge of groundwater appropriate to site potential.
2. Riparian/wetland vegetation with deep strong binding roots is sufficient to stabilize streambanks and shorelines. Invader and shallow rooted species are a minor component of the floodplain.
3. Age class and structural diversity of riparian/wetland vegetation is appropriate for the site.
4. Noxious weeds are not increasing.

Standard 3 – Stream Channel/Floodplain

Stream channels and floodplains are properly functioning relative to the geomorphology (e.g., gradient, size, shape, roughness, confinement, and sinuosity) and climate to provide for proper nutrient cycling, hydrologic cycling, and energy flow. Indicators may include, but are not limited to, the following:

1. Stream channels and floodplains dissipate energy of high water flows and transport

sediment. Soils support appropriate riparian-wetland species, allowing water movement, sediment filtration, and water storage. Stream channels are not entrenching.
2. Stream width/depth ratio, gradient, sinuosity, and pool, riffle and run frequency are appropriate for the valley bottom type, geology, hydrology, and soils.
3. Streams have access to their floodplains and sediment deposition is evident.
4. There is little evidence of excessive soil compaction on the floodplain due to human activities.
5. Streambanks are within an appropriate range of stability according to site potential.
6. Noxious weeds are not increasing.

Standard 4 – Native Plant Communities

Healthy, productive, and diverse native animal habitat and populations of native plants are maintained or promoted as appropriate to soil type, climate, and landform to provide for proper nutrient cycling, hydrologic cycling, and energy flow. Indicators may include, but are not limited to, the following:

1. Native plant communities (flora and microbiotic crusts) are maintained or improved to ensure the proper functioning of ecological processes and continued productivity and diversity of native plant species.
2. The diversity of native species is maintained.
3. Plant vigor (total plant production, seed and seedstalk production, cover, etc.) is adequate to enable reproduction and recruitment of plants when favorable climatic events occur.
4. Noxious weeds are not increasing.
5. Adequate litter and standing dead plant material are present for site protection and for decomposition to replenish soil nutrients relative to site potential.

Standard 5 – Seedings

Rangelands seeded with mixtures, including predominately non-native plants, are functioning to maintain life form diversity, production, native animal habitat, nutrient cycling, energy flow, and the hydrologic cycle. Indicators may include, but are not limited to, the following:

1. In established seedings, the diversity of perennial species is not diminishing over time.
2. Plant production, seed production, and cover are adequate to enable recruitment when favorable climatic events occur.
3. Noxious weeds are not increasing.
4. Adequate litter and standing dead plant material are present for site protection and for decomposition to replenish soil nutrients relative to site potential.

Standard 6 – Exotic Plant Communities, other than Seedings

Exotic plant communities, other than seedings, will meet minimum requirements of soil stability and maintenance of existing native and seeded plants. These communities will be rehabilitated to perennial communities when feasible cost effective methods are developed. Indicators may include, but are not limited to, the following:

1. Noxious weeds are not increasing.
2. The number of perennial species is not diminishing over time.
3. Plant vigor (production, seed and seedstalk production, cover, etc.) of remnant native or seeded (introduced) plants is maintained to enable reproduction and recruitment when

favorable climatic or other environmental events occur.

4. Adequate litter and standing dead plant material is present for site protection and for decomposition to replenish soil nutrients relative to site potential.

Standard 7 – Water Quality

Surface and ground water on public lands comply with the Idaho Water Quality Standards. Indicators may include, but are not limited to, the following:

1. Physical, chemical, and biologic parameters described in the Idaho Water Quality Standards.

Standard 8 – Threatened and Endangered Plants and Animals

Habitats are suitable to maintain viable populations of threatened and endangered, sensitive, and other special status species. Indicators may include, but are not limited to, the following:

1. Parameters described in the Idaho Water Quality Standards.
2. Riparian/wetland vegetation with deep, strong, binding roots is sufficient to stabilize streambanks and shorelines. Invader and shallow rooted species are a minor component of the floodplain.
3. Age class and structural diversity of riparian/wetland vegetation are appropriate for the site.
4. Native plant communities (flora and microbiotic crusts) are maintained or improved to ensure the proper functioning of ecological processes and continued productivity and diversity of native plant species.
5. The diversity of native species is maintained.
6. The amount and distribution of ground cover, including litter, for identified ecological site(s) or soil-plant associations are appropriate for site stability.
7. Noxious weeds are not increasing.

Standards and Guidelines Assessments (S&Gs) were conducted in the Jarbidge FO between 1998 and 2003 in 44 of 92 allotments. These allotments contained 793,896 acres of public land, covering 58% of the FO; assessments were also conducted on 46,792 acres of military land whose grazing program is administered by the BLM within seven of the 44 allotments. S&G assessments were conducted by an ID team, and S&G determinations were made on an allotment basis. Table 71 displays the percent of total acres assessed that are within allotments with a given determination.

Table 71. S&G Determinations for Standards 1 through 8, 1998-2003

Standard	Determination[A]				
	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%
2 – Riparian Areas and Wetlands	3%	4%	8%	44%	41%
3 – Stream Channel/ Floodplain	3%	3%	8%	44%	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%
7 – Water Quality	2%	0%	26%	29%	43%
8 – T&E Plants and Animals	15%	0%	30%	51%	4%

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

APPENDIX 3. FISH SPECIES PRESENT IN THE BRUNEAU RIVER, SALMON FALLS CREEK, AND SNAKE RIVER WATERSHEDS

	Game Fish										Native Non-Game Fish						
	Bull Trout	Brown Trout	Brook Trout	Redband Trout	Rainbow Trout	Walleye	Kokanee Salmon	Small-mouth Bass	Catfish sp.	Whitefish sp.	Dace sp.	Shiner sp.	Chub sp.	Common Carp	Sucker sp.	Sculpin sp.	Northern Pikeminnow
Bruneau River Watershed																	
Big Flat Creek			X		X				X	X	X	X			X	X	X
Bruneau River				X		X					X	X	X	X	X	X	X
Buck Creek					X						X					X	
Cherry Creek				X													
Clover Creek											X	X	X		X	X	X
Columbet Creek				X													
Dave Creek (E. Fork Jarbidge River)	X			X													
Deadman Creek (Cherry Creek)				X													
Deadwood Creek			X	X													
Deer Creek (Clover W. S.)			X	X	X												
Deer Creek (W. Fork Jarbidge River)	X			X													
East Fork Jarbidge River	X			X	X					X	X	X			X	X	
Fall Creek (E. Fork Jarbidge River)	X									X							
Flat Creek			X	X							X	X			X	X	
Gorge Gulch (below Sawmill Ck., W. Fork Jarbidge River)	X																
Jarbidge River				X	X					X	X	X			X	X	
Jack Creek (W. Fork Jarbidge River)	X			X						X							
Pine Creek (W. Fork Jarbidge River)	X																
Pole Creek (Flat Creek)			X		X											X	
Slide Creek (E. Fork Jarbidge River)	X																
Three Creek			X	X						X	X	X	X		X	X	X

	Game Fish										Native Non-Game Fish						
	Bull Trout	Brown Trout	Brook Trout	Redband Trout	Rainbow Trout	Walleye	Kokanee Salmon	Small-mouth Bass	Catfish sp.	Whitefish sp.	Dace sp.	Shiner sp.	Chub sp.	Common Carp	Sucker sp.	Sculpin sp.	Northern Pikeminnow
West Fork Jarbidge River	X			X						X	X				X	X	
Salmon Falls Creek Watershed																	
Bear Creek (N. Fork Salmon Falls Creek)				X													
Cedar Creek			X	X	X						X	X			X	X	
Chimney Creek (N. Fork Salmon Falls Creek)				X													
China Creek				X	X		X								X	X	
House Creek				X	X						X	X			X		
North Fork Salmon Falls Creek					X						X				X		
Rocky Canyon Creek (N. Fork Salmon Falls Creek)				X							X	X					
Salmon Falls Creek		X	X	X	X	X		X		X	X	X	X	X	X	X	X
Shack Creek (N. Fork Salmon Falls Creek)				X													
Timber Canyon Creek (N. Fork Salmon Falls Creek)				X													
Unnamed (Curtus Draw quad map)			X	X													
Wilson Creek (N. Fork Salmon Falls Creek)																	
Snake River Watershed[A]																	
Snake River		X	X		X	X		X	X	X	X	X	X	X	X	X	X

X The particular species is present.
[A] Tributaries to the Snake River were not surveyed due to their temperature and lack of suitable flows to support fish year round.

APPENDIX 4. FISH OCCURING OR LIKELY TO OCCUR IN THE JARBIDGE FO

Common Name	Scientific Name	Presence[A]
Black crappie	*Pomoxis nigromaculatus*	C, N
Bluegill	*Lepomios macrochirus*	C, N
Bridge-lip sucker	*Catostomous columbianus*	C
Brook trout	*Salvelinus fontinalis*	C, N
Brown bullhead	*Ameriurus nebulosus*	C, N
Brown trout	*Salmo trutte*	C, N
Bull trout[T]	*Salvelinus confluentus (malma)*	C
Carp	*Cyprinus carpio*	C, N
Channel catfish	*Ictalurus punctatus*	C, N
Chislemouth	*Acrocheilus alutaceus*	C
Flathead catfish	*Pylodictis olivaris*	C, N
Goldfish	*Carassius auratus*	C, N
Large-mouth bass	*Micropterus salmoides*	C, N
Large-scale sucker	*Catostomous macrocheilus*	C
Leopard dace	*Rhinichthys falcattus*	P
Long-nose dace	*Rhinichthys cataractae*	C
Mottled sculpin	*Cottus bairdi*	C
Mountain sucker	*Catostomous platyrhinchus*	C
Mountain whitefish	*Prosopium williamsoni*	C
Paiute sculpin	*Cottus beldingi*	C
Peamouth chub	*Mylcheilus caurinus*	C
Rainbow trout	*Oncorhychos mykiss (gairdeneri)*	C
Red-side shiner	*Richardsonicus balticus*	C
Redband trout[S]	*O. myiss gibbsii*	C
Short-headed sculpin	*Cottus confuses*	C
Shoshone sculpin[S]	*Cottus greenei*	C
Small-mouth bass	*Micropterus dolomiea*	C, N
Speckled dace	*Rhinichthys osculus*	C
Tadpole madtom	*Notorus gyrinus*	C, N
Tilapia		C, N
Utah chub	*Gilia atraria*	C
Walleye	*Stizonstedion vitreum*	C, N
White crappie	*Pomoxis annularis*	C, N
White sturgeon[S]	*Acipenser transmontanus*	C
Yellow perch	*Perca flavescens*	C, N

[A] P= potentially present, C = currently present, N = non-native species
[S] = Sensitive; [T]= Threatened

APPENDIX 5. REDBAND TROUT SURVEYS, 2006

Stream Name	Total Number of Redband Trout	Total Miles Surveyed	Redband/Mile
Bear	220	0.6	369
Cedar	4,032	5.1	796
Chimney	21	0.2	120
China (Lower)	7	1.7	4
China (Upper)	39	0.1	361
Deadwood	298	0.8	361
Deadwood (Upper West)	3	0.2	12
Deadwood (Upper East)	0	0.1	0
Deer	2,465	2.7	907
Flat	293	2.2	132
House (Lower)	682	1.2	584
House (Upper)	333	1.0	330
Rocky	598	1.2	494
Shack	41	0.5	86
Three (Lower)	63	0.7	91
Three (Middle)	47	0.3	147
Three (Upper)	1	0.0	47
Timber	5	1.4	3
Total	**9148**	**21.4**	**427**

APPENDIX 6. CURRENT STATUS OF BULL TROUT STREAMS IN THE JARBIDGE FO

Factor	East Fork Jarbidge River	Jarbidge River	Dave Creek	Deer Creek	Buck Creek
Population Size	<1.500	<1,500	<500	<100	0
Rating[A]	FU	FU	FU	FU	FU
Adult/Juvenile Ratio					
Rating	UK	UK	UK	UK	UK
Diversity/ Isolation	Migratory not connected	Migratory not connected	Migratory not connected		
Rating	FR	FR	FR	UK	UK
Persistence & Genetic Integrity	0	0	0	0	0
Rating	FU	FU	FU	FU	FU
Temperature	>20	>20	15.2		>17
Rating	FU	FU	FU	UK	FU
Sediment	>20%		37%		25%
Rating	FR	UK	FR	UK	FR
Contaminants/ Nutrients	Absent		Absent	Absent	Some elevated bacteria levels
Rating	F	UK	F	F	FR
Physical Barriers	No barriers	No barriers	No barriers	No barriers	Low flow barrier
Rating	F	F	F	F	FR
Substrate Embeddedness	>31%		50-75%		50-75%
Rating	FU	UK	FU	UK	FU
Large Woody Debris	31/mile		97/mile		15/mile
Rating	FU	UK	F	UK	FU
Pool Frequency & Quality	51 pools/mile		150 pools/mile	142 pools/mile	170 pools/mile
Rating	FR	UK	F	F	F

Factor	East Fork Jarbidge River	Jarbidge River	Dave Creek	Deer Creek	Buck Creek
Large Pools	45%		60%	Avg. max 0.5	73%
Rating	FU	UK	FR	FE	F
Off Channel Habitat	Few backwaters	Few backwaters	Few backwaters	Few backwaters	Few backwaters
Rating	FR	FR	FR	FR	FR
Refugia	Popn low connected	Popn low connected	Isolated		
Rating	FR	FR	FU	UK	UK
Width/Max Depth Ratio	27.8		9.6	5.6-14.5	11.8
Rating	FU	UK	FR	FR	FR
Streambank stability	77.3%	77.3%	74.0%		100%
Rating	FR	FR	FR	UK	F
Floodplain Connectivity	Natural conditions	Natural conditions	Natural conditions	Natural conditions	Natural conditions
Rating	F	F	F	F	F
Change in Peak/Base Flows	Natural conditions	Natural conditions	Timing of flow altered	Natural conditions	
Rating	F	F	FR	F	UK
Drainage Network Increase	Natural	Natural	Low-moderate increase	Low-moderate increases	
Rating	F	F	FR	FR	UK
Road Density	.56 mi/mi^2	1.4 mi/mi^2	1.1 mi/mi^2	1.2 mi/mi^2	2.1 mi/mi^2
Rating	F	FR	FR	FR	FR
[A] FP= Functioning Properly FR= Functioning at Risk FU= Functioning at Unacceptable Risk UK= Unknown					

APPENDIX 7. SOIL RESOURCES OF THE JARBIDGE FO

Soils in the planning area can be delineated into three main physiographic units: the Snake River Sediments, the Basalt Plains/Plateaus, and the Jarbidge Upland/Foothills.

Snake River Sediments
The Snake River Sediments are soils formed in association with the Snake River drainage, laid down mostly as wind and water deposits (Table 72). In general, these soils consist mainly of ancient Lake Idaho sediments and more recent volcanic wind-blown loess deposits over extensive lava flows and basaltic plains. The Snake River Sediments are highly diverse, complex, and respond differently to various management actions and natural events. These soils are particularly affected by grazing animals and wildfire, although the effects can vary.

Normally, these soils are sandy to silty in texture, with high calcareous and/or saline contents, and can be shallow to very deep and well drained. Some of these soils may have a restrictive cement layer, or hardpan, in their profile, which limits plant root penetration and water infiltration. These soils have been formed under an aridic or aridic-xeric moisture regime and a mesic temperature regime. These soils range from 2,450 feet to 3,800 feet. The erosion potential of these wind-blown or water-deposited sediments range from moderate to high, as affected by current weather and their location. The most wind erosive soils are Davey-Buko, Jacquith-Quincy, Quincy, and Royal-Davey, while the most water erosive soil is the Badlands-Kudlac series, mainly because they are found along steep slopes. Some soils have both a moderate erosive hazard for wind and water, which makes them very susceptible to erosion. Major factors limiting management of these soils include low precipitation, depth to hardpan, available water capacity, risk of seepage, permeability, and exposure to wind erosion.

Table 72. Characteristics of the Snake River Sediments.

Soil Name	Soil #	Soil Slope	Ecological Site Type	Taxonomic Description	Water Erosion Potential	Wind Erosion Potential
Arbidge-Buko	5	1-8%	Loamy 8-10", Wyom. Big Sage/Thurber	Fine-loamy, mesic, xerollic durargis	Moderate	Moderate
Bluegulch	19	2-12%	Loamy 8-10", Wyom. Big Sage/ Thurber	Loamy-skeletal, mesic xerollic camborthids	Moderate	N/A
Davey-Buko	46	1-12%	Sandy Loam 8-12", Wyom. Big Sage/Ricegrass	Sandy, mesic xerollic camborthids	Slight	**Severe**
Elijah	54	0-4%	Silt Loam 8-10", Wyom. Big Sage/ Thurber	Fine-silty, mesic xerollic durargids	Slight	Moderate
Jacquith-Quincy	86	0-12%	Sand 8-12", Basin Big Sage/Ricegrass	Sandy, mesic, Haploxerollic durorthids	Slight	**Severe**
Owsel-Purdam	113	1-12%	Loamy 8-10", Wyom. Big Sage/Thurber	Fine silty, mesic, Durixerollic Haplargids	Moderate	Moderate
Purdam	121	4-8%	Silt Loamy 8-10", Wyom. Big Sage/Thurber	Fine-silty, mesic, Haploxerollic Durargids	Slight	Moderate

Soil Name	Soil #	Soil Slope	Ecological Site Type	Taxonomic Description	Water Erosion Potential	Wind Erosion Potential
Quincy	124	0-12%	Fine Sand 8-12", Basin Big Sage/Ricegrass	Mixed, mesic xeric torripsamments	Slight	**Severe**
Royal	133	0-4%	Fine Sandy Loam 8-12",Wyom. Big Sage/Ricegrass	Coarse-loamy, mixed, mesic xerollic camborthids	Slight	Moderate
Royal-Davey	136	12-40%	Sandy loam 8-12", Wyom. Big Sage/Ricegrass	Coarse-loamy, mixed, mesic xerollic camborthids	Moderate	**Severe**
Shano-Truesdale	145	0-12%	Fine Sandy loam 8-12", Wyom. Big Sage/ Ricegrass	Course silty/loamy, mesic xerollic camorthids	Moderate	Moderate
Truesdale	161	0-4%	Fine Sandy loam 8-12", Wyom. Big Sage/ Ricegrass	Coarse-loamy, mesic haploxerollic durorthids	Slight	Moderate
Xeric Torriorthents – Xerollic Camborthids	172	20-70%	Fine Sandy loam 8-12", Wyom. Big Sage/ Ricegrass	(see soil name)	Moderate	Moderate
Badlands-Kudlac	9	30-90%	Loamy 8-10", Wyom. Big Sage/Thurber	Fine-silty, calcareous, mesic xeric torriorthents	**Very Severe**	Moderate

The central area of the Snake River unit, roughly near Deadman and Sailor Creeks at relatively lower elevations, mainly consist of the Truesdale-Scoon-Elijah soil series of fine sandy loams to silt loams positioned on nearly level to strongly sloping fan terraces and alluvial plains. These soils are shallow to moderately deep, well drained, and prone to moderate wind and slight water erosion. Additionally, this middle area of the unit, centered mainly along Sailor Creek, contains mostly the Royal-Buko-Davey soil series of fine sandy loams to loamy sands positioned on nearly level to steep fan or dissected terraces of the landscape. These soils are very deep, well drained to excessively drained, and prone to moderate wind erosion. However, water erosion may be moderate for these soils on steeper slopes.

Basalt Plains/Plateaus

The Basalt Plain/Plateau soils were mainly formed under an aridic/xeric soil moisture regime and a mesic or frigid soil temperature regime as elevation increases from north to south (Table 73). These soils are characteristically shallow to deep in nature and well drained. Textures can range from silt loams to clay loams with varying amounts of rock fragments either on the surface or in the profile. Many of these soils have well-developed subsoils. Additionally, these soils can have a restrictive cemented sub-layer in their profile at various depths. The elevation range for these soils is between 3,700 feet to 5,600 feet. In this particular soil zone, water has a more erosive effect on the soils than the wind, giving the zone a low to high sheet and/or rill rating. The Arbidge/Heckison and Minveno/Roseworth soils are the most affected by water and wind erosion, respectively, but many other soils of the unit are also moderately affected. Most erosion occurs as soils become exposed to weather and as slopes increase. Major factors limiting management of these soils include low precipitation, depth to hardpan, available water capacity, and exposure to wind and water erosion.

Table 73. Characteristics of Prominent Basalt Plain/Plateau Soils.

Soil Name	Soil #	Soil Slope	Ecological Site Type	Taxonomic Description	Potential Water Erosion	Potential Wind Erosion
Arbidge – Buncelvoir – Chilcott	4	2-6%	Loamy 7-10", Wyom. Big Sage – Thurber	Fine-loamy, mesic xerollic durargids	Moderate	Moderate
Arbidge – Heckison	6	2-15%	Loamy 7-10", Wyom. Big Sage – Thurber	Fine-loamy, mesic xerollic durargids	Moderate to High	Moderate
Bruncan – Snowmore	31	1-8%	Loamy 10-13", Wyom., Big Sage – Bluebunch	Loamy mesic shallow xerollic durargids	Moderate	Moderate
Colthrop-Chilcott	32	0-8%	Silt Loam 8-10", Wyom. Big Sage – Thurber	Loamy, mesic shallow xerollic durargids	Moderate	Moderate
Elijih – Purdam	56	0-8%	Loamy 8-10", Wyom. Big Sage – Thurber	Fine silty, mesic xerollic dururgids	Moderate	Moderate
Hardtrigger Snowmore -Vickory	75	1-5%	Loamy 7-10", Wyom. Big Sage – Thurber	Fine-loamy, mesic xerollic haplargids	Slight	Moderate
Heckison – Bigflat	81	1-10%	Loamy 10-13", Wyom. Big Sage – Bluebunch	Fine-loamy, frigid Aridic durixerolls	Moderate	Moderate
Minveno – Roseworth	102	1-5%	Loamy 7-10", Wyom. Big Sage – Thurber	Loamy, mesic shallow xerollic durorthids	Moderate	High
Purdam	120	0-4%	Loamy 8-10", Wyom. Big Sage – Thurber	Fine silty, mesic haploxerollic durargids	Slight	Moderate
Purdam – Sebree – Owsel	122	0-8%	Loamy 8-10", Wyom. Big Sage – Thurber	Fine silty, mesic haploxerollic durargids	Moderate	Moderate
Shano – Owsel	144	0-12%	Loamy 8-10", Wyom. Big Sage – Thurber	Coarse silty, mesic xeric haplocambids	Moderate	Moderate
Sidlake - Bruncan	148	1-8%	Loamy 8-10", Wyom. Big Sage – Thurber	Fine-loamy, mesic xerollic haplocambids	Moderate	Moderate
Snowmore – Troughs	159	1-10%	Loamy 7-10", Wyom. Big Sage – Thurber	Fine-loamy, mesic xerollic durargids	Slight	Moderate

Jarbidge Uplands/Foothills

The Jarbidge Upland/Foothills soils are the highest soils in the planning area, ranging from 5,600 feet to 7,300 feet (Table 74). These soils are probably the oldest and most well developed in the area as depicted by the thick, dark surface horizon. Textures range from loams to clay loams with varying amounts of surface or profile rock fragments. Much of the soils are classified as Shallow Claypans containing very restrictive hardpans or bedrock at very shallow depths and are associated with low sagebrush vegetation communities that occupy these sites. These soils were formed under a xeric moisture regime and a frigid to cryic soil temperature regime. Water is more of an erosional factor than wind, creating a low to high sheet and/or rill rating depending soil aspect, location, and topography. The only soil with major erodibility problems is the Player-Player series for water, which is rated as very severe due to its location along very steep side-slopes. All other soils are rated as slight to moderate or not rated at all, meaning wind has no effect on these soils. Major factors limiting management of these soils include low precipitation, depth to hardpan, rocky fragments, depth to clayey subsoil, slope, available water capacity, and hazards of mainly water erosion.

Table 74. Characteristics of Jarbidge Upland/Foothills Soils

Soil Name	Soil #	Soil Slope	Eco-Site Type	Taxonomic Description	Potential Water Erosion	Potential Wind Erosion
Ackett	1	2-10%	Shallow Stony 8-12", Black Sage – Thurber	Clayey-skeletal, mesic shallow xerollic durargids	Slight	N/A
Arness	8	2-6%	Loamy 11-13", Basin Sage- Bluebunch	Clayey-skeletal, frigid pachic ultic palexerolls	Slight	Moderate
Booford - Blackleg	21	2-12%	Loamy 13-16", Mountain. Big Sage – Fescue	Loamy, frigid shallow aridic durixerolls	Slight	Moderate
Budlewis	22	2-6%	Shallow Claypan 12-16", Low Sage – Fescue	Fine, frigid typic durixerolls	Moderate	N/A
Chayson - Merlin	36	2-12%	Loamy 12-16", Basin Big Sage – Fescue	Fine-loamy, frigid typic durixerolls	Slight	Moderate
Elhina	39	2-6%	Shal. Calc. Loam 10-16", Black Sage – Bluebunch	Fine, frigid abruptic xerollic durargids	Slight	N/A
Cleavage - Rubbleland	41	2-35%	Shal. Claypan 12-16", Low Sage – Fescue	Loamy-skeletal, frigid lithic argixerolls	Slight	Slight
Isknat	54	3-15%	Gravelly Loam 13-16", Mountain. Big Sage – Fescue	Clayey-skeletal, frigid pachic ultic argixerolls	Moderate	N/A
Iwica - Budlewis	55	2-6%	Loamy 13-16", Mountain. Big Sage- Fescue	Fine, frigid Calcic pachic argixerolls	Slight	N/A
Keman	61	2-35%	Gravelly Loam 16+", Mountain. Big Sage – Fescue	Loamy-skeletal, argic pachic cryoborolls	Moderate	N/A
Mug	72	2-10%	Shal. Claypan 12-16", Low Sage – Fescue	Clayey-skeletal, frigid ultic palexerolls	Moderate	N/A
Player - Player	85	30-75%	Shal. Claypan 12-16", Low Sage – Fescue	Clayey-skeletal, frigid ultic palexerolls	**Very Severe**	N/A
Larioscamp – Dishpan	93	1-12%	Loamy 10-13", Wyom Big Sage - Bluebunch	Fine, frigid xerollic durargids	Slight	Moderate
Lostvalley - Budlewis	98	1-10%	Shal. Claypan 12-16", Low Sage – Fescue	Fine, frigid typic palexeralfs	Moderate	Moderate
Merlin – Lostvalley -Chayson	101	1-12%	Shal. Claypan – 12-16", Low Sage – Fescue	Clayey, frigid lithic argixerolls	Slight	Moderate
Rutherford	113	2-20%	Mt. Ridge 14-18", Low Sage – Fescue	Loamy-skeletal, argic pachic cryoborolls	Moderate	N/A
Sharesnout – Budlewis	152	1-15%	Shal. Claypan 12-16", Low Sage – Fescue	Clayey-skeletal, frigid typic argixerolls	Moderate	Moderate
Tanner – Dishpan	172	1-8%	Loamy 10-13"	Fine, frigid aridic durixerolls	Moderate	Moderate
Thacker – Cleavage – Bigflat	173	1-12%	Shal. Claypan 12-16", Low Sage – Fescue	Fine, frigid abruptic durixeralfs	Slight	Moderate
Threek – Blackleg – Hatpeak	177	2-20%	Loamy 13-16", Mountain. Big Sage – Fescue and Bluebunch	Clayey-skeletal, frigid typic argixerolls	Slight	Moderate
Vitale – Muleshoe – Itca	193	2-40%	Stony Loam 13-16", Mountain. Big Sage – Blue- Bunch	Loamy-skeletal frigid typic argixerolls	Slight	Slight

APPENDIX 8. VEGETATIVE COMMUNITY DESCRIPTIONS

Class	Sub-Class	Vegetation Community	ID#	Description
Dwarf Shrubland	Evergreen	Black sagebrush/bluegrass	156	Shrub layer has ≥10% cover, or is the dominant vegetation class, and is dominated by black sagebrush, pockets of Mt Big Sagebrush may be present; bluegrass dominates the understory.
		Black sagebrush/bluebunch	163	Shrub layer has ≥10% cover, or is the dominant vegetation class, and is dominated by black sagebrush, pockets of Mt Big Sagebrush may be present; bluebunch, Idaho fescue, or Thurbers dominates or co-dominates the understory.
		Black sagebrush/crested wheatgrass	165	Shrub layer has ≥10% cover, or is the dominant vegetation class, and is dominated by black sagebrush, pockets of Mt Big Sagebrush may be present; crested wheatgrass dominates the understory.
		Low sage/Idaho fescue	112	Shrub layer has ≥10% cover, or is the dominant vegetation class, and is dominated by low sagebrush; Idaho fescue is the dominant understory species.
		Low sage/bluebunch-Idaho fescue	132	Shrub layer has ≥10% cover, or is the dominant vegetation class, and is dominated by low sagebrush, pockets of Mt Big Sagebrush may be present; bluebunch wheatgrass and Idaho fescue co-dominate the understory.
		Low sage/squirreltail	166	Shrub layer has ≥10% cover, or is the dominant vegetation class, and is dominated by low sagebrush; bottlebrush squirreltail is the dominant understory species.
		Low sage/bluegrass	167	Shrub layer has ≥10% cover, or is the dominant vegetation class, and is dominated by low sagebrush; Sandburg bluegrass is the dominant understory species.
		Shadscale	73	Shrub layer has ≥10% cover, or is the dominant vegetation class, and is dominated by shadscale, spiny hopsage, and/or budsage; Sandburg bluegrass, Thurbers, Indian ricegrass, or squirreltail is the dominant or co-dominant understory species.
		Winterfat/Indian ricegrass	162	Shrub layer has ≥25% cover, or is the dominant vegetation class, and is dominated by winterfat; Indian ricegrass is the dominate understory species.

Class	Sub-Class	Vegetation Community	ID#	Description
Herbaceous	Annual Graminoid or Forb	Annual	101	Dominated[24] (50% or >) by one or a mix of annual species including Russian thistle, cheatgrass, and tumblemustard and the community has less than 10% perennial plant cover.
	Perennial Graminoid	Bluebunch wheatgrass	105	Dominant species is bluebunch wheatgrass; shrub cover <10%.
		Bluegrass	106	Dominant species is Sandburg bluegrass; shrub cover <10%.
		Crested wheatgrass	107	Dominant species is crested wheatgrass; shrub cover <10%.
		Idaho fescue	110	Dominant species is Idaho fescue; shrub cover <10%
		Intermediate wheatgrass	111	Dominant species is intermediate wheatgrass; shrub cover <10%.
		Needlegrass	116	Dominated or co-dominated by Indian ricegrass and needleandthread; shrub cover <10%.
		Semi-wet meadow	118	Dominated by herbaceous wetland species; shrub cover <10%.
		Thurbers needlegrass	119	Dominant species is Thurbers needlegrass; shrub cover <10%.
NA	NA	Ag Land	137	Land has been converted to cropland and is dominated by agricultural species.
		NA	99	No Data, non-BLM land
		needs additional info	120	perennial water
		Water	999	need additional info
Shrubland	Deciduous	Deciduous mountain brush	117	Shrub layer has ≥25% cover, or is the dominant vegetation class, and is dominated or co-dominated by willow, bitterbrush, snowberry, chokecherry, dogwood, rose, or shrubby aspen less than 15' tall.
		Greasewood/basin wildrye	109	Shrub layer has ≥25% cover, or is the dominant vegetation class, is dominated by greasewood; basin wildrye or inland saltgrass is the dominant understory species.
	Evergreen[10]	Basin big sagebrush	102	Shrub layer has ≥10% cover, or is the dominant vegetation class, and is dominated by Basin Big Sagebrush; understory typically dominated by native perennial grasses including Indian ricegrass, Bluebunch wheatgrass, bluebunch-Idaho Fescue, or basin wildrye.

[24] Dominant and/dominated by are defined as the species having the greatest amount of cover within a vegetation layer.

Class	Sub-Class	Vegetation Community	ID#	Description
		Evergreen mountain brush	114	Shrub layer has ≥25% cover, or is the dominant vegetation class, and is dominated or co-dominated by ceanothus, subalpine sagebrush or co-dominated by bitterbrush and mountain or basin big sagebrush.
		Four-wing saltbush/crested wheatgrass	108	Shrub layer has ≥10% cover, or is the dominant vegetation class, and is dominated by four-wing saltbush; crested wheatgrass is the dominate understory species.
		Mountain big sagebrush/bluebunch wheatgrass-Idaho fescue	113	Shrub layer has ≥10% cover, or is the dominant vegetation class, and is dominated by mountain big sagebrush; understory is typically dominated by bluebunch wheatgrass or co-dominant with Idaho fescue.
		Mountain big sagebrush/Idaho fescue	126	Shrub layer has ≥10% cover, or is the dominant vegetation class, and is dominated by mountain big sagebrush, pockets of low sagebrush may be present; Idaho fescue is the dominate understory species.
		Rabbitbrush/annual	135	Shrub layer has ≥10% cover, or is the dominant vegetation class, and is dominated by rabbitbrush; annual grasses and forbs are the dominant understory species.
		Rabbitbrush/bluebunch wheatgrass	115	Shrub layer has ≥10% cover, or is the dominant vegetation class, and is dominated by rabbitbrush; bluebunch wheatgrass is the dominant understory species.
		Rabbitbrush/bluegrass	129	Shrub layer has ≥10% cover, or is the dominant vegetation class, and is dominated by rabbitbrush; Sandburg bluegrass is the dominant understory species.
		Rabbitbrush/crested wheatgrass	130	Shrub layer has ≥10% cover, or is the dominant vegetation class, and is dominated by rabbitbrush; crested wheatgrass is the dominant understory species.
		Rabbitbrush/Idaho fescue	157	Shrub layer has ≥10% cover and is dominated by rabbitbrush; Idaho fescue is the dominant understory species.
		Rabbitbrush/intermediate wheatgrass	128	Shrub layer has ≥10% cover, or is the dominant vegetation class, and is dominated by rabbitbrush; intermediate wheatgrass is the dominant understory species.

Class	Sub-Class	Vegetation Community	ID#	Description
		Rabbitbrush/Thurbers needlegrass	127	Shrub layer has ≥10% cover, or is the dominant vegetation class, and is dominated by rabbitbrush; Thurbers needlegrass is the dominant understory species.
		Wyoming big sagebrush/annual	121	Shrub layer has ≥10% cover, or is the dominant vegetation class, and is dominated by Wyoming big sagebrush; annual species are the dominate understory species.
		Wyoming big sagebrush/bluebunch wheatgrass	122	Shrub layer has ≥10% cover, or is the dominant vegetation class, and is dominated by Wyoming big sagebrush; bluebunch wheatgrass is the dominate understory species.
		Wyoming big sagebrush/bluegrass	123	Shrub layer has ≥10% cover, or is the dominant vegetation class, and is dominated by Wyoming big sagebrush; Sandburg bluegrass is the dominate understory species.
		Wyoming big sagebrush/crested wheatgrass	124	Shrub layer has ≥10% cover, or is the dominant vegetation class, and is dominated by Wyoming big sagebrush; crested wheatgrass is the dominate understory species.
		Wyoming big sagebrush/Idaho fescue	169	Shrub layer has ≥10% cover, or is the dominant vegetation class, and is dominated by Wyoming big sagebrush; Idaho fescue is the dominate understory species.
		Wyoming big sagebrush/intermediate wheatgrass	164	Shrub layer has ≥10% cover, or is the dominant vegetation class, and is dominated by Wyoming big sagebrush; intermediate wheatgrass is the dominate understory species.
		Wyoming big sagebrush/Indian ricegrass	161	Shrub layer has ≥10% cover, or is the dominant vegetation class, and is dominated by Wyoming big sagebrush; Indian ricegrass is the dominate understory species.
		Wyoming big sagebrush/Thurbers needlegrass	125	Shrub layer has ≥10% cover, or is the dominant vegetation class, and is dominated by Wyoming big sagebrush; Thurbers needlegrass is the dominate understory species.
Sparse Vegetation	Consolidated Rocks	Breaks	134	Less than 10% vegetation cover; rocky breaks of canyon rims.
	Unconsolidated Material	Barren	103	Less than 10% vegetation cover.
		Recent Burn	155	Burned within the last two years and unable to determine vegetation community.

Class	Sub-Class	Vegetation Community	ID#	Description
		Sand Dune	133	Less than 10% vegetation cover; sand dune areas.
Woodland	Deciduous	Aspen	158	Tree layer has 25-60% cover, or is the dominant vegetation class, and is dominated by aspen greater than 15' tall.
Woodland	Evergreen	Juniper	160	Tree layer has 25-60% cover, or is the dominant vegetation class, and is dominated by Juniper.
Woodland	Evergreen	Mt Mahogany	159	Tree layer has 25-60% cover, or is the dominant vegetation class, and is dominated by Mt Mahogany.

APPENDIX 9. SPECIAL STATUS PLANTS PLANT SPECIES ACCOUNTS[25]

Annual Forbs
Alkali cleomella (*Cleomella plocasperma*). Alkali cleomella is an annual forb occurring in wet alkaline meadows, greasewood flats, and around thermal springs at 2,400 to 4,200 ft elevations. This species historically occurred in the planning area in the Bruneau Valley, but has not been observed in this area since 1947 and is assumed to be extirpated. Range wide, this species is found in Oregon, Idaho, and Utah. Threats include livestock trampling and competition with non-native annuals.

Desert pincushion (*Chaenactis stevioides*). Desert pincushion is an annual forb occurring on open, usually sandy, sites primarily in Wyoming big sagebrush, but also in shadscale (salt desert shrub), horsebrush (*Tetradymia*), four-wing saltbush (*Atriplex canescens*), and Indian ricegrass (*Achnatherum hymenoides*) communities at elevations to 3,600 ft. Desert pincushion is known in the planning area near the CJ Strike Reservoir. Idaho populations of this species are known from Ada, Elmore, and Owyhee Counties, and it occurs in Colorado, southwest Wyoming, western and southern Oregon, southern California, Baja California, Arizona, northern Sonora, and western New Mexico. Threats to this species include competition with non-native annuals, livestock grazing, and OHV use.

Least phacelia (*Phacelia minutissima*). This species is a small annual forb occurring on spring-saturated, summer-drying, sparsely vegetated, partially shaded to fully exposed areas of bare soil and mud banks in meadows; at perimeters of false hellebore (*Veratrum californicum)*, northern mule-ears (*Wyethia amplexicaulis)*, and/or aspen stands; in sagebrush swales; along creek bed high-water lines; or around springs in flat to gently sloping areas. In the planning area, this species is known in the Diamond A region. Range wide, least phacelia is known from Camas and Owyhee Counties, Idaho; disjunct localities in Elko County, Nevada; Wallowa Mountains, Oregon; and central Washington. Threats include mineral exploration and development, livestock trampling, water developments and diversions, and competition with invasive weeds.

Rigid threadbush (*Nemacladus rigidus*). This annual forb occurs on loose, sandy, cindery, or ashy outcrops; cracks in basalt; or in dried mud. Rigid threadbush is known from the shadscale-sagebrush zone at elevations from 3,700 to 6,500 ft. In the planning area, this species is known in the Bruneau Hill area. Range wide, rigid threadbush is known from Owyhee County, Idaho; southeast Oregon, south to northeastern California to Inyo County, and east to northern Nye County, Nevada. Threats include OHV use and range projects. Competition with non-native annuals is considered a threat to this annual species.

Slickspot peppergrass (*Lepidium papilliferum*). Slickspot peppergrass is an annual, or sometimes biennial, forb occurring on slickspot microsites within the Wyoming big sagebrush plant community at 1,200 to 5,300 ft elevations. Known in the Juniper Butte area, this species may occur in suitable habitat throughout the planning area. Slickspot peppergrass is endemic to

[25] Sources: (Bernatas & Moseley, 1991; Croft et al., 1997; DeBolt & Doremus, 1989; Thompson, 1990)

Idaho, known only in Ada, Canyon, Elmore, Gem, Owyhee, and Payette Counties. Threats to this species include degradation of slickspot and surrounding area habitat; trampling from livestock, especially in the spring; wildfire; and weed invasion. BLM entered into a Conservation Agreement (GOSC et al., 2003) for this species and implements conservation measures to reduce impacts to this species and its habitat.

Spreading gilia (*Ipomopsis polycladon [syn. Gilia polycladon]).* Spreading gilia is an annual forb occurring in dry, open areas on sandy to silty soils in the desert shrub communities of shadscale, horsebrush, and sagebrush. This species is known to occur in the Bruneau Hill area of the planning area. Range wide, spreading gilia is known from Butte, Elmore, Owyhee, and Power Counties, Idaho; as well as California, Nevada, Utah, and Colorado, south to Texas, Arizona, and northern Mexico. Spreading gilia is known from elevations of 2,400 to 4,500 ft. No threats have been identified for this species, but competition with non-native annuals is expected to threaten this species.

White eatonella (*Eatonella nivea*). White eatonella is a small annual forb occurring on dry sandy or volcanic soils in salt desert shrub habitats on barren sites surrounded by sagebrush at elevations of 2,300 to 5,700 ft. Owyhee County, Idaho is at the northeastern edge of white eatonella's geographic range. Habitat for this species occurs in the planning area; however, nventories have not determined occupancy of the habitat. This species is known from Lemhi, Custer, Elmore, and Owyhee Counties, Idaho, with the central Idaho populations disjunct along the Salmon River. White eatonella is also known from southeastern Oregon, central and western Nevada, and Inyo County, California. Threats to this species include OHV use, grazing impacts, and spring livestock trampling. Competition with non-native annuals is also considered a threat to this annual species.

White-margin waxplant (*Glyptopleura marginata*). This species is an annual forb that occurs on dry, sandy-gravelly or loose ash soils in shadscale (*Atriplex confretifolia*), greasewood (*Sarcobatus vermiculatus*), rabbitbrush (*Chrysothamnus*), spiny hopsage (*Grayia spinosa*), winterfat (*Krascheninnikovia lanata*), and sagebrush communities. White-margin waxplant is known from elevations of 2,400 to 3,600 ft. This species is known in the northwestern and southeastern portions of the planning area. Range wide, white-margin waxplant is known from Elmore, Owyhee, and Twin Falls Counties, Idaho; southeast Oregon, south through western Nevada to San Bernardino County and the White Mountains of California, east through Elko and White Pine Counties, Nevada to scattered counties in Utah. Threats include OHV use, increased agricultural development, range development projects, and heavy recreational use. Competition with non-native annuals is also considered a threat to this annual species.

Perennial Forbs

American wood sage (*Teucrium canadense var. occidentale*). American wood sage is a rhizomatous perennial forb found along streambanks and in moist bottomlands at 2,400 to 3,600 ft. In the planning area, American wood sage occurs along the Snake River. Range wide, this species occurs in Ada, Canyon, Idaho, Owyhee, and Washington Counties, Idaho, and is widespread in the US and Canada. This species is less common in the western states, also occurring in Cache and Utah Counties, Utah and in Mexico. Threats include grazing, trampling from recreational activities (including OHV use), competition with non-natives, and hydrologic alteration. Weed control efforts also pose a threat.

Broadleaf fleabane (*Erigeron latus*). Broadleaf fleabane is a Nevada BLM Sensitive species. This species is a low-growing perennial forb occurring on rocky soil derived from lava. Broadleaf fleabane occurs on shallow, relatively barren, vernally saturated, otherwise dry, gravelly to sandy soils or bedrock on flats and slopes of volcanic scablands or benches, mostly rhyolitic or basaltic in composition, in the sagebrush steppe and juniper zones with low sagebrush and big sagebrush. In the planning area, broadleaf fleabane is known in the Three Creek area. Range wide, this species occurs in Elko County, Nevada and Cassia, Owyhee, and Twin Falls Counties, Idaho. Livestock grazing does not directly threaten this species, but habitat destruction by related roads and water developments occurred to a small degree.

Bruneau River phlox (*Linanthus glabrum [syn. Leptodactylon glabrum])*. This shrubby, highly branched perennial forb occurs in crevices in steep to vertical, coarse-crumbling volcanic canyon walls at 2,600 to 4,300 ft. It is intolerant of perennial water paths or seeps that may form in the rock crevices. In the planning area, this species is known in the Bruneau River Canyon. Range wide, Bruneau River phlox is restricted to the Bruneau and Jarbidge Rivers and their tributaries in Owyhee County, Idaho and Humboldt County, Nevada. Threats include decline in pollinators and damming the river.

Calcareous buckwheat *(Eriogonum ochrocephalum var. calcareum)*. Calcareous buckwheat is a perennial forb occurring on rolling clay hills at 2,400 to 2,700 ft. It often grows with four-wing saltbush, shadscale, spiny hopsage, and prince'south-plume (*Stanleya pinnata*). This species is known in northern end of the planning area. Range wide, calcareous buckwheat occurs in Elmore, Owyhee, Payette, Twin Falls, and south Washington Counties, Idaho, and Baker and Malheur Counties, Oregon. Threats include OHV use.

Chatterbox orchid (*Epipactis gigantea*). Chatterbox orchid is a tall perennial forb occurring in calcareous hot or cold springs from 2,400 to 6,000 ft. This species is known in the Bruneau River Canyon and may occur in the Bruneau Hill area of the planning area. Range wide, chatterbox orchid is known in Adams, Boise, Bonner, Boundary, Camas, Clark, Custer, Elmore, Gooding, Idaho, Jerome, Lemhi, Madison, Owyhee, Twin Falls, and Valley Counties, Idaho. It also occurs from British Columbia to Baja California, east to the Rocky Mountains and South Dakota, and south to northern Sonora, Mexico. Threats to chatterbox orchid include development and human use of springs and seeps and livestock grazing and trampling.

Davis peppergrass (*Lepidium davisii*). Davis peppergrass occurs in barren, internally drained, seasonally flooded, hard-bottomed playas between 2,500 and 5,000 ft in the Atriplex-Artemisia vegetation zone. In the planning area, this species is known to occur in the 71 Desert, Diamond A, and Winter Camp areas. Range wide, Davis peppergrass occurs in Ada, Elmore, Owyhee, and Twin Falls Counties, Idaho; Malheur County, Oregon; and northern Elko County, Nevada. Waterfowl are believed to aid in seed dispersal. Threats involve direct disturbance and habitat alteration including livestock use, stock pond development in playas, OHV use, and increased erosion into playas. Livestock grazing may affect Davis peppergrass through trampling and compaction of playas, which may extirpate populations. Degradation of the surrounding habitat can result in increased invasion of non-native annuals, increasing fire frequency and sedimentation into playas. Increased sedimentation resulting from the degradation of the surrounding environment is believed to contribute to the marked decline of this species.

Four-wing milkvetch (*Astragalus tetrapterus*). This a perennial forb occurs on gullied bluffs, barren knolls, stabilized dunes, and open valley floors, mostly in loose sandy or tuffaceous soils elevations of 5,000 to 6,000 ft. Habitat for four-wing milkvetch occurs in the planning area. No data has been collected to determine occupancy of the habitat. The northern extension of this species reaches the northern extension of its range in the Salmon Falls Creek Valley. This species is widely discontinuously dispersed in the Great Basin from central Harney County, Oregon east through the Owyhee Desert to Twin Falls County, Idaho, south into Nevada to north Washoe, north Nye, and central Lincoln Counties. Threats include livestock trampling.

Greeley's wavewing (*Cymopterus acaulis var. greeleyorum*). This species is a low-growing perennial forb occupying sites that undergo a lot of soil movement. The sand is loosely held together, while the deposits that have weathered clay shrink and swell greatly. Greeley'south wavewing is known to occur on sandy loam or clay soils within Wyoming big sagebrush, desert shrub, and Indian ricegrass zones. In the planning area, this species is known along the northern boundary. Range wide, Greeley's wavewing is known from Elmore and Owyhee Counties, Idaho and Malheur County, Oregon. Threats include OHV use and livestock grazing. Impacts from livestock may include direct mortality due to trampling, and degradation of habitat.

Janish penstemon (*Penstemon janishiae*). Janish penstemon is a short-lived perennial forb. This species occurs on clay soils derived from volcanic rock in sagebrush, juniper, and pinyon-juniper habitats at 2,400 to 3,900 ft. In the planning area, this species is known from south of Pasadena Valley and Glenns Ferry and in the Bruneau Hill area. Southern Idaho is the northeastern limit of this species' range. Threats include OHV use, livestock and wild horse trampling, and range improvement projects.

Lewis buckwheat (*Eriogonum lewisii*). Lewis buckweat is a Nevada BLM Sensitive species. This species is a small, long-lived perennial forb that occurs on dry, exposed, relatively barren and undisturbed, rocky residual soils on convex ridge-line knolls and crests underlain by siliceous carbonate rocks, on flat to moderately steep slopes of all aspects, but with the densest stands on southerly aspects, co-dominating with low sage (*Artemisia arbuscula*) and bottlebrush squirreltail (*Elymus elymoides*). Lewis buckwheat occurs at elevations from 5,900 to 8,900 ft. Known only from Elko and Eureka Counties in Nevada, Lewis buckwheat was reported in the extreme south-center of the planning area and is expected in extreme south Idaho and possibly in northwest Utah. Threats include mineral exploration and development, development and maintenance of roads and electronic sites, OHV use, trampling by livestock or feral animals, fire and fire suppression activities. Most sites have sustained some level of impacts.

Matted cowpie buckwheat (*Eriogonum shockleyi [syn. Eriogonum shockleyi var. shockleyi]*). Matted cowpie buckwheat is a perennial forb that forms a dense mound. It occurs on sparsely vegetated sandy-loams, cobbly desert pavement, and gravelly calcrete on lacustrine sediments in shadscale, mixed desert shrub, and sagebrush communities at elevations of 2,300 to 3,900 ft. This species is known in northern portion of the planning area. Range wide, matted cowpie buckwheat occurs in Elmore, Gooding, Owyhee, and Twin Falls Counties, Idaho; Inyo County, California; and across central Nevada to western Utah. Idaho is the northern limit for this species, and populations here are considered disjunct from the Nevada population. Threats include OHV use, wildfire, fire suppression and rehabilitation, livestock trampling, weed invasion, and range projects.

Newberry's milkvetch (*Astragalus newberryi var. castoreus*). Newberry's milkvetch is a low stemless perennial forb. This species occupies foothills, bluffs, and badlands with sagebrush or juniper at elevations between 3,000 and 9,000 ft. Habitat for Newberry's milkvetch occurs in the planning area. No data was collected to determine occupancy of the habitat. Salmon Falls Creek Valley is northern extension of range this species' range. It has been reported in Twin Falls County, Idaho. Threats for this species are unknown.

Owyhee milkvetch (*Astragalus yoder-williamsii*). Owyhee milkvetch is a small perennial forb that forms dense clumps. In Idaho, this species occurs primarily on flat to very gentle slopes, predominately in swale positions supporting mountain big sagebrush dominated communities. Elevations range from about 5,100 to 6,200 ft in Idaho. This species was reported in the Diamond A, but no data has been collected in the planning area to confirm this report. Range wide, Owyhee milkvetch is known from Owyhee County, Idaho, and Elko and Humboldt Counties, Nevada. Threats include mineral exploration and development, road maintenance and OHV use, trampling by livestock and feral animals, habitat degradation due to overgrazing, range projects, and competition from invasive weeds.

Packard's cowpie buckwheat (*Eriogonum shockleyi [syn. Eriogonum shockleyi var. packardiae]*). This perennial forb occurs on oolitic limestone outcrops, sandy loess over basalt, and cobbly desert pavement over deep sandy-loam at elevations from 2,300 to 3,900 ft. Associated vegetation is sparse, but may include smooth horsebrush (*Tetradymia glabrata*), winterfat, shadscale, Indian ricegrass, needle-and-thread, and langloisia (*Langloisia*). No known populations occur in the planning area, but this species is expected to occur due to the presence of suitable habitat. This species is endemic to southwest Idaho along the Snake River and a few tributaries in Ada and Owyhee Counties. Threats include mining of oolitic limestone, OHV use, and livestock grazing, though this has limited impact due to paucity of forage in these sites.

Simpson's hedgehog cactus (*Pediocactus simpsonii var. robustior*). This species is a small, barrel cactus found on gravelly soils in low sagebrush/Idaho fescue plant communities at elevations from 2,700 to 5,400 ft. In the planning area, this species is known in the 71 Desert and Taylor Pocket areas, and in the southeast corner. Range wide, Simpson's hedgehog cactus is known from Cassia, Idaho, Nez Perce, Oneida, Owyhee, and Twin Falls Counties, Idaho; south and east to Nevada, Wyoming, Utah, and Colorado. Threats to this species are primarily from collection of plants from the wild, but fire, habitat degradation, trampling from livestock, and OHVs also impact this species.

Snake River milkvetch (*Astragalus purshii var. ophiogenes*). This perennial forb occurs on loosely aggregated, frequently moving sand and gravelly sand deposits, bluffs, talus, dunes, and volcanic ash beds. Snake River milkvetch often grows on barren sites within big sagebrush, Indian ricegrass, needle-and-thread (*Stipa comata*), and four-wing saltbush communities at elevations in Idaho from 2,100 to 3,250 ft. This species is known along the north boundary of the planning area. Range wide, Snake River milkvetch is found in the Snake River corridor and surrounding uplands from Gooding and Twin Falls Counties to Owyhee County in southwest Idaho; and Malheur County, Oregon. Threats include land exchanges, OHV use, range development projects, and livestock trailing. Impacts from livestock may include direct mortality, due to trampling, or the secondary impact of degradation of habitat.

Spine-node milkvetch (*Peteria thompsoniae*). Spine-node milkvetch is a rhizomatous, perennial forb occurring in disjunct populations on barren areas with thin cinder soils. This species is known from the salt desert shrub community at elevations in Idaho from 2,600 to 3,200 ft. In the planning area, spine-node milkvetch is known in the Bruneau Hill area. Range wide, this species occurs in Owyhee County, Idaho, east Utah, west across south Utah and adjacent Arizona, southern Nevada to northeast Nye County. The Idaho populations in the lower Bruneau River area are isolated from the main populations but represent some of the largest populations of the species. Threats include OHV use, concentrated riparian grazing use of adjacent areas, salt block placement, development of irrigation canals, and water diversions.

Two-headed onion (*Allium anceps*). This perennial forb occupies heavy, barren soils of volcanic origin on flats and slopes in the foothills in or around seasonally wet playas, swales, and other low places, or thin, rocky soil in the sagebrush zone; sites are usually flat to gently sloping, and sparsely vegetated. Found at 4,500 to 5,200 ft, habitat for two-headed onion occurs in the planning area. No data was collected to determine occupancy of the habitat. Most known Idaho populations of this species are in Twin Falls County, though one population is also known from Jerome County north of the Snake River. Populations in Owyhee and Cassia Counties are also expected. This species is widespread in Nevada, extending into southeast Oregon, northeast California, and southern Idaho. Threats include range development projects, livestock trampling, non-native species.

Non-Vascular Plants
Earth lichen (*Catapyrenium congestum*). Earth lichen is a squamulose-lichen restricted to barren, slightly natric soils in sagebrush or shadscale steppe communities. In the planning area, earth lichen is known in the Loveridge Gulch, Salmon Falls Creek Canyon (Lily Grade), and Juniper Butte areas. This species occurs infrequently in the northern Great Basin. Threats include livestock trampling and salt block placement.

Woven-spore lichen (*Texosporium sancti-jacobi)*. This soil-lichen occurs on well-decomposed humus, flat or north-facing slopes on especially old clumps of Sandberg bluegrass (*Poa secunda*), in Wyoming big sagebrush/Thurber needlegrass (*Achnatherum thurberiana*), bluebunch wheatgrass sites, on heavy clay soils, and in open areas with high intensity light. Woven-spore lichen is expected to occur in the planning area as habitat is present; however, no inventories have been conducted for this species in the planning area. Range wide, this species is known to occur in Ada and Elmore Counties, Idaho; Los Angeles, Santa Barbara, San Diego, and San Benito Counties, California; Benton and Klickitat Counties, Washington; and Jefferson and Wasco Counties, Oregon. The species is found at low elevation, dry sites from 2,900 to 3,300 ft in Idaho. Threats to this species include fire, livestock grazing, human disturbance, land development, and air pollution.

APPENDIX 10. VERTEBRATE WILDLIFE SPECIES OCCURING OR LIKELY TO OCCUR IN THE JARBIDGE FO

Common Name	Scientific Name	Presence[A]
Amphibians		
Western toad [S]	*Bufo boreas*	C
Woodhouse's toad [S]	*Bufo woodhousii*	H
Western chorus frog	*Pseudacris triseriata*	C
Pacific chorus frog	*Pseudacris regilla*	C
Great Basin spadefoot	*Spea intermontanus*	C
Northern leopard frog [S]	*Rana pipiens*	H
Columbia spotted frog[C]	*Rana luteiventris*	C
Bull frog	*Rana catesgbeiana*	C, N
Reptiles		
Lizards		
Western whiptail	*Cnemidophorus tigris*	C
Great Basin black-collared lizard [S]	*Crotaphytus bicinctores*	C
Western skink	*Eumeces skiltonianus*	C
Longnose leopard lizard	*Gambelia wislizenii*	C
Short-horned lizard	*Phrynosoma douglassi*	C
Desert horned lizard	*Phrynosoma platyrhinos*	C
Sagebrush lizard	*Sceloporus graciosus*	C
Western fence lizard	*Sceloporus occidentalis*	C
Side-blotched lizard	*Uta stansburiana*	C
Snakes		
Rubber boa	*Charina bottae*	C
Racer	*Coluber constrictor*	C
Western rattlesnake	*Crotalus viridus*	C
Ringneck snake[W]	*Diadophis punctatus*	P
Night snake[W]	*Hypsiglena torquata*	C
Striped whipsnake	*Masticophis taeniatus*	C
Gopher snake	*Pituophis catenifer*	C
Longnose snake [S]	*Rhinocheilus lecontei*	C
Western groundsnake [S]	*Sonora semiannulata*	C
Western terrestrial gartersnake	*Thamnophis elegans*	C
Birds		
Loons		
Common Loon	*Gavia immer*	C
Grebes		
Pied-billed grebe	*Podilybus podiceps*	C
Horned grebe	*Podiceps auritus*	C
Eared grebe	*Podiceps nigricollis*	C
Western grebe	*Aechmophorus occidenatlis*	C
Clark's grebe	*Aechmophorus clarkia*	C
Pelicans		

American white pelican [S]	*Pelecanus erythrorhynchos*	C
Cormorants		
Double-crested cormorant	*Phalacrocorax auritus*	C
Herons, Egrets, Bitterns		
American bittern	*Botaurus lentinginosus*	C
Great blue heron	*Ardea herodias*	C
Snowy egret	*Egretta thula*	C
Cattle egret	*Bubulcus ibis*	C
Black-crowned night-heron	*Nycticorax nycticorax*	C
Ibis		
White-faced ibis [S]	*Plegadis chihi*	C
Swans, Geese, Ducks		
Tundra swan	*Cygnus columbianus*	C
Trumpeter swan [S]	*Cygnus buccinator*	C
Mute swan	*Cygnus olor*	C, N
Snow goose	*Chen caerulescens*	C
White-fronted goose	*Anser albifrons*	C
Canada goose	*Branta canadensis*	C
Wood duck	*Aix sponsa*	C
Blue-winged teal	*Anas discors*	C
Cinnamon teal	*Anus cyanoptera*	C
Green-winged teal	*Anas crecca*	C
Pintail	*Anas acuta*	C
Mallard	*Anas platyrhynchos*	C
Gadwall	*Anas strepera*	C
Northern shoveler	*Anas clypeata*	C
American widgeon	*Anas Americana*	C
European widgeon	*Anas Penelope*	C
Canvasback	*Aythya valisineria*	C
Redhead	*Aythya americana*	C
Ring-necked duck	*Aythya collaris*	C
Greater scaup	*Aythya marila*	C
Lesser scaup	*Aythya affinis*	C
Barrow’s goldeneye	*Bucephala islandica*	P
Common goldeneye	*Bucephala clangula*	C
Bufflehead	*Bucephala albeola*	C
Hooded merganser	*Lophodytes cucullatus*	C
Common merganser	*Mergus merganser*	C
Ruddy duck	*Oxyura jamaicensis*	C
Vultures		
Turkey vulture	*Cathartes aura*	C
Hawks, Falcons, Eagles		
Osprey	*Pandion haliaetus*	C
Bald eagle[T]	*Haliaeetus leucocephalus*	C
Northern harrier	*Circus cyaneus*	C
Sharp-shined hawk	*Accipiter striatus*	C
Cooper’s hawk	*Accipter cooperii*	C

Northern goshawk [S]	*Accipiter gentiles*	C
Swainson's hawk[W]	*Buteo swainsonii*	C
Red-tailed hawk	*Buteo jamaicensis*	C
Ferruginous hawk [S]	*Buteo regalis*	C
Rough-legged hawk	*Buteo lagopus*	C
Golden eagle	*Aquila chrysaetos*	C
American kestrel	*Falco sparverius*	C
Merlin	*Falco columbarius*	C
Peregrine falcon [S]	*Falco peregrinus*	C
Prairie falcon [S]	*Falco mexicanus*	C
Pheasants, Grouse, Quail		
Gray partridge	*Perdix perdix*	C, N
Chukar	*Alectoris chukar*	C, N
Ring-necked pheasant	*Phasianus colchicus*	C, N
Blue grouse[W]	*Dendragapus obscurus*	C
Greater sage-grouse [S]	*Centrocercus urophasianus*	C
Columbian sharp-tailed grouse [S]	*Tympanuchus phasianellus columbianus*	C
California quail	*Callipepla califorinica*	C
Mountain quail [S]	*Oreortyx pictus*	C
Rails, Cranes, and Allies		
American coot	*Fulcia Americana*	C
Virginia rail	*Rallus limicola*	C
Sora	*Porzana Carolina*	C
Sandhill crane	*Grus candensis*	C
Shorebirds		
Killdeer	*Charadrius vociferous*	C
Semipalmated plover	*Charadrius semipalmatus*	P
Black-necked stilt	*Himantopus mexicanus*	C
American avocet	*Recurvirostra Americana*	C
Greater yellowlegs	*Tringa melanocleuca*	C
Lesser yellowlegs	*Tringa flavipes*	C
Solitary sandpiper	*Tringa solitaria*	P
Willet	*Cataoptrophorus semipalmatus*	C
Spotted sandpiper	*Actitis macularia*	C
Whimbrel	*Numenius phaeopus*	C
Long-billed curlew[W]	*Numenius americanus*	C
Sanderling	*Calidris alba*	P
Semipalmated sandpiper	*Calidris pusilla*	P
Least sandpiper	*Calidris minutilla*	P
Dunlin	*Calidris alpine*	P
Short-billed dowitcher	*Limnodromus griseus*	C
Common snipe	*Gallinago gallinago*	C
Wilson's phalarope	*Phalaropus tricolor*	C
Red-necked phalarope	*Phalaropus lobatus*	P
Gulls & Terns		
Franklins gull	*Larus pipescan*	C
Ring-billed gull	*Larus delawarensis*	C
California gull	*Larus californicus*	C

Herring gull	*Larus argentatus*	C
Caspian tern	*Sterna caspia*	C
Forster's tern	*Sterna forsteri*	C
Black tern	*Chlidonias niger*	C
Doves, Pigeons		
Rock dove	*Columbia livia*	C, I
Mourning dove	*Zenaida macroura*	C
Cuckoos		
Yellow-billed cuckoo[C]	*Coccyzus americanus*	C
Owls		
Barn owl	*Tyto alba*	C
Western screech owl	Otus *kennicotti*	C
Great-horned owl	*Bubo virginianus*	C
Western burrowing owl[W]	*Athene cucnicularia*	C
Long-eared owl	*Asio otus*	C
Short-eared owl[W]	*Asio flammeus*	C
Northern saw-whet owl	*Aegolius acadicus*	C
Nightjars		
Common nighthawk	*Chordeiles minor*	C
Common poorwill	*Phalaenoptilus nuttallii*	C
Swifts		
White-throated swift	*Aeronautes saxatalis*	C
Hummingbirds		
Black-chinned hummingbird	*Archilochus alexanderi*	C
Calliope hummingbird[S]	*Stellula calliope*	C
Broad-tailed hummingbird	*Selasphorus platycercus*	C
Rufous hummingbird	*Selasphorus rufus*	C
Kingfishers		
Belted kingfisher	*Ceryle alcyon*	C
Woodpeckers		
Lewis' woodpecker[S]	*Melanerpes lewis*	C
Red-naped sapsucker[W]	*Sphyrapicus nuchalis*	C
Downy woodpecker	*Picioides pubescens*	C
Hairy woodpecker	*Picioides villosus*	C
Northern flicker	*Colaptes auratus*	C
Flycatchers		
Olive-side flycatcher[S]	*Contopus borealis*	C
Western wood-pewee	*Contopus sordidulus*	C
Willow flycatcher[S]	*Empidonax traillii*	C
Gray flycatcher	*Empidonax wrightii*	C
Dusky flycatcher	*Empidonax oberholseri*	C
Cordilleran flycatcher[W]	*Empidonax occidentalis*	C
Say's phoebe	*Sayornis saya*	C
Ash-throated flycatcher	*Myiarchus cinerascens*	P
Western kingbird	*Tyrannus verticalis*	C
Eastern kingbird	*Tyrannus tyrannus*	C
Shrikes		
Loggerhead shrike[S]	*Lanius ludovicianus*	C

Northern shrike	*Lanius excubitor*	C
Vireos		
Plumbeous vireo	*Vireo plumbeus*	C
Warbling vireo	*Vireo gilvus*	C
Red-eyed vireo	*Vireo olivaceus*	P
Jays, Ravens, Crows		
Gray jay	*Perisoreus Canadensis*	P
Western scrub jay	*Aphelocmoa californica*	P
Pinyon jay[W]	*Gymnorhinus cyanocephalus*	C
Clark's nutcracker	*Nucifraga columbiana*	C
Black-billed magpie	*Pica pica*	C
American crow	*Corvus brachyrhynchos*	C
Common raven	*Corvus corax*	C
Larks		
Horned lark	*Eremophila alpestris*	C
Swallows		
Tree swallow	*Tachycineta bicolor*	C
Violet-green swallow	*Tachycineta thalassina*	C
Barn swallow	*Hirundo rustica*	C
Cliff swallow	*Hirundo pyrrhonota*	C
Bank swallow	*Riparia riparia*	C
Northern rough-winged swallow	*Stelgilopteryx serripennis*	C
Chickadees, Titmice		
Black-capped chickadee	*Parus atricapillus*	C
Mountain chickadee	*Parus gambeli*	C
Juniper titmouse	*Baeolophus griseus*	C
Bushtit		
Bushtit	*Psaltriparus minimus*	C
Nuthatches		
Red-breasted nuthatch	*Sitta canadensis*	C
White-breasted nuthatch	*Sitta carolinensis*	P
Creepers		
Brown creeper	*Certhia Americana*	P
Wrens		
Rock wren	*Salpinctes obsoletus*	C
Canyon wren	*Caltherpes mexicanus*	C
House wren	*Troglodytes aedon*	C
Winter wren	*Troglodytes troglodytes*	C
Marsh wren	*Cistothorus palustris*	C
Dippers		
American dipper	*Cinclus mexicanus*	C
Kinglets, Gnatcatchers		
Ruby-crowned kinglet	*Regulus calendula*	C
Blue-gray gnatcatcher	*Poliptila caerulea*	C
Thrushes, Bluebirds, Solitaires		
American robin	*Turdus migratorius*	C
Mountain bluebird	*Sialia curruoides*	C
Townsend solitaire	*Myadestes townsendi*	C

Swainson's thrush	*Catharus ustulatus*	C
Hermit thrush	*Catharus guttatus*	C
Catbirds, Mockingbirds, Trashers		
Gray catbird	*Dumetella carolinensis*	C
Northern mockingbird	*Mimus polyglottos*	C
Sage thrasher[W]	*Oreoscoptes montanus*	C
Waxwings		
Bohemian waxwing	*Bombycilla garrulous*	P
Cedar waxwing	*Bombycilla cedrorum*	C
Warblers		
Orange-crowned warbler	*Vermivora celata*	C
Virginia's warbler[W]	*Vermivora virginiae*	C
Yellow warbler	*Dendroica petechia*	C
Yellow-rumped warbler	*Dendroica coronata*	C
Black-throated gray warbler	*Dendroica nigrescens*	C
MacGillivray's warbler	*Oponornis tolmiei*	C
Common yellowthroat	*Geothlypis trichas*	C
Wilson's warbler	*Wilsonia pusilla*	C
Yellow-breasted chat	*Icteria virens*	C
Tanagers		
Western tanager	*Piranga ludoviciana*	C
Towhees, Sparrows, Juncos		
Green-tailed towhee[W]	*Pipilo chlorurus*	C
Spotted towhee	*Pipilo maculates*	C
Tree sparrow	*Spizella arborea*	P
Chipping sparrow	*Spizella passerine*	C
Brewer's sparrow [S]	*Spizella breweri*	C
Vesper sparrow	*Pooecetes gramineus*	C
Lark sparrow	*Chondestes grammacus*	C
Black-throated sparrow [S]	*Amphispiza bilineata*	C
Sage sparrow [S]	*Amphispiza belli*	C
Savannah sparrow	*Passerculus sandwichensis*	C
Grasshopper sparrow[W]	*Ammodramus savannarum*	C
Fox sparrow	*Passerlla iliaca*	C
Song sparrow	*Melospiza melodia*	C
White-crowned sparrow	*Zonotrichia leucophrys*	C
Dark-eyed junco	*Junco hyemalis*	C
Lapland longspur	*Calcarius lapponicus*	C
Snow bunting	*Phetrophenax nivalis*	C
House sparrow	*Passer domesticus*	C, N
Buntings, Grosbeaks		
Black-headed grosbeak	*Pheucticus melancophalus*	C
Lazuli bunting	*Passerina amoena*	C
Evening grosbeak	*Coccothraustes vespertinus*	C
Finches		
Gray-crowned rosy-finch	*Leucosticte tephrocotis*	P
Black rosy-finch	*Leucosticte australis*	P
Cassin's finch[W]	*Carpodacus cassinii*	C

Pine siskin	*Carduelis pinus*	C
Lesser goldfinch	*Carduelis psaltria*	C
American goldfinch	*Carduelis tristis*	C
Bobolinks, Meadowlarks, Blackirds, Orioles		
Bobolink	*Dolichonyx oryzivorus*	C
Western meadowlark	*Sturnella neglecta*	C
Red-winged blackbird	*Agelaius phoeniceus*	C
Yellow-headed blackbird	*Xanthocephalus xanthocephalus*	C
Brewer's blackbird[W]	*Euphalgaus cyanocephalus*	C
Brown-headed cowbird	*Molothrus ater*	C
Bullock's oriole	*Icterus bullockii*	C
Starlings		
Starling	*Sturnus vulgaris*	C, N
Mammals		
Insectivores		
Vagrant shrew	*Sorex vagrans*	C
Masked shrew	*Sorex cinereus*	P
Water shrew	*Sorex palustris*	C
Merriam's shrew [S]	*Sorex merriami*	P
Little brown bat	*Myotis lucifugus*	C
Yuma myotis[W]	*Myotis yumanensis*	C
Long-eared myotis[W]	*Myotis evotis*	P
Long-legged myotis[W]	*Myotis volans*	P
California myotis[S]	*Myotis californicus*	C
Western small-footed bat[W]	*Myotis ciliolabrum (leigii)*	C
Silver-haired bat	*Lasionycteris noctivagans*	P
Western pipistrelle[W]	*Pipistrellus hesperus*	C
Big brown bat	*Eptesicus fuscus*	C
Spotted bat[S]	*Euderma maculatum*	C
Townsend's big-eared bat [S]	*Corynorhinus (Plecotus) townsendii*	C
Pallid bat	*Antrozous pallidus*	C
Rabbits & Hares		
Pygmy rabbit [S]	*Brachylagus (Sylvilagus) idahoensis*	C
White-tailed jackrabbit	*Lepus townsendii*	C
Black-tailed jackrabbit	*Lepus californicus*	C
Mountain cottontail	*Sylvilagus nuttallii*	C
Rodents		
Least chipmunk	*Tamias (Eutamias) minimus*	C
Yellow pine chipmunk	*Tamias amoenus*	C
Yellow-bellied marmot	*Marmota flaviventris*	C
White-tailed antelope squirrel	*Ammospermophilus leucurus*	C
Wyoming ground squirrel [S]	*Spermophilus elegans*	C
Piute ground squirrel [S]	*Spermophilus mollis*	C
Belding's ground squirrel	*Spermophilus beldingi*	C
Golden-mantled ground squirrel	*Spermophilus lateralis*	C

Northern pocket gopher	*Thomomys talpoides*	C
Great Basin pocket mouse	*Perognathus parvus*	C
Ord's kangaroo rat	*Dipodomys ordii*	C
Chisel-toothed kangaroo rat	*Dipodomys microps*	C
American beaver	*Castor canadensis*	C
Western harvest mouse	*Reithrodontomys megalotis*	C
Deer mouse	*Peromyscus maniculatus*	C
Canyon mouse	*Peromyscus crinitus*	C
Northern grasshopper mouse	*Onychomys leucogaster*	C
Desert woodrat	*Neotoma lepida*	C
Bushy-tailed woodrat	*Neotoma cinerea*	C
House mouse	*Mus musculus*	P, N
Norway rat	*Rattus novegicus*	P, N
Montane vole	*Microtus montanus*	C
Long-tailed vole	*Microtus longicaudus*	C
Sagebrush vole	*Lemmiscus (Lagurus) curtatus*	C
Muskrat	*Ondatra zibethicus*	C
Western jumping mouse	*Zapus princeps*	C
Common porcupine	*Erethizon dorsatum*	C
Carnivores		
Coyote	*Canus latrans*	C
Red fox	*Vulpes vulpes*	C
Kit fox [S]	*Vulpes macrotis*	C
Common raccoon	*Procyon lotor*	C
Ermine (short-tailed weasel)	*Mustela erminea*	C
Long-tailed weasel	*Mustela frenata*	C
Mink	*Mustela vison*	C
American badger	*Taxidea taxus*	C
Western spotted skunk	*Spilogale gracilis*	C
Striped skunk	*Mephitis mephitis*	C
Northern river otter	*Lontra canadensis*	C
Mountain lion	*Pums concolor*	C
Bobcat	*Lynx rufus*	C
Feral domestic cat	*Felis sylvestris*	C, N
Ungulates		
Elk	*Cervus elaphus*	C
Mule deer	*Odocoileus hemionus*	C
Moose	*Alces alces*	C
Pronghorn	*Antilocapra americana*	C
California bighorn sheep [S]	*Ovis canadensis californicus*	C
Wild horse	*Equus caballus*	C, N

[A] P= potentially present, C = currently present, N = non-native species, H = historically found
[S] = Sensitive; [W]= Watch; [T]= Threatened, [C] = Candidate

APPENDIX 11. SPECIAL STATUS WILDLIFE SPECIES ACCOUNTS

Terrestrial Invertebrates
Bruneau Dunes tiger beetle (*Cicindela waynei*). The Bruneau Dunes tiger beetle was separated as a distinct species from the Idaho Dunes tiger beetle (*C. arenicola*) in 2001 (Leffler, 2001). Known only from the Bruneau Dunes State Park and Indian Cove areas, the habitat for the species is sparsely vegetated, lower elevation dune lands. Larval habitat is sparsely vegetated (<10%) areas between dunes. Increases in vegetation to 20% cover or more were detrimental to larvae habitat. Monitoring of the Bruneau Dunes tiger beetle has shown a long term decline in occupied habitat. Bruneau Dunes tiger beetle larvae are a host to a tipiid wasp parasitoid (Baker & Munger, 2000). The female wasp stings and paralyzes the tiger beetle larva, then deposits an egg. After the egg hatches the wasp larva feeds on the larval tiger beetle. Threats to tiger beetles include predation on larvae, habitat alteration such as invasion by exotic annuals and noxious weeds, and burrow collapse. Larval burrows are vulernable to collapse year round. Mortality in larvae increased from 14% to over 80% following trampling by livestock (Bauer, 1991). Recent activation of an old well at the Windmill site dramatically increased livestock trailing through habitat. Increases of exotic annuals, primarily cheatgrass, makes habitat unsuitable for female beetles laying eggs (Baker & Munger, 2000). OHV activity has generally remained low, but during 2006 BLM noted use in some of the area had increased in the late spring and early fall. Critical periods for the species include breeding (March 1st through June 15th) and larval (year round).

Vertebrates
Amphibians
Columbia spotted frog (*Rana luteiventris*). Habitat for the Columbia spotted frog is higher elevation wetlands associated with rivers, creeks, springs, and marshes with slack water areas for reproduction and hibernation. In the planning area, the elevation of known occupied habitat for spotted frogs is at 6,400 to 6,900 feet. Columbia spotted frogs have been documented in several drainages in the planning area (BLM). Surveys from 2004 through 2006 did not detect spotted frogs in previously occupied habitat in Shack and Bear Creeks (Blankenship and Munger 2004, Motechek and Barrett 2006). Spotted frogs currently occupy Rocky Canyon and were found in Timber Canyon in 2006. Channel downcutting, reduced water flows and the loss of beaver dams have reduced the quanitity and quality of habitat in both Shack and Bear Creeks. Potential suitable habitat in upper House Creek, China Creek, Dorsey Creek and Columbet Creek is not presently occupied (Motechek and Barrett 2006). Historically, spotted frogs were found in Columbet Creek on adjacent USFS land. Critical periods include breeding (April 15th through July 31st) and winter (September 20th through April 1st).

Adult Columbia spotted frogs have an indistinct outline and a light center in the spots on their back. Spotted frogs prefer slow water and marshy areas around springs, ponds, lakes, and streams that offer open water in close proximity. Vegetation in occupied habitat typically consists of sedges, rushes, floating vegetation (pondweed [*Potamogeton* spp.], duckweed [*Lemna* spp.]), and algae. Spotted frogs are generally active during the day. Mating is believed to occur in March and later at higher elevations. At higher elevations, female spotted frogs may skip at least a year between breeding. Females lay eggs in round masses that frequently rest on the bottom in shallow water. Water temperature strongly influences egg hatching. In laboratory experiments in colder (50°F) water, eggs may take more than 17 days to hatch; whereas in warm water (77°F), hatching can occur in about 3 days (Nussbaum et al 1983). Depending on water temperature, tadpoles may overwinter before metamorphosing. Spotted frogs reach maturity in 3 to 5 years.

Northern leopard frog (*Rana pipiens*). Habitat for the northern leopard frog is wetlands associated with rivers, creeks, springs, and marshes with slack water areas for reproduction and hibernation. Historically, the northern leopard frog was found along the Snake River, the lower part of the Bruneau River, and in the Salmon Falls Creek drainage. Northern leopard frogs are present in Bruneau Dunes State Park; however, inventories in the planning area have failed to document this species (McDonald, 1996; McDonald & Marsh, 1995; Motychak & Barrett, 2006). No leopard frogs were documented in 2006 surveys conducted by BLM in Columbet, Dorsey, Flat, or Cherry Creeks. Surveys conducted by IDFG in 2006 did not document any leopard frogs in House, China, Cedar, or Salmon Falls Creek (Motychak & Barrett, 2006). Bull frogs, an introduced species from the central United States prevalent throughout the Snake River corridor and in Toana Gulch, may have displaced leopard frogs (and other native frogs and toads) through direct competition and predation (Kupferberg, 1996; Lawler et al., 1999). Critical periods for northern leopard frogs include breeding (April 1st through July 31st) and winter (September 30th through April 1st).

Adult northern leopard frogs have a brassy colored ring around the outside of the dark spots on the back. Leopard frogs prefer habitats with emergent vegetation (e.g. cattails, rushes, etc.) and are believed to hibernate in ponds, lakes, and reservoirs. The breeding period usually runs from March into May depending on elevation and water temperature (> 50°F). Leopard frog egg masses are somewhat flattened sphere containing up to 6,000 eggs. Egg development to hatching is strongly dependent on water temperature and can take as little at 48 hours or as long as 17 days (Nussbaum et al., 1983). Eggs develop more rapidly in warmer water, up to 82°F (Nussbaum et al., 1983). Tadpoles favor pools with emergent vegetation. Tadpoles typically undergo metamorphosis in 2 months and achieve maturity in 2 to 3 years.

Western toad (*Bufo boreas*). Habitat for the western toad is wetlands associated with rivers, creeks, and springs with slack water areas for reproduction. Adults use small mammal burrows in uplands for hibernation. The western toad should be fairly widespread in the planning area. Western toads were historically present in Yahoo Creek and Toana Gulch, (McDonald & Marsh, 1995) and at the Bruneau Dunes State Park. No western toads, tadpoles, or toadlets were found in the lower portion of Toana Gulch or Yahoo Creek in 2006; however, a few western toads were present in the King Hill Canal between Big Pilgrim Gulch and Deer Gulch. Adults, tadpoles, and young toadlets were found in two areas where the canal has relatively open banks and emergent vegetation. The majority of toadlets at the Deer Gulch site were trampled by livestock in 2006. Critical periods for the western toad include breeding (April 1st through July 31st) and winter (September 30th through April 1st).

The western toad is the most terrestrial amphibian in the planning area. Breeding habitat is generally characterized by areas with still or very slow-moving water including shallow ponds, lakes, reservoirs, streams, and oxbows in larger rivers (Nussbaum et al., 1983). The breeding periods varies for western toads from late January into July. Locally, the breeding period is unknown; however, BLM crews observed western toads breeding in late May. A few tadpoles were also observed at that time. Females lays eggs in two strings. Western toad tadpoles are very dark and can metamorphose in the first summer or in the second year at higher elevation. Tadpoles select areas within ponds and lakes with warm water (near 82°F – 30°C), which speeds metamorphosis (Nussbaum et al., 1983). Western toads make burrows in loose soil or use rodent burrows to hibernate (Nussbaum et al., 1983). Toadlets reach maturity in 2 to 3 years, and adults survive several years longer (Nussbaum et al., 1983).

Woodhouse toad (*Bufo woodhousii*). Habitat for Woodhouse toad are creeks, springs, and marshes with slack water areas for reproduction and hibernation. Surveys conducted in 1995 and 1996 did not document woodhouse toads in the planning area; the closest documented population of Woodhouse toads occurs at Bruneau Dunes State Park (McDonald, 1996; McDonald & Marsh, 1995). Woodhouse toads have been extirpated in portions of their historic range in Idaho and are no longer present in the Lewiston area (IDFG, 2005). Critical periods for Woodhouse toads are breeding (April 1st through July 31st) and winter (September 30th through April 1st).

The Woodhouse toad is more terrestrial than frogs that occur in the planning area. Reproductive habitat includes ditches, canals, and the shallow area of ponds, reservoirs, and lakes. They may reproduce in temporarily flooded ponds if water persists long enough for tadpoles to complete metamorphosis. Woodhouse toads breed from March to late June (Nussbaum et al., 1983) and the female lays an egg mass as a long single string. Tadpoles metamorphose in 1 to 2 months and reach maturity at two years (Groves et al., 1997). There is no long-term monitoring data available for this species in southern Idaho. Woodhouse toads burrow underground or use rodent burrows during the day as well as for over wintering.

Reptiles

Great Basin black-collared lizard (*Crotaphytus bicinctores*). Habitat for Great Basin black-collared lizard is generally lower elevation areas with rock outcrops and/or boulder piles and sparse herbaceous vegetation. In 2006, BLM conducted surveys in suitable habitat, dry washes with rock outcrops scattered large rocks and small boulders with sparse vegetation (Pope & Munger, 2003), which revealed that black-collared lizards are uncommon in the planning area. The majority of occupied sites are located near the Bruneau Valley. Historically, black-collared lizards were reported along the Snake River (Shoestring Road) in Elmore County (Wright, 2006), but its presence has not been confirmed in recent years. Southern Idaho and southeastern Oregon is the northernmost extent the species range (Nussbaum et al., 1983). Black-collared lizard diets are varied consisting of insects (grasshoppers, crickets, butterflies), spiders, and to a lesser extent flowers, leaves, and small lizards (Groves et al., 1997). Dense stands of cheatgrass hinder the movements of this species, make prey harder to capture, and alter the insect prey base. Cheatgrass replaces annual and perennial flowering forbs which may also change the insect prey base (Connelly et al., 2004).

Little is known about the reproductive biology or natural history of this species in Idaho. Breeding is a critical periods for the species and likely occurs in the spring. Black-collared lizards likely produce one clutch of 3 to 8 eggs which are buried in sandy soils, laid in abandoned rodent burrows, or under a rock (Nussbaum et al., 1983). It is not known when the eggs hatch in Idaho. Females may reach breeding age at 1 year of age (Nussbaum et al., 1983) or longer. Groves et al reported this species hibernates during cold weather (Groves et al., 1997).

Longnose snake (*Rhinocheilus lecontei*). Habitat for the longnose snake is generally lower elevation areas with sandy soil for burrowing. The species uses rodent burrows for reproduction and hibernation. The longnose snake is rare in the planning area, occupying sites with sandy soils and a shrub overstory with plentiful rodent burrows (Beck & Peterson, 1995). In Idaho, the known distribution includes the Snake River plain from the Oregon border east to southern Elmore County. Longose snakes have been confirmed in the Bruneau Dunes State Park. Approximately 1,600 trap nights in potentially suitable habitat failed to document this species in the planning area in 2006. Inventory sites included areas near Toana Gulch, Pilgrim Gulch, south Indian Cove, and the uplands near the Bruneau Canyon. Beck and Peterson reported longnose snakes did not use grassland or rocky/talus sites, but preferred sites with taller sparse shrubs. They indicated longnose snakes were uncommon (10 captures scattered over 37 sites) in their traps, but did not provide total trap nights. Uncommon or rare, primarily underground-dwelling reptiles are difficult to document because of their low densities and habits (Beck & Peterson, 1995). During 2006 inventories, BLM crews noted rodent burrows were easily collapsed in sandy soils. OHV and livestock were observed to collapse burrows at the dunes site. In other areas, researchers have documented that large ungulates collapse rodent burrows (Matlack et al., 2001). The role of livestock grazing as an influence on long-nose snake distribution and abundance is not known. The conversion of sagebrush steppe to exotic grasslands is a conservation concern for longnose snake (IDFG, 2005).

Longnose snakes are largely nocturnal (active at night) to crepuscular (active near dawn and dusk) and spend daylight hours in burrows or under cover (Nussbaum et al. 1983). Longnose snakes primarily prey on small lizards and some small mice. Nothing is known about their reproduction in the Northwest. Breeding is a critical period for the snake, the dates of which are unknown. In the desert southwest, longnose snakes usually lay 5-8 eggs in July, which hatch in late August.

Western ground snake (*Sonora semiannulata*). Habitat for the western ground snake is generally lower elevation areas with sandy soil for burrowing. The snake readily uses rodent burrows for reproduction and hibernation. The known distribution of the ground snake in Idaho is similar to that of the longnose snake. No western ground snakes were captured during the 2006 in the inventory effort by BLM. This species is rare in Idaho, with its population disjunct from Nevada populations by about 160 miles (IDFG, 2005). Ground snake habitat includes areas with sandy soils near talus slopes and boulder fields. Vegetation cover is typically sparse with shadscale, greasewood and sagebrush commonly present (IDFG, 2005).

Ground snakes are nocturnal and spend the day usually in rodent burrows. Nothing is known about western groundsnake reproduction or development in Idaho. In other areas the females lay 4-6 eggs usually in June (Groves et al., 1997). Breeding is a critical period for the species, the dates of which are unknown. The groundsnake is primarily insectivorous, preying on small arthropods like spiders, centipedes, small scorpions, crickets, grasshoppers, and insect larvae (Nussbaum et al., 1983).

Birds

American white pelican (*Pelecanus erythrorhynchos*). White pelicans breed in scattered locations throughout Montana, Wyoming, Utah, Nevada, and Idaho as well as locations in Canada. Two nesting colonies occur in Idaho; Minidoka National Wildlife Refuge and Blackfoot Reservoir (Trost & Gerstell, 1994). The closest, Minidoka National Wildlife Refuge, is about 50 miles east of the planning area. Some pelican nesting activity may occur in portions of the Snake River, but fluctuating water levels seem to preclude use between years. Pelicans are routinely present at the islands near Indian Cove Bridge. In general white pelican populations have increased from low levels in the 1960s (Evans & Knopf, 2004). However, human disturbance of nesting colonies during courtship and early incubation can cause abandonment (IDFG, 2005). Repeated disturbance during nesting may result in permanent desertion (IDFG, 2005). No inventories have been conducted for this species since 1993 (Trost & Gerstell, 1994).

Although a few white pelicans remain in the area into the winter the majority migrate to the Pacific Coast (California and further south) (Evans & Knopf, 2004). Pelicans typically return in late March. Breeding and nesting are critical periods, occurring from April 30th through June 30th. They nest in loose colonies (groups) on the ground in a shallow depression with a low dirt rim around the nest perimeter (Ehrlich et al., 1988; Evans & Knopf, 2004). In general nesting colonies have little woody vegetation (Evans & Knopf, 2004). A typical clutch consists two eggs and only one brood is produced per year (Evans & Knopf, 2004). At about 17 days the young band together in groups or pods (Evans & Knopf, 2004). By late August the young are able to fly with the parents to foraging areas. White pelicans are opportunistic feeders eating a variety of fish, frogs, salamanders and crayfish (Evans & Knopf, 2004). The majority of the pelican's diet is carp, suckers, chubs, and minnows, with trout and other game fish taken infrequently (Evans & Knopf, 2004). Locally, pelicans can cause substantial fish losses in fish farm ponds.

Bald eagle (*Haliaeetus leucocephalus*). In 1995, the bald eagle was down-listed by the FWS from Endangered to Threatened (60 FR 36000). The species was delisted in July 2007 (72 FR 37346). In Idaho, the population of nesting bald eagles has increased five fold (IDFG, 2005). No bald eagles are known to nest within the planning area; however, they have successfully nested on private land within 10 miles of the planning area. Bald eagles winter along the Snake River, lower Bruneau River, and lower part of Salmon Falls Creek from November to April. Wintering bald eagles forage for fish, wintering waterfowl, and scavenge on winter-killed wildlife in the area (Buehler, 2000). Old cottonwoods planted in the early part of the 1900s and other large trees that would serve as potential nest and roost trees are generally declining throughout the planning area because of tree age, removal, and a lack of new tree recruitment. The majority of trees along the Snake River and Salmon Falls Creek are exotic Russian olives that generally lack the size and growth form characteristics for suitable bald eagle nest trees. Russian olive is considered invasive in western riparian zones and tends to replace native trees and shrubs through direct competition particularly in riparian zones. A brief life history is not included because the species does not nest in the planning area at this time. Critical periods for the bald eagle include breeding (March 1st through August 1st) and winter (November 15th through February 28th).

Black-throated sparrow (*Amphispiza bilineata*). Black-throated sparrows are at the northern edge of their breeding distribution in southern Idaho. Range wide, black-throated sparrows have experienced declines of roughly 3.9%; however, in Nevada the population has increased (Johnson et al., 2002). Idaho lacks any trend data for black-throated sparrow populations. A few black-throated sparrow observations have been made in the northwestern part of the planning area at sites dominated by Wyoming big sagebrush with scattered spiny hopsage and shadscale.

Black-throated sparrows arrive in Idaho in late April to early May (Johnson et al., 2002). Breeding and nesting are critical periods, occurring from April 20th through July 15th. Pairs initiate courtship shortly after the females arrive and construct a cup nest usually in big sagebrush in Idaho (Groves et al., 1997). Black-throated sparrows can produce up to 2 broods per year in favorable years (Johnson et al., 2002). The female lays 3-4 eggs per clutch which hatch about 12 days after the last egg is laid (Johnson et al., 2002). The young leave the nest before they can fly, but the adults continue to feed them for about 30 days following hatching (Johnson et al., 2002). The diet of black-throated sparrows varies seasonally, but primarily consists of arthropods (spiders, insects, grasshoppers, beetles, and catepillers) in the spring through the summer; by late summer seeds are included (Johnson et al., 2002). Locally, no inventories for this species have been conducted.

Brewer's sparrow (*Spizella breweri*). The breeding distribution of Brewer's sparrow is roughly includes southern Nevada and Utah northward into Oregon, Idaho, and Montana, to a large extent overlapping the distribution of sagebrush. Brewer's sparrows winter in the southwestern US and well into Mexico. Brewer's sparrow populations are declining range wide at a rate of about 2.7% for the past 38 years (IDFG, 2005). In Idaho the decline has averaged 3.9% annually (IDFG, 2005). Habitat loss, fragmentation and degradation and nest parasitism are concerns for this species. Increases in exotic annual grasses can inhibit sparrows detecting and capturing of prey. Within the planning area 45% of habitat is not longer suitable.

Brewer's sparrows usually return from their wintering grounds in very late April to early May depending on the year. Upon returning, the pair initiate courtship and a cup nest is constructed, usually in sagebrush (Rotenberry et al., 1999). Breeding and nesting are critical periods, occurring from April 20th through July 15th. Average clutch size is 2-4 eggs. Brewer's sparrows may produce 2 clutches in a breeding season (Rotenberry et al., 1999). Both sexes incubate the eggs for 10-12 days and the young fledge about 2 weeks later (Rotenberry et al., 1999). The diet of the Brewer's sparrow is largely arthropods gleaned from the stems, branches and leaves of shrubs (Rotenberry et al., 1999); however, they also consume some arthropods from the ground and in the late summer eat seeds from the ground.

Calliope hummingbird (*Stellula calliope*). Calliope hummingbirds are widely distributed throughout the west (Calder & Calder, 1994). There appears to be a patchy distribution in southern Idaho generally associated with higher elevations and forested areas (Groves et al., 1997). Within the planning area, Calliope hummingbirds are uncommon and when present are in aspen/willow stands that accompany perennial streams and springs (the upper springs of Cedar, Bear, House Creeks and Rocky Canyon). Range wide, the population appears to be stable; however, there are a few sites in the west with downward trends outside of Idaho (Calder & Calder, 1994). No inventories for this species have been conducted in the planning area.

Calliope hummingbirds winter in central and southern Mexico (Calder & Calder, 1994). Little is known about the migration in Idaho although recent banding information suggests they depart the area in late August and September (Calder & Calder, 1994; Carlisle et al., 2004). Locally, Calliope hummingbirds likely arrive in late May to early June when flowers are starting to bloom at the higher elevations. The nest is a cup often placed on a branch where an overhanging branch provides additional protection from weather (Calder & Calder, 1994). A single clutch of 2 eggs are laid and they hatch in about 15 days, with the young fledging in about 3 weeks (Groves et al., 1997). Calliope hummingbird diets include nectar from flowers and small insects (Calder & Calder, 1994). Critical periods for the species include breeding/nesting (May 1st through August 15th) and migration (August 15th through September 30th).

Columbian sharp-tailed grouse (*Tympanuchus phasianellus columbianus*). Columbian sharp-tailed grouse have declined range-wide during the 20th century (IDFG, 2005). In Idaho, Columbian sharp-tailed grouse numbers are stable to increasing in part due to the Conservation Reserve Program, which provides tall grass habitat for nesting (IDFG, 2005). Idaho has the highest population of Columbian sharp-tailed grouse within its present range. This species had been extirpated from the planning area by the 1930s. In 2001 IDFG transplanted Columbian sharp-tailed grouse onto private land in the House Creek area. To date, at least two leks have formed on BLM administered lands.

Male sharp-tailed grouse gather in the spring to display and breed at leks. Male lek attendance runs from March into June; whereas, females attend leks from April through June for breeding (Connelly et al., 1998). Males also attend leks in the fall during September through October (Connelly et al., 1998). Following breeding, hens lay a clutch of 10 to 12 eggs, with one to two days between eggs; the eggs are incubated for about three weeks (IDFG, 2005). If the nest is predated, the female will attempt to re-nest; however, sharp-tailed grouse do not lay a second clutch if the first was successful (Connelly et al., 1998). The young leave the nest within one to two days of hatching, but stay in the general area while following the hen (Connelly et al., 1998). Critical periods for the species include display/breeding (March 15th through June 30th), nesting (May 1st through July 15th), and winter (November 1st through March 15th).

Ferruginous hawk (*Buteo regalis*). The population trend of ferruginous hawks across its entire range in the US is generally stable to increasing (IDFG, 2005). In Idaho, the population declined 11.8% per year from 1980 to 2004 (IDFG, 2005). FWS received a petition to list the ferruginous hawk in the early 1990s; however, the status review determined that there was not enough evidence to warrant listing (57 FR 37507). Areas in the northern portion of the planning area that historically supported 27 ferruginous hawk nests no longer provide habitat needed for nesting including material (sticks) and a diverse and abundant prey base. Based upon monitoring in 2005 and 2006, only one active ferruginous hawk nest remains north of the Balanced Rock-Crows Nest-Clover Crossing roads (BLM). Approximately 36 ferruginous hawk nests have been documented in the southern portion of the planning area. Currently, only 20 nests have been active in the last two years. Wildfire over the last 20 years has eliminated nesting material, burned nest trees, and changed the prey base at or near 17 historic nest sites.

Ferruginous hawks winter in the southwestern US and Mexico and return to nesting areas by March (Bechard & Schmutz, 1995). Locally, ferruginous hawks are present usually by mid to late March. Breeding is a critical period for the species, occurring from March 1st through August 1st. Ferruginous hawks nest in trees, power poles, cliffs, rock outcrops, and on the ground. In the planning area, over 95% of successful nests are in isolated western juniper (*Juniperus occidentalis*). Ferruginous hawks often use the same nest tree in consecutive years, particularly if they successfully fledged a brood in the previous year. The average clutch size is two to four eggs (Bechard & Schmutz, 1995). Ferruginous hawk produce only one clutch per year; if disturbed during laying or incubation, they may abandon the nest (White & Thurow, 1985). The eggs are incubated from 32 to 33 days, and the young are ready to leave the nest at 38 to 50 days but are dependent on the adults for food for several weeks (Bechard & Schmutz, 1995). Ferruginous hawks primarily hunt smaller mammals (e.g., ground squirrels, cottontail rabbits, jack rabbits, kangaroo rats) and, less often, birds (mostly passerines), as well as occasional reptiles and larger insects (Bechard & Schmutz, 1995).

Greater sage-grouse (*Centrocercus urophasianus*). The distribution of sage-grouse is generally associated with sagebrush, big sagebrush in particular (Braun, 2006; Connelly et al., 1998; Schroeder et al., 2004). Recent mapping indicates sage-grouse presently occupy about 55% of their former range (Schroeder et al., 2004). Sage-grouse populations have experienced declines (Schroeder et al., 1999). In Idaho, sage-grouse populations have declined 1.5% annually since 1965 (IDFG, 2005). Locally, Browns Bench and a small area west of Clover Creek Canyon have had stable to increasing sage-grouse numbers since the early 1990s (Hayden, Spicer, Crenshaw, Rachael et al., 2006). Approximately 45% of the planning area no longer provides habitat suitable for sage-grouse. Wildfire and subsequent conversion to exotic grassland has reduced over 797,409 acres of historic sage-grouse habitat in the planning area since 1982; a portion of the area burned prior to 1983 as well. Much of the remaining sage-grouse habitat is highly fragmented by wildfire, non-native perennial seedings, roads, power and telephone lines, and range infrastructure. Portions in the southern part the planning area the experience vegetation treatments in the 1960s and fires in the early 1970s are now beginning to have characteristics of suitable sage-grouse habitat (e.g. shrub cover >10%, and a diversity of native perennial forbs and grasses).

Habitat conversion and fragmentation (Connelly et al., 2004) by wildfire are the primary cause of sage-grouse declines in the planning area. Range infrastructure continue to contribute to habitat fragmentation, degradation of habitat, and mortality (Braun, 2006; Connelly et al., 2004). Livestock grazing season of use and utilization levels are not optimal for nesting sage-grouse. West Nile virus (WNV) has recently been implicated in sage-grouse mortality in some areas of Idaho, including western Owyhee County. In response, IDFG closed the 2006 hunting season on sage-grouse in Owyhee County west of the Bruneau River. It is not known if ponds and troughs used to water livestock may become breeding areas for mosquitoes carrying WNV similar to water associated with coalbed methane development in Wyoming (Zou et al., 2006).

Literature reports sage-grouse habitat needs should be considered when shrub cover is 10% or greater (Connelly et al., 2004; Connelly et al., 2000; Wisdom et al., 2000). Sage-grouse are sagebrush obligates and rely on sagebrush year round. Sage-grouse nests under sagebrush are more successful than nests under other shrub species (Connelly et al., 1991; Evans & Knopf, 2004). Sage-grouse typically nest in areas where sagebrush cover is 15% to 38% (Connelly et al., 2004; Schroeder et al., 1999). Adult sage-grouse eat sagebrush leaves throughout the year

(Connelly et al., 2004). In the late fall and winter sage-grouse diets can exceed 95% sagebrush (Connelly et al., 2004). Spring and summer diets include a variety of broad-leaf flowering plants (forbs) as well as insects. Insects are critical for the proper growth and development of young sage-grouse (Johnson & Boyce, 1990).

Within the planning area, male sage-grouse begin to regularly attend leks (display areas) from early February through early May. In some instances male sage-grouse sporadically visit areas near leks in the late fall and winter. Leks typically occur in open areas surrounded by shrubs (Connelly et al., 2000). In the planning area, leks are found on low sagebrush ridges, natural openings, edges of meadows or burns, road/jeep trail intersections, salting areas, and near livestock water troughs or ponds. Within the planning area, females begin attending leks in late February/early March with the peak of hen attendance normally occuring in the last week of March through early April. Females have been documented nesting from within 0.2 miles to over 12 miles of the lek of capture. During the spring, the majority of females nest under sagebrush (Connelly et al., 2004; Connelly et al., 2000). Literature recommends managing breeding habitat to support perennial herbaceous cover averaging seven or more inches in height (Braun, 2006; Connelly et al., 2004; Connelly et al., 2000). Critical periods for the species include display/breeding (February 15th through May 10th), nesting (March 20th through May 30th), and winter (January 1st through March 15th).

Lewis woodpecker (*Melanerpes lewis*). Lewis woodpeckers are scattered across Idaho, generally associated with open ponderosa pine forest (IDFG, 2005). No ponderosa pine forests are present within the planning area. Instead, Lewis woodpeckers nest in large aspen, cottonwood, and occasionally power poles. Lewis woodpeckers have been reported in the East Fork Jarbidge River, Bear Creek, China Mountain, and occasionally in power poles on the transmission line to Jarbidge and Mountain City, Nevada. Lewis woodpeckers have been declining throughout the U.S. at roughly 3% per year and at about 1.5% per year in Idaho (IDFG, 2005). No inventories for this species have been conducted in the planning area.

Lewis woodpeckers in the planning area are believed to migratory (Tobalske, 1997). Breeding and nesting are critical periods for the species, occurring from May 1st through July 15th. Lewis woodpeckers reuse nests in consectutive years or may use old nest cavities of common flicker, or natural cavities (Tobalske, 1997). When Lewis woodpeckers select trees for excavating a cavity, the tree is always in an advanced stage of decay (Tobalske, 1997). The clutch size of Lewis woodpeckers vary between five and nine eggs. The diet of Lewis woodpeckers varies seasonally with insects dominating the diet. Unlike most woodpeckers, Lewis woodpeckers glean insects from bark and leaves, and catch insects in flight (Tobalske, 1997). In the fall and winter they also consume fruit and nuts (Groves et al., 1997).

Loggerhead shrike (*Lanius ludovicianus*). Loggerhead shrikes are present in much of southern Idaho in sagebrush steppe habitat. Loggerhead shrikes are sparsely scattered across the planning area. Typically, loggerhead shrikes nest in tall shrubs, >40 inches in height (Woods & Cade, 1996). Shrub and tree species commonly used as nest sites in the planning area include big sagebrush, black greasewood and to a lesser extent either lone junipers or junipers in stringers. Wildfires have burned known loggerhead shrike nesting habitat in Bell Rapids, Crows Nest, Horse Butte, Saylor Creek, and other areas, limiting the amount of suitable habitat for this species. Burned areas may take 40 years or more for the shrubs to reach a height suitable for shrike nesting. Locally, no systematic inventories for this species have been conducted.

Loggerhead shrikes arrive in the area usually in April. Breeding and nesting are critical periods, occurring from April 20th through July 15th. The nest is a cup usually placed in upper portions of tall sagebrush or greasewood. The female shrike lays 4-7 eggs which hatch in about 17 days (Yosef, 1996). The young fledge in about 3 weeks (Ehrlich et al., 1988). Adults may feed the young up to one month after fledging (Yosef, 1996). In some locations shrikes may have more than 1 brood per year (Yosef, 1996). Loggerhead shrikes primarily eat large insects, but may also feed on small lizards, birds, and rodents (Ehrlich et al., 1988). They are known cache prey one barded wire fences or plants with thorns or spines (Yosef, 1996). Locally, shrikes migrate from the area in late summer.

Mountain quail (*Oreortyx pictus*). Habitat for the mountain quail is short and/or sparsely vegetated grasslands. The range for mountain quail extends from California northward to Washington and eastward to Idaho and Nevada (Vogel & Reese, 2002). Mountain quail numbers are declining in the eastern portion of their range (southern Idaho and central Nevada) (Gutierrez & Delehanty, 1999; Vogel & Reese, 2002) and are in jeopardy of extirpation (Vogel & Reese, 2002). The FWS was petitioned to list mountain quail; however, they determined that listing as a distinct population segment was not warranted (68 FR 3000). Mountain quail were present in the Jarbidge River canyon in the 1950s (Gullion & Christensen, 1957). Historically, mountain quail were scattered across the southern portion of the planning area from Salmon Falls Creek west to the Bruneau River Canyon; however, this species was detected twice in the planning area in the past 15 years. The population is isolated from other populations of mountain quail in both Idaho and Nevada. Historically, mountain quail in this area may provided connectivity from populations in southern Idaho to northern Nevada.

Mountain quail are not considered migratory; however, they seasonally move to higher or lower elevations to winter and breeding habitats (Gutierrez & Delehanty, 1999). Breeding is a critical period for the species, occurring from May 1st through July 15th. In Idaho, nesting occurs in May and June with the females laying two clutches of eggs simultaneously, one of which is incubated by the male (Beck & Peterson, 1995). Clutch size varies but typically includes seven to ten eggs which are incubated for 24 to 25 days (Groves et al., 1997). Mountain quail diets include leaves, bulbs, seeds, fruits, flowers, and invertebrates (insects, beetle, grasshoppers, ants, larvae) throughout the year, with invertebrates comprising from 1% to 20% of their diet (Groves et al., 1997; Gutierrez & Delehanty, 1999). Young mountain quail consume far more invertebrates than the adults (Gutierrez & Delehanty, 1999). Winter is another critical season, occurring from November 15th through March 1st.

Northern goshawk (*Accipiter gentilis*). The northern goshawk ranges from the southern Rocky Mountains into Canada and central Alaska. Goshawk populations have been reported as generally static (Hoffman & Smith, 2003). Goshawks are more abundant north of the Snake River, but also occur south of the Snake River in forested areas at higher elevations. Goshawks are uncommon in the planning area. Goshawks have been observed in larger (>5 acres) aspen stands in Bear Creek and Cedar Creek on BLM-administered land as well as along Dave Creek and Jack Creek on USFS administered land. No population trend data is available for Idaho. No inventories for this species have been conducted in the planning area.

Goshawks in the planning area are likely to be migratory (Squires & Reynolds, 1997). Fall migration extends from late August through mid-November depending on the year (Squires & Reynolds, 1997). Breeding and nesting are critical periods, occurring from March 1st through August 1st. Goshawks arrive back in their nesting territories by late March to early April (Squires & Reynolds, 1997). Nest trees are either conifers or aspen. Nests are usually placed in the lower third of the tree canopy (Squires & Reynolds, 1997). Goshawks lay three to four eggs, which are incubated approximately five weeks (Groves et al., 1997). The young fledge six weeks following hatch (Groves et al., 1997). A single clutch of eggs is laid in a breeding season (Squires & Reynolds, 1997). Goshawks are opportunistic hunters and their diet is a mix of birds (e.g., woodpeckers, grouse, jays, thrushes) and mammals (e.g., squirrels, rabbits, chipmunks) depending on prey abundance (Squires & Reynolds, 1997).

Peregrine falcon (*Falco peregrinus*). The FWS delisted the peregrine falcon in 1999 (64 FR 46524). The number of active peregrine falcon nest sites in Idaho increased from 3 in 1989 to 33 in 1999, 26 of which were occupied in 2004 (IDFG, 2005). The increase in active nest sites was primarily the result of an active reintroduction program (IDFG, 2005). Peregrine falcons remain a BLM Sensitive species and have been reported in Salmon Falls Creek and the Jarbidge and Bruneau River canyons during the nesting season, indicating some nesting may be occuring. Peregrines are occasionally observed in the fall and winter along the Snake River Canyon. Habitat for the species is canyon lands, usually with a perennial water source at the bottom. Foraging occurs in the canyon and adjacent uplands.

Peregrine falcons arrive at nest territories from late February into April (White et al., 2002). Breeding and nesting are critical periods for the species, occurring from March 1st through August 1st. The nest is usually on a ledge on which the falcon creates a slight depression for the eggs (White et al., 2002) The female lays a clutch of two to four eggs typically with 48 hours between each egg (White et al., 2002). The eggs require 33 to 37 days of incubation before hatching (White et al., 2002). Chicks are nearly fully feathered in 40 days and usually have powered flight about 15 to 25 days after the first flight attempt (White et al., 2002). Diets of peregrine falcons consist primarily of wide variety birds, but they also take a number of mammals including bats and rodents and occasionally larger insects (grasshoppers, crickets, dragonflies) (White et al., 2002).

Prairie falcon (*Falco mexicanus*). Habitat for the prairie falcon is canyon lands, usually with a perennial water source in the bottom. Foraging occurs in the canyon and adjacent uplands. Populations of prairie falcons over the western United States appear to be stable to slightly increasing (Hoffman & Smith, 2003; Steehof, 1998). At the Snake River Birds of Prey National Conservation Area, prairie falcon numbers have declined significantly (Steehof, 1998) in part due to changes in habitat and the prey base. Locally, prairie falcons have been documented in a number of canyons including Cedar, Clover, Dave, Deadwood, Deep, Devil, Salmon Falls, Saylor, Three, and Flat Creeks as well as both forks of the Jarbidge, Bruneau, and Snake Rivers. No long-term trend information is available for nesting prairie falcons in the planning area.

Prairie falcons wander widely from late summer (to southern Canada, Laramie Plains) into the winter (Great Plains, southern Great Basin) (Steehof, 1998; Steehof et al., 2005). Some prairie falcons are present in the planning area year long. Breeding and nesting are critical periods, occurring from March 1st through August 1st. Locally, prairie falcons return to nesting areas by late March. The nest is usually on a ledge or pocket on a cliff face; however, prairie falcons occasionally nest in trees, power line structures, or buildings (Steehof, 1998). The female lays a clutch of up to six eggs, which she usually incubates for 29 to 33 days while the male provides food (Groves et al., 1997). The young remain at the nest site for up to 41 days, but the parents continue to feed the young for another five weeks (Steenhof, 1998).

Sage sparrow (*Amphispiza belli*). Sage sparrows are wide spread across the Great Basin states and parts of California. In Idaho they are generally found across the Snake River Plain and southward in sagebrush habitats. Large sage sparrow population declines have been observed in Arizona, Idaho, and Washington (Martin & Carlson, 1998). Locally, over 45% of habitat has been eliminated by wildfires. The remaining sage sparrow habitat is highly fragmented.

Male sage sparrows have been heard singing in as early as mid March when they return from the southern United States. Breeding and nesting are critical periods, occurring from April 29th through July 15th. The female lays 2-4 eggs in a cup shape nest usually located in sagebrush with 1 to 3 clutches of eggs produced during the nesting season (Groves et al., 1997). Eggs are incubated from 10 to 16 days and the young reach fledging size in about 2 weeks (Erhlich et al. 1988). The nesting season extends to mid June (Martin & Carlson, 1998). Sage sparrows migrate from the area by late July to mid August about a month after the last brood has fledged (Martin & Carlson, 1998).

Sage thrasher (*Oreoscoptes montanus*). The breeding distribution of sage thrasher is roughly from east-central California north to southern British Columbia, east to southern Montana and south to New Mexico, to a large extent overlapping the distribution of sagebrush. Winter distribution is from southern Nevada, Arizona, and New Mexico into central Mexico. Habitat loss, fragmentation and degradation are conservation concerns for this species and have resulted in local extirpations. Increases in exotic annual grasses may inhibit sage thrashers detecting and capturing of prey on the ground. Although cowbirds are known to parasitize sage thrasher nests, sage thrashers usually reject the egg or less frequently abandon the nest (Rich & Rothstein, 1985) and are not considered a significant conservation threat (Reynolds, 1981).

Locally, sage thrashers usually return from their wintering grounds in late March to early April, depending upon the year. Upon returning, courtship is initiated and a cup nest is constructed, usually in sagebrush (Reynolds, 1981) or on the ground under taller sagebrush (Reynolds et al., 1999). The clutch size is two to five eggs and sage thrashers may produce two clutches in a breeding season (Reynolds, 1981). Both sexes incubate the eggs for 10 to 12 days and the young fledge about two weeks later (Reynolds et al., 1999). The diet of the sage thrasher is largely plant material (Reynolds et al., 1999); however, they also consume some arthropods from the ground and, in the late summer, eat seeds from the ground. Sage thrashers typically migrate from the area in August to early September.

Trumpeter swan (*Cygnus buccinator*). Trumpeter swans generally breed and nest north and east (Fairfield, Yellowstone Park and into Canada) of the planning area. A few trumpeter swans from

Yellowstone and eastern Idaho, winter along the Snake River at the north edge of the planning area (IDFG, 2005). Trumpeter swans have been observed at ponds in the Bruneau Dunes Park, along the Snake River near the Indian Cove Bridge, Lower Salmon Dam, and in the Hagerman Wildlife Management Area. The primary threats to trumpeter swans in the planning area are from poaching (mis-identification), collisions with power and telephone lines, and from ingesting lead shot while feeding (IDFG, 2005). Swans migrate to the area in November and usually leave by late February or March depending upon the year (Mitchell, 1994). Trumpeter swans are commonly mistaken for the more abundant tundra swan which also winters in the area. Winter is a critical period for the species, occurring from November 15th through March 1st. A brief life history is not included because the species does not nest in the area.

White-faced ibis (*Plegadis chihi*). White-faced ibis are colonial breeders generally associated with shallow marshes and dense, emergent vegetation (Ryder & Manry, 1994). In Idaho white-faced ibis are known to breed in 5-7 different locations the nearest of which is Duck Valley about 20 miles to the west of the planning area (IDFG, 2005). Locally white-faced ibis have been observed at Camas Slough, 71-Draw Pond, Cedar Mesa Reservoir, Roseworth Reservoir, and the wet meadows at House Creek and Flat Creek. Habitat in the area is not considered suitable for nesting white-faced ibis because the wetlands lack the dense, emergent vegetation (e.g. bulrush and cattail) used by ibis for nesting in Idaho (IDFG, 2005; Trost & Gerstell, 1994).The white-faced ibis population is increasing in the Great Basin and appears to be stable in Idaho (IDFG, 2005). No inventories for this species have been conducted in the planning area in the last 13 years.

White-faced ibis arrive in Idaho for breeding usually in April and leave in September and October (Ryder & Manry, 1994; Trost & Gerstell, 1994). White-faced ibis in the planning area usually winter in northern Mexico (Trost & Gerstell, 1994). Breeding and nesting are critical periods for the ibis, occurring from April 20th through June 30th. Nests are placed above the water in emergent vegetation or in low trees or shrubs over water (Ryder & Manry, 1994). White-faced ibis nest in colonies. Clutch sizes average 3-4 eggs and incubation lasts approximately 3 weeks (Groves et al., 1997). White-faced ibis produce a single brood per year, but may renest (Ryder & Manry, 1994). Young ibis leave the colony at 6-7 weeks of age (Ryder & Manry, 1994). The diet of white-faced ibis is primarily aquatic and moist soil insects, crustaceans, and earthworms (Ryder & Manry, 1994).

Willow flycatcher (*Empidonax trailii*). Willow flycatchers are widely distributed across Idaho, typically associated with riparian zones dominated by willows. In the planning area willow flycatchers have been detected in willow dominated portions of Cedar, Cherry, Clover, Deer, and Flat Creeks as well as in Rocky Canyon. The willow flycatcher population trend is downward in the United States (Sedgwick, 2000). The population trend for willow flycatcher in Idaho is static (Groves et al., 1997). The southwestern subspecies of the willow flycatcher is listed as Endangered (Sedgwick, 2000). Primary causes of population declines include habitat loss and alteration from invasive species (tamarisk), improper grazing management, and brown-headed cowbird parasitism (Sedgwick, 2000). There has been no local inventory for this species.

Willow flycatchers typically arrive in the planning area frin May to early June and likely leave in August to early September (Sedgwick, 2000). Willow flycatchers winter from Mexico to

Columbia with migration occurring during the night (Sedgwick, 2000). Breeding and nesting are critical periods, occurring from May 15th through July 15th. Females lay three to four eggs in a cup-like nest (Ehrlich et al., 1988). Incubation lasts 12 to 15 days, and the young fledge in a little over two weeks, but continue to follow adults until they are 24 to 25 days old (Sedgwick, 2000). Females usually lay only one clutch of eggs, but may renest (Sedgwick, 2000). Willow flycatchers eat a variety of insects including wasps and bees, beetles, flies, butterflies and moths (Sedgwick, 2000). By late summer the diet may also include berries (Sedgwick, 2000).

Yellow-billed cuckoo (*Coccyzus americanus*). The yellow-billed cuckoo has undergone major declines throughout its range in the western US (Hughes, 1999). FWS determined existing data indicated listing under the ESA is warranted (66 FR 38611). In Idaho, yellow-billed cuckoo are considered a rare local breeder, and the majority of yellow-billed cuckoo observations have been made in the southern part of the state (IDFG, 2005). Yellow-billed cuckoo have occasionally be observed on Snake River islands with overstory trees and dense shrub understory during the late summer. Adequate information in Idaho is not available to determine the population trend for yellow-billed cuckoo (IDFG, 2005). It is likely the observations within the planning area represent migrating individuals, not breeding residents. During FERC relicensing, Idaho Power Company did not document any cuckoo nesting along the Snake River portion of the planning area. A survey for yellow-billed cuckoo in southern and eastern Idaho from 2003 and 2004 found few nesting cuckoo (Reynolds & Hinckley, 2005). Yellow-billed cuckoos are a riparian obligate species. Cuckoo habitat in Idaho typically consists of mature cottonwood forest with a fairly dense shrub understory (Reynolds & Hinckley, 2005).

Yellow-billed cuckoo migrate from South America and arrive in nesting habitat usually in late early May (Hughes, 1999). Breeding is a critical period for the species, occurring between May 15th though September 1st. Both adults construct the nest in which the female frequently lays two to three eggs (Hughes, 1999). In some areas, a second brood is raised (Hughes, 1999). Incubation begins after the first egg is laid with both adults sharing incubation. At seven to nine days, the young perch on branches by the nest and they fly at 21 days (Hughes, 1999). Yellow-billed cuckoo are insectivorous and their diet contains a variety of caterpillars and other larvae, as well as large insects (e.g., cicada, katydids, grasshoppers, crickets, beetles, butterflies, moths) and spiders (Hughes, 1999).

Mammals

California bighorn sheep (*Ovis canadensis californiana*). Range wide populations of California bighorn sheep much lower than historically, but are believed to have stabilized at approximately 5,000 animals (Krausman & Bowyer, 2003). The species has been re-introduced from British Columbia into parts of California, Idaho, Oregon, Washington, Nevada, and South Dakota (Krausman & Bowyer, 2003). In 2005, the California bighorn population in Idaho was estimated at 1,200 animals (IDFG, 2005). California bighorn sheep numbers in the planning area peaked in the mid 1990s, declined through the early 2000s, and have steadily increased since (Crenshaw et al., 2006). Poor lamb recruitment as a result of a disease outbreak is the suspected reason for the decline (Crenshaw et al., 2006). The current bighorn sheep population in the planning area is estimated at 153 animals (Crenshaw et al., 2006).

Bighorn sheep habitat is comprised of valleys and benchlands associated with deep canyons and mountainous area. Preferred habitat is usually rugged, secluded, and steep with slopes >100% in area with a high degree of visibility (Van Dyke et al., 1983; Wilson et al., 1980). California bighorn breeding season (rut) occurs from October through November (Krausman & Bowyer, 2003). Female bighorn give birth to a single lamb or occasionally twins in the late spring, typically late April through June (Krausman & Bowyer, 2003). California bighorn sheep diets vary seasonally and consists primarily of grasses and forbs with much less browse (Krausman and Bowyer 2003). Bighorn are typically intolerant of livestock (Krausman & Bowyer, 2003; Van Dyke et al., 1983; Wilson, 1969; Wilson et al., 1980). When livestock occupy ranges used by bighorn, the bighorn move to less desirable habitat or concentrate on the remaining habitat (Van Dyke et al., 1983). Native ungulates were not reported to socially displace bighorn (Van Dyke et al., 1983). Disease can be a major mortality factor for bighorn sheep and die off can result in >50% population reduction (Krausman & Bowyer, 2003). Critical periods for the species include breeding (October 1st through December 31st), lambing (January 1st through June 30th), and wintering (January 1st through June 30th).

Identified bighorn habitat in the planning area is 84,111 acres. Prior to 1983, about 5,800 acres of bighorn habitat had been burned in wildfire. From 1983 to present, a little more than 6,200 acres burned in wildfires. Exotic annuals now dominate the majority of the burned areas (a little more than 12,000 acres). The 1987 RMP stated that 2,729 acres had been seeded to crested wheatgrass, mostly in the Poison Butte area, as part of fire rehab efforts in the early 1980s. No additional seeding has been planted since. The majority of the burned areas is now exotic annual grassland with some native grasses, primarily Sandberg bluegrass with some bottlebrush squirreltail.

Fringed myotis (*Myotis thysanodes*). Fringed myotis have not been documented within the planning area; however, they are known to occur to the west (Doering & Keller, 1998). A general lack of inventory or the lack of caves or mine shafts in the area may account for the lack of documentation locally. Fringed myotis roosts in rock crevices (Groves et al., 1997) which are relatively abundant in many of the canyons. There is no information on the population trend for this species in Idaho (IDFG, 2005).

There is little information on the life history of this bat in Idaho. In other areas, females breed in the fall and give birth from June into July (O'Farrell & Studier, 1980). Females congregate in maternity roosts prior to giving birth to a single young. In some areas, fringed myotis are winter migrants; however, it is not known if they migrate from Idaho (Groves et al., 1997). Fringed myotis frequently roost with other bat species, but are never within ten feet of other species (Groves et al., 1997). Winter is a critical period for the species, occurring from November 1st through April 1st.

Kit fox (*Vulpes macrotis*). Southern Idaho is at the northern edge of the kit fox's distribution. The kit fox has been documented occasionally in southern Idaho and only three times within or in close proximity to the planning area (IDFG, 2005). One historic record is from Bruneau Valley in the early 1900s. A more recent observation was made in the mid 1990s in the general vicinity of Bliss Dam. Rudeen reported kit fox from two locations in the planning area between Clover and Middle Buttes (Rudeen, 2006). A third observation of kit fox on the Juniper Butte Training Range was made in the previous nine years. A subspecies of kit fox in California is listed as Endangered by the FWS (McGrew, 1979).

Kit fox inhabit various shrublands including shadscale, black greasewood, and big sagebrush (McGrew, 1979). Little is known about the life history of kit fox in the northern portion of its range. Further south, the breeding season occurs from December into February. Denning is a critical period for the species, the dates of which are unknown. Female kit fox give birth to a litter of four to five young in late February or March (McGrew, 1979). The male usually hunts for the female and pups for the first few weeks, however the female begins to hunt by the forth week (McGrew, 1979). The family group generally disbands by October with the young usually emigrating from the area (McGrew, 1979). Kit fox prey includes nocturnal rodents, rabbits, lizards, and insects (IDFG, 2005). When prey is limited, kit fox have fewer pups in their litters (McGrew, 1979). IDFG identified habitat conversion from shrub steppe to exotic grassland as an impact to the prey species hunted by kit fox (IDFG, 2005). Females reach maturity in their second year. Kit fox may live up to seven years in the wild.

Pallid bat (*Antrozous pallidus*). The distribution of this species is primarily in canyons lands of southern Idaho. Pallid bats are found in arid areas including sagebrush steppe with suitable cliff and rock outcrop habitat for roosts. Within the planning area, pallid bats have been confirmed in the Bruneau, Clover, and Salmon Falls canyons and along the Snake River.

Little is known about the species in Idaho. Pallid bats are believed to hibernate in the area. Pallid bats are known to roost in small concentrations in rock crevices and man-made structures (Groves et al., 1997; Hermanson & O'Shea, 1983). Night roosts are usually distinct from day roosts (Hermanson & O'Shea, 1983). There are no data to determine winter roosting or maternity periods for this species. The female gives birth to a single young in May through June (Hermanson & O'Shea, 1983) and lactation extends into August. Pallid bats usually roost in crevices in cliffs and occasionally in caves during the day (Hermanson & O'Shea, 1983). Time of emergence from day roosts varies seasonally, but it is usually later than other bats (Hermanson & O'Shea, 1983). Foraging usually extends through out the night and concludes before sunrise; the species has been reported to emerge around 10:00 pm in the summer and usually return to day roosts an hour before sun rise (Verts & Carraway, 1998). Trapping in the Bruneau Canyon in the mid 1990s in July, the majority of pallid bats were trapped between mid-night and 3:00 am. At Bruneau Dunes State Park, pallid bats arrived at 11:00 pm at a night roost and left by 4:30 am for the day roost. Pallid bats may forage up to 19 miles from their day roost, although the distance is probably less than 2 mi from day roosts in most areas (Hermanson & O'Shea, 1983). Pallid bats primarily eat a variety of insects including those that dwell on the ground or gleaned from vegetation (e.g., beetles, crickets, grasshoppers, and scorpions) and less frequently in flight (e.g., moths) (Hermanson & O'Shea, 1983). The conversion of sagebrush steppe habitats to those dominated by exotic grasses which reduces flowering broadleaf plants may reduce the prey for pallid bats.

Piute [Great Basin] ground squirrel (*Spermophilus mollis*). Until the early 2000s, the Piute ground squirrel was classified with the Townsend ground squirrel (Yensen & Sherman, 2003). Locally, the subspecies most likely to occur in the southern part of the planning area is *S. m. mollis* (Yensen & Sherman, 2003). There is no population trend information available for this species due to the recent taxanomic shift (IDFG, 2005). Piute ground squirrels are found in shadscale, black greasewood, and sagebrush steppe habitats, but are more abundant around desert wetlands, meadows, and agricultural fields (Rickart, 1987). Concerns regarding this ground squirrel species include habitat loss and conversion, increases in invasive annuals, loss of native forbs, and habitat fragmentation (IDFG, 2005). The impact of recreational shooting on ground squirrels is unknown, but it may be an important source of mortality in small or isolated populations (IDFG, 2005).

Piute groundsquirrels hibernate for six to seven months per year (Yensen & Sherman, 2003). Breeding occurs in the spring shortly after females emerge from hibernation sometime in February to well into March depending on the year (Rickart, 1987; Smith & Johnson, 1985). Ground squirrels have been observed locally at elevations of 4,500 to 5,000 feet in early to mid April. Piute ground squirrels annually produce one litter of three to nine young (Rickart, 1987). Their diet includes a variety of forbs, grasses, seeds, and flowers (Rickart, 1987). Piute groundsquirrels enter summer hibernation usually in late June (Yensen & Sherman, 2003). Spring and early summer (March 20th through July 1st) and critical periods for the species.

Pygmy rabbit (*Brachylagus idahoensis*). Pygmy rabbits are scattered throughout the southern part of Idaho, north and south of the Snake River (IDFG, 2005). Pygmy rabbits are sagebrush obligates and occur where sagebrush is relatively tall in areas with deep soils (Rachlow & Svancara, 2006). Recent inventories for pygmy rabbits in the winter of 2005 and 2006 showed the species is widely scattered in the southern half of the planning area (BLM). Historical records indicate it was also present in the northern portions of the planning area (CDC), but vegetation manipulations as well as wildfires removed habitat from hundreds of thousands of acres. Pygmy rabbits are unique in that they dig their own burrow systems, usually in the densest and tallest sagebrush available (Gabler et al., 2001). Although IDFG notes there is no specific population trend information, they reported that habitat loss, alteration, and fragmentation in sagebrush steppe habitats across the west are range-wide concerns for this species (IDFG, 2005). Pygmy rabbits in the state of Washington have been listed as Endangered by the FWS. FWS has received petitions to list pygmy rabbits range wide.

Pygmy rabbits breed in the late winter (February) through spring (June) (Groves et al. 1997). Females give birth to four to seven young in late May into June (Green & Flinders, 1980; Groves et al., 1997). A female may give birth to up to three litters per year depending on habitat quality (Green & Flinders, 1980). Pygmy rabbits can be active throughout the day, but are most active in the morning and evening. The diet of pygmy rabbits includes sagebrush leaves during all seasons and more grasses and forbs (up to 40%) in the mid to late summer (Green & Flinders, 1980). Sagebrush constitutes 99% of the diet in the winter (Green & Flinders, 1980). Mortality rates on pygmy rabbits are highest in the winter (Green & Flinders, 1980). Annual mortality rates can exceed 80% (Green & Flinders, 1980).

Spotted bat (*Euderma maculatum*). The distribution of this species is limited primarily to the canyons lands of southwestern Idaho; however, a few have been documented as far east as Goose Creek and northward in the Stanley Basin area (IDFG, 2005). Within the planning area, spotted bats have been confirmed in the Bruneau, Jarbidge, Clover, and Salmon Falls Creek canyons and along the Snake River (Doering & Keller, 1998; Vullo et al., 1999).

Little is known about this species in Idaho. Spotted bats appear to be relatively solitary (Groves et al., 1997). Female give birth to a single young in early June (Watkins, 1977). Spotted bats usually roost in crevices in cliffs and occasionally in caves during the day (Watkins, 1977). Foraging usually extends throughout the night and concludes before sunrise (Watkins, 1977), peaking between midnight and 3:00 am (Groves et al., 1997). Spotted bat may forage 3.7 to 6.3 miles from day roosts (Groves et al., 1997). Spotted bats feed primarily on noctuid moths, but occasionally eat other insect prey (Watkins, 1977). Spotted bats are believed to hibernate in the area. There are no data to determine winter roosting or maternity periods for this species (IDFG, 2005). The conversion of sagebrush steppe habitats to those dominated by exotic grasses which reduces flowering broadleaf plants may reduce prey abundance for spotted bats. Winter is a critical period for the species, the dates of which are unknown.

Townsend's big-eared bat (*Corynorhinus townsendii*). Townsend's big-eared bats are widely distributed within Idaho, found in the majority of larger river drainages (Snake and Salmon) as well as across southern Idaho (IDFG, 2005). In the planning area, Townsend's big-eared bats have been found in the Salmon Falls Creek and Jarbidge River canyons. Townsend's big-eared bats are reportedly present in some of the old mines in Jarbidge, Nevada. Lava tubes, caves, and mine adits normally used by bats (Pierson et al., 1999) are very uncommon within the planning area. The majority of known winter roosts for this species lie north of the Snake River in several lava tubes. This bat species does not use crevices or cracks for roosting (Groves et al., 1997).

Townsend's big-eared bats mate in the late fall and into the winter (Kunz & Martin, 1982). Females gather in groups at community maternity roosts which break up in August after the young are weaned (Kunz & Martin, 1982). A single offspring is born in the late spring to early summer. In Idaho, Genter (1986) reported that Townsend's big-eared bats gather at community winter roost sites, forming visible clusters on open surfaces (Pierson et al., 1999). Townsend's big-eared bats do not associate with other species at winter roosts (Pierson et al., 1999). Townsend's big-eared bats feed at night on a wide variety of insects, primarily small moths but also beetles, and flies (Kunz & Martin, 1982; Pierson et al., 1999). They may forage later at night that some other species and appear to have two feeding bouts per night (Kunz & Martin, 1982). Foraging habitat includes riparian zones and woodlands, while avoiding open grazed pasture land (Pierson et al., 1999). Townsend's big-eared bats are sensitive to human disturbance. The population trend for the species in Idaho is downward (IDFG, 2005). Winter is a critical period for the species, occurring from November 1st through April 1st.

Wyoming ground squirrel (*Spermophilus elegans nevadensis*). Wyoming ground squirrels are divided into three subspecies; the local subspecies is *S. e. nevadensis*. Wyoming ground squirrels are believed to be extirpated from southeastern Oregon and parts of southwestern Idaho (IDFG, 2005; Yensen & Sherman, 2003; Zegers, 1984). Wyoming ground squirrels occur in the southeastern portion of the planning area. Wyoming ground squirrels are found in grassland and sagebrush steppe habitats (Groves et al., 1997). IDFG reported habitat loss, alteration, and fragmentation in sagebrush-steppe habitats across the range of the species in Idaho are concerns for this species (IDFG, 2005).

Breeding occurs shortly after the ground squirrels emerge from winter hibernation (August to March) depending on the year (Groves et al., 1997; Yensen & Sherman, 2003). A single litter of six young is produced usually by early May. The young emerge from the burrows at four to five weeks (Zegers, 1984). Young ground squirrels grow rapidly and can reach adult size by the end of summer. Wyoming ground squirrels are active during the daylight. This species diet includes a wide variety of forbs (seeds, flowers, stems and leaves) and, to a lesser extent, grasses (Zegers, 1984), roots of grasses, and insects (Groves et al., 1997). Spring and early summer (March 20th through July 1st) are critical periods for the species.

APPENDIX 12. FRCC ACRES BY VEGETATION TYPE

Landfire Rapid Assessment Reference Condition Model	Succession Class	Acreage	Stand Condition Class	Vegetation-Fuel Condition Class	Fire Frequency-Severity Condition Class	Stratum FRCC
Basin Big Sagebrush (R2SBBB)	A	5,100	1			
Basin Big Sagebrush (R2SBBB)	B	9,036	1			
Basin Big Sagebrush (R2SBBB)	C	7,910	1			
Basin Big Sagebrush (R2SBBB)	Uncharacteristic	31,159	3			
Total		**53,205**		**2**	**1**	**2**
Black and Low Sagebrush (R2SBDW)	A	15,675	1			
Black and Low Sagebrush (R2SBDW)	B	7,712	1			
Black and Low Sagebrush (R2SBDW)	C	96,899	3			
Black and Low Sagebrush (R2SBDW)	Uncharacteristic	6,602	3			
Total		**126,888**		**2**	**2**	**2**
Curlleaf Mountain. Mahogany (R2MTMA)	A	30	1			
Curlleaf Mountain. Mahogany (R2MTMA)	B	74	1			
Curlleaf Mountain. Mahogany (R2MTMA)	C	3,289	3			
Curlleaf Mountain. Mahogany (R2MTMA)	D	0	1			
Curlleaf Mountain. Mahogany (R2MTMA)	E	0	1			
Curlleaf Mountain. Mahogany (R2MTMA)	U	3	3			
Total		**3,396**		**3**	**2**	**3**
Mountain. Big Sagebrush (R2SBMT)	A	6,847	1			

Landfire Rapid Assessment Reference Condition Model	Succession Class	Acreage	Stand Condition Class	Vegetation-Fuel Condition Class	Fire Frequency-Severity Condition Class	Stratum FRCC
Mountain. Big Sagebrush (R2SBMT)	B	7,568	1			
Mountain. Big Sagebrush (R2SBMT)	C	50,700	2			
Mountain. Big Sagebrush (R2SBMT)	U	4,839	3			
Total		**69,954**		**2**	**2**	**2**
Mountain. Shrub with tree (R2MSBHwt)	A	304	1			
Mountain. Shrub with tree (R2MSBHwt)	B	1,539	1			
Mountain. Shrub with tree (R2MSBHwt)	C	2,582	1			
Mountain. Shrub with tree (R2MSBHwt)	D	18,546	3			
Mountain. Shrub with tree (R2MSBHwt)	U	561	3			
Total		**23,532**		**3**	**3**	**3**
Salt Desert Shrub (R2SDSH)	A	22	1			
Salt Desert Shrub (R2SDSH)	B	0	1			
Salt Desert Shrub (R2SDSH)	C	1,253	1			
Salt Desert Shrub (R2SDSH)	D	0	1			
Salt Desert Shrub (R2SDSH)	E	0	NR			
Salt Desert Shrub (R2SDSH)	U	2,082	3			
Total		**3,357**		**2**	**2**	**2**
Stable Aspen (R2ASPN)	A	40	1			
Stable Aspen (R2ASPN)	B	458	1			
Stable Aspen (R2ASPN)	C	4,495	3			
Total		**4,993**		**3**	**2**	**3**
Wyoming Sagebrush Steppe (R2SBWYse)	A	118,890	1			
Wyoming Sagebrush Steppe (R2SBWYse)	B	132,177	1			
Wyoming Sagebrush Steppe	C	304,451	1			

Landfire Rapid Assessment Reference Condition Model	Succession Class	Acreage	Stand Condition Class	Vegetation-Fuel Condition Class	Fire Frequency-Severity Condition Class	Stratum FRCC
(R2SBWYse)						
Wyoming Sagebrush Steppe (R2SBWYse)	U	688,401	3			
Total		**1,243,919**		**2**	**1**	**2**

APPENDIX 13. JARBIDGE FO ALLOTMENT AUMS AND STATUS

Current Allotment Name	Current Allotment #	1987 RMP Allotment Name	1987 RMP Allotment #	Current Allowed AUMs	20 Year AUMS Proposed in 1987 RMP	Stipulated Settlement Agreement	Judge Williams' Order	Appropriations Act Nonrenewable Allowed AUMs
Antelope Butte North	1087			741				
Seventy One Desert	1099	Three Creek	1099	3,000	7,156	3,000		
Winter Camp	1064			515		515		
Antelope Springs	1096	Antelope Springs AMP	1096	5,965	8,886	6,046		
		Cedar Butte #9	1085	81				
Bear Creek	1026	Bear Creek	1026	160	159			
Black Mesa	1080			1,005				
Blue Butte	277			1,306				1,306
Cheatgrass	1069			300				
Clover Crossing	1136			6,500		6,500		
Dove Spring	1146			1,347				300
Echo 4	296			3,732		3,732		
Echo 5	282			13,712		13,712		
Echo Clover	341			1,492		1,492		
Echo Hammett	342			815				
Echo Luby	296			400				285
Grindstone	1062			683				602
Hagerman Group	1150			2,527				2,409
Hallelujah	343			1,885		1,885		
Kubic	1147	Saylor Creek	1056	4,299	65,023	4,299		
Little Three Island	1074			150				40
Lower Salmon Falls	1141			127				
Magic Water	1056			16				
Noh Field	1140			1,000		1,000		
North Balanced Rock	1139			50				
Notch Butte	1144			3,163				1,224
River Bridge	1072			33				
Saylor Creek/ North Three Island	1078			2,040				496
Three Island	1073			472				141
Thompson	1079			1,868				
Thousand Springs	1142			283				
Twin Butte	1145			5,615				5,000
Yahoo	1043			2,952		2,952		

Current Allotment Name	Current Allotment #	1987 RMP Allotment Name	1987 RMP Allotment #	Current Allowed AUMs	20 Year AUMS Proposed in 1987 RMP	Stipulated Settlement Agreement	Judge Williams' Order	Appropriations Act Nonrenewable Allowed AUMs
Blackrock Pocket	1102	Blackrock Pocket	1102	1,890	2,325	1,890		
Bracket Bench AMP	1008	Bracket Bench AMP	1008	2,386	3,507	2,386		
Brown's Gulch	1053	West Saylor Creek	1137	863	52,182	863		
Bruneau Hill	1057			3,914		3,915		
Canyonview (Echo Jewett)	1058			1,082		1,082		
Flat Top	1059			5,869		5,869		
Lower Saylor Creek	1055			899				
West Saylor Creek	1137			6,340				
Diamond A Bruneau Canyon	1100	Bruneau Canyon	1100	100	100			
Buck Flat AMP	1122	Buck Flat AMP	1122	1,716	2,522			
Camas Slough	1095	Camas Slough	1095	180	231	180		
Cedar Butte 10	1007	Cedar Butte 10	1007	891	620			95
Cedar Butte Devil Creek A	1002	Cedar Butte Devil Creek A	1002	2,288	3,498	2,288		
Cedar Butte Eastside	1001	Cedar Butte Eastside	1001	372	492			138
Cedar Canyon Field	1013	Cedar Canyon	1013	15	14			
Cedar Creek	1131	Cedar Creek	1131	4,221	4,058	4,221		
Cedar Creek Canyon	1023	Diversion	1023	320	409			
Cedar Crossing Seed	1022	Cedar Crossing Seed	1022	740	837			
China Creek	1025	China Creek	1025	714	819			
Conover	1126	Conover	1126	4,205	3,974			
Coonskin AMP	1123	Coonskin AMP	1123	4,783	7,029	4,783		
Crawfish	1118	Crawfish	1118	650	1,065	650		
Deadwood Pocket	1067	Three Creek #2	1067	310	4,148			
Three Creek/Devil Creek	1076			3,107				
Devil Creek/Balanced Rock	1133	Devil Creek	1133	3,659	3,440			
		Balanced Rock	1016					
Diamond A CRMP	1021	Diamond A Unit	1021	8,546	12,562			
Diamond A Taylor Pocket	1077	Taylor Pocket	1077	1,218	2,092			
E&W Deadwood Trap	1020	E&W Deadwood Trap	1020	999	699			
East Juniper Draw	1132	East Juniper Draw	1132	2,000	2,740	2,000		
East Roseworth Point	1061	Roseworth Point	1014	291	2,060			101
Roseworth Point	1014			1,573				
Grassy Hills	1029	Grassy Hills	1029	658	1,866	658		

Current Allotment Name	Current Allotment #	1987 RMP Allotment Name	1987 RMP Allotment #	Current Allowed AUMs	20 Year AUMS Proposed in 1987 RMP	Stipulated Settlement Agreement	Judge Williams' Order	Appropriations Act Nonrenewable Allowed AUMs
Grassy Windmill	1134			420				
Grassy Hills AMP	1121	Grassy Hills AMP	1121	2,279	3,349			
Guerry Patrick	1094	Guerry Patrick	1094	885	879			
Horse Butte AMP	1120	Horse Butte AMP	1120	1,519	2,232			
House Creek	1042	House Creek AMP	1042	667	980			
Inside Desert	353	Poison Creek AMP	1050	17,958	24,179		17,958	
Poison Butte	1050			9,930			9,930	
Juniper Butte	1119	Juniper Butte	1119	2,300	2,753	2,300		
Juniper Draw	1138	Juniper Ranch	1031	686	6,168			
Juniper Ranch	1031			2,590				1,000
Kinyon	1046	Kinyon	1046	881	2,104			350
Little Grassy/Deadwood	1017	Devil Creek Patrick	1017	1,167	1,120			
Little House Creek FFR	1093	Little House Creek FFR	1093	112	111			
North Fork Field	1088	North Fork	1088	570	590	570		
Pigtail Butte	1125	Pigtail Butte	1125	5,146	5,966	5,146		
Sheep Trail	1063			53				
South Roseworth	1151			35				731
Player Butte	1047	Player Butte	1047	136	211			
Player Canyon	1027	Player Canyon	1027	280	279			
Roseworth Tract FFR	1009	Roseworth Tract	1009	56	54			
Signal Butte	1092	Signal Butte	1092	1,198	2,789			505
South Crow's Nest	1135	South Crow's Nest	1135	790	1,321			1,225
South Deadwood	1086	South Deadwood AMP	1138	299	439			
Three Creek #8	1075	Three Creek #8	1075	527	517			
Three Creek #8	1070	Three Creek #8	1070	798	927	798		
Three Creek #8 PVT AL	1066	Three Creek #8 PVT AL	1066	439	425			
Three Creek Blossom Prv	1071	Three Creek Blossom Prv	1071	529	639			
Turner Cedar Butte	1000	Turner Cedar Butte	1000	745	862			
Wilkins Island	1084	Wilkins Island	1084	773	811			
			Total	**188,801**	**254,211**	**84,732**	**27,888**	**15,948**

APPENDIX 14. JARBIDGE FO ALLOTMENT SIZE AND MANAGEMENT CATEGORY

Current Allotments	Allotment #	BLM	BOR	Private	Military	Management Category
Antelope Butte North	1087	7,496				Improve
Antelope Springs	1096	41,085				Improve
Bear Creek	1026	1,118				Maintain
Black Mesa	1080	10,924				Improve
Blackrock Pocket	1102	12,088				Maintain
Blue Butte	277	9,867				Improve
Bracket Bench AMP	1008	16,216				Maintain
Browns Gulch	1053			10,754	2,905	Improve
Bruneau Hill	1057	18,857		2,678	17,870	Improve
Buck Flat AMP	1122	21,839				Maintain
Camas Slough	1095	1,605				Maintain
Canyonview (Echo Jewett)	1058				3,163	Improve
Cedar Butte 10	1007	4,804				Maintain
Cedar Butte Devil Creek	1002	21,209				Improve
Cedar Butte Eastside	1001	4,842				Improve
Cedar Canyon Field	1013	199				Maintain
Cedar Creek	1131	25,220				Improve
Cedar Creek Canyon	1023	2,490				Maintain
Cedar Crossing Seed	1022	4,953				Improve
Cheatgrass	1069	3,399				Improve
China Creek	1025	11,313				Improve
Clover Crossing	1136	25,926				Improve
Conover	1126	15,737				Improve
Coonskin AMP	1123	41,090				Maintain
Crawfish	1118	10,423			1	Improve
Deadwood Pocket	1067	2,877				Improve
Devil Creek/Balanced Rock	1133	36,800				Improve
Diamond A Bruneau Canyon	1100	276				Maintain
Diamond A Taylor Pocket	1077	15,403				Improve
Diamond A	1021	103,326				Improve
Dove Spring	1146	8,934				Improve
E&W Deadwood Trap	1020	3,940				Maintain
East Juniper Draw	1132	20,741				Improve
East Roseworth Point	1061	1,948				Improve
Echo 4	296	16,814				Improve
Echo 5	282	28,196				Improve
Echo Clover	341	2,475				Improve
Echo Hammett	342	6,820				Improve
Echo Luby	283	3,807				Improve
Flat Top	1059	12,930			21,935	Improve
Grassy Hills	1029	4,896				Maintain
Grassy Hills AMP	1121	20,400				Improve

Current Allotments	Allotment #	BLM	BOR	Private	Military	Management Category
Grassy Windmill	1134	2,409				Maintain
Grindstone	1062	5,428	1,343			Improve
Guerry Patrick	1094	4,109				Improve
Hagerman Group	1150	36,140				Improve
Hallelujah	343	7,203			1	Improve
Horse Butte AMP	1120	22,393				Improve
House Creek	1042	4,295				Maintain
Inside Desert	353	104,176			6	Improve
Juniper Butte	1119	18,184				Improve
Juniper Draw	1138	6,201			440	Improve
Juniper Ranch	1031	36,886				Improve
Kinyon	1046	17,303				Improve
Kubic	1147	21,658				Improve
Little Grassy/Deadwood	1017	9,098				Maintain
Little House Creek FFR	1093	637				Custodial
Little Three Island	1074	869				Improve
Lower Salmon Falls	1141	948				Improve
Lower Saylor Creek	1055	10,727	86		912	Improve
Magic Water	1056	170				Improve
Noh Field	1140	6,109				Improve
North Balanced Rock	1139	1,522				Improve
North Fork Field	1088	2,423				Maintain
Notch Butte	1144	27,386				Improve
Pigtail Butte	1125	28,549				Improve
Player Butte	1047	1,582				Maintain
Player Canyon	1027	2,768				Maintain
Poison Butte	1050	75,681				Improve
River Bridge	1072	139				Improve
Roseworth Point	1014	12,093				Improve
Roseworth Tract FFR	1009	899				Custodial
Saylor Creek\North Three Island	1078	16,465				Improve
Seventy One Desert	1099	39,745				Improve
Sheep Trail[A]	1063	-	-	-	-	-
Signal Butte	1092	11,037				Maintain
South Crows Nest	1135	10,468				Maintain
South Deadwood	1086	948				Improve
South Roseworth	1151	218				Improve
Thompson	1079	22,029	190			Improve
Thousand Springs	1142	1,513				Improve
Three Cr. #8	1075	4,793				Maintain
Three Cr. #8 PVT AL	1066	2,044				Improve
Three Creek #8B	1070	3,484				Improve
Three Creek Blossom Prv	1071	6,082				Maintain
Three Creek\Devil Creek	1076	19,115				Improve
Three Island	1073	4,115				Improve
Turner Cedar Butte	1000	2,371				Maintain
Twin Butte	1145	43,631	4,216			Improve

Current Allotments	Allotment #	BLM	BOR	Private	Military	Management Category
West Saylor Creek	1137	22,980		2,366	44,757	Improve
Wilkins Island	1084	7,213				Maintain
Winter Camp	1064	11,893				Improve
Yahoo	1143	14,007				Improve
Total		**1,315,418**	**5,835**	**39,030**	**91,990**	
[A] The acreage and management category for Sheep Trail are included as part of Pigtail Butte.						

APPENDIX 15. ACRONYMNS

µg/m³	micrograms per cubic meter
ACEC	Area of Critical Environmental Concern
AML	Appropriate Management Level
AMR	Appropriate Management Response
AMS	Analysis of the Management Situation
ATV	all-terrain vehicle
AUM	animal unit month
BA	Bachelor of Arts
BLM	Bureau of Land Management
BMP	best management practice
BS	Bachelor of Science
BURP	Beneficial Use Reconnaissance Project
CA	Carey Act
CAR	Communities at Risk
CDC	Idaho Conservation Data Center
cfs	cubic feet per second
cfu	colony forming unit
CRMP	cultural resource management plan
DEQ	Idaho Department of Environmental Quality
DLE	Desert Land Entry
DO	dissolved oxygen
DOE	Department of Energy
DOI	Department of the Interior
DPS	Distinct Population Segment
EA	environmental assessment
EIS	environmental impact statement
EPA	Environmental Protection Agency
ERMA	Extensive Recreation Management Area
ESA	Endangered Species Act of 1973
ESI	Ecological Site Inventory
ESR	emergency stabilization and rehabilitation
EUA	Exclusive Use Area
F	Fahrenheit
FAA	Federal Aviation Administration
FCRPA	Federal Cave Resources Protection Act of 1988
FERC	Federal Energy Regulatory Commission
FLPMA	Federal Land Policy and Management Act of 1976
ΦΛΤΦΑ	Τηε Φεδεραλ Λανδ Τρανσαχτιον Φαχιλιτατιον Αχτ οφ 2000
FO	field office
FRCC	Fire Regime Condition Class
ft	feet
FWS	US Fish and Wildlife Service
GIS	Geographic Information Systems
HA	herd area

HIP	Habitat Integrity and Population
HMA	herd management area
HMP	Habitat Management Plan
HUC	Hydrologic Unit Code
ICBEMP	Interior Columbia Basin Ecosystem Management Project
ID	interdisciplinary
IDFG	Idaho Department of Fish and Game
IDWR	Idaho Department of Water Resources
IMP	Interim Management Policy
INL	Idaho National Laboratory
JBRWA	Juniper Butte Range Withdrawal Act in 1998
kg	kilogram
KGRA	Known Geothermal Resource Area
LWCF	Land & Water Conservation Fund
MHAFB	Mountain Home Air Force Base
mi^2	square miles
mi^3	cubic miles
MIST	Minimum Impact Suppression Techniques
MOA	Military Operating Area
MOU	Memorandum of Understanding
MPA	Master of Public Administration
MS	Master of Science
MW	Megawatt
MUA	multiple use area
NAAQS	National Ambient Air Quality Standards
NAIP	National Agriculture Imagery Program
NDOW	Nevada Division of Wildlife
NEPA	National Environmental Policy Act of 1969
NHPA	National Historic Preservation Act
NHT	National Historic Trail
NMFS	National Marine Fisheries Service
NOI	Notice of Intent
NPS	National Park Service
NRCS	Natural Resource Conservation Service
NTSA	National Trails System Act
OHV	off-highway vehicle
ORV	off-road vehicle
PEIS	programmatic environmental impact statement
PILT	Payments-In-Lieu of Taxes
PM	particulate matter
PNC	Potential Natural Vegetation Communities
PNVG	Potential Natural Vegetation Group
PhD	Doctor of Philosophy
ppm	parts per million
PV	photovoltaics
R&PP	Recreation and Public Purposes Act

RES	Renewable Energy Systems
RMIS	Recreation Management Information System
RMP	Resource Management Plan
ROS	Recreation Opportunity Spectrum
ROW	right-of-way
RS-2477	Revised Statute 2477
S&G	Standards and Guidelines
SGCN	Species of Greatest Conservation Need
SIMBA	Southern Idaho Mountain Bluebird Association
SRMA	Special Recreation Management Area
SRP	special recreation permit
SSA	stipulated settlement agreement
SSURGO	Soil Survey Geographic Database
SVIM	Soil-Vegetation Inventory Method
TMDL	Total Maximum Daily Load
TNR	temporary non-renewable grazing permit
TSS	Total Suspended Solids
USAF	United States Air Force
USFS	United States Forest Service
UXO	unexploded ordinance
VRM	Visual Resource Management
WNV	West Nile virus
WSA	wilderness study area

APPENDIX 16. GLOSSARY

ACQUIRED LANDS. Acquired lands, as distinguished from public lands, are those lands in Federal ownership that have been obtained by the Government by purchase, condemnation, or gift, or by exchange for such purchased, condemned or donated lands, or for timber on such lands.

ACTIVITY PLAN. A document that describes management objectives, actions, and projects to implement decisions of the RMP or other planning documents. Usually prepared for one or more resources in a specific area.

ACTIVE USE. The portion of the grazing preference available for livestock use under a permit or lease based on livestock carrying capacity and resource conditions in a grazing allotment.

ADAPTIVE MANAGEMENT. A continuous process for adjusting management strategies when evaluation of monitoring data demonstrates goals and objectives are not being met or as new information becomes available.

AGGREGATED. Taken as a total.

AIR INVERSIONS. A reversal in the normal temperature layers of the atmosphere. A layer of warm air settles on top of a layer of cold air, and the cold air becomes trapped underneath the warm air, usually associated with local conditions and isolated areas.

AIR QUALITY CLASSES. Classifications established under the Prevention of Significant Deterioration portion of the Clean Air Act, which limits the amount of air pollution considered significant within an area.

> **Class I.** Areas where almost any change in air quality would be significant.
>
> **Class II.** Areas where the deterioration normally accompanying moderate well-controlled growth would be insignificant.
>
> **Class III.** Areas where industrial deterioration would generally be insignificant.

AIRSHED. A relatively large atmospherical area where the air quality and environment are influenced by similar topographical, physical, and climatic changes.

ALLOTMENT. An area allocated for livestock use by one or more qualified grazing permittees including prescribed numbers and kinds of livestock under one plan of management.

AMBIENT AIR QUALITY. The state of the atmosphere at ground level as defined by the range of measured and/or predicted ambient concentrations of all significant pollutants for all averaging periods of interest.

ANIMAL UNIT. One mature cow or its equivalent. The equivalent animal units for other ungulate species are: 10.5 for pronghorn; 7.6, deer; 2.1, elk; 1.2, moose; 0.9, wild horses; and 5.2, sheep.

ANIMAL UNIT MONTH (AUM). The amount of forage required to sustain one mature cow or the equivalent (e.g., five sheep or five goats), based on an average daily forage consumption of 26 pounds of dry matter per day.

ANNUAL VEGETATION. Plants that complete their life cycles and die in 1 year or less.

APPROPRIATE MANAGEMENT LEVEL (AML). The level of use by wild horses which results in a thriving natural ecological balance and avoids a deterioration of the range.

APPROPRIATE MANAGEMENT RESPONSE (AMR). The response to a wildland fire based on an evaluation of risks to firefighter and public safety, the circumstances under which the fire occurs, including weather and fuel conditions, natural and cultural resource management objectives, protection priorities, and values to be protected. The evaluation must also include an analysis of the context of the specific fire within the overall local, geographic area, or national wildland fire situation.

AQUATIC. Living or growing in or on the water.

AQUIFER. A saturated, permeable sediment or rock that can transmit significant quantities of water under hydraulic gradients.

ARCHAEOLOGICAL RESOURCES. Sites, areas, structures, objects, or other material evidence of prehistoric or historic human activities.

ARCHAEOLOGICAL SITE. A geographic location containing structures, artifacts, material remains, and/or other evidence of past human activity.

AREA OF CRITICAL ENVIRONMENTAL CONCERN (ACEC). An area of public lands where special management attention is required to protect and prevent irreparable damage to important historic, cultural, or scenic values; fish and wildlife resources; or other natural systems or processes; or to protect humans from natural hazards.

ASPECT. The direction a given side or surface is facing.

ASSIGNMENT. The transfer of one’s interest in real estate.

ATTAINMENT AREA. A geographic area in which the concentration of one or more criteria pollutants is routinely better than the National Ambient Air Quality Standards.

AUTHORIZATIONS. Written approval from the BLM Authorized Officer to use public lands for a specific purpose while meeting all required laws and regulations.

AVOID. To the extent possible, do not implement the action indicated. If the action needs to take place, then add stipulations or take additional steps to minimize impacts. Avoidance is the preferred management approach in the identified habitats for species conservation.

AVOIDANCE AREA. Areas with sensitive resource values where rights-of-way and Section 302 permits, leases, and easements for large-scale utility developments would be strongly discouraged. Authorizations made in avoidance areas would have to be compatible with the purpose for which the area was designated and not be otherwise feasible on lands outside the avoidance area.

BASEMENT ROCKS. Undifferentiated rocks that underlie rock of interest or being studied. These rocks can be of any age.

BENEFICIAL USE. Any of the various uses that may be made of water, including, but not limited to, domestic use, industrial use, agricultural irrigation, navigation, recreation, wildlife habitat, and aesthetics. A beneficial use is identified based upon actual use, the ability of water to support a non-existing use either now or in the future, and its likelihood of being used in a given manner.

BEST MANAGEMENT PRACTICES (BMPs). Practices based on current scientific information and technology that, when applied during implementation of management actions, ensure that negative impacts are minimized. BMPs are applied based on site-specific evaluation and represent the most effective and practical means to achieve management goals for a given site.

BIENNIAL VEGETATION. Plants that complete their life cycles and die in 2 years.

BIG GAME. Those species of large mammals normally managed as a sport hunting resource; includes elk, mule deer, pronghorn, and bighorn sheep.

BIOACCUMULATION. A process by which organisms take up and accumulate environmental chemicals directly from their medium or indirectly via their food.

BIOLOGICAL DIVERSITY. The variety of life and its processes, and the interrelationships within and among various levels of ecological organization.

BIOLOGICAL OPINION. A document prepared by US Fish and Wildlife Service stating their opinion as to whether or not a Federal action will likely jeopardize the continued existence or adversely modify the habitat of a listed Threatened or Endangered species.

BROOD REARING. Caring for young birds hatched at one time.

BROWSE. Branches and stems of woody plants used as food by wildlife.

BRUSH CONTROL. A method to reduce brush cover or eliminate unwanted brush through the use of prescribed fire, chemicals, mechanical methods, or biological means to achieve a desired plant community.

BULK DENSITY. The mass of dry soil per unit bulk volume.

BUNCHGRASSES. Any of a various grasses that grow in clumplike fashion rather than forming a sod or mat.

BUTTE. A detached low mountain or high mound rising abruptly from the general level of the surrounding plain; applied to peculiar elevations in the Rocky Mountain Region.

CAIRNS. A pile of stones used as markers for various purposes.

CALDERA. A large, basin-shaped depression formed from the eruption activity of volcanoes.

CANDIDATE SPECIES. Species not protected under the Endangered Species Act but under consideration by the US Fish and Wildlife Service for inclusion on the list of Federally Threatened or Endangered species.

CARRYING CAPACITY. The amount and character of use that can be supported over a specific time by an area developed at a certain level without causing excessive damage to either the physical environment or the experience of the visitor.

CHEATGRASS (*Bromus tectorum* L, DOWNY BROME). An exotic annual grass, native to Eurasia and the Mediterranean, which can dominate disturbed ground in shrub steppe ecosystems of the western United States and Canada.

CLIMATE. The average prevailing weather conditions, including but not limited to precipitation and temperature, of a place over time.

CLIMAX COMMUNITY. The final or stable biotic plant community in a successional series that is self perpetuating and in equilibrium with the physical environment.

COMMUNITY. An assemblage of plant and animal populations in a common spatial arrangement.

COMMUNITIES AT RISK (CAR). Wildland interface communities within the vicinity of Federal lands at high risk from wildfire. These communities were published in a Federal Register Notice list (66 FR 751) compiled from information provided by Tribes and States and prepared for publication by the Secretaries of Agriculture and Interior.

COMPETITION. The general struggle for existence in which living organisms compete for a limited supply of the necessities of life. Competition can exist between species, and even between individuals of a species, for food, shelter, space, nest sites, birthing sites, mates, access to water, and many other habitat and life cycle requirements.

CONSULTATION, COORDINATION, AND COOPERATION. A process prescribed by the Public Rangelands Improvement Act of involving the permittee(s), lessee(s), federally recognized Native American tribes, and interested publics in the development of management programs on public lands. The process also includes trust responsibilities to federally recognized Native American tribes.

CUBIC FEET PER SECOND (CFS). As a rate of stream flow, a cubic foot of water passing a referenced section in 1 second of time. One cfs flowing for 24 hours will yield 1.983 acre-feet of water.

CULTIVAR. A race or variety of a plant that has been created or selected intentionally and maintained through cultivation.

CULTURAL LANDSCAPE. A geographic area, including both cultural and natural resources and the wildlife or domestic animals therein, associated with a historic event, activity, or person or exhibiting other cultural or aesthetic values.

CULTURAL RESOURCE. The fragile and nonrenewable remains of human activity that are found in historic districts, sites, buildings, and artifacts and that are important in past and present human events.

CULTURAL RESOURCE INVENTORY. An inventory to assess the potential presence of cultural resources. There are three classes of surveys:

> **Class I.** An existing data survey. This is an inventory of a study area to provide a narrative overview of cultural resources by using existing information, and compile existing cultural resources site record data on which to base the development of the BLM's site record system.
>
> **Class II.** A sampling field inventory designed to locate, from surface and exposed profile indications, all cultural resource sites within a portion of an area so that an estimate can be made of the cultural resources for the entire area.
>
> **Class III.** An intensive field inventory designed to locate, from surface and exposed profile indications, all cultural resource sites in an area. Upon its completion, no further cultural resources inventory work is normally needed.

DEFERMENT. Nongrazing, either by delay or discontinuance of grazing, from the beginning of plant growth until the seed is set or the equivalent stage of vegetative reproduction.

DEFOLIATION. The removal of plant leaves by actions such as grazing or browsing, cutting, or using chemical defoliant, or natural phenomena such as hail, fire, insects, or frost.

DIGITIZE. To convert data to digital form for use in a computer.

DISSOLUTION. The dissolving of a substance.

DISTURBANCE. Any management activity that has the potential to accelerate erosion or mass movement. Also, any other activity that may tend to disrupt the normal movement or habits of a particular wildlife or plant species.

DIVERSITY. The relative abundance of wildlife species, plant species, communities, habitats, or habitat features per unit of area.

DOWNCUT. The lowering of the stream channel following excessive erosion.

EASEMENT. A right or privilege one may have on another's land.

ECOLOGICAL CONDITION. The present state of vegetation on a site compared to the natural potential of vegetation on the site.

ECOLOGICAL SITE. Land with a specific potential natural community and specific physical characteristics, differing from other kinds of land in its ability to produce vegetation and in its response to management.

ECOLOGICAL SITE INVENTORY (ESI). A type of rangeland inventory where current species composition on a given site is compared to the composition that should be there if the site were at climax or highest ecological condition.

ECOSYSTEM. A functioning system comprised of a community of animals, plants, and bacteria and its interrelated physical and chemical environment.

EFFECTS (IMPACTS). The biological, physical, social, or economic consequences resulting from a proposed action. Effects may be adverse (detrimental) or beneficial, and direct, indirect, or cumulative.

> **Direct effects**. Effects caused by the action and occur at the same time and place.
>
> **Indirect effects.** Effects are caused by the action, but occur at a later time or further removed in distance.
>
> **Cumulative effects**. Incremental effects of the proposed action when added to other past, present, or reasonably foreseeable future actions, regardless of what agency (Federal or non-Federal) or person undertakes the actions. Cumulative effects can result from individually minor but collectively significant actions taking place over a period of time.

ELIGIBLE RIVER SEGMENT. A section of a river that qualifies for inclusion into the National Wild and Scenic River System through determination that it is free-flowing and, with its adjacent land area, possesses at least one river-related value considered to be outstandingly remarkable.

EMERGENCY STABILIZATION AND REHABILITATION (ESR). Emergency Stabilization actions are taken immediately following a wildland fire incident and are completed within one year. They are intended to 1) stabilize and prevent unacceptable degradation to natural and cultural resources, 2) minimize the threats to life or property resulting from the effects of a fire, and 3) repair/replace/construct physical improvements necessary to prevent degradation of land or resources.

ENDANGERED SPECIES. Any animal or plant species in danger of extinction throughout all of a significant portion of its range. These species are listed by the US Fish and Wildlife Service under provisions of the Endangered Species Act.

ENERGY FLOW. The process through which energy from sunlight enters and is used by living systems.

ENVIRONMENTAL ASSESSMENT (EA). A concise public document that a Federal agency prepares under the National Environmental Policy Act to provide sufficient evidence and analysis to determine whether a proposed agency action would require preparation of an Environmental Impact Statement or a Finding of No Significant Impact.

ENVIRONMENTAL IMPACT STATEMENT (EIS). A detailed public document that complies with NEPA law and regulation. An EIS describes a major Federal action that significantly affects the quality of the human environment, provides alternatives to the proposed action, and analyzes the effects of the proposed action.

EROSION. The wearing away of land surface either by natural weathering processes (including water, wind, or ice) or human or animal activities.

EROSIONAL PEDESTALS. A clump or clod or elevated soil anchored in place by a plant or some other physical reason due to the removal or loss of surrounding soil as caused by wind or water erosion.

ESSENTIAL HABITAT. Those areas essesntial for the conservation of Endangered, Threatened, or Sensitive species but not formally designated by rule published in the Federal Register.

EXCLOSURE. An area fenced to exclude grazing animals, usually for study purposes.

EXISTING ROUTES. The roads, trails, or ways that are used by motorized vehicles (jeeps, all-terrain vehicles, motorized dirt bikes, etc.), mechanized use (e.g., mountain bikes, game carts), pedestrians (hikers), and/or equestrians (horseback riders) and are, to the best of BLM's knowledge, in existence at a specified time (e.g., the time of RMP/EIS publication).

FECAL COLIFORM/FECAL STREPTOCOCCUS. Types of bacteria found in animal waste.

FIELD OFFICE (FO). A geographic portion of a BLM District that is the smallest administrative subdivision in the BLM.

FIRE POLYGONS. Wildland fire perimeter digitized and placed in ARCGIS.

FIRE REGIME. Description of the patterns of fire occurrences, frequency, size, severity, and sometimes vegetation and fire effects in a given area or ecosystem.

FIRE REGIME CONDITION CLASS (FRCC). A classification of a vegetation community's variance or departure from historic fire conditions. Fire Condition Classes can be: 1) Fire Condition Class 1, representing low departure from historic fire regime; 2) Fire Condition Class 2, representing moderate departure from historic fire regime; or 3) Fire Condition Class 3, representing high departure from historic fire regime.

FIRE SEVERITY. A qualitative assessment of the heat pulse directed toward the ground during a fire.

FIRE SUPPRESSION. All work and activities associated with fire extinguishing operations, beginning with the discovery of the fire and continuing until the fire is completely extinguished.

FLEDGED. The process through which young birds that have reached the age where they can fly to leave the nest.

FLUVIAL. Pertaining to stream or rivers or produced by stream action. Also, migrating between main rivers and tributaries.

FORAGE. Vegetation of all forms available and of a type used for animal consumption.

FRAGMENTATION. Landscape transformation that includes the breaking of large habitat into smaller pieces through 1) the conversion of fairly continuous tracts of a vegetation type to other vegetation types such that only scattered or isolated fragments of the original type remain, or 2) human-created structures or barriers that partition fairly continuous habitats into smaller habitats[26]. The level of transformation necessary to achieve fragmentation varies by species.

FUNCTIONAL-AT RISK. Riparian/wetland areas are classified as functional at-risk when they are in functional condition but an existing soil, water, or vegetation attribute makes them susceptible to degradation.

GEOGRAPHIC INFORMATION SYSTEM (GIS). A collection of computer hardware, software, and geographic data for capturing, managing, analyzing, and displaying all forms of geographically referenced information .

GRADIENT. The slope of a stream channel.

GRAZING AGREEMENT. An agreed method of grazing management as documented in an Allotment Management Plan or other activity plan. The plan focuses on and contains the necessary instructions for the management of livestock on specified public lands to meet resource condition objectives.

GRAZING MANAGEMENT PRACTICES. Techniques used to manage livestock, including season of use, duration (amount of the time grazing occurs), intensity of use, numbers of livestock, kind of livestock, and distribution (e.g., salting, herding, and water development).

GRAZING PERMIT. Under Section 3 of the Taylor Grazing Act, a document authorizing the use of the public lands within grazing districts for the purpose of grazing livestock.

GRAZING SYSTEM. Scheduled grazing use and non-use of an allotment to reach identified goals or objectives by improving the quality and quantity of vegetation.

GREENLINE. The first perennial vegetation that forms a linear grouping of plant community types on or near the water's edge. This vegetation most often occurs at or slightly below the water's edge at the bankfull stage and is found only along streams with defined channels.

[26] Definition modified from (Franklin et al., 2002).

GULLIES. Deep, narrow channels or miniature valleys cut by concentrated runoff events through which water commonly flows only during and immediately after heavy rains or or during the melting of snow.

HABITAT. An area with the combination of resources (e.g., food, cover, water) and environmental conditions (e.g., temperature, precipitation, presence or absence of predators and competitors) that promotes use by individuals of a given species or population and allows those individuals to survive and reproduce[27].

HABITAT MANAGEMENT PLAN (HMP). A written and approved activity plan for a geographical area that identifies habitat management activities to be implemented in achieving specific objectives of planning decisions.

HABITAT SPECIALISTS. Species that rely on a single habitat type.

HAZARDOUS MATERIAL. A substance, pollutant, or contaminant that, due to its quantity, concentration, or physical or chemical characteristics, poses a potential hazard to human health and safety or to the environment if released into the workplace or the environment.

HEADCUTS. The uppermost area of a waterway where accelerated erosion and downcutting of gullies by the flow of water first begins and continues to migrate up gradient.

HEDGING. Consumption of browse to the extent that the shrub growth form is modified by appearing clipped.

HISTORIC FIRE REGIME. Description of the patterns of fire occurrences, frequency, size, severity, and sometimes vegetation and fire effects in a given area or ecosystem. A fire regime is a generalization based on fire histories at individual sites. Fire regimes can often be described as cycles because some parts of the histories usually get repeated, and the repetitions can be counted and measured.

HOME RANGE. The area in which an animal travels in the scope of natural activities.

HYBRIDIZATION. Any crossing of individuals of different genetic compositions, typically different species, that result in hybrid off-spring.

HYDROLOGIC CYCLING. The circuit of water movement from the atmosphere to the earth and return to the atmosphere through various stages or processes, as precipitation, interception, runoff, infiltration, percolation, storage, evaporation, and transpiration.

HYDROLOGIC UNIT CODE (HUC). A way of identifying all of the drainage basins in the United States in a nested arrangement from largest (Regions) to smallest (Cataloging Units). A drainage basin is an area or region of land that catches precipitation falling within that area, and funnels it to a particular creek, stream, river, and so on, until the water drains into an ocean.

[27] Definition modified from (Franklin et al., 2002).

HYDROLOGY. The science of dealing with the study of water on the surface of the land, in the soil and underlying rocks, and in the atmosphere.

HYDROPHOBIC. Water repellant.

IMPACT. The effect, influence, alteration, or imprint caused by an action (see EFFECT).

IMPERILED. Put into danger.

INCREASER SHRUBS. Shrubs that increase in density and numbers upon the landscape as a result of some outside force or event such as grazing and fire impacts.

INDICATOR. Components or attributes of a rangeland ecosystem that can be observed and/or measured that provides evidence of the function, productivity, health and/or condition of the ecosystem.

INDICATOR SPECIES. A species whose presence, absence, or relative well-being in a given environment is indicative of the health of its ecosystem as a whole.

INHOLDING. A non-Federal parcel of land that is completely surrounded by Federal land.

INTER-BEDDED. Geological strate that are positioned between, or alternated with, other layers of dissimilar character.

INTERMITTENT STREAM. A stream or segment of stream that flows only at certain times of the year when it receives water from springs or from some surface source, such as melting snow in mountainous areas.

INTERSEEDING. Seeding into established vegetation.

INTERSTITIAL. A small or narrow space between things or parts.

INTERSTITIAL SPACES. Open space between gravels in the streambed that allow water to move through the streambed.

INVASIVE SPECIES. A non-native species whose introduction does or is likely to cause economic or environmental harm or harm to human health.

INVERTEBRATE. An animal lacking a backbone or spinal column.

KIOSKS. A stall set up in a public place where one can obtain information (e.g., tourist information).

KNOWN GEOTHERMAL RESOURCE AREA (KGRA). A BLM-determined area where persons knowledgeable in geothermal development would spend money to develop geothermal resources. 43 CFR 3203.11 describes how a KGRA is determined.

LAND TREATMENT. Modifying physical soil and/or plant conditions with treatments such as reseeding, brush control (chemical and mechanical), pitting, furrowing, water spreading, and ripping or sub-soiling.

LANDSCAPE. A large land area composed of interacting ecosystems that are repeated due to factors such as geology, soils, climate, and human impacts.

LEASEABLE MINERAL. A mineral such as oil shale, oil and gas, phosphate, potash, sodium, geothermal resources, and all other minerals that may be developed under the Mineral Leasing Act of 1920, as amended.

LEK. An assembly area where birds, especially sage-grouse, carry on display and courtship behavior.

LITTHIS SCATTER. A type of archaeological site marked by a distribution of stone artifcats. The scatter may include formed tools such as projectile points, knives, or scrapers, or it may contain only chipping debris from tool-making activities.

LOCATABLE MINERALS. Minerals or materials subject to claim and development under the Mining Law of 1872, as amended. Generally includes metallic minerals such as gold and silver, and other materials not subject to lease or sale (some bentonites, limestone, talc, some xeolites, etc.). Whether or not a particular mineral deposit is locatable depends on such factors as quality, quantity, mineability, demand, and marketability.

MACROINVERTEBRATE. Invertebrates large enough to be seen with the naked eye.

MECHANICAL TREATMENT. Use of mechanical equipment for seeding, brush management, and other management practices.

METEOROLOGICAL CONDITIONS. Short-term atmospheric phenomena and variations that may occur in respect to air stability, wind speed, wind direction, temperature, etc. as affected by local weather conditions.

MICROBIOTIC CRUST. Community of non-vascular primary producers that occur as a "crust" on the surface of soils and made up of a mixture of algae, lichens, mosses, and cyanobacteria (bluegreen algae).

MINERAL ENTRY. Claiming public lands under the Mining Law of 1872 for the purpose of exploiting minerals. May also refer to mineral exploration and development under the mineral leasing laws and the Material Sale Act of 1947.

MINERAL MATERIALS. Common varieties of sand, building stone, gravel, clay, moss rock, etc., obtainable under the Minerals Act of 1947, as amended.

MINIMIZE. To reduce to the smallest possible amount, extent, size, or degree as is feasible from a technical or management standpoint.

MITIGATION. Measures taken to avoid, compenstate for, rectify, or reduce the potential negative impacts of an action.

MONITORING. The systematic gathering of data to determine whether progress is being made in achieving land use objectives or goals.

MOTORIZED VEHICLES. Vehicle powered by an engine, usually internal combustion.

MULTIPLE USE. The management of the public lands and their various resource values so they are utilized in the combination that will best meet the present and future needs of the American people; making the most judicious use of the land for some or all of these resources or related services over areas large enough to provide sufficient latitude for periodic adjustments in use to conform to changing needs and conditions; the use of some land for less than all of the resources; a combination of balanced and diverse resource uses that takes into account the long term needs of future generations for renewable and nonrenewable resources with consideration being given to the relative values of the resources and not necessarily to the combination of uses that will give the greatest economic return or the greatest unit output.

NATIONAL AMBIENT AIR QUALITY STANDARDS (NAAQS). The allowable concentrations of air pollutants in the ambient (public outdoor) air specified in 40 CFR 50. NAAQS are based on the air quality criteria and divided into primary standards (allowing an adequate margin of safety to protect the public health) and secondary standards (allowing an adequate margin of safety to protect the public welfare).

NATIONAL REGISTER OF HISTORIC PLACES. The official list, established by the National Historic Preservation Act, of the Nation's cultural resources worthy of preservation. The NRHP lists archaeological, historic, architectural, and traditional cultural properties (districts, sites, buildings, structures, and objects) nominated for their local, state, or national significance by Federal and State agencies and approved by the National Register Staff.

NATIONAL WILD AND SCENIC RIVERS SYSTEM. Established by the Wild and Scenic Rivers Act of 1968 to protect rivers and their immediate environments that have outstanding scenic, recreation, geologic, fish and wildlife, historic, cultural, and other similar values and are preserved in free-flowing conditions. The system provides for the designation of three river classifications based primarily on the amount of shoreline development and access: recreational, scenic, and wild.

NATIVE SPECIES. Plants or animals indigenous to the area.

NATURAL RECRUITMENT. Populations able to reproduce naturally.

NATURALNESS. Lands and resources exhibit a high degree of naturalness when affected primarily by the forces of nature, with the imprint of human activity is substantially unnoticeable.

NON-ATTAINMENT AREA. A geographic area within which the concentration of one or more criteria pollutants routinely exceed National Ambient Air Quality Standards.

NON-GAME SPECIES. Species managed as "protected" by state wildlife agencies with no authorized seasons for hunting or trapping. Common non-game species include the majority of birds, small mammals, bats, reptiles, and amphibians.

NON-NATIVE SPECIES. An animal or plant species that is not a part of an area's original fauna or flora.

NOTICE OF INTENT (NOI). A notice in the Federal Register of intent to prepare an Environmental Impact Statement on a proposed action.

NOXIOUS WEED. 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 (Idaho Statute 22-2402).

NUTRIENT CYCLING. The circuit or movement of organic or inorganic ions or molecules within the soil profile in the form of solids, liquids, and gases that are absorbed by plants and returned to the soil by decomposition to repeat the process.

OFF-HIGHWAY VEHICLE (OHV). Any motorized vehicle capable of or designated for, travel on or immediately over land, water, or other natural terrain, excluding 1) any nonamphibious registered motorboat; 2) any military, fire, emergency or law enforcement vehicle when being used for emergency purposes; 3) any vehicle whose use is expressly authorized by the authorized officer, or otherwise officially approved; 4) vehicle in official use; and 5) any combat or combat support vehicle when used in times of national defense emergencies.

OUTSTANDING NATURAL AREA. Public lands that are either Congressionally or administratively designated based on their exceptional, rare, or unusual natural characteristics.

OVERSTORY. That portion of a plant community consisting of the taller plants on the site; the forest or woodland canopy.

OXBOWS. Cut-off loops of a stream channel that retain water through subsurface flow.

OZONE. One of the six criteria pollutants for which the EPA established National Ambient Air Quality Standards.

PALATABLE. The degree to which a particular plant species or part is favored by an animal for consumption.

PALEONTOLOGICAL RESOURCES. The physical remains or other physical evidence of plants and animals preserved in soils and sedimentary rock formations. Paleontological resources are important for correlating and dating rock strata and for understanding past environments, environmental change, and the evolution of life.

PARTICLE DETACHMENT. The removal of transportable fragments of soil material from a soil mass by an eroding agent, usually failing raindrops, running water, wind, or glaciers.

PARTICLE DISPLACEMENT. The dislodging and transfer of a fragment of soil material from one location to another by an eroding agent such as wind or water.

PARTICULATE MATTER (PM). Any small particles suspended in the air including dust, dirt, soot, smoke, and liquid droplets.

$PM_{2.5}$. Particles less than 2.5 micrometers.

PM_{10}. Particles of 10 micrometers or less.

PARTNERSHIP. An unincorporated business association of two or more partners.

PASSENGER VEHICLE. Two-wheel-drive, low-clearance vehicles.

PATENT. A grant made to an individual or group conveying fee simple title to selected public lands.

PHOTOPOINTS. Established locations where photographs are taken to monitor ground conditions over time.

PLANNING AREA. The geographical area for which land use and resource management plans are developed and maintained. The planning area for this RMP is about 1.4 million acres of BLM land administered by the Jarbidge Field Office.

PLANNING ISSUES. Concerns, conflicts, and problems with the existing management of public lands. Frequently, issues are based on how land uses affect resources. Some issues are concerned with how land uses can affect other land uses, or how the protection of resources affects land uses in a specific geographic area.

PERENNIAL VEGETATION. Plants that have life cycle of 3 or more years.

PERMITTED USE. The forage allocated by, or under the guidance of, an applicable land use plan for livestock grazing in an allotment under a permit or lease and is expressed in animal unit months (AUMs).

PERMITTEE. A person or organization legally permitted to graze a specific number and class of livestock on designated areas of public land during specified seasons each year.

PLAYA. A nearly level area at the bottom of an undrained desert basin, sometimes temporarily covered with water.

PLOW AND SEED. A method of vegetation manipulation in which the land is plowed using a disc plow or other like equipment to uproot the existing vegetation to reduce competition for the seeded plant species.

POLLUTANTS. Any substance introduced into the environment that negatively affects the usefulness of a resource or the health of humans, animals, or ecosystems.

POTENTIAL NATURAL COMMUNITIES (PNC). The stable biotic community that would become established on an ecological site if all successional stages were completed without human interference under present environmental conditions.

POTENTIAL NATURAL VEGETATION GROUPS (PNVGs). Vegetation communities likely to exist under a natural range of variation in biophysical environments and ecological processes, including fire and other disturbances.

PREFERENCE. The total number of animal unit months on public lands apportioned and attached to base property owned or controlled by a permittee, lessee, or an applicant for a permit or lease.

> **Grazing Preference.** The total number of animal unit months of livestock use on public lands apportioned and attached to base property owned or controlled by a permittee. Some of the total grazing preference may have been suspended in past administrative actions. That portion of the grazing preference that is not suspended is the active grazing preference.

PREFERRED VEGETATION. The vegetation preferred by grazing animals and grazed by first choice.

PRESCRIBED FIRE. Any fire ignited by management action to meet specific objectives.

PREVAILING WINDS. Winds from the customary, predominant, or usual direction.

PRIMITIVE AND UNCONFINED RECREATION. Recreation that occurs when the sights, sounds, and evidence of other people are rare or infrequent, where visitors can be isolated, alone, or secluded from others, where the use of the area is through non-motorized, non-mechanical means, and where no or minimal developed recreation facilities are encountered.

PRODUCTION. The quanity of biomass produced by the current year's growth in terms of pounds per acre.

PROPER FUNCTIONING CONDITION. Riparian areas and wetlands function properly when adequate vegetation, landform, or large woody debris is present to dissipate stream energy associated with high water flows. The functioning condition of these areas is influenced by geomorphic features, soil, water and vegetation.

PROPRIETOR. One who owns or owns and manages a business or other such establishment.

PUBLIC LAND. Any land or interest in land owned by the United States and administered by the Secretary of the Interior through the Bureau of Land Management, without regard to how the United States acquired ownership, except for land located on the Outer Continental Shelf and land held for the benefit of Native Americans, Aleuts, and Eskimos.

RANGE INFRASTRUCTURE. Any activity or program on or relating to rangelands that is designed to improve forage production, change vegetation composition, control patterns of use, provide water, stabilize soil and water conditions, and enhance habitat for livestock, wildlife, and wild horses and burros. Range infrastructure includes land treatments (e.g., chaining, seeding, burning, etc.), water developments, fences, and trails.

RANGELAND. Land on which the potential natural vegetation is predominantly grasses, grass-like plants, forbs, or shrubs suitable for grazing or browsing. It includes natural grasslands, savannas, many wetlands, some deserts, tundra, and areas that support certain forb and shrub communities.

RANGELAND CONDITION. The present status of a unit in terms of specific values or potential.

RANGELAND HEALTH. The degree to which the integrity of the soil and ecological processes of rangeland ecosystems is maintained.

RAPTOR. Bird of prey with sharp talons and strongly curved beaks (e.g. hawks, owls, vultures, eagles).

RECLAMATION. The reconstruction of disturbed ecosystems by returning the land to a condition approximate or equal to that which existed prior to disturbance, or to a stable and productive condition compatible with the land use plan. The immediate goal of reclamation is to stabilize disturbed areas and protect both disturbed and adjacent undisturbed areas from unnecessary degradation.

RECREATION AND PUBLIC PURPOSES ACT OF 1954. Authorizes the Secretary of the Interior, under specific conditions, to sell or lease public domain lands to States and local goverments for recreation and other public purposes and to qualified nonprofit organizations for public and quasi-public purposes, including recreation, education, and health.

RECREATION OPPORTUNITY SPECTRUM (ROS). A land delineation system commonly used by federal land management agencies to address the need for a range of recreational opportunities within the planning area.

RECREATION USE PERMITS. Authorizations for use of developed facilities that meet the fee criteria established by the Land and Water Conservation Fund Act of 1964, as amended or subsequent authority (such as the fee demonstration program). Recreation Use Permits are issued to ensure that US residents receive a fair and equitable return for the use of those facilities to help recover the cost of construction, operation, maintenance, and management of the permits.

RECRUITMENT. Young that survive to reproductive age and are considered mature.

REFUGIA. Geographic locations where a species or a population has persisted during changed or adverse conditions such as glaciation or other catastrophic event.

REHABILITATION. Efforts undertaken within three years of containment of a wildland fire to repair or improve fire-damaged lands unlikely to recover naturally to management approved conditions, or to repair or replace minor facilities damaged by fire.

RESEEDING. Planting seed into an area previously seeded when a seeding treatment was unsatisfactory. The seedbed preparation could be done through prescribed fire, brush control, or mechanical or chemical treatments.

RESOURCE ADVISORY COUNCIL. An advisory council appointed by the Secretary of the Interior and consisting of representatives of major public land interest groups (commodity industries, recreation, environmental, and local area interests) in a state or smaller area. RACs advise BLM, focusing on a full array of multiple use public land issues. RACs also help develop standards for rangeland health and guidelines for livestock grazing.

RESOURCE MANAGEMENT PLAN (RMP). A land use plan as described by the Federal Land Policy and Management Act to guide resource management and use allocation on public lands and resources administered by the BLM.

REST. Nongrazing for a specified period of time, generally a full growing season up to one full year.

RESTORATION. Actions that proactively treat degraded vegetation with the intent of meeting resource management objectives. Restoration treatments can include prescribed fire, herbicide use to control weeds, and seeding with desirable vegetation.

RIGHT-OF-WAY (ROW). A permit or an easement that authorizes the use of public land for certain specified purposes, commonly for pipelines, roads, telephone lines, electric lines, and reservoirs. It also the refers to the land covered by such an easement or permit.

RHIZOMATOUS. A plant with a horizontal, usually underground stem that often sends out roots and shoots from its nodes.

RILLS. Small, eroded ditches usually only a few inches deep.

RIPARIAN. Situated on or pertaining to the bank of a river, stream, or other body of water. Normally describes plants of all types that grow rooted in the water table or sub-irrigation zone of streams, ponds, and springs.

RIPARIAN HABITAT. An area of land directly influenced by permanent (surface or subsurface) water and has visible vegetation or physical characteristics reflective of permanent water influence.

ROAD. A linear route declared a road by the owner, managed for use by low-clearance vehicles having four or more wheels, and maintained for regular and continuous use.

ROADLESS. Refers to the absence of roads that have been constructed and maintained by mechanical means to ensure regular and continuous use.

ROUTES. A road-like feature created by vehicles having two, three, four, or more wheels, but not declared a road by the owner and that receives no maintenance to guarantee regular and continuous use.

RUTTING. The result on routes and trails that occurs when the ground is too soft to support the weight of a vehicle and rider. This usually occurs when the ground is wet and soft. Ruts collect rainwater and runoff, keeping the trail wet. Ruts channel water, leading to trail erosion.

SACRED SITE. Any specific, discrete, narrowly delineated location on Federal land that is identified by a Native American Tribe, or Native American individual determined to be appropriately authoritative representative of a Native American religion, as sacred by virtue of its established religious significance to, or ceremonial use by, a Native American religion.

SAGEBRUSH STEPPE. A semi-arid plant community that is characterized by a predominance of big sagebrush and other sagebrush species, plus grasses and forbs.

SALABLE MINERALS. Common varieties of minerals and building materials such as sand, stone, gravel, pumice, pumicite, cinders, and clay.

SCOPING PROCESS. An early and open public participation process for determining the scope of issues to be addressed and for identifying the significant issues related to a proposed action.

SEEDING. A vegetation treatment that includes the application of grass, forb, or shrub seed, either aerially or from the ground.

SEEP (SPRING). A saturated zone at or near the ground surface where voids in the rock or soil are filled with water at greater than atmospheric pressure. Seep or spring sites are typically characterized by riparian vegetation and soil formed in the presence of water. Water may or may not be discharging from these sites, depending on the underlying geology, water source, season, or long term climatic trends. A seep is a small spring.

SENSITIVE SPECIES. Includes Endangered, Threatened, Proposed, and Candidate species as well as species designated by the BLM State Director that 1) could become endangered in or extirpated from the State, 2) are undergoing significant downward trends, 3) have typically small or widely dispersed populations, or 4) are inhabiting specialized or unique habitats.

SERAL STAGES. Ecological communities that succeed one another in the biotic development of an area.

SINK. A population where the number of deaths exceeds the number of births; a sink population is not be able to sustain itself without immigration.

SOIL HORIZONS. A layer of soil or soil material approximately parallel to the land surface and differing from adjacent layers in physical, chemical, and biological properties or characteristics, such as color, structure, texture, consistency, organic material, and degree of acidity or alkalinity.

A Soil Horizons. The topmost mineral horizon or surface of cultivated soils, usually darkened by organic materials.

B Soil Horizons. A deeper mineral soil horizon beneath the A horizon where the small particles that have washed from the A horizon have accumulated because of filtration or a lack of water to move them deeper.

SOLE PROPRIETORSHIP. An unincorporated business owned by a person.

SOLITUDE. A wilderness characteristic as identified in the Wilderness Act. The state of being alone or remote from habitations; isolation. A lonely or secluded place. Factors contributing to opportunities for solitude may include size, natural screening, topographic relief, vistas, physiographic variety, and the ability of the user to find a secluded spot.

SOURCE. Populations where the number of births exceeds the number of deaths.

SPECIAL RECREATION MANAGEMENT AREA (SRMA). BLM administrative units established to direct recreation program priorities, including the allocation of funding and personnel, to those public lands where a commitment has been made to provide specific recreation activity and experience opportunities on a sustained yield basis. These areas usually require a high level of recreation investment and/or management.

SPECIAL RECREATION PERMITS (SRPs). Authorizations that allow for recreational uses of public lands and related waters. Issued as a means to control visitor use, protect recreational and natural resources, and provide for the health and safety of visitors. Commercial Special Recreation Permits also are issued as a mechanism to provide a fair return for the commercial use of public lands.

SPECIAL STATUS SPECIES. All Endangered, Threatened, Proposed, and Candidate species designated by FWS and other BLM Sensitive species designated by the State Director.

STATIONARY SOURCE. Refers to a stationary source of emissions. Prevention of Significant Deterioration permits are required for major new stationary sources of emissions that emit 100 tons or more per year of CO, SO_2, NO_2, O_3, or particulate matter.

STANDARDS AND GUIDELINES. Provide the resource measures and guidance needed to ensure healthy, functional rangeland. The Standards for Rangeland Health are to be used as the BLM's management goals for the betterment of the environment, protection of cultural resources, and sustained productivity of the range.

Standards. A description of a minimally functioning condition for soil, water quality, and biological components of rangelands.

Guidelines. Direct the selection of grazing management practices, and, where appropriate, livestock management facilities to promote progress toward or maintenance of the Standards. Grazing management practices are livestock management techniques that can be incorporated into grazing permits.

STATIC. Showing little or no change.

STOCKING LEVEL. The current level of livestock grazing use on a unit of land, usually expressed as acres of land per AUM grazed.

SUBSTRATES. Mineral or organic material such as silt, sand, gravel, cobble, boulder, or woody debris that forms a stream or lake bed.

SUCCESSIONAL CLASS. A standardized type classification based on vegetation and fuel composition, structure, process, and pattern. Class are grouped into those characteristic of the natural or historical conditions and those uncharacteristic of these conditions.

SUITABLE RIVER. A river segment found, through administrative study by an appropriate agency, to be suitable for designation as a component of the National Wild and Scenic Rivers system, specified in Section 4(a) of the Wild and Scenic Rivers Act.

SUPPLEMENTAL VALUES. Resources associated with wilderness that contributes to the quality of wilderness areas.

SURFACE SEALING. A process by which the soil surface becomes impassable or impenetrable.

SUSTAINABLE. The yield of a natural resource that can be produced continually at a given intensity of management.

SUSTAINABILITY. The ability of an ecosystem to maintain ecological processes and functions, biological diversity, and productivity over time.

SUSTAINED YIELD. The achievement and maintenance in perpetuity of a high-level annual or regular periodic output of the various renewable resources of the public lands consistent with multiple use.

TALUS. Loose rock debris at the base of a cliff or rock outcrop.

TAX-EXEMPT COOPERATIVE. A nonprofit business organization collectively owned by its members.

TAXONOMY. The practice of classifying plants and animals according to their presumed natural relationships.

TERRESTRIAL. Living or growing in or on the land.

THERMAL MIGRATION BARRIER. A section of stream or body of water that impedes fish movement due to elevated water temperatures that are unsuitable for fish.

THREATENED SPECIES. Any species or significant population of that species likely to become Endangered within the foreseeable future throughout all or a significant portion of its range. Usually includes only those species that have been recognized and listed as Threatened by Federal and State governments, but may include species categorized as rare, very rare, or depleted

THRESHOLD INDICATORS. Predetermined characteristics or conditions of rangelands which indicate management may be needed to progress toward meeting resource objectives.

TOPOGRAPHY. The relief features or surface configuration of a landscape or particular area in respect to elevational changes over distance.

TRADITIONAL CULTURAL PROPERTIES. A cultural property that is eligible for inclusion in the National Register of Historic Places because of its association with a living community’s cultural practices or beliefs rooted in that community’s history and important in maintaining the community’s continuing cultural identity.

TRADITIONAL USE. The utilization of natural resources in a similar fashion over a considerable period of time.

TRAIL. A linear route managed for human-powered, stock, or OHV forms of transportation or for historical or heritage values. Trails are not generally managed for use by four-wheel drive or high-clearance vehicles.

TREATY. A formal agreement between the United States and one or more Native American tribes. Typically, these arrangements ceded lands to the United States, reserving certain rights, privileges, and/or lands to the Native American signatories.

TREATY RIGHTS. Rights of land use retained by Native American tribes through treaty with the United States; such rights commonly include, but may not be limited to, hunting, fishing and gathering.

TRESPASS. Any unauthorized use of public land.

TRUST RESPONSIBILITY. The trust responsibility of the United States, executed through the Secretary of the Interior, to uphold obligations of the Federal Government to Federally recognized Native American tribes. Court decisions have interpreted this responsibility to extend to all Federal agencies. This obligation requires a reasonable and good faith effort to identify, consider, and carry out programs in a manner sensitive to Native American.

TURBIDITY. Muddiness created by stirring up sediment or having foreign particles suspended.

UNDERSTORY. Herbaceous plant components, including grasses and forbs, that grow beneath the overstory in stand of woody shrubs; or the herbaceous and woody shrubs growing beneath the overstory in a stand of trees.

UNGULATE. A hoofed mammal.

UNINCORPORATED BUSINESS. A business not organized or maintained as a legal corporation.

UPLAND. The portion of land located away from riparian and floodplain areas.

UTILIZATION. The portion of forage that has been consumed (or destroyed) by livestock, wild horses, wildlife, and insects during a specified period. The term is also used to refer to a pattern of such use (43 CFR 4100.0-5).

UTILITY CORRIDOR. Tract of land varying in width forming passageway through which variouscommodities such as oil, gas, and electricity are transported.

VASCULAR MANTLE. A foot-like structure with a specialized tissue system for oxygen uptake.

VEGETATION TREATMENT. Changing the characteristics of an established vegetation type for the purpose of improving rangeland forage or wildlife habitat resources. Treatments are designed for specific areas and differ according to the area's suitability and potential. The most common land treatment methods alter the vegetation by chaining, spraying with pesticides, burning, and plowing, followed by seeding with well-adapted desirable plant species.

VEGETATION TREND. The direction of change in vegetation condition as observed over time.

VEGETATION TYPE. A plant community with immediately distinguishable characteristics based upon and named after the apparent dominant plant species.

VERTEBRATE. An animal having a backbone or spinal column.

VISUAL RESOURCES. The visible physical features on a landscape, (topography, water, vegetation, animals, structures, and other features) that comprise the scenery of the area.

VISUAL RESOURCE MANAGEMENT (VRM). The inventory and planning actions taken to identify visual resource values and to establish objectives for managing those values, and the management actions taken to achieve the visual resource management objectives.

VISUAL RESOURCE MANAGEMENT CLASSES. VRM classes identify the degree of acceptable visual change within a characteristic landscape. A classification is assigned to public lands based on the guidelines established for scenic quality, visual sensitivity, and visibility.

> **Class I.** Provides primarily for natural ecological changes only. It is applied to wilderness areas, some natural areas, and similar situations where management activities are to be restricted.
>
> **Class II.** Changes in the basic elements caused by a management activity may be evident in the characteristic landscape, but the changes should remain subordinate to the visual strength of the existing character.
>
> **Class III.** Contrasts to the basic elements caused by management activity may be evident and begin to attract attention in the landscape, but the changes should remain subordinate in the existing landscape.
>
> **Class IV.** Contrasts may attract attention and be a dominant feature in the landscape in terms of scale, but the change should repeat the basic element of the characteristic landscape.
>
> **Class V.** Applies to areas where the characteristic landscape has been so disturbed that rehabilitation is needed. Generally considered an interim short-term classification until rehabilitation or enhancement is completed.

VOLCANISM. The processes by which magma, molten rock, and its associated gases and ash rise into the crust of the earth and are extruded or erupted onto the earth's surface.

WATER YIELD. The runoff from precipitation that reaches water courses and may be available for human use..

WATERSHED. An area that collects and discharges runoff to a given point. It is often used synonymously with drainage basin or catchment.

WILDERNESS. An area formally designated by Congress as a part of the National Wilderness Preservation System.

WILDERNESS CHARACTERISTICS. Features of the land associated with the concept of wilderness that may be considered in land use planning when BLM determines those characteristics are reasonably present, of sufficient value (condition, uniqueness, relevance, importance) and need (trend, risk), and are practical to manage.

WILDERNESS STUDY AREA. An area designated by a Federal agency as having wilderness characteristics, thus making it worthy of consideration by Congress for wilderness designation. While Congress considers whether to designate a WSA as a permanent wilderness, the Federal agency managing the WSA does so in a manner as to prevent impairment of the area's suitability for wilderness designation.

WILDFIRE. An unwanted wildland fire, regardless of ignition source, which is unplanned, has escaped control, or does not meet management objectives and therefore requires a suppression response.

WILDLAND FIRE. Any fire on the landscape, including a prescribed fire or wildfire.

WILDLAND FIRE USE (WFU). A pre-planned vegetation treatment that involves taking advantage of a naturally-ignited wildland fire in an area where fire would benefit resources. WFU would be conducted in specific areas needing treatment after a site-specific plan and NEPA analysis are completed and only if predetermined prescriptive parameters (e.g., weather/fire behavior) can be met. Until this planning and NEPA analysis are accomplished, wildland fires would be suppressed using an appropriate management response.

WILDLAND-URBAN INTERFACE (WUI): The line, area or zone where structures and other human development meet or intermingle with undeveloped wildland or vegetative fuels.

WINTER RANGE. An Idaho Department of Fish and Game definition that applies to elk and mule deer. That part of the overall range where 90% of the individuals are located during the average five winters out of ten from the first heavy snowfall to spring green-up, or during a site-specific period of winter.

WITHDRAWAL. Removal or "withholding" of public lands from operation of some or all of the public land laws (settlement, sale, mining, and or mineral leasing). An action that restricts the use or disposal of public lands, segregating the land from the operation of some or all of the public land and/or mineral laws and holding it for a specific public purpose. Withdrawals may also be used to transfer jurisdiction of management to other Federal agencies

APPENDIX 17. LIST OF PREPARERS

Name	Title	Education	Experience
Core Team			
Betts, Aimee D. K.	Supervisory Natural Resource Specialist (RMP Project Manager)	BS Biology and History; PhD Ecosystem Science	3.5 years BLM; 6 years other relevant experience
Forster, Kate	District Fishery Biologist	BS Fisheries	8.5 years BLM; 6.5 years other Federal service; 4.5 years other relevant experience
Greeley, Kimberly	Administrative Assistant		1 year BLM
Hoffman, Amanda	Writer/Editor	BA Political Science; MPA	1 year BLM; 4 years other relevant experience
Klott, James	Wildlife Biologist	BS Wildlife Resources; MS Zoology	18 years BLM; 9 years other Federal service
Pike, Arnold (Arnie)	Supervisory Rangeland Management Specialist	BS Range Management	30 years BLM
Ross, Jeff	Archaeologist	BA Anthropology	17 years BLM, 2 years other Federal service, 6 years other related experience
Yingst, Max	Outdoor Recreation Planner	BA General	4 years BLM, 17 years other Federal service
Support Team			
Ash, John R.	Natural Resource Specialist	BS Biology/ Chemistry/Forestry; MS Range and Soils	25 years BLM, 6 years other Federal experience
Crane, Ken	Rangeland Management Specialist	BS Range Management; MS Range Management	1 year BLM; 4 years other Federal Service, 15 years other relevant experience
Griggs, Forrest	Geologist	BS Geology	3 years BLM; 20 years other Federal experience; 2 years other relevant experience
Hagwood, Sheri	Botanist	BS Botany; MS Botany	5 years BLM, 8 years other Federal service, 3 years other relevant experience
Mata, Jennifer	Fire Ecologist	BS Range Management/ Vegetation Ecology	8 years BLM, 9 years other Federal service
Pence, Fred	Realty Specialist	BS Geography and Industrial Technology	23 years BLM, 6 years other Federal service
Ross, Bonnie	GIS Specialist		4 years BLM, 11 years other Federal service

Name	Title	Education	Experience
Tiel, Heather	Public Affairs Specialist	BS Communication	1 year BLM experience; 4 years other Federal service; 7 years other relevant experience
Cooperating Agency Representative			
Cook, Jeff	Outdoor Recreation Analyst; Idaho Department of Parks and Recreation	BS Wildland Recreation Management	17 years Idaho Department of Parks and Recreation
Kriwox, Erik	Senior Resource Specialist, Range; Idaho Department of Lands	BS Agricultural Science and Technology	2.5 years Idaho Department of Lands, 3 years BLM (seasonal)
McDonald, Mike	Environmental Staff Biologist; IDFG	BS Biology, MS Biology	18 years IDFG
Wright, Kevin	Rangeland Management Specialist; Idaho State Department of Agriculture	BS Wildlife and Range Management; MPA	2.5 years Idaho State Department of Agriculture, 2.5 years USFS
Wissenbach, Mike	Environmental Protection Specialist; Hagerman Fossil Beds National Monument	BS Forestry; MS Forest Resources	6 years NPS

APPENDIX 18. REFERENCES

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