CHAPTER 3 – AFFECTED ENVIRONMENT

3.1 INTRODUCTION

The purpose of this chapter is to provide a description of the existing biological, physical, and socioeconomic characteristics, including human uses, that could be affected as a result of implementing the action alternatives for this Resource Management Plan/Environmental Impact Statement (RMP/EIS) as described in Chapter 2. Information from broad-scale assessments were used to help set the context for the planning area. The information and direction for Bureau of Land Management (BLM) resources has been further broken down into fine-scale assessments and information. Specific aspects of each resource discussed in this section (e.g., greater sage-grouse, fire, off-highway vehicle [OHV] use) were raised during the public and agency scoping process. The level of information presented in this chapter is commensurate with and sufficient to assess potential effects of the action alternatives in Chapter 4 of this RMP/EIS. Also presented are general trends that have been occurring to a given resource as a result of the existing Pocatello RMP (1988a) and Malad Management Framework Plan (MFP) (BLM 1981a) that the BLM uses for land management in the Pocatello Field Office (PFO) area. Risks to individual resources as a result of management action (or inaction) are discussed; and finally, opportunities to manage individual resources under the planning process are presented.

3.2 RESOURCES

This section contains a description of the existing biological and physical resources of the PFO area and follows the order of topics addressed in Chapter 2. These topics are:

- Air Quality
- Cultural Resources
- Soils
- Paleontological Resources
- Vegetation
- Fish and Wildlife
- Special Status Species
- Visual Resources
- Water Resources
- Wildland Fire Management

3.2.1 AIR QUALITY

In considering the impacts on air quality of activities within the PFO area, the Environmental Protection Agency (EPA) air quality permitting system suggests that the analysis of air impacts should include all areas within 62 miles (100 kilometers) of proposed facilities and projects (EPA 1992). To be consistent with this directive, the area of consideration for air quality impacts includes airsheds over lands within the PFO area, as well as lands within a 62-mile radius of the PFO area (**Figure 3-1**).

While most BLM programs in the planning area are not generally considered to appreciably affect air quality, the increased emphasis on prescribed fire must be evaluated for its impact on air quality. Both wildland and prescribed fire are major issues that have the potential to cause impacts that appreciably affect air quality. Other ongoing activities occurring on public lands that may affect air quality include mining and mineral processing, forestry, construction, motorized travel, OHV use, and other recreation activities.

An air quality assessment technical report was prepared to assist the PFO with its overall RMP/EIS planning effort (**Appendix L**). The report provides a collaborative community-based planning approach to updating management decisions and resource allocation; as such decisions pertain to air quality. The document also contains significant information and references on air quality within the PFO area.

3.2.1.1 Regional Climate

Climate in the PFO planning area varies widely. Regionally, the amount of precipitation received in the PFO area is directly influenced by the Cascade and Sierra Mountains to the west and the Bitterroot and Rocky Mountains to the north. These features reduce the amount of Pacific moisture available as precipitation and effectively create a semi-arid climate in the PFO area. In the summer, the arid Great Basin area of Utah and Nevada modify monsoonal moisture flows, which occur infrequently. While the amount of precipitation falling across the PFO area limits dryland agriculture, the relatively large precipitation amounts received in headwater mountains supplies reservoirs and canal systems, and recharges deep irrigation wells. Such precipitation and storage permits for a greater range of agricultural production in certain areas.

Winter temperatures can be well below 0 degrees Fahrenheit (°F), but frequent southwest winds can moderate cold winter conditions. Spring and fall temperatures can vary widely, with daytime temperatures typically ranging between 30°F and 70°F. Summer temperatures frequently rise into the 90°F range, but long spells of extremely hot weather are not common. Summer night temperatures frequently drop into the 50°F to 60°F range. The growing season (freeze-free duration) is about 125 days in the Pocatello area and shorter in other higher elevation areas, including the eastern PFO area valleys.

More than 50 percent of the observed wind directions are from the quadrant between south and west (Idaho Department of Environmental Quality [IDEQ] 1999). The strongest winds generally are associated with the thunderstorms that occur in spring and summer. These events are generally limited in duration, but 40 to 60 mile per hour gusts are possible.

3.2.1.2 Air Quality Standards

The EPA has authorized the State of Idaho to administer federal air quality laws within the PFO boundaries. The framework for the Idaho air quality program is based on the federal Clean Air Act (CAA), as amended in 1990.

National Ambient Air Quality Standards (NAAQS) are defined in the CAA as levels of pollutants above which detrimental effects on human health and welfare may result. The EPA established NAAQS for six criteria pollutants. These include carbon monoxide (CO), nitrogen dioxide (NO_2), ozone (O_3), lead (Pb), sulphur dioxide (SO_2), and two categories of particulate matter: fine particulates with an aerodynamic diameter of 10 micrometers or less (PM_{10}) and fine particulates with an aerodynamic diameter of 2.5 micrometers or less ($PM_{2.5}$). The IDEQ has included an additional standard for fluorides, bringing the applicable standards in Idaho to seven.

When an area within a state exceeds an ambient air quality standard, it may be designated as a non-attainment area (NAA). It is possible for a geographic area to be an attainment area for one criteria pollutant and a NAA for another. Air monitoring networks have been established to determine whether an area meets the ambient air quality standard (IDEQ 2003a). If an area falls into a non-attainment status the IDEQ is required to prepare a state implementation plan (SIP) to describe how the area will be brought into attainment status.

Another provision of the CAA is the prevention of significant deterioration. There are different permissible increments for criteria pollutants for different areas (termed "classes"). There are several classes that are used to designate an area.

Class I areas are composed of a) International Parks; b) National Wilderness Areas that exceed 5,000 acres; c) National Memorial Parks that exceed 5,000 acres; d) National Parks that exceed 6,000 acres, and d) National Wildlife Refuges (NWRs) and National Wild and Scenic Rivers that exceed 10,000 acres.

All other areas of Idaho have been designated as Class II.

Class I areas afford the highest protection to air quality by restricting the level of further degradation allowed. In addition to the further degradation limits applied to Class I areas, 1999 amendments to the CAA set forth a national goal for visibility. The rule, referred to as the Regional Haze Rule, calls for states to establish goals and emission reduction strategies for improving visibility in all mandatory Class I national parks and wilderness areas.

In April 1998, the EPA, in cooperation with other federal land managers, states and tribes, issued the Interim Air Quality Policy on wildland and prescribed fires. One of the goals of the policy is to allow fire to function as a disturbance process on federally managed wildlands, while protecting public health and welfare. Smoke emissions from forest and range prescribed burning are managed by the Montana/Idaho Airshed Group (MIAG). Group participants include landowners and managers (federal, state, tribal, and private) IDEQ, and the National Weather Service. The program is voluntary in Idaho. Burn plans written under this program must include actions to minimize fire emissions, a smoke dispersion evaluation, public notification, exposure reduction procedures, and an air quality monitoring plan.

Additional regulations govern the emissions of hazardous air pollutants, defined as pollutants that cause or may cause cancer or other serious health impacts, such as reproductive effects or birth defects, or adverse environmental and ecological effects (IDEQ 2003b). Idaho's Air Toxics Program regulates approximately 350 toxic air pollutants, while EPA's federal CAA program regulates approximately 188 hazardous air pollutants.

Idaho air quality regulations also stipulate that "all reasonable precautions shall be taken to prevent particulate matter from becoming airborne." IDEQ has developed a fugitive dust best management practices (BMPs) document to help manage and minimize fugitive dust at facilities where fugitive dust has been identified as an issue (IDEQ 2003c).

3.2.1.3 Current Air Quality

Particulate matter (PM_{10}, $PM_{2.5}$) is currently the most common pollutant identified in the PFO area. Common sources of particulate matter include windblown dust, re-entrained road dust, smoke (residential, agricultural, and wildland fires), industrial emissions, and motor vehicle emissions. Localized sources (primarily large industrial sources in Pocatello and Soda Springs) of NO_2 and SO_2 are also a concern (IDEQ 2001).

The predominant (generally greater than 90 percent) particulate matter sources within the counties in the PFO area are categorized as "fugitive dust" and "agricultural and forestry activities. The exceptions are Power and Caribou counties. In Power County, mineral product processing accounts for approximately 21 percent of PM_{10} emissions and 50 percent of $PM_{2.5}$ emissions. In Caribou County, inorganic chemical manufacturing accounts for 19 percent of $PM_{2.5}$ emissions. All of the counties within the PFO area show an improving (decreasing annual emissions) trend from 1995 to 1999 for both PM_{10} and $PM_{2.5}$ concentrations (Trinity Consultants 2003).

Two PM_{10} NAAs have been designated in the PFO area, the Portneuf Valley PM_{10} NAA and the Federal Fort Hall PM_{10} NAA (**Figure 3-1**). These areas were previously designated as the single Power/Bannock Counties PM_{10} NAA. The federal Fort Hall PM_{10} NAA lies within the Fort Hall Indian Reservation and is managed by the Shoshone-Bannock Tribes, with environmental program direction provided by the EPA. The Portneuf Valley PM_{10} NAA is under the jurisdiction of the IDEQ Division of Air Quality.

3.2.1.4 Sensitive Areas

Areas that have been identified as sensitive to air quality include NAAQA nonattainment areas, impact zones, Class I visibility areas, hospitals, airports, major transportation corridors, as well as population centers.

The Portneuf Valley PM_{10} NAA encompasses 96.6 square miles including Pocatello, Chubbuck, and the surrounding areas of BLM and Caribou National Forest land, as well as privately owned land (IDEQ 2001). A draft SIP, maintenance plan, and redesignation request for the Portneuf area are currently under review (IDEQ 2004a). The Federal Fort Hall PM_{10} NAA is adjacent to the northwest of the Portneuf Valley PM_{10} NAA (IDEQ 1999; 2001) and is under the jurisdiction of the Shoshone-Bannock Tribes. An EPA - Federal Implementation Plan for the area was completed in August 2000 (EPA 2000). A primary source for PM_{10} emissions in the Fort Hall

area was identified as the Astaris, LLP (formerly FMC) elemental phosphorous plant, located west of the NAA. The Astaris plant closed in December 2001. Ogden City in Weber County, Utah, has also been identified as a CO and PM_{10} NAA within the 62-mile area of consideration.

IDEQ and MIAG consider impact zones to be areas where smoke is likely to be a problem because of local topography, meteorology, existing air quality problems, or other factors (MIAG 2003). The PFO area and area of consideration contain the Pocatello and Idaho Falls impact zones.

There are no Class I visibility areas designated within the PFO area (EPA 2002). There are portions of four Class I areas identified within the area of consideration: Craters of the Moon National Monument and Preserve Wilderness Area, Grand Teton National Park, the Teton Wilderness area, and the Bridger Wilderness Area.

There are several transportation corridors that run through the PFO area and the area of consideration including: United States (US) Interstate 15, US Interstate 84, US Interstate 86, US Interstate 80, and US Highways 20, 26, 30, 89, 91, 93, 189, and 191. There are also numerous hospitals, medical centers, and airports within the PFO area and the area of consideration. A detailed listing of these sensitive areas is presented in the Air Quality Assessment Technical Report (**Appendix L**).

3.2.2 CULTURAL RESOURCES

Cultural resources are locations of human activity, occupation, or use. They include expressions of human culture and history in the physical environment, such as prehistoric or historic archaeological sites, buildings, structures, travel routes, landscapes or places with important public and scientific uses. Under the National Historic Preservation Act (NHPA), cultural resources can include specific areas or places referred to as traditional cultural properties. Such places can include natural features, plant or mineral gathering locations, hunting or fishing locations or geographic areas that are considered to be important to a culture, subculture, or community associated with traditional lifeways or religious practices. Identified cultural resources in the planning area reflect the long prehistoric use of the area; historic era exploration and access to the west, settlement, farming, and grazing activities; and the continuity of Native American cultural traditions and practices.

Cultural resources have been organized into prehistoric resources, historic resources, and traditional cultural properties. These types are not exclusive, and a single cultural resource may have multiple components. Prehistoric cultural resources refer to any material remains, structures, and items used or modified by people before Euroamericans established a presence in Southeastern Idaho in the early nineteenth century. Examples of prehistoric cultural resources in the region include rock art, campsites, rock shelters, quarries and scatters of stone tool-making debris. Historic cultural resources include material remains and the landscape alterations that have occurred since the arrival of Euroamericans in the region. Examples include homesteads, ranching and agricultural features, mining sites, emigrant trail segments, abandoned communities, structural ruins, post-contact Native American sites and scatters of historic artifacts. Traditional cultural properties are places associated with the cultural practices or beliefs of a living community. These sites are rooted in the community's history and are important in maintaining cultural identity. Examples of traditional cultural properties for Native American communities include natural landscape features, places used for ceremonies and worship, places where plants are gathered to be used in traditional medicines and ceremonies, places where artisan materials are found, and places and features of traditional subsistence systems, such as hunting and fishing locations (BLM 1981b; Lohse 1998; and State Historic Preservation Office [SHPO] 2002).

The conservation of plants, fungi and wildlife is of great importance to the Shoshone-Bannock Tribes socioeconomic and cultural well being. Numerous plants, fungi and wildlife are found on the public lands providing the Shoshone-Bannock Tribes with valuable resources for food, medicine, cordage, and manufacturing of artisan materials. **Appendix M** identifies those plants, fungi and wildlife species which are of cultural significance to the Shoshone-Bannock Tribes.

The principal federal law addressing cultural resources is the NHPA, as amended (16 US Code [USC] Section 470), and its implementing regulations (36 Code of Federal Regulations [CFR] 800). The NHPA describes the process for identifying and evaluating historic properties, for assessing the effects of federal actions on historic properties, and for consulting to avoid, reduce, or minimize adverse effects. The term historic properties refer to cultural resources that meet specific criteria for eligibility for listing on the National Register of Historic Places (NRHP). This process does not require historic properties to be preserved, but does ensure that the

decisions of federal agencies concerning the treatment of these places result from meaningful consideration of cultural and historic values and the options available to protect the properties.

Management actions could result in an adverse effect on NRHP-eligible cultural resources or areas of importance to Native American or other traditional communities through direct disturbance, increased access, unauthorized activities, natural processes, dispersed activities, and incremental or inadvertent human actions. Indicators that will be used to assess change to cultural resources include:

1. The known presence or potential for intact cultural resources, the extent of change associated with the management alternatives and their potential to modify the risk of impacts on cultural resources.
2. The acres and relative depth of ground disturbing activities permitted and their potential for impacting known or unknown intact cultural resources or areas of importance to Native American or other traditional communities.
3. Increased access, or activity in areas where intact cultural resources or areas of importance to Native American or other traditional communities are present or anticipated.
4. Extent that the management action changes the potential for erosion or other natural process which could impact cultural resources.
5. Extent that the management action alters the setting of cultural resources.

3.2.2.1 Data Collection and Consultation Methods

Inventory information was taken from the Pocatello and Deep Creek Resource Area Background Document (BLM 1997). No formal record search or field work was conducted. Cultural resources and cultural resource surveys referenced are from previous compliance projects or resources discovered and recorded during the course of other activities. Precise cultural resource locations are generally confidential and are not published in order to prevent disturbance and unauthorized collecting. Other reports and data sources were inspected to supplement the description of the cultural resources of the PFO area (BLM 1981a; BLM 1981b; BLM 1987b; Hutchison and Jones 1993; Lohse 1998 and SHPO 2002).

The identification and significance of traditional cultural properties, traditional use areas, and sacred sites is determined primarily by consulting with the affected contemporary communities. Representatives of the Shoshone-Bannock Tribes are active participants in the development of the RMP. The BLM will continue to consult with the Shoshone-Bannock Tribes on a government-to-government basis to identify any concerns about the potential effects of future BLM plans or activities on a variety of issues, including cultural resources and traditional cultural properties.

3.2.2.2 Affected Environment

Inventories

The BLM defines three levels of surveys for archaeological resources. Class I inventories are reviews of existing records and documents, usually as the first step in cultural resource planning.

Class II inventories use a statistically based sample survey designed to characterize the probable density, diversity, and distribution of archaeological properties in a large area. Class III inventories are continuous, intensive pedestrian surveys of the entire APE aimed at locating and recording all archaeological properties that have surface indications.

There has been very little systematic archaeological survey coverage overall, with even fewer of the surveys covering large blocks of land. Class II archaeological surveys have been conducted on approximately 4480 acres of the PFO area (0.7 percent). Class III surveys have been conducted on 36,098 acres of the PFO area (5.7 percent). Class III surveys are generally conducted prior to construction or other ground disturbing activities. There was no information on inventories of the built environment, cultural landscapes or traditional cultural properties. Emigrant trails are the subject of an historic overview by the BLM and the Idaho State Historical Society (Hutchison and Jones 1993).

Recorded Resources

In June 1997 there were approximately 994 cultural resource sites recorded in planning area. The major themes represented by the recorded sites include prehistoric archaeology, transportation, mining, agriculture, exploration/fur trapping and settlement. The majority of the sites within the planning area are prehistoric and representative site types include lithic scatters, quarry sites, rock shelters, rock structures, petroglyphs and a few pictographs. Information on the number of sites assigned to each era or distribution of site types was not available. Information on the evaluation status of these sites for listing on the NRHP was not available, but many resources have not been formally nominated although they are considered eligible for listing (BLM 1997). Listed properties include portions of two emigrant trails: the Lander Trail and Big Hill on the Oregon Trail. Register Rock includes the carved names of emigrants who passed it on the Oregon Trail. Sections of the Hudspeth Cutoff for the California Trail traverse the planning area and are listed. Historic trails within the PFO area are shown on **Figure 3-2**.

The PFO has three Areas of Critical Environmental Concern (ACECs) that were designated primarily because of cultural resources. The Indian Rocks area between the Portneuf River and Marsh Creek was designated as an ACEC based on the density of lithic scatters and petroglyphs in the area, as well as its religious significance to the Shoshone-Bannock Tribes. The Van Komen Homestead is a small ACEC that includes an early pioneer residence. The Juniper Town site ACEC is the ruin of an early settlement. Cultural resource management areas totaling 8740 acres were designated in the Malad MFP as either No Surface Occupancy or Restricted Use Areas. These areas are not mapped here to protect the integrity of the resources present (BLM 1981a; 1988a).

3.2.2.3 Resource Distribution

Because the PFO area has not been looked at systematically, any patterns of resources observed reflect survey coverage and site preservation, rather than necessarily representing the potential entire range of resources present or their distribution. Assessment of regional cultural resource data must also consider the scattered distribution of BLM parcels and the resources present and studies conducted on other federal, state and private lands. Areas of known site density include the Snake River/Massacre Rocks area, Portneuf River/Chesterfield area, Blackfoot River

Watershed, Curlew Grassland/Badger Hole Spring Area, Bear River Corridor, and Elkhorn Mountain/Malad Obsidian Source.

Snake River/Massacre Rocks

The northern boundary of the PFO area is the Snake River. On the south side of the Snake River is Massacre Rocks which includes several associated prehistoric and historic sites. The area is named for an incident between Indians and Euroamericans that resulted in the death of at least nine people. Oregon Trail segments and Register Rock are also in the area. On the north side of the river, just outside of the planning area is Cedar Field, a location with hundreds of prehistoric sites which is of great religious significance to the Shoshone-Bannock Tribes (BLM 1997).

Portneuf River Corridor/Chesterfield to Pocatello

The Portneuf River corridor includes campsites along its entire length and the petroglyphs and lithic scatters of the Indian Rocks ACEC. Other prehistoric resources are present along Marsh Creek, Bell Marsh Creek and Goodenough Creek. An obsidian source near Chesterfield and the hot springs at present day Lava Hot Springs were also used by the native inhabitants.

During historic times, the Oregon Trail passed northward through the Portneuf Valley to Ross Fork and Fort Hall. Chesterfield (no longer a town) was founded here in the 1880s and is now a National Historic District of 40 structures maintained by a private foundation. Other historic resources are located in Blackrock Canyon northeast of Portneuf. Some historic mining activity took place in the hills around Pocatello most notably at the Fort Hall and Moonlight Mountain mines. Although none of these mines were very productive, there are numerous mining sites including adits, cabins, tailing piles and refuse scatters (BLM 1997).

Blackfoot River Watershed

Ongoing work in the vicinity of the Blackfoot Reservoir beginning in the 1970s has identified about 50 prehistoric sites, some dating to 7000 years ago. Obsidian from these sites comes from Malad, Chesterfield and Yellowstone sources.

The Lander Road, an alternate route on the Oregon Trail, parallels the river for several miles before turning west toward Fort Hall. There are also historic sites associated with settlements along the river which were abandoned during the Depression.

Curlew Grassland/Badger Hole Spring Area

Many springs on the public lands in this region have associated cultural resources visible on the ground surface. A bison kill site at Rock Springs on the Curlew National Grassland has been excavated. There are also many historic era sites associated with agriculture and ranching including the Van Komen Homestead ACEC and Juniper Town site ACEC. Homestead ruins, and their associated outbuildings and refuse deposits are the most common site types (BLM 1997).

Bear River Corridor

The Bear River served as the wintering grounds for the Northwestern Band of Shoshone. In January 1863 a Shoshone camp on the river near present day Preston was the site of a large Indian massacre. Approximately 250 Indians were killed in revenge for several murders in the Cache Valley. This important site is on private land and the Shoshone-Bannock Tribes are working to have it formally listed and protected from future development. It is likely that there are many campsites along the river corridor, but relatively little land is under the jurisdiction of the BLM.

Big Hill/Thomas Fork Valley

Multiple Oregon Trail branches in this area are associated with the challenge of crossing the Thomas Fork of the Bear River and the ascent of Big Hill and the Sheep Creek Hills. There were also Native American villages, early Mormon settlements and a short line railroad. Much of the landscape retains the historic setting of the area (Hutchison and Jones 1993).

Elkhorn Mountain/Malad Obsidian Source

This important regional stone tool material source is located on the Caribou National Forest, but there are many associated lithic reduction sites on the adjacent public land (BLM 1997).

3.2.3 SOILS

Geology and soils have a major influence on topography, vegetation, watersheds and land use. Many of the management activities in the PFO area are influenced by factors controlled by the geology and soils of an area.

3.2.3.1 Geologic Setting

The PFO area can be divided into three distinct geologic provinces: the Idaho-Wyoming Thrust Belt, the Basin and Range, and the Snake River Plain.

The Idaho-Wyoming Thrust Belt generally comprises the northern and eastern half of the PFO area. It is part of the larger, Middle Rocky Mountain Province. The thrust belt is characterized by early Cretaceous-through-early Tertiary-aged -compression. The compression has formed a series of over 20 thrust complexes with associated large amplitude folds. The fold amplitudes may be up to several miles. The faults may have as much as 50 to 100 miles of eastward displacement. The generally parallel mountain ranges, resulting from the compression, trend to the northwest and reach elevations of nearly 10,000 feet. The valleys lie above 6000 feet and commonly contain Tertiary sediments, Quaternary gravels, or Quaternary basalts. The folds and faults of the region have created long, linear exposures of the Phosphoria Formation, key in the extraction of phosphate. Fossiliferous, shallow marine sediments of Cambrian through Jurassic age compose the majority of the region's stratigraphy. Extensive exposures of the Phosphoria Formation (the source rock for significant phosphate deposits) occur in the eastern portion of the PFO area.

The Basin and Range physiographic province makes up the western half of the PFO area. East-west extension beginning about 17 million years ago has created a series of north trending mountain ranges. The ranges are bound by normal faults and generally create a "horst and graben" structural fabric. The valleys or grabens may contain thousands of feet of late Tertiary and Quaternary gravels that may contain Quaternary basalt flows. With the exception of the northern fringe, where surface water flows to the Snake River, surface water in the Basin and Range flows towards evaporative basins and does not reach either the Pacific or Atlantic Oceans. Thick sequences of Paleozoic marine sediments representing the western carbonate shelf compose the majority of the region's stratigraphy. The eastern region of the Basin and Range has significant exposures of late Proterozoic sediments and volcanics.

The Pocatello, Portneuf, and Wasatch [Bear River] Ranges make up a transitional zone where the Idaho-Wyoming Thrust Belt has been overprinted by Basin and Range faulting.

The Eastern Snake River Plain makes up the third geologic province and bounds the PFO area to the northwest. It runs from the Island Park-Yellowstone area southwest to Twin Falls. The area is characterized by volcanic terrain approximately 60-70 miles wide. Volcanic activity started about 17 million years ago in the western portion of Idaho and migrated, relatively, eastward. The rocks are composed of basal rhyolites followed by an extensive series of basalt flows. The volcanic package may be up to 10,000 feet thick and locally contains sedimentary interbeds between basalt flows. In the Pocatello area, the rhyolites generally range from 8 to 10 million years old and grade into basalts about 6 million years old. Locally, basalts may be as young as 5,000 years old. The area contains remnant caldera complexes, shield volcanoes, rhyolite

domes, and cinder cones. The aquifer contained within the Snake River Plain is a major regional water source.

3.2.3.2 Topography

The topography of the Idaho-Wyoming Thrust Belt portion of the PFO area consists of two primary settings. First, the high elevation mountain ranges have slopes ranging from 20 to 40 percent. Included in this setting are ridges, mountain slopes and canyons formed in sedimentary, intrusive and metamorphic rocks. The mountain elevations reach 10,000 feet above sea level. Second, the valleys are located at low-to-mid elevations with slopes ranging from 5 to 30 percent. Included in this setting are draws and open basins formed in sedimentary rocks.

The topography of the Basin and Range physiographic portion of the PFO area also consists of two settings. Mountain ranges with slopes that range from 30 to 70 percent and elevations up to 9,500 feet make up the first. Included are mountain slopes and ridges formed in sedimentary rocks. The second physiographic feature is typified by broad valleys separating the mountains, with slopes from 5 to 20 percent. Broad valleys with well-developed alluvial fans typify the western PFO Basin and Range province. Narrow canyons and valleys in the transitional zone between the Basin and Range and the Thrust Belt are common in the eastern PFO area. The valleys range from 4,500 to 6,000 feet above seal level.

The topography of the Eastern Snake River Plain is generally flat with steep canyons carved into volcanic lava flows by the Snake River and its tributaries. The lowest elevations (around 4,000 feet) in the PFO area are associated with the Snake River Plain.

3.2.3.3 Soil Types

Soils in the PFO area have developed from bedrock, rocks/minerals deposited by rivers and glacial activity, and windblown silt and sand. They were derived primarily from the sedimentary, metamorphic, and volcanic rocks of the mountain ranges and highlands of the PFO area. Soil surveys on the county level have been conducted by the US Department of Agriculture, Natural Resources Conservation Service (NRCS) (http://www.or.nrcs.usda.gov/pnw_soil/id_reports.html). The soils in the PFO area vary from shallow in the mountains to very deep in the valleys.

The soils of the Idaho-Wyoming Thrust Belt portion of the PFO area vary from shallow (zero to twenty inches to bedrock) to deep (forty to sixty inches to bedrock) and are well drained on steep slopes. Surface textures are silt loam or loam. The soils in the valleys are moderately deep (twenty to forty inches to bedrock) to very deep (greater than sixty inches to bedrock) and well drained. Surface textures are loam or silt loam.

The soils of the Basin and Range portion of the PFO area also vary from shallow (zero to twenty inches to bedrock) to deep (forty to sixty inches to bedrock) and well drained in the mountain ranges. Surface textures are loam and silt loam. The soils in the valleys are moderately deep (twenty to forty inches to bedrock) to very deep (greater than sixty inches to bedrock) and well to somewhat poorly drained. Surface textures are loam or sandy loam.

The soils of the Eastern Snake River Plain vary from shallow (zero to twenty inches to bedrock) to very deep (greater than sixty inches to bedrock). In general, the soils are loess deposits overlying basalt flows with surface textures of silt loam.

Soils described by the NRCS as prime farmland occur within the PFO planning area. The extent of these particular soils by county within the planning area is identified in **Table 3-1**. Of approximately 613,800 acres of public lands in the PFO planning area, approximately 2,900 acres (<.4 percent) of public lands are described as prime farmland.

Table 3-1. Extent of Public Lands Described as Prime Farmland within the Pocatello Field Office Planning Area by County.

County	Acres Public Lands Described as Prime Farmland
Bannock	84
Bear Lake	n/a
Bingham	n/a
Bonneville	n/a
Caribou	n/a
Cassia	37
Franklin	124
Oneida	2,680
Power	n/a
Total =	2,900 [1]

[1] Acres rounded to nearest 100 acres.
Source: NRCS 2005

3.2.3.4 Erosion and Run-off

There is significant potential for severe soil erosion by water and wind at several locations within the PFO area. However, in general the soil erosion potential in the PFO area ranges from slight to moderate. Factors determining erosion potential include slope, soil type and vegetative cover. The hazard for soil erosion by water and wind is rated in the county level soil surveys conducted by the NCRS (http://www.or.nrcs.usda.gov/pnw_soil/id_reports.html). Erosion generally increases when the vegetative community is disturbed by intense grazing, fire, road construction, and other events that reduce the amount of vegetative cover. Disturbance of biological crusts on coarse-textured soils could increase the potential for wind erosion. **Figure 3-3** presents areas with an elevated potential for soil erosion.

Many of the soils within the PFO area have limiting features that make reclamation and revegetation very difficult. While not mapped as such for the planning area, limiting features may include salinity, sodium content, clayey and sandy textures, drought conditions, alkalinity, low organic matter content, shallow depth to bedrock, stones and cobbles, and their wind erosion potential.

3.2.3.5 Compaction

Compacted soils generally support reduced vegetation, have lower water infiltration rates and have increased erosion potential. Soil compaction can be exacerbated by moist soil conditions. There is limited information available regarding soil compaction in the planning area. Problem areas have not been identified; but typically would include roads, high use areas for OHV, and areas with development, such as mining sites.

3.2.4 PALEONTOLOGICAL RESOURCES

Paleontological Resources are the physical remains or other physical evidence of plants and animals generally preserved in 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.

There are many recorded fossil locations in southern and southeastern Idaho, including the Hagerman fauna site, which is a very rich and important Pliocene locality, and the extensive Pleistocene localities in the American Falls Reservoir area. Vertebrate, invertebrate, and botanical paleontological resources are known to occur within several of the named geologic formations and various outcrops in the planning area. A level I inventory of paleontological resources was conducted in 1985 for the portion of the PFO area that was the former Pocatello Resource Area (BLM 1985b). It consisted of literature and record searches to identify areas that may have fossils. Idaho State University paleontologists were also asked about possible fossil locations. The Malad portion of the PFO area has no formal inventory information on file.

Cambrian formations, such as the upper Brigham Quartzite, Spence Shale, and the upper Wilbert, have produced many identifiable fossils. The Malad, Bear River, and Lemhi Ranges yield such fossils as the monera genus Girvanella, worm tubes, such as Arenicolites and Monocreterion, trilobite trace fossils Cruziana and Rusophycus, and many trilobite species, including Albertella, Elrathina, Glossopleura, Idahoia, and Pagetia. Brachiopods may also be found, particularly in the St. Charles Limestone (Maley 1987). Other types of fossils, including soft-bodied forms, have also been found (Robison 2004). Several Ordovician and Silurian formations occur in the area, some of which have produced invertebrate fossils.

Idaho was still under water during the Devonian. The Water Canyon Formation in Bear Lake County has produced a few fish scales and plates, as well as Lingula brachiopods, pelecypods, gastropods, and ostracods. *Psephaspis williamsi*, *Uranolophus* sp., *Dipterus* sp., and other lung fish have been identified (Maley 1987).

Brachiopods, corals, gastropods, crinoids, bryozoans, and bivalves deposited during the Lower Mississippian are present in Lodgepole Limestone and other strata outcrops in the vicinity of Malad, Montpelier, and Soda Springs (Christensen 1999).

The Phosphoria Formation, named for Phosphoria Gulch near Georgetown, is one of the most fossiliferous of the Idaho Pennsylvanian and Permian Formations. Fossils include sponge spicules, horn corals, bryozoans, brachiopods, pelecypods, pectins, gastropods, belemnite and ammonoid cephalopods, ostracods, conodonts, and fish and shark remains, including Helicoprion. The large spiral teeth from Helicoprion are the most impressive shark remains known from the Paleozoic of Idaho. Most of the fish and shark remains reported from earlier formations are isolated teeth, scales, dermal plates, and small bones (BLM 1985b; Maley 1987).

The Thaynes Formation has been very productive and includes a wide variety of Triassic Period fossils. Many ammonoids have been found in the Thaynes outcrops in southeast Idaho. In the Caribou Range, the Thaynes has produced ammonoids, forams, conodonts, sponge spicules, fish scales and bones, and shark teeth. The decapod crustacean Litogaster turnbullensis has been found near Lava Hot Springs. Cephalopods, including ammonoid and nautiloid types,

pelecypods, gastropods, conodonts, crinoids, brachiopods, crustaceans, an icthyosaur (marine reptile), and fish remains, such as scales and bones and shark teeth and dermal denticles, have been found in the Bear River Range. Pelecypods, worm borings, and fucoids have been reported in the Garns Mountain area. Crinoids and brachiopods are also known from Thaynes Formation outcrops in Idaho (BLM 1985b; Maley 1987).

Other fossiliferous Triassic formations in the area include the Woodside and Dinwoody Formations, which are known to contain many invertebrate fossils. Marine invertebrates are also abundant in Twin Creek Limestone and other Jurassic formations.

The Gannet Group is well exposed in southeastern Idaho and has had some plant, invertebrate, and vertebrate fossil material recovered from it. The vertebrates include fish, sharks, crocodiles, turtles, and dinosaurs. Recent study has yielded material deposited during the Early Cretaceous period.

Most of the known dinosaur fossils from Idaho occur in the Wayan Formation of eastern Idaho. The Cretaceous Period material collected represents at least two types of crocodile, an iguanodontid dinosaur Tenontosaurus, Ankylosaurian and Theropod dinosaur material, indeterminate ornithischian dinosaur material, possible gastroliths, egg shells, turtle shells, crocodiles, and fish. Plant remains also have been found, including pollen, coal, fern and angiosperm leaves, and petrified wood. Fossil plants in the PFO area include *Tempskya* sp. (giant tree ferns). The ferns were probably deposited during swampy environmental conditions. Almost all of the known *Tempskya* material from Idaho has come from the Wayan and Sage Junction Formations in the Ammon and Wayan areas. The remaining Cretaceous formations of Idaho have so far not yielded very many fossils. The lower Bear River Formation has produced ostracods, other invertebrates, and charophytes (BLM 1985b; Maley 1987).

The Salt Lake and Starlight Formations of Pliocene and Upper Miocene stream and lake deposits include documented occurrences of plants, invertebrates, horses, camels, mastodons, fish, reptiles, birds, amphibians, carnivores, and other small mammals. These fossils are from the Tertiary period (BLM 1985b).

Lake beds, alluvial fans and stream alluvium have yielded Quaternary period fossils, such as birds, rodents, fish, amphibians, mammoth, mastodon, bison, musk ox, horse, camel, bear, dire wolf, mountain goat, saber toothed cat, ground sloth, and many others. Bonneville flood gravel pits between McCammon and Highway 30 have yielded Pleistocene bison, camel, musk ox, and horse fossils (Fortsch and Link 1999). The Quaternary period includes the Pleistocene and Holocene Epochs. It represents the final 1.6 million years of geologic time, from the beginning of the Glacial Epoch to the present.

3.2.5 VEGETATION

The precipitation, topography, elevation, and temperature extremes, combined with the soil and geological variability, and land use have created a variety of vegetation types across the PFO area. Vegetation is the most important biotic component of the ecosystem because it provides cover, browse, nesting and rearing habitat for a diverse assemblage of game and non-game wildlife and fish species, as well as forage for livestock and forest products. A diverse cover of vegetation also aids in maintaining healthy watersheds, streams, and lakes by holding soil in place, regulating stream flows, and filtering sediments from water. Native vegetation is also utilized and of great importance to the Shoshone-Bannock Tribes for medicine, food, fuel, building material, wildlife habitat, ceremonial uses, and aesthetics (**Appendix M**).

The PFO area lies within the Intermountain Semi-Desert and the Southern Rocky Mountain Steppe-Open Woodland-Coniferous Ecoregions (Bailey 1995) and, as consequence, vegetation is diverse and in some areas unique. Both Ecoregions have a semi-arid climate resulting from the influence of the Cascade and Sierra mountains to the west and the Bitterroot and Rocky Mountains to the north, which effectively block Pacific moisture. Summer monsoonal moisture intrusions are infrequent and are significantly modified by the arid Great Basin of Utah and Nevada. Summers may be hot (average high/low summer temperature: 86/47 deg. F.) and winters marked by extreme cold (average high/low winter temperature: 32/22 deg. F.). The growing season is short and is about 125 days. As elevation rises, the mean temperature lowers and the growing season shortens. Annual precipitation is about 12-20 inches though some low elevation areas may receive less than 10 inches and higher elevations over 60 inches. Snowfall averages between 36 and 40 inches annually in the lowest elevations to over 100 inches in the highest elevations. Winter snow accumulation and runoff provide available moisture for spring plant growth. Snow distribution patterns caused by wind, topography, and existing vegetation develop pockets of highly productive sites within the drier, less productive surrounding areas.

In Southeastern Idaho, basins and hills below 6,500 ft are generally dominated by sagebrush/grass and Juniper. Above 6,500 ft mountain shrub, aspen, and conifer are more abundant. Riparian areas are vegetation with scrub-shrub, emergent, saline, and calcareous fen community types. The PFO area is known to support eleven sensitive plant (7) and animal (4) species that occupy unique and/or specialized habitats and soils, further discussed in *Special Status Species Section 3.2.7.*

Fire suppression, introduction of noxious/exotics weeds and pathogens, and land use activities have altered the dynamics of ecological succession and vegetation conditions across the PFO area.

The 11 major vegetation types of the PFO area are illustrated in **Figure 3-4** and identified in **Table 3-2**. Ten of these vegetation types were aggregated from 51 vegetation cover types originally classified by the Gap Analysis Program (GAP) for southern Idaho (Scott et al. 2002). The GAP was created to assess the conservation status of native animal species and plant communities at a landscape level, in order to meet the needs of natural resources management agencies like the BLM. An 11th type, Seedings, was added by the PFO specifically for the RMP to identify those areas that were seeded with crested wheatgrass. One part of the

Table 3-2. Vegetation Types, Descriptions, and Acres Of Public Land.

Vegetation Type	Characterized By:	Acres (%)
Low-Elevation Shrub	Sagebrush steppe: Wyoming big sagebrush, basin big sagebrush, etc., with native grass and forb understory. Biological crust in interspaces.	38,100 6%
Mid-Elevation Shrub	Sagebrush steppe: Mountain big sagebrush, low sagebrush, bitterbrush, etc., with native grass and forb understory. Biological crust may be present in interspaces.	142,000 23%
Mountain Shrub	Serviceberry, buckbrush, snowberry, mountain mahogany, maple, chokecherry, antelope bitterbrush, etc., with native grass and forb understory.	187,100 30%
Perennial Grass	Idaho fescue, bluebunch wheatgrass, western wheatgrass, thickspike wheatgrass, Thurber"s needlegrass, Sandberg bluegrass, and Indian ricegrass. Areas of Low-Elevation Shrub lacking shrubs because of disturbance.	64,600 11%
Seedings	Areas previously farmed/homesteaded and subsequently seeded to Crested wheatgrass in Low-Elevation Shrub.	42,100 7%
Juniper	Naturally occurring Utah juniper on shallow soils, wind swept ridges (approximately 14,400 acres) and encroached juniper in Mid-Elevation Shrub (approximately 11,300 acres). Biological crust may be present in interspaces of natural and encroached juniper sites.	25,700 4%
Dry Conifer	Douglas-fir	49,800 8%
Aspen/Aspen Conifer Mix	Pure stands of aspen (approximately 34,100 acres) and mixed conifer/aspen (approximately 6,400 acres).	40,500 7%
Wet/Cold Conifer	Lodgepole, Subalpine fir, Engelmann spruce.	700 $\leq$1%
Riparian	Streamside and wetland areas of cottonwood, willow, sedge, rush, etc.	6,600 1%
Other/Vegetated Lava	Lava, sand dunes, Salt Desert Shrub, barren areas, etc.	16,600 3%
	Total Acres	613,800 100%

Acreages rounded to nearest 100 acres.
Percents rounded to nearest whole number.

GAP uses Landsat Thematic Mapper satellite images to generate the digital maps from which land cover patterns are delineated. The minimum mapping unit is 2 hectares (approximately 5 acres), a landscape level resolution sufficient for regional-level planning. However, this minimal, mapping unit might not represent actual acres on the ground because the overall estimated accuracy of the GAP data for southern Idaho was 69 percent (Scott et al. 2002). To improve accuracy, GAP data was first modified for use in the Upper Snake River District Fire, Fuels, and Related Vegetation Management Direction Plan Amendment (FMDA) before being modified again for use in the Pocatello RMP, although the accuracy following modifications was not tested.

Distinct vegetation communities within the PFO area are influenced by characteristics such as soil depth, texture, and chemistry; climate variables, particularly temperature, total and seasonal distribution of precipitation and wind; and topographic features, most importantly elevation, aspect, and slope. Plant communities respond to other environmental influences, such as wildlife and livestock foraging, rodent burrowing, and fire. Plants themselves also influence soil chemistry and soil resistance to wind and water erosion.

Soils within the PFO area also support microbiotic (or cryptobiotic) crusts to varying degrees. Microbiotic crust is the living layer of algae, lichen, and moss that grows upon or just beneath the soil surface. When present microbiotic crust helps stabilize soils and prevents wide scale wind and water erosion and the invasion of exotic weeds. With blue-green algae as a common component, these crusts also fix nitrogen benefiting neighboring plants. Disturbance can directly and indirectly affect many aspects of the structure and function of biological crust communities, including cover, species composition, and carbon and nitrogen fixation. The impact of a given disturbance depends on its severity, frequency, timing, and type, as well as the climatic conditions during and after it (Belnap et al. 2001).

These vegetation types are based on coarse-scale approximations. Within a mapping unit, species composition, species distributions, habitats and community structures may vary widely due to various factors such as environmental gradients, ecotones, natural variations, and site-specific historical influences (e.g., wildland fire, grazing, landslide, etc.). Reference to a species in **Table 3-2** indicates that it is one of the principal species used to define the vegetation cover type, but it does not mean that it is found only in that community. A species may be found in a number of vegetation cover types, where its presence would be more or less dominant. For example, mountain big sagebrush is primarily associated with the more mesic sites of Mid-Elevation shrub, but it can also be found at higher elevations in the Mountain Shrub vegetation type.

Land Health Conditions (LHC) describe on a broad landscape scale the current and or desired future conditions for the various vegetation types across the planning area. LHC-A occurs when all key ecological components are present as identified in land health standards and defined by the Fire Regime Condition Class (FRCC) 1, LHC-B occurs when some or all key ecological components are present as identified in land health standards and defined by FRCC 2, and LHC-C occurs when key ecological components are absent as identified in land health standards and defined by FRCC 3. **Appendix J**, Section II provides a detailed description of the relationship between LHC indicators and FRCC descriptors.

Table 3-3 summarizes the current percentage for each LHC class by vegetation type. The LHC is discussed in the following sections showing the diverse and complex nature of the vegetation and ecological dynamics.

Table 3-3. Percent Current Land Health Conditions By Vegetation Type.

Vegetation Type	Acres	Percent Current Condition		
		LHC-A	LHC-B	LHC-C
Low-Elevation Shrub (Perennial Grass & Seedings)	144,800	20%	51%	29%
Mid-Elevation Shrub (encroached juniper)	153,300	52%	25%	23%
Mountain Shrub	187,100	100%	0.0%	0.0%
Juniper (Natural Occurring)	14,400	0.0%	100%	0.0%
Aspen/Aspen Conifer Mix/Dry Conifer	90,300	45%	0.0%	55%
Wet/Cold Conifer	700	0.0%	100%	0.0%
Riparian	6,600	n/a	n/a	n/a
Other/Vegetated Lava	16,600	100%	0.0%	0.0%

Acreages rounded to nearest 100 acres. Percents rounded to nearest whole number.

3.2.5.1 Low-Elevation Shrub

As mapped in **Figure 3-4**, the Low-Elevation Shrub vegetation type comprises about 38,100 acres (6 percent, **Table 3-2**) of public land in the PFO area. Precipitation within this vegetation type ranges from 8-12" annually and generally occurs below 5,000 feet. Basin big sagebrush and/or Wyoming sagebrush are the dominant shrub species within this vegetation type. Perennial native grasses found in the understory include: bluebunch wheatgrass, Indian ricegrass, Basin wildrye, Fendler threeawn, needle and thread, Sandberg bluegrass, sand dropseed, and streambank wheatgrass. Common forbs also found in the understory include: phlox, hawksbeard, bushy bird's beak, penstemon, desert parsley, milkvetch, hoary aster, globe mallow, paintbrush, groundsel, and cryptantha. Soil surfaces in this vegetation type are usually covered with biological soil crust, which is a complex assemblage of lichens, mosses, liverworts, cyanobacteria, and algae dominate the first few millimeters of the soil surface (Rosentreter and Eldridge 2004).

Low-Elevation Shrub LHC is based upon the combined acreages for the Low-Elevation Shrub, Perennial Grass and Seedings vegetation types (approximately 144,800). Both Perennial Grass and Seedings are important components of the overall make up of the Low-Elevation Shrub type. The LHC (**Table 3-3**) is a result of historic and current land use activities, as well as wildland fire. Land use activities and wildland fire have been responsible for shifts in species composition, cover, and carbon and nitrogen fixation. The degree of these impacts depends on the severity, frequency, timing, and type, as well as the climatic conditions. Some major changes to this vegetation type include the introduction of exotic weeds and loss of biological soil crust and native perennial forbs. Because this vegetation type receives the least amount of precipitation its resiliency is the lowest.

Exotic weeds are expected to increase in this vegetation type with a reduction or loss of native plants. Fuel loading, primarily from bulbous bluegrass and cheatgrass, is also likely to increase. Conserving plant communities in good condition is a priority, especially when these communities occupy large blocks of public lands. Restoration projects must consider the presence and ecology of exotic weeds, fuel loads, low resiliency, and habitat improvement. Projects in this vegetation type would require longer timeframes and stringent management actions/practices.

3.2.5.2 Mid-Elevation Shrub

As mapped in **Figure 3-4**, the Mid-Elevation Shrub vegetation type occupies about 142,000 acres (23 percent, **Table 3-2**) and generally occurs at elevations between 5,000 to 6,000 feet. Precipitation in this type ranges from 12-18 inches annually. The most common shrubs in this vegetation type are Mountain big sagebrush and bitterbrush, with lesser amounts of threetip sagebrush. Perennial grasses that dominate the understory typically include: bluebunch wheatgrass, Sandberg bluegrass, Cusick's bluegrass, California needlegrass, and Idaho fescue. Common forbs present include: arrowleaf balsamroot, sticky purple geranium, linear-leaf collomia, bastard toadflax, blue-eyed Mary, slender phlox, paintbrush, hawksbeard, slender cinquefoil, desert parsley, and milkvetch.

Mid-Elevation Shrub type has undergone similar effects to the Low-Elevation Shrub type, although to a lesser degree, from historic and current land use activities, as well as wildland fires, thus influencing its current LHC.

Mid-Elevation Shrub LHC (**Table 3-3**) is based upon the combined acres (approximately 153,300 acres) of the Mid-Elevation Shrub and those acres of encroached juniper (approximately 11,300 acres) that is mapped as the Juniper vegetation type (natural occurring and encroached juniper). As a result of fire suppression and/or lack of wildland fire, Utah juniper has encroached into the Mid-Elevation Shrub vegetation type. Although present, biological soil crust in this vegetation type is naturally less when compared with Low-Elevation Shrub.

Risks to this vegetation type include the continued loss of the shrub component, loss of native understory species, and an increase in exotic weeds. Restoration projects have a better chance for success than the Low-Elevation Shrub vegetation type because of higher precipitation levels. Opportunities to increasing bitterbrush and sagebrush would improve wildlife habitat. Taking post and poles and fuel wood from encroaching Utah juniper stands is an opportunity.

3.2.5.3 Mountain Shrub

The Mountain Shrub vegetation type occupies about 187,100 acres (30 percent, **Table 3-2**) and occurs in a transition zone between the Mid-Elevation Shrub and Aspen/Aspen Conifer Mix/Dry Conifer vegetation types. This vegetation type can almost always be found in areas that naturally accumulate a snow pack, particularly from snow drifting. Elevational ranges for this cover type are generally between 6,000 - 8,500 ft, and the average annual precipitation rates vary from 16-20 inches.

Mountain Shrub LHC (**Table 3-3**) is a result of its diversity, production, and the resiliency of plants to respond to disturbance. This vegetation type provides high quality browse, forage,

cover and berry producing habitat. Indicative shrubs of this vegetation type are: maple, western serviceberry, chokecherry, mountain mahogany, mountain snowberry, blue elderberry, and snowbrush ceanothus. Mountain sagebrush is often present. Common grasses present include: oniongrass, slender wheatgrass, spike fescue, Idaho fescue, and blue wildrye. Kentucky bluegrass, an exotic, is present and in most instances abundant. Common forb species found include: bigleaf balsamroot, tall cinquefoil, one flowered helianthella, arnica, leafy bluebells, lanceleaf springbeauty, and sticky purple geranium. Biological soil crust is a minor component of this vegetation type.

Risks to this vegetation type included potential weed invasion, tent caterpillars, and overgrazing by wildlife. Kentucky bluegrass will likely increase and crowd out more desirable native plants.

Restoration opportunities in this vegetation type following disturbances (natural or human caused) respond well due to the increased precipitation levels and would maintain forbs and shrubs for fruit harvesting and wildlife habitat.

3.2.5.4 Perennial Grass

The Perennial Grass vegetation type currently occupies approximately 64,600 acres (11 percent, **Table 3-2**) of the public lands in the planning area. It is generally found up to about 6,000 feet in elevation with precipitation varied, ranging from 8-16 inches annually.

Historically, this vegetation type formed part of the mosaic pattern of the Low- and Mid-Elevation Shrub and Mountain Shrub vegetation types, although it is unclear how widespread it may have been represented across the landscape. The Perennial Grass type is considered an intermediate stage in the Low-Elevation Shrub type. Perennial Grass would eventually develop as part of the Low-Elevation Shrub vegetation type if undisturbed by wildland fires and human activities.

Major species making up this vegetation type are: Idaho fescue, bluebunch wheatgrass, western wheatgrass, thickspike wheatgrass, Thurber's needlegrass, Sandberg bluegrass, and Indian ricegrass.

3.2.5.5 Seedings

Crested wheatgrass and intermediate wheatgrass seedings occupy approximately 42,100 acres (7 percent, **Table 3-2**) and are primarily found in the areas previously homesteaded and farmed in the Black Pine Valley, the south end of the Sublette Mountains, and the southwest portion of the North Hansel Mountains. Crested wheatgrass is a perennial, introduced grass from Asia, commonly seeded in the arid sections of the western US. Intermediate wheatgrass is an introduced perennial grass native to Europe and Asia (NRCS 2003). Both wheatgrass species are an uncharacteristic component of the Low-Elevation Shrub type. The annual precipitation for these areas range from 8 -12 inches in the lower elevations to 12 to 16 inches in the upper elevations. Elevation ranges from 4,455 feet to 5,700 feet.

Areas previously homesteaded and farmed disturbed the soils and native seedbank. Such lands reverted back to the BLM in the mid to late 1930’s and were seeded to provide livestock forage and stabilization of erosive soils. Under these conditions, it is unlikely that native understory

components would return to historic, pre-disturbance proportions. A small portion of these seedings were Emergency Stabilization and Rehabilitation (ES&R) projects due to wildland fire. Seedings have been combined with the Perennial Grass and Low-Elevation Shrub types as part of the discussion of Low-Elevation Shrub LHC.

The primary purpose of these seedings is to provide spring forage for livestock grazing and winter grazing for wildlife (NRCS 2003). These seedings, planted basically as a monoculture change very slowly. Species diversity remains very low with minimal forbs present in the interspaces. The vigor of these seedings increases with precipitation.

The condition of seedings is determined by the production or pounds per acre of biomass. The seedings in the drier areas or lower elevations are showing a downward trend due to the below normal precipitation the last 10 years. This is evidenced by the decreased vigor of plants and encroachment of other less desirable species. The seedings in the upper elevations, although not as productive appear to be stable.

Seeding longevity can be compromised when shrubs or invasive species begin to establish, resulting in reduced forage production. Increasing the shrub component increases species diversity. Opportunities to increase crested wheatgrass vigor and production exist by periodically removing brush species through restoration treatments such as fire. Maintaining healthy productive seedings which provides spring grazing would avoid future reductions in livestock grazing and provides winter grazing for wildlife, especially elk and habitat for Columbian sharp-tailed grouse.

3.2.5.6 Juniper

The Juniper vegetation type occupies about 25,700 acres (4 percent, **Table 3-2**) characterized by naturally occurring Utah juniper (approximately 14,400 acres) and encroached juniper (approximately 11,300 acres), which is found in the Mid-Elevation Shrub vegetation type. Rocky Mountain juniper also occurs, but is a minor component found in the Aspen/Aspen Conifer Mix vegetation type. Utah juniper typically occurs between 4,500 feet to 6,000 feet on a wide variety of soils within the 10- to 15- inch precipitation zone.

Juniper LHC (**Table 3-3**) is based solely upon the old-growth (naturally occurring) juniper found situated in fire-safe habitats on dry, stony outcrops along open ridges. Associated species often found on the naturally occurring juniper sites include black sagebrush, Indian ricegrass, bluebunch wheatgrass, needle-and-thread, prickly phlox, cryptantha, woollypod milkvetch, curl-leaf mountain mahogany, bitterbrush, and big sagebrush.

Juniper encroachment into the Mid-Elevation Shrub type has been largely caused by fire suppression at the expense of sagebrush-bunchgrass communities where wildland fire plays an important ecological role. Estimates suggest that juniper woodlands have increased 10-fold over the past 130 years throughout the Intermountain West (Miller and Tausch 2001). Juniper encroachment results in the loss of desirable understory species, reduced cover, increased interspaces between plants and increased potential of soil erosion.

Restoration of encroached Utah juniper through the use of prescribed fire, chemical or mechanical treatments would result in the improvement of understory vegetation, species

diversity, and wildlife habitat. In addition, these areas provide opportunities for making available fuelwood, posts and poles, and biomass products.

3.2.5.7 Dry Conifer

The Dry Conifer vegetation type occupies about 49,800 acres (8 percent, **Table 3-2**) of the public lands. The principal species is Douglas-fir. Douglas-fir occurs between 6,000 feet and 8,500 feet on variety soils in 20-inch to 30-inch precipitation zones. Douglas-fir can be found at lower elevations in canyons with enough moisture. Associated understory vegetation consists of elk sedge, aspen, choke-cherry, maple, limber pine, Oregon grape, snowberry, and pine grass.

Dry Conifer LHC has been combined with the Aspen/Aspen Conifer Mix type. LHC (**Table 3-3**) can be attributed to the lack of disturbance (e.g., wildland fire, timber harvest) and extended drought conditions. The lack of disturbance has resulted from overstocking (number of trees per acre) making this vegetation type more susceptible to insects and diseases thus contributing to its decline in ecological health.

The productivity and the health of stands could be enhanced through timber harvest, introducing prescribed fire and controlling noxious/exotic weeds.

3.2.5.8 Aspen/Aspen Conifer Mix

The Aspen/Aspen Conifer Mix vegetation type occupies about 40,500 acres (7 percent, **Table 3-2**) and is found between 5,500 feet and 8,000 feet on a variety of soils. It grows best in deep, moist, loamy soils in a range of precipitation zones (16 to 40-inches). Aspens occur in pure stands (approximately 34,100 acres) or in association with various conifers such as subalpine fir, lodgepole pine, Rocky Mountain juniper and Douglas-fir (approximately 6,400 acres). Associated understory vegetation consists of mallowleaf ninebark, sticky current, maple, elk sedge, pinegrass, blue wildrye, wheeler's bluegrass and snowberry.

In many aspen stands, conifer encroachment is a natural pattern, resulting in an increased dominance by conifer and reducing the extent of aspen-dominated stands. However, due to fire suppression, conifer encroachment into aspen stands is occurring at unnatural levels in the PFO area. There has been a loss of aspen stands with remaining stands being either reduced in size or having a loss of aspen stems per acre.

Aspen/Aspen Conifer Mix LHC has been combined with the Dry Conifer type. The LHC (**Table 3-3**) is similar to the Dry Conifer type where the lack of disturbance (e.g., wildland fire) and longer periods of extended drought have contributed to its decline in ecological health. Also, like Dry Conifer, this type is susceptible to insects, disease and noxious weeds which could contribute to the decline in ecological health.

Treating this vegetation type, through the use of prescribed fire, removal of the undesired conifer component, and control of noxious/exotic, could enhance the overall health, productivity and regeneration of Aspen stands.

3.2.5.9 Wet Cold Conifer

The Wet/Cold Conifer vegetation type occupies only about 700 acres (≤0.1 percent, **Table 3-2**) of the public lands in the PFO area. This vegetation type occurs in the colder, humid environment generally above the Dry Conifer vegetation type. This vegetation type is mainly dominated by lodgepole pine, but also can include subalpine fir and Englemann spruce.

Lodgepole pine generally occurs at 6,500 – 7,500 feet in 18- to 40-inch precipitation zones. Lodgepole is typically the first species to establish after disturbance in spruce-fir and Douglas-fir communities. Subalpine fir is found above 6,500 feet in the PFO area. Associated understory vegetation consists of quaking aspen, maple, mallowleaf ninebark, grouse whortleberry, elk sedge and pine grass.

Engelmann spruce occurs incidentally in the PFO area and can only be found in the eastern part of the planning area in Caribou County. Englemann spruce is shade-tolerant and the dominant early species for mixed species forests that include lodgepole pine, aspen, and Douglas-fir. Understory vegetation can vary from sparse to quite dense, and the associated understory vegetation may consist of quaking aspen, maple, arrowleaf groundsel, lady-fern, Canby's licorice-root, snowberry, mallowleaf ninebark, grouse whortleberry, elk sedge, and pine grass.

Wet/Cold Conifer LHC (**Table 3-3**) is a result of having an increased and thus unnatural stocking level (number of trees per acre). Under these conditions, trees become stressed and more susceptible to disease and insect infestations. Extended drought conditions in southeastern Idaho and the lack of natural disturbance (e.g., wildland fire) can also contribute to the declining health of this vegetation type. As a result, a desirable mix of LHCs that would contribute to the overall health of the vegetation type is lacking.

Depending on the type and size of timber harvest and implementation of restoration projects (e.g., prescribed fire), a desired mix of LHCs would be achieved to improve the health of the Wet/Cold type. Various forest products (commercial timber, post and poles, biomass) could be made available. Reduction in tree stocking level per acre would reduce the susceptibility to insect and disease and allow natural process to maintain the overall health of this vegetation type.

3.2.5.10 Riparian

Riparian areas can be defined as an area of land directly influenced by permanent water. The areas exhibit vegetation or physical characteristics that reflect permanent surface or subsurface water influence. Typical riparian areas include lands along, adjacent to, or contiguous with rivers, streams, springs, lakes and reservoirs. Dry washes and ephemeral streams that have not historically supported riparian vegetation are not usually included in the definition of riparian habitat (BLM 1990b).

Riparian vegetation is important for moderating stream temperatures, adding structure to the river/stream networks, dissipating energy, storing water for later release, providing infiltration for groundwater, and providing water, forage, cover, and rearing habitats for insects, fish and terrestrial animal species. Riparian areas in good health maintain water quality and aquifers, control erosion, diminish the impact of floods, and act as a stabilizing force. These areas have

the highest production of grasses and other palatable species, as well as the greatest biodiversity, providing habitat, drawing wildlife and livestock, and inviting human activity.

Of the 243 bird species breeding in Idaho, 113 (46%) use riparian habitat as nesting habitat. Many of the other 130 species also use riparian habitat as a source of water, as migratory corridors, or for other purposes. Of the 119 neotropical migratory landbirds, 68 (57%) use riparian habitat. Many of Idaho's mammals, amphibians, reptiles, fish, and mollusks also depend on riparian habitat for survival. Riparian forests are biologically diverse and productive systems compared to adjacent uplands (Knopf et al. 1988). Shrub riparian habitat, while lacking the tree layer of the forests, still tends to have higher avian diversity than the surrounding uplands, especially in arid and semi-arid areas.

Riparian areas are unique and one of the most productive vegetation types on public lands in the PFO area. The importance of riparian areas ecologically and hydrologically is disproportionate to their occurrence across the landscape.

There are about 139 stream miles that support riparian vegetation, occupying about 6,600 acres (1 percent, **Table 3-2**) of public lands. Riparian areas are managed, monitored and evaluated using the concept of proper functioning condition (PFC) as defined in Technical Reference 1737-15 (BLM 1998). Current PFO riparian area conditions are: 29 percent - Proper Functioning, 40 percent -Functional at Risk and 31 percent - Non-functional. Riparian areas are found at different elevations and precipitation zones and are found throughout the PFO area.

Riparian areas are generally described as scrub-shrub vegetation, emergent (herbaceous) vegetation, saline wetlands, and calcareous fens. **Table 3-4** characterizes the native vegetation and associated invasive/noxious and exotic species found within these four riparian types in the PFO area.

Table 3-4. Riparian Types, Characteristic Native Vegetation and Associated Invasive/Noxious and Exotic Species.

Riparian Types	Characteristic Native Vegetation	Associated Invasive/Noxious and Exotic Species
Scrub-shrub	Geyer's willow, Booth's willow, plane-leaf willow, red-osier dogwood, water birch, mountain alder, coyote, yellow, whiplash willow, and Douglas hawthorn.	Canada thistle, purple loosestrife, perennial pepperweed, leafy spurge, musk thistle, poison hemlock, reed canary grass, Kentucky bluegrass, orchardgrass
Emergent (Herbaceous)	Beaked sedge, water sedge, Nebraska sedge, soft-leaved sedge, hardstem bulrush, common spikerush, common cattail, reedgrass, reed canary grass, tufted hairgrass and mat muhly.	
Saline Wetlands	Saltgrass, goosefoot species, alkali muhly, akali bluegrass, alkali muhly, American bulrush, seacoast bulrush, basin wildrye, greasewood and red glasswort[1].	

Table 3-4. Riparian Types, Characteristic Native Vegetation and Associated Invasive/Noxious and Exotic Species.

Riparian Types	Characteristic Native Vegetation	Associated Invasive/Noxious and Exotic Species
Calcareous Fens	Slender sedge, beaked sedge, water sedge, common cattail, and hardstem bulrush, beaked spikerush and shrubby cinquefoil, brown moss, hoary willow[1] and green muhly[1].	

[1] Idaho BLM sensitive or watch plant species which are rare due to habitat loss and habitat specificity.

Riparian areas in the PFO have been altered or degraded resulting from human activities, OHV use, recreational activities, roads, livestock grazing and noxious/invasive weed introduction. These activities contribute to ground disturbance, increased sedimentation, creating conditions allowing for the increase of less desirable native species, elimination of desirable woody tree and shrub species, and compaction of associated soils. Dewatering (e.g., range improvements, irrigation diversions) has resulted in the reduction in coverage of riparian areas and an increase in undesirable species. Management of riparian areas is challenging in the PFO area due to intermingled and scattered land ownership patterns.

Riparian areas in the PFO are extremely resilient and respond quickly to changes in management. Management changes would support a wide variety of native plant species, maintaining/improving habitat for fish, birds and mammals, and beneficial uses for public use.

Wetlands provide habitat for a wide variety of fish and wildlife species, from small populations of narrow endemics to millions of migrating waterfowl and shorebirds. However, many historic wetlands have been lost or degraded. Introduced exotic fish have also altered the ecology of most wetlands, and invasive exotic plant species are a growing problem in many areas.

3.2.5.11 Other/Vegetated Lava

Other/Vegetated Lava includes: rock and barren lands, sand dunes, annual grass, salt desert shrub, and vegetated lava. There are about 16,600 acres of this vegetation type in the PFO area (2.8 percent, **Table 3-2**).

This vegetation type is largely devoid of vascular plants, but frequently supports mosses and lichens. A very small component of this vegetation type includes salt desert shrub vegetation that occurs in the southwest portion of the PFO area where precipitation is the lowest. Halophytes and succulent shrubs, which are saline-tolerant, characterize the Salt Desert Shrub vegetation type. Typical shrub species include: four-wing saltbush, winterfat, and greasewood. Common grasses include: Saltgrass, alkali sacaton, Indian rice-grass, and squirreltail. Goosefoot is typically the dominate forb in this vegetation type. Productivity is relatively low, as understory vegetation is naturally sparse. Biological crusts are usually present and cover most of the interspaces between shrubs. Annual grass (cheatgrass) portions of this vegetation type are a result of wildland or human caused fires. Cheatgrass can quickly invade Salt Desert Shrub without any disturbance.

A very small amount of annual grass (cheatgrass) (< 50 acres) and salt desert shrub (approximately346 acres) are grouped into this vegetation type.

3.2.5.12 Invasive/Noxious and Exotic Species

The productivity of public lands in the PFO area is in danger of being severely reduced by invasive/noxious weeds. Currently, it is unknown how many acres invasive/Noxious and exotic weeds occupy in the PFO area, but weeds can be found in all vegetation types. The twenty four invasive/noxious and exotic weeds that are currently a problem in the PFO area are listed in **Table 3-5**. This table shows the priority for each weed, its growth form and the available treatment options. New invasive/noxious and exotic weeds may be added to the list and prioritized for treatment if they are discovered on public lands and warrant treatment.

Table 3-5. Growth Form and Treatment Method for Priority Noxious and Invasive Weed Species.

Priority Number	Common Weed Name	Growth Form [1]	Treatment Method [2]
Noxious Weeds:			
1	Rush skeletonweed	P	1,11,111
2	Yellow star-thistle	P, SP	1,11,111
3	Jointed goatgrass	A	1
4	Buffalobur	A	1,11
5	Perennial pepperweed	P	1
6	Puncturevine (goathead)	A	1,11
7	Yellow toadflax	P	1
8	Poison hemlock	B	1,11
9	Diffuse knapweed	B, SP	1,11,111
10	Dyer's woad	B, SP	1,11,111
11	Spotted knapweed	B, SP	1,11,111
12	Leafy spurge	P	1,111
13	Perennial sowthistle	P	1
14	Russian knapweed	P	1
15	Dalmatian toadflax	P	1,111
16	Whitetop (hoary cress)	P	1,111
17	Black henbane	B	1,11
18	Hound's tongue	A, B	1,11
19	Scotch thistle	B	1,11
20	Field bindweed	P	1
21	Canada thistle	P	1,111
22	Musk thistle	A, B	1,11,111
Invasive Weeds:			
1	Tamarisk	P	1,11,111
2	Dame's rocket	B, SP	1,11
3	Bulbous bluegrass	P	1
4	Japanese brome	A	1
5	Cheatgrass	A	1
6	Bull thistle	B	1,11
7	Halogeton	A	1,11,111
8	Russian olive	P	1,11
9	Siberian elm	P	1,11
10	Kentucky bluegrass	P	111

[1] A-annual; B-biennial; P-perennial; SP-short-lived perennial

[2] 1-chemical; 11-mechanical; 111-biological

3.2.6 FISH AND WILDLIFE

The mission of the BLM is to manage habitat. Fish and wildlife populations are administered by the Idaho Department of Fish and Game (IDFG) or in the case of migratory species, the US Fish and Wildlife Service (USFWS).

The IDFG has developed management objectives for big game animals and worked with various federal agencies in setting and achieving these objectives. The current *IDFG White-Tailed Deer, Mule deer, and Elk Management Plan* (IDFG 1999) includes species status and management objectives and is designed to be reviewed and updated regularly. This plan divides the state into Analysis Areas.

The PFO area includes all or part of five Analysis Areas for mule deer, with most of the PFO area being covered by three Analysis Areas. Management objectives in these areas are based on threshold populations. When populations in trend areas (small portions of a unit surveyed annually) are less than threshold numbers the management objective is to restrict antlerless harvest, conversely, when trend area populations are above threshold values the management objective is to encourage antlerless harvest. Analysis Area 20 (Units 56, 70, 73, 73A) has a threshold value of 5,700 deer. Analysis Area 21 (Units 71 and 74) has a threshold value of 2,000 deer. Analysis Area 22 (Units 72, 75, 76, 77, 78) has a threshold value of 10,000 deer.

The PFO area includes all or part of five Analysis Areas for elk, with most of the PFO area in three Analysis Areas. The Bannock Zone (Units 56, 70, 71, 72, 73, 73A, 74) has a management objective of 510 – 745 cows and 125 – 165 elk. The Bear River Zone (Units 75, 77, 78) has a management objective of 400 – 600 cows and 80 – 120 bulls. The Diamond Creek Zone (Units 66A and 76) has a management objective of 1300 – 1960 cows and 400 – 600 bulls.

To facilitate the description and analysis of existing fisheries and wildlife resources within the planning area, species are discussed in terms of their association with the vegetation cover types described in *Vegetation Section 3.2.5*. In addition, because vegetation cover types often include an array of species, the discussion focuses on those wildlife species representative of the suite of species that use each vegetation type. However, many "generalists," or species which use multiple habitat types, are found throughout the PFO area. **Table 3-6** presents the wildlife species selected as representative of the aforementioned vegetation types.

Wildlife habitat management on the PFO area's public lands consists of maintaining and improving food, water, and cover for over 100 species of mammals, 214 species of birds, 32 species of fish, 13 species of reptiles, and 5 species of amphibians. Complete lists of these species are found in **Appendix N.** Data regarding the abundance and distribution of nongame species, fur-bearers, and predators are limited. Significant differences in habitat requirements exist between species, whereby good habitat conditions for one species may not meet adequate habitat conditions for another species. To maintain diverse, viable, and abundant populations of wildlife, a mosaic of biologically and structurally diverse habitat types is necessary.

Riparian zones are regarded as the most important habitats for wildlife, providing water and highly variable structural diversity. Aspen stands provide nest sites for cavity-nesting birds, in

Table 3-6. Vegetation Types by Acreage and Representative Wildlife Species.

Vegetation Type	Public Land Acres	Representative Wildlife Species
Low-Elevation Shrub	144,800	antelope, blue grouse, cottontail rabbit, Colombian sharp-tailed grouse, chukar, gray partridge, mourning dove, montaine vole, mule deer, ringneck pheasant, Rocky Mountain elk, greater sage-grouse, short-eared owl, Western meadowlark
Mid-Elevation Shrub	142,000	antelope, blue grouse, cottontail rabbit, Colombian sharp-tailed grouse, chukar, gray partridge, mule deer, Rocky Mountain elk, greater sage-grouse (representative species are the same for Mid-Elevation and Mountain Shrub)
Mountain Shrub	187,100	
Natural Juniper	14,400	cottontail rabbit, mountain lion, mourning dove, mule deer, Rocky Mountain elk
Aspen/Aspen Conifer Mix/Dry Conifer	40,500	black bear, blue grouse, moose, mountain lion, mule deer, Rocky Mountain elk, ruffed grouse (representative species are the same for Aspen/Aspen Conifer Mix and Wet/Cold Conifer)
Wet/Cold Conifer	700	
Riparian	6,600	black bear, blue grouse, cottontail rabbit, Colombian sharp-tailed grouse, chukar, ducks, geese, gray partridge, moose, mourning dove, mule deer, ringneck pheasant, pronghorn antelope, Rocky Mountain elk, greater sage-grouse, snipe

addition to providing forage and thermal and hiding cover for many other species (Dealy et al. 1981). Snag trees in aspen and conifer stands are essential to cavity-nesting nongame birds. Large, old, mature live trees provide a habitat component necessary to support many species of birds, bats, and other vertebrate and invertebrate species. These habitat features are found in variable amounts throughout the PFO area.

Idaho conservation effort, habitat conservation assessment, and conservation strategies have been prepared and are being implemented for 13 BLM sensitive species. These species occupy a variety of the upland, riparian, and aquatic habitats previously described. The goals, objectives

and proposed actions of these conservation agreements and strategies will be incorporated into the RMP by reference and are further discussed in *Special Status Species Section 3.2.7.*

3.2.6.1 Big Game

PFO area's resident big game animals typically move between spring/summer ranges and winter ranges annually. These animals are elk, mule deer, white-tailed deer, moose, pronghorn antelope, black bear, and mountain lion. Important habitat, essential to some aspect of the animal's life history, are typically winter range, calving, or fawning grounds and are tabulated for elk, mule deer, and pronghorn antelope. The acreage of those habitats on public lands is presented in **Table 3-7**. **Figure 3-5** shows winter range for big game animals in the PFO area.

Table 3-7. Big Game Habitat.

Species	On All Lands within Planning Area (acres)	On Public Lands within Planning Area (acres)
Elk	854,157	98,404
Mule Deer	944,412	188,082
Pronghorn Antelope	35,304	15

Source: BLM 2004b

Close proximity to water remains an important factor within spring, summer, and fall habitats and is provided by both natural sources (streams, lakes, springs, seeps) and artificial sources (stock watering ponds and tanks) throughout the PFO area. Year-long or spring-summer-fall elk ranges are present throughout the region at higher elevations wherever forested habitat and topography provide good security from roads, motorized trail, and other human activities. Major summer habitats preferred by elk include Aspen/Aspen Conifer Mix/Dry Conifer, Mountain Shrub, Mid-Elevation Shrub and Riparian vegetation types. The location of and scattered nature of public lands means that the amount of elk summer habitat managed by the BLM is minimal.

Elk winter ranges are found throughout the PFO area on mid- to low elevation mountain shrub, sagebrush, juniper, and mountain mahogany sites. Elk in southeast Idaho do not seem to have a fidelity to a particular winter range but may move among them from year to year (Ackerman et al. 1984).

Mule Deer

Mule deer populations are presently considered low, with current management direction focused on improving existing numbers. Current efforts by IDFG include improving habitat through cooperation with land management agencies and private landowners (IDFG 2004a). Preferred habitats are characterized by vegetation mosaics of of aspen and dry conifer or tall brush hiding cover, mixed with more open sagebrush, grass and bitterbrush foraging sites. Winter ranges are Natural Juniper, and Mid- to Low-Elevation Shrub vegetation types. Proximity to water is an important factor during spring, summer, and fall, which enhances deer dependency on riparian zones. Aspen stands provide an important required habitat component for fawning and fawn-rearing cover. Year-long or spring-summer-fall mule deer ranges are present throughout the region at higher elevations wherever forested habitat and topography provide good security from roads, motorized trails and other human activities. The lands shown in **Figure 3-5** are

considered winter range for both mule deer and elk. The IDFG has four Wildlife Management Areas (WMAs): Blackfoot River, Georgetown Summit, Portneuf, and Montpelier. The Blackfoot River WMA provides summer habitat for deer and elk. The Portneuf WMA and Montpelier WMA provide winter range for mule deer. Georgetown Summit WMA is important as elk winter range. The Portneuf, Montpelier, and Georgetown WMA's have public lands associated with them.

White-Tailed Deer

White-tailed deer in the PFO area are predominantly associated with major riparian areas, such as the Snake River, Blackfoot River, and the Gray's Lake area.

As Black (2004) indicated, white-tailed deer populations are rapidly expanding across their range, while mule deer populations have declined across the western US. White-tailed deer are displacing mule deer on several different ranges, including the eastern plains of Montana, Snake River plains in Idaho, Blackfoot Indian Reservation in Montana, and in many places throughout Canada.

White-tailed deer and mule deer often occupy the same habitats; have almost identical food preferences, and similar habitat preferences. However, white-tailed deer will out-compete mule deer for available resources, such as food and shelter, in most habitat types. The major difference between the two is that white-tailed deer tend to occupy their habitats year-round, where the mule deer migrate between summer and winter ranges. This allows mule deer to use higher elevation habitats that could not be occupied year-round.

Pronghorn Antelope

The pronghorn population provides limited hunting opportunities with its distribution primarily limited to those lands west of I-84. This small population is considered to be stable, with current Idaho Fish and Game management direction focused on improving or maintaining existing numbers. Pronghorn antelope make extensive use of sagebrush/grassland habitat types (e.g., Low- and Mid-Elevation Shrub cover types and Riparian cover types). Seasonal variations in snow distribution and depth influence antelope distribution on winter ranges, and this population can end up on the north shore of the Great Salt Lake during hard winters. During the spring/summer/fall, proximity to water is the major factor that influences pronghorn distribution.

Moose

Beginning in the late 1970s, moose populations in the PFO area are believed to have increased. Moose populations in the PFO area are considered to be stable, with management direction focused on improving or maintaining existing numbers. Generally, moose territories tend to be yearlong with elevation changes from winter to summer within the territory. Winter habitats are characterized by species found in the Mid-Elevation and Mountain Shrub vegetation types, such as serviceberry and willow. These species, interspersed with coniferous and deciduous trees, provide adequate winter forage and thermal cover requirements. Throughout the spring,

summer, and fall, moose use riparian habitat areas as well as the adjacent Aspen/Aspen Conifer Mix and Wet/Cold conifer vegetation types, which provide calving, foraging, and thermal cover.

Black Bear

Habitat loss and fragmentation and unrestricted harvest have significantly changed the distribution and abundance of black bears in North America since colonial settlement. Although bears have been more carefully managed in the last 50 years and harvest levels are limited, threats from habitat alteration and fragmentation still exist. Black bear populations are difficult to inventory and monitor because the animals occur in relatively low densities and are secretive by nature. Black bears are an important game species in Idaho, but, because bears have low reproductive rates, their populations recover more slowly from losses than do those of most other North American mammals (Vaughan and Pelton 1995).

Black bear distribution in Idaho corresponds closely to the distribution of coniferous forests. Vaughan and Pelton (1995) indicated that in Idaho the black bear population is somewhere between 20,000 and 25,000 animals, with a slightly decreasing population trend. In the PFO area, most bear habitat is found in the higher elevations of the national forests, including the Mountain Shrub, Wet Conifer, and Aspen/Dry Conifer cover types.

Mountain Lion

The mountain lion is usually associated with remote, rough topography and is generally a solitary animal. Its annual home range varies greatly in different areas. In Idaho, home ranges of males were from 54 to 230 square kilometers (km^2), while females had home ranges of 14 to 148 km^2. However, home ranges of up to 1,454 km^2 have been reported. Seasonal movements occurred within home range in response to prey movements; mountain lions moved farther in summer than in winter while hunting their prey, and some altitudinal movement was associated with ungulate movements and snows in winter (Idaho State University 2004a). Besides humans, mountain lions may face threats from other large predators such other lions, bears, and wolves.

The mountain lion relies heavily on mule deer, which may comprise up to 75 percent of their diet throughout the year. They also occasionally prey on livestock, primarily sheep and cattle. The mountain lion is managed as a game species in Idaho. Generally, mountain lions will be found where there are healthy deer populations in the PFO area.

3.2.6.2 Upland Game Birds and Small Game

The PFO area contains habitat for many small game and upland game birds that are of interest to hunters and outdoor enthusiasts alike. Much of the habitat for these species is found in the transition areas from public land to US Department of Agriculture, National Forest Service (Forest Service) land or public land to private land, particularly agricultural lands.

Upland Game Birds

The primary upland game species found on the public lands throughout the region are greater sage-grouse, Columbian sharp-tailed grouse, blue grouse, ruffed grouse, gray partridge, wild turkey, ring-necked pheasant, mourning dove, and chukar. Of those species, sage and Columbian sharp-tailed grouse are considered sensitive species and are further discussed in

Special Status Species Section 3.2.7. Mourning doves nest throughout the PFO area in most habitat types. Ring-necked pheasants exist in low numbers on public lands, primarily within the BLM/agriculture land interface.

Preferred blue grouse and ruffed grouse habitat is closely associated with Aspen/Aspen Conifer Mix/Dry Conifer, and Riparian vegetation types. Blue grouse winter in high-elevation timber, both on public lands and adjacent National Forests, where they feed on needles of Douglas fir and buds of both Douglas fir and aspen. Riparian areas are important for grouse for brood rearing due to the presence of insects, preferred forbs, and berry-producing shrub species. Additionally, herbaceous cover is an important component of brood-rearing habitat, directly affecting areas of use and brood survival (Harju 1974; Zwickel 1972).

The introduced chukar and gray partridge are present throughout the PFO area, occupying the Low and Mid-Elevation Shrub, and Riparian, vegetation types. While chukars are usually associated with rock outcrops, small cliffs, and talus rock adjacent to water sources, gray partridge are usually associated with flat terrain often within agricultural fields and adjacent native sagebrush habitats. Riparian habitats adjacent to rocky escape cover are important brood rearing areas, providing insects, water, and preferred forb species.

The IDFG has released both the Merriam's and Rio Grande wild turkeys in various locations of the PFO planning area. Preferred habitats include Riparian zones and adjacent upland (Low-Elevation Shrub and Mid-Elevation Shrub vegetation types) or agricultural habitats. The public lands along river corridors were the sites for the original introductions because they provided the most habitat requirements, especially roosting and escape cover. The original introduced populations have since expanded into several different and apparently suitable habitats, ranging in elevation up to the aspen and conifer habitats.

Small Game

Cottontail rabbits are present in variable numbers throughout the region, inhabiting many of the Low-Elevation Shrub and Riparian areas. There are some historical records in the PFO area for pygmy rabbits, a BLM sensitive species. Documentation of two active burrows for this species exists in Bear Lake County as recently as 2002 (Roberts 2003; Idaho Conservation Data Center 2004). The IDFG has had hunting seasons on the pygmy rabbit, but the season was closed in 2002. Pygmy rabbits are further discussed in *Special Status Species Section 3.2.7.2.*

The snowshoe hare typically lives in forested areas and is not very common on public lands. In the summer it has a thin brown coat, which changes to a heavy white coat in winter. Hares feed on grasses, forbs, shrub shoots, tree bark, woody twigs, and tree buds from aspen, willow, and maple, which are found in aspen, conifer, and higher elevation riparian habitats. Many species prey on snowshoe hare, including coyotes, foxes, bobcats, great horned owls, and larger hawks. In addition to the small game species previously mentioned, IDFG maintains a season for the American crow.

3.2.6.3 Other Animals

The categories below are defined by regulations published by IDFG.

Fur-Bearers

Beaver, mink, muskrat, otter, and raccoon depend on aquatic or riparian habitats. Bobcats tend to be found in various habitats in hilly or rugged country, often associated with extensive cliffs or rock outcrops. Red fox occupy the more extensive and varied upland habitat types. Badgers are found throughout the Low-Elevation Shrub habitats, where ground squirrels and other rodents are prevalent.

Predatory Wildlife

Animals that the IDFG classifies as predators in Idaho include coyotes, jackrabbits, skunks, weasels, and starlings, all of which are found in a variety of habitats in the PFO area (State of Idaho 2005). Coyotes occupy most habitat types throughout the region and are considered extremely opportunistic in prey selection.

Unprotected Wildlife

Of the species found in the PFO area, IDFG considers marmots, fox squirrels, porcupines, Uinta ground squirrels, English sparrows, and feral pigeons as unprotected wildlife, meaning that these species can be harvested at any time and in any number with a valid hunting license.

Protected Nongame Wildlife

The following nongame wildlife species found in the PFO area are protected by Idaho law: bison, red squirrels, wolverines, chipmunks, golden-mantled ground squirrels, rock squirrels, pikas, northern flying squirrels, rattlesnakes, migratory song birds, hawks, owls, eagles, and vultures. All native bats, reptiles and amphibians are protected by Idaho Department of Fish & Game Commission Rule. Any bison most likely would have escaped from domestic herds, but all the rest could be seen in various habitats throughout the region.

Bats

All Idaho bats feed on insects and use a wide variety of habitat for foraging and roosting, ranging from caves and cliffs to conifer trees. Some bats hibernate in Idaho during winter, whereas others migrate to warmer regions (Idaho State University 2004b). Of the 14 species of bats found in Idaho, 10 have been found in the PFO area throughout most habitat types (**Appendix N**). Only the Townsend's big-eared bat is considered sensitive by the BLM.

Raptors

The raptors that spend all or part of the year in Idaho include 13 species of owls, one species of vulture, and 18 species of hawk-like birds, including falcons, eagles, buteos, accipiters, harriers, and osprey (BLM 2004c). All of the aforementioned species of raptors are found in various habitats in the PFO area and are included on the list in **Appendix N**.

Raptor nesting habitat in the PFO area includes cliff-nesting sites used by golden eagles, prairie falcons, peregrine falcons, and red-tailed hawks. Wet/Cold and Aspen/Aspen Conifer Mix vegetation types, and associated riparian areas (containing mature cottonwood trees) are used by forest hawks, including northern goshawks, Cooper's hawks, and sharp-shinned hawks, as well

as many of the owl species and bald eagles. Low-Elevation Shrub communities are where the burrowing owls are found and cliffs or promontories near these habitats are used as nesting sites by ferruginous hawks. Artificial nest platforms and power poles near riparian areas provide nesting sites for osprey, although none are currently located on public land. Those species that the BLM considers sensitive (goshawks, ferruginous hawks, and peregrine falcons) are further discussed in the special status species section of this document.

3.2.6.4 Migratory Birds and Other Birds of Conservation Concern

Migratory birds include a number of species that spend the winter in the southern latitudes and fly north to nest and fledge their young in the summer. Some migrate as far as from the Arctic Circle to the southern tip of South America. Others may only move from Idaho to Arizona. Migrants vary in size from hawks to hummingbirds.

Appendix N contains a list of species known to occur within the PFO area, which are protected by the Migratory Bird Treaty Act. Most of these species are waterfowl and neotropical migrants, but the list also includes species such as gulls, owls, and hawks. Within the PFO area the Audubon Society and Bird Life International have recognized American Falls Reservoir, Bear Lake NWR, Mink Creek/Cherry Springs Nature Area, Curlew Valley, Oxford Slough, Bowen Canyon Bald Eagle Sanctuary ACEC, and the Blackfoot Reservoir as Important Bird Areas (IBAs).

Waterfowl

Throughout the PFO area, numerous species of waterfowl inhabit wetlands, riparian areas and reservoirs. These areas provide nesting, brood rearing and spring/fall migration habitat. Additionally, some important seasonal habitat for a variety of shorebird species is found in the mudflats around the major reservoirs. Some of the more important areas providing habitat for waterfowl and shorebirds include American Falls Reservoir, Hawkins Reservoir, Blackfoot River and reservoir, the Bear River and Oneida Narrows Reservoir, and the Chesterfield Reservoir, as well as wildlife refuges managed by the USFWS.

Neotropical Migrants

This group of birds includes those most familiar to people, such as warblers, hummingbirds, sparrows, and most hawks. Because this group is so large, the natural history and habitat of each of its members will not be discussed here.

All of these species depend on quality habitats containing adequate nesting substrate with sufficient cover to hide the female on the nest, diverse vegetation to supply insects during brood rearing, and seeds or fruits, for those that eat them, for the remainder of the year.

The Idaho Bird Conservation Plan describes the most important habitats, which were prioritized by looking at the number of birds that use a habitat as primary breeding habitat and by the numbers of high priority birds that use the habitats (Idaho Partners in Flight [IPIF] 2000). The IPIF also considered the loss of habitat in quantity and quality, including the area of habitat within the state, management status and whether that habitat area provides moderate to good protection from degradation. Based on these criteria, IPIF identified their priorities as riparian,

nonriverine wetlands, sagebrush, and ponderosa pine. Of the public lands covered in this plan, none are ponderosa pine, and there is not a significant amount of nonriverine wetlands.

3.2.6.5 Reptiles

Fifteen species of reptiles, including seven lizards and eight snakes, are found in various habitats in the PFO area (**Appendix N**) (Idaho State University 2004c).

The sagebrush lizard is a common species associated with shrub communities and juniper woodland. It is a ground dweller that prefers open ground with low shrubs and rocks where it retreats when threatened. It feeds on insects (Stebbins 1985). This species is still common but faces the same risks that other animals associated with diminishing sagebrush habitat face.

Two species of garter snakes occur throughout Idaho in many habitats, including grassland and wooded areas. However, they prefer moist habitats near riparian areas, lakes, or damp meadows. They feed on toads, frogs, fish, salamanders, small mammals, earthworms, slugs, leeches, and insects. While still seen, they don't seem to be as abundant as they have been in the past (Stebbins 2003).

3.2.6.6 Amphibians

Most amphibians have complex life cycles (adults, eggs, and larvae that metamorphose into juveniles) that require habitats with standing/still water for at least part of the year (Idaho State University 2004d). One salamander, two toads, and two frogs are found in the PFO area (**Appendix N**). The boreal subspecies of the Western toad and the northern leopard frog are sensitive species and are discussed in *Special Status Species Section 3.2.7*.

3.2.6.7 Fish

All of the fisheries resources are found in the riparian or other category (rivers, lakes, reservoirs) as previously identified. Of the numerous streams within the PFO area, many are ephemeral or very small and are either fishless or support only a limited sport fishery. Approximately 124 stream miles within the PFO area contain a sport fishery. However, the PFO area provides habitat for a very diverse fishery community, consisting of 18 native species and 14 nonnative (introduced) species. **Table 3-8** identifies the distribution and their regulatory status, if applicable, of these fish species.

Warm Water Fish Species

Most of the irrigation reservoirs have been stocked with warm water sport fish, sometimes illegally. Most of these introduced populations have remained in or near the reservoirs where conditions are conducive to their reproduction. With the small amount of public land on these reservoirs, the BLM has little influence on the condition of these fisheries.

Cold Water Fish Species

All of the native species occurring in the PFO area are considered cold water fish. Many are nongame species, such as the small and inconspicuous dace and sculpins, or fairly large, like the suckers.

Table 3-8. Fish Species within the Planning Area[1].

Common Name	Scientific Name	Native or Nonnative	Probable Distribution	Regulatory Status[2]
Bonneville cutthroat trout	*Oncorhynchus clarki utah*	Native	Bear River drainage	Type 2
Bear Lake cutthroat trout	*O. clarki* spp.	Native	Bear Lake	Type 2
Rainbow trout	*O. mykiss*	Nonnative	All drainages	
Yellowstone cutthroat trout	*O. clarki bouvieri*	Native	Snake, Blackfoot, Portneuf drainages	Type 2
Brown trout	*Salmo trutta*	Nonnative	Portneuf and upper Snake Rivers	
Brook trout	*Salvelinus fontinalis*	Nonnative	All drainages	
Lake trout	*S. namaycush*	Nonnative	Bear Lake	
Mountain whitefish	*Prosopium williamsoni*	Native	All drainages	
Bear Lake whitefish	*Prosopium abyssicola*	Native	Bear Lake	Type 2
Bonneville whitefish	*P. spilonotus*	Native	Bear Lake	Type 2
Bonneville cisco	*P. gemmiferum*	Native	Bear Lake	Type 2
Channel catfish	*Ictalurus punctatus*	Nonnative	Bear River, Malad River, Snake River	
Brown bullhead	*I. nebulosus*	Nonnative	American Falls Reservoir	
Bluegill	*Lepomis macrochirus*	Nonnative	Irrigation reservoirs	
Green sunfish	*L. cyanellus*	Nonnative	Irrigation reservoirs	
Black crappie	*Pomoxis nigromaculatus*	Nonnative	Irrigation reservoirs	
Largemouth bass	*Micropterus salmoides*	Nonnative	Irrigation reservoirs	
Smallmouth bass	*M. dolomieui*	Nonnative	Bear River, Snake River	
Yellow perch	*Perca flavescens*	Nonnative	Irrigation reservoirs	
Walleye	*Stizostedion vitreum*	Nonnative	Bear River drainage south of Oneida	
Carp	*Cyprinus carpio*	Nonnative	All drainages	
Leatherside chub	*Gila copei*	Native	Tygee Creek	Type 3
Utah chub	*G. atraria*	Native	All drainages	
Longnose dace	*Rhinichthys cataractae*	Native	All drainages	
Speckled dace	*R. osculus*	Native	All drainages	
Redside shiner	*Richardsonius balteatus*	Native	Willow Creek, Portneuf River, Bear River	
Utah sucker	*Catostomus ardens*	Native	All drainages	
Mountain sucker	*C. platyhynchus*	Native	All drainages	
Bluehead sucker	*C. discobolus*	Native	Portneuf River, Bear River	
Mottled sculpin	*Cottus bairdi*	Native	Snake River, Portneuf River, Bear River	
Bear Lake sculpin	*C. extensus*	Native	Bear Lake	Type 2
Piute sculpin	*C. beldingi*	Native	All drainages	

[1]PFO area includes the Bear, Portneuf, Blackfoot, and parts of the Snake and Salt River drainages, as well as part or all of the Willow, Rock, and Bannock Creek drainages.
[2]BLM Type Classification (**Appendix O** for detailed definition)
Type 1 Federally listed, proposed, and candidate species
Type 2 Rangewide/globally imperiled species
Type 3 Regional/state imperiled species
Type 4 Peripheral Species
Type 5 Watch list species

Seven species of trout are found in the PFO area (**Table 3-8**). The most common of these are introduced rainbow trout, which are fairly ubiquitous and have been stocked in most streams, rivers, lakes, and reservoirs, where habitat conditions are favorable. Brook trout and brown trout are locally common in many of these cold water habitats. Lake trout are stocked only in Bear Lake.

The BLM considers three trout species as sensitive: Bonneville, Bear Lake, and Yellowstone cutthroat trout. Bonneville cutthroat trout are native to and found in the Bear River watershed (Simpson and Wallace 1982; Kershner 1995). Bear Lake cutthroat trout are limited to Bear Lake. Yellowstone cutthroat trout are native to the Snake River watershed, which includes Willow Creek, Blackfoot River, Portneuf River, and Bannock Creek (Forest Service 1996). Additional discussion, including probable distribution and brief life histories, is found in *Special Status Species Section 3.2.7*.

Generally, in the PFO area, stronger native salmonid populations (cutthroat trout) are associated with higher-elevation forested lands; here, densities generally decline as road densities increase. Analysis of extensive Forest Service and other agency stream inventory data reveals that major decreases in pool habitat (depth and frequency) have occurred basin-wide over the last forty to sixty years. These decreases are attributed to losses in riparian vegetation, road and highway construction, timber harvest, grazing, farming, and other disturbances. The losses appear to be greatest in low-gradient, biologically productive areas, which are primarily found in lower watersheds on privately owned lands. This results in populations that are often isolated from the main rivers; they are isolated from the rest of the population by irrigation diversions or degraded habitats caused by agricultural or other uses (Forest Service 1996). The long-term health and continued survival of native cutthroat trout depend on maintaining or improving riparian conditions and connecting isolated populations to ensure continued gene flow throughout the population as a whole.

Bear Lake Fisheries

A unique fishery in the PFO area is Bear Lake. It contains the endemic fish species Bonneville cutthroat trout, Bear Lake whitefish, Bonneville whitefish, Bonneville cisco, and Bear Lake sculpin. Though there are no public lands on the lakeshore itself, most of the streams and drainages feeding the lake pass through at least some public lands. BLM only indirectly influences this fishery by ensuring that the water quality of the streams leaving public lands meets State of Idaho criteria for cold water biota.

3.2.7 SPECIAL STATUS SPECIES

BLM special status species includes those species officially listed, proposed for listing, or candidates for listing as threatened or endangered under the Endangered Species Act of 1973 (ESA); species listed by the IDFG as endangered or threatened or species of special concern; and species designated by the BLM State Director as sensitive.

BLM policy includes a commitment to conserve federally listed and proposed threatened or endangered species and the habitats on which they depend and a commitment to manage other special status species so that BLM actions do not contribute to a need to list these species. The BLM is required to consult with the USFWS on potential impacts on federally listed plant and animal species. The USFWS also suggests the BLM consult with them informally when assessing projects that may affect candidate species. BLM actions will also be consistent with the Idaho Standards for Rangeland Health and the Interior Columbian Basin Ecosystem Management Project.

BLM sensitive species are designated by the State Director under 16 USC 1536 (a)(2). BLM Manual 6840 (Special Status Species Management) requires that sensitive species be managed so they would not need to be listed as proposed threatened or endangered, with the same level of protection as candidate species. Sensitive species is a BLM classification equivalent to IDFG's species of special concern. An agreement between the BLM and IDFG makes these two lists identical.

In 2003, the BLM established special status species protocols to provide a framework for identifying species that are at risk of extinction over all or a significant portion of their range and occur on public lands in Idaho. These protocols were modeled after a similar protocol developed by Region 1 of the Forest Service and rely on an international system for ranking species imperilment originally set up by the Nature Conservancy for the Natural Heritage Programs and Conservation Data Centers in North and South America (CDC Network). Two slightly different protocols were developed for plants and animals. Both protocols include five ranking types. These ranking types are summarized in **Table 3-9** below and are described in detail in **Appendix O**.

Table 3-9. Table BLM Special Status Species Ranking.

Type	Vegetation Category	Wildlife Category
1	*Threatened, Endangered, Proposed, and Candidate Species*	*Threatened, Endangered, Proposed, and Candidate Species*
2	*Rangewide/Globally Imperiled Species – High Endangerment*	*Rangewide/Globally Imperiled Species*
3	*Rangewide/Globally Imperiled Species – Moderate Endangerment*	*Regional/State Imperiled Species*
4	*Species of Concern*	*Peripheral Species*
5	*Watch List*	*Watch List*

In addition to the BLM special status species rankings, Idaho BLM uses other sources of information and criteria to help better define trends and threats for rare plant species, including the Idaho Native Plant Society's ranking system and the USFWS "Listing Priority Ranking

Table." Status of all rare plant species are reviewed and updated at the annual Idaho Rare Plant Conference, and the BLM sensitive plant list is updated annually consistent with the results of the conference.

3.2.7.1 Federally Threatened, Endangered, and Candidate Species

Vegetation

There are no federally threatened, endangered, or candidate plants known to occur in the PFO area.

Fish and Wildlife

Three federally listed species may be present in the PFO area and are listed in **Table 3-10.** The following are brief narratives regarding the four federally listed species.

Table 3-10. Federally Listed Species in the Pocatello Field Office Area.

Species	Habitat	ESA Status[1]	Idaho[2]
Mammals			
Gray wolf *(Canus lupus)*	Low-, Mid-Elevation, and Mountain Shrub, Dry Conifer, Wet/Cold Conifer, and Riparian.	EXP	E
Birds			
Bald eagle *(Haliaeetus leucocephalus)*	Dry Conifer, Aspen-Conifer, Mountain Shrub), and Riparian	T	E
Invertebrates			
Utah valvata snail *(Valvata utahensis)*	Riparian. Found only in the Snake River.	E	

[1]Federal ESA Status: E = Endangered; T = Threatened; C = Candidate for listing as T or E; EXP = Experimental Nonessential Population.

[2]See **Appendix O** for description of status/category rankings.

Source: IDFG 2005

Gray Wolf

This species is considered an experimental nonessential population within the PFO area. None of the PFO area provides habitat suitable for wolves because the number of roads and the amount of livestock grazing that are found within its boundaries would make large-scale conflict inevitable. Little opportunity exists for changing this circumstance because of the scattered pattern of public land. There is no officially documented occurrence of wolves actually occupying habitat in the PFO area, but at least two wolves that were apparently transients have been killed. They are believed to be from the experimental wolf packs that have been released in Yellowstone National Park. Since the Yellowstone release efforts of 1995 and 1996, wolf sightings on public lands within field offices surrounding Yellowstone Park have increased.

Bald Eagle

This species is federally listed as threatened. Bald eagle seasonal habitat occurs throughout the PFO area, with most nesting, brood rearing, and winter habitat occupations occurring along the Bear River. Four active nest sites occur on or near public lands. The Bowen Canyon Bald Eagle Sanctuary ACEC was designated to protect a winter roost on public land 10 miles south of American Falls. In the past ten years the number of nesting eagles has increased in the PFO area. With the management guidelines in place, the continued expansion of this population is highly likely.

Utah Valvata Snail

The Utah valvata snail is generally associated with cold, clean, well-oxygenated flowing waters in the mainstream Snake River and perennial flowing waters in large spring complexes (USFWS 1995). This species, like the other listed Snake River mollusks, is generally intolerant of turbid waters and pollution, although it can tolerate slower-flowing environments with silty vegetated substrate better than the other mollusks (USFWS 1992). The US Department of the Interior, Bureau of Reclamation (BOR) (2004) reported the Utah valvata snail appears to be a generalist and not a specialist.

The USFWS (2005) reported that the Utah valvata snail is generally found in shallow shoreline areas and in pools adjacent to rapids. This species appears to avoid areas with heavy currents or rapids, as well as areas subject to large daily or seasonal fluctuations (USFWS 1992; USFWS 2005). The species prefers well-oxygenated areas of clean, non-reducing limestone mud or mud-sand substrate among beds of submergent aquatic vegetation, notably Chara sp. (BOR 2004; USFWS 2005).

Utah valvata snails graze on diatoms, periphyton, aquatic plants or other sessile organisms, and dead and decaying plant and animal debris. This species is believed to have a maximum longevity of two years, although most are believed to survive only a single year. Eggs are likely laid in masses during the period March to June and are generally attached to macrophytes near the substrate (USFWS 1992; BOR 2004).

3.2.7.2 BLM Sensitive Species

Vegetation

Currently there are seven sensitive plant species known to occur in a variety of vegetation communities across the planning area. Two sensitive species are suspected to occur in the PFO area. These plants, their status, and a general description of their habitat types are listed in **Table 3-11**. Considering the limited acreage of special status flora habitat in the planning area acreage has been rounded to the nearest acre.

Table 3-11. Sensitive Plant Species Known or Suspected to Occur in the Pocatello Field Office Area.

Sensitive Species	Vegetation Type	BLM Status[1]	GRANK/ SRANK/INPS Category[1]
Species Known to Occur			
Alderleaf mountain mahogany (*Cercocarpus montanus)*	Shrub Steppe Complex (Mountain Shrub), Juniper, Aspen/Aspen Conifer Mix	Type 3 sensitive	G5/S2/SP1
Cooper's hymenoxys (*Hymenoxys cooperi* var. *canescens*)	Shrub Steppe Complex (Mid-Elevation Shrub/Mountain Shrub)	Type 4 sensitive	G4G5/S1/S
Hoary willow (*Salix candida*)	Riparian	Type 4 sensitive	G5/S2/S
Iodinebush (*Allenrolfea occidentalis*)	Riparian	Type 3 sensitive	G4/S1/SP2
Red glasswort (*Salicornia rubra*)	Riparian	Type 4 sensitive	G5/S2/S
Silky cryptantha (*Cryptantha sericea*)	Shrub Steppe Complex (Mid-Elevation Shrub)	Type 3 sensitive	G4/SNA/SP1
Starveling milkvetch (*Astragalus jejunus* var. *jejunus*)	Shrub Steppe Complex (Mid-Elevation Shrub)	Type 2 sensitive	G3T3/S2/GP3
Species Suspected to Occur			
Idaho sedge (*Carex idahoa*)	Riparian	Type 2 sensitive	G4T2/S2/GP2
Meadow milkvetch (*Astragalus diversifolius*)	Riparian	Type 3 sensitive	G3/S2/GP2

[1]See **Appendix N** for definitions.
Source: BLM Survey Data and Idaho Conservation Data Center

Alderleaf mountain mahogany

Alderleaf mountain mahogany is a shrub that prefers well drained soils and can occur in a wide variety of shrub and juniper vegetation types. In the PFO area alderleaf mountain mahogany is known from a single occurrence on approximately 1 acre of public land in the Yago Creek drainage of the Portneuf Range. Alderleaf mountain mahogany can be killed by fire and wildfire is the primary threat to the Yago Creek occurrence. There is potential habitat throughout the planning area and more inventories are needed to determine the range of this species in Idaho.

Cooper's Hymenoxys

Cooper's hymenoxys can often be found on windswept ridges, hills, and benches (above 6,000 ft) and occupies approximately 29 of public land. This species is generally associated with black sagebrush, bluebunch wheatgrass, and Simpson's hedgehog cactus. Currently, there are four known occurrences of Cooper's hymenoxys in the planning area. Three occurrences are in the Pleasantview Hills and one is in the Deep Creek Range (BLM no date). Establishment of roads, trails, firebreaks, and range improvements (e.g., pipelines, troughs, fences) and other surface disturbances are threats to Cooper's hymenoxys. There is potential habitat of this species in the

Deep Creek and Sublette Ranges, Samaria Mountain, and Pleasantview Hills. Avoiding or restricting motorized vehicle use, the establishment of firebreaks, range improvement, and other surface disturbances in habitat would contribute towards conserving Cooper's hymenoxys in Idaho.

Hoary Willow

Hoary willow has a close affinity with calcareous fens, but can also grow in wet, hummocky, swamps and meadows. Hoary willow is known from two occurrences and occupies approximately 42 acres. Approximately 32 acres of hoary willow habitat can be found along the Blackfoot Reservoir near Henry Idaho, and approximately 10 acres of habitat can also be found in the large wetland complex just west of the Aspen Range. Habitat along the Blackfoot Reservoir occupies the public land withdraw for the Fort Hall Irrigation Project and the BLM and Bureau of Indian Affairs (BIA) share land management authority. Excessive livestock grazing, agricultural conversions, establishment of roads and trails, and alterations to natural floodplain dynamics are threats to hoary willow. Potential habitat of this species can be found in Caribou and Bingham Counties. Management actions designed to improve the condition of riparian areas, limit motorized vehicle use, and maintain natural floodplain dynamics are needed to conserve hoary willow in Idaho.

Iodinebush & Red glasswort

Iodinebush and red glasswort are succulent forbs that prefer to grow in moist saline and/or alkali flats. They are often associated with saltgrass, goosefoot, and other halophytes. Iodinebush and red glasswort are known from two occurrences near the Malad River in the Malad Valley on approximately 76 acres of public land. Red glasswort is also known from a small occurrence on approximately 2 acres of public land in the Stump Creek drainage of Caribou County. Primary threats of iodinebush and red glasswort are alterations to natural floodplain dynamics, establishment of roads and trails, and noxious/invasive weeds. Closing occupied habitat of these species to cross-country travel by motorized vehicles and the maintenance of natural floodplain dynamics would contribute to the conservation of these Sensitive Plants on public lands. Control of noxious/invasive weeds in and near habitat would also provide long-term maintenance of habitat.

Silky cryptantha & Staveling milkvetch

Silky cryptantha and starveling milkvetch grow on barren hills of loose soil and are often associated with low growing sagebrush, cushion forb, and bunchgrass species. They are also almost always growing in association with each other. Eight occurrences of silky cryptantha and starveling milkvetch are known on the Bear Lake Plateau and Sheep Creek Hills of Bear Lake County. These two plant species are known to occupy approximately 168 acres of public land. Habitat is primarily threatened by mineral (e.g., Oil & Gas, stone, and gravel) development activities, establishment of roads and trails, excessive livestock use, surface disturbing actions, rights-of-way (ROW) and fire suppression (firebreaks) activities. Avoiding or restricting surface disturbing activities and adjustments to livestock grazing management are needed to conserve these species in Idaho.

Idaho Sedge (Suspected)

Idaho sedge is herbaceous perennial that has the potential to occur on public lands in Caribou, Bannock and Bingham Counties. Idaho sedge prefers moist calcareous meadows and is often associated with a diversity of grasses and forbs. Areas with potential habitat should be inventoried to determine if this species occurs on public lands.

Meadow milkvetch (Suspected)

Meadow milkvetch prefers to grow in alkaline sedge dominated meadows. Potential of habitat of Meadow milkvetch exists in Caribou and Bingham Counties. Areas with potential habitat should be inventoried to determine if this species occurs on public lands.

Watch List Plant Species

There are eight plant species listed on the Watch List (**Table 3-12**) that are either known or suspected to occur in the planning area. Plants listed on the Watch List are species that may be of conservation concern in Idaho, but lack sufficient information to base a recommendation regarding their appropriate classification. Watch List species are not considered Sensitive Species and associated Sensitive Species guidance does not apply. However, the Watch List includes species that may be added to the Sensitive Species List depending upon inventory and monitoring updates and/or changes of conservation status.

Inventory and monitoring of species listed on the Watch List is needed to determine an appropriate classification of conservation status in Idaho.

Table 3-12. Watch List Plant Species and Associated Vegetation Types.

Scientific Name	Common Name	Vegetation Type
Aspicilia fruticulosa	Rimmed lichen	Shrub Steppe Complex (Low- and Mid-Elevation Shrub)
Carex occidentalis	Western sedge	Shrub Steppe Complex (Mountain Shrub); Aspen/Aspen Conifer Mix; Riparian; and Dry Conifer
Carex tumulicola	Foothill sedge	Shrub Steppe Complex (Mid-Elevation Shrub/Mountain Shrub), Aspen/Aspen Conifer Mix, and Riparian
Cymopterus ibapensis	Ibapah springparsley	Shrub Steppe Complex
Juncus hallii	Hall's rush	Riparian
Muhlenbergia glomerata	Spiked muhly	Riparian
Muhlenbergia racemosa	Marsh muhly	Riparian
Pediocactus simpsonii	Simpson's hedgehog cactus	Shrub Steppe Complex (Low- and Mid-Elevation Shrub, Mountain Shrub), Juniper

Source: BLM Survey Data, Idaho Conservation Data Center, and Idaho Native Plant Society.

Fish and Wildlife

Habitat Conservation Efforts

Idaho conservation effort, habitat conservation assessment and conservation strategies have been prepared or are currently being implemented for the following BLM special status species with the potential to occur on the PFO area: Townsend's big-eared bat *(Corynorhinus townsendi),* trumpeter swan *(Cygnus buccinator),* northern goshawk *(Accipiter gentilis),* Columbian sharp-tailed grouse *(Tympanuchus phasianellus columbianus),* greater sage-grouse *(Centrocercus urophasianus),* Bonneville cutthroat trout *(Oncorhynchus clarki utah),* Yellowstone cutthroat trout *(O. clarki bouveri),* and leatherside chub *(Gila copei).* These species occupy a variety of the upland, riparian, and aquatic habitats found in the PFO area.

The goals, objectives, and proposed actions of these conservation agreements and strategies will be incorporated into the RMP by reference, and the PFO area will remain actively involved in implementing them. All parties to these agreements recognize that they each have specific statutory responsibilities that cannot be delegated, particularly with respect to the management and conservation of fish and wildlife, their habitats, and the management, development, and allocation of water resources. Nothing in these agreements or strategies is intended to abrogate any of the BLM's land management responsibilities. There may not be statutory authority to implement all actions, but signatories have authority to coordinate with agencies with those specific statutory responsibilities. **Table 3-13** lists BLM sensitive fish and wildlife species and their status. High profile sensitive species are discussed in the following brief narratives.

Table 3-13. BLM Listed Sensitive Fish and Wildlife Species in the Pocatello Field Office Area.

Species	Habitat	BLM Status[1]	Idaho[1]
Mammals			
Pygmy rabbit *(Brachylagus idahoensis)*	Low- and Mid-Elevation Shrub	Type 2 sensitive	SC
Townsend's big-eared bat *(Corynorhinus townsendii)*	All habitats in PFO area near water. Bats forage over riparian areas but need appropriate roosting habitat, such as nearby cliffs, rocks, snags, and cave features	Type 3 sensitive	SC
Cliff chipmunk *(Tamias dorsalis)*	Low- and Mid-Elevation Shrub, especially in rocky areas	Type 4 sensitive	SC
Kit fox *(Vulpes velox)*	Low- and Mid-Elevation Shrub	Type 4 sensitive	SC
Uinta chipmunk *(Tamias umbrinus)*	Mid-Elevation and Mountain Shrub and Dry Conifer	Type 4 sensitive	SC
Birds			
Greater sage-grouse *(Centrocercus urophasianus)*	Low- and Mid-Elevation Shrub, Mountain Shrub, and Riparian	Type 2 sensitive	

Table 3-13. BLM Listed Sensitive Fish and Wildlife Species in the Pocatello Field Office Area.

Species	Habitat	BLM Status[1]	Idaho[1]
American white pelican *(Pelecanus erythrorhynchos)*	Other: open water	Type 2 sensitive	SC
Black tern *(Chlidonias niger)*	Other: marsh/wetlands	Type 3 sensitive	SC
Brewer's sparrow *(Spizella breweri)*	Low- and Mid-Elevation Shrub	Type 3 sensitive	P
Calliope hummingbird *(Stellula calliope)*	Aspen-Conifer Mix and Riparian.	Type 3 sensitive	
Columbian sharp-tailed grouse *(Tympanuchus phasianellus columbianus)*	Seedings (perennial grasses), Mountain Shrub, and Riparian	Type 3 sensitive	GSC
Ferruginous hawk *(Buteo regalis)*	Low- and Mid-Elevation Shrub, especially on cliffs.	Type 3 sensitive	P
Flammulated owl *(Otus flammeolus)*	Dry Conifer and Aspen-Conifer Mix	Type 3 sensitive	SC
Hammond's flycatcher *(Empidonax hammondii)*	Dry Conifer, Aspen-Conifer Mix, and Wet/Cold Conifer.	Type 3 sensitive	
Lewis' woodpecker *(Melanerpes lewis)*	Dry Conifer	Type 3 sensitive	
Loggerhead shrike *(Lanius ludovicianus)*	Low-, Mid-Elevation and Mountain Shrub.	Type 3 sensitive	SC
Northern goshawk *(Accipiter gentilis)*	Dry Conifer, Aspen-Conifer Mix, and Wet/Cold Conifer.	Type 3 sensitive	SC
Olive-sided flycatcher *(Contopus borealis)*	Dry Conifer and Wet/Cold Conifer.	Type 3 sensitive	
Peregrine falcon *(Falco perigrinus anatum)*	Riparian, Other (cliff features).	Type 3 sensitive	E
Prairie falcon *(F. mexicanus)*	Low-, Mid-Elevation and Mountain Shrub) and Other (cliff features)	Type 3 sensitive	
Sage sparrow *(Amphispiza belli)*	Low- and Mid-Elevation Shrub	Type 3 sensitive	P
Trumpeter swan *(Cygnus buccinator)*	Other: open water.	Type 3 sensitive	SC
Williamson's sapsucker *(Sphyrapicus throideus)*	Dry Conifer, Aspen/Aspen Conifer Mix and Wet/Cold Conifer.	Type 3 sensitive	
Willow flycatcher *(Empidonax trailii)*	Riparian.	Type 3 sensitive	P
Virginia's warbler *(Vermivora virginae)*	Riparian and Aspen/Aspen Conifer Mix.	Type 4 sensitive	P
White-faced ibis *(Plegadis chihi)*	Other: marsh/wetlands.	Type 4 sensitive	P

Table 3-13. BLM Listed Sensitive Fish and Wildlife Species in the Pocatello Field Office Area.

Species	Habitat	BLM Status[1]	Idaho[1]
Reptiles and Amphibians			
Northern leopard frog *(Rana pipiens)*	Riparian.	Type 2 sensitive	SC
Boreal toad *(Bufo boreas boreas)*	Dry Conifer, Aspen/Aspen Conifer Mix, and Riparian.	Type 2 sensitive	
Common garter snake *(Thamnophis sirtalis)*	Dry Conifer, Aspen/Aspen Conifer Mix, Mountain Shrub, and Riparian.	Type 3 sensitive	
Fish			
Yellowstone cutthroat trout *(Oncorhynchus clarki bouveri)*	Riparian.	Type 2 sensitive	
Bonneville cutthroat trout *(O. clarki utah)*	Riparian. Exists only in Bear River and its drainage.	Type 2 sensitive	
Bear Lake cutthroat *(O. clarki* ssp.*)*	Riparian. Exists only in Bear Lake.	Type 2 sensitive	
Bear Lake sculpin *(Cottus extensus)*	Riparian. Exists only in Bear Lake.	Type 2 sensitive	
Bear Lake whitefish *(Prosopium abyssicola)*	Riparian. Exists only in Bear Lake.	Type 2 sensitive	
Bonneville cisco *(Prosopium gemmiferum)*	Riparian. Exists only in Bear Lake.	Type 2 sensitive	
Bonneville whitefish *(P. spilonotus)*	Riparian. Exists only in Bear River drainage.	Type 2 sensitive	
Leatherside chub *(Gila copei)*	Riparian.	Type 3 sensitive	

[1]See **Appendix O** for description of status/category rankings.

Pygmy Rabbit

The pygmy rabbit, a BLM type 2 sensitive species, is the smallest of all North American rabbits. It occurs in low and Mid-Elevation Shrub communities in dense stands of tall sagebrush and is the only rabbit in North America known to dig its own burrow. It spends most of its life within 30 feet of its burrow. Topography and soil are very important in choosing a burrow site. The looser sandy soils with tall sagebrush overstory favored by this rabbit are not common on the public lands in the PFO area. This species has been in decline in the West due to the increasingly unhealthy sagebrush habitat resulting from increased wildfire frequency and cheatgrass invasion to the sagebrush understory.

American White Pelican

The American white pelican is a BLM type 2 sensitive species that is commonly found in association with the larger open reservoirs in the PFO area. There is no pelican nesting habitat found on public land in the PFO area, but Gull Island managed by the BIA in the Blackfoot

Reservoir does have a nesting colony. In the PFO area, the BLM does not currently manage any area with suitable habitat, but if such habitat were acquired, the BLM would manage it for the protection of this species.

Ferruginous Hawk

The ferruginous hawk, a BLM type 3 sensitive species, is the largest of the North American buteos. It is a neotropical migrant that breeds from southwestern Canada to central Arizona, New Mexico, and northern Texas and winters in California to northern Mexico. In the PFO area, the ferruginous hawk nests in the Low- to Mid-Elevation Shrub vegetation types, often at edge of juniper habitats. It is highly sensitive to human disturbance and is threatened by habitat loss from oil and gas development, agricultural practices, and urban encroachment. It has experienced a decline across much of its range and has been extirpated from some of its former breeding grounds in Idaho. The nesting population in the Raft River-Curlew Valley is considered to be of global importance (Chipley 1998) because it provides habitat for more than one percent of the world's breeding ferruginous hawk population (**Figure 3-6**).

Northern Goshawk

The northern goshawk is a BLM type 3 sensitive species. It generally occurs in undisturbed forested areas. Areas of potentially suitable nesting habitat for northern goshawk within the PFO include Dry Conifer, Wet/Cold Conifer, and Aspen Conifer Mix forest vegetation types dominated by spruce, fir, pine, and aspen. The decreasing population of this species is most likely due to loss of habitat.

Columbian Sharp-Tailed Grouse

The Columbian sharp-tailed grouse is one of six subspecies of sharp-tailed grouse and is a BLM type 3 sensitive species (**Figure 3-6**). A 1980 paper indicated that Columbian sharp-tailed grouse occupied less than 10 percent of its former range in Idaho, Montana, Utah, and Wyoming and 10 to 50 percent in Colorado and Washington (Miller and Graul 1980). Intensive grazing was shown to be the most important factor, followed by the conversion of rangelands to cropland and ecological succession (Miller and Graul 1980). Recent studies have identified the loss of the Shrub Steppe habitats from agricultural expansion, fire, invasion of nonnative annual vegetation, and overgrazing by livestock (Ulliman et al. 1998).

The Columbian sharp-tailed grouse occupies various habitats within the PFO area, including Low- and Mid-Elevation Shrub, Mountain Shrub, and Perennial Grass. Idaho remains a stronghold for the Columbian sharp-tailed grouse populations, with 75 percent of the remaining birds (Page and Ritter 1999). Occupied habitats vary from sagebrush/grass native habitats to Conservation Reserve Program (CRP) lands and recently expanding into old crested wheatgrass fields. The implementation of the CRP in 1987 substantially benefited Columbian sharp-tailed grouse populations on the PFO area, and all populations are considered to be stable to increasing in numbers. The draft Conservation Strategy for Columbian sharp-tailed Grouse and its Habitat in Idaho (1998) has identified additional areas for reintroduction. The PFO has cooperated in the transplant program to Oregon, Montana, Washington, and Nevada for the past five years.

In southeastern Idaho, the largest concentrations of Columbian sharp-tailed grouse are in Fremont, Bonneville, and Oneida Counties (Ulliman 1995). Most of the habitat use by Columbian sharp-tails on public land in the PFO area is for winter range in the mountain brush type. For the most part, the lekking (courtship display), nesting, and brood rearing occurs on private CRP land. The greatest risk to the population is the loss of CRP land, which would likely result in a large reduction in Columbian sharp-tail production. That would make the small amount of year-round habitat on public land of crucial importance. Careful management of these areas would ensure the continued existence of the Columbian sharp-tailed grouse.

Greater Sage-Grouse

This BLM type 2 sensitive species was formerly one of the most wide-ranging and abundant native upland game birds in the western US (Dalke et al. 1963; BLM et al. 2000). Greater sage-grouse is considered a sagebrush obligate species, and its dependence on sagebrush is striking and well documented (Wallstead 1975). Greater sage-grouse is physiologically adapted to eating soft sagebrush leaves. Suitable greater sage-grouse habitats consist of sage-dominated landscapes that exhibit a diverse understory component of native grass and forbs. A complex of seasonal ranges forms a mosaic or spatial arrangement that determines the landscape's potential for grouse (Wyoming Game and Fish Department [WGFD] 2003).

A 1997 broad-scale assessment of the Columbia River Basin identified sagebrush steppe as the highest priority habitat for conservation, based on trends in bird populations and habitat degradation (Quigley and Arbelbide 1997; Saab and Rich 1997). The loss of sagebrush steppe habitat, along with a reduction in habitat quality, is thought to be the reason for the decline of, and the greatest risk to, the continued presence of greater sage-grouse in Idaho (Page and Ritter 1999).

In May 1999, the Washington state greater sage-grouse population was petitioned for listing under the ESA. In 2001, the USFWS found the listing was warranted but precluded by higher priority listings (USFWS 2001a). This was the first of seven petitions the USFWS received calling for listing greater sage-grouse under the ESA through December 2003. The justifications for the petitions revolve around population decline and habitat loss.

A new concern presented itself in the western hemisphere when West Nile virus (WNV) arrived in Queens, New York, in 1999. By 2003, it had moved west and has been confirmed in the deaths of 27 greater sage-grouse. WNV expanded rapidly into 11 new states in the summer of 2003, including Colorado and Wyoming. It will undoubtedly become a part of the Idaho ecological landscape with unknown consequences for greater sage-grouse. WNV appears to move between mosquitoes, birds, and other animals as well as humans (US Geological Survey [USGS] 2004).

Greater sage-grouse populations are known to have distinct seasonal ranges, and some populations exhibit migratory patterns between distinct seasonal ranges that can exceed 47 miles (Dalke et al. 1963; Connelly, et al.1988). Research has yet to determine if any migratory greater sage-grouse populations exist within the PFO area (Connelly 2005). Although greater sage-grouse populations may move within ranges, they have been documented to show a high degree of fidelity to their seasonal ranges (Connelly et al. 2000). Traditional greater sage-grouse winter and summer habitat (key habitats) ranges in the PFO area are shown in **Figure 3-7**.

As fall progresses, but before heavy snowfall, greater sage-grouse move to wintering habitats. They tend to select areas with higher/taller overall sagebrush canopy coverage. It is critical that in high snow accumulation years, the tops of sagebrush plants extend 10 to 12 inches above the snow to provide food and cover for wintering grouse. In Idaho, greater sage-grouse select wintering areas of Wyoming big sagebrush that provides greater canopy cover in stands containing taller shrubs, compared to random sites (Connelly et al. 2000). Most of the winter range in the PFO area is on wind-swept ridges above the leks and brood-rearing areas.

In the PFO area, about half of the hens nest within three miles of the lek where they were bred (Connelly et al. 2000). Hens select shrubs having more ground and lateral cover, shrubs with larger canopies, and stands of sagebrush that exhibit more shrub canopy cover then random sites. Shrub communities attractive to grouse for nesting usually range between 8 and 18 inches height, but individual plants may reach 32 inches in height, with sagebrush canopy cover of 6% to 40%. These same sites generally should have a good stand of residual grasses with higher amounts of forbs (WGFD 2003). Nesting hens also tend to select the tallest sagebrush plant within a stand to nest under and the mean height commonly used for nesting ranges from 11 to 31 inches (Keister and Willis 1986; Wakkinen 1990; Connelly et al. 2000). The understory grass component is an important element in nest success. Grass greater than 7 inches tall within stands of sagebrush 16 to 31 inches tall resulted in reduced nest predation, as compared to shorter stands (Gregg et al. 1994). Meeting these standards is the greatest opportunity for maintaining or increasing the number of greater sage-grouse in the PFO area. This includes restoring marginal habitat in the R1 and R2 categories and reconnecting isolated populations.

Immediately upon hatching, broods will move some distance from the nest site. Some have been reported to move as far as five miles in the first ten days. Early brood habitats may be used for up to a month and are selected for their elevated forb composition and increased insect activity. Insects make up most a chick's diet, and some studies have indicated as much as seventy five percent. Early brood rearing habitat includes more open sagebrush canopy (WGFD 2003). Riparian areas provide an important source for brood-rearing habitats and migration corridors (Call and Maser 1985).

From mid-July through mid-September, greater sage-grouse hens move their broods out of vegetation communities that become desiccated to more mesic sites that provide the possibility of succulent vegetation, usually in the form of forbs. They select areas that exhibit abundant forbs that often include riparian areas. These areas are usually limited in size within a landscape and are very important (Connelly et al. 2000).

Habitat Condition

Overall greater sage-grouse populations remain well below historic levels (Connelly et al. 2000). The most recent trends of greater sage-grouse populations in Idaho have shown a slight increase following the decline of about 40 percent from their long-term average. Greater sage-grouse populations have declined despite management and research efforts that date to the 1930s (Connelly et al. 2000). Factors considered to be contributing to the decline from historic population levels are drought, habitat loss from fire, conversion of native habitats to agriculture/farming, invasive species, pesticides, recreation, vegetation management, livestock grazing, introduced nonnative plants, weeds, fragmentation, mining, urban expansion, power

lines, predation, rangeland conversion and hunting (Connelly et al. 2000; Blus et al. 1989, Braun 1998; WGFD 2003).

Habitat conditions for greater sage-grouse vary throughout the PFO area. Herbaceous cover remains an important habitat component in meeting adequate nesting and brood rearing requirements. An important factor affecting herbaceous cover includes the amount of cover remaining (residual cover) following livestock grazing within greater sage-grouse habitat. The diversity and availability of forbs, grasses, sagebrush canopy cover, and sagebrush height are primary indicators of quality habitat (Call and Maser 1985). Wildfire has affected areas of greater sage-grouse habitat by removing sagebrush, causing the habitat to degrade through the invasion of nonnative plants, further isolating populations. Increasingly separated and isolated populations have become common throughout the grouse's range (Beck 2003).

Degradation of sagebrush habitats can have an effect on the numbers, distribution, and types of predators that prey on greater sage-grouse. Effects of newcomer species, such as red fox and raccoons, are factors that are not well understood and were historically not a factor. Predation can be an important cause of greater sage-grouse mortality for both adults and chicks. Predation during nesting and early brood rearing activities can have significant influences on greater sage-grouse populations (WGFD 2003). A recent study in Wyoming indicates that the coyote does not appear to be a major greater sage-grouse nest predator, and limited control programs targeting this species are unlikely to produce positive results. The badger appeared to be the most significant nest predator in the study (Slater 2003; WGFD 2003).

The BLM has split greater sage-grouse habitat into six categories: Key Habitat, Restoration 1, Restoration 2, Restoration 3, Stronghold Habitat, and Isolated Habitat. **Table 3-14** lists the acres of each of these categories within the PFO area. Small inclusions of perennial grasslands, either native or introduced, or other habitats, such as mountain mahogany, may be present. Because of the critical nature of these areas, they should not only be protected from catastrophic fires but should be maintained and improved as needed.

Table 3-14. Pocatello Field Office Greater Sage-grouse Habitat (Acres).

	Field Office Total (Federal, State, and Private)	Field Office (Public Lands)
Key Habitat	710,357	221,222
Restoration 1	115,072	58,170
Restoration 2	0.0	0.0
Restoration 3	12,038	11,570
Stronghold Habitat	417,115	227,566
Isolated Habitat	125,961	22,562

Source: BLM 2004b

Amphibians

Boreal Toad

This is a BLM type 2 sensitive species. In Idaho, the boreal toad subspecies is the population of western toads south of the Snake River that appears to be more closely related to the Colorado population than the populations in the rest of its distribution. This species inhabits areas near springs, streams, meadows, and woodlands between 7,000 and 12,000 feet elevation in the western portions of North America. Boreal toads breed in wetland areas during May and June. Once the breeding season has ended, the adults tend to move away from wetland areas and toward moist coniferous forest. Boreal toad populations have been declining throughout their range because of habitat loss and degradation, environmental contaminants, and disease and possibly because of changing environmental conditions, such as ozone depletion. Management of riparian areas and wetlands to maintain the vegetation in a properly functioning condition is key to the ensured presence of toads on public lands. This is a candidate species for listing under the ESA in Colorado, New Mexico, and Wyoming.

Northern Leopard Frog

This is a BLM type 2 sensitive species and can be found throughout the northern portions of North America, extending down through the PFO area into the Bonneville Basin and as far south as Arizona and New Mexico. Northern leopard frogs are found in riparian/wetland areas, in a variety of habitats, including grasslands, brushlands, woodlands, and forest habitats between sea level and about 11,000 feet elevation. The best northern leopard frog habitats on public lands in the PFO area are the least disturbed riparian areas. Maintaining them and improving those in less than proper functioning condition is the best opportunity for maintaining or increasing the population on public lands.

Fish

Yellowstone Cutthroat Trout

Yellowstone cutthroat trout became isolated in the headwaters of the Snake River following the creation of Shoshone Falls somewhere between 30,000 and 60,000 years ago. Historic habitat essentially covered the entire Snake River drainage above Shoshone Falls, which includes the Blackfoot, Salt, and Portneuf River drainages. Historic Yellowstone cutthroat trout river and stream habitat within Idaho is estimated to be nearly 4,000 miles. In addition, Henry's Lake and two Palisades lakes were thought to be occupied. Recent assessments indicate less than 2,000 miles are currently occupied, or about forty-three percent, including streams flowing through private, state, and Federal lands. At present, an estimated eighty to ninety percent of occupied Yellowstone cutthroat trout habitat occurs within the National Forest System.

Another cutthroat trout having fine pepper-like spotting is currently found in the Snake River and its tributaries, from Jackson Lake to the Palisades Reservoir. When first inventoried, this fish was thought to be a separate subspecies, but continued genetic comparison of the two cutthroat forms has not provided definitive proof that would lead to a total acceptance that the "fine-spotted" cutthroat trout is indeed a separate subspecies. Therefore, current taxonomy

simply lists the fish as a generic subspecies *(Oncorhynchus clarki* subsp.*)* (Forest Service 1996; Behnke 1992). In this document, both subspecies are considered as one.

The Yellowstone cutthroat trout is found in the Blackfoot River, Portneuf River, Salt River, Willow Creek, and Bannock Creek watersheds. In the Blackfoot River watershed, Yellowstone cutthroat trout in the PFO area have strong populations in Wolverine Creek, Rawlins Creek, Brush Creek and Browns Canyon Creek. Depressed populations are found in Blackfoot River proper, Blackfoot Reservoir, Lanes Creek and Lander Creek. Fishery habitat condition trend in the Blackfoot River watershed is static to slowly improving.

In the Portneuf River watershed, Yellowstone cutthroat trout in the PFO area have strong populations in Rapid Creek, Goodenough Creek, and Bell Marsh Creek. Depressed populations are found in Gibson Jack Creek, mainstem Mink Creek, Walker Creek, Harkness Creek, Robbers Roost Creek, Garden Creek, Stockton Creek, and King Creek. Fishery habitat condition trend in the Portneuf River watershed is static to slowly improving.

The Salt River watershed in the PFO area has strong populations of Yellowstone cutthroat trout in Stump and Horse Creeks, with depressed populations in Tygee and Crow Creeks. Habitat condition trends on Stump and Horse Creeks are in a steady upward trend, while Tygee and Crow Creek populations are static.

The entire Willow Creek watershed is historic Yellowstone cutthroat trout range, but there is very little stream habitat in the watershed managed by the PFO. Most of the Bannock Creek watershed is in the Shoshone Bannock Indian Reservation. The watershed is historic Yellowstone cutthroat trout habitat but very little is known about the current status. The BLM manages two small but strong populations of Yellowstone cutthroat populations in Midnight and Crystal Creeks. Habitat conditions are showing an upward trend.

Habitat and Species Trends

The Yellowstone cutthroat trout fishery in the Blackfoot Reservoir and the mainstem above the reservoir has been greatly affected by the last three years of drought. The operation of the Blackfoot River Dam by the BIA during the nonirrigation season limits flows on the river to approximately 30 cubic feet/second, which severely limits salmonid habitat, in particular, over-winter habitat. Dam releases for irrigation result in extremely high summer flows, likely affecting available habitat for salmonids. In some places, the high flows can restrict fisherman access to the river.

Regulatory Status

The American Fisheries Society designated this species a “Species of Special Concern – Class A” and petitioned for its listing under the ESA. The ninety-day finding for the petition to list the Yellowstone cutthroat trout as threatened stated that “the petition failed to present substantial information indicating that listing this subspecies of fish may be warranted at this time” (USFWS 2001b). The Forest Service and the BLM have designated the species as sensitive, and Idaho Fish and Game identified it as a species of special concern.

In March 2000, five states, Yellowstone National Park, and the Forest Service entered into a memorandum of agreement (MOA) intended to provide a range-wide focus on shared goals and objectives for the conserving and restoring Yellowstone cutthroat trout. The stated goal of the MOA is to "ensure the persistence of the Yellowstone cutthroat subspecies within its historic range and to manage Yellowstone cutthroat trout to preserve genetic integrity and provide adequate numbers and populations to provide for the protection and maintenance of both the intrinsic and recreational values associated with this fish" (Montana Department of Fish, Wildlife, and Parks et al. 2000). In 2003, the State of Idaho developed a management plan for Yellowstone cutthroat trout (IDFG 2003a). In 2004, the Interstate, Interagency Yellowstone Cutthroat Trout MOA Group developed a range-wide assessment of the historic and current distribution of the cutthroat, with emphasis on genetic purity, habitat conditions, migration barriers, and the overall health of the greater five state populations (May et al. 2004). The emphasis is on defining and managing core populations (genetically pure), conservation populations (slightly introgressed populations), and recreational populations (highly introgressed but still possessing a significant amount of cutthroat genetic material).

Bonneville Cutthroat Trout

The Bonneville cutthroat trout is the only trout native to the Great Basin. The species thrived in ancient Lake Bonneville and its tributaries. About 8,000 years ago, the lake desiccated and populations fragmented, forcing the trout into streams throughout the basin, forming isolated disjunct populations. As a result, two populations with genetic differences are evident today between the Bear River Basin Bonneville cutthroat trout and those found in the main Bonneville Basin in southern Utah. The Bonneville cutthroat trout evolved in a lake environment. After Lake Bonneville was drained, only Bear Lake (adjacent to a small portion of the PFO area), Utah Lake (near Provo, Utah) and Panguitch Lake (Utah) retained lake populations. Of these populations, only Bear Lake populations still survive. During the past 150 years, metapopulations have been significantly reduced by human activities, including nonnative trout introductions and habitat fragmentation (Forest Service 1996; Kershner 1995).

Spawning occurs in the spring, normally in April and May, depending on local water temperature. Like other trout, the female digs a small depression in the gravel substrate where she deposits her eggs. She is usually attended by a single male, and both the male and female protect the redd during spawning. The eggs usually hatch in two to four months. After spawning there is usually a significant mortality of adults. Because cutthroat and rainbow trout spawn in the same places at the same times, there is considerable hybridization between the two species. Feeding habits of Bonneville cutthroat trout are similar to other trout, and the diet consists primarily of aquatic and terrestrial insects. Fish make up a sizable portion of the diet of larger fish (Simpson and Wallace 1982).

The historic habitat for the Bonneville cutthroat trout, found within the upper Bear River Subbasin (4th Hydrologic Unit Code [HUC]) in Idaho, is estimated to include about 2,000 stream miles. About twenty-nine percent of this historical mileage occurs within the boundaries of the Bridger-Teton, Caribou, and Wasatch-Cache National Forests. Populations are estimated to exist only in about seven percent of the historical mileage (Forest Service 1996).

The Bonneville cutthroat trout is currently found in a small number of streams in the Bear River watershed. On lands managed by the PFO, there are strong populations of Bonneville cutthroat trout in Co-op Creek and Maple Creek, with depressed populations in the mainstem Bear River, North Creek, Montpelier Creek, Georgetown Creek, Steve's Creek, Paris Creek, Cottonwood Creek and Dry Creek. There are also small depressed populations in the Dairy Creek drainage of the Malad River watershed, but there are no populations on public land.

Regulatory Status

The Forest Service and the BLM have identified the Bonneville cutthroat trout as a sensitive species. The Idaho Fish and Game has categorized it as species of special concern. The trout was petitioned for listing under the ESA on December 8, 1998, and the USFWS issued a determination on the Bonneville cutthroat trout petition of "not warranted" for listing under the ESA on October 9, 2001.

In 1994, the Forest Service signed a conservation agreement to aggressively manage lands within the Montpelier-Elk Valley Cattle and Horse Allotment, which includes lands within both the Thomas Fork drainage (Pruess, Dry, and Giraffe Creeks) and the Salt River drainage (Crow Creek and tributaries). Participating parties are IDFG, Idaho Soil Conservation Commission, Caribou Cattlemen's Association, Bear Lake Soil and Water Conservation District, IDEQ, NRCS, and the Forest Service. The agreement, last reviewed and amended in March 2000, revised livestock grazing practices throughout the allotment and specified actions needed to improve stream and riparian habitat conditions. A comprehensive monitoring protocol was also established. Monitoring has revealed an improvement in overall habitat conditions, and increases in fish populations have been documented.

In addition, a range-wide Conservation Agreement and Strategy for Bonneville Cutthroat Trout was signed in December 2000 by IDFG, Nevada Division of Wildlife, Utah Department of Natural Resources, WGFD, Confederated Tribes of the Goshute Reservation, BLM, National Park Service, Forest Service, and Utah Reclamation Mitigation and Conservation Commission. The agreement outlines specific conservation actions and activities to be completed within ten years, with the most significant actions to benefit Bonneville cutthroat trout to be implemented within five years.

On August 28, 2002, a settlement agreement was reached with PacifiCorp resolving the relicensing of the Bear River Hydroelectric Project. The BLM was signatory to this agreement, which called for developing a Bonneville Cutthroat Trout Restoration Plan for the Bear River watershed and for forming an environmental coordination committee to implement the restoration plan. The BLM will be a member of the committee to help direct the restoration and recovery of Bonneville cutthroat trout in the Bear River watershed and specifically on public lands within the PFO area. The PACIFICORP will fund restoration activities will be funded by over the 30-year life of the new license.

INFISH

INFISH is an interim strategy designed to provide additional protection for existing populations of native trout, outside the range of anadromous fish, on 22 national forests in the Pacific Northwest Northern and Intermountain Regions (west of the continental divide in the Columbia

River Drainage). Implementing this strategy was deemed necessary because these species were at risk due to habitat degradation, introduction of exotic species, loss of migratory forms, and overfishing. As part of this strategy, the regional foresters designated a network of priority watersheds. Priority watersheds are drainages that still contain excellent habitat or assemblages of native fish, that provide for metapopulation objectives, or that are watersheds, which have excellent potential for restoration.

INFISH also established interim Riparian Management Objectives (RMOs) and Riparian Habitat Conservation Areas (RHCAs). RMOs are habitat parameters that describe good fish habitat and include pool frequency, water temperature, large woody debris, bank stability, lower bank angle, and width/depth ratio. Where site-specific data is available, these RMOs can be adjusted to better describe local stream conditions through the development of a watershed analysis. These RMOs for stream channel conditions provide the criteria against which attainment or progress toward attainment of riparian goals is measured. RHCAs are portions of watersheds where riparian-dependent resources receive primary emphasis. The RHCAs are defined for four categories of stream or waterbodies that depend on flow conditions and presence of fish. The RHCAs are areas where specific management activities are subject to standards and guidelines in INFISH, in addition to existing standards and guidelines in the RMPs.

INFISH became a BLM planning and management policy following the signing of the biological assessment (June 15, 1998) and the subsequent biological opinion (August 14, 1998) on the *Effects to Bull Trout from Continued Implementation of Land and Resource Management Plans and Resource Management Plans, as Amended by the Interim Strategy for Managing Fish-Producing Watershed in Eastern Oregon and Washington, Idaho, Western Montana and Portions of Nevada* (Forest Service 1995). INFISH as BLM management policy was reaffirmed under the Interior Columbia Basin Ecosystem Management Project (ICBEMP) Supplemental Draft Environmental Impact Statement (Forest Service and BLM 2000b).

Because RMOs and RHCAs of INFISH are interim, and because the ICBEMP was not implemented, the state directors and regional foresters elected not to prepare a record of decision and instead have chosen to complete the project through use of The Interior Columbia Basin Strategy. An aquatic conservation component was developed under the Interior Columbia Basin Strategy, and that component or direction updates and replaces INFISH for application to RMPs in Idaho. Details regarding direction from this aquatic conservation strategy are found at http://www.fs.fed.us/r6/fish/9506-infish.pdf.

To meet this direction, the BLM developed the Matrix of Cutthroat (Yellowstone and Bonneville) Trout Objectives to guide the planning and conservation activities for these two salmonid species (**Appendix E**). The matrix includes cutthroat trout habitat indicators and a definition describing and quantifying their functional ecological condition, categories of which are as follows:

- Functioning properly;
- Functioning at risk; and
- Functioning at an unacceptable risk.

The aquatic habitat elements are as follows:

- Pool frequency and quality;
- Habitat complexity/channel structure;
- Spawning gravel quantity and quality;
- Salmonid rearing habitat;
- Water quality;
- Life history diversity and isolation;
- Flow/hydrology; and,
- Watershed condition (functional condition and riparian conservation area).

Bear Lake Fisheries

A unique fishery in the PFO area is Bear Lake. It contains several endemic fish species, including the Bear Lake cutthroat trout, Bear Lake whitefish, Bonneville whitefish, Bonneville cisco, and Bear Lake sculpin. There are no public lands on the lakeshore itself. Only two streams, Indian Creek and Fish Haven Creek cross public land and their entire flow is diverted for irrigation shortly after spring runoff. BLM only indirectly influences this fishery by ensuring that the water quality of the streams leaving public lands meets State of Idaho criteria for cold water biota.

Bear Lake Cutthroat Trout

Bear Lake cutthroat trout are closely related to the Bonneville cutthroat trout strain but have evolved in Bear Lake and are well adapted to its environment. The Bear Lake cutthroat trout ascend streams to spawn from May to June, with eggs hatching a few months later. Spawning habits are closely related to other trout species. The diet of this strain of cutthroat trout is similar to other trout and consists of aquatic and terrestrial insects. As the fish becomes larger it may take smaller fish that are endemic to Bear Lake, such as the Bonneville cisco, Bonneville whitefish, Bear Lake whitefish, and the Bear Lake sculpin (Utah Division of Wildlife Resources 2004).

Bear Lake Whitefish

The natural range of the Bear Lake whitefish is limited to Bear Lake Idaho/Utah. The vertical distribution of this whitefish is generally confined to the 60-foot level and below where the water temperature is uniformly 39˚F.

Spawning occurs in late January and early February, but it may stretch into March. Spawning takes place in 60 to 100 feet of water when the temperatures are between 35 and 39˚F. Growth is fairly rapid in the first two years but slows after that. The Bear Lake whitefish is a dwarf variety of whitefish and seldom exceeds eight inches in length.

The diet of the Bear Lake whitefish consists of freshwater crustaceans, primarily ostracods and to a lesser extent copepods, insects, and aquatic earthworms (Simpson and Wallace 1982).

Bonneville Whitefish

The native range of the Bonneville whitefish is confined to Bear Lake Idaho/Utah. Most whitefish inhabit the cold deeper portion of Bear Lake. The normal spawning time of the Bonneville whitefish is late November and early December, when the fish move into the shallower waters and deposit eggs in rocky or sandy bars.

The food of this whitefish is more varied than other whitefish in Bear Lake. The primary food item is midge larvae, followed by copepods, ostracods, and aquatic worms. The Bonneville whitefish will also eat, on occasion, miscellaneous aquatic and terrestrial insects, including midges (Simpson and Wallace 1982).

Bonneville Cisco

Although its natural range is restricted to Bear Lake, successful transplants have been established in Lake Tahoe in California and Nevada. The Bonneville cisco spawns in late January or early February, usually in water that is two to three feet deep. However, spawning may extend to a depth of 65 feet, often after the lake has become ice covered. Eggs are broadcast and gradually settle to the bottom and become attached to the substrate. The food of this fish consists almost exclusively of zooplankton (Simpson and Wallace 1982).

Bear Lake Sculpin

The range of the Bear Lake sculpin is restricted to Bear Lake Idaho and Utah. Spawning takes place in the spring around the rocks near shore. Like other sculpin, the eggs are deposited on the underside of rocks or other substrate. After spawning, the fish move to the deeper waters of the lake. Bear Lake sculpin are an important food source for cutthroat and lake trout (Simpson and Wallace 1982).

3.2.8 VISUAL RESOURCES

3.2.8.1 Region of Influence

Visual resources are the visible physical features on a landscape, such as land, water, vegetation, animals, and structures (BLM 2004d). The region of influence for visual resources is the 613,800 acres of public land in the planning area of southeastern Idaho.

3.2.8.2 Visual Resource Management System

It is the intent and policy of both the Department of Interior and the BLM that the visual resource values of public lands must be considered in all land use planning efforts and surface disturbing activities. This does not mean that visual resource management (VRM) should be used as a method to preclude all other resource development. It means that the visual values must be considered and those considerations documented in the decision making process, and that if resource development/extraction is approved, a reasonable attempt must be made to meet the VRM objectives for the area in question and to minimize the visual impacts of the proposal per Washington Office Information Bulletin 98-135.

The objective of the VRM system is to manage public lands in a manner that will protect the quality of the scenic values of these lands. In order to meet its responsibility to maintain the scenic values of the public lands, the BLM has developed a VRM system that addresses the following (BLM 2004e):

> Different levels of scenic values require different levels of management. For example, management of an area with high scenic value might be focused on preserving the existing character of the landscape, and management of an area with little scenic value might allow for major modifications to the landscape.

Determining how an area should be managed first requires an assessment of the area's scenic values.

Assessing scenic values and determining visual impacts can be a subjective process. To describe proposed projects, objectivity and consistency can be greatly increased by using the basic design elements of form, line, color, and texture, which are often used to describe and evaluate landscapes. Projects that repeat these design elements are usually in harmony with their surroundings; those that do not repeat these elements create contrast. By adjusting project designs so the elements are repeated, visual impacts can be minimized.

The BLM's VRM system provides a way to identify and evaluate scenic values to determine the appropriate levels of management (BLM 2004e). It also provides a way to analyze potential visual impacts and apply visual design techniques to ensure that surface-disturbing activities are in harmony with their surroundings. The BLM's VRM system consists of two stages: inventory (visual resource inventory) and analysis (visual resource contrast rating).

3.2.8.3 Inventory

The inventory stage involves identifying the visual resources of an area and assigning them to inventory classes using the BLM's visual resource inventory process (BLM 2004e). This involves rating the visual appeal of a tract of land, measuring public concern for scenic quality,

and determining whether the tract of land is visible from travel routes or observation points. The process is described in detail in BLM Handbook H-8410-1, *Visual Resource Inventory* (BLM 2004f).

The results of the visual resource inventory become an important component of the BLM's RMP for the area. The RMP establishes how the public lands will be used and allocated for different purposes and is developed through public participation and collaboration. Visual values are considered throughout the RMP process, and the area's visual resources are then assigned to management classes with the following established objectives:

- Class I: To preserve the existing character of the landscape. The level of change to the characteristic landscape should be very low and must not attract attention.
- Class II: To retain the existing character of the landscape. The level of change to the characteristic landscape should be low.
- Class III: To partially retain the existing character of the landscape. The level of change to the characteristic landscape should be moderate.
- Class IV: To provide for management activities that require major modification of the existing character of the landscape. The level of change to the characteristic landscape can be high.

Within the region of influence, public land is categorized as follows (**Figure 3-8**):

- Class I: 11,200 acres;
- Class II: 78,600 acres;
- Class III: 221,000 acres; and
- Class IV: 303,000 acres.

3.2.8.4 Analysis

The analysis stage involves determining whether the potential visual impacts from proposed surface-disturbing activities or developments will meet the management objectives established for the area, or whether design adjustments will be required (BLM 2004e). A visual contrast rating process is used for this analysis and involves comparing the project features with the major features in the existing landscape using the basic design elements of form, line, color, and texture. This process is described in BLM Handbook H-8431-1, *Visual Resource Contrast Rating* (BLM 2004f). The analysis can then be used as a guide for resolving visual impacts. Once every attempt is made to reduce visual impacts, BLM managers can decide whether to accept or deny project proposals. Managers also have the option of attaching additional mitigation stipulations to bring the proposal into compliance.

General Visual Setting

Class I

Figure 3-8 shows Class I public land is in the center of the planning area and northeast of Lava Hot Springs.

The Petticoat Peak Wilderness Study Area (WSA) is within the Fish Creek Mountain Range, one mile northeast of Lava Hot Springs. Topography is steep and mountainous, with Petticoat Peak being the highest point at over 8,000 feet. Many canyons and ridges radiate from the mountain peak. Dominant vegetation on the western slopes consists of junipers, mountain shrubs, and sagebrush. Thick stands of Douglas fir, intermingled with lodgepole pine, cover the WSA's eastern side. A variety of shrubs, forbs, and grasses are found throughout. Aspen groves can be found through moist sites in the area.

The Worm Creek WSA is a 41-acre tract, with two sides of the tract adjacent to the Forest Service's 16,000-acre Worm Creek Roadless Area, which is recommended for wilderness designation. The other two sides of the 40-acre tract are adjacent to private land. The topography varies from benchland to steep hillsides, and elevation ranges from 6,500 feet to 7,200 feet. The surrounding terrain contains high elevation basins and steep, rocky mountain peaks. Several peaks on the main ridge near the WSA exceed 9,000 feet. The lower, moister northern portion of the area supports a dense stand of aspen and a Douglas fir/lodgepole pine mix. Understory species include mountain maple, Oregon grape, pinegrass, snowberry, willow, and serviceberry. The area provides a suitable habitat for deer, elk, and a variety of birds and small mammals. Minimal human activity has taken place in the WSA, but there have been isolated cases of unauthorized firewood cutting and OHV use.

Class II

Figure 3-8 shows Class II public land is scattered throughout the planning area. The primary concentrations of Class II public land are between Rockland, Roy, and Arbon, south of Samaria, between Treasureton and Mink Creek, and between Goshen and Blackfoot Reservoir.

The area between Rockland, Roy, and Arbon is part of the Deep Creek Mountains, which form a rolling unbroken escarpment that begins near American Falls and runs southward toward Holbrook. Rockland Valley and Arbon Valley flank the range on the west and east, respectively. Bannock Peak (elevation 8,263 feet) and Deep Creek Peak (elevation 8,748 feet) are noticeable peaks in the mountains. Deep Creek Peak is the highest point in the range. There are several long, well-developed canyons, including Knox Canyon, and various springs in the range.

The Samaria Mountains are south of Malad. Pocatello Valley is west of the mountains, and the Malad River is east of the mountains. Samaria Creek drains the northern portion of the mountains. Various springs and Grover Canyon, Buckboard Canyon, and North Canyon are found in the mountains.

Oneida Narrows is between Treasureton and Mink Creek. The Bear River drains Oneida Reservoir. Oneida Narrows contains a narrow band of box elder along the Bear River, with adjacent northwesterly and southeasterly facing slopes of mountain mahogany, bigtooth maple, Rocky Mountain juniper, and bluebunch wheatgrass communities (BLM 1987b). Small stands of aspen dot the slopes. Nearly vertical limestone cliffs, containing grottos and caves, provide a haven for a variety of birds and uniquely adapted plants. The area is undisturbed and diverse.

Much of the Class II public land between Goshen and Blackfoot Reservoir is along the Blackfoot River. The BLM conducted a visual resources assessment as part of the field investigations for the *Final Resource Assessment Blackfoot River Wild and Scenic River Eligibility Study and*

Tentative Classification (BLM 2002a). The BLM found that the study corridor (between the Blackfoot Reservoir and the northernmost portion of the Fort Hall Indian Reservation) consisted of areas with shallow to deep canyons, rolling hills, open meadows, salt lake geologic formations, highly eroded formations, high basalt cliffs, and areas with numerous rapids and cascading whitewater. In some areas the adjacent scenery would enhance the overall visual quality of a segment of the river. The water just below the dam appeared to be cloudy and became clearer farther downstream. The water flows are regulated by the releases from the dam. Cultural modifications along the study corridor include home sites, ranches, roads (two-track, gravel, and dirt), recreation sites, fences, power lines, dams, signs, bridges, and evidence of OHV use. In general, the vegetation within the corridor had very little variety.

Class III

Figure 3-8 shows Class III public land is scattered throughout the planning area.

The primary concentrations of Class III public land are between Rockland, Roy, and Arbon, northeast of Stone and Holbrook, southeast of Pocatello, north and southeast of Lava Hot Springs, and around Pegram. The area between Rockland, Roy, and Arbon is part of the Deep Creek Mountains and is described above under Class II.

The area northeast of Stone is in the Curlew Valley, between the North Hansel Mountains to the east and Sublett Range to the west. It borders the Curlew National Grassland, which is representative of shrub steppe vegetation and topography and is predominantly covered with sagebrush and nonnative seeded grasses (Forest Service 2003b). The Curlew Valley has been identified as an IBA in the state of Idaho, and, with its mix of sagebrush grassland, CRP plantings, and agricultural lands, provides habitat for Columbian sharp-tailed grouse, greater sage-grouse, and other sagebrush associated species. Deep Creek is west of Stone and drains Stone Reservoir, which is north of Stone.

The area northeast of Holbrook is in the Pleasantview Hills, between Curlew Valley to the west and Malad Valley to the east. Numerous canyons, springs, and creeks are found in this area.

The area southeast of Pocatello is in the Pocatello Range. Noticeable peaks include Chinese Peak, Camelback Mountain, and Moonlight Mountain. Communication towers and small buildings are visible on top of Chinese Peak. Given the area's proximity to Pocatello, it is common to find urban-rural interface disturbances, such as OHV trails that are not designated and illegal dumping.

The area north and southeast of Lava Hot Springs is in the Portneuf Range of the Caribou National Forest. The Portneuf River bisects this area, and smaller creeks drain various canyons.

The area around Pegram is in southeastern Idaho on Bear Lake Plateau and the lowlands around the Caribou National Forest. Thomas Fork drains Thomas Fork Valley in the eastern part of this area.

Class IV

Figure 3-8 shows Class IV public land is scattered throughout the planning area. The primary concentrations of Class IV public land are around Juniper, between Crystal and Woodruff, and between Chesterfield and Soda Springs.

The area between Crystal and Woodruff includes Bannock Range, the lowlands of the Pleasantview Hills, and the lowlands of the Samaria Mountains. This area is between Arbon Valley and Pocatello Valley to the west and the Caribou National Forest to the east.

The area around Juniper includes the lowlands of the Sublett Range, with Curlew Valley to the southeast and Sawtooth National Forest to the north and west. Table Mountain is visible in the southern half of this area, and numerous canyons and creeks wind through the entire area.

The area between Chesterfield and Soda Springs is in the Chesterfield Range and Blackfoot Lava Field, around Blackfoot Reservoir, and in the lowlands of the Aspen Range. The Blackfoot River drains north from the lava field, which is covered by basalt lava.

Scenic Byways

There are 1,869 miles of scenic byways in Idaho (Idaho Transportation Department 2004). The Bear Lake-Caribou Scenic Byway passes public land. The Bear Lake-Caribou Scenic Byway crosses public lands that have been designated VRM Class III and has VRM Class IV in the background.

Bear Lake straddles the Idaho-Utah border and boasts sandy beaches, water sports, fishing, boating, and Bear Lake State Park. This byway follows Bear Lake north on US 89 to Montpelier, then north on US 30, where you leave the Cache National Forest and enter the Caribou National Forest. The intersection of US 89 and US 30 at Montpelier is the site of a new trail center dedicated to the history and scenic wonders of the 2,000-mile Oregon/California Trail, part of the largest voluntary migration ever. Traveling northwest on US 30 to Soda Springs, this byway meets the Pioneer Historic Byway. From there the two byways share State Highway 34 north and east to the Wyoming border, passing Blackfoot Reservoir along the way. Special resources include Bear Lake, Bear Lake State Park, Paris Museum, Minnetonka Cave, Caribou National Forest, the Oregon Trail, and Captive Geyser in Soda Springs.

3.2.9 WATER RESOURCES

3.2.9.1 Groundwater

The northern half of the public lands within the PFO area occurs atop the Eastern Snake River Plain Aquifer, which extends from the headwaters of Camas Creek in Clark County to King Hill in Elmore County. These public lands serve as an important groundwater recharge area because they contain recent lava flows with thin soil cover (less than 40 inches), allowing precipitation to easily infiltrate to the aquifer (Garabedian 1992).

Regionally, groundwater moves through the Eastern Snake River Plain Aquifer through interflow zones in Quaternary basalt of the Snake River Group. Groundwater flows are generally from the recharge areas on public lands to the discharge areas along the Main Snake River or Blackfoot River. Locally, public lands along or adjacent to the 139 miles of streams within the PFO area are equally important to the shallow, unconfined alluvial aquifers. In addition, nearly 300 springs on public lands within the PFO area form small groundwater discharge areas, locally important for wetland vegetation, wildlife, and livestock.

Groundwater flow systems in the PFO area are closely tied to the structurally complex thrust fault fold/horstgraben geology of the area. Minor flow systems are also associated with limestone caverns, intra-canyon lava flows, geothermal convection, lake beds, and flood gravels.

A study of the hydrology and springs associated with the Meade Peak Thrust System was conducted in 1983. The study indicated the presence of a deep, thrust block controlled system that allows water to move from the eastern high mountain ranges west into the Blackfoot Reservoir and Bear River area. Other studies completed in the Portneuf River and Bear River Range indicate that flow systems in these areas also cut across mountain ranges, producing inter-basin flows (BLM 1987b).

Shallow ground water flow systems are also found in the valleys throughout the PFO area. Recharge for these systems takes place in the adjacent mountain ranges. Springs that originate from these systems have low conductivity, low dissolved solids, good water quality, and variable flows.

3.2.9.2 Surface Water

Public lands managed by the BLM within the PFO area drain into two separate regional basins: the closed Great Salt Lake Basin via the Bear River and the Columbia River Basin via the Snake River. Within these basins, the PFO area includes all or portions of 15 subbasins or watersheds (4^{th} order). These watersheds, along with their USGS - HUC number, are listed in **Table 3-15** and shown in **Figure 3-9**.

The PFO area has approximately 139 miles of streams and rivers on public lands and contains a large variety of stream types, from very small spring creeks to reaches of medium and large rivers. Within the PFO area, the BLM manages public lands along three major rivers: the Blackfoot, Portneuf, and Bear Rivers.

Table 3-15. Watersheds in the Pocatello Field Office Planning Area.

Watershed Name	HUC Number	Watershed Size (square miles)	BLM land in HUC (acres)
American Falls	17040206	2,850	47,167
Bear Lake	16010201	1,238	28,886
Blackfoot	17040207	1,051	41,393
Central Bear	16010102	834	32,546
Curlew Valley	16020309	1,930	207,709
Idaho Falls	17040201	1,140	1,427
Lake Walcott	17040209	3,670	38,483
Little Bear-Logan	16010203	928	0
Lower Bear-Malad	16010204	1,171	68,793
Middle Bear	16010202	1,216	28,580
Palisades	17040104	930	0
Portneuf	17040208	1304	108,812
Raft	17040210	1,470	110
Salt	17040105	926	4,302
Willow	17040205	651	4,626

Source: BLM 2004b

Other surface waters on public lands include shoreline and open water habitat on lakes, reservoirs, and ponds (**Figure 3-9**).

The PFO also manages about 300 springs, most are developed for livestock water. Most of the rivers in the PFO area have been developed for irrigation, hydropower, or both. The streams and rivers on public lands occur in a wide variety of landscapes, primarily midelevation valleys to lower elevation, fast-flowing basalt canyons. Stream and river conditions vary, from completely undisturbed river and vegetative communities in inaccessible rocky canyons to deep, erodible soil banks at lower elevations where livestock and people involved in recreation and irrigation diversion activities have total access to stream banks.

The dominant legislation affecting the nation's water quality and the BLM's compliance with state water quality requirements is the Federal Water Pollution Control Act of 1972, including all subsequent revisions (commonly called the Clean Water Act). The primary goal of the Clean Water Act is to restore and maintain the chemical, physical and biological integrity of the nation's waters (33 USC §1251.101). Section 313 includes the Federal Facilities Pollution Control section, which states that all federal agencies shall comply with all federal, state, and local water quality and environmental requirements.

Currently, the most significant water quality requirements affecting the BLM's land management comes from section 303(d) of the Clean Water Act. In this section, states are required to identify and prioritize waterbodies that are water quality limited (i.e., waterbodies that do not meet water quality standards) and publish a priority list of impaired waters. This list is commonly called the 303(d) list, named for Section 303(d) of the Clean Water Act, which requires the states to develop total maximum daily loads (TMDLs) for these 303(d)-listed streams. The TMDL process is a coordinated process for state, private, and federal entities to work on subbasin

assessments for each 4th order watershed, to analyze the pollutant load for each listed stream, and to allocate a maximum load to that stream for each pollutant. This process affects federal agencies through the implementation plan, which defines how land management agencies will reduce pollutant input to listed streams. While the BLM can manage actions on public lands, they cannot control point and non-point pollution on other lands. Therefore, the fragmented land ownership pattern of the planning area requires a coordinated effort to address water quality. The BLM participates on watershed advisory groups to work through this process.

There are 32 rivers on the 303(d) list that traverse public lands in the planning area. These rivers occur in eight of the 15 watersheds and contain 892 miles of impaired segments, of which the PFO manages 153 miles of stream banks along them. Likewise, there are 1,499 acres of impaired reservoir waters, of which less than one-acre are on public lands (**Table 3-16**). The primary pollutants of concern in these water bodies are sedimentation, nutrients, temperature, flow alternation, and bacteria. The major influences on water supply and water quality on BLM-managed streams in these areas include selenium pollution from phosphate mining (primarily in the Blackfoot subbasin), livestock grazing, forestry, agriculture, roads, hydropower, and recreation. Sedimentation is the most common pollutant on segments that traverse public lands. The designated beneficial use for these listed streams is cold water biota.

For all of these listed streams, TMDL plans will include implementation actions to reduce their pollutant loads. The EPA has approved TMDL implementation plans for the Blackfoot, Lake Walcott, Portneuf, and Palisades watersheds.

3.2.9.3 Drinking Water

The BLM within the PFO area manages one municipal watershed providing drinking water for the community of Downey, Idaho, in Bannock County. This 1,855-acre watershed was withdrawn from settlement, sale, location, or entry under public land laws, including nonmetalliferous mining under the US Mining laws. The Downey Municipal Watershed is a spring complex about two miles east of Downey that provides 90 percent of the water supply to Downey residents. The two developed springs have the water supply contained in a diversion box and pipeline. Any land management action within this watershed must adequately protect this drinking water source.

3.2.9.4 Water Rights

The PFO has more than 350 water right claims in the Idaho Snake River Basin Adjudication (SRBA) for livestock and wildlife. By Executive Order (Public Water Reserve [PWR] 107, dated April 17, 1926), all public lands of the US containing a spring or water hole needed or used for public purposes were included in a blanket withdrawal without identification of the lands affected. Spring claims make up 74 percent of the total, with the remaining water right claims on streams, wells, ponds, lakes, or manmade reservoirs. The BLM also has numerous water right claims on waters in the Bear River watershed, outside of the SRBA. Further discussion on withdrawals and water rights are discussed in the *Lands and Realty Section 3.3.2.2.*

Table 3-16. Listed 303(d) Water Bodies on Public Lands within the Planning Area.

Watershed (subbasin)	Major Land Uses	Water Body in Planning Area	Total Miles/Acres	Miles/Acres on Public Lands	Pollutants of Concern
Bear Lake	Agriculture, range, forest, urban	Alexander Reservoir	1,010.61 acres	0.05 acres	Sedimentation
		Co-Op Creek	7.07	1.80	Nutrients, Sedimentation
		Georgetown Canyon	14.74	0.27	Sedimentation
		Montpelier Creek	19.40	0.09	Flow Alteration, Nutrients, Oil & Grease, Sedimentation
		North Creek	8.06	1.01	Unknown Sources
Middle Bear	Agriculture, range, forest, urban	Bear River	170.99	18.49	Flow Alteration, Nutrients, Sedimentation
		Cottonwood Creek	23.54	4.78	Sedimentation
		Densmore Creek	9.02	0.38	Nutrients, Sedimentation
		Maple Creek	8.14	0.31	Bacteria, Unknown Sources
		Mink Creek	24.00	0.10	Nutrients, Sedimentation
		Oneida Narrows Res.	420.68 acres	0.78 acres	Sedimentation
		Trout Creek	11.37	0.92	Nutrients, Sedimentation
		Williams Creek	7.25	0.94	Nutrients, Sedimentation
Lower Bear-Malad	Agriculture, range, forest, urban	Dairy Creek	12.02	1.01	Unknown Sources
		Samaria Creek	9.22	1.24	Nutrients, Sedimentation
Willow	Cropland, rangeland	Willow Creek	20.84	0.14	Sedimentation, Temperature
American Falls	Agriculture, grazing, urban	Bannock Creek	51.48	0.42	Bacteria, Nutrients, Sedimentation
		Knox Creek	11.32	2.21	Unknown Sources
		Rattlesnake Creek	14.65	0.96	Sedimentation
		W. Fk. Bannock Cr.	3.65	2.92	Sedimentation
Blackfoot	Dryland and irrigated agriculture, livestock grazing, phosphate mining	Blackfoot River	105.49	96.58	Flow Alteration, Nutrients, Sedimentation
		Brush Creek	15.30	0.37	Temperature, Unknown Sources
		Deadman Creek	4.05	0.24	Temperature
		Dry Valley Creek	11.15	0.21	Sedimentation
		Lanes Creek	10.39	0.26	Sedimentation
		Meadow Creek	34.04	0.82	Sedimentation
		Rawlins Creek	7.90	0.58	Sedimentation
		Wolverine Creek	10.78	5.40	Nutrients, Sedimentation
Portneuf	Agriculture, rangeland, urban	Arkansas Creek	5.40	0.38	Sedimentation, Unknown Sources
		Bell Marsh Creek	6.37	1.04	Sedimentation
		Garden Creek	17.50	0.54	Nutrients, Sedimentation
		Gibson Jack Creek	4.31	0.10	Sedimentation
		Goodenough Creek	6.76	1.03	Sedimentation
		Hawkins Reservoir	67.48 acres	0.08 acres	Dissolved Oxygen, Nutrients, Sedimentation
		Hawkins Creek	15.06	0.15	Nutrients, Sedimentation
		Marsh Creek	52.25	1.37	Nutrients, Sedimentation
		Portneuf River	105.07	1.68	Bacteria, Flow Alteration, Nutrients, Sedimentation
		Rapid Creek	6.24	0.01	Sedimentation
		Walker Creek	6.08	0.48	Sedimentation
Lake Walcott	Range, agriculture	E. Fork Rock Creek	11.30	2.40	Sedimentation
		S. Fork Rock Creek	29.37	1.49	Temperature, Unknown Sources
		TOTAL Stream Miles	**891.57**	**153.12**	
		TOTAL Acres	**1498.77**	**0.91**	

Source: IDEQ 2001.

3.2.9.5 Riparian and Wetland Resources

The PFO uses the riparian-wetland PFC health assessment database to store and retrieve riparian data (Hansen et al. 1993-2000). The PFC method from the University of Montana's Montana Riparian-Wetland Riparian Association is used to report the riparian condition class: the riparian-wetland polygon (or reach) is either in PFC, functioning-at-risk or nonfunctional (BLM 1993). Within the PFO area, 26 percent (36 miles) of the streams are in PFC, 40 percent (56 miles) are functioning-at-risk, 33 percent (46 miles) are nonfunctional, and one-percent are unknown.

3.2.9.6 Hydroelectric Diversions and Facilities

Several hydroelectric power generating facilities exist along the Bear River on public lands. These facilities are the Soda, Grace/Cove, and Oneida projects operated by PacifiCorp. These public lands are withdrawn and regulated by the Federal Energy Regulatory Commission (FERC). Any expansion of these facilities could change or eliminate certain uses on public lands.

3.2.10 WILDLAND FIRE MANAGEMENT

Direction for fire suppression and fuels management will be established through the desired future condition, goals, and objectives for the vegetation cover types found in the PFO area.

The primary focus and number one priority for fire suppression and fuels management activities in the PFO area is within the wildland urban interface (WUI). Although the protection of life and property within WUI areas are of highest priority, changes in vegetation conditions, such as juniper encroachment into the Mid-Elevation Shrub vegetation type and conifer encroachment into pure stands of the Aspen vegetation type are also important. Mountain shrubs, aspen regeneration and conifer forest health issues predominate outside the WUI.

3.2.10.1 Wildland-Urban Interface

The wildland-urban interface can be described as a line, area, or zone that occurs where human developments, such as communities, farms, ranches, summer homes, and recreational facilities meet or intermix with undeveloped wildland or vegetative fuels on forestland or rangeland (Laverty and Williams 2000). During the 2000 fire season, approximately 6.8 million acres of public and private lands burned in the US, resulting in the loss of property, damage to natural resources, and the disruption of community services. Many of these fires burned in the wildland-urban interface areas and exceeded the fire suppression capabilities of firefighters.

Seasonal wildland fires represent a potential threat to both new and established older communities along the wildland-urban interface. For areas in and around the wildland-urban interface where wildland fire occurrence is on the increase and there have been no fuels reductions or green-strip treatments, the risk of catastrophic wildland fire is elevated due to the increased fuel loads and associated increase in fire severity. Reducing fuel loads within the wildland-urban interface will require wildland fire use and prescribed fire pose an inherent risk to wildland-urban interface areas due to the possibility of escape.

Several healthy vegetative communities evolved with fire and require fire to establish, promote, and/or maintain certain vegetation types found within the ecosystem. These vegetation communities may inherently promote catastrophic wildland fires in order to regenerate or recruit new seedlings. Where these vegetative communities overlap with wildland-urban interface, the goal is to reduce the threat of catastrophic wildland fires and assure public safety.

During the wildland fire season, the availability of fire fighting personnel is often diminished depending on the occurrence of other fires in the region, the size of those fires, the size of the communities-at-risk, and the number of structures needing protection. Even for the individual fire, there are not always enough fire fighters to quickly suppress fires before structures are threatened or damaged by fire. While fire fighters are defending one structure, the perimeter of the fire may rage on elsewhere, threatening many more structures and consuming many acres of vegetation. For these reasons, residents of communities along the wildland-urban interface cannot solely depend on fire fighters to save their property. Residents in the wildland-urban interface can help protect their property and community by taking defensive steps towards reducing fuel loads both before and during the fire season.

The BLM can reduce wildland fire in and around wildland-urban interface areas by planning and implementing fuels reduction and restoration treatments on surrounding public lands. Existing project proposals in those identified wildland-urban Interface communities that have approved plans and completed environmental compliance will have the highest priority for fuels treatment, and work is already underway in many of these communities, including:

- Portneuf West Bench – fuels reduction with Caribou National Forest - Pocatello and Inkom.
- Buckskin Fuels – Pocatello and Inkom
- Lava Ranches Fuels Reduction – in interface around lava hot springs
- Soda Hills Fuels Reduction - landscape level fuels – Soda Springs
- Samaria Mountains Fuels Reduction- Samaria and Pleasantview.

Additional projects identified as priority in CWPPs will be readied for implementation will receive the next priority. Finally, for those newly identified projects or projects not ready for implementation, the planning process will be initiated toward future treatments and implementation schedules will be developed as CWPPs are updated.

Communities-at-Risk

A list of all WUI communities that are at high risk from wildland fire was published in the Federal Register (Forest Service et al. 2001). Approximately 44 "communities-at-risk", of varying size and development, are located within the PFO area. CWPPs define CARs at highest risk from wildfire. CWPP requirements under the Healthy Forests Restoration Act (HFRA) include identifying risk, mapping WUI, and identifying priority projects on both federal and non-federal lands.

All nine counties encompassed by the PFO planning area have completed, in cooperation with the BLM, CWPPs. The BLM has five year agreements with municipal, county, and fire districts to provide mutual fire-fighting aid between local and county fire departments and the BLM. Operating plans are updated and maintained annually by the local and county fire departments. These annual plans help fire managers utilize time, manpower, and resources to effectively protect communities-at-risk and fight wildland fires.

3.2.10.2 Current Fire Regime Condition Class Trends

FRCC is described as the degree of departure from historical fire regime and vegetative conditions. FRCC classes indicate the degree of departure in ecological components such as species composition, structural stages, stand age, dominate cover type, and canopy closure caused by disturbance frequency, climate, and management actions. The departure has changed ecosystem components such as species composition, structural stage, stand age, and canopy closure. Departures from the historic fire regimes are caused by fire exclusion, timber harvesting, grazing, introduction and establishment of exotic plant species, insects and disease, and other management activities.

Historic Fire Regimes

Historic Fire Regimes (**Table 3-17**) are used as part of the FRCC to describe fire frequency (average number of years between fires) and fire severity (effect of the fire on the dominant overstory vegetation – low, mixed, or stand replacement). There are five historical fire regimes.

Table 3-17. Historical Fire Regimes.

Fire Regime	Description
I	0 to 35-year frequency, low severity
II	0 to 35-year frequency, stand-replacement severity
III	35 to 200 year frequency, mixed severity
IV	35 to 100+-year frequency, stand-replacement severity
V	200+ year frequency, stand-replacement severity 100 years

Source: Hardy et al. 2001.

Historic Fire Regime Condition Classes

Three FRCC classes are used as described by Hardy et al. (2001). Components of FRCC are the historic fire regime and vegetation condition. **Appendix J**, Section II and III, describes the relationship between FRCC descriptors and land health indicators (vegetation condition including seral classes and disturbance regimes) for LHC-A, -B, and -C. FRCC classes, like LHC, are based upon the presence or absence of ecological components necessary for a healthy ecosystem. The FRCC classes are described as follows:

Fire Regime Condition Class 1 (LHC-A)

- Fire regimes are within or near an historical range.
- The risk of losing key ecosystem components is low.
- Fire frequencies have departed from historical frequencies by no more than one return interval.
- Vegetative attributes are similar to historic (species composition, age, and structure) and are intact and functioning.

Fire Regime Condition Class 2 (LHC-B)

- Fire regimes have been moderately altered from their historical range.
- The risk of losing key ecosystem components has increased to moderate.
- Fire frequencies have increased or decreased from historical frequencies by more than one return interval, resulting in moderate changes in fire size, frequency, intensity, severity, or landscape patterns.
- Vegetative attributes have moderately departed from historic but are still functioning.

Fire Regime Condition Class 3 (LHC-C)

- Fire regimes have been significantly altered from their historical range.

- The risk of losing key ecosystem components is high.
- Fire frequencies have departed from historical frequencies by multiple return intervals, creating dramatic changes in fire size, frequency, intensity, severity, or landscape patterns.
- Vegetative attributes have significantly departed from historical and may not be functioning properly.

Table 3-18 describes the current FRCC by vegetation type. Descriptions of the various vegetation cover types are included in *Vegetation Section 3.2.5*.

Table 3-18. Current Fire Regime Condition Class By Vegetation Type.

Vegetation Type	Acres	Current Condition
		Fire Regime Condition Class
Low-Elevation Shrub (including perennial grass and seedlings acres)	144,800	2
Mid-Elevation Shrub (inclusive of encroached juniper acres)	167,700	2
Mountain Shrub	187,100	2
Juniper (Natural Occurring)	14,400	2
Aspen/Aspen Conifer Mix/Dry Conifer	90,300	3
Wet/Cold Conifer	700	2
Riparian	6,600	n/a
Other/Vegetated Lava	16,600	1

3.2.10.3 Vegetation Types Fire Regimes

The information below is a summary of more detailed information provided in **Appendix J**, which contains supporting references.

Low-Elevation Shrub (including perennial grass and seedings)

This type is in historic fire regime IV. The fire return interval for replacement fire varies from 30 to 120 years, with an average of 92 years. The fire return interval for mixed severity fire varies from 120 to 500 years, with an average of 714 years. The average return interval for surface fires is 81 years. Fire size ranges from 10 to 10,000 acres with an average of 250 acres.

Cheatgrass invasion has resulted in finer fuels and more frequent large fires. Large fires impact the existing sagebrush steppe habitat and facilitate expansion of cheatgrass. Once cheatgrass dominates a site, the fire regime is altered to more frequent stand replacing fires. Shortened natural/historical fire rotations impact perennial vegetation by killing the tops of the plants and allowing little time (few growing seasons) between recurrent fires.

Perennial and annual grass plant communities occur principally in what was once sagebrush steppe, primarily the Low-Elevation Shrub type. These perennial grasslands are composed of seeded ranges and recovering burned areas. Expansion of cheatgrass into native sites is a major,

immediate concern, altering fire regimes through increased fire frequency and severity compared to the historical fire regimes typical of intact sagebrush steppe. In Perennial and annual grasslands, current fire frequency has increased compared to the historic fire regime typical of intact sagebrush steppe.

In the PFO area from 1970 through 2001, approximately 4,000 acres (3%) of Low-Elevation Shrub burned.

Mid-Elevation Shrub and Juniper (Natural and Encroached)

This type is in historic fire regime IV. The fire return interval for replacement fire varies from 15 to 100 years, with an average of 49 years. Under pre-settlement conditions, mosaic burns generally exceeded 75% topkill (replacement fire). Fire size ranges from 10 to 30,000 acres with an average of 500 acres.

In the PFO area from 1970 through 2001, approximately 17,500 acres (only 10%) of Mid-Elevation Shrub, including encroached juniper burned. With a fire frequency between 10 to 25 years, the entire 167,700 acres of Mid-Elevation Shrub including encroached juniper should have burned at least once during that 32-year period.

Mountain Shrub

This type is in historic fire regime III. The fire return interval for replacement fire varies from 50 to 300 years, with an average of 80 years. The fire return interval for mixed severity fire varies from 20 to 60 years, with an average of 100 years. Fire size ranges from 5 to 100 acres with an average of 40 acres.

Aspen/Aspen-Conifer Mix and Dry Conifer

This is a strongly fire adapted community. This type is in historic fire regime II. The fire return interval for replacement fire varies from 50 to 300 years, with an average of 100 years. The fire return interval for mixed severity fire varies from 10 to 50 years, with an average of 40 years. Fire size ranges from 1 to 100 acres with an average of 50 acres.

Past management has reduced the fire occurrence and severity in this vegetation type and caused a moderate deviation from its historic fire regime.

Wet/Cold Conifer

This type is in historic fire regime V. The fire return interval for replacement fire varies from 150 to 200 years, with an average of 175 years. The fire return interval for mixed severity fire is 1000 years. Fire size ranges from 1 to 1000 acres with an average of 100 acres. Subalpine fir and Engelmann spruce are very sensitive to wildland fire. Fire severity in these stands varies from low severity, which consumes duff and small diameter fuels, to high severity, which may become stand-replacing fires. Lodgepole pine normally burns in medium to high severity fires, though fires in lodgepole also include slow moving fires in sparse duff.

Riparian

Natural fire is generally an infrequent occurrence in this vegetation type, though the dominant cover type adjacent to the riparian plant community usually dictates its natural/historical fire rotation. For those larger riparian areas (e.g., around Bear Lake) the natural/historical fire rotation is estimated to range from 200 to 300+ years and thought to be stand replacing when they occur. Riparian communities are classified as fire regime V.

Other/Vegetated Lava

Historically, natural fire was infrequent and noncontiguous in open vegetated lava areas, where only one to a few shrub/trees burned; whereas, natural fire was infrequent but contiguous in the denser stands and could result in stand replacement. Due to the broken terrain of the vegetation type, secondary succession following wildland fire is highly unpredictable and depends on specific microsite characteristics like the amount of soil deposition and soil development, seed sources, and dispersal from surrounding areas. Consequently, the development of vegetation following fire is quite varied. This vegetation type is composed of varying amounts of herbaceous forbs, grasses, and shrubs (e.g., Wyoming and mountain sagebrush, bitterbrush, syringa, currant, and chokecherry) as well as juniper. Vegetated Lava is classified as fire regime V.

3.3 RESOURCE USES

This section contains a description of the existing human uses of resources in the planning area and follows the order of topics addressed in Chapter 2. These topics are:

- Forestry
- Lands and Realty
- Livestock Grazing
- Minerals and Energy
- Recreation

3.3.1 FORESTRY

Currently, over 90 percent of forested lands, or nearly 45,000 acres, within the planning area are in primarily mature age classes (90-110 years old). Young, thrifty stands of Douglas-fir (*Pseudotsuga menziesii*) and aspen (*Populus tremuloides*) are rare. Generally, tree densities are high and natural regeneration is poor.

From 1975-1985 the planning area produced seven timber sales totaling 974 thousand board feet (MBF). Fourteen timber sales occurred between 1986-1991 totaling 11,619 MBF, mostly for Douglas-fir bark beetle caused tree mortality. Since 1992 the planning area has had 9 timber sales totaling 7,210 MBF. There are currently five areas planned for future harvest. These five areas include approximately 7,000 MBF. The forestry program also averages more than 300 vegetative permits per year for firewood, Christmas trees, etc. Douglas-fir *is* the dominant commercial species in the planning area with minor amounts of lodgepole pine (*Pinus contorta*), subalpine fir (*Abies lasiocarpa*), and Engelmann spruce (*Picea engelmannii*).

The direction for the program is set by the fire, fuels, and wildlife programs along with the President's Healthy Forest Initiative and HFRA with the intent of rejuvenating woodland and commercial forest lands. It is also the direction of the forestry program to accelerate harvesting to treat all WUI lands within the next 10 years lessening the threat of wildfire to human health and property. A 1990-93 forest inventory demonstrated an overall trend of decline in tree growth (declining mean annual increment).

Due to the single species dominance of shade tolerant Douglas-fir, an abundance of mature host trees of adequate size, high tree densities, prolonged drought and poor growth rates and tree vigor, many forested areas and associated resource values are at high risk of fire, insect and disease epidemics-primarily Douglas-fir bark beetle, tussock moth, spruce budworm, and dwarf mistletoe. Approximately a quarter of all Douglas-fir trees, greater than eight inches in diameter, have died in the past 15 years as a result of bark beetles. Existing and additional mortality will increase the risk of catastrophic wildfire that threatens forest resources and WUI communities.

Wood products would be provided by using timber harvesting as a method to protect and sustain live, mature forest structure through the management of tree densities, species composition, and natural fuel loading from the 45,708 acres of available commercial timberlands. Stewardship contracting is being explored as a possible option to implement long term harvesting and fuel reduction goals, as well as to stimulate local economies. Accelerated harvesting should be used

to treat all WUI lands within the next ten years lessening the threat of wildfire to human health and property. Harvesting and treatment should be achieved while maintaining a no net increase in open road densities.

3.3.1.1 Lands Inventory and Classification

Timber Production Capability Classification (TPCC) is a site specific method of identifying lands based upon physical and biological characteristics; land-types are classified by soils, vegetative productivity and habitat types, lithology, geomorphic characteristics, and a number of other subdivided physiographic and biological features (**Table 3-19**). A detailed TPCC was completed within the planning area in 1984.

Table 3-19. Planning Area Forest Lands Classifications.

Forest Lands (Woodlands)	Acres
Not Suitable for Commercial Management Activities	59,411
Forest Lands Suitable for Commercial Management Activities:	
With Limiting Factors:	
Low site productivity	767
Moisture availability	3,852
Unstable Slopes	777
Understory Competition	1,171
Ancillary Commercial Species:	
Aspen	7,590
Juniper	1,405
Total	15,562
Deferred/Suitable:	
Petticoat Peak WSA	2,519
Worm Creek WSA	40
Bowen Canyon Bald Eagle Sanctuary ACEC	559
Total	3,118
Suitable for Commercial Management Activities - No Limiting Factors	27,028
Total (includes deferred, suitable acreage)	45,708

Source: BLM 1984

3.3.1.2 Annual Probable Sale Quantity

The annual probable sale quantity (PSQ) for the planning area is 600 MBF based on the forest land base of 45,708 acres. With an annual harvest of 600 MBF the average of 193 acres could be thinned each year based on the average volume per acre historically removed from the planning area. Salvage logging of fire, insect, and disease killed trees will not be included in the PSQ.

3.3.1.3 Commercial Timber Harvesting

Since the RMP and Malad MFP, the area within the PFO has produced 28 commercial timber sales, on a total of 4,390 acres on public lands (16 percent of the total suitable commercial forest), shown on **Table 3-20**.

Table 3-20. Past Commercial Timber Harvesting on Public Lands.

Commercial Timber Silvicultural Method	Acres
Commercial Thinning	927
Sanitation Salvage	1,401
Salvage	1,943
Clearcut	119
Total	**4,390**

3.3.1.4 Reforestation

Data on past acres of planting are incomplete, however, using the data available and knowledge of the area, the BLM estimates that approximately 700 acres have been planted in the RMP area. It is possible that more acres have been planted.

3.3.1.5 Forested Land Treated for Fuel Reduction Forest Health Treatments

There is no information available on the number of acres or volume removed specifically for fuel reduction or forest health improvement.

3.3.2 LANDS AND REALTY

3.3.2.1 Land Status

The land use information provided below establishes a baseline for analyzing potential impacts from the proposed project.

Land ownership in the planning area is mixed, with state and private lands interspersed among the public land (**Figure 1-1**). Lands administered by the PFO total 613,800 acres, or 12 percent of the 5,142,098 acres within the planning area boundary of southeastern Idaho. Due to the scattered land pattern and the isolated nature of many of the public land parcels, management can be extremely difficult. Land ownership patterns within the PFO planning area have been dictated primarily by the topography. Originally, most of the privately owned lands were obtained through agricultural entries such as the Homestead Act. Public lands within the PFO planning area provide for livestock grazing, wildlife habitat, recreational uses (such as OHV, camping, hunting, fishing, hiking, biking, and skiing), mining operations, access roads, utility ROWs, and various other land use authorizations.

3.3.2.2 Withdrawals

A withdrawal is a formal action that results in one or more of the following actions:

- Transfers total or partial jurisdiction of federal land between federal agencies;
- Segregates (closes) federal land to some or all of the public land laws and/or mineral laws; or
- Dedicates land for a specific public purpose.

The three major categories of formal withdrawals are congressional withdrawals, administrative withdrawals, and Federal Power Act or FERC withdrawals. Congressional withdrawals are those made by Congress in the form of public laws (Acts of Congress). Administrative withdrawals are made by the President, Secretary of the Interior, or other authorized officers of the executive branch of the federal government. Federal Power Act or FERC withdrawals are power project withdrawals established under the authority of the Federal Power Act of 1920.

The PFO area includes approximately 45 withdrawals. **Figure 1-1** identifies the lands withdrawn within the Pocatello planning area. Examples of these withdrawals include power site reserves, power projects, PWRs, administrative sites (Forest Service and USFWS), a stock driveway and two wildlife reserves. Other types of withdrawals or de facto withdrawals include land use classifications for recreation and public purposes. These withdrawn lands receive varying degrees of management, depending on the land uses and type of withdrawal.

By Executive Order dated April 17, 1926 (PWR 107), all public lands of the US containing a spring or water hole needed or used for public purposes were included in a blanket withdrawal without identification of the lands affected. According to the Executive Order, the land is "withdrawn from settlement, location, sale, or entry." Not all lands withdrawn under PWR 107 have been identified and recorded, making protection under this Executive Order difficult.

Some of the lands that are set aside under a withdrawal may have a resource that is not being protected, used, or developed because of the classification. There may be a more valuable use for these lands. There is also a concern that public land status records are not being updated and maintained to reflect current uses.

A review conducted under the authority of Section 204(1) of the Federal Land Policy and Management Act (FLPMA) identified lands within the PFO area that are no longer needed by the holding agency. Certain identified withdrawals could then be modified, extended, or revoked according to the processes outlined in Section 204(a) of FLPMA and further process guidance provided in the BLM Washington Office Instruction Memorandum No. 96-145. The revocation or termination of these withdrawn lands would accomplish the following:

- Provide an increased opportunity to use the lands for exchange, land disposals, mineral development, or other needs, as indicated in the land use plan;
- Protect and manage valuable resources; and
- Allow for management by one agency, thereby reducing overhead costs.

The 1988 RMP established direction to pursue a withdrawal on the 1,500 acres associated with the designated ACEC/Research Natural Areas (RNAs), this direction would be carried through each alternative to protect the resources for which the land was designated. The Soda Springs Hills Wildlife Management area and the Bowen Canyon ACEC are also areas that are being managed for specific resource protection. These areas are examples of areas that would warrant a discretionary withdrawal to help manage and protect the public lands.

3.3.2.3 Land Use Authorizations

Land Use Authorizations are issued for a variety of purposes, both short-term and long-term. Short-term uses include agricultural leases, military training areas, and other uses involving minimal land improvements or disturbances. Long-term uses include ROWs for power lines, highways, roads, pipelines, fiber optics, communication sites, electric power generation sites, and irrigation.

The Idaho BLM's water rights policy has been changing and continues to change with the ongoing process of the SRBA effort. All future actions involving water rights shall adhere to the State of Idaho and BLM statewide water rights policies. Older land use authorizations are silent on water rights issues; as new applications are received and old permits are renewed, determination would be made that Idaho water rights policies are being followed and language implementing current Idaho water rights policy would be included.

Land Use Permits and Leases

A lease is an authorization to possess and use public land for a fixed period of time. A lease is issued when there is going to be substantial construction, development, and improvement and there is an investment of large amounts of capital that will be amortized over time.

Permits are authorized when uses of public lands will be short-term and involve little or no land improvement, construction, or investment. Permits have been a method used to clear up

unauthorized use, stipulating that the applicant remove or halt the unauthorized use and rehabilitate the land if necessary.

The Recreation and Public Purposes Act allows state and local governments, as well as qualified nonprofit organizations, the opportunity to lease (and potentially patent) public land where there is a strong public need for a particular use. The PFO has leased lands under this authority for a variety of purposes, including scout camps, a fire department, a shooting range, and public parks.

Currently there are five land use permits and seven leases in the Pocatello planning area authorized according to regulations found at 43 CFR 2900.

Rights-of-Way

There are approximately 391 authorized ROWs within the PFO area, with an average of ten new ROWs being issued each fiscal year. These authorizations include such uses as roads, water pipelines, natural gas pipelines, power lines, telephone lines, fiber optic cables, railroads, canals, ditches, and communications sites.

Transportation system authorizations include reservations made for state and federal highways and ROWs granted to counties and individuals for access roads. Several major ROW corridors, as identified by the Western Utility Group (WUG), now known as Western Regional Corridor Planning Partnership, exist within the PFO area, but most of the land within the corridor is private. **Figure 3-10** identifies the location of existing utility ROW corridors, WUG priority corridors and agency designated corridors. There are several existing corridors located mostly in the eastern half of the planning area. The existing corridors are areas that already have significant development for a particular use, such as electrical power transmission lines, natural gas pipelines, and fiber optic and communication lines. Many times these corridors are in conjunction with federal interstate highways, state highways, and railroads. Applicants are and will continue to be encouraged to use the existing corridors where applicable.

An interagency Programmatic Environmental Impact Statement (PEIS) is currently being developed to implement Section 368 of the Energy Policy Act of 2005 (designation of West-wide energy corridors). The final PEIS will address numerous energy corridor related issues, including the use of existing corridors, identification of new corridors, supply and demand considerations, and compatibility with other corridor and project planning efforts.

With the large number of varying ROW authorizations, it is important that all environmental resources and concerns be taken into consideration. There could be loss of resources or environmental damages that may be prevented if compatible uses are analyzed and, where possible, consolidated. Avoidance and exclusion areas are currently identified within the PFO area to protect resources and prevent unnecessary or undue environmental damages. Areas with important resource values are taken into consideration when processing ROW applications. Areas with seasonal restrictions are also identified and stipulations are attached to ROWs according to this guidance.

According to current BLM guidance and the President's National Energy Policy, the BLM objective is to continue to make public land available for needed ROWs where consistent with national, state, and local plans, and use ROWs in-common to minimize environmental impacts and proliferation of separate ROWs. This guidance and policy also pertains to ROWs for alternative, renewable energy resources, such as wind, solar, geothermal, and biomass**.**

Communication Sites

The PFO area has three major communication sites within its boundaries; Howard Mountain, Chinese Peak, and Fish Creek. These sites accommodate approximately 32 ROW holders/lessees. The PFO area is also home to several small communication and single-use sites, including Malad Mountain, Boundary Ridge, Garden Creek, and Curlew. These small and single-use communication sites accommodate an additional nine holders/lessees. These figures do not include the number of tenants or customers legally operating out of holder/lessee buildings. Howard Mountain and Chinese Peak are both complex sites overlooking Pocatello. Howard Mountain is home to both high-power and low-power users, but interference issues have not been significant because the sites are scattered over a large area, providing both distance and vertical separation of antenna elements.

3.3.2.4 Land Tenure Adjustment

As stated above, the PFO area contains a mixed ownership land pattern. Although the potential for resource values may be high on some public land parcels, lack of access or isolation from other resources of these parcels make it very difficult to manage. Land tenure adjustments within the planning area help to resolve split mineral estate situations, to consolidate public land (through sale, exchange, or acquisition), to acquire access, and to resolve unauthorized use cases. Land tenure adjustments are also important to the local and state governments to consolidate ownership and to make lands available for public purposes.

FLPMA and other Federal laws, Executive Orders, and policies suggest criteria to use when categorizing public lands for retention or disposal, and for identifying acquisition priorities. The following list of criteria is not considered all-inclusive, but represents the major activities and issues affecting lands within the planning area. These criteria are meant to streamline consideration of land tenure adjustment proposals.

Lands with Highest Priority for Retention or Acquisition:

- Those lands specifically identified by the Shoshone-Bannock Tribes as having special importance related to treaty and/or traditional uses/values;
- Important, crucial, or critical habitat for special status species including proposed species, listed species, and candidate species under the ESA; State-listed species; and BLM State Director-designated sensitive species;
- Riparian areas and wetlands;
- Parcels that provide public and/or administrative access to larger blocks of public land; and
- Lands with special designation or management emphasis.

Special Designation/Management Areas Where it is a High Priority to Acquire Inholdings:

- ECECs, or lands adjacent to and important for expansion of such areas;
- National Historic Trails (NHTs);
- Wild and Scenic Rivers (eligible, recommended suitable, or designated);
- Significant cultural resources and sites eligible for inclusion on the NRHP; and
- Wilderness and WSAs.

Areas Generally Retained, but May be Exchanged for Parcels with Higher Resource Values:

- Important habitat areas for fish or wildlife;
- Developed recreation sites and recreation access;
- Areas with recreation opportunities and benefits;
- Significant energy and mineral resources areas; and
- Significant paleontological resources areas.

Areas that are a High Priority for Disposal:

- Parcels which are difficult or costly to administer (manageability and/or isolation of the parcel);
- Parcels more suitable for management by another Federal or State agency; and
- Parcels of special importance to (and generally adjacent to) local communities for purposes including, but not limited to, community expansion, extended community services, or economic development.

Other Issues to be Considered Prior to Any Land Tenure Adjustment Action:

- To what extent the individual action will help achieve overall land ownership management objectives at the watershed level, in cooperation with State and private landowners;
- Existing legal accessibility of the land for public uses;
- Amount of public investments in facilities or improvements and the potential for recovering those investments; and
- Consistency with cooperative agreements and plans or policies of other agencies.

Split Mineral Estate

Public land within the PFO area involves split mineral estate situations, which involve private surface ownership and federal subsurface ownership. Through various acts, the federal government has retained mineral values, while encouraging settlement. As late as the 1980s, BLM policy concerning mineral estate was to reserve all oil and gas rights, as well as any other mineral values. Those lands which the US reserved minerals and where they contain valuable mineral resources are generally kept in federal ownership. Many of the private surface owners have requested that the subsurface minerals be sold or transferred to their ownership.

Management of the existing split estates has been, and will continue to be a challenge. It is important not to split estates when completing a land tenure adjustment.

Consolidation

With the current scattered land pattern of the PFO area, the BLM continues to struggle with the management of isolated or small parcels. Many of these parcels have no resource value and would be a benefit to a private citizen and the local tax base.

Large areas of land should be categorized for land tenure adjustments allowing the BLM to use the proper authority to block up land. By blocking up lands, management would be more effective. The BLM could dispose of lands with lower resource values and could acquire lands with valuable habitat, recreational value, scenic value, or opportunity for resource development. More acreage would be available for lease or conveyance under the Recreation and Public Purposes Act, allowing the state and nonprofit organizations to develop and use lands for important community recreation and public purposes.

Land Disposal

The public lands currently identified and available for disposal in the existing planning documents are shown on **Figure 2-5**. The lands were identified for disposal by parcels, either by exchange only, sale or exchange, or state exchange only. This identification process for land disposal is very limiting, especially with the type of mixed land ownership pattern within the PFO area. Public land is exchanged when parcels meet the criteria under Section 206 of FLPMA. Public land is sold when parcels meet the disposal criteria under Section 203 of FLMPA.

On July 25, 2000, Congress passed the Federal Land Transaction Facilitation Act (FLTFA), Public Law (PL) 106-248. Lands identified for disposal in land use plans as of that date may be sold or exchanged under FLTFA, and the monies received from sales or exchanges could be retained in an account and used by the BLM and other federal agencies to purchase additional lands. The money is not deposited in the General Treasury. Lands identified in the 1988 Pocatello RMP and the 1981 Malad MFP (Amendments) would qualify under this act.

The BLM has been working with the Idaho Department of Lands for many years to consolidate lands that mutually meet both agencies' needs. There are currently two pending State Exchanges that the PFO would like to finalize.

The Shoshone Bannock Tribes have rights to and cultural/historical affiliation with the lands in the planning area, so the Shoshone Bannock Tribes are interested in ensuring that lands that go out of federal ownership do not diminish their rights or traditional uses. Some of the traditional uses include hunting, fishing, firewood gathering, and livestock grazing. Coordination with the Shoshone-Bannock Tribes would continue.

Many unauthorized uses are unintentional and many of the affected areas have little, if any, remaining public resource values after years of unauthorized use. Therefore, it would be beneficial to resolve these cases. One way would be through disposal of the parcel of land associated with the long-standing unauthorized use.

Land Acquisition

Private land acquisition is authorized under section 205 of the FLPMA, primarily through land exchanges with private landowners and the State of Idaho.

In 2002, funds were made available to the PFO area (specifically the Soda Springs Hills area) through the Land and Water Conservation Funds to acquire land for protecting deer winter range. Approximately 1,174 acres were acquired and will be managed for deer wintering range and other uses that will complement this resource. If future funds are made available, land consolidation would continue within the Soda Springs Hills for protecting deer winter range.

There are approximately 70,738 acres of Bankhead-Jones land within the PFO area. The US acquired these lands under Title III of the Bankhead-Jones Farm Tenant Act of July 22, 1937 (50 Stat. 522; 7 USC 1001, et seq.). These are considered "acquired" lands and, therefore, are subject to certain management provisions. The lands are not available for lease or sale under the Recreation and Public Purposes Act of 1926 (44 Stat. 741), as revised in 1954 (68 Stat. 173; 43 USC 869 et seq.). Bankhead-Jones lands can be exchanged or sold, under FLPMA authority, to either public or private entities. These lands require special mineral management, which is addressed in the Mineral Resources section of this plan.

3.3.2.5 Access

Access needs are subsequently prioritized and worked on when there are landowners willing to grant an easement to the BLM or sell land in order to provide access to public lands. Public complaints and inquiries regarding access to public lands within the PFO area have increased significantly within the last five years. Not only does the public have limited access to public lands for recreation, in many cases the BLM does not have legal or administrative access to manage or monitor areas that have resource values or authorized uses occurring on them. Public demand for access is expected to continue, as there are more users of public land and access continues to be limited.

As more private landowners choose to deny access across their land to public land, less land is available for the public's use and enjoyment. This has the potential to cause hostility among private citizens, local and state agencies, and the federal government. There is likely to be a continued loss of access, putting valuable resources at risk due to lack of management. It is important that traditional access to public lands be reserved when public land is exchanged or sold. Priority access needs are identified in **Figure 2-13**. All opportunities for access acquisition will be pursued as they arise.

3.3.2.6 Unauthorized Land Use

There are many documented and unresolved unauthorized use and/or occupancy (trespass) cases in the PFO area. The BLM expects that there are still large numbers of trespass cases that have not been discovered or documented. Some of the trespasses include agricultural use, irrigation ditches, spring development, buildings and structures, power lines, telephone lines, roads, fences, and dumps. Workload priorities and limited staffing usually require that unauthorized use/occupancy cases go unresolved. There could be a public safety issue associated with unauthorized use/occupancy, as well as a potential loss of valuable resources. If the

unauthorized use damages the lands or resources, taxpayer money may need to be expended to repair the damages. Resolving the unauthorized use of public lands could protect valuable resources, prevent damage to resources, protect public safety, and allow the BLM to collect money for damages, processing, monitoring, and rental.

3.3.3 LIVESTOCK GRAZING

Livestock grazing relies heavily on the vegetation resources within the PFO area. Grazing occurs on 93 percent (575,468 acres) of the land administered by the BLM. Nine counties and many small farming and ranching communities throughout southeastern Idaho rely on revenues associated with livestock grazing on public land (**Figure 3-11**). For grazing administrative purposes, the PFO area is divided into 449 allotments.

Appendix P shows the breakdown of allotments with an active permit/lease, acreages of each allotment, animal unit months (AUMs), and season of use. Grazing use by livestock is measured in terms of AUMs. One AUM is equal to the amount of forage used to support one cow and one calf for one month (approximately 800 pounds of forage). The PFO normally licenses up to 74,358 AUMs; however, the BLM may also authorize additional forage to be available to qualified applicants on a temporary nonrenewable (TNR) basis (43 CFR sec. 4110.3-1(a)).

The Department of the Interior Stock driveway Withdrawal No. 157 (Idaho No. 9) created by an Act of Congress on December 29, 1916 (39 Stat., 862) and issued via secretarial order withdrew approximately 8,535 acres of public land along the Blackfoot River from disposal and reserved for use by the general public for stock driveway purposes. The stock driveway also makes up part or all of 9 grazing allotments.

Grazing allotments are unique geographically, and range from large contiguous blocks of public land totaling some 131,000 acres to small isolated parcels of public land of less than 40 acres (**Figure 3-11**). This affects how the allotments are managed. Large contiguous blocks usually have public access and are minimally impacted by surrounding private land. The isolated tracts are often a small component of a larger private land holding. Administrative access to these small tracts of public land exists only because of the grazing permit or lease. Allotments may include private, State, Forest Service, or a combination thereof in addition to public lands. Allotments may be permitted and leased to one (individual allotment) or more (common allotment) operators. There are approximately 389 operators authorized by permit/lease to use 366 allotments. In addition, allotments may be grazed by a grazing association under one permit/lease, which may have up to 50 to 60 members. There are 20 grazing associations in the PFO area. Grazing permits or leases that are awarded to permittees convey no right, title, or interest in the public land and resources.

The Taylor Grazing Act of 1934 created grazing districts through out the west. However, not all public land lies within a grazing district. These lands are primarily scattered isolated tracts that people settling the west did not want to homestead. The PFO area lies within the Burley Grazing District and Idaho Falls Grazing District. The season of use for allotments within a district is from April 16 through November 15, while the season of use for allotments outside this grazing district could occur throughout the year. Each allotment has a season of use described in the operator's grazing permit/lease. Season long use entails grazing one pasture beginning generally in the spring or early summer and ending in late summer or sometime in the fall. Some shifting of livestock use may occur within the pasture (e.g., from canyon to canyon). Deferred rotation uses the entire allotment rotating pastures so that livestock start in a different pasture each year. Rest-rotation of pastures involves grazing during certain periods and resting certain periods with some pastures rested the entire grazing season. These periods of use are referred to as treatments

and are rotated so that no pasture receives the same use every year. Periodic allotment assessments may indicate changes in the season of use are necessary to meet rangeland health standards. Seasons of use are allotment-specific, and may be managed as season-long or using a grazing system (e.g., rest rotation, deferred).

Periodic assessments to assess allotment vegetative conditions and rangeland health are conducted using indicators as described in the *Idaho Standards for Rangeland Health and Guidelines for Livestock Grazing Management* (**Appendix A**). The assessment leads to a determination of "not meeting," "meeting," or "not meeting but making significant progress towards meeting" the Idaho rangeland health standards. To date, 254 allotments totaling, 284,878 acres have been assessed. All allotments are now meeting or moving towards meeting the Idaho rangeland health standards. Grazing management strategies which will meet or move towards meeting the standards for rangeland health are developed through meetings with the stake holders, interested public, state and federal agencies, tribes etc.

An Environmental Assessment (EA) analyzes the various grazing strategies as alternatives and then a decision is issued. The alternatives may include adjustments in the stocking rate, season of use, and kind and class of livestock necessary to meet or make significant progress towards meeting the established standards and guides. The EA also requires follow-up monitoring and the field assessment results. Recently, adjustments in grazing management were made to 9 allotments totaling 106,290 acres (**Table 3-21**). Adjustments include changes in season of use, reductions in active grazing preference, and implementation of various grazing systems including herding livestock. These changes were necessary to meet or move towards meeting the standards for rangeland health.

Table 3-21. Adjusted Grazing Allotments.

Allotment Name	Date Assessment Completed	Acres
Samaria	2000	24,436
South Stone	2000	11,962
Hansel Mountain[1]	2000	5,360
Pleasantview	2000	59,026
Inkom	2001	5,511
Martha's Canyon Wyoming	2001	138
Martha's Canyon Idaho	2001	256

[1]Pocatello Valley, Alder, and Hansel Mountain allotments combined to form Hansel Mountain Allotment.

3.3.4 MINERALS AND ENERGY

The PFO area's varied geology is favorable for the occurrence of several mineral resources. Major mineral resources of interest include the non-energy leasable mineral phosphate; locatable minerals, such as gold (**Figure 3-12**), limestone, and zeolites; salable minerals, including sand, stone, gravel, and pumice (**Figures 3-13**); and fluid leasable minerals such as oil and gas (**Figure 3-14**) and geothermal resources. The development of the phosphate mineral resource is of significant importance to the local economy and the national phosphorus fertilizer and chemical demand.

The BLM manages the federal mineral estate for the US. 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 PFO administers approximately 613,800 acres of public land surface and 2,116,800 acres of federally owned subsurface minerals estate. Of these 2,116,800 acres of federal mineral ownership, approximately 419,500 acres occur on lands where the surface is either owned by the State of Idaho or private entities (referred to as "split estate" lands). In addition, approximately 1,083,500 acres of the federal mineral estate managed by BLM lie under other federal lands managed by agencies such as the Forest Service and USFWS. These "split-estate" lands and lands where the surface is managed by another federal agency present minerals management challenges that require close coordination and cooperation. Interagency, tribal, state and private cooperation 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 somewhat differently and may also have different requirements for acquisition, exploration, and development.

Leasable Minerals

Leasable minerals are those minerals that 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. They include energy mineral resources, such as oil, gas, coal, and geothermal fluids, and some non-energy minerals, such as phosphate, sodium, potassium, and in some circumstances sulphur. The BLM uses discretionary authority to decide whether or not to lease mineral resources for exploration and development. Where the federal government owns the mineral estate and an agency other than the BLM manages the surface, the BLM will consults with that agency prior to leasing or approving an operations plan. In some situations, the BLM must obtain concurrence as required by law.

The holder of a mineral lease or permit has a contractual agreement with the government that grants exclusive rights to reasonable exploration and development of the leased commodity. The lessee pays the US annual rentals and also royalties on all mineral production from the leases.

Salable Minerals

Salable minerals, or mineral materials, are common varieties of minerals and building materials such as sand, stone, gravel, pumice, pumicite, cinders, and clay. 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. The BLM is authorized to dispose of mineral materials either through a contract of sale or a free use permit.

Generally, salable minerals are widespread, of low unit value, and are often used for construction or landscaping materials. Their value depends largely on market factors, quality of the material, availability of transportation, and transportation costs. As with leasable minerals, the BLM has discretionary authority to issue permits for the disposal of salable minerals. The Forest Service has authority to manage salable minerals within the national forests in a similar manner.

Locatable Minerals

Locatable minerals are those that are not leasable or salable which are managed under the General Mining Law of 1872 (17 Stat. 91, as amended) and regulations at 43 CFR 3700 and 3800. They typically include gold, silver, copper, gemstones, Pb, zinc, barite, gypsum, and certain varieties of high calcium limestone. The 1872 Mining Law provides US citizens the right to prospect, explore, and develop these minerals on public domain lands that have not been "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 1872 Mining Law are nondiscretionary activities, meaning that the BLM cannot prohibit reasonably necessary activities required for the prospecting, exploration, and development of valuable locatable mineral deposits. However, the BLM has authority to regulate these activities and require mitigation or changes in operational practices to ensure that activities do not result in "unnecessary or undue" degradation of the environment. The BLM has the authority and the obligation to regulate locatable mineral operations in order to prevent or minimize damage to surface resources on public land. This is the purpose of the 43 CFR 3809 regulations, which ensure that 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 that the proposed activity would result in undue or unnecessary degradation of the lands, it would not be approved under 43 CFR 3809.

Acquired lands, as distinguished from public lands, are those lands in federal ownership which have been obtained by the government by purchase, donation or exchange. Minerals that qualify as locatable minerals in public domain lands may in some cases be obtained through a mineral lease on acquired lands pursuant to the Mineral Leasing Act for Acquired Lands (61 Stat. 913; 30 USC 351 359). Leasable Minerals on acquired lands may include gold, silver, copper, gems, and uranium. For example, lands acquired by the federal government, such as under the Bankhead-Jones Farm Tenant Act (PL 75-210), that include deposits of otherwise locatable minerals, could be leased at the discretion of the BLM. Also, all minerals designated by the Mineral Leasing Act of 1920 as leasable in public domain lands are leasable in acquired lands. Lease administration is conducted according to regulations at 43 CFR 3500.

Mineral Disposals may be made from acquired lands under the same procedures and authorities as disposals from public lands. The BLM regards mineral materials as salable on acquired lands because FLPMA designates lands managed by the BLM as "public lands" without regard to how they were acquired, with the exception of lands managed in trust for Native American Indians.

Minerals Management Planning

The BLM can use its discretion in the RMP to close areas to mineral leasing and disposal of mineral materials. The BLM can specify protection of sensitive areas with a “no surface occupancy” stipulation in fluid mineral leases where necessary. The BLM can also use its discretionary authority outside of planning to deny requests for mineral material disposal or leasing on a case-by-case basis. The plan identifies some areas where the BLM will pursue a “withdrawal” from mineral entry for locatable minerals with the Secretary of the Interior. Most other areas would be open to consideration of mineral development proposals.

Selenium and other hazardous elements associated with mining have been detected at elevated concentrations in soil, groundwater, and vegetation at phosphate mine sites in the PFO area since the last land use plan was prepared. Issues relating to contamination and reclamation of mine sites as well as renewed interest in oil and gas resources within the PFO area, warrant a revision of the management direction for minerals and energy resources.

3.3.4.1 Non-Energy Leasable Minerals: Phosphate

Background

The PFO area is situated in the heart of the Western Phosphate Field, one of the world’s major phosphate producing regions. Phosphate mining has been an important industry in southeastern Idaho since 1907. Since 1946, phosphate mining has disturbed almost 15,000 acres of land in southeast Idaho (USGS 2001). Phosphorus is an important industrial commodity as well as a nutrient essential to all life including crop production. Phosphate is present in economically minable quantities in the organic-rich black shales of the Meade Peak member of the Permian Phosphoria formation. The ore produced from federal leases administered by the PFO is a major source of both phosphate fertilizer and elemental phosphorus produced at industrial plants located in Pocatello and Soda Springs, Idaho.

Economic Impact

Phosphate mining within the PFO boundaries constitutes the largest mineral industry of Idaho, producing more than $600 million in processed mineral value in 1997 (USGS 2004). Phosphate mining and processing are key components of the southeast Idaho and Star Valley, Wyoming, economies. Four phosphate mines currently operate on federal leases in Caribou County, Idaho, within the PFO area. Direct employment at the phosphate mines and processing facilities in southeast Idaho was over 2,100 in 1998, with an estimated total payroll of over $110 million that year, although direct employment and payroll were less in 2002. The Minerals Management Service (2002) reported that federal revenues from phosphate-related activity in Caribou County, Idaho, on federal leases for fiscal year 2001 were almost $9.34 million. Federal law requires royalties and other revenues collected from federal phosphate leases be split equally between the state where the activity occurs and the federal treasury.

As with all economic enterprises, the future of southeast Idaho phosphate mining and processing depend on the profitability of the operations. The question of profitability encompasses the total range of costs associated with mining and processing the ore (including addressing all environmental concerns) and delivering the end product to the various customers. It also includes consideration of international production and market conditions. The BLM plays an important role in balancing the prudent administration of leases with protecting the environmental resources in the area to ensure a well managed viable industry.

Geologic Occurrence

The phosphate deposits within the PFO area are of sedimentary origin and are on a Permian age shallow-basin floor that reached from southwest Montana to northern Utah. Precipitates from upwelling cold nutrient-rich waters and from organic sediments, rich in phosphate, were eventually buried by other sediments and changed into stone. The resulting phosphate shale beds were exposed at the earth's surface by thrust faulting, folding, and erosion. The folding and thrusting exposed the phosphate shale beds in long linear outcrops paralleling the geologic fabric of the area.

The thickest and highest grade surface and near-surface deposits in the western field are located and mined in southeast Idaho within the PFO area. A large portion of the phosphate reserves in this area also lie within the boundaries of the Caribou National Forest. The USGS estimated the reserves in the southeast Idaho portion of the field to be more than one billion tons (Gulbrandsen and Krier 1980). About half of this amount is currently under federal lease to private companies.

Phosphate mines use surface mining methods to follow the long, linear surface outcrop pattern of the phosphate deposits. Because of this outcrop pattern, a typical phosphate mine pit is several hundred feet wide and 200 to 400 feet deep and may continue for several miles along the strike of the deposit.

In southeast Idaho, phosphate is mined from two high-grade beds in the Meade Peak Shale Member of the Phosphoria Formation. The upper ore zone is typically 15 feet thick while the lower ore averages 45 feet in thickness. The ore beds enclose a middle waste zone about 75 to 90 feet thick, composed of low-grade phosphatic shale. The low-grade rocks are placed in waste piles along with unmineralized rock that is removed to expose ore-grade phosphatic shale. Typical ore cutoff grade is 24 percent phosphorus pentoxide (P_2O_5).

Phosphate Leasing

The BLM is the designated federal agency authorized to issue or modify federal phosphate leases and/or approve exploration and development activities on those leases, including approving mining and reclamation plans.

When the BLM issues a federal phosphate lease, it conveys to the lessee the exclusive rights to explore for and extract the phosphate resources contained in the lease, subject to existing laws and regulations. The term of a phosphate lease is indeterminate and is in effect as long as rents, royalties, and other lease requirements are met. Lease terms and conditions can be reasonably readjusted every 20 years. Although BLM phosphate leases in Idaho have similar terms and conditions, the BLM may apply individual lease-specific conditions of approval and/or

mitigation measures to the phosphate leases or subsequent exploration and mining operations through an environmental analysis process under the National Environmental Policy Act of 1969 (NEPA).

The PFO administers lease operations on the vast majority of federal phosphate leases and permits in the State of Idaho. Current and pending cases are shown in **Table 3-22**.

Table 3-22. PFO-Administered Leasable Phosphate Cases

Type	Number	Acreage
Known Leasing Areas	7	70,302
Phosphate Prospecting Permits		
Pending	6	2,000
Authorized	0	
Exploration Licenses		
Pending	3	2,040
Authorized	1	200
Leases		
Competitive, authorized	47	30,224
Competitive, pending	1	480
Preference Right, authorized	28	9,517
Preference Right, pending	1	720
Fringe Acreage, authorized	8	2,320
Fringe Acreage, pending	2	679
Phosphate Use Permit		
Authorized	4	230
Pending	0	

Currently, there are 83 phosphate leases within the PFO jurisdiction, covering about 42,000 acres. About 28,200 additional acres consist of unleased Known Phosphate Leasing Areas (KPLAs), which is land known to contain phosphate deposits and that the Department of the Interior has formally classified as subject to competitive leasing for any federally owned phosphate resources. The seven KPLAs in southeast Idaho include a mixture of federal, state, and private surface ownerships, totaling about 70,300 acres.

All or portions of forty-six federal phosphate leases administered by the PFO are within the boundaries of the Caribou-Targhee National Forest. These leased areas cover about 25,000 acres. The BLM considers leasing phosphate and approving mining and exploration plans on public lands where the surface is managed by another federal agency, such as the Forest Service, only after consulting with the surface management agency. When reviewing phosphate

development proposals within the Caribou-Targhee National Forest, the PFO and the Forest Service typically coordinate analyses together and prepare a joint NEPA document. The Forest Service uses this NEPA document to formulate recommendations to give to the BLM. The BLM then makes a decision after considering recommendations from the Forest, direction contained in the Caribou Forest Plan, and input from the public, including the applicant.

Pending lease modifications, exploration licenses, and prospecting permit applications that affect approximately 5,900 acres lie within the PFO area. Some of these applications could result in new leased acreage.

The PFO also provides minerals expertise and support to the BIA at the Fort Hall Indian Reservation in fulfillment of the Department of the Interior's Indian trust responsibilities. The PFO administers and supervises phosphate exploration and development operations, including approximately 4,700 acre Gay Mine located on the reservation (USGS 2001).

Phosphate Production and Utilization

Phosphate rock is a nonrenewable, nonrecyclable natural resource that is used primarily in the production of ammonium phosphate and super phosphate fertilizers. Elemental phosphorous, also extracted from phosphate rock and produced in southeast Idaho, is used to produce numerous industrial products and chemicals, including herbicides, detergent and food additives where purity is crucial.

In 2002, in the US, phosphate rock ore was mined by nine firms in four states. Florida and North Carolina accounted for 83 percent of nation's output, and Idaho and Utah accounted for the remaining 17 percent (USGS 2003). Krauss, et al. (1984) estimated resources of economically exploitable phosphate ore as 1 billion metric tons in southeast Idaho, at an average grade of about 24 percent P_2O_5 (Kraus, et al. 1984).

Currently, phosphate produced from federal leases administered by the PFO totals between four and six million tons per year and accounts for between 3.0 and 4.5 percent of total world production and 13 to 15 percent of the US production (BLM 2003f). Production from federal leases in 2001 in the Caribou-Targhee National Forest was about 4,800,000 tons (Forest Service 2003a).

Table 3-23 lists active mines within the PFO area that have federal phosphate leases administered by the BLM as part of its authorized mine and reclamation plans. **Figure 3-15** presents the locations of KPLAs and existing phosphate mines.

In the 1990's, three elemental phosphorus plants operated in the region, supplied with phosphate rock mined from federal leases administered by the PFO. In 2004, only one elemental phosphorus plant, in Soda Springs, Idaho remained. This is the last elemental phosphorus plant in the US. Two large phosphate fertilizer production facilities in southeast Idaho depend entirely on mines that produce from federal phosphate leases. These plants are located in Soda Springs and Pocatello.

Table 3-23. BLM-Administered Phosphate Mines in the Pocatello Field Office Area.

Mine	Lessee/Operator	Status	Surface Owner or Mgmt. Agency
Dry Valley	Agrium	A	B, F, S, P
Rasmussen Ridge	Agrium	T	F, S
Enoch Valley	Monsanto	R	F, S, P
South Rasmussen	Monsanto	A	F, S
Smoky Canyon	J.R. Simplot Co.	A	F
Gay	Simplot/FMC	R	I

STATUS:
A - Active, T - Active, but temporarily idle, R - Mining complete, reclamation in progress
SURFACE OWNER/MANAGEMENT AGENCY:
B = BLM, F - Forest Service, S - State of Idaho, I - Fort Hall Indian Reservation, P - Private

Currently, the PFO is working on new permits for two new mine proposals. These are the J.R. Simplot Company - Smoky Canyon, Panels F & G (Manning and Deer Creek) Mine, and the Monsanto Blackfoot Bridge Mine. The BLM anticipates that these or similar proposals will replace existing mines as they are depleted of their phosphate resources. Over the life of this RMP, the PFO anticipates two additional applications to mine may be submitted for existing leases in the Slug Creek drainage (Caldwell Canyon), and the Dairy Syncline area. Site-specific environmental analyses will be conducted when those applications are received.

Selenium and Other Contamination Issues at Phosphate Mines

In 1996, federal and state agencies became aware of elevated levels of selenium leaching from a historic phosphate mine. Six horses pastured downstream from the South Maybe Canyon Mine were diagnosed with selenium poisoning. At that time, federal, state, and tribal agencies cooperated with the phosphate mining companies to determine the nature and extent of the release. Interim sampling and study programs showed selenium and copper, cadmium, nickel, chromium, vanadium, and zinc were elevated at the pasture site. Subsequent investigations have found selenium and other contaminants in water, soil, and reclamation vegetation at the southeast Idaho phosphate mines. These contaminants are associated with both the historic and active phosphate mines.

Selenium and other contaminants are released from phosphate mines through the oxidation process. Material located between the two main ore beds, often called interburden or the center waste shale, is naturally enriched in clay, carbon, selenium, and many other metals. When the interburden is removed during the mining process and placed in stockpiles, it is exposed to air and oxygenated rain. As the rock oxidizes, selenium and other metals can become soluble to water. Once dissolved, these contaminants can be transported to surface and ground water.

Selenium in water can be taken up and bioaccumulated by plants and can enter the food chain. Selenium in small doses is a necessary nutrient often added to salt blocks for grazing animals. In larger doses selenium may be toxic. Sheep and horses tend to be the most sensitive livestock and

the most likely to suffer detrimental effects of chronic or acute selenium poisoning. Currently, the risks to wildlife in the phosphate mining area are being assessed. An investigation and remediation of selenium and other contamination of phosphate mine areas is currently underway under the authority of a joint federal and state Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) project. Remediation will be completed on a site-by-site basis. Changes in BLM grazing management have been made to reduce risks to livestock. Public lands affected by selenium accumulation in vegetation have been closed to sheep and horse grazing.

In 1999, the BLM sent a letter to all grazing permittees warning of the potential risks to livestock associated with water and vegetation from reclaimed phosphate mining disturbance. In 2000, a formal response under CERCLA was taken by the involved federal (BLM, Forest Service, USFWS, BIA, and EPA), state (IDEQ), and tribal (Shoshone-Bannock Tribes) agencies. The IDEQ was chosen as the lead agency.

Signed consent orders among the agencies and phosphate mining companies outlined a two-tiered approach to assessing the risk associated with the selenium release. There would be one large area-wide investigation and 15 separate, site-specific investigations.

A Web site has been developed where data and reports are centralized in downloadable formats, along with a map server, at http://giscenter-ims.isu.edu/SISP/SISP_Home_Page.html.

Area-Wide CERCLA Investigation

The first tier of the coordinated CERCLA investigation is assessing the nature of the selenium release on an area-wide scale. This involves a study area of approximately 2,500 square miles for which an area-wide human health and ecological risk assessment and an area-wide risk management plan has been developed. Among other things, the plan includes analysis of groundwater, surface water, soil, waste rock, and ecological receptors such as vegetation, invertebrates, small mammals, birds, and large ungulates. It has been found on a regional, area-wide basis that, toxicologically, selenium and cadmium pose the greatest toxicological risk to the environment.

The conclusions of the area wide human health and ecological risk assessment are as follows:

- Based on current conditions, there is a low probability of human health risks in the region. Potentially significant health risks to humans are indicated only in the case of subsistence lifestyle users and only if subsistence is localized in a highly affected area. Based on regional observations, subsistence level human use is highly unlikely.
- Based on current conditions, there is a low probability of population level impacts on regional wildlife.
- There is a high probability of subpopulation or individual level effects occurring for ecological flora and fauna receptors growing and residing in the vicinity of highly affected areas.

The IDEQ has listed six stream segments within the project area as impaired with high selenium concentrations under section 303(d) of the Clean Water Act. Based on high selenium

concentrations in some fish, in 2002, the Idaho Department of Health and Welfare has issued a fish consumption advisory for cutthroat and brook trout from East Mill Creek.

Site-Specific Investigations

Subsequent to the regulatory agencies' formal CERCLA action, a schedule was developed for investigating the selenium releases from four active phosphate mines and 11 inactive phosphate mines. Investigations at eight sites were expected to begin in 2002, at four sites in 2003, and at three sites in 2004. Although none are complete, investigations should take one to two years each, followed by one to two years of mitigation, if necessary. Under CERCLA, the cost of the investigation and remediation is the burden of the potentially responsible parties such as the phosphate mining companies.

Work is being carried out under consent orders among agencies and the phosphate mining companies: FMC Corporation, J.R. Simplot Company, P4 Production, Rhodia, and New West Mining. There are 15 phosphate mining sites involved, and remediation is expected to be completed at all of the sites between 2008 and 2010. Much is now known about the contaminant release mechanism and potential environmental pathways. Operating mines and future phosphate mines are incorporating newly developed selenium control practices and are not expected to release metals into the environment above regulatory standards.

Phosphate Mine Reclamation and Selenium Control

Reclamation

Prior to the 1970s, there were few federal mine reclamation requirements. Since then, additional reclamation requirements affecting phosphate mines have been developed in the form of laws, regulations and lease terms. Some of the current requirements include: FLPMA, the Idaho Surface Mining Act, regulations at 43 CFR 3500, standard industry practices, Region IV Forest Service requirements and guidelines, and site-specific requirements incorporated into each Mine and Reclamation Plan from NEPA analysis.

The BLM requires each mining operation to post a performance bond that includes a reclamation component. The bonds provide the agencies with sufficient funding to complete outstanding reclamation in the case of company insolvency.

Current reclamation practices at the phosphate mines include backfilling mined-out pits, use of external waste rock dumps, shaping, planting, and other state-of-the-art practices. Several phosphate mines have received state and national reclamation awards. Although backfilling mined-out pits is a standard practice that is employed at all new phosphate mines, in most instances, current phosphate mining economics preclude re-excavating and hauling overburden from external dumps to fill the final pit excavation left over from previous mining operations. Reclaimed waste dump slope ratios are generally designed to not exceed 3:1 slope (horizontal to vertical).

General reclamation requirements include the following:

- Implementing an overall reclamation program designed to remove facilities and recontour, topsoil, and reseed project features (for example, pits, waste dumps, tailings

disposal areas, haul roads, mill sites, conveyor systems, railroads, slurry pipeline, and transmission line corridors) in accordance with the standards and requirements mentioned above.

- Working toward restoring diverse plant communities that incorporate native species beneficial to wildlife, including grasses, forbs, brush, aspen, and conifer. A revegetation plan is used to direct long-term standards.
- Phosphate mines typically have at least one external overburden rock waste dump composed of overburden material from the initial mine excavation. Then, as mining proceeds and when possible, the BLM requires mine operators to use overburden to backfill previously mined areas. An additional external dump may be necessary in some cases where the volume of mined material, which packs less efficiently, is greater than remaining pit volume.
- Topsoil is salvaged prior to mine disturbance and used for seeding reclaimed areas.
- Livestock grazing is prohibited until the area is released to multiple use management.

Best Management Practices

Operators of active mines have implemented newly designed mitigation measures and operational practices engineered to minimize, reduce, or eliminate impacts from selenium and other contamination at their sites (**Appendix C** and Selenium BMPs Catalog for Phosphate Mining, Idaho Mining Association and IDEQ 2004). Measures and practices have also been developed in EISs prepared for recent phosphate mining proposals. The BLM has applied selenium control measures to all mine and reclamation approvals since 2000 and will continue to refine these management practices in each upcoming mine and reclamation plan assessment, environmental review, and selenium assessment (BLM and Forest Service 2000; BLM, Forest Service and IDL 2003; BLM and Forest Service 2002; BLM and Forest Service 2005). The BLM has instituted intensive monitoring of mine sites to determine the effectiveness of these measures and to assist in modifying these practices if they are determined to be less effective than needed. In addition to measures formulated in recent phosphate mine EISs, a draft catalog of BMPs for addressing selenium control has been developed for use by regulatory agencies and the phosphate mining industry.

Where possible, placing seleniferous materials in external waste dumps is minimized, usually through backfilling mined-out pits. This action reduces the oxidizing process and the potential for selenium release.

If it is necessary to place seleniferous shales in waste rock dumps, the shales are encapsulated in "clean," non-seleniferous material, usually chert or limestone from the upper parts of the Phosphoria Formation. This effectively breaks the connection between reclamation vegetation on the surface of waste dumps and pore water in the shales in the waste dump that may have acquired selenium.

Control of selenium in surface water is also a focus of BMPs. Clean, snow or rain runoff water is channeled around or within mine sites to avoid contact with seleniferous material or active mining areas. Water that may pick up selenium is controlled to prevent mixing with clean water. For example, it may be diverted back into the mined areas where it does not pose a threat as a

pathway to animals or plants. Seleniferous shale is not typically used any longer in road construction or as growth media (soil substitute) in mine reclamation activities.

A variety of techniques are in place to prevent or reduce erosion and control sedimentation of streams. These include, but are not limited to, sloping of waste dumps to a 3:1 ratio (horizontal height to vertical height), sediment check dams, fast-growing seed mixes, and use of rock- or membrane-lined channels.

3.3.4.2 Other Leasable Minerals

Although other leasable minerals are present within the PFO area, they do not play a major role in mineral development activities at this time compared to phosphate.

Coal

There are no federal coal leases within the PFO area or in Idaho, but there is some Cretaceous-aged coal in the Fall Creek area of the Caribou Range. A four-foot interval of the Bear River Formation contains interbedded coal, clay, and limestone. This area is just north of the PFO boundary. Coal beds also form an outcrop to a minor extent at some other Idaho localities.

Oil Shale

High grade oil shale does not exist in within the PFO area. Low-grade oil shale has been reported near Meade Peak in the Paris-Bloomington area. It occurs in the vanadiferous zone in quantities ranging from 6 to 10 gallons per ton of rock (Mckelvey 1946). Oil shale has been described in the Retort shale member, the top member of the Phosphoria Formation (Condit 1919). Oil shale has also been discovered on the bank of Bear River about four miles south of Soda Springs, where a flat-lying bed more than four feet thick disappears under basalt; a sample of the bed yielded 20 gallons of oil per ton of rock (USGS, BLM, Forest Service EIS 1977).

Sodium and Nitrate

There are no federal sodium or nitrate leases in the PFO area, and, based on current conditions, none are expected. However, there are small occurrences of both sodium and nitrate within the area.

Several springs along portions of Crow Creek and Stump Creek have sufficient dissolved sodium that the brines have been boiled and evaporated to create salt. Salt was produced from several springs from the mid 1800s to the early 1900s.

Fluid Leasable minerals: Oil and Gas/Geothermal

Oil and Gas Leasing

Oil and gas leasing on Federal lands is administered by the BLM through a competitive and noncompetitive leasing system. Oil and gas leases are issued for public domain lands under the authority of the Mineral Leasing Act of February 25, 1920 (41 Stat. 437; 30 USC 181 *et. seq*.) as amended and supplemented, the Act of August 8, 1946 (60 Stat. 950), and the Act of September 2, 1960 (74 Stat. 781). Authority for leasing on acquired lands comes from the Leasing Act for Acquired Lands enacted on August 7, 1947 (61 Stat. 913). Upon passage of the Federal Onshore

Oil and Gas Leasing Reform Act of 1987 (Pub. L. 100-203) the BLM made a major revision to the Federal Oil and Gas regulations in 43 CFR 3100. Made effective on June 17, 1988, the new regulations cover competitive and noncompetitive onshore oil and gas leasing.

Currently there are two oil and gas leases totaling approximately 2,500 acres. Issued between 2000 and 2003, these leases have a term of ten years. The leases are located in the vicinity of Bear Lake, on the western margin of the overthrust belt. No plans to drill have been submitted or approved on any of the leases.

The potential for oil and gas presence is high in the eastern portion of the field office. Occasional applications are received for oil and gas leases. **Appendices H and P** provide a thorough explanation of the current and proposed oil and gas leasing process, application of stipulations, and a reasonably foreseeable development scenario (RFDS).

Oil and Gas Occurrence

There are no producing oil or gas fields in Idaho. Oil and gas discoveries in Wyoming and Utah during the 1970s indicate the potential for oil and gas within the Idaho-Wyoming Thrust Belt, but there are no oil fields in Idaho. Hydrocarbons have been recovered from eight different carbonate and clastic units that range in age from Ordovician to Cretaceous (Powers 1978). The Phosphoria Formation is generally rich enough in organics to be considered a source rock.

Figure 3-14 shows the oil and gas potential for the PFO area. Based on a 1980s survey of oil companies and a 1978 USGS open file report, potential for oil and gas exists in the far eastern portions of the PFO area, primarily in the Bear Lake area and phosphate mining areas. These areas are considered to have a high potential for oil and gas discoveries in the PFO area. Oil and gas potential in the western portion of the PFO area comes with a deficiency of knowledge pertaining to the older, western thrust plate geometries which affect potential petroleum source reservoirs. Extreme heat associated with Snake Rive Plain volcanic activity has most likely burned or volatilized any hydrocarbons that may have existed on the north western portion of the PFO. This area is considered to have no oil and gas potential.

Oil and Gas Exploration

Historically, oil and gas activity in the PFO area has consisted of exploration only, and there has been no known production. Exploration dates back to 1926 and was directed toward the western Basin and Range portion of the PFO area and the Bear Lake area. By the mid 1980s, there were about 22 oil and gas bore holes in the Bear Lake area and 10 holes in the Basin and Range. Geophysical exploration was very widespread in southeast Idaho during the 1980s, but very little activity has taken place since. Drilling success has been limited, at best. The area has no producing wells, and the complex geology masks potential targets. This increases the costs and risks associated with exploration in rugged terrain and testing targets not expressed at the surface.

Coal Bed Methane

The potential for coal gas is very low in the PFO area. USGS indicates only a minor amount of potential in the overthrust belt located in the north and east portions of the FO area.

Geothermal Leasing

Leasing of geothermal resources on Federal lands is authorized by the Geothermal Steam Act of 1970 (84 Stat. 1566; 30 USC 1001 1025). In order to administer this law, regulations contained in 43 CFR 3200 were published December 21, 1973 and made effective January 1, 1974. These regulations are administered by the BLM. Another set of regulations which are also administered by the BLM and contained in 30 CFR 270, regulate exploration, development and production operations under federal leases. By law, the BLM is the designated federal agency for lease administration. On National Forest System lands, the Forest Service must agree to geothermal leasing. The BLM will not lease lands where it may cause "undue degradation to public lands and resources" within the National Park system, in a National Recreation Area, or where geothermal development may threaten thermal features in adjacent parks. The Energy Policy Act of 2005 directs that geothermal leases are to be issued by competitive bidding.

Currently there are two geothermal leases in the PFO area totaling approximately 730 acres. The leases are located in the Soda Springs and Grays Lake areas. The leases were issued in 2004 and have a term of 10 years which can be extended if a well exists that is producing or is capable of producing geothermal resources. There is a high potential for geothermal resource presence and development in some portions of the field office. **Appendices H and Q** provide a thorough explanation of the current and proposed geothermal leasing process, application of stipulations, and a RFDS.

Geothermal Occurrence

Geothermal resources occur most often in areas where there is anomalously high heat flow caused by volcanism or near-surface magma or some other exceptionally hot subsurface body. They often occur along fault or fracture zones where fracturing allows groundwater to circulate to depths such that it can be warmed significantly before it circulates back toward the surface.

The PFO area has abundant geothermal resources, including both thermal springs, where warm or hot water comes to the surface naturally, and thermal wells, which must be drilled, developed, and sometimes pumped. **Figure 3-16** shows the locations of geothermal features within the PFO area, where there are numerous undeveloped hot and warm springs and several developed geothermal resources. All of these developed uses are "direct" uses, where the hot water is used for space heating or for the hot water itself and not primarily to generate electricity. There are no geothermal power plants in the PFO area.

Much of the PFO area is near faults, Quaternary lava flows, and other predictors of geothermal potential. The entire area has a geothermal potential for direct uses. In local areas, the potential may be medium or high, depending on the proximity to certain geologic features or structures. A ranking of medium or high does not mean that the area will be developed or that a usable resource exists at any specific location. **Figure 3-17** shows the geothermal potential for zones in the PFO area. A low ranking does not mean an area does not contain an undiscovered geothermal resource. Likewise, a ranking of high does not guarantee the presence of any geothermal resource.

Geothermal Use

Geothermal energy is broken down into two main uses, electrical generation and direct use. There are several subtypes of each. In any given area, direct uses of geothermal resources are much more likely than electrical uses because the resource does not need to be as hot, there are fewer technical challenges to overcome, and the required infrastructure and capital outlays are significantly less.

Geothermal resources in the PFO area are typically directly used. The town of Lava Hot Springs is renowned for its large thermal pools, and there are also several thermal wells in the area used for heating structures or providing hot water for recreation. Water temperature is approximately 104°F. As the town's name suggests, Lava Hot Springs is an important geothermal resource in the PFO area. Other commercial hot springs include those in Downata, Bear Lake, Indian Springs, and Maple Grove.

Figure 3-18 shows the locations of the utilized geothermal resources in the PFO area. There are several commercial heating and recreational wells and springs in the Lava Hot Springs area. Several thermal wells are either not in use or are used for non-geothermal purposes, such as stock watering or irrigation. Many thermal wells used for private residential heating may not be shown.

3.3.4.3 Locatable Minerals

A variety of locatable minerals are found within the PFO area due to its geologic diversity. However, the area generally lacks any known large, economically viable metal deposits. There are 456 active mining claims on public lands, most of which are in the Caribou Mountain Mining District or are associated with the production of lime and cement. There are no active metal mines and one gold mine is in the process of being closed. There are occurrences of gold, silver, copper, Pb, mercury, manganese, rare earth elements, vanadium, uranium, sulphur, zeolites, perlite, magnesium, barite, silica, and high calcium grade limestone, dolomite and other minerals.

Locatable minerals are managed under the authority of the 1872 Mining Law, as amended, and 43 CFR, Parts 3700 and 3800. These laws and regulations give the public the right to explore for, develop, and extract locatable mineral deposits on open federal lands and mineral estates.

Precious Metal Occurrences and Current Operations

Precious metals in the PFO area consist principally of gold, gold placer, and silver. **Figure 3-12** shows occurrences of precious metals within the PFO area. Currently, there are no active large-scale precious metal mining operations. With the exception of the Black Pine Mine in Cassia County and the Caribou Mining District in Bonneville County, most precious metal deposits are small and uneconomic.

Mining for gold started and was active in the Caribou Mining District between 1870 and 1890. The mining district is in the Caribou Range east of Grey's Lake NWR and on the Caribou-Targhee National Forest and patented mining claims. There are several shafts and adits in the area but no open pits. Today, there are approximately 52 active mining claims in the area, but no

large-scale mining activity. Gold mineralization and lesser copper, silver, and iron are associated with sediments intruded by a 50 million-year-old diorite magma. It is generally considered the metal source and driver of the hydrothermal system in the Caribou Mountain area.

The Black Pine Mine, located in the extreme western portion of the PFO area about 25 miles northwest of Snowville, Utah, was operated by Pegasus Gold Corporation between 1992 and 1999. The open pit mine produced around 50,000 ounces of gold annually using cyanide heap leaching methods from a Carlin-type disseminated gold deposit. The Black Pine Mine filed for bankruptcy and is no longer operating. The Forest Service is rehabilitating the mine site and associated facilities.

Panning and placer mining for gold are still popular recreational activities in the PFO area. There are gold placer deposits in the streams draining the Caribou Mining District and in the Snake River. The State of Idaho administers permits for mechanized gold collection or dredging in rivers. Both McCoy Creek and Tincup Creek, in the Caribou area, are closed to mechanized dredging. The Snake River contains placer deposits, from the town of Blackfoot downstream to American Falls Reservoir and from American Falls Reservoir downstream all the way to the Idaho/Oregon border. Snake River gold is typically quite fine in size. There are 90 active placer claims in the PFO area.

The Fort Hall Mining District encompasses all of the small prospects and mines from the historic Fort Hall Mine just south of Pocatello in Fort Hall Canyon, north to the prospects on Moonlight Mountain. The district also includes the prospects in the Portneuf Gap/Blackrock Canyon area, the Chinese Peak area, Bell Marsh Creek, and Garden Gap area. The district is dominated by base metals, but minor amounts of gold and silver do occur. Mineralization generally occurs in quartz veins in Precambrian siliceous and volcanic rocks.

Base Metal Occurrences and Current Operations

Base metal deposits, which consist of copper, Pb, zinc, manganese, and minor molybdenite, are relatively abundant in the PFO area. The Fort Hall Mining District, areas around the Black Pine Mine, the Bear Lake Mining District, the Montpelier District, and the Nounan area have all produced small amounts of copper, Pb, or zinc. Manganese has been produced in areas associated with geothermal activity. Currently, there are no active base metal mines in operation. Base metal deposits within the PFO area are typically small.

The Montpelier Mining District in the Pegram Hills, east of Montpelier, contains several copper prospects but has had no production. Copper, as malachite staining, occurs on fractures in shales of the Ankara Formation and is presumed to be related to and associated with “red beds” of the Triassic aged formation (Mansfield 1927). There are no active claims in the area.

A small amount of copper carbonates (azurite and malachite) occur in Ordovician-aged carbonate units west of the town of Nounan, on the northern end of the Wasatch (Bear River) range. The mineralization is hosted in northwest-trending quartz veins. There are no active claims in the area.

There are manganese deposits, associated with geothermal occurrences, in the PFO area. Small amounts of production have occurred around Lava Hot Springs and the north end of the Oneida Narrows.

Rare Earth Occurrences and Current Operations

Vanadium, uranium, and other rare earth elements (for example, concentrations of gallium, scandium, and Yttrium) are elevated, along with phosphate, in the black shales of the Phosphoria Formation. The Permian-aged Phosphoria Formation outcrops are over a large area east, northeast, and southeast of Soda Springs, Idaho. The Paleozoic sedimentary sequence in this area has been intensely folded and faulted by the Idaho-Wyoming Fold and Thrust Belt; thus, the Phosphoria Formation has a surface expression of long linear bands.

In the late 1930s, the USGS discovered high values of vanadium oxide in the Phosphoria Formation. By the end of the 1940s, the USGS, Wyodak Coal Co., and the US Bureau of Mines had indicated subeconomic vanadium resources in the Paris-Bloomington area and on Sublette Ridge, Wyoming (McKelvey 1986).

Vanadium has been recovered in the past as a by-product of elemental phosphorus processing. Vanadium has been recovered in the past from ferro-phosphorus, a by-product of elemental phosphorus production. This plant, in Soda Springs, Idaho, began operation in March 1964 and closed in 1999. The plant had a capacity of about 4 million pounds per year. In this case, the vanadium was not considered to be a locatable mineral since its recovery was in conjunction with processing a leasable mineral.

Currently there are no rare earth mining operations in the PFO area. Although uranium and other rare earth elements are elevated over 10 times background concentrations in shales of the Phosphoria Formation, in current economic conditions they are of only scientific interest.

Industrial Mineral Occurrences and Current Operations

Industrial minerals are those that are utilized in industrial processes. Some examples of industrial minerals are limestone, zeolites, silica, sulphur, perlite, pumice, and peat. The types and uses of industrial minerals are varied. They may be categorized as leasable or salable instead of locatable. They are managed according to the rules and regulations applicable to their categorization.

Precambrian through Mesozoic limestone is common throughout the PFO area. Depending on the mineral and its characteristics, industrial minerals may be leasable, salable, or locatable. The two limestone processing operations in the PFO area are the Ash Grove Cement plant in Inkom and Chemstar's Tenmile Pass operation in the Chesterfield Range. Ash Grove Cement produced 240,000 tons of product in 2001. The mine and plant are on private land. Chemstar's Tenmile Pass operation, permitted to mine 7,000 to 10,000 tons of chemical- and metallurgical-grade limestone per day and to produce 600 tons of lime per day, is active but not currently producing. There are approximately 320 active limestone claims in the PFO area.

Zeolites (hydrous aluminosilicates) are found in the PFO area, most commonly in the reworked ash deposits of the Salt Lake Formation. They are sought for their high capacity for ion

exchange and are used in filtration systems, environmental cleanup, and specialty concretes. Currently, there are 24 active claims for zeolites in the PFO area.

In 2000, the Bear River Zeolite Company constructed its zeolite mining operation northeast of Preston. They began mining and processing zeolite in mid-2001. The ore, potassium clinoptilolite, is mined from extensive ash deposits of the Salt Lake Formation. The company currently mines and mills about 5,000 tons of ore annually. There is very little to no waste associated with the ore. The mine is located on private land, but portions of the future reserves extend onto public land.

Silica, often used as a flux in the processing of other minerals, is also located throughout the resource area. Most silica is mined in the form of silica-rich quartzite, sandstone, and conglomerates, the most common of which would be the Ordovician Swan Peak quartzite and the Precambrian Caddy Canyon Quartzite. Silica is currently being mined from patented claims for use at the Monsanto Phosphate Plant.

Sulphur occurs east of Soda Springs, Idaho, in the lower part of Sulphur Canyon of the Aspen Range. It occurs as small crystals associated with springs along the Aspen Range range-front fault system. There are also several prospects along the range front to the southeast. Sulphur deposits are sometimes surface mined for use in soil additives, as in Nevada. There are currently no active sulphur mining operations in southeast Idaho.

Perlite, hydrated rhyolitic glass, is sought for its low density and high insulating capacity. It is also used to increase soil's water retention as a soil amendment. It is associated with six- to nine-million-year-old rhyolitic pyroclastic and lava flows and is found northwest of Wakely Peak in the Bannock Range. Idaho is the seventh largest perlite producing state in the nation, and Hess Pumice Products operates the only perlite facility in the PFO area. The company has a pit on private land in Wright Canyon, about 20 miles northwest of Malad and processes the raw material by "heating and popping" at a perlite expanding facility in Malad. Hess sells both raw material and finished product by contract. In 2002, it mined approximately 20,000 tons, but in 2001 mined no raw material and used existing stockpiles. The project has reported reserves to last 50 to 100 more years at current mining rates.

Peat occurs in several places in the south end of Marsh Valley, west of the town of Downey. The peat is used in horticulture as mulch and soil additive but not as a fuel. Occurrences of peat also exist north of Bear Lake near the town of Dingle. There are two active peat operations in the PFO area, on private land in the south end of Marsh Valley, in the vicinity of Interstate 15. Production is inconsistent, and the deposits are mined only to fill contracts.

3.3.4.4 Salable Minerals

Interest has increased in the use of the PFO area's salable minerals during the past few years. As of August, 2006, the PFO (including the Malad Field Station) has 16 free use permits, one negotiated sale, and five community pits/common use areas. The community pits and common use areas offer sand, gravel, and stone for public purchase and use. These gravel pits and stone quarries are located near Pocatello, McCammon, Stone, and Bear Lake. Free use permits are occasionally issued to local government highway departments, non profit, and other eligible entities. Annually, approximately ten permits are sold to the public for sand and gravel out of

two pits. The material is used primarily for road building, fill, and other maintenance. Building stone use has also increased in popularity. Scoriaceous basalt, quartzite, and sandstone are available. **Figure 3-13** shows the occurrences of sand and gravel within the PFO area.

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 (PL87-713), authorized that certain mineral materials be disposed either through a contract of sale or a free use permit. This group of mineral materials, commonly known as "salable minerals" includes, but is not limited to petrified wood and common varieties of sand, stone, gravel, pumicite, cinders and clay on public lands of the US - 30 USC 601 (1976). Regulations that guide the BLM's salable minerals program are found in Title 43 CFR, Group 3600.

Sand and Gravel Occurrences and Current Operations

Sand and gravel occurs throughout the PFO area and are used as fill material, aggregate in concretes, for road base, and sometimes in hot-mix asphalt.

There are three main types of deposits. The first two types of sand and gravel deposits are associated with Pleistocene-aged Lake Bonneville, a large lake that covered two-thirds of Utah and portions of Nevada and Idaho. Approximately 17 thousand years ago, a natural dam failed, catastrophically draining the lake. The resulting flood created large gravel deposits in Marsh Valley and in the flats northwest of Pocatello to the American Falls Reservoir. Sand and gravel is also found in Gilbert-type deltas where rivers emptied into Lake Bonneville and dropped their sediment loads. Today these deposits form "benches" along the sides of Cache Valley and Pocatello Valley. Deposits are coarsest near the mouths of canyons and are fine distally. Gravels from both of the Bonneville-type deposits tend to be unconsolidated to loosely consolidated. Clast-types reflect the bedrock of the surrounding mountain ranges, generally limestone and quartzite, though basalt clasts are not uncommon. The Bonneville-type deposits are generally well sorted, though screening may be necessary depending on the application. Bear Lake Valley contains similar gravel deposits, but they are related to Pleistocene Bear Lake high levels/benches and not to Lake Bonneville.

The third type of gravel deposit is associated with alluvial fans, active stream channels, and abandoned stream channels. These sands and gravels vary locally in size, sorting and parent material. Quality and quantity also vary from deposit to deposit. The main use of these types of deposit is for rural road maintenance and fill.

Sand and gravel occur throughout the PFO area. Approximately 10 permits per year are sold to the public, for a total of about 760 cubic yards. Approximately 5,700 tons of sand and gravel were removed from public land last year under 12 free-use permits. Sand and gravel are used as aggregate in some concretes, for road base, and sometimes in hot-mix asphalt. The PFO area has two pits available for use.

Cinders and Pumice Occurrences and Current Operations

Both volcanic cinders and pumice occur within the PFO area. Cinders are small (less than two centimeters [cm]) highly vesiculated basalt, which form when there is highly volatile material or high water content in basaltic eruptions. They have a moderate specific gravity of around 2 and

are used for winter road traction and for decorative landscaping groundcover. Scoria is a slightly larger and less vesiculated form of basalt and occurs in similar deposits (2-10 cm) and has similar applications. Deposits of both of these forms of basalt may be somewhat cohesive but crush easily. Quaternary- and late Tertiary-aged basaltic volcanism is ubiquitous in the valleys of southeast Idaho and on the eastern Snake River Plain. The largest and highest quality cinder deposits are found in the Gem Valley volcanic center, but smaller deposits are also found in Marsh Valley and Arbon Valley. Nearly all of the valleys in southeast Idaho with mapped basalt deposits are highly likely to contain cinders and scoria.

Pumice is a highly vesiculated rhyolitic glass with a very low specific gravity of less than 1 to 1.5. It occurs as massive blocks deposited in lava flows and as lapilli deposited in pyroclastic flows. It is a multi-use abrasive, and in larger blocks it is cut and used as a lightweight, high-temperature, nonconductive, rigid insulator. It is found associated with the perlite northwest of Malad, in Rockland Valley, Gem Valley, and in the China Cap area north of Soda Springs.

Building Stone Occurrences and Current Operations

Limestone is common throughout the Neoproterozoic- and Paleozoic-aged rock-containing mountain ranges in the PFO area. It is relatively durable and may be easy or difficult to work, depending on which formation it comes from. Aesthetically it is not very popular, however some rocks rich in common variety invertebrate fossils have a higher aesthetic value. Limestone boulders are also valuable for decorative landscaping, particularly when covered with lichen. Some limestone, generically referred to as tuffa or travertine, may be highly valuable when cut into slabs and polished for use in countertops and tile. These deposits generally occur erratically in valleys and are associated with sodic and thermal springs. Unique mineralization localized in some areas of the Salt Lake Formation limestone may make some deposits of this rock popular if a market is developed.

Basalt is ubiquitous throughout southeast Idaho and is a common rock type in basins and on the Snake River Plain. It is extremely durable and thus makes an excellent structural stone. When moderately vesiculated, it is also a good natural insulator, compared to other building stones. However, when basalt becomes overly vesiculated it loses its durability and is then usually used as a facing stone only. There are many buildings in southeast Idaho in which basalt was used as a building stone, though recently it has not been aesthetically popular. There is a large demand for decorative basalt boulders. Lichen-encrusted and naturally sculpted boulders can be very valuable. Caliche-encrusted boulders are also used for landscaping but are less desirable. Basalt boulders litter the ground and shallow subsurface throughout Marsh Valley, the Lower Portneuf Valley and Blackfoot River Canyon.

Quartzite occurs through out the Neoproterozoic- and Paleozoic-aged rock-containing mountain ranges of southeast Idaho. Boulders are found in hillslope or talus deposits, the lower Salt Lake Formation, alluvial fans, and less commonly in Bonneville flood deposits. The most common quartzite formations are the Neoproterozoic Caddy Canyon Quartzite, Neoproterozoic Mutual Formation, which is often purple to pinkish white and may be conglomeritic, the Cambrian Camelback Quartzite, which is often whitish with rusty iron oxide coatings, and the Ordovician Swan Peak Formation, which is white to pale green. Mutual and Swan Peak Formations are

generally the most aesthetically pleasing. Most quartzite is in the form of boulders and is not quarried in this area. Quartzite, like dense basalt, is extremely durable but very difficult to work.

Sandstone, particularly Jurassic Nugget sandstone, is easily worked and cleaves into flat pieces or flagstone. It is relatively durable and aesthetically pleasing. Because of this, it can be shipped a long way to market and still be profitable. It occurs on the Bear Lake plateau on the east side of Bear Lake. It is a lateral equivalent to the Navajo sandstone, which forms the dramatic canyon land scenery of southern Utah.

There are currently three community pits, designed for public collection of building or decorative stone, in the PFO area. Sandstone is available at the Bear Lake Community Pit, basalt is available at the Hell's Half Acre Community Pit, and quartzite is available at the Caddy Canyon Community Pit.

The Bear Lake Community Sandstone Pit is a quarry that was opened in 1988 and continues to operate. The pit is accessed via Indian Creek Road, near the northeast corner of the lake. Four permits were issued for four tons of rock in 2001, seven permits for 64 tons were written in 2002, and 13 permits were written for 446 tons of sandstone by the third quarter of 2003. The quarry is relatively remote from the PFO area, and in 2003, there have been two instances of alleged mineral trespass at the pit.

The Caddy Canyon Community Quartzite Pit also was established in 1988. Currently, public access is very limited and development of this resource has almost halted. Quartzite is available from a talus-type deposit on the side of the canyon. Over the last several years about one permit for two tons of rock has been issued each year.

The Hells Half Acre Community Basalt Pit is northwest of Blackfoot, Idaho. It was established in 1980 and is still in operation. Historically, 7 to 10 permits per year are issued here.

3.3.4.5 Abandoned Mine Lands Program

The Abandoned Mine Lands (AML) Program is a state and national BLM priority. The emphasis has been placed on ensuring public safety and protecting watersheds from hazardous materials and mine drainage. At the field office 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 will be inventoried, and data collected will be stored in a state or national database.

Specific sites may be closed or remediated in order to protect human health or the environment. In the Pocatello Resource Area, there are two main groups of inactive mines: the underground mines, associated with phosphate mining between 1907 and about 1950, and the small underground mines and exploration adits, associated with the pursuit of base metals in the early 1900s.

Currently, the AML Program has not been active in assessing the small underground phosphate mines. This assessment is being conducted as part of the area-wide selenium investigation. To date, the assessment is not yet complete. If remediation is necessary and no responsible party is

available or capable to conduct remedial work, then it is likely that the BLM's AML expertise and resources would be used where applicable.

The PFO staff have implemented closures of shafts and abandoned mine openings to ensure public safety. Abandoned portals and shafts have recently been closed in the Chinese Peak and Lava Hot Springs areas. The abandoned mines program continues to remediate hazards as they are identified and as resources allow.

3.3.5 RECREATION

Public lands in the planning area provide a variety of recreation opportunities. The major uses include, but are not limited to, fishing, hunting, camping, OHV use, mountain biking, hiking, horseback riding, cross-country skiing, wildlife viewing, pleasure driving, snowmobiling, and motorized and nonmotorized boating. The PFO manages developed recreation sites, Special Recreation Management Areas (SRMAs), several dispersed (undeveloped) recreation sites/areas, motorized and nonmotorized trails, and three rivers used for recreation.

3.3.5.1 Recreation Opportunity Spectrum

Planning area public lands contain a variety of Recreation Opportunity Spectrum (ROS) settings, but no formal ROS classifications have been recorded in previous planning documents. The ROS inventory, adopted by the BLM and the Forest Service, characterizes lands in terms of the types of recreation experiences, activities, and settings that are provided. These opportunities are within a spectrum of six land classes: primitive, semiprimitive nonmotorized, semiprimitive motorized, roaded natural, rural, and modern-urban. Within areas inventoried using ROS, opportunities for recreation are varied and are classified according to the types of experience that can be achieved from participation, a variety of activities, and different environmental settings. The primary determinant of these recreation opportunity classes is the setting, which describes the overall environment in which the recreation occurs, influences specific types of activities that can occur, and ultimately determines the resulting types of experiences that users can achieve. The setting is formulated using a number of factors, such as remoteness, size, amount of landscape alteration or development, number of recreation users and their noticeability, and management constraints. Six broad types or classes of recreation opportunities have been recognized on a spectrum ranging from largely natural and low-use areas (resource dependent) to highly developed and intensively used areas (facility dependent). These classes are named and described in **Table 3-24**. Although no formal ROS classifications have been recorded in previous planning documents, all public lands were classified according to the ROS system as part of the ICBEMP in the late 1990s (Forest Service and BLM 2003).

Table 3-24. Recreation Opportunity Spectrum.

ROS Unit	Description of Unit
Primitive (Unit I)	Areas lying more than three miles from the nearest point of motor vehicle access, having unmodified landscapes, where there is little evidence of other people, and that are almost completely free of management controls.
Semiprimitive Nonmotorized (Unit II)	Areas at least one-half mile from the nearest point of motor vehicle access but not as distant as three miles, having mostly natural landscapes, where there is some evidence of other people, and where there are very few management controls.
Semiprimitive Motorized (Unit III)	Areas alongside or near four-wheel-drive roads and trails, having mostly natural landscapes, where there is often evidence of other people but where numbers seem to remain low, and where management controls are evident but not dominant.

Table 3-24. Recreation Opportunity Spectrum.

ROS Unit	Description of Unit
Roaded Natural (Unit IV)	Areas alongside or near improved roads where pickups and cars can be driven, having naturally appearing but modified landscapes, where there are moderate evidence and numbers of other people, and where management controls provide a sense of security.
Rural	Areas alongside or near paved highways, or having heavily modified landscapes, where there may be considerable evidence or numbers of other people, and where management controls are easily seen.
Modern-Urban	Areas alongside or near paved highways, or where the natural landscape is dominated or replaced by manmade developments, where there is much evidence of other people, and where management controls are numerous and dominant.

Source: BLM 1988e

3.3.5.2 Visitor Use

Most recreation activity is concentrated in the Pocatello Off-road Vehicle SRMA, the Blackfoot River SRMA, and the Oneida Narrows, which does not have a special management designation. The remaining recreation areas and sites are within the Pocatello Extensive Recreation Management Area (ERMA), which comprises the remainder of planning area public lands outside the two SRMAs.

A total of 266,081 visits comprising 398,277 visitor days were made to public lands in the planning area between October 1, 2002 and September 30, 2003 (BLM 2004g). A visit is one person's trip, or visit, to planning area public lands. A visitor day represents one person doing an activity for any part of one day. For example, if one person spent one night camping on public lands, it is counted as two visitor days. Most visits comprised of more than one day; each visit to planning area public lands averaged about 1.5 days. **Table 3-25** displays the diverse activities enjoyed by recreationists for public lands in the PFO area.

The majority of visitor days are spent camping, viewing wildlife, and for social gatherings. Each of these activities comprises about 20 percent of visitor days. Freshwater fishing and picnicking each total about seven percent, and the remaining recreation activities, including OHV use, horseback riding, hunting, boating, and other uses, each comprise less than five percent of total visitor days (BLM 2004h).

In addition, Forest Service lands, such as Caribou-Targhee National Forest, are within the planning area and constitute a major recreation and tourism destination, drawing local visitors and tourists from throughout the region and the nation. **Table 3-26** displays the estimated number of travel parties to the planning area by season.

Since 1980, there has been an average four percent increase in recreation visits to the planning area, and recreation visits are estimated to continue to increase at an annual rate of one to four

Table 3-25. Recreation Management Area Use in the Pocatello Field Office Area (October 1, 2002 – September 30, 2003).

Management Area/Site	Approximate Visits	Approximate Visitor Days	Approximate Percentage of Total Visitor Days
Blackfoot River SRMA Total	**68,101**	**97,336**	**24%**
Blackfoot Reservoir Campground	7,000	11,734	3%
Graves Creek Campground	4,000	4,338	1%
Cutthroat Trout Campground	2,601	3,095	1%
Sagehen Flat Campground	2,900	4,160	1%
Wolverine Canyon Campground (2 sites)	7,000	6,198	2%
Upper Blackfoot River (dispersed use)	35,100	52,562	13%
Trail Creek Bridge Campground	6,000	9,685	2%
Morgan's Bridge	3,500	5,564	1%
Pocatello SRMA Total	**35,300**	**43,589**	**11%**
Blackrock Canyon/Chinese Peak OHV Area	8,300	10,334	3%
Dispersed use	27,000	33,255	8%
Pocatello ERMA Total	**166,680**	**261,352**	**65%**
Goodenough Creek Campground	6,600	7,893	2%
Heart Mountain Spring Campground	1,900	2,448	1%
Pipeline	4,000	4,000	1%
Hawkins Reservoir Campground	7,400	10,483	3%
Maple Grove Campground	6,000	14,343	4%
Red Point Campground	14,200	34,766	9%
Dispersed use	126,580	187,419	47%
Total for All Recreation Management Areas	**270,081**	**402,277**	**100%**

Source: BLM 2004i

Table 3-26. Number of Travel Parties to the Planning Area Region by Season.

Season	Dates (Duration)	Total Travel Parties
Spring	March 16-June 14 (91 days)	2,060,602
Summer	June 15-September 6 (84 days)	2,481,095
Fall	September 7-November 30 (85 days)	1,951,288
Winter	December 1-March 15 (105 days)	2,112,980
Year-Round (Total)	(365 days)	8,602,521

Source: University of Idaho 2000

percent. While Idaho's population grew 28 percent between 1990 and 2000, the planning area's populations increased between 5 and 23 percent. Population growth, as well as an increase in the number of visitors per year to Idaho, has created a rising demand for recreation opportunities. In 2002, the Outdoor Industry Association's State of Affairs ranked Idaho as the number one state

in the nation for recreation, with about 87 percent of residents participating in outdoor activities (Outdoor Industry Association 2003).

Because southeast Idaho contains large portions of public land, recreation activities are abundant and readily accessible to many residents. Pocatello's proximity to ski areas makes it popular for snowboarding, skiing, and mountain biking. In addition to campers, picnickers, and all-terrain vehicle (ATV) users, trails through public lands receive heavy traffic from hikers and motorcyclists during snow-free seasons. ATV users, mountain bikers, and cross-country skiers have increased the popularity of trails.

According to a University of Idaho travel study that surveyed user trends within the planning area, just less than 50 percent of visitors to planning area counties identified themselves as day users, and about 52 percent stayed overnight. Almost 30 percent of overnight stays were on open lands, and the remainder stayed in public campsites (21 percent), local motels (17 percent), and private homes (22 percent) (University of Idaho 2000).

Visitors attached the highest importance rating to the experience of obtaining environmental awareness and managing for environmental benefits. In addition, remote and more primitive recreation opportunities were favored by the greatest percentage of visitors (University of Idaho 2000). The most common and most desired activities on public lands were fishing, hiking, camping, photography, wildlife/bird observation, picnicking, hunting, and OHV use. The area was most highly valued for viewing scenery, experiencing nature, escaping crowds and stress, being physically active, experiencing quiet and solitude, providing a sense of discovery, and being with friends (Idaho Department of Commerce 2003).

3.3.5.3 Visitor Publications and Facilities

The BLM has developed and published informational material in response to customer demand for maps of wilderness trails, rapids, campsites, and other interest points. Its primary tools for distributing these materials are wilderness area brochures and a joint BLM/Forest Service newspaper that provides information and maps for the PFO area and the Caribou-Targhee National Forest. Brochures are provided at the local BLM office, trailheads on BLM-and Forest Service-administered lands, counties' chambers of commerce, some local businesses, commercial outfitters, the BLM state office, and nearby BLM offices. Various BLM Web sites provide additional information.

The PFO actively manages 11 developed recreation sites (including one fee site, the Maple Grove Campground) and several dispersed recreation sites/areas (**Table 3-27**). Dike Lake Campground, which will be renamed Blackfoot Reservoir Campground, is scheduled to be converted to a fee site before this RMP is completed. The PFO area has nine developed and five undeveloped camping areas (**Table 3-27**). Developed camping area facilities may include toilets, tables, and fire grills. **Figure 2-3** depicts developed sites.

3.3.5.4 Recreation Management Areas

The current RMP recognizes recreation as the principal use of lands in two designated SRMAs: the Blackfoot River SRMA (14,720 acres) and the Pocatello Off-Road Vehicle SRMA (33,382

Table 3-27. Recreation Management Areas and BLM Developed and Dispersed Use Sites.

Management Area/Site	Developed or Undeveloped/Dispersed	Primary Recreation Activities
Blackfoot River SRMA		
Dike Lake Campground (to be renamed as Blackfoot Reservoir Campground)	Developed	Camping, fishing, boating
Grave's Creek	Developed	Camping, fishing, nonmotorized boating
Cutthroat Trout	Developed	Camping, fishing, nonmotorized boating
Sage Hen Flats	Developed	Camping, fishing, nonmotorized boating
Wolverine Canyon (2 sites)	Undeveloped	Camping, picnicking
Upper Blackfoot River	Undeveloped	Camping, fishing, nonmotorized boating
Trail Creek Bridge	Developed	Camping, fishing, nonmotorized boating
Morgans Bridge	Developed	Camping, fishing, nonmotorized boating
Negro Creek	Undeveloped	Camping, fishing, nonmotorized boating
Pocatello Off-road Vehicle SRMA		
Blackrock Canyon/Chinese Peak OHV Area	Developed	OHV use, picnicking
Trail Creek Bridge	Undeveloped	OHV use, mountain biking, hiking/running
Sandy Lane/City Creek	Undeveloped	OHV use, mountain biking, hiking/running
Moonlight Mountain	Undeveloped	Picnicking, OHV use
Chinese Peak Hang Gliding Access	Undeveloped	Hang gliding, OHV use
Pocatello ERMA		
Goodenough Creek	Developed	Multiple use trailhead, camping, picnicking
Harkness Canyon	Undeveloped	Multiple use trailhead, camping
Black Canyon (Bear River)	Undeveloped	Nonmotorized boating
Fish Haven Creek	Undeveloped	Camping, picnicking, hunting
Heart Mountain Spring	Developed	Camping, picnicking
Pipeline	Developed	Camping, fishing, motorized boating
Hawkins Reservoir	Developed	Camping, fishing, picnicking
Maple Grove	Developed	Camping, fishing, motorized boating, picnicking
Red Point	Developed	Camping, fishing, nonmotorized boating, picnicking, caving
Formation Springs	Undeveloped	Hiking, sightseeing

Source: BLM 1988a

acres), which together comprise eight percent of the planning area (**Figure 2-3**). The remaining 92 percent of the planning area is the Pocatello ERMA, where significant recreation opportunities are limited to individual sites rather than larger areas of public lands. Visits to the SRMAs are detailed below; visits to the Pocatello ERMA totaled 162,680 (comprising over 257,300 visitor days) between October 2002 and September 2003 (BLM 2004i). **Table 3-26** shows these management areas and the major developed and undeveloped BLM recreation sites.

Blackfoot River SRMA

The 14,720-acre Blackfoot River SRMA includes public lands along the Blackfoot River and Wolverine Creek (**Figure 2-3**). Several campgrounds have been constructed along the river corridor. Developed campgrounds and recreation sites within the SRMA are listed in **Table 3-27.** Recreational opportunities that exist in the Blackfoot River corridor include fishing, hunting, rock climbing, hiking, camping, picnicking, floating, kayaking, and boating. Fishing, camping, and nonmotorized boating are the primary activities. An intensively used recreation area, visits to the recreation sites and semi-developed campgrounds located along the river corridor totaled 68,101 between October 2002 and September 2003 (**Table 3-25**). These over 68,000 visits comprised over 97,300 visitor days (BLM 2004i).

The 34-mile segment of the Blackfoot River has become popular for nonmotorized boating. With adequate flows, most rapids between the Government Dam and Trail Creek are described as being runnable in open canoes, kayaks, rafts, and drift boats. The reach below Trail Creek Bridge with Class IV and V rapids was described as relatively unexplored but as having been run. These guidebooks refer to the area as an "extraordinary place to watch for birds" and as "having good fishing" (Daly and Watters 1999).

In the study area, vehicle access is generally limited to existing roads and trails. Several trails exist within the river corridor. Hunting, hiking, and camping are common activities in the river corridor and draw regional recreationists and out-of-state visitors. Visitors hunt and fish along the river throughout the year.

Pocatello Off-road Vehicle SRMA

The Pocatello Off-Road Vehicle SRMA encompasses 33,382 acres and includes public lands surrounding Pocatello (**Figure 2-12**). Lands are primarily located in the West Bench, Chinese Peak, Blackrock Canyon, Camelback, North Pocatello, South Pocatello, and Moonlight Mountain areas. The major recreation activity requiring intensive management is OHV use, primarily due to the rapid growth in the activity and the existing and potential resource damage resulting from the activity. Other recreation activities include mountain biking, hiking, running, cross-country skiing, horseback riding, hunting, and picnicking. Visits to the SRMA totaled 35,300 (comprising over 43,500 visitor days) between October 2002 and September 2003 (**Table 26**) (BLM 2004i).

The BLM is currently inventorying planning area public lands for existing routes and to date has inventoried approximately 40 percent of planning area public lands. These inventories show approximately 150 miles of existing routes on public lands in the Pocatello Off-Road Vehicle SRMA. However, it is challenging to assess all existing OHV routes, as new trails begin to be formed after a single OHV travels across an area. User-created trails are continually being developed throughout the PFO area. Inventories are continuing through the travel management planning process. These include four-wheel drive roads and trails, pack trails, old railroad grades, and other routes (BLM 2004b). Some are suitable for OHV use, while others are not because of erosion, visual resources, road and trail density, or other factors. OHV designations within the SRMA are a mix of limited and open designations with seasonal closures. The "limited to existing roads and trails" designation has proven to be a failure in the PFO area. New

trails have been pioneered throughout the Pocatello urban interface. Areas receiving the heaviest amount of use include the Blackrock Canyon/Chinese Peak OHV Area (which has 40 miles of designated trails), Trail Creek, Sandy Lane/City Creek, and Moonlight Mountain (**Table 3-27**).

3.3.5.5 Off-Highway Vehicle Use

"Off-highway vehicle" is a general term that refers to any motorized vehicle capable of operating on roads, trails, or designed areas that are not maintained. OHVs used in the planning area include trail motorcycles, ATVs (i.e., vehicles used on and off existing roads and trails, such as four-wheelers and three-wheelers), four-wheel drive vehicles (e.g., jeeps), and snowmobiles. OHV use occurs on public land throughout the PFO area. Motor vehicles generally provide a means of transportation for hunting, fishing, sightseeing, and other recreation activities. The PFO manages motorized and nonmotorized trails. The BLM's OHV designations are as follows:

- Open: The BLM designates areas as open for intensive OHV use where there are no compelling resource protection needs, user conflicts, or public safety issues to warrant limiting cross-country travel.
- Limited: The agency designates areas as limited where it must restrict OHV use in order to meet specific resource management objectives. These limitations may include restricting the number or types of vehicles, limiting the time or season of use, allowing permitted or licensed use only, limiting use to existing roads and trails, and limiting use to designated roads and trails. The BLM may place other limitations, as necessary, to protect resources, particularly in areas that motorized OHV enthusiasts use intensely or where they participate in competitive events.
- Closed: The BLM designates areas as closed if closure to all vehicular use is necessary to protect resources, to ensure visitor safety, or to reduce use conflicts.

There are currently no designations for nonmotorized/mechanical (e.g., mountain bikes) or nonmotorized/nonmechanical recreational uses of public lands. Current OHV designations are listed in **Table 3-28** and are shown on **Figure 2-12**. The current designation system is highly complex and has proven to be confusing to the general public. In particular, the "limited to existing roads and trails" designation has proven to be a failure in the PFO area. New user-created routes have been pioneered throughout the Pocatello urban interface.

OHV use on public lands has increased substantially over the past few decades. According to the Idaho Department of Parks and Recreation, Southeast Idaho Recreation Registration Analysis, motorbike/ATV registrations in the nine planning area counties have increased over 97 percent between 1999 and 2003 (Idaho State Parks and Recreation 2005).

Table 3-28. Current Off-Highway Vehicle Designations and Existing Routes on Planning Area Public Lands.

OHV Designation Area (Figure 2-12)	OHV Designation	Size (acres)	Percent of Planning Area
1	Closed to all vehicles[1]	1,300	0.2
2	Wheeled vehicles limited to existing roads and trails, closed to over-snow vehicles	11,500	1.9
3	Wheeled vehicles limited to existing roads and trails, open to over-snow vehicles	68,000	11.1
4	All vehicles limited to designated routes	71,900	11.7
5	Open to wheeled vehicles, over-snow vehicles restricted to designated routes	5,800	0.9
6	Wheeled vehicles limited to designated routes, closed to over-snow vehicles	4,800	0.8
7	Open to wheeled vehicles, closed to over-snow vehicles	3,700	0.6
8	Wheeled vehicles limited to existing roads and trails, over-snow vehicles restricted to designated routes	28,000	4.5
9	Vehicles over 40 inches wide limited to designated routes, wheeled vehicles less than 40 inches wide limited to existing roads and trails, open to over-snow vehicles	5,300	0.9
N/A	Open to all vehicles[2]	61,300	10.0
N/A	Not designated[3]	352,200	57.4
	Total	**613,800**	

[1]Closed areas consist of Worm Creek WSA, Travertine Park ACEC, and all RNAs, except Robbers Roost RNA, which limits wheeled vehicles to designated routes and is closed to over-snow vehicles.
[2]Consists of the Pocatello Resource Area boundary that was not numbered as another designation type in the Pocatello RMP and EIS (BLM 1988a).
[3]Consists of the Malad area of the Malad MFP (BLM 1981a), none of which was designated for any particular types of OHV use.
Source: BLM 2004b

3.3.5.6 Recreation Permit Administration

Special Recreation Permits

Special Recreation Permits are authorizations that allow for recreational uses of public lands and related waters. They are issued as a means to control visitor use, to protect recreational and natural resources, and to 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. The PFO generally issues a few Special Recreation Permits for commercial hunting and fishing, yurt rentals, and an occasional organized event. All commercial, competitive, vending, special area uses, and organized group activities and event-use Special Recreation Permits are considered on a case-by-case basis.

Recreation Use Permits

Recreation use permits are 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 pilot 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. The PFO currently requires recreation use permits at Maple Grove Campground, which is the only fee site in the PFO area. The charge for overnight camping in each site is $5 for the first vehicle and $2 for additional vehicles. Fees are used to provide services for picnicking, camping, hiking, hunting, fishing, boating, and other watersports.

Concession Leases

Concession leases authorize the operation of recreation-oriented services and facilities by the private sector, on public lands, in support of BLM recreation programs. The concessionaire is authorized through a concession lease that requires the concessionaire to pay fees to the BLM in exchange for the opportunity to do business on public lands. BLM Handbook H-2930-1, Recreation Permit Administration, provides consistent and explicit direction to supplement the Recreation Permit Administration Manual 2930 and regulations set forth in 43 CFR 2930. There are no concession leases in the PFO area.

3.4 SPECIAL DESIGNATIONS

This section discusses existing wilderness areas, WSA, ACEC, RNA, designated watchable wildlife areas, and wild and scenic river study segments in the planning area.

3.4.1 AREAS OF CRITICAL ENVIRONMENTAL CONCERN AND RESEARCH NATURAL AREAS

An ACEC is an area of public land 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 life and safety from natural hazards. The restrictions associated with an ACEC designation are determined at the time the designation is made and are designed to protect the values or serve the purposes for which the designation was made.

An RNA is a special management area designated either by Congress or by an agency for research and education because the area has one or more of the following characteristics:

- A typical representation of a common plant or animal association;
- An unusual plant or animal association;
- A threatened or endangered plant or animal species;
- A typical representation of common geologic, soil, or water feature; or
- Outstanding or unusual geologic, soil, or water feature.

RNAs may be designated separately or as a part of other administrative designations such, as ACEC.

All ACECs and RNAs should be managed according to the BLM's publication *Fish and Wildlife 2000; Rare Plants & Natural Plant Communities, A Strategy for the Future National Strategy Plan Series* (BLM 2002c), the dictates of which are as follows:

- Natural, undisturbed plant communities are important as RNAs, serving as controls against which management of similar disturbed communities can be evaluated. For this reason, it is important to preserve good examples of every major plant community in an undisturbed state, even those that are common.
- This strategy focuses on natural plant communities, defined as those that have not been substantially altered by human activity or that are managed to minimize the adverse effects of human disturbance. Note that this definition does not state that a natural plant community must show no signs of human activity or that the effects of human disturbance must be eliminated. Probably nowhere in the West is it possible to find a plant community that could meet the latter definition. A natural plant community chosen for special management designations should be among the best representative stands of that community type. If the best remaining stands all show considerable evidence of human activities, then the best of these should be chosen and managed to reduce these effects.

- Once designated for special management, natural plant communities are managed in concert with the natural processes under which those particular communities evolved. For some natural plant communities it may be necessary to exclude particular uses. Others may require more intense management, such as prescribed burning to simulate wildfire. The management of all such natural plant communities requires careful planning, with consideration given to the principles of reserve design.

As further discussed in BLM 2000, the BLM's long-term strategy on management of Natural Plant Communities has the following goals:

- Goal 1, Policy. Develop policy and guidance for defining and managing natural plant communities;
- Goal 2, Inventory and Monitoring. Identify natural plant communities on public lands and ensure adequate data are available to guide management and conservation activities and evaluate the effects of management actions;
- Goal 3, Planning. Develop and implement plans, in accordance with schedules resulting from management decisions, to maintain the characteristics of natural plant communities; and
- Goal 4, Coordination. Collaborate on a continuing basis with the National Park Service, Forest Service, USFWS, the states, and private groups to protect the best natural plant communities and to ensure consistent management across jurisdictional boundaries.

Other ACECs should be managed for the purpose for which they were established; that is, a watershed should be managed to preserve vegetation to capture and release water; a historical ACEC should be managed to preserve the historical values and, where applicable and necessary, to restore those previously lost; and a wildlife ACEC should be managed to preserve those habitat components necessary for the long-term benefit of the wildlife.

The management of the above could necessitate, for example, removing livestock where incompatible (e.g., RNAs), installing protective fencing around historical sites, conducting ES&R to restore watershed values, travel, or seasonal access restrictions.

There are seven ACECs and seven RNAs in the PFO area, as listed in **Table 3-29** and shown on **Figure 2-3**.

The 1988 Pocatello RMP designates some public lands as closed to OHV use. This includes Travertine Park ACEC and all RNAs, except Robbers Roost RNA, which limits wheeled vehicles to designated routes and is closed to over-snow vehicles. Indian Rocks ACEC's designation limits all vehicles to designated routes. The Geoff Hogander/Stump Creek ACEC designation limits wheeled vehicles to designated routes and is closed to over-snow vehicles. Bowen Canyon Bald Eagle Sanctuary ACEC is open to wheeled vehicles and closed to over-snow vehicles. Downey Watershed ACEC's designation limits wheeled vehicles to designated routes and is closed to over-snow vehicles. Old Juniper Townsite ACEC and Van Komen Homestead ACEC do not have OHV designations.

Table 3-29. Areas of Critical Environmental Concern and Research Natural Areas in the Planning Area.

Name	Size (Acres)	Attributes for which the Area Was Designated	Management Plan		Plan That Designated Area (Date)
			Name	Status	
Bowen Canyon Bald Eagle Sanctuary ACEC	2,300	Area provides habitat for a unique and sensitive bird species, the bald eagle. Area is about 10 miles south of American Falls, Idaho. American Falls Reservoir and the Snake River provide fish and waterfowl, the primary food base for bald eagles wintering in Bowen Canyon, which provides roosting habitat for this eagle population.	Bowen Canyon Bald Eagle Sanctuary ACEC Management Plan	Signed 1/30/81	Bowen Canyon Bald Eagle Sanctuary 1/30/81
Downey Watershed ACEC	1,854	Area was withdrawn from all forms of mineral entry in 1919 to preserve all the area's water (from natural springs) for the city of Downey, Idaho. Below some of the contained springs, native vegetation was in poor condition because of heavy livestock grazing. A withdrawal recommendation was made to protect the watershed and water sources.	Nine Mile Coordinated Activity Plan	Signed 8/10/93	Pocatello RMP 1/8/88
Indian Rocks ACEC	3,105	The Shoshone-Bannock Tribes historically used this area as a wintering ground. There are abundant cultural resources here, such as lithic scatters, petroglyphs, and pictographs.	Indian Rocks ACEC Land Use Plan Amendment	Approved 1/31/92	Pocatello RMP Amendment 9/4/99
Old Juniper Townsite ACEC	3	This site is important for preserving and presenting the history and settlement of the Black Pine Valley. The Daughters of Utah Pioneers find this site to be an important cultural resource for the inspiration and benefit of the people. All that remains is the original school house.	None		ACEC/RNA Environmental Concern Amendment January 21, 1988
Geoff Hogander/ Stump Creek Ridge ACEC	2,472	This area is one of the most important elk winter ranges in the PFO area. Up to 300 elk winter along this ridge, from Hyde Canyon (Forest Service) south to Stump Creek. About 100 deer also use the area. Elevations on the ridge system range from 6,100 to 7,400 feet.	Stump Creek Habitat Management Plan	Signed 11/25/80	Pocatello RMP 1/8/88
Van Komen Homestead ACEC	3	This site is the most significant historical feature in the Black Pine Valley and is the last remaining major structure on public land. The residence, buildings and machinery remain intact as when the site was abandoned in the 1930's. The site merits preservation for the inspiration and benefit of the people as it was significant in American history and culture.	None		ACEC/RNA Environmental Concern Amendment January 21, 1988

Table 3-29. Areas of Critical Environmental Concern and Research Natural Areas in the Planning Area.

Name	Size (Acres)	Attributes for which the Area Was Designated	Management Plan		Plan That Designated Area (Date)
			Name	Status	
Travertine Park ACEC	184	This area has relatively undisturbed mixed-shrub vegetation types, protected by a river on the north, by cliffs and rough talus on the south, and by rock talus slopes from river to cliffs at either end. This mixed-shrub community is isolated and exhibits features not found elsewhere in Idaho.	None		Pocatello RMP 1/8/88
Travertine Park RNA	23	RNA is a small portion of land in a larger Travertine Park ACEC.	None		Pocatello RMP 1/8/88
Cheatbeck Canyon RNA	100	Contains an excellent mixed stand of boxelder and bigtooth maple, surrounded on the south and east by Douglas fir forests and on the north by sagebrush/grass. Boxelder and bigtooth maple occur naturally only in southeastern Idaho. Aside from a narrow band along the Bear River in Oneida Narrows, this proposed RNA would provide the only stand of boxelder in any proposed or established RNA and probably the best example of bigtooth maple.	Cheatbeck Canyon RNA	Draft	Pocatello RMP 1/8/88
Dairy Hollow RNA	44	Most of the rangeland in the extreme southeastern corner of Idaho has been affected by grazing. The RNA has a good stand of Wyoming sagebrush and needle-and-thread grass habitat type. Only one other proposed RNA, in another geomorphic province, has this habitat type, and on that one, the stand is small. In addition, the area contains interesting columns and bluffs of conglomerate capped with red sandstone, several of which hawks have used as nest sites. One ferruginous hawk nest with three young was located in the area.	Dairy Hollow RNA	Draft	Pocatello RMP 1/8/88

Table 3-29. Areas of Critical Environmental Concern and Research Natural Areas in the Planning Area.

Name	Size (Acres)	Attributes for which the Area Was Designated	Management Plan		Plan That Designated Area (Date)
			Name	Status	
Formation Cave RNA	70	The area has travertine terraces that were once ponds and broad, gently sloping outwash plains. A stream once crossed the area and probably filled some of the ponds, but the water has been diverted for irrigation, and only a small area along the east boundary has any standing water. The terraces have pristine stands of bitterbrush, Nevada bluegrass, and shrubby cinquefoil due to their inaccessibility to livestock and motorbikes. Along the old stream channel and where the water table is close to the surface, water birch is predominating. This area is managed cooperatively with The Nature Conservancy.	Formation Springs	Draft	Pocatello RMP 1/8/88
Oneida Narrows RNA	614	This area contains a narrow band of boxelder along the Bear River, with adjacent northwesterly and southeasterly facing slopes of mountain mahogany, bigtooth maple, Rocky Mountain juniper, and bluebunch wheatgrass communities. Small stands of aspen dot the slopes. Near-vertical limestone cliffs, containing grottos and caves, provide a haven for a variety of birds and uniquely adapted plants. The area is quite undisturbed and diverse.	Oneida Narrows RNA	Signed 5/18/94	Pocatello RMP 1/8/88
Pine Gap RNA	237	This very uniform area of calcareous soil near Pine Gap is covered with a community of black sagebrush and bluebunch wheatgrass. It shows signs of past grazing yet is in very good condition. Its uniformity is an outstanding feature. It also contains a rare plant, *Cryptantha caespitosa* (tufted cryptantha). Although there are other stands of the black sagebrush/blue bunch wheatgrass habitat type in the PFO area, the Pine Gap site is by far the best.	Pine Gap RNA	Draft	Pocatello RMP 1/8/88
Robbers Roost RNA	403	Vegetation is in good condition and provides an unrepresented sample of shrub communities so common in this part of Idaho. It provides a very good undisturbed reference and study area for those shrub communities.	None		Pocatello RMP 1/8/88

Sources: BLM 1981c; 1988a; 1999; 2003e; 2004a

3.4.2 DESIGNATED WATCHABLE WILDLIFE AREAS

There are five designated watchable wildlife areas in the planning area (Pope 2003), as follows:

- Juniper Rest Area (site #73). Located on Interstate 84 five miles north of the Utah border, this site is about 40 acres, where people can park their vehicles, walk through a juniper-wooded area, and watch birds, such as vesper sparrow, mountain bluebird, hawks, and northern harrier. It is about 75 percent public land.
- Oxford Slough/Twin Lakes/Swan Lake (site #74). Located in Franklin County from Swan Lake to Oxford to Clifton, this is a series of locations around Oxford Slough near Preston. There are 40-acre public land parcels at Swan Lake and Oxford Reservoir. The 40-acre Twin Lakes parcel is under the BLM's Recreation and Public Purposes Act lease to Idaho Fish and Game, and during the summer a day-use fee is charged. USFWS manages a waterfowl production area at Oxford Slough. People would have to park their vehicles along the highway and use binoculars for waterfowl and shorebird viewing.
- Formation Springs RNA (site #70). Located near Soda Springs, this is a 70-acre parcel between two pieces of land owned by The Nature Conservancy. It is a lush riparian complex that people can wander through after parking their vehicles on public land.
- Lower Blackfoot River from Blackfoot to Government Dam (site #63). This is composed of a 28-mile scenic drive along the Blackfoot River, from its confluence with Wolverine Creek to the Government Dam. The habitats include sagebrush flats, Douglas fir forest, and deep river canyons with lush riparian areas. Much of the riverbank is public land. There are several turnouts from which to watch birds and other areas that are appropriate to hike. Travertine Park RNA near Government Dam is part of this loop.
- American Falls Dam and vicinity (site #67). Located near the town of American Falls, this area consists of some small loops that connect the highways and county roads to riverside observation points or hiking areas. Most of the area is private land, with the exception of the BLM's Pipeline Recreation Site on the south side of the Snake River.

3.4.3 WILD AND SCENIC RIVERS

No rivers in the planning area are currently managed under the Wild and Scenic Rivers Act of 1968 (PL 90-542, as amended; 16 USC 1271-2287 [WSR Act]). Congress enacted the WSR Act to provide a national policy for preserving and protecting selected rivers and river segments in their free-flowing condition for the benefit and enjoyment of present and future generations. Section 5(d)(1) of the act directs federal agencies to consider potential wild and scenic rivers in their land and water planning processes. To fulfill this requirement, the BLM inventories and evaluates rivers when it develops an RMP for public lands in a specified area.

A river under consideration for inclusion in the National Wild and Scenic Rivers System (NWSRS) is evaluated for eligibility and tentative classification and suitability. The river segment is first assessed to identify whether it is free-flowing and contains any outstandingly remarkable values, to determine eligibility for inclusion into the NWSRS. If a segment of a river is found eligible it is assessed for its suitability for inclusion in the NWSRS.

Initial screening and identification efforts of planning area rivers resulted in the Bear River (**Figure 3-19**) and Blackfoot River (**Figure 3-20**) being found eligible for further consideration in the inventory process. Additional review focused on whether eligible segments met free-flowing criteria and contained any outstandingly remarkable values, as defined in the WSR Act. Members of the BLM resource team conducted this review for each of their areas of expertise, using their knowledge of the area and consulting available inventory information. This information was considered against the outstandingly remarkable values criteria in the WSR Act.

3.4.4 ELIGIBILITY DETERMINATIONS

The BLM resource team prepared and reviewed documentation of the values considered outstandingly remarkable for both of the river segments. As a result of this evaluation, some segments of both rivers were found eligible for further study. A description of outstandingly remarkable values for both candidates, as well as the tentative classification, is below.

3.4.4.1 Bear River

During the 1994 field season, a BLM interdisciplinary team (IDT) inventoried public land tracts along the Bear River (**Figure 3-19**) and its tributary streams in Idaho. The Bear River was first divided into the upper study segment (Wyoming border to Alexander Dam) and the lower study segment (Alexander Dam to the Utah border). The IDT viewed a total of 37 tracts, 20 in the upper segment and 17 in the lower segment.

The IDT determined 10 eligible tracts, which comprised a total of 11 river miles of public lands. The segments were found to be eligible for their outstandingly remarkable wildlife, geologic, recreational, and hydrologic values. All tentative classification was "recreational" (BLM 1995a).

3.4.4.2 Blackfoot River

During the spring and summer of 2002, a BLM IDT conducted an eligibility study on public lands along the Blackfoot River (**Figure 3-20**) between Government Dam and immediately below the Wolverine Creek and Blackfoot River confluence. The study area was divided into 11 segments delineated by land ownership. The IDT analyzed only those segments containing public lands. The team determined that nonpublic lands would be included in the study only if the landowner or managing entity willingly volunteered to include their lands in the study.

The IDT concluded that only one segment within the study area on the Blackfoot River was eligible. The eligible segment is between Miner Creek and Cedar Creek and is made up of 5.6 river miles of both tribal and public lands. Only the side of the river containing public land was analyzed for eligibility and was found to be eligible for its outstandingly remarkable scenic, recreational, and botanical values. Its tentative classification was "scenic" (BLM 2002d).

3.4.5 SUITABILITY DETERMINATIONS

A BLM IDT conducted a suitability study on the one eligible segment on the Blackfoot River and ten eligible segments on the Bear River (**Figure 3-20** and **Figure 3-19**). The purpose of the suitability phase was to determine if the eligible segments meet the suitability criteria for inclusion in the NWSRS.

The suitability study assessed the eligible segments using the seven suitability factors outlined in BLM Manual 8351, *Wild and Scenic Rivers – Policy and Program Direction for Identification, Evaluation, and Management.* These factors are as follows:

1. Characteristics that do or do not make the area a worthy addition to the NWSRS.
2. Status of landownership, minerals (surface and subsurface), use in the area, including the amount of private land involved, and associated or incompatible uses. Jurisdictional consideration (administrative role and/or presence) must be taken into account to the extent that management would be affected. In situations where there is identified river study area, it may be difficult to ensure those identified outstandingly remarkable values could be properly maintained and afforded adequate management protection over time. Accordingly, for those situations where the BLM is unable to protect or maintain any identified outstandingly remarkable values or through other mechanisms (existing or potential), river segments may be determined suitable only if the entity with land use planning responsibility supports the finding and commits to assisting the BLM in protecting the identified river values. An alternative method to consider these segments is for state and local governments or private citizens to initiate efforts for designation under Section 2(a)(ii), or a joint study under Section 5(c) of the WSR Act. In certain cases, there might be existing or future opportunities for the BLM to acquire river shoreline or where landowners are willing to donate, exchange, transfer, assign, sell, or sign an easement. Wherever appropriate, the BLM shall encourage the state, responsible federal agency, or other entities to evaluate segments where the BLM lacks sufficient jurisdictional control, and the BLM shall provide technical assistance concerning the wild and scenic rivers studies, as well as information concerning public lands within the study corridor. The BLM shall continue to protect and, wherever possible, enhance any outstandingly remarkable values identified in the RMP process, which are associated with lands under the BLM's jurisdiction.
3. The reasonably foreseeable potential uses of the land and related water, which would be enhanced, foreclosed or curtailed if the area were included in the NWSRS, and the values, which could be foreclosed or diminished if the area is not protected as part of the NWSRS.
4. Federal, public, state, tribal, local, or other interests in the designation or nondesignation of the river, including the extent to which the administration of the river, including the costs thereof, may be shared by state, local, or other agencies and individuals.
5. The estimated cost, if necessary, of acquiring lands or interests in lands and administering the area should it be added to the NWSRS.
6. Ability of the agency to manage and protect the river area or segment as a wild and scenic river, or other mechanisms (existing and potential) to protect identified values, other than the wild and scenic river designation.

7. Historical or existing rights that could be adversely affected. In determining suitability, consideration of any valid existing rights must be afforded under applicable laws, regulations, and policies.

These factors were considered for each river to answer the following three questions:

- Should the river's free-flowing character, water quality, and outstandingly remarkable values be protected, or are one or more other uses important enough to warrant doing otherwise?
- Will the river's free-flowing character, water quality, and outstandingly remarkable values be protected through designation? Is designation as a WSR the best method for protecting the river corridor? In answering these questions, the benefits and impacts of WSR designation must be evaluated and alternative protection methods considered.
- Is there a demonstrated commitment to protect the river by any nonfederal entities who may be partially responsible for implementing protective management?

The IDT concluded that no eligible segments are suitable for inclusion in the NWSRS. This conclusion on the Bear River was based on the small size and disjunctive location of the eligible segments, as they are isolated 40-acre tracts or very short, isolated segments of public land. On the Blackfoot River, land ownership considerations that make only one side of the river manageable led to this segment's unsuitability. The WSR Act does not specify a minimum size requirement for river segments to be suitable for inclusion in the NWSRS. During the suitability determination, a river segment is of sufficient length if a specific outstandingly remarkable value or values can be protected should the segment be designated. However, the WSR Act states that management strategies necessary to administer the entire river area should be taken into account and, as such, excessive segmentation should be avoided. Manageability of the Bear and Blackfoot River segments as wild and scenic rivers is not feasible or practical because the BLM has no authority over private or state lands. The BLM could pursue other designations for these eligible segments as an alternative mechanism to protect the segments' existing identified outstandingly remarkable values. Also, if the State of Idaho were to undertake a study under section 2a(ii) of the WSR Act, the BLM would participate as an active partner in that study. Additionally, most of the comments received from the general public, agencies, and Shoshone-Bannock Tribes showed opposition to the designation of the rivers in the NWSRS.

3.4.6 WILDERNESS STUDY AREAS

There are no designated wilderness areas in the planning area. There are two WSAs in the planning area: Petticoat Peak WSA (11,207 acres) and Worm Creek WSA (41 acres).

3.4.6.1 Petticoat Peak Wilderness Study Area

The Petticoat Peak WSA (Idaho [ID]-28-1) is within the Fish Creek Mountain Range, one mile northeast of Lava Hot Springs (**Figure 2-3**). Topography is steep and mountainous, with Petticoat Peak being the highest point at over 8,000 feet. Many canyons and ridges radiate from the mountain peak. Dominant vegetation on the western slopes consists of junipers, mountain shrubs, and sagebrush. Thick stands of Douglas fir, intermingled with lodgepole pine and limber pine, cover the WSA's east side. A variety of shrubs, forbs, and grasses are found throughout. Aspen groves can be found through moist sites in the area. The OHV designation for the WSA is "Limited", restricting motorized and mechanized travel to designated routes.

All of the 11,207-acre Petticoat Peak WSA was recommended as unsuitable for Wilderness designation (BLM 1986). If Congress were to carry forward this recommendation, the WSA designation would be removed and the area would be managed for multiple use, similar to adjacent public lands or as directed by the release language.

3.4.6.2 Worm Creek Wilderness Study Area

The Worm Creek WSA (ID-37-77) is a 41-acre tract, two sides of which are adjacent to the Forest Service's 16,000-acre Worm Creek Roadless Area. The other two sides of the tract are adjacent to private land (**Figure 2-3**). The topography varies from benchland to steep hillsides, and elevation ranges from 6,500 feet to 7,200 feet. The surrounding terrain contains high elevation basins and steep, rocky mountain peaks. Several peaks on the main ridge near the WSA exceed 9,000 feet. The area supports a dense stand of aspen and a Douglas fir/lodgepole pine mix. Understory species include mountain maple, Oregon grape, pinegrass, snowberry, willow, and serviceberry. The area provides a suitable habitat for deer and elk and a variety of birds and small mammals. The WSA is closed to OHV use. There is minimal human activity in the WSA, but there have been isolated cases of unauthorized firewood cutting and OHV use.

All of Worm Creek WSA is recommended as suitable for wilderness designation (BLM 1986), but alone this parcel does not qualify as wilderness because of its size. Designation of the 41-acre parcel therefore depends on designation of the adjacent Forest Service 16,000-acre Worm Creek Roadless Area.

3.5 SOCIOECONOMIC RESOURCES AND ENVIRONMENTAL JUSTICE

The planning area encompasses about 613,800 acres of land managed by the BLM in southern Idaho. These lands are within portions of nine southeastern Idaho counties: Bannock, Bear Lake, Bingham, Bonneville, Caribou, Cassia, Franklin, Oneida, and Power. The economies of all of these counties are affected by public land uses within the planning area. Similarly, the demographics, social structure, and values within the counties influence the demand for recreation and other opportunities provided by the public lands. This section is a discussion of the socioeconomic resources of the region of influence. Data for Idaho is presented for comparison purposes. Socioeconomic conditions addressed include population, housing, employment, schools, and protection of children.

3.5.1 SOCIOECONOMIC RESOURCES

3.5.1.1 Definition of Resource

Socioeconomic resources include population, employment, income, housing, earnings, and schools. Population is the number of residents in the area and the recent change in population growth. Employment data takes into account labor sectors, labor force, and statistics on unemployment. Income information is provided as an annual total by county and as per capita income. Housing includes numbers of units, ownership, and vacancy rate. Earnings-by-industry provides a measure of the health of local business activity. School enrollment and capacity are important considerations in assessing the effects of potential growth. Each of these socioeconomic characteristics is discussed below. In addition the social setting, including changes over time in the social structure, cohesiveness, and culture, is described in Section 3.5.1.9, Social Characteristics.

3.5.1.2 Population

While Idaho's population has risen 28.5 percent in the last decade, the population of the planning area has grown an average of 12.8 percent (Idaho Department of Labor 2003). Although all of these counties are sparsely populated, the populations of Bonneville, Bannock, and Bingham Counties ranked in the top ten (third, fifth, and seventh) for growth out of a total of 44 counties in the state (US Census Bureau 2002). The populations of the other six counties in the planning area ranked from thirteenth to thirty-eighth, with Oneida County having the smallest population of the nine counties studied.

Table 3-30 displays population trends from 1990 to 2000 and percent change over the ten-year period of the nine counties analyzed. With the exception of Bear Lake, Caribou, Cassia, and Power, the counties within this region have grown at a rate above the area average of 11.9 percent. Many of these counties are experiencing development and growth in suburbs bordering urban areas around the Wasatch front in Utah, where many people are moving to and commuting from for jobs in Salt Lake City and Ogden, Utah, and other large surrounding urban areas (Forest Service 2003a).

In 2000, the three largest county populations were in Bonneville, Bannock, and Bingham at 82,522, 75,565, and 41,735 and represent increases of 14.3 percent, 14.4 percent, and 11.0

Table 3-30. County Population Estimates.

County	1990	2000	1990-2000 Change	1990-2000 Percent Change	Median Age (2000)
Bannock	66,026	75,565	9,539	14.4%	29.8
Bear Lake	6,084	6,411	327	5.4%	35.8
Bingham	37,583	41,735	4,152	11.0%	29.7
Bonneville	72,207	82,522	10,315	14.3%	31.8
Caribou	6,963	7,304	341	4.9%	35.0
Cassia	19,532	21,416	1,884	9.6%	31.1
Franklin	9,232	11,329	2,097	22.7%	27.7
Oneida	3,492	4,125	633	18.1%	31.4
Power	7,086	7,538	452	6.4%	31.6
Idaho	1,273855	1,273,593	368,417	28.5%	33.2

Sources: US Census Bureau 2002

percent from their 1990 populations. The growth in each of these counties over the 10-year period did not exceed the state average of 28.5 percent. Over this decade, the largest population percent change occurred in Franklin County, with a 22.7 percent increase, and the lowest population percent change occurred in Caribou County, with a 4.9 percent increase. As of 2001, the population of all nine counties had grown approximately nine percent over the past 10 years and totaled 253,268 people (US Census Bureau 2002). Growth is projected to continue, as shown in **Table 3-31**.

Table 3-31. County Population Projections.

County	2000	2005	2010	2015	2020	2000-2020 Change	2000-2020 Percent Change
Bannock	75,565	80,584	86,339	92,044	97,816	22,251	29.4%
Bear Lake	6,411	6,723	7,190	7,652	8,119	1,708	26.6%
Bingham	41,735	47,137	50,535	53,905	57,317	15,582	37.3%
Bonneville	82,522	90,728	97,268	103,755	110,332	27,810	33.7%
Caribou	7,304	7,545	7,843	8,105	8,344	1,040	14.2%
Cassia	21,416	23,715	24,827	25,856	26,836	5,420	25.3%
Franklin	11,329	12,078	12,750	13,373	13,965	2,636	23.3%
Oneida	4,125	4,221	4,398	4,558	4,705	580	14.1%
Power	7,538	8,760	9,170	9,612	9,886	2,348	35.1%
Idaho	1,273,855	1,386,4893	1,497,548	1,609,314	1,722,954	449,099	35.3%

Source: US Census Bureau 2002

The median age for all nine counties in 2002 was 31.5 years. This was slightly lower than the average of the state's median age of 33.2. With the exception of Bannock and Franklin Counties, whose figures were slightly lower, approximately one-third of the counties were made up of children (under 18 years of age). The percent of population over 65 ranged from approximately 10 to 16 percent, with Power County having the largest population, at 15.9 percent, and Bingham and Bonneville having the lowest populations, at 10.3 and 10.2 percent. The average household size in all counties ranged from 2.40 to 2.69 persons, with Bannock

County having the smallest household size and Franklin County having the largest (US Census Bureau 2002).

Population growth is projected to continue in all planning area counties, as shown in **Table 3-31**. Bingham, Power, Bannock, and Bonneville Counties are expected to have the largest growth in population between 2000 and 2020, with growths of 37.3 percent, 35.1 percent, 33.7 percent, and 29.4 percent, respectively, while the lowest population growths during the same time period are expected to occur in Oneida (14.1 percent) and Caribou (14.2 percent) Counties (US Census Bureau 2002). Analysis of the current and future trends in population growth is further discussed below under *Social Characteristics*.

3.5.1.3 Housing

Table 3-32 shows housing occupancy type and vacancy for counties of the planning area in 1990 and 2000. Between 1990 and 2000, most counties experienced an increase of 11.0 to 17.3 percent in total number of housing units. Franklin County had the largest increase, at 19.2 percent in the number of housing units, and Power County had the lowest increase, at 5.3 percent. All counties experienced a lower percentage increase in the number of housing units than did the state, which experienced an increase of 27.7 percent. In 2000, the average number of persons per household was 2.92, which was higher than that of the state's persons per household average of 2.69. Bannock County had the same persons per household figure as the state, and Franklin County had the highest, at 3.24. In 2000 Power and Oneida Counties had the highest vacancy rate (3.4 percent and 3.0 percent), and Bonneville County had the lowest vacancy rate (1.6 percent). In general vacancy rates in the planning area declined between 1990 and 2000 for Bannock, Bear Lake, Bingham, Bonneville, and Caribou Counties and increased for Cassia, Franklin, Oneida, and Power Counties, as well as in the state as a whole.

Table 3-32. County Housing Estimates 1990-2000.

County	1990			2000			Housing Units Percent Change
	Housing Units	Vacancy Rate	Persons per Household	Housing Units	Vacancy Rate	Persons per Household	
Bannock	25,694	2.4%	3.00	29,102	2.1%	2.69	13.3%
Bear Lake	2,934	5.0%	3.07	3,268	2.8%	2.81	11.4%
Bingham	12,664	2.0%	3.31	14,303	1.7%	3.10	13.0%
Bonneville	26,049	1.9%	2.94	30,484	1.6%	2.83	17.0%
Caribou	2,867	3.7%	3.10	3,188	2.2%	2.83	11.2%
Cassia	7,212	1.7%	3.05	7,862	2.7%	2.99	9.0%
Franklin	3,249	2.0%	3.31	3,872	2.3%	3.24	19.2%
Oneida	1,496	2.2%	3.02	1,755	3.0%	2.85	17.3%
Power	2,701	2.6%	2.95	2,844	3.4%	2.92	5.3%
Idaho	413,327	2.0%	2.73	527,824	2.2%	2.69	27.7%

Sources: Idaho Department of Finance 2002; US Census Bureau 2002

3.5.1.4 Employment and Economy

Between 1990 and 2000, labor force and employment increased, and unemployment decreased in all counties. **Table 3-33** shows employment data for all counties in 2000. The three largest counties in the planning area had unemployment rates ranging from 5.0 to 7.2 percent, while, on average, most counties and the state had unemployment rates of approximately 5.0 percent. Though individual counties have varying data, employment trends in all counties were similar (US Census Bureau 2002).

Table 3-33. County Employment Statistics (2000).

County	Employed	Unemployed	Unemployment Rate
Bannock	35,641	2,646	6.9 %
Bear Lake	2,482	193	7.2 %
Bingham	17,841	1,094	5.8 %
Bonneville	38,309	2,012	5.0 %
Caribou	2,981	151	4.8 %
Cassia	8,942	488	5.2 %
Franklin	4,911	274	5.3 %
Oneida	1,751	78	4.3 %
Power	3,325	163	4.7 %
Idaho	599,453	36,784	5.8 %

Source: Idaho Department of Labor 2003

As shown in **Table 3-34**, between 1990 and 2000, the greatest percentage increase in employment in all counties occurred in the construction sector. The increase in construction needs and employment has stemmed from a growing population in the area. Construction needs for residences, second homes, commercial structures, and infrastructure have risen to accommodate population increases. In both Power and Oneida Counties, construction employment increased by over 200 percent.

The average percentage of total employment growth for all counties between 1990 and 2000 was slightly lower than the percentage of total employment growth for the state. After construction, the highest average percentage of total employment growth in the nine-county area occurred in the services (49.9 percent), agriculture/fishing/forestry (44.0 percent), trade (33.2 percent), transportation and utilities (27.3 percent), and the finance/insurance/real estate (26.6) sectors, followed by the government sector (23.6 percent). Between 1990 and 2000, farm employment grew in each of the nine counties, as did employment in the government, construction, trade, finance/insurance/real estate, and services sectors. In 2000, the nine counties in the planning area followed a similar employment pattern within the different industry sectors, though Bear Lake and Caribou Counties displayed a greater deviation from the nine county averages (Bureau of Economic Analysis [BEA] 2004).

The only sector in the nine counties to show a significant decline in employment was mining, which declined 11.4 percent within the ten-year period. This decline in employment may be attributed to changes in phosphate mining operations, particularly in Caribou County. In addition, the decline in mining employment can be attributed to plant closures in Silverbow,

Table 3-34. County Employment by Sector and Average Sector Growth.

Sector	Bannock	Bear Lake	Bingham	Bonneville	Caribou	Cassia	Franklin	Oneida	Power
Farm (9.8%)									
1990	747	548	2,367	1,385	636	1,616	960	419	698
2000	832	595	2,368	1,442	705	1,808	1,022	523	996
Agriculture/ Forestry/ Fishing (44%)									
1990	217	29	694	485	65	495	667	42	124
2000	460	228	662	1,082	89	604	92	235	607
Mining (-11.4%)									
1990	24	0.0	105	38	526	49	5	34	11
2000	62	0.0	8	62	408	128	30	0.0	0.0
Construction (51.1%)									
1990	1,454	55	672	3,315	161	407	126	26	84
2000	2,574	154	1,221	3,931	320	639	264	81	335
Manufacturing (12.4%)									
1990	1,998	97	2,391	1,999	682	1,615	295	21	1,836
2000	3,055	105	2,452	2,568	795	1,287	279	30	1,718
Transportation/ Utility (27.3%)									
1990	2,419	79	423	1,126	136	297	103	53	216
2000	2,065	107	598	2,062	166	657	125	50	349
Trade (33.2%)									
1990	7,948	519	3,230	10,873	586	2,165	687	194	569
2000	10,134	638	4,546	14,948	722	2,742	1,049	285	586
Finance/ Insurance/ Real Estate (26.6%)									
1990	2,462	109	484	2,461	150	594	115	70	86
2000	2,885	182	596	3,213	168	734	285	87	118
Services (49.7%)									
1990	6,837	264	2,944	12,984	446	1,785	491	184	364
2000	11,741	828	2,962	19,036	609	2,589	815	240	539
Government (23.6%)									
1990	6,982	530	3,319	4,817	642	1,413	624	332	571
2000	9,085	614	4,037	5,645	666	1,709	846	436	731

Sources: BEA 2004; Sonoran Institute 2004; US Census Bureau 1990, 2000

Montana (Rhodia, Inc., in 1998), Pocatello (FMC Corporation in 2001), and Soda Springs (Astaris, LLP, in 2003), as well as one mine closure (Astaris, LLP, in 2002). Although employment changes within the mining industry sector are shown to be negative, mining still remains a relatively large employer in the planning area and the largest revenue generator for public land.

3.5.1.5 Income and Earnings by Industry

As shown in **Table 3-35**, in 2000, per capita personal incomes for Bannock, Bonneville, Caribou, Cassia, and Power Counties were all above $20,000, an average increase of 34.6

Table 3-35. Per Capita Personal Incomes.

County	1990	Percent Difference from State Average 1990	2000	Percent Difference from State Average 2000	Percent Change
Bannock	$14,161	-10.7%	$21,081	-12.1%	48.9%
Bear Lake	$10,906	-31.2%	$16,631	-30.7%	52.5%
Bingham	$14,184	-10.6%	$18,748	-21.8%	32.2%
Bonneville	$17,235	8.7%	$23,670	-1.3%	37.3%
Caribou	$14,385	-9.3%	$20,677	-13.8%	43.7%
Cassia	$16,535	4.3%	$21,144	-11.9%	27.9%
Franklin	$11,086	-30.1%	$15,870	-33.8%	43.2%
Oneida	$11,730	-26.0%	$15,340	-36.0%	30.8%
Power	$18,083	14.0%	$20,863	-13.0%	15.4%
Idaho	$15,858	-	$23,987	-	51.3%

Note: Figures calculated without taking into account the inflation rate.
Source: BEA 2002

percent over their 1990 incomes, but still slightly below the state average of $23,987. Bear Lake experienced the most significant increase, as per capita personal income was $16,631, reflecting an increase of 52.5 percent since 1990 but still remains below the state average of $23,987 (BEA 2002).

Between 1990 and 2000, earnings by persons employed in Bannock and Bear Lake Counties increased by approximately fifty percent, while earnings of persons employed in Caribou and Franklin Counties increased by 43.7 percent and 43.2 percent. These counties experienced per capita personal income growth levels similar to those of the state (51.3 percent). Per capita personal income change was lowest in Power County, with a percent change of 15.4 percent. Differences in per capita personal income from the state average in 1990 and 2000 varied among the counties. Bear Lake, Franklin, and Onieda Counties dispalyed the greatest deviance, with Oneida County's deviance increasing over the ten year period. While Bonneville, Cassia, and Power counties had higher per capita personal incomes than the state in 1990, all counties had lower figures than the state average in 2000 (BEA 2002).

In 2000, the industry category with the largest earnings in all counties was the nonfarm sector, as shown in **Table 3-36**. Farm earnings decreased in all counties except in Bear Lake, Caribou, and Franklin, where there were increases of 28.0 percent, 13.0 percent, and 32.4 percent. Bonneville County experienced the largest decrease in farm earnings of all the counties, with a decline of 53.5 percent. All counties experienced increases in nonfarm and private earnings from 1990 to 2000. With regard to nonfarm earnings, Bannock, Bear Lake, and Franklin Counties experienced the largest increases of 74.0 percent, 81.8 percent, and 88.1 percent. With regard to private earnings, these counties exerienced increases of 70.3 percent, 85.6 percent, and 89.4 percent. In a similar pattern, earnings decreased at the state level in farm earnings between 1990 and 2000, while nonfarm and private earnings doubled (BEA 2002).

Table 3-36. Earnings by Industry Sector 2002 (in Thousands of Dollars).

Industry Sector	Bannock	Bear Lake	Bingham	Bonneville	Caribou	Cassia	Franklin	Oneida	Power	Idaho
Farm Earnings										
1990	6,679	2,241	94,448	41.272	8,404	81,127	13,614	1,864	44,055	973,884
2000	5,002	2,869	60,985	19,585	7,315	70,665	18,031	1,147	27,705	794,497
Percent Change	-25.1%	28.0%	-35.4%	-53.5%	13.0%	-12.9%	32.4%	-38.5%	-37.1%	-18.4%
Nonfarm Earnings										
1990	599,895	23,913	295,171	823,493	85,598	166,053	37,537	14,322	88,149	10,473,954
2000	1,043,861	43,478	402,189	1,402,036	132,029	246,570	70,592	24,067	137,929	21,396,054
Percent Change	74.0%	81.8%	36.2%	70.3%	54.2%	48.5%	88.1%	68.0%	56.5%	104.3%
Private Earnings										
1990	443,965	14,433	232,083	704,598	73,806	136,709	26,451	8,302	76,424	8,310,749
2000	755,677	26,790	296,049	1,197,037	112,700	197,913	50,090	14,030	118,945	17,536,340
Percent Change	70.3%	85.6%	27.6%	69.9%	52.7%	44.8%	89.4%	69.0%	55.6%	111.0%

Note: All state and local area dollar estimates are in current dollars (not adjusted for inflation).

Farm Earnings: The net income of sole proprietors, partners, and hired laborers arising directly from the current production of agricultural commodities, livestock or crops. It includes net farm proprietors' income and the wages and salaries, pay-in-kind, and other labor income of hired farm laborers, but specifically excludes the income of nonfamily farm corporations.
Nonfarm Earnings: The sum of wage and salary disbursements, other labor income, and proprietors' income for all industries, excluding farm.
Private Earnings: The sum of wage and salary disbursements, other labor income, and nonfarm proprietors' income, excluding farm and government.

Source: BEA 2002

3.5.1.6 Economic Influence of Public Lands

Local economies benefit from public land management. Local economies realize direct and indirect impacts from a variety of activities on public lands, including visitor expenditures, and the processing and harvesting of natural resources (i.e. timber, minerals, and forage). The BLM collects revenues from recreational and commercial activities that take place on the nearly 12 million acres of BLM-managed lands in Idaho, of which the federal government redirects revenues back to the states in which they were collected. These revenues are collected from facility fees (e.g., campgrounds), BLM recreation permits (special, competitive, organized group activity and event use permits), timber sales, mining leases and mineral revenues, and grazing fees. The agricultural, hunting, forestry, and fishing sectors have shown increases in employment due to an increase in activity (Forest Service 2003a).

More than $15 million dollars in annual revenues are returned to the American people (BLM 2003e) and are reinvested in the state's public lands. In 2002, the BLM invested close to $50 million in Idaho public lands (BLM 2003e). Investments are made in the management of land and resources, land acquisition, range improvements, construction and access, central hazardous materials fund, and wildfire preparedness and operations. How recreational and commerical sectors of public lands influence local economies are discussed below.

3.5.1.7 Recreation and Activities on Public Lands

Since 1980, there has been an average four percent increase in recreation visits to the planning area, and recreation visits are estimated to continue to increase at an annual rate of one to four

percent. Population growth, as well as an increase in the number of visitors per year to Idaho, has created a rising demand for recreation opportunities.

Several historic trail segments, such as those of the Oregon NHT, converge within areas of the planning area (National Park Service 2003). In addition, the planning area contains two SRMAs managed by the PFO: the Pocatello ORV SRMA and the Blackfoot River. The numerous recreational opportunities that exist in the Blackfoot River corridor include fishing, hunting, rock climbing, hiking, camping, picnicking, floating, kayaking, and boating. An intensively used recreation area, visits to the recreation sites and semi-developed campgrounds along the river corridor totaled over 17,961 in 2001 (BLM 2003f). Pocatello's proximity to ski areas makes it popular for snowboarding, skiing, and mountain biking. In addition to campers, picnickers, and ATV users, during snow-free seasons, trails through public lands receive heavy traffic from hikers and motorcyclists. OHV users, mountain bikers, and cross-country skiers have increased the popularity of trails.

The most common and most desired activities on public lands are fishing, hiking, camping, photography, wildlife/bird observation, picnicking, hunting, and OHV use. The recreation area is most highly valued for viewing scenery, experiencing nature, escaping crowds and stress, being physically active, experiencing quiet and solitude, providing a sense of discovery, and being with friends (Idaho Department of Commerce 2003).

3.5.1.8 Schools and the Protection of Children

Executive Order 13045, entitled "Protection of Children from Environmental Health Risks and Safety Risks" (Executive Order 13045, 62 FR 19885), states that each federal agency shall make it a high priority to identify and assess environmental health risks and safety risks that may disproportionately affect children and ensure that its policies, programs, activities, and standards address disproportionate risks to children that result from environmental health risks or safety risks. Environmental health risks and safety risks mean risks to health or to safety that are attributable to products or substances that the child is likely to come into contact with or to ingest.

Of the larger counties, approximately 32.2 percent of Bannock County and 35.1 percent of Bonneville County are made up of children (under 18 years of age). Similar percentages of children reside in counties within the study area: 37.4 percent in Bear Lake County, 35.8 percent in Bingham County, 34.5 percent in Caribou County, 37.1 percent in Cassia County, 40.4 percent in Franklin County, 35.0 percent in Oneida County, and 36.6 percent in Power County (US Census Bureau 2002).

Twenty-one school districts serve all counties of the planning area. The school districts are made up of 140 schools with a total enrollment in the 2001-2002 school year of 53,775 students. Pocatello School District in Bannock County has the greatest number of schools within its county. Pocatello School District is composed of two preschools, fifteen elementary schools, three junior high schools (grades 8 and 9), five high schools (grades 10 through twelve), six private schools, and nine alternative/other schools (charter schools [kindergarten through 6th grade], detention centers, and professional schools). Bannock County has an enrollment of

approximately 14,325 students, 12,152 of them being within the Pocatello School District (Access Idaho 2003).

Table 3-37 presents educational attainment in 2000 of all counties population over 25 years of age. Bear Lake and Franklin Counties had the highest population of high school graduates, with 42.1 percent and 40.0 percent, respectively; however, of the planning area counties, both counties accounted for having two of the lowest populations of college graduates. Bonnevile and Bannock Counties had the greatest number of college graduates, with 17.3 percent and 16.4 percent, respectively, both being higher than the state average (14.8 percent). These same counties also had the largest population of people who had attained a graduate or professional degree, with 8.9 percent and 8.5 percent, respectively.

Table 3-37. Educational Attainment 2000 (Population 25 years and Over).

County	High School Graduate	Some College, no Degree	Associate's Degree	Bachelor's Degree	Graduate or Professional Degree
Bannock	25.9%	29.4%	7.3%	16.4%	8.5%
Bear Lake	42.1%	26.2%	5.4%	8.7%	3.0%
Bingham	31.1%	27.7%	7.4%	10.7%	3.7%
Bonneville	26.5%	26.7%	8.5%	17.3%	8.9%
Caribou	34.2%	29.2%	7.3%	12.4%	3.5%
Cassia	29.8%	27.4%	5.8%	9.1%	4.8%
Franklin	40.0%	28.9%	5.8%	10.3%	3.2%
Oneida	31.8%	33.5%	6.2%	12.1%	2.9%
Power	32.8%	21.7%	5.8%	10.8%	3.5%
Idaho	28.5%	27.3%	7.2%	14.8%	6.8%

Source: US Census 2002

3.5.1.9 Social Characteristics

The ICBEMP SDEIS (March 2000) characterizes much of the planning area as rural, where agriculturally-based lifestyles dominate (Forest Service and BLM 2000b). The 1998 ICBEMP publication, Economic and Social Conditions of Communities: Economic and Social Characteristics of Interior Columbia Basin Communities and an Estimation of Effects on Communities from the Alternatives of the Eastside and Upper Columbia River Basin Draft Environmental Impact Statements, evaluates the level of isolation of communities within the planning area as well as the level of economic dependency on industries that use resources on public lands (Forest Service and BLM 1998). This analysis provides a framework for evaluating the potential effects of changes in public land management policies on these communities. In general, smaller rural and tribal communities are more subject to potential effects from external forces, such as changes in historical land use policies. A community's ability to adjust to change while remaining a cohesive community and maintaining economic viability can be measured by its degree of isolation and its resource dependence (Forest Service and BLM 2000b).

Smaller communities geographically isolated from larger population centers have less diversified economies than more populated areas. Employment and income within these communities is likely to rely heavily on a few major industries. Communities isolated from larger towns also

tend to have a stronger sense of autonomy, which can add to community cohesiveness (Forest Service and BLM 1998).

Within the planning area, eight communities were identified by the 1998 economic and social conditions study as being isolated from large population and trade centers, most of which are located in Bear Lake County. Isolated communities include Bloomington, Dingle, Fish Haven, Geneva, Georgetown, Ovid, and Montpelier (Forest Service and BLM 1998), all in Bear Lake County which contains approximately 8.2 percent BLM lands (BLM 2004b), and Holbrook (Forest Service and BLM 1998) in Oneida County, with 33.6 percent BLM lands (BLM 2004b).

Of the planning area communities evaluated for employment specialization (or a lack of economic diversity), eleven had high or very high specialization ratings. McCammon in Bannock County, Dayton and Weston in Franklin County, and Arbon Valley and Rockland in Power County had employment specialization in agriculture (Forest Service and BLM 1998), which could mean that changes in grazing management could affect these communities more than others. Approximately 3.7 percent of Franklin County and 9.6 percent of Power County is composed of BLM-administered lands (BLM 2004b). Basalt in Bannock County and Rockland experienced specialization in agricultural services. Franklin in Franklin County had a very high dependence on the mining industry (Forest Service and BLM 1998). This could result in a greater reaction to changes in minerals management on public lands in Franklin; however, only 3.7 percent of the land in Franklin County is made up of BLM lands. No planning area communities were identified as timber specialized communities (BLM 2004b).

Local groups have traditionally used the commodity resources on BLM-administered lands to generate local income. Typically, the local areas closest to federal lands have reaped substantial economic benefits from their adjacency to available resources. In recent years regional and national users and their values have gained importance over local use and have increased the number of users of federal lands. The economic and social value of these lands also has increased as use has increased and as the unique attributes of these lands has become more scarce. However, this increased value has not necessarily generate income to support local jobs or other economic activity or funds to support local government investments in infrastructure or social services that traditional commodity production generated (Forest Service and BLM 2000b).

Social values and attitudes within the planning area are affected by the surrounding demographic and economic trends. High levels of in-migration, and the resulting population growth in the planning area, have changed the predominant lifestyles, attitudes, beliefs, and other social conditions of the people who live there. As identified in Section 2.1, the population of Bear Lake County has expanded by more than that of the state average, as evidenced by it being one of the most preferred places to live within the state. Many people relocate to this county for its scenic beauty, recreational opportunities, unhurried atmosphere, and its abundance of open space (Idaho Department of Commerce 2003). With the population increasing in all of the counties within the planning area, some negative attitudes toward growth have also developed; however, many growing communities within these counties have adapted to growth and have experienced improvements in quality of life. Examples of this include the development and improvement of a number of recreational facilities and opportunities, as well as the development of vacation homes in the area.

Much of the incoming business is locating near the Idaho-Utah border and is a result of communities spreading outside and around the large metropolitan portions within the planning area. This has raised concerns about the health and development of the historic and environmental integrity of the area's towns and wilderness areas. The influx of business has improved the counties' tax bases, but county officials indicate that the pristine and historic nature of the area is what attracts visitors, provides the image visitors have of the community, and supports other business corridors.

3.5.2 ENVIRONMENTAL JUSTICE

This section addresses specific topics related to environmental justice, as required by NEPA. On February 11, 1994, President Clinton issued Executive Order 12898, Federal Actions to Address Environmental Justice in Minority and Low-Income Populations. This order requires that "each federal agency make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities, on minority populations and low-income populations" (Executive Order 12898, 59 FR 7629 [Section 1-201]). The following information was gathered to comply with the order: economic, racial, and demographic information generated to identify areas of low-income and high minority populations in and around the project area.

BLM management has contributed to the fair treatment and meaningful involvement of all people, regardless of ethnicity or income in the environmental decision-making process. For example, BLM is working to prevent the flow of pollutants to streams and other water bodies in the PFO planning area. BLM is working in close coordination with the southeast Idaho Selenium working group, which involves several state/federal and tribal entities, to provide environmental protection to all of these groups.

3.5.2.1 Demographics

The planning area includes Bannock, Bear Lake, Bingham, Bonneville, Caribou, Cassia, Franklin, Oneida, and Power Counties. Racial and ethnic data from 2000 for these counties and for the state have been compiled and are presented in **Table 3-38**. In 2000, the Hispanic population formed the dominant ethnic group within the planning area, and the African American population composed the least. Bingham (13.3 percent), Cassia (20.6 percent), and Power Counties (21.7 percent) had the largest Hispanic populations, and the percentages of their Hispanic populations roughly doubled or tripled compared to the state (7.9 percent).

According to the ICBEMP SDEIS (Forest Service and BLM 2000b), Hispanics, originally settling in the interior Columbia River Basin for jobs in irrigated agriculture, have begun to use public lands, especially national forests, both for income and recreation. As more first and second generation Hispanics work outside the agricultural sector, their use of public lands for recreation has increased and is predicted to continue to increase. However, the proportion of Hispanic recreational users is still well below their proportion of the population. Public lands are also used by members of the Hispanic community who earn income in forestry related activities. Members of minority populations are employed in forestry-related activities, including mill work, harvesting, and reforestation (Forest Service and BLM 2000b).

Table 3-38. Total Percentage of Population by Race/Ethnicity (2000).

County	White	Black, African American	Native American, Alaskan, Aleut	Asian, Pacific Islander	Some Other Race	Latino, Hispanic, Any Race
Bannock	91.3	0.6	2.9	1.2	4.1	4.7
Bear Lake	97.7	0.1	0.5	0.1	1.6	2.4
Bingham	82.4	0.2	6.7	0.6	10.1	13.3
Bonneville	92.8	0.5	0.6	0.9	5.2	6.9
Caribou	96.1	0.1	0.2	0.2	3.3	4.0
Cassia	84.7	0.2	0.8	0.5	12.1	20.6
Franklin	95.1	0.1	0.3	0.1	4.3	5.2
Oneida	97.5	0.1	0.3	0.2	1.9	2.3
Power	83.8	0.1	3.3	0.3	12.5	21.7
Idaho	91.0	0.4	1.4	1.0	6.3	7.9
Average Total	91.2	0.2	1.7	0.5	6.1	8.9

Note: Percentages for a given year do not add to 100 because "Hispanic" is an ethnicity category, which includes all races and because people can select from more than one race.

Source: US Census Bureau 2002

Over the last decade, most ethnic and racial populations have increased throughout counties within the planning area, with the exception of the Native American and African American populations, which have remained the same or slightly decreased.

3.5.2.2 Income and Poverty Level

Table 3-39 provides income statistics for counties of the planning area, Idaho, and the US. All counties have a lower per capita income than the Idaho and US average, and, except for Bonneville and Caribou Counties, all counties have lower median household incomes as well. However, Idaho's statewide poverty rate (13.8 percent) exceeds the poverty rates of all of the planning area counties, except Bannock County (13.9 percent), and the percentage of Cassia County's population living in poverty (13.6 percent) also is close to the state average. The percentage of population living in poverty in Idaho exceeded that of the US in both 1990 and 2000, though the difference was narrowed within the ten year period.

The US Census Bureau uses a set of money income thresholds that vary by family size and composition to determine which families are poor. If a family's total income is less than its threshold, then that family, and every individual in it, is considered poor. The poverty thresholds do not vary geographically, but they are updated annually for inflation using the Consumer Price Index. For example, in 2000 the average estimated poverty threshold for an individual in the US was an annual income of $8,787 and for a four-person household it was $17,601. US Census Bureau estimates indicate that approximately 7.0 to 16.1 percent of county populations in the planning area were below the poverty line. The percentages in Bannock (13.9 percent), Cassia (13.2 percent), and Power (16.1 percent) exceeded the state average of 13.2 percent (US Census

Table 3-39. County Income and Poverty Level (2000).

County	Median Household Income	Per Capita Income	Percentage of Population Living in Poverty (2000)	Percentage of Population Living in Poverty (1990)
Bannock	$36,683	$17,148	13.9 %	13.8%
Bear Lake	$32,162	$13,592	9.6 %	14.3%
Bingham	$36,423	$14,365	12.4 %	15.6%
Bonneville	$41,805	$18,326	10.1 %	9.9%
Caribou	$37,609	$15,179	9.6 %	7.1%
Cassia	$33,322	$14,087	13.6 %	14.5%
Franklin	$36,061	$13,702	7.4 %	10.6%
Oneida	$34,309	$13,829	10.8 %	14.7%
Power	$32,226	$14,007	16.1 %	13.2%
Idaho	$37,572	$22,871	13.8%	16.3%
US	$41,994	$21,587	12.4%	13.1%

Source: US Census Bureau 2002

Bureau 2002). While most counties displayed lower or similar values from 1990, Caribou and Power Counties actually had a 2.5 percent and 2.9 percent increase in the number of individuals below the poverty line from 1990 levels (US Census Bureau 2002).

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