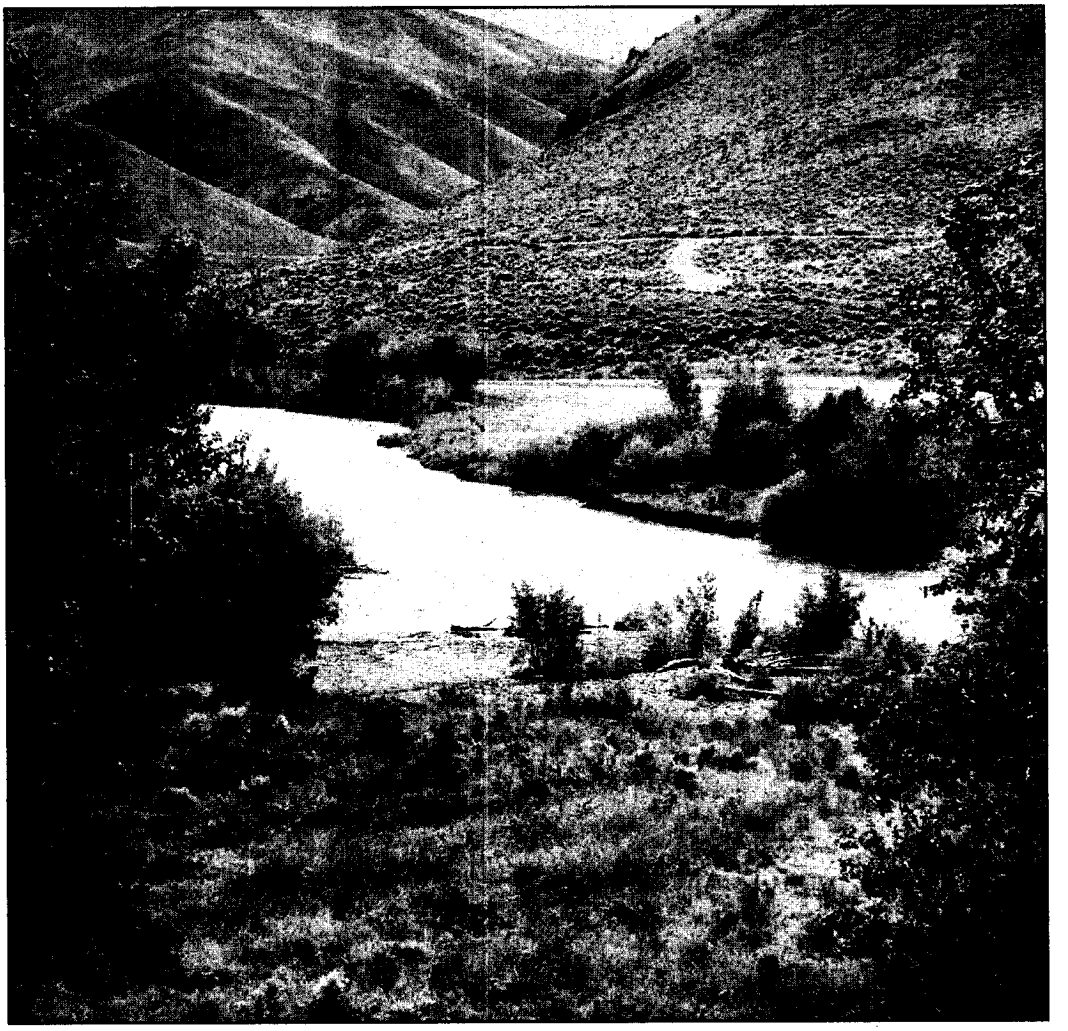
Chapter 3
Affected Environment



Herd Creek Entering the East Fork Salmon River

Introduction.

Chapter 3 describes the existing condition of the physical, social, and biological environment in the Challis Resource Area (RA). These environmental descriptions are primarily based on Resource Area Profiles (RAPs) completed during the Management Situation Analysis phase of Resource Management Plan (RMP) development, when existing data on resource occurrence, level of use, condition and trend, and potential to yield desired products were assessed. (RAPs are available for review at the Salmon Field Office, Highway 93 South, Salmon, Idaho.) Appendix L, Item 1 (pp. 668-670) lists the majority of field studies, monitoring data, and similar information used to compile a description of the Affected Environment. Additional sources are cited in the text where appropriate, and complete references are provided in the *References* section (pp. 671*ff*).

Chapter 3 begins with an overview of geography, topography, and climate. The chapter then discusses the Challis RA programs/resources in alphabetical order. Each description includes a summary of relevant law, regulation, and policy and a detailed discussion of the program/resource's existing condition. An expanded discussion of the most relevant laws and executive orders is provided in *Appendix E, Item 1,* pp. 638-643.

General Description of the Challis Resource Area.

Geography/Topography

The Challis Resource Area contains approximately 792,567 surface acres of public land managed by the Salmon Field Office (see *Map 24: General Location*). The RA is divided into three general areas: the Pahsimeroi Valley, the Salmon River and East Fork Salmon River drainages in the Challis area, and the Mackay area. The Mackay area and Pahsimeroi Valley are separated by the Lost River Range, which contains the point of highest elevation in Idaho (see *Map 25: Geography and Principle Drainages*).

The Salmon River and Big Lost River are the principal drainages within the RA. The Salmon River, a major tributary to the Snake River (see *Map 1: Anadromous Fish Migration*), flows roughly south to north through the western part of the RA. Most of the RA is in the Salmon River watershed. The Thousand Springs Valley is part of the Big Lost River watershed, and a small area in the southeastern edge of the RA is in the Little Lost River watershed. The East Fork Salmon River and Pahsimeroi River are major drainages contributing to the Salmon River. All of the river basins are contained within the Columbia River Basin (see *Map 1: Anadromous Fish Migration*). The Salmon River flows through a narrow "V" shaped valley flanked by cliffs, rock outcroppings, and moderate to very steep terrain. Tributary drainages vary in relief depending on the dominant geological parent materials. Glacial, fluvial, and alluvial deposits occur on the bottom of all major stream valleys. These deposits filled the valleys and were downcut by the streams during the retreat of the last glaciers, creating the present "V" shaped valleys. The steep, incised character of the principal drainages limits human access and influences livestock and

wildlife utilization patterns. The general relief of the area varies from nearly flat on the valley floors of major drainages, to nearly vertical cliffs on the mountains.

A general aspect cannot be given for the RA, but exposure does play an important role in utilization patterns. South and west facing slopes have the earliest spring grass and tend to be drier, with less vegetation. North and east facing slopes retain snow longer in the spring than other aspects and tend to be cooler and wetter. Elevations range from about 4,600 feet at Hat Creek to 10,010 feet at the top of Jerry Peak. Elevations generally rise going upstream along the Salmon River from the north boundary of the Challis Resource Area to the south and west boundary. Elevations generally fall from Willow Creek Summit (the divide between the Salmon River and Big Lost River drainages) to the southeast boundary of the Resource Area along the Big Lost River. Elevation differences account for a growing season which ranges from 60 to 100 days from the highest to the lowest points of the RA.

Climate

The climate of the Challis Resource Area is influenced primarily by maritime air carried eastward on prevailing westerly winds. General climatic characteristics are abundant sunshine, low humidity, and high evaporation. The major precipitation source, particularly for winter storms, is the Northern Pacific Ocean. In the summer, however, most of the thunderstorm activity is caused by moisture-laden air originating from the south, off the Pacific coast of Mexico.

Average annual precipitation in the Challis Resource Area varies from about 7.5 inches (reportedly the lowest in Idaho) at Challis, Idaho (elevation 5,200 feet) to 25 inches at the southern end of the RA near Jerry Peak (elevation 10,010 feet), with an estimated average of 10 to 15 inches. Drought cycles are typical of the Intermountain West, and precipitation amounts during these drought periods can be less than 50% of the average annual precipitation. These drought cycles affect the growth and vigor of plants and animals, and limit free water availability from surface water sources such as springs, creeks, and seeps.

Precipitation in the Challis area occurs primarily in the spring and fall. April, May, and June are the three wettest months, with 37% of the average annual precipitation accumulating during this period. June is the wettest month, with about 16% of the average annual precipitation. January, February, and March are the three driest months, with about 16% of the average annual precipitation. These figures vary with elevation, but indicate general precipitation trends in the RA. High intensity localized convective thunderstorms are common in the RA during spring and summer months, especially at higher elevations, and will vary the precipitation amounts from year to year in localized areas.

Spring rainfall is generally of low to moderate intensity and long duration. Infiltration and percolation are greater than during other seasons. These rains initiate plant growth. The amount of precipitation occurring in the spring is the primary factor determining forage production throughout the grazing season.

Summer rainfall comes mainly in the form of high intensity, short duration thunderstorms. This

precipitation often exceeds the soil infiltration capacity in many areas, causing overland flow and flash flooding. The concurrent runoff and soil movement often physically damage grasses and forbs. Since summer precipitation is usually sparse and sporadic, forage plants in the lower elevations of the RA are dried up by the end of June, in the mid-elevation areas by mid-to-late July, and in the higher elevation areas by mid-August.

Fall precipitation occurs in September and October, mostly in the form of rain, although wet snow and sleet storms are not uncommon. If temperatures during these months are above normal, additional leaf growth on grasses may occur.

Winter precipitation within the RA comes primarily in the form of snow. Records from a weather station at May, Idaho indicate that approximately 27% of the annual precipitation at the lower elevations of the RA falls as snow during the five months from November through March. As elevation increases, a greater percentage of the annual precipitation falls as snow (approximately 39% in the 20 inch precipitation zone). Snow depths vary considerably throughout the RA. An average low of seven inches occurs at Challis, Idaho, with 50 to 60 inches occurring at the highest elevations. Average annual snowfall at the lower elevations is 27 inches, but snow generally does not accumulate to a significant depth due to melting and/or sublimation between precipitation events. At higher elevations snow accumulations of four to six feet are common and will persist into May, especially in drifted areas. This winter precipitation replenishes ground water supplies and soil moisture prior to the spring growing season. Winter moisture, which infiltrates and percolates slowly and gradually, is especially critical in coarse-textured droughty soils, for it is the primary source of effective precipitation for such soils. The persistence of snowdrifts on the high-elevation divides until early summer delays forage growth at these locations.

Rain-on-snow events occur to some extent almost every year. Fall and early winter events (before any significant snowpack has accumulated) do not generally produce significant consequences, although they can produce flows which are higher than would be expected from a given rainfall event. Late winter or early spring rain-on-snow events seem to occur less frequently. They can potentially cause very significant flow events to occur. However, the flow events generally do not cause much surface erosion or severe channel erosion. Late winter or early spring rain-on-snow events can also have a lasting effect on water quantity, by very rapidly releasing snowpack which would have recharged groundwater supplies and helped maintain base stream flows.

Average monthly temperatures in Challis, Idaho range from a high of 68 °F in July to a low of 18 °F in January. During winter an extreme low of -33 °F may occur, and in summer the high may reach 103 °F. Moderate to strong winds in winter can cause a windchill of as low as -25 to -75 °F in some portions of the RA. Extremely low and high temperatures occur nearly every year, but do not persist for long periods of time. Daily freezing and thawing occur during late fall and early spring as temperatures vary from daytime highs in the fifties and sixties to night-time lows in the twenties and thirties. The frost-free growing season generally averages less than 100 days on the lower elevation agricultural lands and may be as few as ten days at the highest elevations in the RA. Extended periods of extreme cold have caused complete icing-over and winter flooding of some rivers and creeks. Ice build-up can also cause some bank damage as the ice breaks away from the banks. The extent of damage depends on the condition of vegetation on

those banks.

Prevailing winds aloft are generally from the west. Surface winds are influenced by topography and may blow either up or down drainages. In the winter months persistent temperature inversions may develop in valleys as high pressure builds over the area. Nighttime inversions in summer and fall may also develop due to the large diurnal and elevational temperature differences. Vegetation is affected by dry winds in the spring, which increase evaporation and reduce the available moisture needed for plant growth. Relative humidity in the Resource Area during the growing season can be as low as 5 to 20%.

Air Quality.

Law, Regulation, and Policy

The Clean Air Act of 1963 contains national ambient air quality standards which set limits on the total amounts of specific pollutants allowed in the atmosphere. The Clean Air Act also gives authority to the states to set more stringent standards, with which the BLM must comply. Congress established a system for the Prevention of Significant Deterioration (PSD) through the Clean Air Act Amendments of 1977, under which areas are classified into PSD Class I, II, or III. PSD Class I areas include National Parks and certain Wilderness Areas; virtually any air quality degradation in these areas is considered significant. In PSD Class II areas, moderate air quality deterioration associated with moderate, well-controlled industrial and population growth is allowed. The greatest amount of impact is allowed in areas classified as PSD Class III.

Affected Environment

Under the Clean Air Act (as amended, 1977), all BLM-administered lands were given PSD Class II status. Challis Resource Area lands will continue to be managed as PSD Class II unless they are reclassified by the State of Idaho as a result of procedures identified in the Clean Air Act (as amended, 1977). Wilderness Study Areas (WSAs) within the Resource Area (see *Map 42: Wilderness Study Areas*) are also managed under the non-impairment criteria of PSD Class II. PSD Class I areas which could potentially be affected by BLM management of the Challis Resource Area include Yellowstone and Grand Teton National Parks and the Red Rock Lakes, Selway-Bitterroot, Craters of the Moon, and Sawtooth Wilderness Areas.

Air quality in the Challis Resource Area is generally believed to be excellent, because of the remoteness of the RA's geographical location in east-central Idaho. Some air quality degradation occurs within the Challis Resource Area, but it is usually seasonal and short-term. None of the Resource Area is classified as a nonattainment area (see *Glossary*, p. 177).

Occasionally in the spring and summer months, short periods of smoke haze occur when forest or farmland fires are burning locally. Smoke haze can also develop when large forest or brush fires are burning in northern Idaho, Montana, Nevada, or California. Smoke from such fires is

borne on the prevailing winds, and results in hazy conditions for a few days to several weeks.

In the winter months air inversions sometimes develop in the valleys. Valleys with larger populations (*e.g.*, Salmon or Challis, Idaho) can experience an increase in smoke haze from wood burning heaters and other urban pollutants. During an inversion the air movement stagnates and prevailing breezes do not disperse the pollutants. Inversions can last from one to many days, during which time a decrease in air quality occurs.

Other minor pollutants include smoke from ditch, slash, and garbage burning, and dust from vehicular traffic on unpaved roads. Many local residents burn their fencerows and ditches once or twice annually in the spring and fall. This burning is not controlled or regulated, except during the fire season, when a burning permit is required by the Idaho Department of Lands. Residents of Custer County are required to burn trash at designated garbage dumps and are discouraged from burning animal carcasses. Reported violations are investigated by the Idaho State Health Officer and County Attorney. Dust pollution can be locally quite heavy on the more frequently traveled unpaved roads. However, these pollutants rarely persist and are dispersed by the prevailing winds. Locally higher concentrations of pesticide vapors are sometimes evident following noxious weed spraying. These pollutants are very localized and quickly dispersed.

Livestock production is a prevalent activity in the Challis Resource Area. However, methane production from livestock has not been identified as a significant air quality concern. During the grazing season, when most livestock are dispersed on Federal lands, there are no apparent or detectable increases in methane concentrations. During winter months, when livestock are concentrated on private lands and air inversions occur, there may be localized increases in methane concentrations. Any methane concentration increases which may occur have not been identified as an air quality problem either locally or regionally.

Areas of Critical Environmental Concern.

Law, Regulation, and Policy

The Federal Land Policy and Management Act (FLPMA) (43 U.S.C. 1701 *et seq.*) provides for Area of Critical Environmental Concern (ACEC) designation and establishes National policy for the protection of public land Areas of Critical Environmental Concern. Section 202(c)(3) of FLPMA mandates the BLM to give priority to the designation and protection of ACECs in the development and revision of land use plans. BLM Manual 1613 describes the process followed to nominate ACECs and screen areas for their suitability for ACEC designation. The BLM's planning regulations (43 CFR 1610.7-2) establish the process and procedural requirements for designating ACECs in Resource Management Plans and RMP amendments.

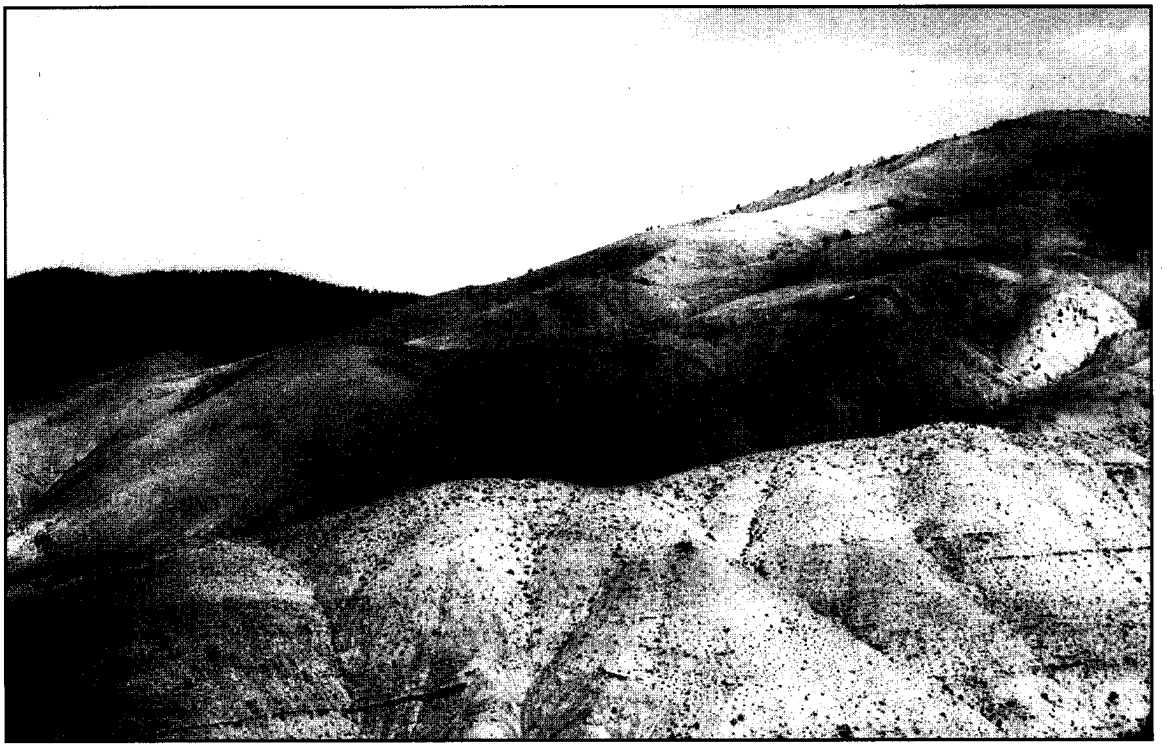
Affected Environment

The purpose of an ACEC designation is to "highlight" values, resources, or conditions that need management and/or protection (see *Glossary*: Area of Critical Environmental Concern). While

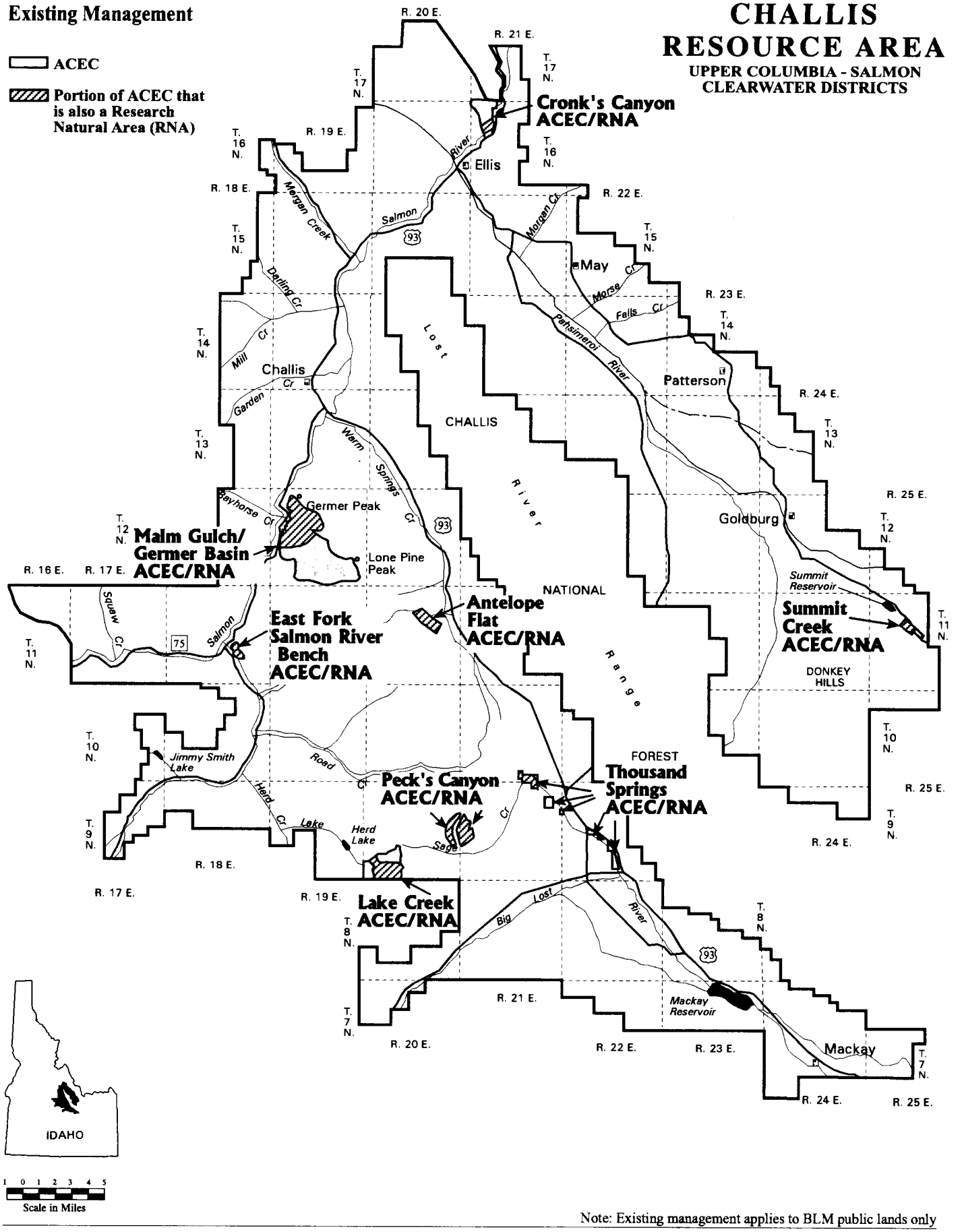
an ACEC may emphasize one or more unique resources, other existing multiple-use management can continue within an ACEC as long as the uses do not impair the values for which the ACEC was designated. Some ACECs in the Challis RA also contain Research Natural Areas (RNAs) (see *Glossary*). RNAs are ACECs or portions of ACECs designated for study of some natural, pristine, or unique characteristics of an area. RNA designation requires nomination and concurrent designation through the ACEC designation process.

A land use or activity plan is the principle means for prescribing management direction for each ACEC/RNA. The *Final Plan Amendment and Environmental Assessment* for the Challis, Mackay and Ellis-Pahsimeroi MFPs (December 21, 1987) prescribes specific management for the existing ACECs and RNAs in the Resource Area. The Thousand Springs/Chilly Slough Habitat Management Plan, approved in 1989, also describes management for the Thousand Springs ACEC. No other specific ACEC activity plans have been prepared.

The Challis Resource Area has eight formally designated ACECs, which include 5,975 acres of Research Natural Areas (see *Map 3-1: Existing ACECs General Location*). *Table 3-1* summarizes the acreage, values, nomination, condition, and trend of those ACECs.



Malm Gulch ACEC



Note: Existing management applies to BLM public lands only

BLM, Idaho State Office, Mapping/GIS, 1998

Table 3-1: Formally Designated ACECs in the Challis Resource Area

ACEC	Acreage	Values	Nomination[1]	Condition[2,3]	Trend[3]
Malm Gulch/Germer Basin	7,823	pristine vegetation rare plants paleontological	INACC/TNC	good	stable
Antelope Flat	588	pristine vegetation	INACC/TNC	good	stable
Peck's Canyon	782	pristine vegetation	INACC/TNC	excellent	stable
East Fork Salmon River Bench	78	pristine vegetation riparian	INACC/TNC	excellent	stable
Cronk's Canyon	1,496	pristine vegetation bighorn sheep	INACC/TNC	good	stable
Lake Creek[4]	2,054	pristine vegetation wildlife	INACC/TNC	good	stable
Summit Creek	304	vegetation riparian fisheries recreation rare plants	INACC/TNC	good	stable
Thousand Springs	896	wildlife waterfowl habitat	INACC/TNC	fair	upward

[1] INACC = Idaho Natural Areas Coordinating Committee; TNC = The Nature Conservancy.
[2] Refers to the condition of values managed.
[3] Condition and trend estimates are based on the judgement of BLM staff specialists.
[4] The Challis Proposed RMP would incorporate the Lake Creek ACEC and RNA into the Herd Creek Watershed ACEC/RNA (see PRMP, ACECs, p. 34).

A more detailed description of the eight existing ACECs is contained in the *Final Plan Amendment and Environmental Assessment* for RNA/ACECs (December 21, 1987), which is available for review at the Salmon Field Office.

Proposed ACECs

Table 3-2 lists the seven proposed ACECs which were nominated and evaluated by an interdisciplinary team of BLM staff specialists and managers to determine if they (a) met ACEC relevance and importance criteria and (b) should be proposed for ACEC designation in the Challis Proposed RMP (see PRMP, ACECs, pp. 29-39). An area was determined to meet relevance criteria if it contains one or more of the following: (a) a significant historic, cultural, or scenic value; (b) a fish or wildlife resource; (c) a natural process or system; or (d) a natural hazard. The value, resource, system, process, or hazard must have substantial significance and values in order to satisfy the "importance" criteria. This generally means that the value, resource, system, process, or hazard is characterized by one or more of the following: (a) it has more than locally significant qualities which give it special worth or meaning compared to any similar resource; (b) it has qualities or circumstances that make it fragile, sensitive, rare, irreplaceable, exemplary, unique, endangered, threatened, or vulnerable to adverse change; (c) it has been recognized as warranting protection in order to satisfy national priority concerns or to carry out the mandates of FLPMA; (d) it has qualities which warrant highlighting in order to satisfy public or management concerns about safety and public welfare; or (e) it poses a significant threat to human life and safety or to property (BLM Manual 1613.1).

Table 3-2: Size, Values, and Relevance and Importance of Proposed Areas of Critical Environmental Concern (ACECs)

Name	*Size*	*Values*	*Relevance and Importance*
Dry Gulch	ACEC/RNA: 539 acres	Populations of *Thelypodium repandum*, a sensitive plant species, and several populations of two rare/sensitive Challis endemic plant species.	A population of *Thelypodium repandum*, a sensitive plant species, is present in Dry Gulch, along with other unusual Challis endemic plant populations (*Astragalus amblytropis* and *A. aquilonius*). The thelypody population is on the fringe (northern-most edge) of the species distribution, occurring on different substrate and with different associated species (*e.g.*, Salmon River wild rye) than the populations found in the center of the species distribution. It is likely that this population is genetically different from other populations to the south. Stands of Salmon River wild rye, *Elymus ambiguous salmonensis*, a species endemic only to the Challis area in close proximity to the Salmon River corridor, are represented on the site.

Name	*Size*	*Values*	*Relevance and Importance*
Sand Hollow	ACEC/RNA: 3,332 acres	Populations of *Thelypodium repandum*, a sensitive plant species; several populations of rare or sensitive Challis endemic plant species; fragile soils; and a geologic area of interest.	Populations of these Challis area endemic plant species in the Sand Hollow area are representative of typical populations occurring within the East Fork watershed: populations of *T. repandum* (a sensitive plant species), and populations of *A. amblytropis* and *A. aquilonius* (rare/sensitive Challis endemic plant populations). The area identified contains two known population areas and additional habitats that may be suitable for these species. Soils in the Sand Hollow watershed are fragile, requiring special management consideration. At the upper end of the watershed are the Paint Pots, an assemblage of bright, multicolored outcroppings of Challis volcanic material that are unique to the area.
Pennal Gulch	ACEC: 5,832 acres	Populations of *Thelypodium repandum*, a sensitive plant species; other rare/sensitive plants; unique riparian area; unique and representative vegetation of the area.	Populations of *T. repandum* in the Pennal Gulch area are representative of those found in the north central portion of the species range. The Pennal Gulch area contains four known subpopulation areas of this species, and habitat for additional populations. The area also contains many of the Challis endemic sensitive species, including *Astragalus aquilonius* and *A. amblytropis*, and representative examples of typical Challis area communities and unusual associations containing rare or sensitive species. An unusual cottonwood community with a unique understory composition is present along a portion of the drainage channel.
Herd Creek Watershed	ACEC/RNA: 17,943 acres This would include the existing Lake Creek ACEC (2,054 acres)/RNA (1,055 acres).	Important known spawning area for steelhead trout and chinook salmon; bull trout habitat; riparian recovery demonstration and control area; rare/sensitive plants; roadless, primitive, and scenic values.	Herd Creek is a known spawning stream for the threatened steelhead trout and chinook salmon, and is one of the key spawning tributaries of the East Fork critical habitat watershed. Bull trout, a resident fish species listed as threatened, are also found in Herd Creek. The upper main stem of Herd Creek on BLM land below the Forest Service boundary has been fenced since 1980, and serves as a demonstration and control area for riparian study, recovery and management. Three populations of *Thelypodium repandum*, a sensitive plant species, are known from this area, the most southern edge of the species range. The peripheral location and the range of habitats on which *T. repandum* occurs in the area suggest significant genetic differences from other populations in the region. The area also contains many of the Challis endemic sensitive species, including *Astragalus aquilonius* and *A. amblytropis*. Most of the watershed is in WSA status because of its primitive and scenic values, naturalness, and opportunities for solitude. The Lake Creek portion of the watershed above the State section on Lake Creek is a suitable WSA (see *Glossary,* p. 183).

Name	*Size*	*Values*	*Relevance and Importance*
Birch Creek	ACEC: 8,649 acres	Crucial winter range and lambing habitat for bighorn sheep; rare/sensitive plants.	The area provides general winter range, critical winter range, and lambing habitat for a remnant herd of approximately 50 bighorn sheep. The inherently low genetic viability of such small populations places the population at risk from environmental events. Levels of human activity, off-road vehicle use, and disturbance from domestic dogs are greater than normal because of the area's close proximity to the town of Challis (see *Map 6: Birch Creek ACEC*). The potential for mineral development activity is relatively high in this area, and livestock grazing is an existing source of forage competition. Two populations of *Thelypodium repandum*, a sensitive plant species, and one population of Lemhi milkvetch (Astragalus aquilonius), another rare/sensitive species, have been found in the area.
Donkey Hills	ACEC: 29,706 acres (Note: The ACEC would include approximately 4,714 acres in the Big Butte Resource Area - BLM.)	Crucial winter range, general winter range, and calving habitat for a large elk herd.	The area encompasses winter range and calving habitat for approximately 800 elk. The winter range is important to the long term survival and viability of outlying elk populations. It is regionally significant because it is used by elk from many distant big game hunt units and helps maintain regional levels of elk hunting opportunity. The area's forage, cover, and other habitat components are critical to maintaining good quality habitat conditions on distant winter ranges and in reducing regional crop depredation complaints.
Lone Bird	ACEC: 9,969 acres	Numerous and unique cultural resources; rare and sensitive plants.	The area contains a number of prehistoric sites, identified quarry sites, and evidence of deeply stratified cultural deposits. The prehistoric sites are threatened by intensive erosion, vandalism, and destructive casual use. Several of the sites are listed on the National Register of Historic Places. The area is also of local and regional significance to the Shoshone-Bannock Tribes for its socio-cultural values. One population of *Thelypodium repandum*, a sensitive plant species, and populations of two other Challis endemic plant species (*Astragalus amblytropis* and *A. aquilonius*) are found in the area.

Biological Diversity.

Law, Regulation, and Policy

The Federal Land Policy and Management Act (FLPMA) (43 USC 1701 *et. seq.*), the Endangered Species Act (16 USC 1531 *et. seq.*), and BLM Manuals are the BLM's primary authorities for managing biological diversity. FLPMA requires that (1) public land resources be periodically and systematically inventoried, (2) public land resources be managed in a manner that will protect the quality of scientific, ecological and environmental values, and (3) ACECs be identified where special management attention is required to protect and prevent irreparable damage to important values, including fish and wildlife resources or other natural systems or processes. Manual section 6500.06 states: "Manage habitat with emphasis on ecosystems to ensure self sustaining populations and a natural abundance and "diversity" of wildlife, fish, and plant resources on the public lands." Manual section 6840.06 states: "Conserve endangered and threatened species and the ecosystems upon which they depend."

Affected Environment

Data on biodiversity in the RA include a variety of inventories of vertebrate animal and vascular plant species, classification of vascular plant communities, and mapping of plant community distribution. Inventories of rare plant and animal species and their distributions is ongoing. Data on the distribution and occurrence of non-vascular plants are limited to documented occurrences of some lichens and mosses. Data on invertebrates are limited to non-BLM sources such as museum records and private collections.

Concern about the management of biodiversity has only begun to receive attention during the last three to five years. New tools, such as computerized geographic mapping of public land resources, are just now becoming available to facilitate the storage and retrieval of biodiversity data after the information is obtained through inventories. (The RMP proposes resource inventories which focus on the collection of biodiversity data (see PRMP, Biological Diversity, Goal 1, p. 40.)

Biodiversity is the variety of life and its processes and includes four primary levels of variation: genetic, species, community, and landscape/ecosystem. The most basic level of variation is genetic diversity. Genetic variation within and between populations of species affects their physical characteristics, viability, productivity, resistance to stress, and adaptability to change. Species diversity includes variation in the abundance of individuals within a population and the numbers of species within a community or given geographic area. In the Challis RA, species such as redwing blackbirds, Basin big sagebrush, and Douglas-fir trees are abundant; others, such as the chinook salmon, are not. Associations or populations of species comprise the community level of biodiversity. Communities form the biotic parts of ecosystems and can usually be recognized as distinct stands, patches, or sites such as old growth forests, riparian areas, or wetlands. Finally, at large geographic scales, biological diversity includes variety in the kinds of ecosystems and their patterns and linkages across regional landscapes.

Because different species of plants and animals utilize different stages of biological community succession (see *Glossary*: ecological status, p. 170), maximizing the number of successional stages can increase the number of species on a given tract of land. A change in land use or land manipulation involves a trade-off between species that benefit from the change and those that do not. If the species that are harmed by a given land use or management action are rare or more imperiled than the ones that benefit, or if the land use eliminates a rare species or community, then biological diversity is reduced. If the land use eliminates a species or community that is common elsewhere in the landscape and provides an opportunity for a rare or imperiled species or community to increase, then biological diversity is enhanced (The Keystone Center 1991).

Genetic Diversity

Little is known about the levels or distribution of genetic diversity in the RA. It is fairly well established that populations that are ecologically or geographically isolated may be unique, and even within the main population of a species, genetic selection and environmental variation may have established significant genetic differences. Thus, subpopulations of rare plants on the fringe of a species range are likely to be genetically different from the remainder of the population. The species listed in *Table 3-27: Rare and Endemic Plant Species Known or Likely to Occur in the Challis Resource Area* (see ***Chapter 3*** - Vegetation, pp. 292-293), are examples of species that are limited geographically and are endemic to the Challis RA. The same is true of isolated fish and wildlife populations. The spotted frog population in Chilly Slough and anadromous fish stocks spawning only in the East Fork Salmon River are examples of subpopulations with a high probability of significant genetic difference from other populations.

The conservation of genetic diversity can be accomplished by maintaining representative communities and their component species without tracking the genetic material itself (Keystone Center Report 1991). This would involve restricting or controlling the release of exotic and native species that may threaten natural communities or populations; maintaining genetically representative examples and unique populations of native species throughout their ranges; and maintaining genetic integrity of selected distinct populations, races, and subspecies to ensure that the gene pools they represent do not become extinct.

Species Diversity

Data on species diversity in the RA include comprehensive inventories of vertebrate animal and vascular plant species. Data on invertebrate species are limited to museum records and other non-BLM sources such as private collections. Species distributions have not been completed for all vertebrate animals and vascular plants. Data on the distribution and occurrence of non-vascular plants are limited to documented occurrences of some lichens and mosses. Inventories of rare plants and animals are ongoing.

Inventories, studies, and observations have documented 307 vertebrate fish and wildlife species in the RA. This list (see Planning Record) does not include species that have been documented only once or twice and are considered to be accidental in occurrence. The distribution of the larger, more easily observed, common vertebrate animal species is relatively well known. Data

are limited on rare vertebrate species, especially those that are difficult to observe due to their ability to elude observers, their small size, or the inaccessibility of their habitats to humans. Most of the species listed in *Table 3-36: Special Status Wildlife Species of the Challis Resource Area* (see ***Chapter 3*** - Wildlife, pp. 325-326) belong in this category.

One factor affecting conservation of biodiversity is population viability (see *Glossary*: viable population, p. 185). In general, viability indicates the likelihood of a species' continued existence in an area for some specified period of time. Viability is generally higher in direct proportion to population size, width of geographic distribution, kinds and numbers of locations occupied by the species, and overall species resistance and tolerance to environmental change or disturbance. The concept of population viability provides a relative standard for judging the expected future for native plant and animal species. Population viability of species listed in *Table 3-36: Special Status Wildlife Species of the Challis Resource Area* (pp. 325-326) and *Table 3-27: Rare and Endemic Plant Species Known or Likely to Occur in the Challis Resource Area* (pp. 292-293) is generally unknown due to relatively limited information on species distribution, habitat requirements, and other factors. Special status fish, plant, and animal species are more fully discussed in three other sections of ***Chapter 3***: "Fisheries" (pp. 222-227), "Vegetation" (pp. 278-296), and "Wildlife" (pp. 315-326).

Endemic species are native plant or animal species which are limited in distribution to specific geographic areas. The Challis Resource Area, with its unusual volcanic soils and dry climate, contains a number of species which are unique to this area - they do not occur anywhere else in the world. Some endemic species are so common within their limited distribution that they are not considered in any danger of extinction, and thus may not warrant a special status category. They do deserve recognition, however, as important elements of biodiversity. *Table 3-27: Rare and Endemic Plant Species Known or Likely to Occur in the Challis Resource Area* (pp. 292-293) lists the endemic, peripheral, disjunct, and unusual plant species of the Challis Resource Area that are not designated special status species (see *Glossary*: disjunct, endemic, peripheral, pp. 170, 171, and 178).

Community Diversity

The distribution of common plant communities is relatively well known in the RA. *Table 3-21: Vegetation Summary for the Challis RA* and *Table 3-22: Riparian Community Types* (see ***Chapter 3*** - Vegetation, pp. 282-283) list the principle plant communities that have been described for the RA. Various community type and ecological site inventories have been conducted in different parts of the RA, and are available for review in the Challis RA office.

Conservation of naturally occurring plant and animal populations requires the maintenance of representative examples of all biological communities, along with the structural diversity of these communities and the migration corridors that connect communities and ecosystems. Especially important are biological communities that are limited in distribution or require special management to maintain them. Examples are old growth forests, wetlands, riparian areas, and other unique communities with limited distributions, such as the rare plant communities that occur in some areas proposed for ACEC designation (see PRMP, ACECs, pp. 29-39). Special habitats, such as

talus slopes and cliffs, provide another component of diversity.

Communities occupy units known as ecological sites which can be mapped. Ecological sites are determined by soil, climate, and vegetation and are standardized by the Natural Resources Conservation Service (formerly Soil Conservation Service) during soil survey mapping efforts. Vegetation on an ecological site may be comprised of a range of possible plant communities in different successional or seral stages (see *Glossary*: ecological status, p. 170). The composition of plant and animal species usually varies by seral stage. The potential natural community (PNC) (see *Glossary*) is the seral stage that theoretically would occur on an ecological site barring any disturbance. Early, mid, and late seral plant communities typically result from the effects of disturbance events such as fire, timber blowdown, insect infestation, or past and present land uses. It is believed that fire suppression and grazing of herbaceous fuels have progressively reduced the size of wildfires in the Resource Area. This may have resulted in a gradual, extensive increase in sagebrush canopy cover on many upland vegetative sites, and an increase in coarse fuel loads in forested areas (see ***Chapter 3*** - Fire Management, pp. 220-221). The current effects on biodiversity of these changes in vegetative condition are discussed in the Draft RMP/EIS, ***Chapter 4*** - Biological Diversity, pp. 190a-197a, Alternative 1.

The structural diversity of a plant community is characterized by features such as snags and large fallen trees, canopy structure, plant age diversity, and the presence of pools and riffles in aquatic systems. Structural diversity is usually a function of ecological succession; *i.e.*, the seral stage of a particular plant community determines structural diversity.

In the Challis RA, forest lands enhance biodiversity within the broad expanses of sagebrush-grasslands that make up most of the Resource Area. The vertical and horizontal structure of forest stands, their patchiness on the landscape, and their occurrence on more mesic (wet) sites result in different associations of plant and animal species. The presence of extensive forest lands at higher elevations on adjacent National Forest lands detracts little from the biological importance of BLM forest lands as islands, edges, and ecotonal areas bordering sagebrush-grassland communities (see *Glossary*: ecotone, edge, island, pp. 171 and 175).

Structural diversity contributes to species richness and the general ecological function of all plant communities. It is especially important in forested areas, where snags and fallen trees may support up to 20 percent of the vertebrate species (Keystone Center Report 1991). Many of these species (*e.g.*, woodpeckers) help maintain ecosystem health. Structural diversity is also important for numerous poorly-known elements of diversity, such as invertebrate and fungal species, due to the array of habitats and special niches that structural features provide. Structural diversity is typically high in natural forested stands and healthy sagebrush grasslands. Younger, managed forest stands typically have lower structural diversity, due to timber harvest which removes older trees, and subsequent site preparation, which removes or redistributes downfall and other woody debris.

Landscape/Ecosystem Diversity

Landscape or ecosystem diversity is the geography of the size, shape, and connectedness of different ecosystems across a large area, and may be described in terms of the arrangements of communities within a watershed or larger area. For example, a landscape interspersed with grasslands, shrublands, meadows, ponds, streams, wetlands, forests and mountains typically has greater biological diversity than one that is a broad, flat expanse of sagebrush-grassland.

Landscape diversity has not been inventoried in the RA. However, the steep, rugged mountainous terrain, and the patchy distribution of forested areas interspersed with sagebrush-grassland results in significant natural landscape diversity.

Agricultural and residential development of private lands in valley bottoms within the RA has resulted in conversion of some native desert-shrub habitats (sagebrush and saltbush shrub communities) to non-native cultivated crops and pastures. Diversion of streams for irrigation has resulted in significant fragmentation of aquatic habitats, resulting in loss of connectivity between habitats (see *Glossary:* fragmented, p. 173). This loss and fragmentation of habitats has adversely affected some native fish and wildlife species. Sage grouse winter ranges, sage grouse strutting grounds, and antelope winter ranges in the Barton Flat area of the Mackay Planning Unit have gradually been converted to cropland and dryland pasture. In the Challis area, residential development, subdivision fences, busy highways, stray dogs, and domestic sheep are adjacent to the Birch Creek and Morgan Creek bighorn sheep winter ranges. Bighorn sheep mortality has increased above natural levels and the viability of the small Birch Creek herd is at risk. The viability of anadromous fish populations which spawn within the RA are at risk because fewer fish are returning to spawn (due to factors outside RA boundaries) and because of aquatic habitat degradation and dewatering on both private and public lands within and adjacent to the RA. Irrigation diversions and dams on streams have greatly reduced or eliminated the connectivity between essential aquatic habitat components (*e.g.,* ocean habitat and spawning areas for anadromous fish) and reduced the viability of populations by reducing or eliminating opportunities for genetic interchange.

Cultural Resources.

Law, Regulation, and Policy

Some of the legislation and implementing regulations governing cultural resource management include the following: the National Historic Preservation Act of 1966 (NHPA), as amended; the Archaeological Resources Protection Act of 1979 (ARPA), as amended; the American Indian Religious Freedom Act of 1978 (AIRFA); and the Native American Graves Protection and Repatriation Act of 1990 (NAGPRA). The Federal Land Policy and Management Act of 1976 (FLPMA) states that public lands will be managed in a manner "that will protect the quality of...historical...and archeological values". The National Environmental Policy Act of 1969 (NEPA) and NHPA provide the objective to coordinate plans and functional programs and resources so as to preserve and protect important cultural resources early in the project planning process. Traditional lifeway values are usually identified through consultation with tribal officials. The American Indian Religious Freedom Act (AIRFA), NHPA, Executive Order No. 13007 (Indian Sacred Sites, of May 24, 1996), and certain treaty rights guarantee access, use, and protection of traditional cultural properties, religious sites, and sacred objects. *Appendix E, Item 1* (pp. 638-643) includes an overview of relevant Federal legislation affecting cultural resource management.

Affected Environment

The BLM is responsible for identifying, protecting, managing, and enhancing archaeological, historic, architectural, and traditional lifeway values located on BLM public lands, as well as those that might be affected by BLM undertakings on non-Federal lands. The Challis Resource Area's cultural resources program manages archaeological remains, historic values, and traditional lifeway values important to Native American groups. (See *Glossary*: archaeological resource/site, cultural property/resource, historic property, and traditional lifeway value (pp. 167, 169, 174 and 184.)

Cultural Resource Inventories

Cultural resources are generally identified through field inventories conducted by qualified professionals to comply with Section 106 of the National Historic Preservation Act of 1966 (NHPA). Informant information and historical records are also used to identify archaeological, historical, and traditional lifeway values. Three types of inventories - Class I, Class II, and Class III (see *Glossary* definition: cultural resource inventory classes, p. 169) - are conducted to identify and assess these values on BLM public lands. A Class I study has not been completed for the Challis Resource Area. An estimated 74,600 acres (9.5%) of the Challis Resource Area have been inventoried for cultural resources at a Class II level using a variety of methods. Approximately 12,500 acres (1.5%) of the Challis Resource Area have been intensively inventoried at a Class III level. Most of these Class III inventories were associated with project activities where sites needed to be identified and evaluated in order to protect significant values and minimize effects on these values.

While these inventories have served to identify numerous cultural resource sites, little work has been done to synthesize the results and provide a comprehensive framework for assessing cultural resource function, significance, variability, and distributional patterns. Existing inventory information indicates that sites are situated across a variety of landscapes; however, a general hypothesis that sites are distributed near water sources has been proposed.

Prehistoric and Historic Sites

BLM lands within the Challis Resource Area contain 495 known, recorded cultural resource sites which represent a variety of types and chronological periods. Together, these sites document an almost continuous human occupation of the RA from at least 11,000 years ago to the present.

Identified prehistoric sites include lithic scatters, quarry sites, rockshelters, talus pits, rock structures and piles, and pictographs. These remains mostly represent activities occurring within the RA prior to the arrival of European populations in the 1800s. Based on information available in the archaeological record, the mountains and valleys located north of the Snake River Plain (which include lands of the Challis Resource Area) appear to have been major areas of prehistoric utilization in central and eastern Idaho. While sites adjacent to the RA record human presence and big game hunting as early as 14,500 years ago (see Gruhn 1961 on Wilson Butte Cave), archaeological remains found within the RA indicate at least 11,000 years of human presence in the area. Due to the scarcity of research conducted on prehistoric archaeological sites within and adjacent to the RA, little is known about these early inhabitants.

Historic sites in the Challis Resource Area include components of historic mining districts, stage and freight road remnants, homesteads, cabins, and dumps. Fur trapping and exploratory expeditions in the early 1820s marked the first European presence in the Challis Resource Area. A major Euro-American population expansion in the RA occurred in the 1860s when gold was discovered. This expansion eventually led to serious friction with the original inhabitants of these lands, and culminated in the U.S. Army's removal of most remaining non-reservation Indians in 1879. Some Indian families were able to escape capture and remain in the remote and rugged country until the 1900s. Small ranches and farms soon appeared in the arable valleys to meet the needs of the miners. Mining communities, now seen as ghost towns, also sprang up to serve the burgeoning mining industry. Custer County was created in 1881 and the boom continued until the early 1900s. While prospecting for gold and silver continued to be of great interest into the 1920s, cattle and sheep ranching operations became the primary economic focus during the settlement and homestead period (1880s to present).

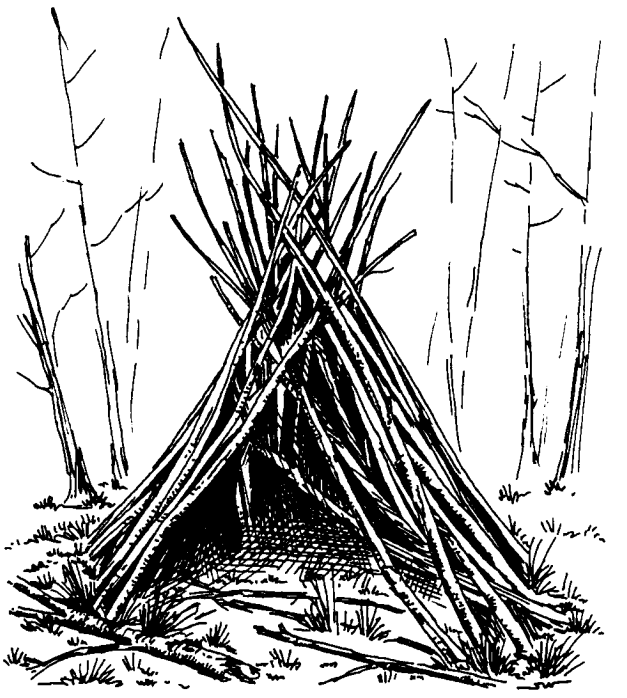
Native American Traditional Values

Native American Indians lived on lands within the RA for thousands of years. They hunted, fished, gathered plant foods, buried their dead, and conducted religious ceremonies. Beliefs, customs, and practices of their culture were passed down through generations and were still in use when the Indians were removed from their homelands onto reservations. Today, many of the customs are still being practiced by Native Americans on RA lands. The areas used for these practices hold special significance to Native Americans.

Cultural Resources Special Areas

The Challis Resource Area lies at the boundaries of three distinct cultural areas: the Plains, the Great Basin, and the Columbia Plateau. The majority of the known sites located in the RA are considered eligible to be listed on the National Register of Historic Places (NRHP). Several sites are listed on the Register, including the Challis Bison Jump and twenty-eight sites included in the Challis Archaeological Spring District. The Bayhorse Mining District is also listed on the Register, although most of the site lies on private patented lands.

Other cultural resource areas located within the Challis Resource Area hold special significance to Native Americans and as indicators of prehistoric and historic adaptation in the RA. Noteworthy cultural resource areas are further described in *Appendix A, Item 1: Cultural Resource Special Areas* (page 599).



Wickiup - Challis Resource Area

Cultural Resources Condition and Trend

Cultural resources condition and trend in the RA vary considerably due to the variability of terrain and geomorphology, access and visibility, and past and current land use. Because recorded sites are manifested by exposed artifacts, features, and/or structures, they are easily disturbed by elements such as wind and water erosion, animal and human intrusion, and development and maintenance activities. Cultural resources may be "harvested" by three methods: approved site excavation, unauthorized use (vandalism/collection), and Native American use of traditional lifeway values. Based on limited site visitation, site form documentation, and informant information, the trend of site conditions in the RA is considered to be downward. Vandalism or collecting (unauthorized digging and "pothunting") at recorded sites, impacts caused by development and maintenance activities (associated with grazing, mining, and recreation), and erosion (*e.g.,* natural, human, animal) have adversely affected known cultural resources.

The demand for cultural resources particular to the Challis Resource Area is thought to be moderate, based on known interests of researchers and members of the Native American community, documented site conditions, informant information, and site visitation.

Economy and Society.

Law, Regulation, and Policy

The National Environmental Policy Act of 1969 requires that the human environment be considered when evaluating the environmental impacts of proposed public land actions. Thus, the BLM shall consider how the effects of its actions extend beyond public lands boundaries into the surrounding social and economic environment.

Affected Environment

This section describes the economic and social climate of two distinct geographical regions which may be affected by RMP actions: the Fort Hall Indian Reservation and the Custer-Lemhi counties two-county region (see *Map 20: Economic and Social Analysis Regions*).

Fort Hall Indian Reservation

The Fort Hall Indian Reservation, home of the Shoshone-Bannock Tribes, is located in southeastern Idaho (see *Map 20: Economic and Social Analysis Regions*). The Reservation contains about 544,000 acres (850 square miles), 96% of which is individually and tribally owned (Shoshone-Bannock Tribes 1994). Land uses on the Reservation are as follows: 325,000 acres for grazing/timber; 140,000 acres agriculture; 33,728 acres of flooded reservoir; and 12,500 acres for mining (Colter *et al* 1995). Bannock, Bingham, Caribou and Power counties lie within the boundaries of the Reservation, and the cities of Blackfoot (pop. 9,646 - 1990 U.S. Census) and Pocatello (pop. 46,080 - 1990 U.S. Census) are on the northern and southern ends of the Reservation. The most populous portion of the reservation lies between the cities of Pocatello and Chubbuck to the south and Blackfoot to the north. The townsite of Fort Hall (pop. 900) is an unincorporated village in Bingham County and the only major community within the Fort Hall Reservation.

Under the *Treaty with the Eastern Band Shoshone and Bannock, 1868* members of the Shoshone-Bannock Tribes retain rights to hunt, fish, and gather natural resources on unoccupied lands of the United States **outside** the boundaries of the Reservation, including public lands within the Challis Resource Area. Currently, the Tribes do not depend on commodity resources from the Challis Resource Area for their economic livelihood. However, the Tribes do rely on resources from public lands for subsistence and cultural purposes. Little specific information is available on the Tribes' degree of dependence on resources from the Challis Resource Area, or on the exact species sought or locations used by tribal members exercising their treaty rights in the RA. **(Note:** For additional information on tribal treaty rights in the Challis Resource Area, see ***Chapter 3*** - Tribal Treaty Rights, pp. 276-277.)

The Fort Hall Indian Reservation economy is primarily comprised of economic activity related to leasing agriculture land for irrigated crop production; contracts with the Federal government;

grants from Federal, state, and private sectors; and operation of the Bingo Hall and the Trading Post complex (grocery store, restaurant, clothing store, gas station, and museum) located just off of Interstate-15. Through the efforts of Tribal government, the Tribal Employment Rights Ordinance (TERO) program, and others, economic and social conditions on the Reservation seem to have improved gradually during the past 15 years. However, the Reservation economy still exhibits unemployment and household poverty levels far greater than the average unemployment and poverty levels for the U.S., Idaho, or four surrounding counties. According to Jorgensen (1972), the poverty, health, and other problems common among Native American groups are derived from their position within the economy of the general society. Jorgensen (1972) documents that conquest of various groups, the forcible taking of Indian-owned lands, the past confinement of Indians to reservations; racist-ethnocentric attempts to destroy Indian cultures, and contemporary attempts to secure control over Indian lands, water or other resources have resulted in the poverty of Indians past and present.

Demographics

The Tribes have 3,528 enrolled members who live on and off the Reservation. According to 1990 census data, 3,035 American Indians live on the Fort Hall Reservation and the total Reservation population is 5,114 persons. Of the tribal members living on the Reservation, the highest percentage (42%) are children eighteen years or younger. The Reservation also has a large percentage of persons of child rearing and working age (34%). The Reservation has a small population (10%) of young adults ages 19-24, presumably because many persons in this age group leave the Reservation to find work or attend college or trade school. The lowest percentage of the population represented on the Reservation is in the age group of 65 years and older (5%).

Tribal members living on the Fort Hall Indian Reservation (3,035 persons) comprise a small percentage (2.4%) of the total population in the four-county area; the total 1995 estimated population of Bannock, Bingham, Caribou, and Power counties was 128,569 persons (U.S. Bureau of the Census, USA Counties, 1996 CD-ROM).

Employment and Business Development

The Shoshone-Bannock Tribal Government has developed a number of tribal businesses to provide employment for tribal members. In addition, approximately 280 people are employed by the tribal government itself; most are tribal members.

A buffalo herd was established in 1966. While some animals are slaughtered annually for tribal celebrations and religious ceremonies, the herd has grown large enough that some buffalo are slaughtered routinely for sale at the Tribal Trading Post Store and Oregon Trail Restaurant. In 1976, a tribal farm of 1700 acres was established where potatoes and grain are raised by irrigation. The tribal farm enterprise has been expanded by another 550 acres at a farm near the American Falls Reservoir. In 1978, the Trading Post complex was built on the Reservation off of Interstate 15. Since 1978, the Trading Post has grown from a grocery store to include a gas station, clothing store, ice cream shop, video arcade, restaurant, museum, Bingo Hall, post office, and credit union. The Tribes have a construction enterprise which was responsible for building the

Trading Post complex. A convenience store on Interstate-86 west of Pocatello has also been opened (Colter *et al* 1995). Finally, in a sample of approximately one-third of the adult population in 1960, two-thirds of all housewives reported earning some cash through craft sales (Knack 1986).

Depending on available capital, tourism/recreation-related businesses may become a future source of income for the Tribes. Proposals include promoting the museum and buffalo herd, developing an R.V. park, developing a ski resort on Mount Putnam, and developing a marina and hotel on the American Falls Reservoir (Colter *et al* 1995).

Unemployment on the Fort Hall Reservation is high. In 1982, approximately 65% of the potential labor force over age 16 was unemployed (BIA Report On Labor Force *in* Shoshone-Bannock Tribes 1985). Since 1982, the Tribal Employment Rights Ordinance (TERO) program has become effective and made significant progress in Indian job placement both on and off the Reservation. A 1985 estimate judged the unemployment rate to have dropped substantially, to 50% (Shoshone-Bannock Tribes 1985). This unemployment rate, though improved, is still far greater than average unemployment figures nationally (4.6% in 1997), State-wide (4.8% in 1997 - Idaho Dept. of Employment 1997), or for the four-county area (5.0% in 1997 - Idaho Dept. of Employment 1997).

Expenditures for Public Goods and Services

The Shoshone-Bannock Tribes administer reservation services through various departments and programs. Under P.L. 93-638 the Tribes contract from the Federal government, Bureau of Indian Affairs, and Indian Health Services to provide services to Tribal members. Also, the Tribes receive various grants from Federal, state, and private sectors. The Tribal government operates from an estimated 4 million dollars a year from its own resources. The tribal general fund is comprised of money from assets on the Reservation. Revenue is gained from leasing agricultural lands and granting right-of-way privileges on the Reservation (Shoshone-Bannock Tribes 1994). The Tribes also use approximately 9 million dollars annually from grant and Federal sources to perform governmental functions to the tribal membership (Shoshone-Bannock Tribes 1994).

Income and Earnings

The median income on the reservation is at the poverty level or below (Colter *et al.* 1995). The gross income per working household was less than $10,000 annually for 65% of working persons and greater than $15,000 per year for only 24.6% of working persons. Thus, the vast majority (greater than 65%) of **working** households on the Reservation are at or below the U.S. poverty level for a non-farm family of four ($15,569 - U.S. Bureau of the Census 1997). The percentage of people living below poverty level on the Reservation is very different from the percentage of families in the four-county area who have incomes below poverty level: In 1979, an average of only 10% of families and 12% of persons in Bingham, Bannock, Caribou, and Power counties had incomes below poverty level (Idaho Dept. of Commerce 1989). More recent (1995) annual **per capita** (not "per household") personal income data for counties in the four county area also demonstrate the difference in economic levels between the Reservation and surrounding counties.

Per capita incomes range from $14,733 in Bingham County to $17,033 in Bannock County, substantially higher than the median poverty-level income for the Reservation (U.S. Dept. of Commerce - Bureau of Economic Analysis, *Survey of Current Business*, August 1997).

Given the poverty level of the majority of people living on the Reservation, it is likely that resources gathered through the exercise of treaty rights off-reservation are an important or essential component of personal subsistence for many tribal members. Tribal members utilize resources from the Challis RA such as big game, small game, resident fish species, anadromous fish species, and various roots, nuts, and berries to provide food for themselves and their families. Tribal members also use resources from the Challis RA for medicinal purposes and to craft products for personal use or sale at the Trading Post (*e.g.*, beaded elkskin moccasins).

Society and Culture

The society and culture of the Shoshone-Bannock Tribes are closely tied to natural resources. The Tribes' religion, general beliefs, value system, and lives continue to revolve around natural resources and their ability to hunt, fish, and gather natural resources. The Tribes' society and culture are directly tied to various natural resources from the Challis RA, for the Tribes have traditionally and historically utilized resources from this area such as elk, bighorn sheep, and salmon. For example, procuring salmon is a very essential aspect of the Shoshone-Bannock society and culture. Ceremonies, family gatherings, celebrations, and other various events are planned in conjunction with salmon runs and fishing activities. The same type of activities also occur during the hunting seasons and plant gathering seasons.

Hunting, fishing, and gathering natural resources are more than a sport or hobby for the Shoshone-Bannock people; they are a way of life that can not be separated from their culture and society. Clean water, clean air, and healthy lands that will sustain viable populations of fish, game, and natural resources necessary to subsist upon are essential to the Shoshone-Bannock Tribes' lifestyle.

Custer-Lemhi Counties Two-County Region

The socio-economic description of Custer and Lemhi counties is based on *A Social, Economic and Fiscal Analysis of Custer and Lemhi Counties, Idaho: And Models*, a technical report prepared by the Department of Agricultural Economics and Rural Sociology, University of Idaho in fulfillment of a cooperative agreement among the Salmon District BLM, Salmon National Forest, Lemhi County, and Custer County (BLM 1994). This section presents an overview of economic and societal information about Custer and Lemhi counties which may be relevant to the RMP, including descriptions of the area's demographics, employment, income and earnings, sales, expenditures for public goods and services, business development and operations, and society and culture.

The two-county area under consideration is subregionalized for the purpose of analysis (see *Map 20: Economic and Social Analysis Regions*). Subregion boundaries are consistent with the clustering of population, physical features of the land, and distribution of economic sectors and

trade patterns. *Map 24: General Location* shows the location of major population centers within several hours drive of the Challis Resource Area.

Various social, economic, environmental, and political situations affect the economy and society of the two-county area. For example, changes in world mineral prices and Federal mineral and environmental policies affect the feasibility of mineral exploration and mining operations. Expanding urbanization nation-wide makes rural, scenic locations like Custer and Lemhi counties attractive to retirees and recreationists, contributing to local growth in the tourism sector and a population influx of retirees. Public policy regarding use of the public domain for grazing, mining, and timber harvest affects persons and businesses associated with those economic sectors. Legislation such as the Endangered Species Act may, in some locations, preclude the previous, historic use of resources such as grazing, timber harvest, and mining, while enhancing the land's value for resources such as recreation. The vast decline in salmon fisheries has reduced supplemental income opportunities for several communities which once experienced substantial salmon runs.

Demographics

Table 3-3 lists the 1990 populations of Custer and Lemhi counties and their subregions. Both counties have a large percentage of persons of child rearing and working age (ages 25 to 49) (Custer - 39%; Lemhi - 33%), households with children under age 18 (Custer - 67%; Lemhi - 83%), and persons of retirement age (age 65 and older) (Custer - 12%; Lemhi - 17%). Both counties have a small population (4%) of young adults ages 19 to 24, primarily because many persons that age leave the area to find work or attend college or trade school.

Custer and Lemhi counties are rural, with population concentrations in and around the communities of Challis, Mackay, Stanley, Salmon, Tendoy, Leadore, and North Fork. Salmon is the largest community and the trading hub for the region. In 1890 the population in each county was about 2,000 persons. Custer County had a population of at least 3,000 persons in 1920, 1940, and 1980. Recent population changes in Custer County have occurred because of the development and subsequent temporary closure of the Cyprus Mine at Thompson Creek. Custer County experienced a 29% population increase in 1981-82 due to in-migration; from 1983 to 1989, the population declined gradually due to out-migration, and layoffs at the mine in 1992 caused a further decline in population. Still, the current population (4,133) is the highest since 1890 data. Historic population data suggest that dramatic population changes are a result of migration patterns due to fluctuations in employment opportunities. Lemhi County had a population of about 6,000 in 1940, which declined gradually to about 5,500 in 1970. Lemhi County experienced population increases from 1969-1982, gradual decreases from 1982-1989, and slight increases again in the early 1990s, bringing the population to its 1990 level of 6,899 persons. As for Custer County, Lemhi County's population changes have been most dramatically affected by migration patterns due to changing employment opportunities.

Table 3-3: 1990 Population of Custer and Lemhi Counties, Idaho, by County and Subregion[1]

County/Subregion	Population Number	Percent
Custer County	4,133	37.46
Challis Subregion	1,765	16.00
Big Lost River Subregion	1,207	10.94
Stanley Subregion	444	4.02
Pahsimeroi Subregion[2]	1,109	10.05
Lemhi County	6,899	62.54
Salmon Subregion	5,009	45.40
Tendoy-Leadore Subregion	588	5.33
North Fork Subregion	910	8.25
Total Two-County Region	11,032	100.00

[1] Source: Census of Population and Housing, 1990 (in BLM 1994).
[2] The Pahsimeroi subregion includes the Patterson Division, which is within Lemhi County and has a population of 392. As a result, the subregion numbers do not add up to their respective county totals.

Employment

Appendix B, Items 1 and *2* (pp. 600-601) summarize employment for the two-county region surrounding the Challis Resource Area. Regional employment opportunities, which total 4,535 full-time equivalents (FTE) (see *Glossary*, p. 173), are dominated by agriculture (24.18%), businesses associated with visitors to the area (22.71%), State, local, or Federal government employment (20.70%), and mining (18.74%). Employment in the Challis subregion is primarily in the mining sector (55.36%), with other employment opportunities in secondary sectors which provides goods and services for the mine and employee households. The Salmon subregion has a diverse employment base, with no dominant sectors. The Stanley subregion has a majority of employment associated with visitors to the area (78.69%). The Pahsimeroi, Big Lost River, and Tendoy-Leadore subregions have a high percentage of agricultural employment (83.95%, 50.64%, and 76.93%, respectively). The North Fork subregion emphasizes employment associated with visitors to the area (63.65%) and Federal government (24.43%).

Unemployment in Custer County ranged between five and nine percent from 1982 to 1988, and dropped to between three and six percent from 1988 to 1993. Custer County's employment has tended to be stable since 1988, except when changes in the mining sector during late 1993 and early 1994 caused substantial employment fluctuation for Challis-area mine workers. Depending on mining activity in the county, unemployment levels should continue to fluctuate between three and six percent. In addition, there should be no appreciable change in the employment

composition by industry in the near future.

In Lemhi County unemployment ranged from 7 to 13 percent between 1975 and 1982, peaked at about 18 percent in 1983, decreased gradually to a low of five percent in 1989, and then increased to its current level of about 11 percent. In 1991, average unemployment for Idaho was 7.9 percent and the national average was 6.6 percent. Higher unemployment levels in Lemhi County may be due to large numbers of people employed in seasonal work associated with agriculture, tourism, and government agencies. Lemhi County has experienced more fluctuation in unemployment than Custer County during the past 15 years. Trends in retail and service industries indicate that the composition of the economy is shifting, albeit slowly. This changing employment composition may make it more difficult to predict future employment fluctuations.

Mining development since the spring of 1994 in Lemhi County (Beartrack mine) and Custer County (Hecla Grouse Creek gold mine, Yellowjacket mine, Thompson Creek molybdenum mine) have increased expectations for a healthier local economy in the near term. Temporary construction jobs have been replaced with operations jobs that are permanent and long term (although mine operations workers may transfer to another job site when this mine ceases operations in 5 to 7 years). However, minerals commodities are very sensitive to national and international markets, and changes in commodity prices can rapidly affect local mining development and employment potential.

In the Challis subregion many jobs outside the mining sector are seasonal, part-time, and/or low wage. This results in significant underemployment and situations where a family can be below the Federal poverty level even if household wage earners have several jobs. Because employment in the mining sector rises and falls with the trend of commodity prices, the economy of Challis will also need to rely on agriculture, government employment, and visitor-generated business. With a few exceptions, these sectors do not offer wages as high as the mineral sector and the jobs are often seasonal. However, these sectors provide vital employment opportunities for an area with significant evidence of multiple job holdings.

Underemployment and poverty also exist in the other subregions; probably, this is again because of a lack of full-time, yearlong, and higher-wage employment opportunities.

Of the 434 Federal employees located within Custer and Lemhi counties, 68 (15.7 percent) are employed by the BLM at its Salmon Field Office. This number increases temporarily during the summer, as seasonal employees are hired for field work and fire crews.

Income and Earnings

Specific earnings and personal income information for Custer and Lemhi counties and their subregions is provided in *Appendix B, Items 3, 4* and *5,* pp. 602-604.

Earnings for the two-county region are estimated at over 97 million dollars (1991 data). In general, the distribution of earnings in each economic sector of the counties and subregions is similar to the distribution of employment. Variations may be due to higher earnings per job in

the mining sector and lower earnings per job in the tourism sector. Earnings in the region are dominated by the mining (28.58%) and agriculture (21.78%) economic sectors. However, State, local and Federal government (19.23%), economic activity associated with visitors to the area (14.06%), and the timber industry (8.75%) also have a substantial impact on the regional economy. Custer County's earnings are generated primarily in the mining (48.61%) and agriculture (21.92%) sectors. Lemhi County has a fairly even distribution of earnings and employment throughout all sectors of the economy. Except for the Salmon subregion, where earnings are distributed fairly evenly across economic sectors, each subregion has one or more predominant sources of earnings: The Big Lost River, Pahsimeroi, and Tendoy-Leadore subregions are primarily agricultural (49.79%, 96.51%, and 85.40% of earnings, respectively); Challis subregion earnings are based on mining (68.78%); the Stanley subregion's earnings stem from business associated with visitors to the area (72.32%); and the North Fork subregion has the majority of earnings from business associated with visitors to the area (43.65%) and Federal government (36.95%).

When Custer County experienced a mining boom in the early 1980s, non-farm personal income nearly doubled, while net farm income slowly continued to decline; changes in net earnings mirrored these changes in personal income. The county has also had a slow, but steady, growth in dividends, interest, rents, and transfer payments, possibly associated with the in-migration of retired persons, who have more non-wage income sources. Income and earnings in Custer County are likely to continue to mirror employment opportunities in the primary economic sector for the county (mining). The growth in government transfer payments (particularly in government retirement) has had a stabilizing influence and should continue to do so in the near future.

Lemhi County has had steady increases in non-farm and total income since 1969, and fairly stable farm income. Government transfer payments (*e.g.*, retirement pensions) have steadily increased since 1969. This growth in government transfer payments has had a stabilizing influence on income and earnings generation within the county. Net farm earnings have tended to fluctuate in step with the cyclical trends in cattle prices (which run in 5 to 10 year cycles). Cattle prices are currently in a "down" phase of the cycle, which may require a few more years to reverse. As cattle prices increase, net farm earnings are likely to increase correspondingly.

In 1991, estimated per capita income was $11,607 for Custer County and $10,624 for Lemhi County, compared with an average per capita income of $15,366 for Idaho and $19,091 nationally. Most personal income in the two-county area is generated within the Salmon (47.10%) and Challis (28.35%) subregions, the areas with the greatest percentage of population. Income per capita is highest in the Challis subregion, where there are many higher-wage jobs in the mining sector, and lowest in the Stanley, Pahsimeroi, Tendoy-Leadore, and North Fork subregions, which have a large number of lower-wage jobs associated with visitors to the area or agriculture. Most subregions (Salmon, Tendoy-Leadore, North Fork, Big Lost, Pahsimeroi) have substantial populations of children, adults, and/or elderly persons living at or below the poverty level. The remaining two subregions (Stanley and Challis) also have a sizeable proportion of households with incomes below $25,000 per year. As discussed earlier, the poverty of the two-county region may be due to the lack of full-time, yearlong employment opportunities and few higher-wage jobs.

Sales

Total industry sales represents the level of economic activity based on the value of all goods and services produced locally/regionally. These goods and services are either sold locally, reflecting local activity, or are sold outside the region and considered export sales. Total sales for the two-county region exceeded $291 million in 1991 - $136.5 million for Lemhi County and $154.6 million for Custer County. 1991 sales for each subregion were as follows:

Subregion	Total Industry Sales	% of Region
Salmon	$120,652,400	41.4
North Fork	$4,728,100	1.6
Tendoy-Leadore	$11,176,800	3.8
Lemhi County	$136,557,300	46.9
Challis	$114,276,900	39.2
Pahsimeroi	$7,100,100	2.4
Stanley	$7,323,300	2.5
Big Lost River	$25,909,900	8.9
Custer County	$154,610,200	53.1
Total Region	$291,167,500	100.0

Expenditures for Public Goods and Services

In 1991, total expenditures for public goods and services approximated 6.1 million dollars for Custer County and 7.2 million dollars for Lemhi County. Funds for these goods and services are primarily derived from two sources: local tax revenues and non-local aid.

Total revenues from personal, real, and operating taxes in 1991 were about 2.3 million dollars for Custer County and 2.6 million dollars for Lemhi County. In 1991, non-local aid for public goods and services exceeded 3.5 million dollars for Custer County and approximated 5 million dollars for Lemhi County. Annual non-local aid to the two-county area is in the form of payments in lieu of taxes, shared Federal timber and grazing receipts, and Federal and State funds and grants.

Because the two-county region has acreage in public ownership (93% of Custer County; 91% of Lemhi County), each county is designated a sharing of Federal revenues called payments in lieu of taxes (PILT) as a substitute for real property taxes. Custer County receives approximately $207,000 per year as PILT and Lemhi County receives approximately $265,000 per year as PILT (1991). Other shared Federal receipts include timber receipts (from Forest Service lands) of $731,000 in Lemhi County and $95,000 in Custer County (1992) and grazing receipts (from BLM lands) of $14,000 in Lemhi County and $8,000 in Custer County (1993). Both counties also receive Federal and State funds and grants to help pay for mandated programs intended to provide for the health and safety of residents.

Business Development and Operations

The two-county region's trade pattern is hierarchial in nature, from smaller to larger communities The trade flow extends beyond the region to nearby population centers such as the Bitterroot Valley and Missoula, in Montana, and Idaho Falls in southeastern Idaho. From Salmon, it is often easier to travel to Missoula (142 miles) than to Idaho Falls (162 miles) for those goods and services that are not readily available locally. Most goods and services brought into the region are transported via Missoula, Idaho Falls, or Boise.

Ongoing mineral development could foster local economic growth (primarily in Salmon and Challis) as population, employment, and disposable income increase as a result of mine construction and operation. Secondary businesses which support the mining operations may develop locally if non-local businesses are not competitive. This could encourage local economic growth in general, with potential for businesses unrelated to the mines (*e.g.*, fast food restaurants) and other services to become established.

Declining beef cattle prices in 1994 recently affected profitability in the agriculture sector (cash sales per cow declined about 17 percent from 1991 levels). This downward trend continued in 1995, and, according to Chuck Lambert, Denver-based chief economist with the National Cattlemen's Association, "cattle prices are expected to remain low at least until late this year [1996] and perhaps into next year" (Kohler 1996). Supplies of cattle are expected to rise through most of the 1990s and put further downward pressure on prices (Gray 1996). Factors contributing to low beef prices and/or an abundance of cattle on the market include higher feed-grain prices and competition from abundant supplies of pork and poultry (*Idaho Outlook* 1995). If profitability declines enough, expenditures for goods and services related to raising beef cattle may decline, with possible negative impacts on the local economy. Profitability in the local livestock industry may also be affected by public policies which establish guidelines for livestock management on public lands, in order to address concerns about the environment.

Statistics indicate the area has developed a substantial economy associated with visitors to the area (22.71% of employment and 14.06% of earnings). Visitor and local resident expenses for hunting or fishing have economic importance on a local, and possibly regional, level (see *Appendix B, Item 6: Economic Values of Select Wildlife Species* and *Item 7: Economic Values of Fisheries Resources,* pp. 605-609). About one-fourth of recreation visits to the Resource Area in 1993 were for hunting (2.9%) or fishing (22.5%) activities (see ***Chapter 3*** - Recreation Opportunities, Visitor Use, and Off-highway Vehicle Use, *Table 3-13: 1993 Recreation Visits to the Challis Resource Area,* p. 262). Lemhi County experienced consistent growth in the service sector from 1969 to 1991; medical, educational, social, recreational, and lodging services doubled during those 22 years. Custer County experienced consistent growth in the retail trade sector during this same timeframe. This trend in the growth of tourism-related business is expected to continue, since the area continues to be a popular vacation spot. Businesses in Salmon, Challis, and Stanley are likely to benefit the most from tourism, since visitors tend to spend money for lodging, groceries, souvenirs, etc. in those communities and just "pass through" the smaller towns. However, growth in this sector would likely have only minimal benefit to the local economy in general, because jobs associated with visitors to the area are generally low wage and seasonal (note the discrepancy

between percent of employment and percent of earnings for this sector).

The local timber industry is affected by fluctuating supplies of logs from local sources (primarily Forest Service timber sales). As recently as 1995, the largest mill in the two-county region closed because of a stated lack of a sufficient, affordable timber supply (*Idaho Employment* 1995). However, the fairly recent substantial increase in the regional price of wood products (due to vastly reduced supplies of timber from the Pacific Northwest) could increase the profitability of local businesses which produce or market wood products (assuming businesses do not incur increased costs to harvest and produce the wood products). (Also see ***Chapter 3*** - Forest Resources, "Local Demand for BLM Forest Products.")

Locally, the Federal government has begun a general trend to downsize, and dozens of employees have chosen to retire early or seek other employment options. Most of the "eliminated" positions were full-time and well-paid, with benefits. However, many of those who retired have remained in the local communities and will be receiving substantial non-wage income (pensions). Some seasonal jobs which have been "eliminated" may be replaced by local contracting, so no net loss in employment may result.

Society and Culture

Most persons interviewed during a recent sociological study of the two-county area expressed a common desire to maintain the existing culture for their children and grandchildren. They highly valued a rural, agrarian lifestyle and felt their communities were good places to raise children. The ability to stay in (or come back to) the area was very important to many respondents. Although residents recognized the benefit of developments such as mines and new home construction and appreciated the contributions made by in-migrants, they wanted to maintain a "small cow-town" atmosphere despite times of "boom" or more steady economic development and population growth. However, respondents differed greatly in how they thought this balance between development (especially in the service sector) and ongoing rural resource use (mining, ranching, timber harvest) should be achieved.

The sociological study identified three predominant attitudes regarding land and resource use. Attitudes "a" and "b" are very similar, but distinctly different from attitude "c."

a) Resources have value when they are used by a society to meet its wants and needs. Customary uses are *assumed* to be rights. The local community should be the locus of control for decisions about resource use.

b) Resources have value when they are used by a society to meet its wants and needs. Current land and water rights have been determined through customary use, and these rights are *codified* through water allocations and grazing allotments, not just assumed. The local community should be the locus of control for decisions about resource use. Persons who live in the community should contribute to the community socially and politically.

c) Resource use is defined within the context of conservation and quality of life. Long term

stewardship and legislated rights are of primary importance, and rights based on customary use are of secondary importance. The locus of control for resource use decisions should be within the extra-local, legal sphere.

The majority of respondents adhered to attitudes "a" or "b," which emphasize either assumed or codified rights through continuing use. Some respondents in the Stanley and Salmon subregions felt that mining, ranching, and timber harvest have been viewed as the only "traditional uses," and recreation should also be recognized as a "traditional" resource since it has had economic value and customary use since at least the 1940s.

As mentioned earlier, the economies of the Pahsimeroi, Big Lost River, and Tendoy-Leadore subregions are primarily agricultural. Ranching determines the community identity in these areas, and ranchers provide the backbone of local merchants' business. Except for the Tendoy-Leadore subregion, which has varying degrees of reliance upon public land, ranchers rely heavily upon public lands for grazing. Persons in these three subregions shared the following attitudes: the right to water allocations and grazing allotments through customary use, the right to participate in decisions which directly affect where they live (*i.e.*, local control of resource decisions), the importance of hard work and self-sufficiency, and a willingness to help one's neighbor.

Although the Challis subregion's economy is predominantly based on mining, ranchers have provided community stability for decades. Most persons felt mining on public lands should not be stopped in the interest of other resource uses. A few indicated that mineral resources are being "given away," with little long term benefit to the local community. This subregion expressed the strongest view that the local community should maintain control over resource allocations. They felt threatened by public policies which alter public land management, and frustrated that decisions about their livelihoods could be made outside the community.

The society of the Stanley subregion differs greatly from the remainder of the two-county region. Persons interviewed felt socially, politically, culturally, and economically isolated from the rest of the region. Although the Stanley subregion used to have a ranching and mining economy, the area is now solely reliant upon tourism and government employment. The population is diverse and seasonally transient -- 90 percent of homes are for seasonal or occasional use. Persons in this area viewed recreation use on public land as a right similar to grazing and mining. They felt it is a nondestructive resource use which should be given precedence, because it produces economic activity without extracting physical resources.

The North Fork subregion has an economic history of mining and timber harvest, but today has a predominantly tourist economy. Recreation (outfitters and guides), timber, and mining are all traditional resource uses of public land that local persons felt are rights, rather than privileges; they indicated that generations have used the land without destroying it. Although the North Fork area experiences considerable visitor traffic flow, many visitors are "just passing through" and spend little or no money in the area.

The Salmon subregion has a diverse economy with a long history of ranching, mining, timber harvest, and guided recreation. Persons associated with the timber industry indicated timber

harvest is a sustainable industry (timber is a renewable resource), has a good record of stewardship, and provides an example of how the needs of people and the environment can be balanced. Ranchers adhere to the attitudes of customary use and legal rights to water and grazing, the importance of sharing labor, equipment, and expertise, and the need to manage resources responsibly and voluntarily. Recent economic changes have made the river-bottom land along the Salmon and Lemhi rivers attractive for home development; as a result, ranches that are sold are often parceled for housing. The persons interviewed did not want Salmon to become "suburbia," but they also recognized the right of ranchers to dispose of their land as they wish. Although statistics indicate Salmon has a substantial tourist economy (24.84% of employment and 19.67% of earnings), only some recognized the area has a growing tourist economy.

Fire Management.

Law, Regulation, and Policy

Major authorities which pertain to fire protection and management include the following:

Protection Act of September 20, 1922 (16 U.S.C. 594).
Taylor Grazing Act of June 28, 1934 (43 U.S.C. 315).
Reciprocal Fire Protection Act of May 27, 1955, as amended (42 U.S.C. 1856, 1856a).
Economy Act of June 30, 1932 (31 U.S.C. 686).
Federal Land Policy and Management Act of 1976 (43 U.S.C. 1701 *et seq.*).
Disaster Relief Act of May 22, 1974 (42 USC 5121).
Wildfire Prevention Regulations found in 43 CFR 9212.
Annual Appropriations Acts for the Interior and Related Agencies.
Interagency Agreement among the Salmon District BLM, the Salmon National Forest, and the Challis National Forest (June, 1993); and Annual Operating Plans under that agreement.
Cooperative Fire Protection Agreement (No. 1422-D-910-A-6-0203) among the BLM, National Park Service, Bureau of Indian Affairs, U.S. Fish and Wildlife Service, U.S. Forest Service, and Idaho Department of Lands (April 17, 1996); and Statewide 'Annual Operating Plans under that agreement.

Affected Environment

The BLM's Upper Columbia-Salmon Clearwater Districts (UCSC), Salmon Field Office has an interagency agreement with the Salmon and Challis National Forests to provide initial attack for fires occurring on 700,000 acres (88.3%) of the 792,567 acre Challis Resource Area. Lands in the northern portion of the Resource Area (closer to Salmon, Idaho) are protected by the UCSC Districts, Salmon Field Office, BLM.

Fire activity in the Resource Area due to unplanned ignitions has been low; few acres have been affected and fire intensities have been low. Based on the last fire activity planning cycle (1980-1991), the Challis Resource Area averaged 20 fires per year and 250 acres burned annually. No large fire activity occurred during this planning cycle. The largest fire was 875 acres, and most fires were fewer than 0.5 acres. Forty percent of all unplanned fires were person-caused; these

fires were generally associated with rural dumps and some agricultural burning. The remaining 60% were caused by lightning.

Prescribed fire has been used in the Resource Area on a limited basis. Since 1980, approximately 3,234 acres in 13 prescribed burns have been treated (Source: Rangeland Improvement Projects System database, 1992). Prescribed fire has been used occasionally in the timber program for slash and road debris cleanup following timber sales. Prescribed fires are generally planned ignitions, since only the seven Wilderness Study Areas in the Resource Area are presently managed with a conditional suppression strategy. Because of increased national emphasis on ecosystem management, prescribed fire is expected to be used more in the future in order to sustain healthy ecosystems.

"Fire has played a major role in shaping east-central Idaho ecosystems. These ecosystems are adapted to periodic fire which occurred until fire suppression began in the early 1900s" (USDA 1995). Wright and Bailey (1982) speculated that the probable frequency of fire for sagebrush-grass areas of eastern Idaho would be about 50 years, with fire frequencies for the driest sagebrush communities as low as 100 years. A recent study of the Lost River Range forested types (Haslett 1995) concluded "suppression of fires has prevented the development of moderate to severe fires while keeping their intensities light... Further exclusion of fire within the Lost River Range will continue this trend, changing the natural succession of the forest ecosystems. This could cause extensive fuel loading and overcrowding of the conifer cover types. The resulting effect could cause extensive, severe uncontrollable fires that are an unnatural successional event."

Vegetative habitat conditions in the Challis Resource Area are thought to have changed as a result of reduced acreage burned in low intensity prescribed or wild fires (due to a full suppression strategy since the early 1900s). Sagebrush densities on grassland habitats are believed to have increased, leading to reduced forage quantity and reduced nutritional quality. In forested types, fire suppression is thought to have led to increased ladder fuel buildup; overstocking; poor growth (decadent stands); reduced nutrient cycling due to an increased woody debris layer; increased risk of insect/disease epidemic due to increased competition for soil nutrients, water, and light; changing species composition; and increased risk of stand-replacing fire.

Fisheries.

Law, Regulation, and Policy

Fisheries management on BLM public lands is authorized under the following laws, executive orders, and plans. An expanded description of some of the legislation listed below is provided in *Appendix E, Item 1,* pp. 638-643.

1) Federal Land Policy and Management Act of 1976 (FLPMA).
2) Wild and Scenic Rivers Act of 1968, as amended.
3) Fish and Wildlife Coordination Act of 1958.
4) Sikes Act of 1974.
5) Executive Order 11987 of May 1977.
6) Executive Order 11988 of May 1977.
7) Executive Order 11990 of May 1977.
8) Executive Order 12088 of 1978.
9) National Environmental Policy Act of 1969.
10) Clean Water Act of 1977, sections 303 and 404.
11) Idaho Stream Channel Protection Act (Title 42 Chapter 38, Idaho Code).

Regulations and policies which also apply to fisheries management are generally derived from interpretation and implementation of statutes and executive orders. They include, but are not limited to, the following: Supplemental Program Guidance (Manual Section 6600); *Fish and Wildlife 2000* (BLM National, State, and District policies); Memoranda of Understanding applied to specific situations; Conservation Agreements; Cooperative Agreements; *Interim Strategies for Managing Anadromous Fish-producing Watersheds in Eastern Oregon and Washington, Idaho, and Portions of California* (BLM-USFS February 1995); and others. In addition, the BLM manages fisheries habitat and other trust resources in the Challis Resource Area in order to provide opportunities for the Shoshone-Bannock Tribes to satisfy their treaty rights granted in the Fort Bridger Treaty of 1868.

Special Status Fish Species: The above statutes, executive orders, regulations, and policies generally apply to all special status fish species as well. In addition, all threatened, endangered, or sensitive (TES) fish species (see *Glossary*: threatened species (p. 184); endangered species (p. 171); sensitive species (p. 182)) are managed according to the regulatory and policy mandates set forth in 50 CFR 400 and Special Status Species Manual 6840, a derivative of 50 CFR 400. The Endangered Species Act of 1973, as amended, provides for the protection of threatened or endangered species and their habitats, and requires Federal agencies to ensure that the continued existence of listed species is not jeopardized and the designated "critical habitat" of listed species is not destroyed or adversely modified.

Affected Environment

Fisheries Population Distribution, Size, Trend, and Management

The Challis Resource Area contains six resident salmonids -- rainbow trout (*Oncorhynchus mykiss*), westslope cutthroat trout (*Oncorhynchus clarki lewisii*), brook trout (*Salvelinus fontinalis*), bull trout (*Salvelinus confluentus*), kokanee salmon (*Oncorhynchus nerka*), and mountain whitefish (*Prosopium williamsoni*) -- and three anadromous salmonids -- chinook salmon (*Oncorhynchus tshawytscha*), sockeye salmon (*Oncorhynchus nerka*), and steelhead rainbow trout (*Oncorhynchus mykiss*) -- collectively referred to as game species. The Salmon River is also historic habitat for the Columbia River white sturgeon (*Acipenser transmontanus*); however, the current distribution of this species within or adjacent to the Resource Area is not known at this time. The general distribution of known anadromous and resident game species is shown on *Map 2: Anadromous and Resident Fisheries Occupied Habitat* and listed in *Appendix C, Item 1: Game Fish Species Distribution by Drainage and Stream* (pp. 610-612).

The main Salmon River, East Fork Salmon River, and Pahsimeroi River are the major chinook salmon and steelhead trout spawning and rearing waters in the RA. The main Salmon River is also a migration corridor for the sockeye salmon. The East Fork Salmon River is one of the most important tributaries for anadromous fish production in the entire upper Salmon River. Historically, the Pahsimeroi River was a prime spawning and rearing stream for both steelhead trout and chinook salmon. Portions of smaller tributaries in the RA also support limited runs of anadromous fish or have high anadromous fisheries potential (see *Appendix C, Items 1* and *2*, pp. 610-615). Although anadromous fish may not always spawn in these smaller tributaries, they are often used as rearing habitat by young fish seeking relief from large stream conditions such as predators, limited food supply, and warm water temperatures.

Resident salmonid populations are broadly distributed in the RA, reflect low to moderate abundance, and, depending on the stock or population being considered, seem to indicate either downward or relatively stable population trends.

In general, anadromous fish populations reflect low to very low abundance, and show downward population trends. It is likely that sport harvest of all anadromous fish will cease in the near future, as these stocks continue to decline. Chinook salmon and steelhead trout are managed by a combination of natural reproduction and hatchery produced fish. The majority of steelhead trout and chinook salmon destined for the Pahsimeroi River are collected at a hatchery near its mouth and held for egg collection. All natural summer chinook salmon (no fin clip) and all those which are part of the Idaho Supplementation Program (left ventral fin clip) are released above the hatchery to spawn naturally (Idaho Department of Fish and Game, January 6, 1997). The number of wild steelhead rainbow trout remains low. Since 1982, returns of hatchery-produced steelhead rainbow trout have been adequate in most years to support a harvest of 2 to 10 fish per season per licensed fisherman. Chinook salmon, which once provided a viable sport fishery in the upper Salmon River (see *Appendix B, Item 6: Economic Values of Fisheries Resources in the Challis Resource Area*, pp. 605-607), have been at extremely low levels since 1980 (see *Appendix C, Item 3: Counts of Spring Chinook Salmon Redds, 1960 to 1987*, pp. 616-617) and have not been

harvested since 1977. Sockeye salmon migrate through the Resource Area within the Salmon River as both adults and smolts.

Nongame fish species include Pacific lamprey (a State of Idaho listed endangered species); large scale, small scale, and bridge lip suckers; Columbia River squawfish; long nose and speckled dace; shorthead, Piute, and mottled sculpin; and redside shiner. These nongame species are most prominent in the main Salmon River and its larger tributaries, although several of the species are found in most watersheds.

Fisheries Habitat Location and Condition

Seventy-five major fisheries streams totaling 535 miles lie within the RA boundary (see *Map 2: Anadromous and Resident Fisheries Occupied Habitat*). Three hundred two (302) miles cross BLM lands and 233 miles cross either private or State lands. Approximately 172 miles of stream are inhabited by both resident and anadromous fish, and 363 miles have only resident fish. All stream habitats on Federal land are managed by the BLM or Forest Service; fisheries populations are managed by the State of Idaho's Department of Fish and Game.

The approximate habitat condition ratings for the major fishery streams in the RA are <1% excellent, 50% good, 30% fair, and 20% poor. Good condition streams exist primarily along the main Salmon River and its larger tributaries. Most smaller streams are in fair condition and could use some improvement. *Appendix C, Item 4*, pp. 618-619 provides stream ownership information and condition ratings for important fisheries streams of the Challis RA, by drainage. *Appendix C, Item 5*, pp. 620-626 summarizes the fisheries habitat condition of some important drainages in the RA.

Factors Affecting Fisheries Habitat and Production

Limiting factors for anadromous and resident salmonid spawning and rearing are summarized in *Appendix C, Item 6: Anadromous and Resident Fish Life Histories and Habitat Requirements*, pp. 628-631.

Due to the high natural mortality on young fish, good spawning grounds are critical for good resident and anadromous salmonid production. Spawning habitat for resident trout consists of gravels 0.25 to 2.5 inches in diameter, with water velocities ranging from 0.5 to 2 cubic feet per second. Chinook salmon and steelhead trout prefer gravels 3 to 6 inches and 0.5 to 4 inches, respectively. Salmonids avoid heavily silted areas when spawning. Gravels containing in excess of 20% fines are considered less then desirable and are not utilized to any appreciable degree. Egg survival decreases markedly when fines exceed 20%. Substrate embeddedness in the Salmon River and its major tributaries generally falls in the 33% embeddedness category, with only Bayhorse Creek showing significant reaches of <20% embeddedness. Big Hat Creek and Little Hat Creek are rated as 66% and 83% embeddedness, respectively. *Appendix C, Items 2* and *7* (pp. 614-615 and 632-633) provide detailed information on the stream characteristics and existing and potential spawning and rearing habitat conditions for some important fisheries streams within the RA.

Factors limiting resident or anadromous fisheries habitat and production in the RA include (a) fishery losses through unscreened irrigation diversions (particularly outmigrating salmon and steelhead smolts) (*Appendix C, Item 8,* pp. 634-635 provides additional information on irrigation diversion structures and their effects on fisheries resources in the Challis RA); (b) dewatering of stream channels for irrigation; (c) riparian systems which are non-functional or functional-at-risk; (d) stream channel alterations; and (e) siltation. (For a detailed explanation of how the above factors limit fish habitat see ***Chapter 4*** - Fisheries, "Introduction", pp. 357-359.)

Anadromous fish production in a natural environment is primarily limited by two "habitat" requirements and one "population" requirement: (1) suitable spawning gravels must be available for the successful incubation of eggs; (2) the stream habitat (*e.g.* pool quality and quantity, canopy cover, instream cover) must be suitable for rearing fry and smolts to provide adult returns equal to the preceding spawning population; and (3) spawning fish must be available. One or more of these requirements limit the potential value of most of the Salmon River tributaries. More specifically, the factors affecting anadromous fish spawning and rearing *habitat* on the main Salmon River in the Challis Resource Area include (a) surface water depletion from irrigation diversions, (b) riparian degradation and associated loss of rearing habitat, and (c) the loss of outmigrating smolts at unscreened diversions.

Other factors currently limit anadromous fish survival outside Resource Area boundaries. These factors are important to consider, since anadromous fish complete most of their life cycle outside the waters where they are spawned and reared. They spend several weeks migrating to and from the ocean (see *Map 1: Anadromous Fish Migration*) and one to three years of their adult life in the ocean. Examples of factors which dramatically affect anadromous fish mortality outside the RA boundary include (a) adverse migration conditions (*e.g.*, slack water above dams, which lengthens the time needed to complete migration); (b) dam turbines, which kill fish or stun them so they are easily preyed upon downstream; (c) river or ocean fisheries which harvest anadromous fish or the fish species upon which they feed; and (d) degraded river or off-shore water quality (*e.g.*, toxic contamination, siltation). One or more of these factors may affect the availability of spawning fish returning to waters in the Challis Resource Area. These are factors which are beyond the control of the Challis Resource Area. In addition, much of the available habitat in the region is on private land; management of that land is also beyond the control of the BLM. Currently, the Challis Resource Area has more available, adequate spawning habitat than is being utilized by anadromous fish. Even if all the BLM-managed habitat in the Challis Resource Area was in excellent condition, the production capacity of anadromous fish would be limited by the availability of spawning fish.

Sport and Tribal Fisheries

Primary sport and tribal fish species are rainbow trout, steelhead rainbow trout, westslope cutthroat trout, brook trout, mountain whitefish, and kokanee salmon. The RA's most popular resident fisheries streams are the main Salmon River, upper Pahsimeroi River, and Big Lost River. Mackay Reservoir is a very popular year round fishery for rainbow trout and kokanee salmon, and one of the most popular ice fishing spots in east central Idaho. Tributary streams throughout the RA are also used for sport or tribal fishing.

Resident salmonids are fished for during the summer months, and hatchery produced steelhead rainbow trout are fished for from October through April. Some rainbow trout stocking occurs in the area, primarily in the main Salmon River. However, most fishery resources in the RA are managed as wild trout fisheries under State of Idaho general sport fishing regulations.

Wild and natural steelhead trout may not be legally harvested anywhere within the State of Idaho. Hatchery steelhead trout may only be harvested below the confluence of the Salmon River and Redfish Lake Creek. (Note: Natural steelhead (offspring from hatchery fish) and wild steelhead can be distinguished from hatchery fish by their adipose fin. The adipose fin is removed from hatchery-reared smolts prior to being released into the Salmon River.) The spring/summer chinook salmon and sockeye salmon also may not be legally harvested in the RA (except for harvest permitted under Native American treaty rights). The 1994 to 1995 fishing regulations imposed a Statewide closure on the harvest of bull trout. Any white sturgeon caught while sport fishing in the RA must be released.

Each year, anglers fishing streams in the RA spend large amounts of money for fishing-related expenses such as license fees, tackle, food, lodging, fuel, boating, guide services, and camping. The estimated historic and current economic value of resident and anadromous fisheries resources in the Challis Resource Area is described in *Appendix B, Item 6,* pp. 605-607.

Special Status Fish Species

Threatened and Endangered Species:

The National Marine Fisheries Service has listed Snake River spring/summer chinook salmon and steelhead trout stocks as threatened and sockeye salmon as endangered under the provisions of the Endangered Species Act of 1973. Current or historic spawning and rearing habitats for chinook salmon and steelhead trout are located along the main Salmon River, East Fork Salmon River, Pahsimeroi River, Herd Creek, and some smaller tributaries of those rivers (see *Map 2: Anadromous and Resident Fisheries Occupied Habitat* and *Appendix C, Item 1: Game Fish Species Distribution by Drainage and Stream,* pp. 610-612). The main Salmon River is a migration corridor for sockeye salmon which spawn in the upper Salmon River at Redfish Lake.

The bull trout was listed as a threatened species in June of 1998. Bull trout are found in all the tributaries of the Pahsimeroi River from Little Morgan Creek through the two forks of the upper Pahsimeroi River. The upper segment of the drainage is isolated from the rest of the Salmon River system by the natural sinks near Goldburg Creek. This isolation makes this section of the Pahsimeroi River valuable for management and research. Bull trout are also found in the main Salmon River and some tributaries of the East Fork Salmon River. Bull trout are found in conjunction with westslope cutthroat trout throughout most areas of their range in the RA, in approximately equal numbers. Bull trout are especially sensitive to habitat changes, in that they require very cold, high quality water. They are also vulnerable to population alteration in streams which are occupied by brook trout, because both species are fall spawners and cross-breeding produces sterile offspring. The BLM is currently a partner in the State of Idaho's bull trout conservation strategy, which was created to foster quality habitat and population recovery of bull

trout.

Sensitive Species:

Westslope cutthroat trout, the Idaho State fish, is managed as a sensitive species based on the Idaho Department of Fish and Game's Idaho Conservation Data Center data. BLM policy dictates that sensitive species must be managed as though listed under the ESA in any management planning.

Although broadly distributed throughout the RA, westslope cutthroat trout primarily inhabit the more remote tributaries where the competitive rainbow trout is absent. Westslope cutthroat trout and rainbow trout are spring spawners and can readily interbreed in drainages where both species are present. Westslope cutthroat trout are especially vulnerable to habitat changes (such as those imposed by man's land use activities), over-harvesting, and the effects of rainbow trout introductions (competition and cross-breeding).

Forest Resources.

Law, Regulation, and Policy

The Material Disposal Act of July 31, 1947, as amended, provides authority to dispose of timber or other forest products. Authority to enforce this Act and manage forest lands under the principles of multiple use and sustained yield are outlined in the Federal Land Policy and Management Act of 1976 (43 USC, 1701 *et seq.*).

The Public Domain Forest Management Policy Statement (BLM 1991) states that the BLM will "manage to maintain desired forest ecosystems," while striving to "meet public needs for commodity and non-commodity benefits and uses." The Policy also states that these objectives will be met by adhering to these standards: the BLM's planning process will be used to determine objectives; reforestation will be completed in a timely manner; the forestry program will be managed efficiently (both forest management and public service); practices will reflect the long term cycle of forest management; inventories will be maintained; sale offerings will be consistent with public demand, while maintaining even flow over time; fair market value for products will be received; and unauthorized use will be prevented.

The BLM's "Our Growing Legacy" forestry mission statement (1993) declares that the "BLM will manage the public forests and woodlands to maintain and enhance the health, productivity and biological diversity of these ecosystems...consistent with the principles of multiple use and sustained yield."

The Idaho Forest Practices Act, Title 38, Chapter 13, Idaho Code, provides rules and regulations governing forest practices on all lands in Idaho. Rules pertain to timber harvest, road construction and maintenance, reforestation, use of chemicals, slash management, and practices bordering water

quality limited stream segments (see *Glossary,* p. 186).

Affected Environment

The Challis Resource Area contains 58,461 acres of forest lands, based on the most recent (1984) Timber Production Capability Classification (TPCC) inventory. Forest lands account for approximately 7.4 percent of BLM administered lands within the RA. The distribution of forest lands in the RA is shown on *Map D: Forest Lands.* Forest management activities occur irregularly on RA lands because (a) forest lands occupy small, scattered portions of the RA, and (b) all commercial forest lands are in areas which indicate management difficulties: fragile sites, problem reforestation sites, or adverse locations.

Table 3-4: Forest Land Classifications for the Challis Resource Area, displays the acreage within each forest land classification. Forest land is defined as ten or more acres capable of being ten percent stocked by forest tree species, and not currently developed for non-timber use (Timber Production Capability Classification, BLM Manual 5251, 1990). Of the 58,461 acres of forest lands in the RA, 30,987 acres (53%) are classified as *commercial forest land.* Commercial forest land typically provides sawtimber, and this land base is used to determine the annual allowable cut. The remaining forest lands (47%) are classified as *woodland* (27,474 acres). Woodland is used to provide forest resources such as firewood and Christmas trees, and is *not* used in the determination of the annual allowable cut.

Forest Communities

Forest lands usually occupy northerly aspects, particularly at lower elevations which receive less precipitation (because of greater moisture retention on north slopes). Approximately 85% of forest lands in the RA are dominated by pure stands of Douglas-fir (*Pseudotsuga menziesii*), with small inclusions of lodgepole pine (*Pinus contorta*), subalpine fir (*Abies lasiocarpa*), Engelmann spruce (*Picea engelmannii*), whitebark pine (*Pinus albicaulis*) and limber pine (*Pinus flexilis*). Ponderosa pine (*Pinus ponderosa*) occurs rarely in the RA, although attempts were made to plant ponderosa pine in the Thompson Creek area (many of these trees succumbed to porcupine damage). Low elevation woodlands are occasionally comprised of pure stands of Rocky Mountain juniper (*Juniperus scopulorum*), as in Upper and Lower Cedar creeks above Mackay. Limber pine (about 4% of forest lands) is dominant in low elevations on calcareous soils at the edges of forest lands in portions of the Lemhi and Lost River ranges. Quaking aspen (*Populus tremuloides*) and black cottonwood (*Populus trichocarpa)* occupy sites where surface or subsurface water occurs (about 3% of forest lands). The remaining 8% of forest lands are comprised of whitebark pine, which is dominant at high elevations throughout the RA at or near the upper limits of forest vegetation. It often occurs in association with subalpine fir at these elevations, and both tree species often exhibit deformation caused by wind and driven snow. Whitebark and limber pines are probably the oldest trees in the RA, with some trees exceeding 1,000 years. Pure stands of lodgepole pine are occasional throughout the RA in elevations immediately below the subalpine zone, with the largest stands occurring in the Thompson Creek area. The Donkey Hills supports some stands of pure lodgepole pine on north slopes at low elevations, probably regenerated by fires occurring over 150 to 200 years ago. Engelmann spruce dominates some areas around riparian zones,

usually in association with subalpine fir. Both of these species will occur sporadically throughout higher elevation Douglas-fir stands, and their infrequent occurrence at lower elevations usually suggests the presence of subsurface moisture.

Table 3-4: Forest Land Classifications for the Challis Resource Area

COMMERCIAL FOREST LAND		
Fragile Sites		
Soils	161 acres	
Slope Gradient	367 acres	
Ground Water	4 acres	
Hydrology	52 acres	
Geologic Material	1,456 acres	
Combination	7,754 acres	
Total Fragile Sites	9,794 acres	(17%)
Problem Reforestation Sites		
Heat and Drought	3,434 acres	
Inadequate Moisture	8,940 acres	
Debris and Brush	77 acres	
Inadequate Light	84 acres	
Soil Movement	33 acres	
Combination	6,674 acres	
Total Problem Reforestation Sites	19,242 acres	(33%)
Adverse Location	1,951 acres	(3%)
Total Commercial Forest Land	**30,987 acres**	**(53%)**
WOODLAND		
Suitable Woodland		
Non-Commercial Species	8,797 acres	
Low Site	16,308 acres	
Total Suitable Woodland	25,105 acres	(43%)
Non-Suitable Woodland		
Fragile Site	2,026 acres	
Problem Reforestation	343 acres	
Total Non-Suitable Woodland	2,369 acres	(4%)
Total Woodland	**27,474 acres**	**(47%)**
TOTAL FOREST LAND	**58,461 acres**	**(100%)**

Source: *Figures are compiled from the 1984 Timber Production Capability Classification inventory.*

Low elevation Douglas-fir forests are characterized by open, savannah-like stands of Douglas-fir where regeneration is uncommon and the understory is comprised of grasses (primarily bluebunch wheatgrass (*Agropyron spicatum*) and Idaho fescue (*Festuca idahoensis*)) and shrubs. The most common shrub species associated with these dry forest sites are common juniper (*Juniperus communis)*, mountain snowberry (*Symphoricarpos oreophilus*), and curl-leaf mountain mahogany

(*Cercocarpus ledifolius*). Understory vegetation is often nonexistent in areas of heavy overstory cover, due to moisture limitations created by canopy interception loss and tree root competition. The upper layer of the soil is covered by duff comprised of twigs, fir needles, and often cones; in areas where wildfires have occurred, exposed mineral soil is prevalent. Where it occurs, regeneration in low elevation Douglas-fir forests is usually associated with small openings where snow deposition can occur. These are openings that are big enough to allow snowfall through the canopy, yet small enough to maintain shade through the winter and early spring. Large amounts of regeneration can usually be found just inside the windward edges of forested areas, where wind deposits large quantities of snow.

Age and Size Classes

Approximately 85% of forest lands in the RA are comprised of stands dominated by sawtimber size classes with trees greater than 10" diameter breast height (DBH) in varying age classes. Most of the remainder is pole-size material. The majority of forest stands could generally be described as even structured and uneven-aged. Ages of overstory Douglas-fir range from 100 to 400 years old and average approximately 200 years old. Many stands were initiated by catastrophic fire, creating an even-aged stand, but understory burns and ingrowth have introduced more age classes into most stands. In areas where harvesting and recent fires have occurred, stands may be dominated by seedlings and saplings (less than 3" DBH); this is probably less than 5% of forest lands, because most harvested areas still have an intact overstory that dominates. Throughout most of the Douglas-fir forests, Douglas-fir seedlings and saplings commonly occupy small (less than .25 acre) openings throughout the forest canopy. Larger openings often create droughty conditions which are not conducive to natural regeneration. Very small seedlings (less than 4" tall) occur regularly under larger trees, although many of these eventually succumb to moisture stress from the competing overstory. In higher elevations in the Douglas-fir cover type, vigorous subalpine fir seedlings, saplings, and poles occupy much of the understory because they are shade tolerant and increased moisture is available at higher elevations.

Although no inventory data currently exist, it is estimated that up to half (50%) of commercial forest land acres in the RA have old growth characteristics, as stated in the "Characteristics of Old Growth Forests in the Intermountain Region" (USFS Intermountain Research Station, R.C Hamilton editor, 1993). These characteristics include the following: (a) the area contains an average of 10 trees per acre of 18" DBH, greater than 200 years old; (b) two or more diameter classes exist, creating at least two layers in the canopy; (b) snags (usually 2 to 15 per acre, 16" DBH, and 10 feet long) occur throughout; and (d) down, woody material is infrequent. According to these characteristics, even some logged areas in the RA would fit an old growth classification.

Forest Health

Exact forest health conditions are difficult to assess, due to the lack of concurrent inventory and evaluation data.

Insects: Insect infestations are sporadic and, for the most part, insignificant throughout the RA. Occasional outbreaks of Douglas-fir beetle (*Dendroctonus pseudotsugae*) which cause some

mortality have been noted throughout the RA, particularly in the Thompson Creek area; most of these infestations occur in low elevation, non-commercial forest lands. Many outbreaks probably result from stress due to reduced precipitation during the last 5 to 10 years. Western spruce budworm (*Choristoneura occidentalis*) infestations are common in most of the RA, although mortality rarely results. Understory regeneration (or uneven structure) in Douglas-fir stands throughout the RA increases the risk of a spruce budworm epidemic and subsequent reduced vigor or increased mortality. New growth on regeneration can be severely limited or deformed, although climatic conditions affect whether budworm will defoliate (and kill) a tree. Mountain pine beetle (*Dendroctonus ponderosae*) is an occasional cause of mortality in the small areas of lodgepole pine, whitebark pine, and limber pine which occur in the RA, as is spruce beetle (*Dendroctonus rufipennis*) in Engelmann spruce.

Diseases: Less is known about disease conditions in the RA. Dwarf mistletoe (*Arceuthobium douglasii* and *Arceuthobium americanum*) infection of Douglas-fir and lodgepole pine is the major disease problem in the RA. Dwarf mistletoe causes reduced growth, deformation, and often mortality. The reduced vigor caused by dwarf mistletoe can increase susceptibility to secondary agents such as insects, other diseases, or moisture stress, which further reduce vigor or result in mortality. Dwarf mistletoe infections occur on trees throughout the RA, with major infection centers in the Donkey Hills and Morgan Creek. Lodgepole pine populations are probably infected by various fungal rusts, although no data are available. These cause deformation and, in some cases, mortality, particularly in young trees. White pine blister rust (*Cronartium ribicola*), an introduced disease, affects five-needle pines such as whitebark pine and limber pine. It causes cankers which result in topkill or the death of affected trees.

Stand Vigor: The greatest forest health problem in the RA is probably reduced stand vigor because of overstocking. Decreased vigor increases risks of tree or stand mortality because dead or dying trees have greater susceptibility to insects, diseases, or stand replacing fires. Fire risk increases with the accumulation of dead material on the forest floor and the dense stocking that is characteristic of these stands. Large scale stand-replacing fires also pose threats to long term site productivity, because these fires can degrade soils through loss of organic matter, loss of water holding capacity, and destruction of soil biota. Although stand-replacing fires have always occurred in the area, present conditions are such that the scale of stand replacement may be unprecedented.

Overstocking in the RA is mostly a result of fire exclusion since approximately 1910. Arno and Gruell (1983) estimated pre-settlement fire periodicity in similar habitat types in Montana at 41 years. Most (estimated at greater than 95%) forests in the RA have not experienced the thinning and fuel-reducing benefits of non-lethal fire since settlement, and as a result, have declining vigor. Higher elevation Douglas-fir forests are regenerating to understory subalpine fir, causing an unprecedented accumulation of stems. These heavy fuel loads can act as "ladders" to initiate stand-replacing crown fires. Examples of ladder fuel accumulation can be seen in the Thompson and Squaw Creek drainages, as well as on steep north aspects at moderate elevations throughout the RA. These types of forests are probably most adversely affected by the absence of fire.

In most mid and low elevation older (average age greater than 150 years) forests where Douglas-

fir is considered the seral and climax species, hazards due to stocking are generally less, since less understory occurs because of moisture limitations. However, in burn-regenerated areas less than 150 years old (as in Bruno Creek, near the confluence with Squaw Creek), the lack of fire thinning effects has created an overstocked, vigor-reducing condition that could result in catastrophic fire or insect attack.

Site Productivity

Thirteen forest land habitat types have been identified on commercial forest lands in the Challis Resource Area (see *Table 3-5,* p. 233).

A habitat type is defined as the aggregate of land area potentially capable of producing similar plant communities at climax (Steele, *et. al.* 1981). Each habitat type is named for the climax tree species and understory species that would eventually occupy a site at climax, under ideal conditions. In reality, habitat types indicate the *potential* of a site, for many factors (such as fire interval, climate, soil productivity, aspect, and percent slope) will determine the vegetation that occupies a site over time. Habitat types provide a permanent classification based on potential vegetation which can be related to site productivity. Thus, habitat types provide an ecological basis for deciding timber harvest methods and regeneration goals for desired species composition and structure. Other factors, such as fire regime, soil composition, wildlife use, and precipitation have also been shown to be very similar in areas of the same habitat type, regardless of geographic distance from one another. As a result, habitat types can also serve as common ground for discussion among managers of non-forest resources; nearly all agencies in the Intermountain area use the classification system.

The predominant habitat type in the RA is Douglas-fir/mountain snowberry (35% of the commercial forest land in the RA). Estimated yield capability for this habitat type is low - an average of 30 cubic feet/acre/year (cf/ac/yr) - and nearly equal to the average timber capability yield for the RA. Douglas-fir is usually the only tree species present, and creates an open, savannah-like appearance with an open shrub understory of snowberry. Natural regeneration is sporadic, due to the droughtiness of these sites. Artificial regeneration can be ineffective, especially where harvesting opens up the understory to uninterrupted sunlight. Great care must be taken when harvesting to leave adequate shade, while allowing enough moisture to effectively reach the understory without being intercepted by trees.

The majority of RA habitat types are low timber productivity sites (20 to 50 cf/ac/yr). Approximately 1,138 acres are moderate timber productivity sites (greater than 50 cf/ac/yr). These highest productivity sites in the RA are dominated by Douglas-fir, with occasional inclusions of overstories dominated by subalpine fir.

Low elevation, shrub/open forest communities occupy the lowest timber productivity sites in the RA (estimated yield of 20 cf/ac/yr or less). Approximately 2,502 acres of commercial forest land in the Douglas-fir/common juniper habitat type occupy these lowest productivity sites. These sites are dominated by open stands of limber pine or Douglas-fir. Understory vegetation is usually sparse and dominated by Idaho fescue and occasional shrubs, such as curl-leaf mountain

mahogany or common juniper. These sites receive limited moisture and require conservative timber harvest prescriptions which retain shade. Timber harvesting should be guided by the patterns and frequency of regeneration observed in the stand (Steele, *et. al.* 1981).

Table 3-5: Commercial Forest Land Habitat Types in the Challis Resource Area

Habitat Type	Acres	Percent
ABLA/CAGE	55	0.2
ABLA/JUCO	1,564	5.0
ABLA/ARCO	1,082	3.5
ABLA/RIMO	322	1.0
PICO/FEID	268	0.9
PICO/JUCO	80	0.3
PSME/AGSP	2,194	7.1
PSME/ARCO	6,737	21.7
PSME/CARU	1,044	3.4
PSME/FEID	4,226	13.6
PSME/JUCO	2,502	8.1
PSME/PHMA	39	0.1
PSME/SYOR	10,874	35.0
Total	**30,987**	**100.0**

Climax Species
ABLA = subalpine fir (*Abies lasiocarpa*)
PICO = lodgepole pine (*Pinus contorta*)
PSME = Douglas-fir (*Pseudotsuga menziesii*)

Understory or indicator species
AGSP = bluebunch wheatgrass (*Agropyron spicatum*)
ARCO = heartleaf arnica (*Arnica cordifolia*)
CARU = pinegrass (*Calamagrostis rubescens*)
CAGE = elksedge (*Carex geyeri*)
FEID = Idaho fescue (*Festuca idahoensis*)
JUCO = common juniper (*Juniperus communis*)
PHMA = mallow ninebark (*Physocarpus malvaceus*)
RIMO = prickly currant (*Ribes montigenum*)
SYOR = mountain snowberry (*Symphorocarpos oreophilus*)

Commercial Forest Lands

Commercial forest lands are defined as lands capable of yielding at least 20 cubic feet of wood per acre per year of commercial tree species (Timber Production Capability Classification, BLM Manual Section 5251, 1990). These species are, in order of occurrence and commercial importance: Douglas-fir, lodgepole pine, Engelmann spruce, subalpine fir, and whitebark pine. Whitebark pine is considered of commercial value when it occurs in dense stands with lodgepole pine. Estimated average yield capability of commercial forest lands in the Resource Area is 29 cf/ac/yr. Actual harvestable yield capability is estimated at approximately 9 cf/ac/yr; this accounts for mortality or reduced vigor caused by agents such as competition, insects, diseases, or fire, and the loss of yield due to less than optimal growing conditions that result from shade requirements

for natural regeneration. The estimate of 9 cf/ac/yr is from extensive inventory information presented in 1978, which describes the productivity of all eastern Idaho BLM forest lands. The diversity of yields averaged from all of eastern Idaho may mean that in any given area, actual harvestable yield quantities may differ significantly from those estimated.

The existing allowable level of harvest was determined by the allowable cut calculation for the Eastern Idaho Sustained Yield Unit from data collected during the 1978 extensive forest inventory. According to inventory information, the RA could provide a sustained yield cut of 9.22 million board feet (MMBF) per decade. Actual harvest quantities since 1955 (the beginning of a local timber sales program) average approximately 440 thousand board feet (MBF) per year (or 4.4 MMBF per decade). Since 1955, approximately 5,500 acres have been partially cut, and about 400 acres have been clearcut. Average assumed rotation age is 120 years.

According to the "Interim Management Policy and Guidelines for Lands Under Wilderness Review" (BLM Manual H-8550-1, 1995), timber harvesting will not be permitted in Wilderness Study Areas (WSAs) in the RA unless they are released from wilderness review. Thus, 6,209 acres of commercial forest land are currently exempt from any management or harvest. However, the allowable harvest level of 9.22 MMBF per decade has not been changed to reflect this acreage reduction. As a result, the allowable harvest level must be taken from non-WSA lands; if the entire allowable harvest level is harvested annually, those areas could be excessively logged. Necessary shade and seed sources would be removed, and in turn, cause disruption of sustainable yields.

The primary commercial tree species in the RA is Douglas-fir (*Pseudotsuga menziesii*). Until about 1985, the main objective for harvesting was volume removal. Where harvesting occurred, diameter limit cutting predominated, with nearly complete removal of all trees greater than 20 inches DBH. Little was done to promote natural regeneration of stands, although many stands did adequately regenerate, since trees marked for harvesting were well interspersed with those that remained. This left adequate shade and seed for natural regeneration in some areas. Other areas did not fare as well. Overcutting created droughty situations in some stands, while undercutting in other areas left too much overstory to allow moisture to accumulate on the forest floor. In some areas near drainage bottoms, nearly all trees were cut, since all of the trees grew large in the presence of surface or subsurface water.

Currently, the main emphasis is to provide a sustained yield of sawtimber. From 1984 to 1994, 1,306 MBF of sawtimber (approximately 98% Douglas-fir on 351 acres) has been harvested. This is significantly lower than the sustained yield average, due to the Salmon District-wide emphasis on reforestation of unregenerated, harvested lands. This emphasis was intended to ensure that previously harvested lands maintain productivity and contribute to sustained yield. Most of the reforestation efforts occurred in the Lemhi Resource Area, although 40 acres were planted in the Thompson Creek area in 1994. Several heavily-harvested areas (about 210 acres) remain inadequately stocked in the RA; planting is not planned in these areas due to anticipated problems with plantation survival (such as drought).

Timber harvesting in the RA utilizes shelterwood marking prescriptions to promote natural regeneration. Shelterwoods implemented in the RA leave approximately 40% of the overstory intact for seed, shade, and wildlife use. Areas that have not adequately regenerated to approximately 200 trees per acre within 15 years are planted to predominantly lodgepole pine stock appropriate by zone and elevation. When regeneration is established, 70 to 80% of the overstory is removed, leaving both vigorous trees that will still put on significant volume, and trees that are important for wildlife habitat. Slash is lopped and scattered concurrently with logging operations. Mistletoe-infected trees are selected for removal, unless they are required to meet shade, seed, wildlife, or watershed objectives. In areas which are heavily infected by mistletoe, clearcutting has been undertaken followed by planting to non-host species. Fewer than 100 acres have been treated this way Resource Area-wide. Special prescriptions for immediate down tree removal are enforced in areas infested or at high risk of infestation by Douglas-fir beetle.

In 1987, site preparation by dozer scarification for natural regeneration was employed on 200 acres in the Dry Canyon area on an experimental basis. Logged areas in Dry Canyon currently lack natural regeneration, and it was thought that competition from grasses, shrubs, and an overstocked overstory were the problems. Thinning removed approximately 30% of the non-merchantable overstory and dozer scarification removed about 40% of the understory competition. It remains to be seen whether regeneration will result; since that time, no other scarification has been planned or implemented in the RA.

No precommercial thinning projects (other than discussed above in Dry Canyon) have been employed in the RA, because there is currently very little stock in age classes which need thinning. Most of the established regeneration that resulted from logging is still spaced to allow maximum growth. Most stands of pole-sized Douglas-fir that regenerated following burns or insect mortality are already stagnated beyond the point where thinning would provide a cost-effective return on the investment of labor and materials to do the work.

No prescribed burning in the RA has occurred as part of site management, except some slash burning following timber harvest.

An average of 0.5 miles of road have been constructed per year in conjunction with RA timber sales. New road mileage construction has decreased in recent years because harvest levels have been reduced and timber harvests have used existing roads (much of the existing access to forested lands has been created by mining or other activities). Newly constructed logging roads are closed within two years of timber sale completion.

Woodlands

Forest lands that are not capable of producing 20 cf/ac/yr, or produce only non-commercial tree species, or are incapable of long term timber production (fragile nature or inability to adequately reforest) are classified as woodlands and are not included in the commercial forest land allowable cut base. Actual woodland productivity in the RA is unmeasured, although it is estimated at approximately 10 cf/ac/yr. Woodlands in the RA consist of forest land which is incapable of

sustained long-term production due to the fragile nature of the site (*e.g.*, rocky soils, droughtiness) and/or the site's inability to produce adequate growth per acre. Locally non-commercial tree species such as aspen, cottonwood, and Rocky Mountain juniper also fall into the woodland classification. All other species occupy the low productivity woodland sites, although Douglas-fir dominates.

Local Demand for Forest Products

Historically, the majority of timber harvested from the Challis and Lemhi Resource Areas was purchased by a local sawmill in Salmon, Idaho; however, this mill closed in 1995. The Salmon Intermountain sawmill processed 20 to 22 million board feet of lumber per year. The local economy in Salmon was somewhat linked to the operation of this sawmill, and the mill was very dependent upon a supply of timber from Lemhi County and surrounding counties. However, most timber purchased by the Salmon mill was harvested from U.S. Forest Service lands; less than 5% of the mill's annual demand could be met through timber from Challis RA lands (assuming the entire average annual harvestable yield for the RA is both harvested and purchased).

Presently, timber sales offered by the Challis Resource Area are likely to be purchased by small local sawmills or by non-local mills in the Boise, Idaho area or southwestern Montana. Three small sawmills operate in the Challis, Idaho area. These mills purchase small quantities of timber from BLM lands, although the exact volume is unknown.

Currently, there is little demand for fuelwood or other woodland products (such as posts, Christmas trees, or pine cones) from Challis RA forest lands. No BLM fuelwood permits were sold in the RA during 1993 and 1994. Prior to 1993, 0 to 3 permits for two cords each were sold. The low demand for woodland products may have been because people had to drive to Salmon to acquire a permit; this is rectified now that the Challis National Forest handles RA fuelwood sales on BLM administered lands. In addition, fuelwood and other woodland products are relatively abundant and available for the same price on adjacent Salmon and Challis National Forest lands.

Hazardous Materials Management.

Law, Regulation, and Policy

Major authorities for the Challis Resource Area's hazardous materials management program include the following:

Comprehensive Environmental Response, Compensation, and Liability Act (1980, as amended) (42 U.S.C. 9601 *et seq.*)
Resource Conservation and Recovery Act of 1976, as amended (42 U.S.C. 6901 *et seq.*)
Emergency Planning and Community Right-to-Know Act of 1986 (42 U.S.C. 11001)
Pollution Prevention Act of 1990 (42 U.S.C. 13101)
Toxic Substances Control Act of 1976 (15 U.S.C. 2601 *et seq.*)
Federal Land Policy and Management Act of 1976 (43 U.S.C. 1701 *et seq.*)
Clean Water Act of 1972, as amended (33 U.S.C. 1251 *et seq.*)
Clean Air Act of 1970, as amended (42 U.S.C. 7401 *et seq.*)
Uranium Mill Tailings Radiation Control Act of 1978, as amended (42 U.S.C. 2014 *et seq.*)
Safe Drinking Water Act of 1974, as amended (42 U.S.C. 300 *et seq.*)
Nuclear Waste Policy Act of 1982 (42 U.S.C. 10101 *et seq.*)
Transportation Safety Act of 1974; Hazardous Materials Transportation Act amendments of 1976 and 1990 (49 U.S.C. 1801 *et seq.*)
Atomic Energy Act of 1954 (42 U.S.C. 2001f)
Federal Insecticide, Fungicide and Rodenticide Act of 1975 (7 U.S.C. 136 *et seq.*)
Recreation and Public Purposes Act of 1926, as amended in 1988 (43 U.S.C. 869)
Occupational Safety and Health Act of 1970 (29 U.S.C. 651 *et seq.*)
National Environmental Policy Act of 1972 (42 U.S.C. 4321)
Salmon District BLM Hazardous Materials Contingency Plan (1994).

Affected Environment

The goals of the Idaho BLM hazardous materials management program are to (a) prevent the occurrence of hazardous materials/waste incidents on public lands, (b) prevent illegal dumping of hazardous wastes on public lands, (c) ensure protection of human health and the environment when dealing with hazardous materials/wastes on public lands, and (d) minimize the generation or release of hazardous wastes and pollution on BLM public lands and BLM facilities.

The Challis Resource Area's proactive efforts to prevent hazardous waste incidents include educational and enforcement programs. As required by OSHA, all Resource Area employees annually receive a minimum 8-hour hazardous material awareness training. Employees who are more "field-work" oriented receive 24 hours of training, hazardous materials coordinators receive 40 hours of training, and employees who handle pesticides must be State certified. An 8-hour refresher course is given annually to employees with 24-hour, 40-hour, and/or pesticide certification. Public education efforts include press releases explaining the high costs of illegal dump cleanup and signing of closed dump sites. Closed dump sites are patrolled regularly; violators may be issued citations.

An inventory of sites that may contain hazardous material was implemented in 1991 and is

ongoing. The Challis Resource Area is inventorying abandoned mine sites, lease and permit sites, rights-of-way, and any other activities that may have produced a hazardous materials incident on public lands. To date, 130 sites have been inventoried for the presence of hazardous material. These sites include 78 lands-related activities (less than 1 to 400 acres; Desert Land Entries, rights-of-way, exchanges, sales), 28 unauthorized dumps (.1 to 3 acres), and 24 abandoned mines (less than 1 to 3 acres). No hazardous materials were found on the 78 lands activity sites. One of the 28 unauthorized dumps contained hazardous material. About 600 pounds of outdated pesticide and contaminated soil were removed from the site and incinerated at a certified facility at a cost of approximately $20,000. Old, unstable dynamite was discovered at one of the abandoned mine sites. An explosives expert was contracted to dispose of the old dynamite at a cost of approximately $5,000.

The Challis Resource Area has three mining districts which contain three active mines, many inactive mines and prospects, and 24 known abandoned mines. If any other mine sites exist, they are estimated to be very few. Abandoned mine sites have often been looted and very few items remain at these sites. If any contaminants are found, the typical products include explosives, fuels, and lubricants. Generally, these sites are not signed. There are no Superfund Sites within the Resource Area boundary.

The Resource Area has one active landfill lease (the City of Challis landfill). Since 1991 this site has only accepted construction debris; prior to 1991 the site accepted general household waste. Ground water contamination is an environmental threat at this site because this landfill is on non-suitable soil types (gravelly, with limited clay). However, the site is being monitored by the Idaho Department of Environmental Quality using monitoring wells.

Containment of hazardous materials on some private lands is a concern on some nearby Resource Area public lands. The BLM has no authority to contain or remove hazardous materials on private lands; however, it is possible that hazardous materials on private lands may affect resources on public lands (*e.g.*, soils, water quality).

Typical unauthorized dump which may contain hazardous materials. Cleaned up in 1993 at a cost of $10,950.

Land Tenure and Access.

Law, Regulation, and Policy

Until passage of the Federal Land Policy and Management Act (FLPMA) on October 21, 1976, there was no clear mandate for the retention or management of public lands administered by the BLM. FLPMA states that public land will remain in public ownership and be managed by the BLM under the principles of multiple use. FLPMA does, however, allow for disposal of tracts that meet criteria listed in Section 203 of the Act. These tracts must be specifically identified during the land use planning process. (For a list of sale tracts identified for potential disposal, see PRMP, Land Tenure, Goal 2, #3, p. 55 and *Attachment 17: Tracts Considered for Sale*, p. 151.) BLM authority for obtaining public access is derived primarily from Sections 202 and 205 of FLPMA (43 U.S.C. 1701, 1732; and 43 CFR 2130). BLM authority for entering into land exchanges is contained in Section 206 of FLPMA.

Under the Recreation and Public Purposes Act (R&PP) (July 25, 1979), the BLM has authority to lease or patent public land to local governments or nonprofit entities for public parks and recreation sites, building sites, schools, or other public purposes. Landfill sites are not to be leased under the R&PP Act, but may be patented under the Act.

Affected Environment

Land Status: The Challis Resource Area contains 792,566.87 surface acres of public land under BLM administration. (The BLM also administers the subsurface estates for all Federal lands.) *Table 3-6* shows surface land ownership and status within the RA, by county. No tribal lands are located within the RA boundary, although Federally recognized Indian tribes (especially the Shoshone-Bannock Tribes) have tribal treaty rights on BLM public lands within the Challis RA. These rights afford tribal members the opportunity to fish, hunt, and gather natural resources on BLM lands. The majority of power site withdrawals are along the Salmon River. State of Idaho lands include 239.70 acres owned by the IDFG and 47,192.22 acres in State School Land Grants. The land ownership pattern is primarily private lands at lower elevations and along water courses, BLM lands at mid elevations, and USFS lands at higher elevations (see *Map E: Land Ownership*).

Table 3-6: Land Status in the Challis Resource Area, in Surface Acres and Percent, by County

Ownership	Custer County		Lemhi County		Total	
	acres	percent	acres	percent	acres	percent
BLM	702,073.95	71.4	77,723.64	7.9	779,797.59	79.3
USFS	136.79	0.0	0.00	0.0	136.79	0.0
Power Site withdrawals	11,815.92	1.2	1,376.57	0.1	13,192.49	1.3
State of Idaho	43,812.15	4.5	3,621.77	0.4	47,433.92	4.8
Private	119,123.95	12.1	23,116.61	2.4	142,240.56	14.5
Totals	876,962.76	89.2	105,838.59	10.8	982,801.35	99.9*

*column does not total to 100.0 because of rounding error (percents are only rounded to tenths of a percent).

Land Use Authorizations: Land use authorizations within the Challis Resource Area include rights-of-way grants for utility systems, transportation systems, irrigation systems, and communication sites; Recreation and Public Purposes leases; and public works leases. The Automated Land and Minerals Record System (ALMARS) lists 248 rights-of-way cases in the Challis RA (ALMARS July 15, 1993). No designated right-of-way corridors are located in the RA at present.

Six communication sites are authorized in the RA (see *Map 19: Communication Sites*); each site uses approximately 10 acres. These sites have from one to three users each, for either two-way radio communication, TV translators, microwave relays, or telephone microwave.

Five Recreation and Public Purposes (R&PP) leases have been issued in the RA during the past 25 years. The Recreation and Public Purposes Act of July 25, 1979, as amended, provides guidelines and procedures for transferring certain lands under the Act to states or their political subdivisions, and to non-profit corporations and associations for recreational or public purposes. The parcels are either classified suitable or nonsuitable for the action proposed. A total of approximately 250 acres have been classified as suitable lease sites. A landfill lease to the City of Challis for the Challis facility (40 acres) was issued in 1983 for a 20 year term. In 1987 Custer County was issued a 25 year R&PP lease for a 2.5 acre fire station on Barton Flat north of Mackay. In 1981 Custer County received a 25 year R&PP lease for an 80 acre rifle range north of Challis. A lease issued to Custer County for a landfill in the Mackay area was never utilized; the lease was issued for 20 years, was relinquished in 1994, and the file closed in 1995. In 1964 the Idaho Department of Fish and Game was issued a lease for a recreation site near Ellis. The lease has been renewed twice; it expired and was relinquished in 1994.

Public works leases are issued to Federal agencies for certain activities on public lands. Two airport leases have been issued in the RA for remote airstrips (one for about 125 acres in Lemhi County, near May, Idaho; the other for about 60.00 acres in Custer County, along the Trail Creek Road between Mackay and Sun Valley, Idaho). These leases may be renewed under FLPMA when they expire.

Land Disposal and Acquisition: Land tenure adjustments are the disposal of Federal lands and/or the acquisition of private lands or interests. Historically, the primary forms of land tenure adjustment in the Challis RA are sales, R&PP patents, and exchanges pursuant to FLPMA, Sections 202, 203, 206, 207, 209, 210, and 212. Some lands have also been disposed of through desert land entry patents. The Desert Land Entry Act of March 3, 1877, as amended, provides for desert land entries on BLM public lands of the thirteen western states. The purpose of the statute is to encourage reclamation (by irrigation) of arid and semi-arid lands through individual efforts and private capital. FLPMA, as amended, stresses management of public lands rather than disposal. According to existing land use plans (MFPs), very few lands in the Challis RA meet the present criteria for disposal within the authority of the Desert Land Entry Act. Over 13,000 acres have been determined nonsuitable for disposal as Desert Land Entries.

Table 3-7 lists land tenure actions completed since the Challis (1978), Mackay (1982), and Ellis-Pahsimeroi (1983) Management Framework Plans were approved:

Table 3-7: Land Tenure Actions Since 1978

# of Actions	Type of Action	Approximate Acreage
8	desert land entry patent	306
5	public sale	86
1	mineral patent	265
4	exchanges patent	192
2	acquisition	382
1	donation	20
Total Acreage (disposal and acquisition):		**1,251**

Trespass: Unauthorized use or trespass areas have been identified, and 128 suspected or verified cases have been serialized and are pending. These trespass cases include a wide variety of unauthorized uses, such as agricultural development, irrigated pasture, occupancy, fences, illegal dumps, access roads, utility lines, and water systems. Current information on trespass cases for the RA is available through the Automated Land and Minerals Record System.

Withdrawals: *Table 3-8* summarizes the acreage withdrawn by the BLM and other agencies in the Challis RA. The narratives following the table explain the types of withdrawals.

Table 3-8: Withdrawal Status of Lands in the Challis Resource Area, by Type of Withdrawal, County, and Land Ownership
(acres withdrawn)

Action	Custer County			Lemhi County		
	BLM	State	Private	BLM	State	Private
Recreation Sites	1,286.73	-	-	164.03	-	-
Public Water Reserve	1,900.39	-	-	-	-	-
USFS Administrative Site	136.79	-	-	-	-	-
Federal Energy Regulatory Commission	884.45	-	-	-	-	-
Power Site Reservation 8	327.75	-	135.27	1,376.57	47.75	607.02
Power Site Reservation 223	8,675.81	-	1,131.86	-	-	-
Power Site Classification 17	268.10	-	-	-	-	-
Power Site Classification 169	39.64	-	160.00	-	-	-
Power Site Classification 336	2,236.79	-	40.00	-	-	-
Power Site Classification 424	267.83	-	-	-	-	-

Recreation Sites: During the process of preparing prior MFPs, the Challis RA published documentation in the *Federal Register* segregating campgrounds in the RA from acquisition by the general public under the general land and mining laws and regulations. These campground and recreation site locations and acreage are listed in *Appendix D, Item 1.*

Public Water Reserve: Public water reserve sites are spring areas set aside and maintained for public use; they cannot be patented for private use.

USFS Administrative Site: The U.S. Forest Service has acquired administration sites outside Forest Service boundaries either by fee purchase, gift, or an administrative site withdrawal from the BLM. The two USFS administrative site withdrawals within the Challis RA include the Yankee Fork Ranger Station and the Challis Ranger District office in Challis, Idaho. These sites will remain as administrative sites in perpetuity, or until relinquished.

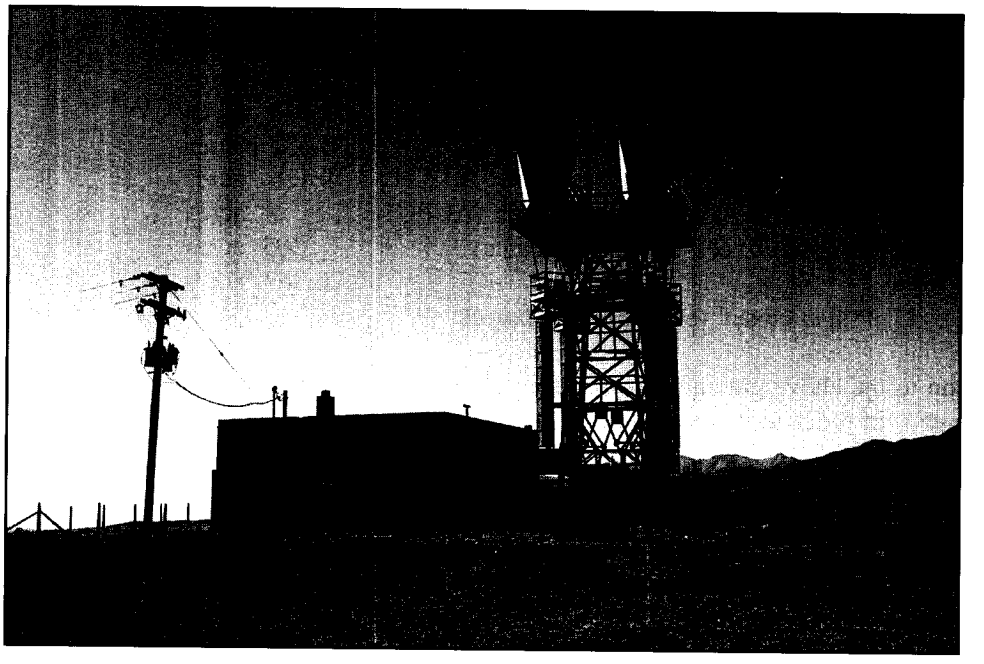
Federal Energy Regulatory Commission Withdrawal: When the Federal Energy Regulatory Commission applies for a low-head hydro-power project, the agency files a withdrawal with the appropriate BLM state office for the area affected by the project. The BLM has very little, if any, input and responds through the U.S. Forest Service or the U.S. Fish and Wildlife

Service on the environmental impacts of the project.

Power Site Reservation or Classification: Numerous withdrawals within the RA have set aside lands along the Main Salmon River and East Fork Salmon River to provide the Federal Energy Regulatory Commission with possible future sites for hydro-power projects. These power site reservations and classifications were executed by Secretarial Order in the 1920s and are in effect until each withdrawal is reviewed for validity (by order of the 1992 Federal session of Congress). Under section 204(a) of the Federal Land Policy and Management Act of 1976, the Secretary of the Interior is authorized to make, modify, extend, or revoke withdrawals. Field offices of the BLM analyze withdrawal proposals and make review recommendations to the Secretary. All power site reservation and classification withdrawals in the RA are expected to be relinquished upon review.

Access: Not all roads under BLM jurisdiction have legal access across private and State lands; however, some current land owners allow public and BLM access. *Table 3-19* in ***Chapter 3*** - Transportation, p. 274 lists the easements allowing access across private and State land to BLM public lands. These easements provide for either public use or administrative access. Approximately 99% of BLM lands in the RA are accessible by foot or vehicle across other BLM lands, U.S. Forest Service lands, or State lands. Very few tracts in the RA are isolated by private lands. The PRMP, Land Tenure, Goal 5, #1-2, p. 58, identifies the types of legal access that would be needed to ensure public access.

Additional information on transportation facilities which provide access to BLM lands is provided in ***Chapter 3*** - Transportation on pp. 272-275.



Land Use Authorization - Communication Site

Livestock Grazing.

Law, Regulation, and Policy

The principal authorities for livestock grazing on public land are the Taylor Grazing Act of 1934, as amended (43 U.S.C. 315 (a)-(r)) and the Federal Land Policy and Management Act of 1976 (43 U.S.C. 1701 *et seq.*) as amended by the Public Rangelands Improvement Act of 1978 (43 U.S.C. 1901 *et seq.*). Grazing regulations are found in 43 CFR 4100. *State of the Public Rangelands* (BLM 1990), a national strategic planning document for BLM rangelands, identifies the following objectives: (a) Achieve late seral to potential natural community stage on 75% of BLM riparian areas by 1997; (b) increase the area in late seral to potential natural community stage to 40% (68 million acres) by 2009; and (c) reduce the area in early seral stage to 10% (17 million acres) by 2009. Livestock grazing in the Challis Resource Area was analyzed in the Final Supplemental Environmental Statement-Revised Range Management Program for the Challis Grazing Unit (1979), the Ellis-Pahsimeroi Final Grazing Environmental Impact Statement (1982), and the Big Lost-Mackay Grazing Final Environmental Impact Statement (1983).

Affected Environment

Approximately 771,224 acres (97.3%) of the 792,567 acres of BLM-administered public lands in the Challis Resource Area are currently allocated for livestock grazing. The area allocated for livestock grazing is divided into 62 grazing allotments for administrative purposes (see *Map B: Allotment Boundaries*). Currently, the following areas are closed to livestock grazing:

Cronk's Canyon Bighorn Sheep Pasture	1,496	acres
Morgan Creek Bighorn Sheep Pasture	3,642	acres
Bruno Creek Allotment (mining)	2,378	acres
Sand Hollow Area (watershed)*	3,332	acres
Malm Gulch Area (watershed)*	9,136	acres
East Fork Salmon River Bench (ACEC)	78	acres
Summit Creek exclosure (plants)	305	acres
	20,367	acres

*also closed to wild horses/burros

In addition to the above grazing closures, the following areas have restrictions on livestock water development, in order to protect wildlife habitat:

Garden Creek and Bayhorse Allotments (bighorn sheep)	1,000	acres
Eastfork Allotment (bighorn sheep)	4,493	acres
Spud Creek Allotment (bighorn sheep)	297	acres
Willow Creek Allotment (elk)	2,200	acres
	7,990	acres

Approximately 84 livestock operators have permits to graze their livestock on public lands within

the Resource Area. Each allotment has a specific area and season of use, class of livestock permitted, and established grazing preference. Allotments are placed into one of three categories for priority of management and expenditure of range betterment funds, with 30 allotments in the improve (I) category, 25 in the maintain (M) category, and 7 in the custodial (C) category (see *Appendix F, Item 2*, and *Glossary* definition: allotment categorization).

The majority of livestock use within the Resource Area consists of cow/calf operations, with a few yearling operations. A few permittees graze sheep (4 permits for 3,700 sheep and 3,056 AUMs in 5 allotments), and some graze horses, primarily as a part of their livestock operations. The season of use varies by area. Much of the Resource Area consists of BLM land situated on foothills above privately owned valley bottoms, adjacent to National Forest lands which are mostly forested high country. Most of the allotments in the Pahsimeroi Valley and the Mackay area fall into this category. These allotments are primarily used for spring and fall use before and after summer grazing on the adjacent National Forests. Several allotments in the middle of the Pahsimeroi Valley and the areas around Challis are used for season-long grazing, beginning around May 15 and running as late as November 15. Winter use is rare, with only 3 allotments permitted for winter use. Due to the land ownership pattern within Lemhi and Custer counties, livestock permittees are very dependent on public range for summer grazing. A very limited amount of private land is available for hay production, and livestock are typically off hay croplands during the summer months (when hay is being produced).

Allotment Management Plans

Livestock grazing in 40 of the 62 allotments is managed under the terms and conditions of an Allotment Management Plan (AMP). Each AMP contains management objectives for the allotment, prescribes the manner and extent of grazing allowed, describes range improvements necessary to implement grazing practices, and details a monitoring system to determine whether the objectives are being met. Grazing systems vary from a simple seasonal system to complex multi-pasture systems involving rest, deferment, and rotation among many pastures. *Table 3-9: Grazing Systems on AMP Allotments* describes the category, grazing system, and season of use for each allotment with an AMP.

The resource objectives detailed in the 40 AMPs follow goals and objectives stated in the Challis, Ellis-Pahsimeroi, and Mackay grazing Final Environmental Impact Statements (EISs). Normally, AMPs are evaluated periodically and revised as necessary, to ensure they continue to meet land use plan goals and objectives. In the Challis Resource Area AMPs have been revised at the rate of about 1 to 2 per year. Many AMPs were completed in the early 1980s, before amendments to the Clean Water Act, listing of the sockeye salmon as endangered and the chinook salmon and steelhead trout as threatened, and the current emphasis on riparian improvement. In order to address these concerns, most of the existing AMPs guiding livestock management on 40 allotments within the Challis Resource Area would be revised (see PRMP, Livestock Grazing, Goal 1, #4, p. 60).

Table 3-9: Grazing Systems on AMP Allotments

Allotment Number/Name	Category[1]	Grazing System[2,3]	Season of Use[3]
4409 Allison Creek	M	1S; 2DR; 3RR; 2DR	5/1-10/31
4410 Hat Creek	I	4 Area DR	5/10-6/25;10/11-10/28
4411 Morgan Creek	I	3 Pasture RR	5/1-5/30; 11/1-12/30
4412 Lawson Creek	M	Seasonal	5/1-6/15; 10/7-10/16
4502 Spud Creek	I	3 Pasture DR w/USFS	5/8-7/15
4504 Hamilton	I	2 Pasture DR	5/11-7/10
4505 Mahogany Creek	M	3 Pasture DR	5/10-9/30
4506 Patterson Creek	I	1 Pasture Seasonal	5/1-6/6
4508 Meadow Creek	M	4 Pasture DR w/USFS	5/6-6/5
4509 Countyline	I	3 Pasture DR	5/5-6/15
4513 Bear Creek	M	5 Pasture DR	5/16-9/30;11/1-11/30
4518 Rock Creek	M	4 Pasture DR w/USFS	6/1-10/15
5601 Round Valley	M	2 Pasture DR	5/15-9/14
5602 Garden Creek	M	3 Pasture RR	5/15-6/22
5603 Warm Springs	I	3 DR; 2-2 DR; 1Trail	5/15-10/31;12/16-1/15
5604 Squaw Creek	M	3 Pasture DR	5/21-6/15;10/1-10/15
5605 Eastfork	I	3 Pasture RR	5/21-6/10
5606 Bayhorse	I	2 Pasture RR	5/15-7/15
5607 Bald Mountain	M	1 Fall; 2 Past RR	5/15-7/15;10/1-10/15
5608 Bradshaw Basin	M	4 Pasture DRR	5/15-7/15
5609 Bradbury Flat	I	2 Pasture RR	5/16-9/27
5610 Mtn Spgs. (San Felipe)	I	5DR;7RR	5/21-11/15
5611 Road Creek	M	2 Pasture RDR	5/16-10/8
5612 Herd Creek	I	3 Pasture RR w/ USFS	6/15-10/31
5613 Stanley Basin Trail	C	Trailing Use Only	Trailing Use Only
5615 Challis Creek	M	4 Pasture RR w/USFS	5/15-9/15
5616 Lime Creek	C	5 Pasture RR w/USFS	5/15-10/15
5617 Pennal Gulch	I	2 Pasture DR	5/15-9/12
5618 Spud Creek	M	2 Pasture DR; 1S	5/10-7/12
5609 Thompson Creek	I	4 Pasture RR w/USFS	5/25-10/15
5621 Pine Creek	M	2 Pasture DR	6/5-7/18
5622 Sullivan Creek	C	2 Area DR w/ USFS	5/11-8/30; 10/1-10/15
5623 French Creek	C	Seasonal w/ rotation	unallotted
5624 Split Hoof	M	2 Pasture DR	5/15-6/15
5701 Arentson Gulch	M	6 Pasture DR w/USFS	5/20-9/25
5702 Dickey	M	5 Pasture DR w/USFS	5/18-9/30
5703 Whiskey Springs	I	3 Pasture RR	5/10-7/8; 10/1-10/10
5704 Mackay	I	Seasonal	5/1-12/15
5709 Wildhorse	I	2 Pasture DR	5/7-7/8
5712 Thousand Springs	I	1S; 2RR; 1DR	5/1-7/9; 11/11-12/25

[1] Categories: M = maintain, I = improve, C = custodial (see *Glossary*: allotment categorization, p. 166).

[2] S = seasonal, RDR = rest-deferred rotation, DR = deferred rotation, RR = rest rotation (see *Glossary*: grazing system, p. 173); w/ USFS = AMP is jointly managed with the Forest Service, and the number of pastures includes USFS pastures; trail = trailing use pasture

[3] Grazing System and Season of Use were taken directly from AMPs and may not exactly match grazing permit dates.

Forage Allocation

The current active preference within the Challis Resource Area is 51,069 AUMs, with an additional 3,872 AUMs of suspended preference (see *Glossary* definition: grazing preference). *Appendix F, Item 1: Allotment Summary*, pp. 644-645, shows the current preference for each allotment, in addition to other allotment information (permit class (cattle, horse, or sheep), acres, category, season of use, date AMP was approved (if an AMP exists), and number of permittees). When the Ellis-Pahsimeroi, Challis, and Mackay grazing EISs were prepared, they were preceded by a vegetative inventory to allocate forage among users. The inventory determined the average total annual production of vegetation. A factor was used to provide for plant maintenance and watershed protection, and the remaining vegetation was considered forage available for allocation to consumptive users, including livestock, wild horses, and wildlife. The inventory for all EIS areas showed a total livestock grazing capacity of 42,734 AUMs. After balancing the needs of all users, BLM planning established an initial livestock carrying capacity of 44,825 AUMs. Due to installation of range improvements and a number of other factors, the current grazing preference is 51,069 AUMs. For further information on livestock grazing allocations, see the Challis Rangeland Program Summary (RPS) update (1985), the Ellis-Pahsimeroi RPS update (1987), and the Mackay RPS update (1988).

From 1979 to 1990, an average of 43,769 livestock AUMs have been used annually. The amount of livestock preference that is actually used each year varies, based on climatic conditions, livestock markets, individual ranch considerations, and so forth. In some years, good growing conditions provide extra forage production. Livestock permittees can apply for extra use above their recognized grazing preference under provisions of the Federal grazing regulations. Permittees can also apply for additional use above their preference if other permittees cannot use their full preference. In other years drought conditions, fire, insects, or other causes provide less forage production than normal years. Under these conditions permittees sometimes use less forage than their preference by reducing the number of livestock they turn out onto public range, shortening the grazing season, or both.

The condition and trend of rangeland vegetation are directly related to management of the livestock, wild horses, and wildlife that utilize forage. Livestock management especially affects rangeland condition and trend, since the majority of allocated forage (51,069 AUMs) is allocated to livestock grazing, compared to only 3,795 AUMs allocated to wild horses and 10,425 AUMs allocated to big game. The remainder of vegetative biomass (approximately one-half) is left for watershed protection, plant maintenance, and other non-consumptive uses.

Rangeland Inventory

Rangeland vegetation in the Challis Resource Area is primarily shrub-grassland, with bluebunch wheatgrass and Idaho fescue as the primary forage species. A complete description of upland vegetation is provided in ***Chapter 3*** - Vegetation, pp. 278-296.

The ecological status of public rangelands in the Challis Planning Unit was inventoried in 1977 using the Ecological Site Inventory (ESI) methodology. The Ellis-Pahsimeroi Planning Unit was

inventoried in 1979 using the Soil-Vegetative Inventory Method (SVIM), and the Mackay Planning Unit was inventoried in 1981 using the SVIM. The findings of those inventory methods are summarized by allotment category in *Table 3-10* below, and by allotment in *Appendix F, Item 2: Range Condition Summary by Allotment*, pp. 646-647. Range condition for the Resource Area is also shown on *Map F*. The figures in *Table 3-10* below include only BLM public lands and have been adjusted from the original inventories to account for the Donkey Hills State land exchange (8,480 acres of BLM land exchanged for 8,716.12 acres of State land) and other allotment boundary changes that have taken place since the original inventories.

These vegetative inventories vary from 15 to 19 years old, and many changes have occurred in livestock management and resource conditions since the inventories were completed. Livestock grazing management has been much more intensive on most grazing allotments in the years since the inventories were done. Many range improvement projects have been constructed to improve livestock distribution and improve riparian and upland conditions. The positive impacts of these actions may have been offset by several years of back-to-back drought in the late 1980s. Vegetative inventories such as these are extremely expensive and take several years to complete, analyze, and interpret. Therefore, it was determined that these inventories are sufficient for the purposes they will be used for in the Challis RMP, and it was not necessary to update them for the RMP. An inventory for the Mountain Springs (San Felipe) allotment was redone during the course of RMP preparation to address specific management concerns within that allotment; results of this updated inventory are reflected in *Table 3-10* and *Appendix F, Item 2*.

Table 3-10: Ecological Status[1] of the Challis Resource Area by Management Category

Mgmt. Category[2]	# Allot-ments	PNC[3] (acres)	Late Seral (acres)	Mid Seral (acres)	Early Seral (acres)	Unclassified (acres)	TOTAL (acres)
M	25	2,126	72,006	75,245	37,099	27,548	214,024
I	30	25,539	184,400	192,259	87,700	37,618	527,516
C	7	0	2,088	3,503	696	2,505	8,792
None	n/a	550	7,367	6,271	3,138	24,909	42,235
TOTALS	62	28,215	265,861	277,278	128,633	92,580	792,567
% totals		3.6	33.5	35.0	16.2	11.7	
Totals from prior inventories (1979-1981))	62	5,971	220,198	304,598	169,102	92,693	792,567
% totals		0.8	27.8	38.4	21.3	11.7	

[1]See *Glossary*: ecological status, p. 170.
[2]Management categories: M = maintain, I = improve, C = custodial (see *Glossary*: allotment categorization, p. 166).
[3]PNC = potential natural community (see *Glossary*, p. 179).

These vegetative inventories were designed to determine the ecological status of upland vegetation and were not of sufficient detail to map or inventory the status of riparian zones. However, inventories conducted from 1994 through 1995, and observations made since 1995 indicate riparian zones throughout the Resource Area are in the following functional condition (also see PRMP, *Attachment 1: Riparian-Wetland Area Function Classification,* pp. 101-102):

Functional	487.0	acres
Functional-at-risk	757.7	acres
Non-functional	115.7	acres
Total Riparian Habitat:	1,360.4	acres

Rangeland Monitoring and Evaluation

The BLM conducts rangeland monitoring to determine whether land use plan objectives (such as those in the Challis, Ellis-Pahsimeroi, and Mackay MFPs) are being met. Some of the monitoring methods used by the BLM include trend, utilization, cover, climate, actual use, and photographs. These monitoring studies are read on a periodic basis, with the frequency of re-reading depending on such things as the land use plan objectives being monitored and how rapidly a change in conditions can be expected to occur.

In March, 1992, BLM staff evaluated monitoring data from 59 allotments in the Resource Area in order to determine current rangeland trend. Data evaluated included close-up and general aspect photographs of 3' x 3' photoplots, and nested frequency data when available. Seventy-six (76) studies were inconclusive due to insufficient data, 3 studies showed downward trend, 35 showed static trend, and 6 showed an upward trend. Five of the upward trend allotments were attributed to reduced wild horse numbers and one was attributed to livestock non-use. These data seemed to indicate that management applied up to 1992 did not meet existing land use plan objectives to *improve* range condition in the Resource Area. Four reasons may have accounted for this lack of improvement: (a) grazing systems may not have been fully implemented as planned, (b) overstocking, (c) seasons of use that are incompatible with improving the vigor of desired species and (d) insufficient grazing management changes in response to drought conditions.

a) Allotments with an AMP are to be managed under the grazing system described in the AMP. However, permittee compliance with grazing systems varies by allotment. On some AMP allotments the range improvements needed to fully implement grazing systems were not constructed due to insufficient funding or because of Wilderness Study Area constraints. Grazing systems on other AMP allotments have proven to be more difficult to implement than planned when the AMP was written.

b) Under existing management, stocking levels on several allotments are above the capacity defined in the latest range survey. Fourteen allotments (Allison Creek, Mahogany Creek, Burnt Creek, Garden Creek, Bayhorse, Challis Creek, Warm Springs, Squaw Creek, Eastfork, Bald Mountain, Bradshaw Basin, Bradbury Flat, Mountain Springs (San Felipe), and Split Hoof) currently have grazing preference more than 30% over the inventoried

grazing capacity. Utilization levels on many allotments within the Resource Area have been periodically measured above the 50% limit prescribed by the land use plans. Even the livestock grazing capacity defined in the Challis Planning Unit EIS (based on the 1977 inventory) may be above the true capacity of the range; suitability criteria were essentially eliminated from the draft proposed action because the recommended stocking level decreases were considered too great a financial hardship for the permittees.

c) Season-of-use in the Resource Area is generally May through October (see *Appendix F, Item 1: Allotment Summary*, pp. 644-645). Nearly all allotments are used during the most critical growing season of May through June. Research has shown that continued heavy use of the key grass species bluebunch wheatgrass will result in declined vigor and eventual mortality of this species. Furthermore, rest from use for one or two years has not been shown to be effective in countering the negative effects of heavy grazing during the used year (Anderson 1991).

d) Drought and other climate-related impacts hindered perennial plant production, vigor, and seedling development on upland range sites. Appropriate responses to drought (such as lower stocking rates, shorter seasons of use, more frequent rest of pastures, and adjusting herd sizes for the lesser amounts of surface water available due to low stream flows and dry springs and seeps) were not always implemented in a timely manner, or in a fashion commensurate with the severity of the drought.

Big game populations have increased during the past 15 years, and some persons attribute poor range condition to increased use by wildlife. Although big game use may have an impact in localized areas, far fewer wildlife utilize the range than do livestock (10,425 AUMs for wildlife, versus 51,079 AUMs for livestock). Big game also use areas that are not considered suitable for livestock (*e.g.*, steep slopes).

Starting in about 1993, livestock grazing management on 14 allotments was modified due to the ESA listing of chinook and sockeye salmon. The improved grazing management resulted in observable improvement in resource conditions. During the past three years (1995-1997) the BLM has performed monitoring and data analysis on an average of 25 allotments each year. Many of the same allotments are evaluated from year to year. The magnitude and extent of data collected varies from one key area or photo point, usually located in smaller allotments, to ten or more key areas and/or studies locations within several pastures of larger allotments.

The type of data collected (besides climate and actual use) includes upland utilization and use pattern mapping, riparian vegetation stubble heights, photo points, riparian greenline trend, nested frequency (upland) trend, woody age structure, woody use, bank stability, and various other aquatic habitat parameters.

Of thirty-eight (38) studies re-read since 1992, 32% of the studies revealed an upward trend, 37% were static, and 26% showed a downward trend. The remainder (5%) were initial readings or relocated studies from which trend could not be determined.

Rangeland Improvements

To facilitate the management of livestock and allow for protection of public rangelands, a number of rangeland improvements have been installed. These include nonstructural range improvements such as seedings, prescribed burns, herbicide spraying to reduce shrubs, and chaining, as well as structural range improvements such as fences, reservoirs, spring developments, pipelines, and cattleguards. The following priority has generally been followed for construction of range improvements: (1) maintain or reconstruct existing projects, (2) complete projects needed to fully implement existing AMPs, and (3) initiate projects and treatments needed to implement new AMPs. The priority for funding new range improvements has been based on the allotment categorization process explained in the *Glossary* definition: allotment categorization, p. 166. Existing range improvements within the Resource Area are shown in *Table 3-11* (source: Rangeland Improvement Projects System, Challis RA, January 1992).

Table 3-11: Summary of Existing Range Improvements

Type of Range Improvement	Number of Improvements	Total Size of Improvements
Seeding	27	20,470 acres
Spraying	6	9,166.2 acres
Prescribed burns	14	3,384 acres
Chaining	2	520 acres
Fences	222	514.1 miles
Spring developments	190	--
Pipelines	132	190.5 miles
Reservoirs/waterholes	162	--
Detention dams	6	99,748 cu. yd.
Dikes/diversions	3	17,200 linear ft.
Earthen check dams	5	1,807 cu. yd.
Wells	2	--
Cattleguards	105	--
Exclosures	25	--
Wildlife guzzlers	13	--
Other (bridges, trails)	13	--

The current condition of these range improvements varies greatly. Generally, structural range improvements are maintained by grazing permittees or others under cooperative agreement with the BLM. Nonstructural improvements and wildlife projects (such as guzzlers and some exclosures) are maintained by the BLM. Although permittees are required to maintain range improvements under the terms and conditions of their grazing permits and the cooperative agreements authorizing the range improvements, the range improvements are often not maintained to BLM standards. Because of personnel limitations, the BLM cannot adequately assess the maintenance status of all improvements.

Vegetation manipulations such as seeding, burning, and chaining (for shrub control) have been implemented primarily to increase forage for livestock. Chaining has not been used for over 10 years, has been demonstrated to be of limited effectiveness, and will probably not be used in the future. Although prescribed burns, seeding, and spraying projects can temporarily increase forage for livestock by releasing grasses from competition with shrubs, BLM monitoring data suggest that re-establishment of target shrub species can take place within 10 to 12 years under existing levels of use, depending on climate and management. Generally, the treated area requires 2 to 3 growing seasons of rest after treatment. Thus, the net benefit of these more expensive treatments is variable.

Factors Affecting Livestock Management

The following four factors currently affect, and may constrain, livestock management in the Challis Resource Area.

Ecological Status Goals: The goals stated in the Ellis-Pahsimeroi, Mackay, and Challis grazing EISs to improve ecological status have not been met to date. Riparian condition and function assessments made by Challis Resource Area staff indicate some riparian zones throughout the Resource Area are below functioning condition. Due to the topography of the Resource Area, with perennial or intermittent streams adjacent to steep, often deeply dissected canyons and valleys, livestock use tends to congregate in riparian zones unless intensively managed. Development and revision of AMPs to correct intensive livestock use of riparian areas is ongoing. However, due to very limited budgets, progress is very slow, and the riparian resource continues to function below its potential. In many parts of the Resource Area, the riparian resource has sustained damage that may take years of intensive management to rectify.

Range Suitability Criteria: As the draft Challis, Ellis-Pahsimeroi, and Mackay grazing EISs were prepared, they all contained criteria for range suitability. (Suitability for grazing takes into account such things as slope and distance from water and/or site productivity. See Glossary: suitable ranges, p. 183.) For a variety of reasons, the suitability criteria were not used in the final Ellis-Pahsimeroi and Mackay grazing EISs. Suitability is still a valid range concept and maps are available for each planning unit in the Resource Area. Since the current grazing preferences will be used for the RMP without adjustment for factors such as suitability, suitability criteria will probably be most useful in targeting areas where review of the stocking rate may be appropriate and/or to identify physical barriers to livestock movement.

Noxious Weeds: As noxious weeds spread, they displace forage suitable for livestock. Current inventories show that noxious weeds continue to spread within the Resource Area, especially adjacent to major and secondary roadways and along the Salmon River (infestations are generally associated with vehicle traffic and/or ground disturbing practices). Custer County and the BLM currently provide educational information to the public concerning the spread of exotic species within the Resource Area. Of particular concern are spotted knapweed (*Centauria maculosa*) and leafy spurge (*Euphorbia esula*). For a further description of noxious weeds in the Resource Area, see related sections of ***Chapter 3*** - Vegetation, pp. 278-296.

Allotment Size and Shape: Due to their topography, shape, and/or small size, some grazing allotments are difficult to manage to meet land use plan goals and objectives. For example, some allotments are too small to divide into pastures to manage riparian areas or other special management areas. In order to meet RMP objectives, livestock may need to be removed from the allotment for a period of time, because there is no alternative pasture to place them in temporarily.

Minerals - Locatable, Saleable, and Leasable.

Law, Regulation, and Policy

Locatable Minerals: Locatable mineral development on BLM-managed public lands is subject to 43 CFR 3809 regulations authorized by FLPMA (43 USC 1731) and the General Mining Law of 1872 (17 Stat. 91). Three types of development are recognized: casual use, notice level, and plan of operations level. Casual use level operations are those activities which cause no or minimal surface disturbance (such as staking and work with hand tools). Operations in excess of casual use are required to file a "Notice" to the BLM at least 15 days prior to the start of operations. The BLM does not approve or disapprove a properly submitted Notice, but merely reviews the Notice and informs the miner how to avoid "unnecessary or undue degradation" of the public lands and resources. Mining operations which require plans of operations are: surface disturbance in excess of five acres, non-casual use operations on special category lands (see PRMP, *Attachment 5: Standard Operating Procedures* - Minerals, #6, p. 110), and non-complying miners operating under a Notice. The filing of a plan of operations requires that the BLM prepare an environmental assessment prior to the start of mining. Mitigation measures and reclamation bonding are often required as part of plan approval. All operations are required to prevent unnecessary and undue degradation of the public lands and resources and to abide by all applicable Federal, State, and local laws and regulations.

Saleable Minerals: The Materials Act of 1947 (61 Stat. 681), further defined by 43 CFR 3600, authorizes discretionary disposal by sale of certain common variety minerals such as sand and gravel, stone, clay, pumice, and volcanic cinders from BLM public lands and the Federal mineral estate. The designation of a community pit site constitutes a superior right to remove the material against any subsequent claim or entry of the lands (43 CFR 3604.1b). These mineral materials are sold at fair market value. Free use of these minerals can be permitted for noncommercial use

by government and nonprofit agencies.

Leasable Minerals: The Mineral Leasing Act of 1920 (41 Stat. 437) makes deposits of coal, oil and gas, sodium, phosphate, and oil shale subject to a leasing system. The Mineral Leasing Act specifies rental and royalty rates, lease size, and terms for each leasable mineral, and requires prospecting permits and competitive bidding for certain deposits. Leasing of minerals under this act is discretionary, and the Secretary of Interior is given broad discretion in granting leases and permits. Federal regulations 43 CFR 3100 regulate oil and gas leasing, the type of mineral leasing most likely to be permitted in the Challis Resource Area.

Affected Environment

Locatable Minerals

Under current management, the Federal mineral estate within the Challis Resource Area is open to mineral entry, except for recreation sites (1,450.76 acres) withdrawn or otherwise segregated from mineral entry (see *Appendix D, Item 1,* pp. 636-637). Implementation of the Clean Water Act and legislation protecting cultural resources or threatened or endangered species may impose additional restrictions on surface disturbing activities on a case-by-case basis, including exploration for and mining of locatable minerals. Locatable mineral resource occurrence is summarized below, shown on *Map 30: Locatable Mineral Land Classification,* and described in detail in *Appendix G, Item 1,* pp. 648-651. Minerals extracted or identified in the past include tungsten, molybdenum, silver, copper, lead, barite, opaline material, and uranium. Current locatable mineral production in the RA is limited to the Thompson Creek molybdenum mine in the extreme western part of the Bayhorse Mining District, and a very small decorative stone operation (uncommon variety of stone) near the mouth of the East Fork Salmon River. Employment at the Thompson Creek mine has been variable; approximately 180 people are currently employed. The mine's facilities are designed to process up to 25,000 tons of ore daily. Approximately 1,000 active mining claims are located in the RA; these claims generate a variable amount of exploration and development activity.

Pahsimeroi Valley and the Ellis Area: Geologically, the area is underlain by a faulted and fractured sequence of sedimentary and metamorphic rocks of Precambrian and Paleozoic age. The Precambrian rocks are made up of the Belt Series quartzites, which were all formed by metamorphism of sandstones and shales. Bedded marine sedimentary rocks of Paleozoic age (limestones, sandstones, and argillites) overlay the Precambrian Belt Series formation. Felsic tuffs, lavas, and ash of the Challis volcanics overlay the older rock sequences.

Challis Area: Geologically, this area is underlain by a faulted and folded sequence of sedimentary and metamorphic rocks of Paleozoic age intruded by granitic outlines of the Idaho Batholith of late Mesozoic age. Felsic tuff, lava, and ash of the Challis volcanics cover older rocks in the area. Most of the ore deposits discovered since the 1870s consist of vein or replacement type deposits in the bedded Paleozoic rocks, with the exception of molybdenum, which is most abundant in a granitic stock.

The Bayhorse and Boulder Creek Mining Districts cover much of the area west of the Salmon River between Challis and Clayton, Idaho. However, no production from the Boulder Creek Mining District occurred on BLM lands. The Bayhorse Mining District has realized $5,587.3 million in gold, silver, copper, lead, zinc, molybdenum, and tungsten production since inception of mining in the 1800s (USDI Bureau of Mines 1988).

Locatable mineral resources are known to occur in nine areas around Challis, Idaho. Locatable minerals produced or identified in the Challis area include tungsten, molybdenum, lead, silver, zinc, copper, cadmium, fluorite, and gold.

Mackay Area: Geologically, the area is underlain by a faulted and fractured sequence of sedimentary and metamorphic rocks of Precambrian and Paleozoic age. The Precambrian rocks are made up of the Belt Series quartzites, which were all formed by metamorphism of sandstones and shales. Bedded marine sedimentary rocks (limestones, sandstones, and argillites) of Paleozoic age overlay the Precambrian Belt Series formations. Felsic tuffs, lavas, and ash of the Challis volcanics overlay the older rock sequences.

Locatable mineral resources are known to occur in two areas, both within the Alder Creek Mining District which lies west of the town of Mackay, Idaho. Over $16,286.8 million in gold, silver, copper, lead, zinc, iron, and tungsten has been produced from this area (USDI Bureau of Mines 1988). Two additional areas have received active exploration and are located northwest of Mackay. Delineated areas are considered potentially valuable for locatable mineral resources.

Saleable Minerals:

Stream sands and gravels, alluvial fan material, and talus material make up the saleable material resources in the Challis Resource Area. State and county road departments and independent contractors depend in part on saleable materials supplied from community pits located on BLM public lands. However, the annual quantities of the material sold are relatively small (approximately 50,000 cubic yards annually). Thirteen materials sites are located in the Challis Resource Area. The location of these sites, along with the general distribution of mineral material resources, is shown on *Map 37: Saleable Minerals Land Classification.* The sites are further described in *Appendix G, Item 1,* pp. 648-651.

Leasable Minerals:

This discussion of the affected environment for oil, gas, and geothermal minerals is based upon reports submitted in March 1992 for the Challis RMP by Steve Moore and Robert Mallis of the BLM - Idaho State Office (see Planning Record). Fluid energy leasable mineral resources in the RA include oil, natural gas, and geothermal resources. There are no known deposits of non-energy (solid) leasable minerals (coal, oil shale, phosphate, sodium, potassium, sulphur, or gilsonite). Some minor economic benefits are derived from exploration for leasable mineral resources in the RA.

Oil and Natural Gas: Most lands within the Challis Resource Area are underlain by a thick sequence of bedded marine sedimentary rocks of Paleozoic age, overlain in part by felsic tuffs, lavas, and ash of the Challis volcanics of Tertiary age. Paleozoic sediments of similar lithology have produced petroleum and natural gas in other areas of the country. Paleozoic rocks located west of the Salmon River and East Fork Salmon River have been altered, deformed, and intruded by igneous rocks, which could have destroyed any hydrocarbon reservoirs which may have existed.

Most of the Challis Resource Area and adjacent region have low potential for the discovery of petroleum resources (see *Map 34: Oil and Gas Potential*). While thrust-faulted, thick sequences of Paleozoic marine strata exist, source rocks are thermally overmature. In the 1970s and 1980s the east-central Idaho region (as well as much of Idaho) experienced a relatively high number of non-competitive oil and gas lease applications. The motivation for this surge of speculation is varied, but is usually associated with the fervor of oil and gas exploration during the late 1970s to early 1980s in the Overthrust Belt in Wyoming. Since the early 1980s oil and gas leasing activity has declined to virtually zero in the area as well as the remainder of Idaho. A high level of oil and gas leasing activity is not expected in the Challis Resource Area in the near future.

The drilling operation closest to the Challis Resource Area includes a well with a total depth of 6,700 feet in the Lemhi Valley to the east. A stratigraphic test well with a total depth of 3,600 feet, located over 20 miles south of the RA, did not reveal any evidence that would suggest a significant potential for oil and gas deposits.

Geothermal Resources: The geothermal potential of the Challis Resource Area is rated as low, except for the immediate areas surrounding known hot springs and wells (see *Map 26: Geothermal Potential*). Six thermal springs and one thermal well are located in the Challis Resource Area. The surface temperatures of these springs and the well range from 28° C to 46° C. Available geothermometry of thermal springs in the area indicate that subsurface temperatures are less than 100° C. Thermal springs in the area generally are low in dissolved solids and have high pH. Geothermal resources having temperatures 100° C or less are suitable for limited direct use applications such as spaceheating, greenhouse operation, and aquaculture. The only known uses of geothermal resources in the Challis Resource Area at present are for recreation and fish-farming. No geothermal lease applications have ever been received and no geothermal leases have ever been authorized on lands within the Challis Resource Area.

Paleontological Resources.

Law, Regulation, and Policy

Legislative, regulatory, and policy direction for the management of paleontological resources is not extensive, but general direction is provided by NEPA and FLPMA. Regulations for paleontology are being restructured to bring them together in a single section that covers the rules for collecting plant, invertebrate, and vertebrate fossils. Bureau policy on issuing Paleontological Resource Use permits was issued in late 1994 (WO IM-95-51); policy on mitigation and planning standards was issued in 1996 (WO IM-96-67). NEPA and FLPMA require that paleontological resources be given full consideration in the environmental assessment and planning process, and allow for the issuance of permits to manage the collection of scientifically significant resources such as vertebrate fossils.

Affected Environment

The Challis Resource Area demonstrates a wide variety of geological formations which are of fossil-bearing nature, although only a limited number of localities have been identified. Paleontology areas of special note are further described in *Appendix H, Item 1,* p. 642. A formal inventory of paleontological resources has not been conducted in the RA, and the supply of fossil remains is therefore unknown. The potential for discovery of additional paleontological resources is moderate, given the geologic nature of the RA.

Erosional processes, fossil collecting, and off-highway vehicle activity are detrimental to known paleontological resources, resulting in a degraded condition and downward trend. Significant removal of material by collectors is documented at one well-known site. The Challis Resource Area attempts to protect or mitigate impacts on known or discovered values.

Collecting, research and scientific studies, educational use, and visitation/viewing of paleontological resources are the major demands on these values. However, demand for these resources in the Challis RA appears to be low, based on issued permits and tourist requests. There are no data to determine the amount of unauthorized collecting and subsequent sale of material from the RA.

Fossilized tree stump in the Challis Resource Area

Recreation Opportunities, Visitor Use, and Off-highway Vehicle Use.

Law, Regulation, and Policy

The more significant authorities for management of the BLM's outdoor recreation program include the following:

Federal Land Policy and Management Act of 1976 (43 U.S.C. 1701-1782)
Land and Water Conservation Fund Act, as amended (16 U.S.C. 4601-4604)
National Trails System Act (16 U.S.C. 1241-1249)
National Wild and Scenic Rivers Act (16 U.S.C. 1278-1287)
National Parks and Recreation Act of 1978 (16 U.S.C. 1242-1243)
Federal Cave Resource Protection Act of 1988 (P.L. 100-691)
Wilderness Act of 1964 (16 U.S.C. 1131)
Recreation and Public Purposes Act of 1926 (43 U.S.C. 869 *et seq.*)
Federal Water Projects Recreation Act (16 U.S.C. 4601 *et seq.*)
Clear Water Act of 1977.
Executive Order 11644, Use of Off-Road Vehicles on Public Lands (37 FR 2877; Feb. 9, 1977)
Executive Order 11989, Off-Road Vehicles on Public Lands (42 FR 26959; May 25, 1977)
Upper Salmon River Recreation Area Management Plan (1986)
Mackay Reservoir Recreation Area Management Plan (1984)
Salmon District Recreation Marketing Plan (1993).

Major authorities pertaining to off-highway vehicle (OHV) use on public lands consist of these acts and executive orders:

National Trails System Act (16 U.S.C. 1241-1249)
Federal Land Policy and Management Act of 1976 (43 U.S.C. 1701 *et seq.*)
Taylor Grazing Act (43 U.S.C. 315a)
Endangered Species Act (16 U.S.C. 1531 *et seq.*)
Wild and Scenic Rivers Act (16 U.S.C. 1281c)
Act of September 15, 1960 as amended (16 U.S.C. 670 *et seq.*)
Land and Water Conservation Act (16 U.S.C. 1241 *et seq.*)
Executive Order 11644, Use of Off-Road Vehicles on Public Lands (37 FR 2877; Feb. 9, 1977),
Executive Order 11989, Off-Road Vehicles on Public Lands (42 FR 26959h; May 25, 1977).

Three OHV plans designate use throughout the Challis RA:

The Interim Management Plan for Off-Road Vehicle Use in the Challis Planning Unit (1982)
The Interim Management Plan for Off-Road Vehicle Use in the Pahsimeroi Planning Unit (1983)
The Management Plan for Off-Road Vehicle Use in the Mackay Planning Unit (1984).

Affected Environment

The major recreation uses of BLM public lands in the Challis Resource Area are floating, boating, fishing, hunting, camping, hiking, nature study, photography, picnicking, wildlife viewing, backpacking, rockhounding, mountain biking, cross country skiing, and OHV use. Challis RA public lands support these recreation resources: 16 BLM developed, undeveloped and managed recreation sites, 3 miles of developed hiking/horseback riding trail, 64 miles of National Scenic Byway, 141,260 acres of Wilderness Study Areas (38,930 acres recommended as suitable for wilderness designation), almost 100 miles of floatable rivers, and approximately 50 miles of wildlife viewing routes. Almost 790,000 acres are legally accessible to the public for various recreational pursuits. High quality natural and aesthetic values dominate the RA viewsheds.

Most recreation activity is concentrated in developed recreation sites within the Resource Area's two Special Recreation Management Areas (SRMAs), but some recreation use is dispersed within the Challis Extensive Recreation Management Area (ERMA) (see *Map 3-2: Existing Special Recreation Management Areas*). The SRMAs tend to provide developed recreation opportunities, while the ERMA provides the majority of more primitive recreation opportunities.

Currently, OHV use in the RA is primarily for multiple use management activities and hunting. Although 71% of the RA is open to OHV use (see *Glossary*: off-highway vehicle use categories), the RA is "naturally" restricted due to rugged topography. Existing OHV designations for the RA are summarized in *Table 3-12* and shown on *Map 3-3: Existing OHV Use Designations*.

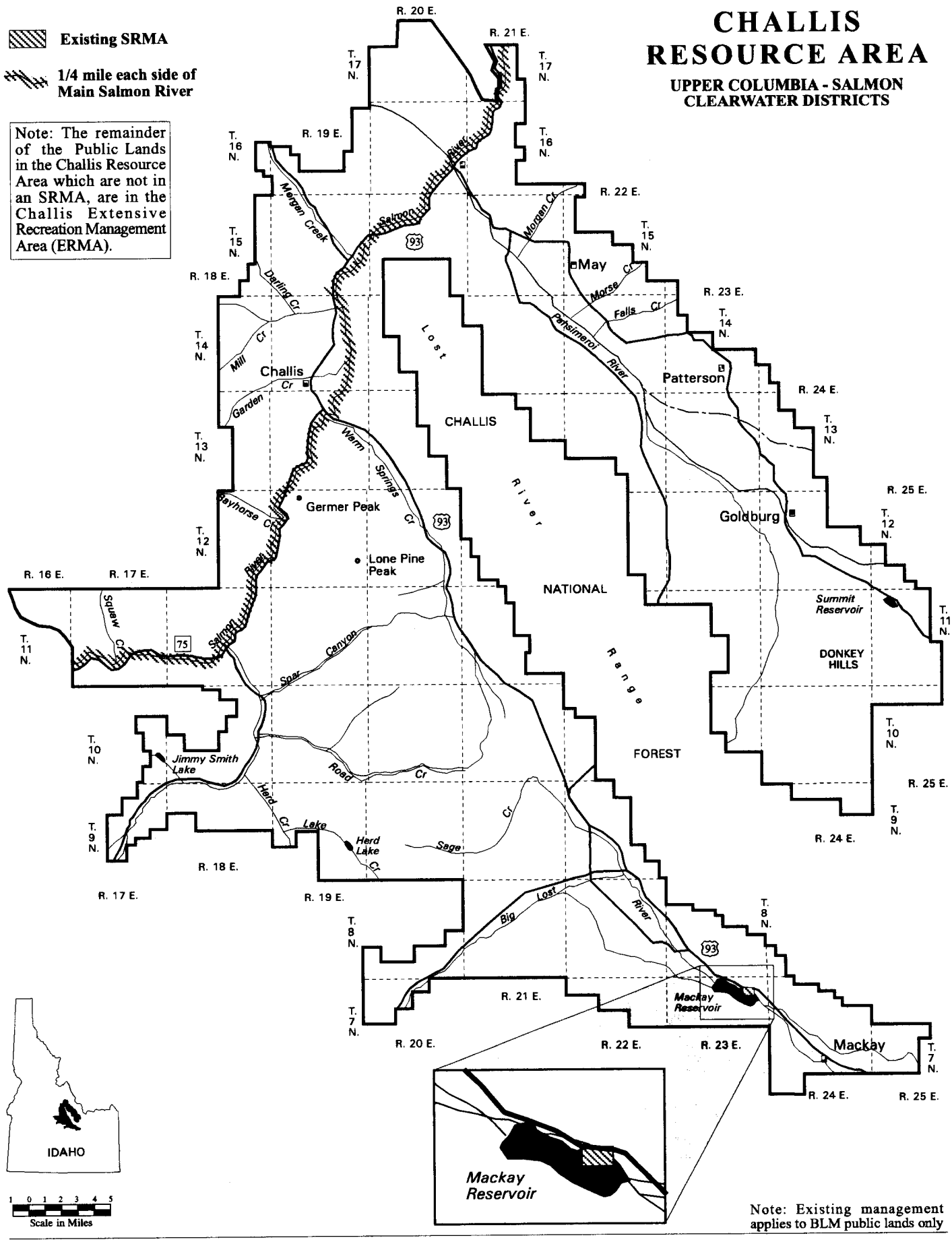
Table 3-12: Off-highway Vehicle Use Designations for the Challis RA*

OHV Use Designation	Challis OHV Plan (acres)	Pahsimeroi OHV Plan (acres)	Mackay OHV Plan (acres)	Total (acres)	Percent of Challis RA
Open[1]	185,756	294,889	83,628	564,273	71
Limited[1]	120,635	43,710	50,300	214,645	27
Closed[1]	14,302	0	0	14,302	2
Total	320,693	338,599	133,928	793,220	100

*Acres are approximations from the Challis, Ellis-Pahsimeroi, and Mackay Management Framework Plans, and therefore do not equal the total acreage for the Challis Resource Area (792,567 acres).

[1]See *Glossary* definition: off-highway vehicle use designations.

Motorized travel visits include sightseeing, wildlife viewing, hunting and fishing, visiting interpretive sites, gaining access for nonmotorized recreational activities and others. Nonmotorized travel visits include hiking, backpacking, horse packing, hunting and fishing, horseback riding, bicycling, and overnight camping. Currently, 12 outfitters have special recreation use permits for upland guiding, river floating, and fishing guiding.


CHALLIS RESOURCE AREA
UPPER COLUMBIA - SALMON CLEARWATER DISTRICTS
Existing SRMA
1/4 mile each side of Main Salmon River
Note: The remainder of the Public Lands in the Challis Resource Area which are not in an SRMA, are in the Challis Extensive Recreation Management Area (ERMA).
R. 20 E.
R. 21 E.
R. 19 E.
R. 22 E.
R. 18 E.
R. 23 E.
R. 24 E.
R. 25 E.
R. 16 E.
R. 17 E.
T. 17 N.
T. 16 N.
T. 15 N.
T. 14 N.
T. 13 N.
T. 12 N.
T. 11 N.
T. 10 N.
T. 9 N.
T. 8 N.
T. 7 N.
Challis
May
Patterson
Goldburg
Germer Peak
Lone Pine Peak
Jimmy Smith Lake
Herd Lake
Mackay
Mackay Reservoir
Summit Reservoir
CHALLIS
NATIONAL
FOREST
DONKEY HILLS
Range
River
Lost
Salmon
Morgan Creek
Morgan Ck
Darling Cr
Mill Cr
Garden Cr
Warm Springs Cr
Bayhorse Cr
Bayhorse
Squaw Cr
Canyon
Soar
Road Cr
Herd Cr
Lake
Sage Cr
Big Lost River
Pansimeroi River
Falls Cr
Morse Cr
93
75
IDAHO
Scale in Miles
1 0 1 2 3 4 5
Note: Existing management applies to BLM public lands only

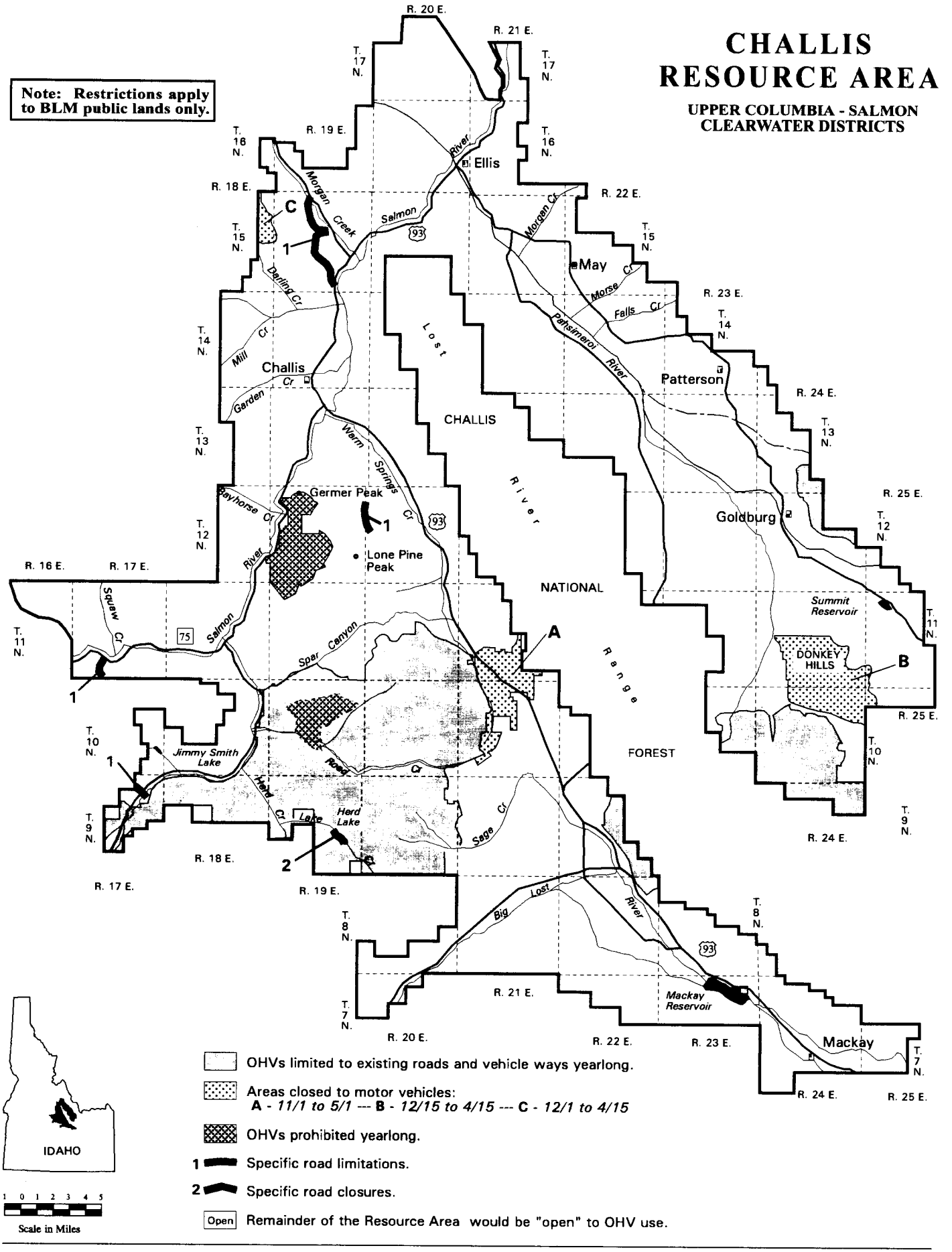

CHALLIS
RESOURCE AREA
UPPER COLUMBIA - SALMON
CLEARWATER DISTRICTS
Note: Restrictions apply to BLM public lands only.
R. 20 E.
R. 21 E.
R. 19 E.
R. 18 E.
R. 22 E.
R. 23 E.
R. 24 E.
R. 25 E.
R. 16 E.
R. 17 E.
T. 17 N.
T. 16 N.
T. 15 N.
T. 14 N.
T. 13 N.
T. 12 N.
T. 11 N.
T. 10 N.
T. 9 N.
T. 8 N.
T. 7 N.
Ellis
May
Patterson
Challis
Goldburg
Germer Peak
Lone Pine Peak
Summit Reservoir
DONKEY HILLS
Jimmy Smith Lake
Herd Lake
Mackay Reservoir
Mackay
CHALLIS NATIONAL FOREST
Lost River Range
Salmon River
Morgan Creek
Morgan Cr.
Darling Cr.
Mill Cr.
Garden Cr.
Warm Springs Cr.
Bayhorse Cr.
Squaw Cr.
Spar Canyon
Rock Cr.
Herd Cr.
Sage Cr.
Big Lost River
Pahsimeroi River
Morse Cr.
Falls Cr.
A
B
C
1
2
93
75
OHVs limited to existing roads and vehicle ways yearlong.
Areas closed to motor vehicles:
A - 11/1 to 5/1 --- B - 12/15 to 4/15 --- C - 12/1 to 4/15
OHVs prohibited yearlong.
Specific road limitations.
Specific road closures.
Open Remainder of the Resource Area would be "open" to OHV use.
IDAHO
1 0 1 2 3 4 5
Scale in Miles

Table 3-13 summarizes recent recreation use of the Resource Area by local and non-local visitors.

Table 3-13: 1993 Recreation Visits to the Challis Resource Area[1]

Recreation Use Category	*Percent of Total Visitation*	*Recreation Visits*
Fishing	22.5	26,775
Camping	15.3	18,100
Boating	6.0	7,160
Other Water Based Visits	3.1	3,625
Hunting	2.9	3,425
OHV Use	2.6	3,050
Winter Sports Visits	0.4	450
Other Land-Based Visits	47.2	55,950
Total Visits	**100.0**	**118,535**

[1]**Source:** Recreation Management Information System (RMIS).

Upper Salmon River SRMA

The Upper Salmon River Special Recreation Management Area (SRMA) includes approximately 42,160 acres under the following land ownership: 45 percent (18,860 acres,) is under BLM administration, 54 percent (22,790 acres) is privately owned, the Idaho Department of Fish and Game manages 250 acres, and the Idaho Department of State Lands (IDSL) manages 260 acres. The Recreation Opportunity Spectrum (ROS) evaluation of the Upper Salmon River SRMA designates 11,875 acres (63%) as roaded natural and 6,985 acres (37%) as rural (see *Glossary*: recreation opportunity spectrum, p. 180).

The Upper Salmon River SRMA lies within the Northern Rocky Mountain physiographic province. The upper Salmon River winds through a narrow gorge which opens out periodically in a series of basins. The interspersed canyon sections rise in multicolored cliff walls and eroded, steep slopes. The most dramatic canyon section is Cronk's Canyon, a narrow defile of sheer rock walls located just north of the mouth of the Pahsimeroi River. Portions of highways 75 and 93 which generally follow the Salmon River are designated as part of the Salmon River Scenic Byway.

Recreation opportunities include float boating on relatively swift Class I and II water; fishing for trout; hunting; camping; hiking; nature study, and photography. Scenic vistas include pastoral settings backdropped with mountain ranges, canyons with almost sheer rock walls, and densely vegetated islands. All recreation activities are enhanced by excellent scenery and unique fish and wildlife resources.

One hundred seventy-seven (177) miles of the Upper Salmon River and 20 miles of the East Fork Salmon River are listed in the *Nationwide Rivers Inventory* (National Park Service, 1982), which identifies potential additions to the National Wild and Scenic Rivers System. The 64 miles of the Salmon River being managed under this RMP are within the 177 mile stretch and are tentatively classified as "recreational" under the National Wild and Scenic Rivers Act classification system (see *Glossary* definition: Wild and Scenic River classifications). Additional information on the Wild and Scenic Rivers in the Challis Resource Area is provided in ***Chapter 3*** - Wild and Scenic Rivers, pp. 327-328, and in the PRMP, Wild and Scenic Rivers, pp. 98-100.

The BLM manages three developed recreation sites within the Salmon River corridor (see *Table 3-14* below). These sites have potable water, handicap-accessible sanitary facilities, and regular garbage collection. Six undeveloped sites on BLM lands have limited or no facilities (some sites have vault toilets, most of which are not handicap-accessible).

Table 3-14: Salmon River Corridor Developed Recreation Sites

Site	# of Campsites	Potable Water	Boat Access	Management Responsibility
East Fork	14	yes	no	BLM
Bayhorse	11	yes	no	BLM
Cottonwood	14	yes	yes	BLM/IDFG

Table 3-15 lists the name, location, and management responsibility of undeveloped access points considered to be important or heavily used.

Table 3-15: Undeveloped Salmon River Recreation Site Access Points

Site	Location	Boat Access	Management Responsibility
Deadman Hole	T12N, R19E, Sec. 10	excellent	BLM
Dugway	T12N, R19E, Sec. 6	poor	BLM
Challis Bridge	T13N, R19E, Sec. 10	good	BLM
Cottonwood	T15N, R20E, Sec. 10	fair	IDFG/BLM

Visits to the Upper Salmon River SRMA occur throughout the year. Steelhead trout fishermen arrive as soon as the ice breaks up in late winter or early spring. The end of spring steelhead season marks the start of the general trout season, floating season, and general tourist season when many visitors camp, fish, float, and sightsee. In the fall, big game hunters use the river corridor for base camps and, as the steelhead arrive, fishermen are again out until the river freezes. During the fall waterfowl hunters also find the river inviting.

Because of its narrow, steep, topographic configuration and the existence of established roads and

highways, off-highway vehicle (OHV) use is minimal within the Salmon River corridor. The two existing OHV plans have designated the SRMA as "open" to OHV use (see *Glossary*: off-highway vehicle use designations and *Map 3-3: Existing OHV Use Designations*). Motorized travel visits include activities such as sightseeing, wildlife viewing, hunting, and fishing. Nonmotorized travel visits include hiking, backpacking horse packing, hunting and fishing, bicycling, and overnight camping. Currently, ten outfitters have fishing and/or floating guide permits along the Salmon River. All river outfitters operate under a Special Recreation Use Permit on a day-use basis.

Recreation facilities in the Salmon River SRMA are in worsening condition. Increased recreation pressure (including overuse and abuse of resources and facilities during heavy use seasons), combined with age of development and an inability to properly maintain sites, is damaging the facilities at an increasing rate.

Mackay Reservoir Recreation Site SRMA

The Mackay Reservoir Recreation Site SRMA lies on the north shore of the 1,341-acre Mackay Reservoir. The SRMA consists of 80 acres of public land that were withdrawn in 1966 from all forms of appropriation. Recreation facilities were constructed in 1968 and expanded in 1986 (see the *Mackay Reservoir Recreation Area Management Plan* (1984) and the *Mackay Reservoir Recreation Project Plan* (1985)). These facilities are the only major recreation developments adjacent to the reservoir, so most recreation activities center around the recreation site.

Most of the shore and surface of the reservoir are owned by the Big Lost Irrigation District. Local ranchers own a small amount of shoreline, with the remainder under BLM jurisdiction. Because of this ownership pattern, the shoreline is essentially in a natural state. Drawdown of the reservoir reaches its low point in late summer when downstream demand for irrigation is greatest.

Forty acres of the 80-acre SRMA have been developed with a full range of facilities to accommodate recreationists. This campground provides boating and access to the reservoir. There are 57 pull-through or back-in campsites with tables and grills. Some sites have sun shelters, and 18 sites have been developed to accommodate larger recreational vehicles. A small designated picnic area consists of four tables and one shelter for day use activities. There are seven double-vault handicap-accessible toilets and a trailer dump station on the site. A pressurized water system, operational from early May to mid-October, provides potable water. Garbage is picked up and toilets are cleaned once a week during the heavy use season. The boat launching facility is owned by the Irrigation District and includes a wide concrete ramp and two floating docks; the BLM offers a vehicle parking area. The docks are designed so they can adjust automatically to water levels.

A $6 per night fee is charged for camping (including trailer sewage dump access) and a $2 fee is charged to non-campers for dump station use.

There are three distinct use seasons: summer, fall and winter. Most recreation use occurs during the summer. Picnicking, camping, fishing, boating, and waterskiing are the most popular

activities. During the summer months, a volunteer camp host is solicited and a camp host site (with water, electricity, sewage dump, and BLM radio) is provided. During the fall, recreationists use the SRMA for fishing and hunting base camps. Ice fishing on the reservoir began in 1984, when the Idaho Department of Fish and Game established a two-month (January and February) ice fishing season. The recreation site is used primarily as a convenient access to the reservoir.

Overall, the Mackay Reservoir Recreation Site SRMA is in fair condition. However, the site shows a downward trend because limited funding does not permit the BLM to adequately maintain the site or supervise its use; campers often complain about a lack of maintenance and security. Since the SRMA does not have regular law enforcement protection, the area has become a local "party" spot which disturbs and frightens other visitors.

Challis ERMA

The Challis Extensive Recreation Area Management Area (ERMA) is made up of approximately 750,000 acres of public lands that are not within an SRMA. The Challis ERMA ranges in elevation from about 4,200 feet near the Salmon River to over 10,000 feet at Jerry Peak and includes drainages of the Big Lost River, the upper Salmon River, the East Fork Salmon River, the Pahsimeroi River, and a small portion of the Little Lost River. Vegetation includes sagebrush, mountain mahogany, cottonwood, aspen, and coniferous forest ecosystems. The ERMA is used for hiking, fishing, hunting, boating, camping, rockhounding, four-wheeling, motorcycling, mountain biking, cross country skiing, snowmobiling, nature study, photography, bird watching, and many more recreational pursuits.

The three existing OHV plans designate portions of the ERMA as open, limited, or closed to OHV use (see *Glossary* definition: off-highway vehicle use categories). Motorized travel visits include sightseeing, wildlife viewing, hunting and fishing, and others. Nonmotorized travel visits include hiking, backpacking, horse packing, hunting and fishing, bicycling, and overnight camping.

Demand for primitive recreation opportunities in the ERMA is increasing in popularity, especially for general recreation and hunting. Two outfitters offering hunting, fishing and back country horse trips operate under a Special Recreation Use Permit in upland areas, including the WSAs. Seven WSAs totaling 141,260 acres are located in the ERMA; 38,930 acres have been recommended suitable for wilderness designation.

Generally, conditions within the ERMA seem to be satisfactory, except for the designated recreation sites listed in *Table 3-16* below. Most of these sites are in unsatisfactory condition. Toilets, fire-grills, and tables are deteriorating, while recreation resource use of the Challis ERMA is increasing. If current funding levels continue, some of the sites may have to be abandoned, since most toilets do not meet standards for health, safety, and access. The estimated current balance between supply and demand for recreational resources in the ERMA is shown in *Table 3-17.*

Table 3-16: Challis ERMA Designated Recreation Sites

site	# campsites	potable water	sanitation
Morgan Creek	5	no	yes
Summit Creek	9	no	yes
Barney Hot Springs	0	no	no
Garden Creek	0	no	no
Deep Creek	0	no	no
Black Daisy	0	no	no
Ziegler Hole	0	no	no
Jimmy Smith Trailhead	3	no	yes
Little Boulder Creek	3	no	yes
Herd Lake	3	no	yes
Herd Lake Overlook	0	no	yes
Upper Lake Creek	6	no	yes

Table 3-17: Estimated Supply and Demand for Recreation Activities in the Challis ERMA

Activity	*Supply*	*Demand*
OHV Recreation	High	Low
Hiking and Backpacking	High	Low
Camping (developed sites)	Moderate	Moderate
Camping (undeveloped sites)	High	Moderate
Fishing	Moderate	Low
Hunting	Moderate	Moderate
Mountain Biking	Moderate	Moderate
Winter Recreation	Low	Low

Source: Recreation Management Information System and professional judgement.

The following areas within the Challis ERMA receive special attention by recreationists or have quality recreation potential.

East Fork Salmon River

Located approximately 20 miles south of Challis, the East Fork Salmon River offers diverse recreational opportunities including fishing, hunting, wildlife viewing, camping, backpacking, photography, rockhounding, nature study, mountain biking, cross country skiing, and limited opportunities for motorized recreation (snowmobiling, motorcycling, all-terrain vehicles, and four-wheel drive vehicles).

A 20-mile segment of the East Fork Salmon River is recognized as "eligible" for a study to determine if the river is suitable for possible inclusion in the National Wild and Scenic Rivers (WSR) system (NPS, 1982; updated in 1991). The river currently has a tentative "recreational" WSR classification. The East Fork and Big Boulder Creek roads are designated by the BLM as Wildlife Viewing Routes.

The Road Creek, Dry Canyon, and Spar Canyon roads have been nominated as a potential addition to the BLM's Back Country Byway program. Proposed as "Wild Horse" Back Country Byway, the 40-mile road loop offers vast scenic vistas of roadless areas and opportunities to see the Challis wild horse herd and various range, wildlife, and riparian projects.

Four trailheads exist in this area. The Little Boulder Creek trailhead offers access into the Boulder-White Clouds, a vast USFS roadless area. The Sheep Creek trailhead offers access up Sheep Creek. The Jimmy Smith Lake trailhead and trail offers access to Jimmy Smith Lake and beyond. The Herd Creek trailhead offers access into the Jerry Peak and Jerry Peak West WSAs as well as adjacent Forest Service lands. In order to protect the resource and satisfy user needs, trailheads need further development and trail maintenance.

Big Lost River Valley

The Big Lost River Valley offers outstanding opportunities for wildland recreation, especially hunting, fishing, floating, wildlife viewing, camping, and mountain biking. A little-known 7.5 mile stretch of the Big Lost River jointly administered by the USFS and BLM is of exceptional scenic, recreational, fishery, geologic, cultural, and ecological values. The Mackay Reservoir, a designated wildlife viewing area with both developed and undeveloped recreation opportunities, is along the Big Lost River's course. The Chilly Slough and Thousand Springs Creek area is another designated wildlife viewing area. Waterfowl abound in this area and its proximity to Highway 93 creates an outstanding viewing opportunity.

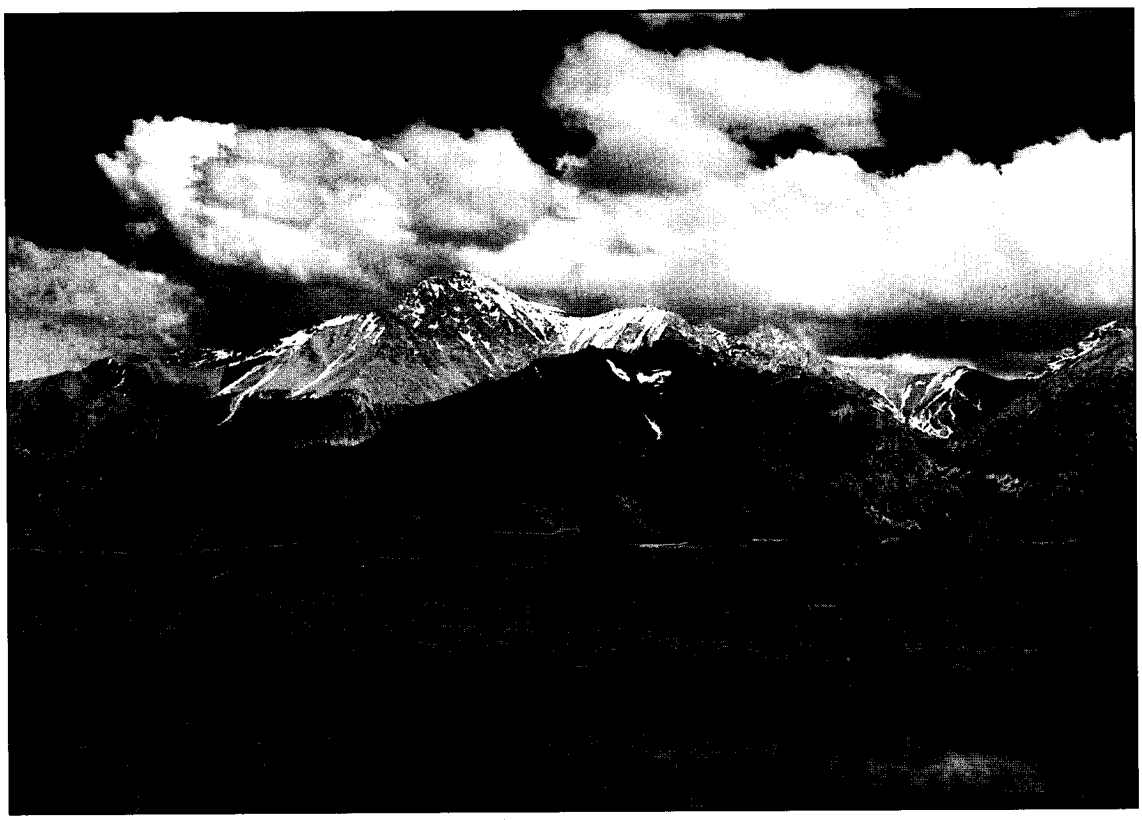
The "White Knob Challenge," a 19 mile mountain bike race which originates in the town of Mackay, Idaho and climbs 2,600 feet into the White Knob mountains, is rapidly becoming one of the premier mountain bike races in the Northwest. In 1991 over 400 racers

endured the grueling climb. This race and casual use by bicyclists is bringing over $150,000 in business to Mackay each summer (McKelvey 1990).

The Mount Borah trailhead located on the BLM/USFS boundary offers access to the proposed Borah Peak Wilderness (USFS RARE II and the BLM Borah Peak WSA). The Borah Peak trailhead offers access to Borah Peak, the highest point in Idaho at 12,655 feet.

Upper Salmon River Valley not within the Upper Salmon River SRMA

This portion of the Upper Salmon River Valley is primarily an upland environment with sheer steep cliffs bisected by small to moderately sized tributaries. This canyon environment is often the background viewshed for the river, and is therefore important to the integrity of the SRMA and the National Scenic Byway.



Mount Borah, highest point in Idaho (elevation 12,655 feet), located on U.S. Forest Service lands adjoining the Challis Resource Area.

Soils.

Law, Regulation, and Policy

The BLM's Soil Resource Management Program is conducted under the following major authorities:

The Federal Land Policy and Management Act of 1976 (43 U.S.C. 1701 *et seq.*)
Desert Land Act of 1977, as amended (43 U.S.C. 321 *et seq.*)
Soil Conservation and Domestic Allotment Act of 1935, as amended (49 Stat. 163)
Soil Info. Assistance for Community Planning and Resource Devel. Act of 1966 (42 U.S.C. 3271 *et seq.*)
Soil and Water Resources Conservation Act of 1977 (16 U.S.C. 2001 *et seq.*)
Public Rangelands Improvement Act of 1978 (43 U.S.C. 1901 *et seq.*).

Affected Environment

The Challis Resource Area is generally characterized by broad valleys and steep-sided, narrow mountain ranges. Soils vary with local geology, topographic relief, and climate. Many soils in the RA are residual (developed in place), and formed from weathered sedimentary bedrock (dolomite, limestone, quartzite, and argillites) and the Challis volcanics (Germer tuffaceous material and basalt). Some soils in the Challis Resource Area are alluvial (deposited by running water). Alluvial soils are developed from a variety of materials washed from the uplands and high landscapes and redeposited as alluvial fans or redeposited along stream courses. Stream courses occupy the comparatively narrow, elongated, continuous or broken strips along most of the major drainages. Soluble salts are present in varying quantities in most alluvial soils.

Third order soil surveys were conducted by the USDA Soil Conservation Service in 1981 (Mackay Planning Unit) and 1982 (Challis and Pahsimeroi Planning Units). Third order surveys are made for land uses spanning a broad geographical area (*e.g.*, range, forestry, recreation, or residential communities) that do not require precise knowledge of small areas or detailed soils information. One product of a third order soil survey is a general soils map that describes major soil groups within large mapping units. *Table 3-18* summarizes the major soil series groupings in the RA and is indexed to *Map 39: Soils.*

On gently rolling uplands (0 to 30% slope), slightly altered bedrock is often more than 40 inches below the surface. On more rolling lands (20 to 50% slope), the depth to bedrock is about 20 to 40 inches. On steep slopes (30 to 60%), soil depths range from less than 10 inches to 20 inches and overlie partly weathered bedrock. Rock outcrops are common on steeper slopes with little or no soil development.

Soils management problems may arise in the RA, depending on a combination of factors: soils type, climate, geologic setting, and vegetative cover. In general, soils in the RA have relief and physical properties capable of absorbing nearly all the precipitation in the area, except for the

occasional convective thunderstorm. However, overland flow and sediment transportation into streams are pronounced during periods of intense thunderstorms. (See *Table 3-31,* p. 301 for a description of the watershed erosion susceptibility for the RA.) Although vegetation is sparse in much of the RA due to the short growing season and distribution of effective moisture, the productive capacity ranges from 100 pounds per acre on the rough, broken lands to 3,000 pounds per acre on wet meadows. Surface disturbing activities (such as road construction, mineral resource development, or grazing) on soil series groups 8 and 11 can be sources of accelerated erosion. These soils have limited stability and are at risk of erosion if protective vegetative cover is not maintained, especially on steeper slopes. Soil series groups 10 and 17 also pose erosion risks due to naturally occurring sparse vegetation, often compounded by steep topography.

Table 3-18: Summary of Soils in the Challis Resource Area

Soils Series/Name	Description	Elevation (feet)	FFS* (days)	AAP** (inches)	Hazard Rating for Erosion/Compaction
1/ Pahsimeroi-Whiteknob-Zer	Gravelly sandy and gravelly loamy, nearly level to rolling, very deep, somewhat excessively drained soils on outwash fans and fan terraces derived from alluvium (or dominantly from quartzite).	4,800-6,300	50-90	8-11	slight to moderate
2/ Whitecloud-Simeroi	Gravelly sandy and gravelly loamy, very deep, somewhat excessively and well drained soils on outwash fans and fan terraces derived dominantly from limestone alluvium.	4,800-6,300	50-90	8-11	slight
3/ Ringle-Snowslide	Gravelly sandy and gravelly loamy, nearly level to rolling, very deep, somewhat excessively drained soils having little organic matter on outwash fans and fan terraces derived dominantly from limestone alluvium.	4,000-6,300	50-90	6-8	slight to moderate
4/ Keele-Perreau-McDevitt	Loamy over gravelly sandy, loamy and clayey, nearly level to rolling, deep, poorly to well drained soils on stream terraces and valley bottoms derived from alluvium.	3,900-6,300	50-100	8-13	moderate
5/ Chamberlain-Wiggleton-Firebox	Gravelly sandy and gravelly loamy, nearly level to rolling, very deep, well and somewhat excessively drained soils on outwash fans and fan terraces derived from alluvium.	6,500-7,500	20-40	13-16	slight
6/ Arbus-Mountainboy-Fandow	Gravelly sandy and gravelly loamy, nearly level to rolling, very deep and shallow to a duripan, somewhat excessively and well drained soils on outwash fans and fan terraces derived from limestone alluvium.	6,300-7,200	30-50	8-14	slight
7/ Thousand-Redfish-Copperbasin	Nearly level or gently undulating, very deep, very poorly to somewhat poorly drained soils on valley floors derived from alluvium.	6,000-7,400	10-40	8-13	slight

Soils Series/Name	Description	Elevation (feet)	FFS* (days)	AAP** (inches)	Hazard Rating for Erosion/Compaction
8/ Cryoborolls-Cryochrepts-Koffgo	Gravelly loamy, steep to extremely steep, shallow through very deep, well drained soils on mountains derived dominantly from quartzite and extrusive igneous rocks.	6,000-10,000	10-30	15-35	moderate to severe; severe on slopes greater than 35%
9/ Zeebar-Friedman-Donkeyhill	Gravelly loamy and gravelly clayey, shallow to very deep, well drained soils on mountains and foothills derived from extrusive igneous rocks.	6,000-9,000	10-50	12-22	moderate
10/ Heathcoat-Escarlo	Clayey and loamy, undulating to steep, very deep, well drained soils on foothills derived from lacustrine sediments.	6,500-7,500	30-50	11-16	slight to moderate
11/ Lag-Klug-Povey	Gravelly loamy, very deep, well drained soils on mountains and foothills derived dominantly from quartzite, phylite and slate.	6,000-9,300	10-50	13-23	moderate to severe; severe on slopes greater than 35%
12/ Zeale-Meegero-Zeelnot	Gravelly loamy, very deep, well drained soils on mountains and foothills derived dominantly from limestone.	6,000-8,500	10-50	11-19	slight to moderate
13/ Gany-Skibo	Gravelly loamy and stony loamy, hilly to very steep, very deep, well drained soils on mountains derived dominantly from limestone.	6,000-9,000	10-50	13-23	moderate
14/ Orthids-Dawtonia-Cronks	Gravelly loamy, hilly to extremely steep, shallow to very deep, well drained soils on mountains and foothills derived dominantly from extrusive igneous rocks and quartzite.	3,800-6,500	45-100	8-13	slight to moderate
15/ Dawtonia-Frailton-Gradco	Gravelly loamy, hilly to very steep, shallow to very deep, well drained soils on mountains and foothills derived dominantly from extrusive igneous rocks.	4.300-6,000	60-90	8-11	sight to moderate
16/ Farvant-Mitring-Bayhorse	Gravelly loamy, rolling to steep, shallow and moderately deep, well drained soils derived dominantly from extrusive igneous rocks.	5,000-6,000	60-90	7-11	slight to moderate
17/ Millhi-Lacrol-Kehar	Clayey, undulating to steep, very deep, moderately well drained soils on foothills and in basins derived from lacustrine sediments.	3,900-6,800	50-100	7-16	slight to moderate

*Frost-free season
**Annual average precipitation

Source: USDA Soil Conservation Service third order soil surveys for the Mackay Planning Unit (1981) and the Challis and Pahsimeroi Planning Units (1982).

Transportation.

Law, Regulation, and Policy

BLM authority for transportation management is primarily derived from the following sources:

Federal Land Policy and Management Act of 1976 (43 U.S.C. 1715, 1737, 1762).
National Trails System Act, as amended (1968) (16 U.S.C. 1241 *et seq*).
Wild and Scenic Rivers Act, as amended (1968) (16 U.S.C. 1271 *et seq*).
The Federal-Aid Highway Act of 1962, as amended (23 U.S.C. 214).
The Federal-Aid Highway Act of 1968, as amended (23 U.S.C. 116).
The Federal-Aid Highway Act of 1973, as amended (23 U.S.C. 217).
Timber Access Road Act of 1955 (69 Stat. 374).
The Sustained Yield Act of 1937 (43 U.S.C. 1181a *et seq*).
Highway Safety Act of 1966, as amended (23 U.S.C. 401, 402, 403).
National Environmental Policy Act of 1969, as amended (42 U.S.C. 4321, *et seq*).
Endangered Species Act of 1973, as amended (16 U.S.C. 1531, *et seq*).
Archeological and Historic Preservation Act of 1974, as amended (16 U.S.C. 469).
Clean Water Act of 1977 (33 U.S.C. 1288, 1323, 1342, 1344).
Surface Transportation Assistance Act of 1982 (P.L. 97-424, Section 126(d)).

Affected Environment

The Challis Resource Area contains 718 miles of inventoried roads (see *Map 22: Existing Maintained Roads*). These roads provide physical access to public, State, and private lands throughout the Resource Area. Demands for transportation in the Resource Area are directly related to the natural resources found on public lands. A transportation system is needed for (a) the public's commercial activities (*e.g.,* livestock grazing, timber harvest, minerals development, outfitting) and noncommercial activities (*e.g.,* OHV use, hunting, fishing, rafting, camping, other recreational uses, firewood gathering), and (b) BLM administrative use to manage resources and programs.

State Highway 75 and U.S. Highway 93 pass through the Resource Area and account for approximately 112 miles of the roads identified by the BLM. These highways are under State of Idaho jurisdiction and the State is responsible for their maintenance and liability. The highways are hard surfaced with asphalt paving, highly developed, and well maintained.

Custer County and the Lost River Highway District are responsible for 213 miles of the roads identified as crossing BLM administered lands within the RA. County roads serve as major collectors and artery roads for the regional transportation system by providing access between the State highways and from the State highways to privately owned land and homes in the rural areas. County roads are generally two lane and are either asphalt paved or graveled. Essentially all of these roads are easily accessible by two wheel drive vehicles during good weather. Custer County and the Lost River Highway District are responsible for maintaining both the roads and any

facilities associated with the roads (*e.g.,* bridges, culverts, and cattleguards). These roads are generally well maintained, and most of them are kept open yearlong.

The Salmon and Challis National Forests are responsible for maintaining 54 miles of roads on BLM administered lands within the RA. These roads cross BLM lands and provide access to Forest Service administered lands. They are generally dirt, single lane roads without gravel or asphalt surfacing. During dry summer weather, about half of the roads are easily accessible by two wheel drive vehicles; four wheel drive vehicles are recommended for the other roads. Most of the roads are maintained on a regular basis. None of the roads are kept open yearlong by the Forest Service.

BLM roads account for 339 miles of inventoried roads within the RA. These roads are secondary in nature and provide access to public lands administered by the BLM. Almost all of the roads are single lane. All are dirt roads; none are paved or graveled. Many of the BLM roads within the RA are in poor condition due to (a) limited maintenance and (b) use during saturated soil conditions when the roads are most susceptible to damage. On the average 20 miles of BLM roads are maintained annually by BLM force account crews.

Existing easements providing access to BLM lands are shown in *Table 3-19.* However, not all BLM roads have legal access for public use. Twenty-six (26) roads have been identified as needing 41 easements - 28 across private land and 13 across State land (see *Table 3-20*). As funding and priorities allow, these easements are being pursued. On the average, one road easement every 3 years is being obtained within the Resource Area.

One hundred three (103) miles of BLM roads are currently classified for Level 3 maintenance. This level is for roads with average daily traffic of 15 vehicles which are open seasonally or occasionally yearlong (for example, the Road Creek, Dry Canyon, and Peck's Canyon roads). Maintenance is on a regularly scheduled interval of two to four years, with goals of keeping drainage functional, maintaining roadway prism shape and sight distance, and considering driver safety and convenience. Level 3 roads are fairly evenly distributed through the Resource Area. Most Level 3 roads are readily accessible by two wheel drive vehicles during good weather.

Two hundred and twenty (220) miles of BLM roads are assigned Level 2 maintenance. Level 2 maintenance is on an "as-needed" basis, generally only when required to repair flood damage, correct public safety problems, or correct or avoid extensive resource damage. Level 2 roads are open seasonally and receive moderate to light use. Maintenance involves brush and obstruction removal, maintenance of drainage facilities, and minimum maintenance of road prism. Level 2 roads either typically receive relatively low use and are located in good soils that hold up well to the test of time and weather, or are primitive two track roads (only suitable for four wheel drive vehicles) which require an extensive amount of work and ground disturbance to maintain (generally, the two track roads are not important enough to justify those actions). About half of the Level 2 roads are easily accessible by two wheel drive vehicles during good weather.

Table 3-19: Easements Allowing Access to Public Lands

Road Name	Road Number	Easement Number	Type of Easement[1]
Herd Creek	1901	IDI-20990	Exclusive
Herd Creek	1901	IDI-20993	Exclusive
Herd Creek	1901	IDI-016844	Exclusive
Road Creek	1902	IDI-14714	Exclusive
Road Creek	1902	IDI-17484	Exclusive
Road Creek	1902	IDI-14713	Exclusive
Dry Gulch	1909	IDI-14714	Exclusive
Dry Gulch	1909	IDI-27586	Exclusive
Darling Creek	1920	IDI-13664	Exclusive
Darling Creek	1920	IDI-15275	Exclusive
Darling Creek	1920	IDI-20995	Nonexclusive
Broken Wagon	1928	IDI-15276	Exclusive
Grouse Creek	1937	IDI-19432	Exclusive
Donkey Creek	1939	IDI-22062	Exclusive
Poverty Flat	1992	IDI-22063	Exclusive
Little Morgan	3061	IDI-4914	Exclusive
Falls-Patterson Creek	30104	IDI-8406	Exclusive

[1] Exclusive easements are for both public and BLM access. Nonexclusive easements are for BLM use only.

Sixteen (16) miles of BLM road are designated for Level 1 maintenance; all road mileage is within five roads. Level 1 maintenance is done to provide access for emergency cases only, such as for a major wildfire or an aircraft crash. Level 1 roads are normally blocked or open only for restricted traffic. Maintenance, if any, entails maintaining culverts and other drainage facilities. Slides, fallen trees, and brush are left unless they affect roadbed drainage or totally block the road. Four wheel drive vehicles are recommended for all Level 1 roads.

The Resource Area has three trails, totaling 3 miles, that the BLM administers and maintains. Two of the trails, Herd Lake (1.5 miles) and Jimmy Smith Lake (0.5 mile), provide access from parking and camping areas to lakes. The third trail, Boulder Creek (1.0 mile), provides access across BLM public lands to the White Cloud trail system. The trails are not on a regular maintenance schedule, but are maintained as needed.

Two authorized airstrips are located on BLM-administered lands within the Resource Area - one near May, in the Pahsimeroi Valley, and the other along the Trail Creek Road, near Twin Bridges. Neither airstrip has permanent buildings or hard surface runways. Both airstrips are only suitable for light aircraft.

Access to boat ramps is available on BLM-administered lands within the Resource Area at several locations along the Salmon River. Developed boat ramps are located at three recreation sites:

Deadman Hole, Steel Bridge, and Cottonwood. Primitive boat ramps are available near the East Fork recreation site and near the Bayhorse recreation site ("Dugway").

Table 3-20: Easements Needed to Ensure Public Access, by Ownership

Road Name	Road #	Number of Easements Needed		Miles of Easement	Township	Range	Section
		Private	*State*				
Road Creek	1902	1	0	1.0	9 N	20 E	1, 12
Malm Gulch	1905	0	1	0.1	12 N	19 E	19
Lone Pine	1916	1	1	1.3	11 N	20 E	3
					13 N	19 E	36
Lower Cedar Creek	1918	2	0	0.5	7 N	24 E	14, 23, 27
Jones-Cedar Creek	1919	1	0	0.5	8 N	23 E	22
Bear Wallow-Gossi Spring	1925	0	1	1.3	11 N	19 E	36
Broken Wagon	1928	2	0	1.0	11 N	20 E	19, 35
					11 N	21 E	30
Meadow Creek	1931	1	0	0.3	14 N	21 E	25
Pahsimeroi	1934	1	0	1.0	11 N	23 E	14
West Donkey	1935	0	1	1.0	12 N	23 E	36
Howell Canyon	1944	0	1	1.0	9 N	20 E	36
Cedar Creek Loop	1947	1	1	1.8	9 N	22 E	16, 21
Substation	1951	1	0	0.3	13 N	20 E	19
Gooseberry-Sheep	1955	1	1	2.0	11 N	21 E	16, 20, 21, 22
Hillside	1962	1	0	1.5	12 N	24 E	16, 23
Bradbury Flat SW	1970	0	1	0.8	13 N	19 E	36
Camp Creek	1980	3	0	0.75	13 N	19 E	12
					13 N	20 E	6, 7
Centennial Flat	1991	1	0	1.2	12 N	19 E	18, 19
					12 N	18 E	24
South Butte	1994	1	1	2.0	11 N	17 E	16, 21
Sink Creek	1995	2	0	1.8	11 N	18 E	1, 2, 11, 14
					12 N	18 E	35, 36
Donkey Timber	1996	1	0	0.3	11 N	25 E	8
Elkhorn	1998	0	1	1.3	11 N	24 E	36
Bartlett Point A	19143	1	1	2.0	8 N	21 E	11, 14, 36
Mill Creek	30100	2	1	1.0	13 N	23 E	2
					13 N	24 E	16, 21
Falls-Patterson Creek	30104	1	0	1.0	14 N	23 E	7, 18, 20
Big Creek	30150	3	1	2.0	13 N	22 E	1
					14 N	22 E	36
					13 N	23 E	6

Tribal Treaty Rights.

Law, Regulation, and Policy

BLM coordination or consultation with Native Americans which pertains to treaty rights and trust responsibility is conducted pursuant to the following direction:

Idaho Manual Supplement 1127 - Public Participation (Release 1 - 243; July 2, 1985).

Bureau Manual Handbook H-8160-1 - General Procedural Guidance for Native American Consultation (Washington Office Information Bulletin No. 95-57; November 15, 1994).

Government-to-Government Relations with Native American Tribal Governments (Memorandum signed by President Clinton; April 29, 1994).

Order No. 3175 - Departmental Responsibilities for Indian Trust Resources (Section 2 of Reorganization Plan No. 3 of 1950 - 64 Stat. 1262; November 8, 1993).

Treaties are negotiated contracts made pursuant to the Constitution of the United States and are considered the "supreme law of the land." They take precedence over any conflicting state laws by reason of the supremacy clause of the Constitution (Article 6, Clause 2). Treaty rights are not gifts or grants from the United States, but are bargained-for concessions. These rights are grants-of-rights *from* the tribes, rather than to the tribes. The reciprocal obligations assumed by the Federal government and Indian tribes constitute the chief source of present-day Federal Indian law.

The United States and represented agencies, including the BLM, have a special trust relationship with Indian tribes because of these treaties. As a Federal land managing agency, the BLM has the responsibility to identify and consider potential impacts of BLM plans, projects, programs, or activities on Indian trust resources (*e.g.,* fish, game, and plant resources - see *Glossary*). When planning any proposed project or action, the BLM must ensure that all anticipated effects on Indian trust resources are addressed in the planning, decision, and operational documents prepared for each project. The BLM also has the responsibility to ensure that meaningful consultation and coordination concerning tribal treaty rights and trust resources are conducted on a government-to-government basis with Federally recognized tribes.

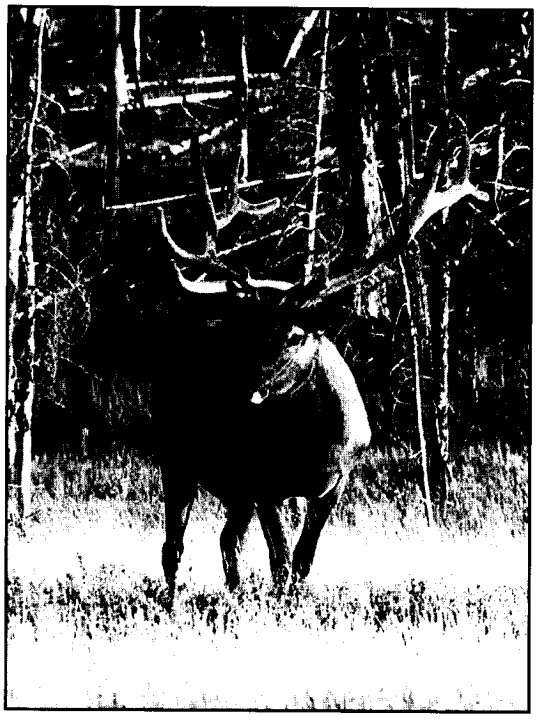
Affected Environment

Native American Indians inhabited central Idaho, including lands now known as the Challis Resource Area, for thousands of years prior to European contact. They hunted, fished, gathered plant foods, buried their dead, and conducted religious ceremonies on lands within current RA boundaries since time immemorial. Their lives and culture were dismantled by settlement of America when large numbers of immigrants seeking land tried to displace the tribes. During the 1850s and 1860s treaties were negotiated with the tribes in the northwestern United States in order

to acquire Indian lands for homesteading. The settlement of the northwestern United States by non-Indians led to the collapse of the Tribal Nations as they were previously known, including their economic, social, cultural, religious, and governmental systems.

On July 3, 1868 the Eastern Band Shoshone and Bannock Tribes and the United States signed the *Treaty with the Eastern Band Shoshoni and Bannock, 1868*, commonly referred to as the Fort Bridger Treaty (15 Stat. 673). In the Fort Bridger Treaty the Tribes relinquished ownership of approximately 20 million acres to the United States. The Challis Resource Area is entirely comprised of aboriginal, traditional, or unoccupied lands for which the Tribes' right to use such lands was negotiated in the Fort Bridger Treaty. Among other items of agreement, the Fort Bridger Treaty guarantees a permanent homeland for the Shoshone and Bannock people, which has become known as the Fort Hall Indian Reservation in southeastern Idaho. The Treaty also retains the Tribes' rights to hunt, fish, and gather natural resources, and provides other associative rights necessary to effectuate these rights on unoccupied lands of the United States.
Since the BLM manages portions of the "unoccupied lands" that are mentioned in the Treaty, the BLM has a trust responsibility to provide the conditions necessary for Indian tribal members to satisfy their treaty rights. Treaty rights in the Challis RA are extended not only to the Shoshone-Bannock Tribes, but also to other Federally recognized tribes which may have treaty language that extends their rights to lands in this area.

Members of the Shoshone-Bannock Tribes and other Federally recognized tribes exercise their hunting, fishing, and gathering rights on at least state and Federal lands outside the boundaries of their reservations. Currently, Native American tribes are not dependent on commodity resources from the Challis RA for their economic livelihood. However, they do rely on BLM public lands resources for subsistence and cultural purposes. Tribal treaty rights pursued on public lands within the Challis Resource Area include fishing for anadromous and resident game fish species, hunting both large and small game, and gathering various natural resources for both subsistence and medicinal purposes. Little specific information is available on the exact species sought or locations used by Native Americans exercising their treaty rights in the RA.



Elk are utilized by tribes with treaty rights to hunt, fish, and gather natural resources in the Challis Resource Area.

Vegetation.

This section discusses the affected environment for several components of the topic "vegetation": upland vegetation; riparian/wetland vegetation; special status plant species; and noxious weeds. Vegetation manipulations are discussed in ***Chapter 3*** under the section "Livestock Grazing - Range Improvements. Forested habitat is primarily described in the "Forest Resources" section.

Vegetation may be considered many resources: the condition and use of vegetation determines its resource state, the demand made upon the vegetation, and its ability to supply that demand. Vegetation in the Challis Resource Area has the following uses/demands as a resource: forage for livestock; forage for wild horses; forage and habitat (*e.g.*, nesting areas, thermal protection, hiding cover) for huntable wildlife; forage and habitat (*e.g.*, display areas) for non-huntable wildlife; watershed protection (*e.g.*, erosion reduction); recreation/aesthetics (*e.g.*, shade, naturalness); water quality protection (*e.g.*, sediment reduction); and fisheries habitat (*e.g.*, nutrient input and cycling, temperature moderation).

Law, Regulation, and Policy

Upland Vegetation: Guidance for management of upland areas is generally found in three laws: (a) the Taylor Grazing Act of 1934 (43 U.S.C. 315), which directs the Secretary of the Interior to stop injury to public lands, (b) the Federal Land Policy and Management Act of 1976 (43 U.S.C. 1701), and (c) the Public Rangelands Improvement Act of 1978 (43 U.S.C. 1901), which calls for an intensive public rangelands maintenance, management, and improvement program to address and correct unsatisfactory conditions. BLM policy on upland range vegetation is contained in *The State of the Public Rangelands 1990, The Range of Our Vision* (BLM 1990) and *Rare Plants and Natural Communities* (BLM 1992). *The State of the Public Rangelands 1990* establishes a goal of increasing the area in late seral to potential natural stage to 40% (68 million acres nationwide) by 2009 and reducing the area in early seral stage to 10% (17 million acres nationwide) by 2009.

Riparian/Wetland Vegetation: Management of riparian/wetland areas on public lands is conducted under several laws and executive orders. An expanded description of these laws and executive orders is provided in *Appendix E, Item 1,* pp. 638-643.

1) The Taylor Grazing Act of 1934 (43 U.S.C. 315).
2) Land and Water Conservation Fund Act of 1964 (16 U.S.C. 460 (4-11) and 23 U.S.C. 120).
3) Endangered Species Act of 1973 (16 U.S.C. 1531 *et seq*).
4) Federal Land Policy and Management Act of 1976 (43 U.S.C. 1701).
5) Clean Water Act of 1977 (33 U.S.C. 404).
6) Food Security Act of 1986 (7 U.S.C. 1281 note).
7) Emergency Wetland Resources Act of 1986 (16 U.S.C. 3901).
8) Water Quality Act of 1987 (33 U.S.C. 1251).
9) Executive Order 11988.
10) Executive Order 11990.

Department of the Interior Manual 520 provides policy on preservation, protection, and acquisition of riparian/wetland areas. BLM Manual 1737 provides guidelines for protecting and acquiring riparian/wetland areas as needed to protect this habitat type.

Special Status Plant Species: Rare species are afforded protection under the Endangered Species Act of 1973, as amended, and under BLM regulations. The mandates of the Endangered Species Act only apply to rare species that have been officially listed as threatened or endangered, are proposed for listing, or are candidates for listing (BLM Manual 6840). The BLM is required to consult with the U. S. Fish and Wildlife Service (USFWS) on potential impacts to listed plant species. The USFWS also suggests the BLM consult with them informally when assessing projects that may impact candidate species.

BLM sensitive species are designated by the State Director under 16 U.S.C. 1536 (a)(2). Sensitive species shall be managed so they will not need to be listed as proposed, threatened, or endangered, with the same level of protection as candidate species (BLM Manual 6840). Sensitive plant species are also identified by other agencies (*e.g.*, USFS Regional Offices, the Idaho Natural Heritage Program (now Conservation Data Center), and the Idaho Native Plant Society). Management of one sensitive species, the wavy leaf thelypody (*Thelypodium repandum*), is guided by a Conservation Agreement with the USFWS (USDI-BLM 1990c).

Wavy Leaf Thelypody

Noxious Weeds: Two Federal laws explicitly direct that infestations of weeds on Federal land will be controlled: (a) the Federal Noxious Weed Act of 1974 (7 U.S.C. 2801-2813), as amended by Section 15, Management of Undesirable Plants on Federal Lands, 1990, and (b) the Carson-Foley Act of 1968 (PL 90-583). Idaho's noxious weed law (Chapter 34, Idaho Code) places responsibility for noxious weed control on Federal lands with the Federal government. The *Final Environmental Impact Statement Vegetation Treatment on BLM Lands in Thirteen Western States* (USDI-BLM 1991) analyzes treatment of undesirable plants for all BLM lands in the 13 Western states. This document specifies the following vegetation management priorities: (1) take preventative actions to minimize the need for control; (2) use effective non-chemical methods when and where feasible; and (3) use herbicides after considering the effectiveness of all potential methods or in combination with other methods of control. The EIS also identifies several actions that are to be implemented as standard design features for weed control projects (see PRMP,

Attachment 5: Standard Operating Procedures - Noxious Weeds, p. 110). Noxious weed control was analyzed by the BLM in the *Northwest Area Noxious Weed Control Program Final EIS* (USDI-BLM 1985, supplemented 1987). This EIS described and analyzed the environmental impacts of implementing a five-state program for the control of noxious weeds. A worst-case analysis of impacts on human health from herbicide use was included. An environmental assessment which tiers to this EIS is prepared by the Salmon District BLM each year to describe and assess the local impacts of noxious weed treatments.

Affected Environment

The following sub-sections generally describe vegetation in the Challis Resource Area by habitat and community type, species composition, and condition and trend (where that information is known).

Upland Vegetation

The Challis Resource Area lies within the Northern Rocky Mountains physiographic region (BLM Manual 6602). The "potential natural vegetation" of the area was classified by Küchler (1964) as "western shrub and grassland," which is further categorized as follows.

Sagebrush Steppe (*Artemisia-Agropyron*): Dense to open grasslands with a dense to open shrub component. Dominant vegetation includes bluebunch wheatgrass (*Agropyron spicatum*) and big sagebrush (*Artemisia tridentata*). Other vegetative components include *Artemisia arbuscula, A. nova, Balsamorrhiza sagittata, Festuca idahoensis, Lithospermum ruderale, Lupinus sericeus, Oryzopsis hymenoides, Phlox* spp., *Poa nevadensis, P. secunda, Purshia tridentata,* and *Sitanion* spp. Microbiotic soil crusts provide for nutrient cycling and erosion control.

Western Ponderosa Forest (*Pinus*): Medium dense to open forest of tall needleleaf evergreen trees with a fairly open ground cover of grasses and occasional shrubs. Dominant vegetation includes Ponderosa pine (*Pinus ponderosa*). Other vegetative components include *Achillea millefolium* var. *lanulosa, Agropyron spicatum, Arctostaphylos nevadensis, A. uva ursi, Carex geyeri, Festuca idahoensis, Hieracium* spp., *Lupinus* spp., *Poa secunda, Purshia tridentata,* and *Symphoricarpos albus.*

Grand Fir/Douglas-fir Forest *(Abies-Pseudotsuga)*: Tall, needleleaf evergreen forest. Dominant vegetation includes Grand fir (*Abies grandis)* and Douglas-fir (*Pseudotsuga menziesii).* Other vegetative components include *Larix occidentalis, Pinus monticola,* and *Populus tremuloides.*

Western Spruce/Fir Forest (*Picea-Abies)*: Dense to open forests of low to medium tall needleleaf evergreen trees; open forests with a component of shrubs and herbaceous plants. Dominant vegetation includes subalpine fir (*Abies lasiocarpa)* and Englemann spruce (*Picea engelmanii*). Other vegetative components include *Arctostaphylos uva ursi, Arnica cordifolia, Calamagrostis canadensis, Carex* spp., *Larix lyallii, Menziesia ferruginea, Pinus*

albicaulis, P. contorta, Populus tremuloides, Pseudotsuga menziesii, Shepherdia canadensis, Symphoricarpos albus, Tsuga mertensiana, Vaccinium spp., and *Xerophyllum tenax.*

Vegetative inventories have been conducted for all BLM public lands within the Challis Resource Area. *Table 3-21: Vegetation Summary for the Challis Resource Area* presents acreage figures for the major vegetation types in the Resource Area and their major subtypes. *Map G: Vegetation* illustrates the extent and location of major vegetation types. Range condition and trend are discussed in ***Chapter 3*** - Livestock Grazing under the subsections "Rangeland Inventory" and "Rangeland Monitoring and Evaluation", pp. 247-249.

Riparian/Wetland Vegetation

A riparian area is defined as "an area of land directly influenced by permanent water. It has visible vegetation or physical characteristics reflective of permanent water influence. Lake shores and stream banks are typical riparian areas. Excluded are such sites as ephemeral streams or washes that do not exhibit the presence of vegetation dependent upon free water in the soil." (BLM, 1990). Riparian zones within the Resource Area can generally be identified by the existence of riparian dependent vegetation such as cottonwoods (*Populus spp.)*, willows (*Salix spp.*), sedges (*Carex spp.*), and rushes (*Juncus spp.*).

Stream vegetation types of the Challis Resource Area are based on Youngblood *et al.* (1985), Tuhy and Jensen (1982), Hansen *et al.* (1988a), Hansen *et al.* (1988b), Hansen *et al.* (1989), and Padgett *et al.* (1989). A riparian vegetation type classification has not been completed for central Idaho, but the areas covered by the above documents surround the Resource Area. These classifications were primarily completed for the Forest Service, and thus focus on elevations above those found in the Challis Resource Area. Low elevation types are recognized, but the classification is based on fewer samples. With inventory work, additional low elevation types will likely be identified.

Major riparian types are summarized in *Table 3-22: Riparian Community Types.* Choice of which sites are appropriate for this area is based on the RMP ID team's professional judgement and knowledge of streams of the Resource Area.

Appendix I, Item 1 (pp. 653-655) shows all riparian species known or thought to occur in the Resource Area. This list is based on collections housed in the Salmon BLM Herbarium, literature review, and professional observation. Some riparian species may be classified as "desirable," because they are (a) unusual or uncommon, and therefore may be biodiversity indicators; (b) important for riparian function; (c) native riparian species; or (d) known indicators of riparian function, for they seem to be eliminated from low- to non-functioning riparian areas. *Table 3-23: Riparian Species Function and Management* identifies some common desirable riparian species which are especially important to riparian function. Other common riparian species are classified as "undesirable" because they are indicators of reduced functioning or they replace species with high functional values. *Table 3-24* identifies the undesirable riparian species of the Challis RA.

Table 3-21: Vegetation Summary for the Challis Resource Area*

	Big Lost-Mackay[1]	Ellis-Pahsimeroi[2]	Challis[3]
Shrub/grassland			
Mountain mahogany (*Cercocarpus ledifolius*)	18,463		4,085
Shadscale (*Atriplex confertifolia*)	1,230	38,212	32,909
Saltbush (*Atriplex nuttallii*)			1,934
Chicken Sage (*Tanacetum nuttallii*)	5,505	3,716	11,857
Three-tip sagebrush (*Artemisia tripartita*)		31,622	23,332
Big sagebrush (*A. tridentata*)		203,398	
Basin big sagebrush (*A. tridentata tridentata*)			2,298
Mountain big sagebrush (*A. tridentata vaseyana*)	96,911		72,920
Wyoming big sage (*A. t. wyomingensis*)	78,460		118,151
Low sagebrush (*A. arbuscula*)	56,745	61,310	2,081
Black sagebrush (*A. nova*)	41,609		12,312
Fringe sagebrush (*A. frigida*)	2,945		
Other	581		
Woody			
Coniferous forest (*Psuedotsuga menziesii*)	4,666	18,593	22,492
Juniper (*Juniperus communis*)	993		
Riparian			
Aspen (*Populus tremuloides*)	649		
Semi-wet meadow			424
Riparian (includes woody)			519
Sedge (*Carex* spp.)	578		
Rock (includes windswept ridge)	11,370	16,594	24,619
Lava Flows	7,469		
Talus	1,088		
Seedings	15,067	4,710	3,116
Burns			189
Goldburg		1,647	
Total	**351,582**	**380,458**	**333,238**

*This summary of vegetation found in the planning units is based on classifications used in earlier planning documents:

[1] Big Lost-Mackay Grazing Draft EIS, 1983, Chapter 3, p. 39 (includes the Mackay area and the Big Lost area, Idaho Falls District).

[2] Ellis-Pahsimeroi Draft Grazing EIS, 1981, pp. 3-7.

[3] Final Supplemental Environmental Statement on a Revised Range Management Program for the Challis Planning Unit, (1979), pp. 2-3.

Table 3-22: Riparian Community Types[1]

USFS, Intermountain Region	**Montana Riparian Association**
Conifer	Conifer
Calamagrostis canadensis c.t.	
Deschampsia cespitosa c.t.	None really appropriate
Poa pratensis c.t.	
Populus tremuloides	*Populus tremuloides*
Poa pratensis c.t.	*Poa pratensis*
Betula occidentalis c.t.	
	Salix geyeriana
Populus angustifolia	*Populus angustifolia*
Rosa woodsii c.t.	
Poa pratensis c.t.	*Poa pratensis*
Alnus incana	*Alnus incana*
mesic forb	No subcommunities
mesic graminoid	
Betula occidentalis	*Betula occidentalis*
mesic forb	No subcommunities
Poa pratensis	
Salix boothii	*Salix bebbiana*
Carex aquatilis	Most of Challis RA *S. boothii* and *S. bebbiana*
Carex rostrata	meadows would probably key to here under this
Carex nebrascensis	classification.
Poa pratensis	
mesic forb	
(*Mertensia, S. stellata, H. lanatum*)	
mesic graminoid	
(*C. lanuginosa, J. balticus, Glyceria striata*)	
Salix geyeriana	*Salix geyeriana*
Carex aquatilis	
Carex rostrata	*Carex rostrata*
Calamagrostis canadensis	*Calamagrostis canadensis*
Deschampsia cespitosa	*D. cespitosa (Juncus balticus)*
mesic graminoid	*Poa pratensis*
(*P. pratensis, C. lanuginosa, C. praegracilis*)	
Salix exigua	*Salix exigua*
mesic forb	No subtypes identified
mesic graminoid	
Poa pratensis	
Potentilla fruiticosa/Poa pratensis	*Potentilla fruiticosa/Poa pratensis*
Carex Communities	*Carex* Communities
C. aquatilis	*C. aquatilis*
C. rostrata	*C. rostrata*
C. simulata	*C. simulata*
C. nebrascensis	*C. nebrascensis*
Deschampsia cespitosa	*Deschampsia cespitosa*
Juncus balticus	*Juncus balticus*
Poa pratensis	*Poa pratensis*

[1]Two general riparian classifications are available for application to the Challis Resource Area. Padgett, Youngblood and Winward (1989) *Riparian Community Type Classification of Utah and Southeastern Idaho* and Youngblood, Padgett and Winward (1985) *Riparian Community Type Classification of Eastern Idaho and Western Wyoming* were developed by the Forest Service Intermountain Region and cover the area generally to the south of the Resource Area. The Montana Riparian Association documents (Hansen *et al.*, 1989; Hansen *et al.*, 1988a; Hansen *et al.*, 1988b) cover an area to the east of the Resource Area. Both classifications contain descriptions of community types that are found in the Challis Resource Area.

Table 3-23: Riparian Species Function and Management[1]

SPECIES	FUNCTION	MANAGEMENT
	RIPARIAN TREE SPECIES	
Populus angustifolius Black cotton-wood	Forms small stands along small, moderately steep gradient streams rather than extensive gallery forests (see *P. tricocarpa*, below). Important wildlife habitat; provides shade, bank protection, and erosion buffering.	Livestock use and recreational activity can reduce juvenile recruitment. Likely requires some flooding event to expose suitable colonizing substrate.
Populus tremuloides Quaking aspen	Important wildlife habitat, especially for beaver. Of limited distribution in the Challis RA, forming in areas of subsurface moisture (CE). Some stands along perennial stream channels provide important bank stability and shading functions.	Livestock browsing of young suckers combined with trampling and soil compaction can reduce the ability of the colony to rejuvenate (Mueggler 1985). Livestock use of juveniles combined with beaver use of adults can eliminate the stand. Management at Short Creek included a strategy of livestock exclusion and overstory removal.
Populus trichocarpa Black cotton-wood	Main gallery forest species along the main Salmon River (CE). Provides important habitat for wildlife, attractive recreation sites, erosion buffering from adjacent upland activities.	Livestock use and recreational activity can reduce juvenile recruitment. Hansen *et. al.* (1988) states that this species and type is early seral, but work conducted in Colorado (Friedman, personal communication) suggests otherwise, although continued disturbance by flooding and deposition is important to maintaining stands. This species is a floodplain species; thus, locating recreation sites in these areas, however attractive, is risking damage to facilities by flooding.
	RIPARIAN SHRUB SPECIES	
Alnus incana Thinleaf alder	Generally found on narrow, relatively steep riparian areas in the Challis RA. Provides bank stability, shade, wildlife habitat. Streams lined with this species develop deep narrow channels with excellent fisheries habitat. Species usually reduces understory production, so communities dominated by this species are of limited forage value.	Species is rarely browsed by livestock, but juveniles can suffer trampling damage. Channel downcutting and lowering of water table will also cause loss of this species. Resprouts readily when cut.
Betula occidentalis Water birch	Found along narrow, relatively steep riparian areas (CE), also at Summit Creek (unusual). Dense stands provide excellent thermal and hiding cover for wildlife, and enhance fisheries through bank stabilization and shading. Little value for forage.	Can be damaged by recreational and livestock trampling. Good sprouter, and easily established in revegetation efforts.
Cornus sericea Red Osier dogwood	Of limited distribution in the Challis RA, but found on relatively steep gradient, larger streams (Morgan, Thompson, Squaw creeks) (CE). Thick, extensive root system is especially effective for bank stabilization. Dense flexible twigs slow floodwater during extreme events.	Rarely utilized by livestock, and dense growth makes even trampling unlikely. Species may have use in revegetation work on degraded streams. Note that the species is most common on those streams recognized for anadromous fisheries potential.
Potentilla fruiticosa Shrubby cinquefoil	The species is most commonly found in moist alkaline meadows, and appears to be an indicator of relatively high water tables (CE). Of limited value for bank stabilization since rarely found on banks, but important for structural diversity in meadows.	Species is browsed by livestock and game, and is used as an indicator of range condition (Davis 1952).
Prunus virginiana Choke cherry	Generally found along moderately steep, narrow riparian areas, sometimes as an understory to aspen or other trees.	Can be poisonous to livestock, especially during drought, on overgrazed ranges, or after leaves have been frosted (USDA 1968, Budd 1979).
Rosa woodsii Wood's rose	Wildlife habitat and food (hips) for small mammals and birds. Stabilizes seepage areas, but of limited occurrence on streambanks.	Strongly grazing tolerant, thus potentially an increaser under heavy use (CE). Readily sucker and easy to establish through planting. Potential for use as a barrier (CE) to manage riparian zones.

SPECIES	FUNCTION	MANAGEMENT
Salix bebbiana, S. boothii, S. geyeriana, S. drummondiana willows	All four of these willow species are critical for bank stabilization. Streams supporting these species are generally not armored by rocky banks or bottoms; thus, the shrubs become more critical for reducing side- and head-cutting. They also provide thermal and hiding cover for wildlife, forage for native ungulates and beaver, and non-game habitat. It is likely that especially *S. boothii* colonizes and stabilizes beaver dam areas, an important function in raising water tables, widening riparian areas, and creating additional bank storage.	Streams supporting these species have the most potential for development of wide riparian areas and wet meadows. Because of the lack of protective rock substrate, these are also the most susceptible to livestock impact, with associated downcutting.
Salix exigua Sandbar willow	Common colonizer of recently deposited gravels and sediments. This species is an excellent stabilizer in riparian areas, providing bank stabilization and trash and sediment trapping. It appears to act as a facilitator species for establishment of other riparian vegetation. Loss of this species often results in rapid erosion of the stream channel.	Wildlife and livestock can over-utilize this species. Trampling reduces establishment. Plants are easily established through cuttings, and will spread vigorously via underground runners once established (CE).
RIPARIAN GRAMINOID SPECIES Only the most common and desirable graminoid species are included in this list.		
Carex aquatilis Water sedge	This species requires a constant high water table. It provides excellent stabilization of seepage areas, wet meadows, and stream banks on low gradient streams. The dense sod forms overhanging mats providing valuable fish cover.	Livestock rarely use this species unless the soil surface dries out enough to allow easy footing. During a season-long grazing season, however, livestock will damage plants and compact soils. Loss of this species may result in destabilization of banks and downcutting. Once the water table lowers, this species will no longer occupy the site.
Carex nebrascensis Nebraska sedge	One of the most common of the coarse sedges, requiring less moisture than *C. rostrata* or *C. aquatilis*. The species is highly palatable to cattle, horses, and wildlife. Its thick rhizomes provide excellent bank stabilization and will develop bank overhangs.	This species appears to be able to withstand heavy utilization, but under continuous use during growth will lose vigor (Steele *et. al.* 1984). The species is also susceptible to human and ungulate trampling damage early in the season when soils are saturated. This is one of the species that forms hummocks under trampling.
Carex rostrata Beaked sedge	Another very common coarse sedge, occurring on moister sites than *C. nebrascensis*, often in seeps and riparian meadows. Beaked sedge has thick dense rhizomes, thus providing excellent bank and soil stabilization. Overhanging mats, while creating excellent fisheries habitat, are also susceptible to trampling damage and "calving." Since this species forms thick organic layers, it may be important for developing water-holding capacity within the banks.	Trampling damage by humans and ungulates is the most extensive impact. The species is of low palatability, and is generally used only lightly. Beaked sedge plugs have been transplanted successfully (Corral Basin).
Deschampsis cespitosa Tufted hairgrass	This species is common in moist meadows and as a colonizing species on gravel bars. The species may also replace *Carex* as the water table drops, and be replaced by *Poa pratensis* (Kentucky bluegrass) as the water table drops below one meter.	Sustained grazing decreases the vigor of this species (Volland 1985) and it is generally replaced by *Poa pratensis*. Livestock graze this species preferentially (Leege *et. al.*, 1981). Proper use levels are light to moderate. The species has little value for bank stabilization, but, as a colonizing species, will facilitate establishment of more stabilizing species (CE).
Juncus balticus Baltic rush	This species can tolerate a lowered water table and trampling by both livestock and recreationists. Its long tangled roots provide good bank stabilization. The species does not form overhanging banks (CE). It is generally an increaser under moderate livestock use, sometimes replacing *Carex*. Because of low biomass production, it does not develop organic deposits (CE).	While this species will help to stabilize banks, it does not contribute to other riparian vegetation functions such as overhanging banks and shading. It can be found even on deeply incised channels (up to 12 feet above the water table (CE)); thus, the roots can likely grow to remain in contact with water as the water table drops. However, such plants have little vigor and likely little bank stabilization function.

[1]Summary of management and ecological function of desirable riparian species. Information is generally based on Padgett *et. al.* (1989), Hansen *et. al.* (1988) and Youngblood *et. al.* (1985) unless referenced. Statements followed by (CE) are based on observations by the author of this table, Dr. Caryl Elzinga, Salmon District botanist from 1990 to 1993.

Table 3-24: Undesirable Riparian Species[1]

Scientific Name	Common Name	Reason(s) Why an Undesirable Riparian Species
Agropyron repens	Quackgrass	An undesirable weedy species and aggressive competitor. The rooting system is rhizomatous, but shallow, providing little stabilization.
Agrostis stolonifera	Carpet bentgrass	Similar in form and ecology to Kentucky bluegrass, but not as abundant.
Bromus inermis	Smooth brome	An increaser under heavy grazing.
Centaurea maculosa	Spotted knapweed	A noxious weed that can invade riparian areas.
Cirsium arvense	Canada thistle	A noxious weed that will invade heavily grazed riparian areas.
Dactylis glomerata	Orchardgrass	A beneficial forage species in cultivated riparian areas; however, it does not provide the needed streambank stabilization.
Hordeum jubatum	Foxtail barley	An increaser under heavy grazing; poor stabilization; very low forage value; does not provide needed streambank stabilization.
Iris missouriensis	Rocky Mountain iris	An increaser under heavy grazing; no forage value.
Melilotus alba	Sweetclover	An increaser under grazing, and a colonizer of disturbed sites. These annual species provide very little for riparian stabilization (also *M. officinalis*).
Phleum pratense	Timothy	Another valuable pasture grass that does not provide desired riparian functions in natural systems.
Poa pratensis	Kentucky bluegrass	This rhizomatous low growing species is extremely resistant to grazing and trampling and has been shown to be an increaser under heavy grazing (Costello 1944; Schulz and Leininger 1990). This species is the most common replacer of more desirable riparian vegetation in the RA. Although rhizomatous, the roots are very shallow, thus providing little streambank stabilization. As a sod former, once established the species is quite competitive. While this species is not in itself an indicator of lowering water tables (it can occur in very wet sites), the dominance of this species in a riparian area will destabilize banks and make streams susceptible to downcutting. This species can tolerate a lower water table than more desirable *Carex* species listed in *Table 3-23*.
Taraxacum officinale	Dandelion	An increaser under grazing and an indicator of lowering water tables; does not provide needed streambank stabilization.
Trifolium repens	White clover	Because of its low structure, generally an increaser under grazing; does not provide needed streambank stabilization.

[1]Most of the information in this table is based upon the observations and general knowledge of Dr. Caryl Elzinga, Salmon District botanist from 1990 to 1993.

Special Status Plant Species

Twenty-seven special status plant species are known to occur on Salmon District BLM public lands, and six more species are suspected to occur. The general location of sensitive plant species is shown on *Map 38: Sensitive Plant Species.*

The special status species known or very likely to occur in the RA are described in *Table 3-25: Special Status Plant Species Known or Very Likely to Occur in the Challis Resource Area* and *Table 3-26: Habitat and Location Information for Known Special Status Plant Species.* The two globally rare species (wavy leaf thelypody and alkaline primrose) occur with several sensitive species, suggesting that the habitat itself is rare. The habitat areas associated with these two globally rare species are described more fully in *Appendix I, Item 2: Habitat Areas Associated with the Alkaline Primrose and Wavy Leaf Thelypody,* p. 656.

Inventory of special status and rare plants in the RA is ongoing, and new populations and species continue to be identified. *Table 3-27: Rare and Endemic Plant Species Known or Likely to Occur* lists additional species that may occur within the Challis Resource Area. Some of these species are not listed as sensitive by the BLM, because they are not known to occur on BLM lands. Other species in this table are known to occur in the Lemhi Resource Area of the Salmon District BLM, and may also occur in the Challis RA. Still others are endemic to central Idaho, but are so common that they are not treated as sensitive.

Little is known about the distribution, size, and trend of special status vascular plant species populations in the RA, and no data exist for non-vascular plants (lichens, mosses, fungi, and algae). The uniqueness of vascular flora in the Challis area suggests there may be unique non-vascular flora as well. Two sites in the RA (the Malm Gulch area and the Summit Creek area) are currently designated as Areas of Critical Environmental Concern in order to protect their unique plant values.

Information on the condition of special status plant species in the RA is limited to habitat and population structure information collected with new species locations. This information is insufficient to determine condition. However, no evidence indicates that individual populations are increasing in size. Population sizes may in fact be decreasing due to the effects of surface disturbing activities such as rangeland improvements, mining activity, off-highway vehicle use, and road maintenance. In addition, other uses may be affecting rare and sensitive plants. For example, three years of monitoring the alkaline primrose has shown that livestock reduce the annual seed production of the primrose when they consume flower stalks. However, a four-year demographic study indicated that alkaline primrose may benefit in other ways from some grazing. Three other sensitive species (*Astragalus leptaleus*, *Elaegnus commutata*, and *Salix candida*) occur in riparian areas and may be affected by the concentration of livestock in these areas.

Use of the special status plant species known or suspected to occur in the Challis RA is presently limited to scientific and recreational observation. No known commercial uses for these species exist at this time. (**Note:** The cushion cactus is on the sensitive plant list to protect this species from commercial collecting.)

Table 3-25: Special Status Plant Species Known or Very Likely to Occur in the Challis Resource Area

Species status given by: BLM (1996 list), Forest Service (1994 Region 4 list), Idaho Native Plant Society (Idaho Native Plant Society 1998), Idaho Conservation Data Center (12/96 list). Status codes: T=Threatened, S=Sensitive, SS=State Sensitive, S1=State Priority 1, SC=Species of Concern (see *Glossary*: sensitive species, threatened species). Distribution codes: P-peripheral, D-disjunct, CI-Central Idaho endemic, CE-Challis endemic, L-limited in distribution, but not truly disjunct or peripheral. Additional Idaho Native Plant Society (INPS) status codes are defined as a footnote to this table.

Scientific Name	Family	Common Name	BLM	FS-R4	INPS[1]	Fed.	Distr.
Astragalus amblytropis	Fabaceae	Challis milkvetch	S		G3, 11		CE
Astragalus amnis-amissi	Fabaceae	Lost River milkvetch		S	G3, 11		CI
Astragalus aquilonius	Fabaceae	Lemhi milkvetch	S	S	G3, 5		CI
Astragalus diversifolius	Fabaceae	Meadow milkvetch	S	S			L
Astragalus leptaleus	Fabaceae	Park milkvetch	S				L
Astragalus paysonii	Fabaceae	Payson's milkvetch	S			SC	CI
Astragalus vexilliflexus var. *nubilus*	Fabaceae	White Clouds milkvetch		S	G4/T2,12	SC	L
Bouteloua gracilis	Gramineae	Blue gramma	S		S1		D
Chrysothamnus parryi var. *montanus*	Asteraceae	Centennial rabbitbrush	S			SC	L
Coryphantha vivipara	Cactaceae	Cushion cactus	S				L
Cymopterus douglasii	Umbelliferae	Douglass' wavewing		S	G3, 11	SC	CI
Cymopterus ibapensis	Umbelliferae	Ibapah wavewing	S		SS		CI
Draba incerta	Cruciferae	Silvery draba	S		SS		CI
Draba trichocarpa	Cruciferae	Stanley whitlow-grass		S	G2, 11		CE
Eatonella nivia	Asteraceae	White eatonella	S		SS		D
Elaegnus commutata	Elaeagnaceae	American silverberry	S				P
Epipactis gigantea	Orchidaceae	Giant helleborine	S		S1		L
Erigeron salmonensis	Asteraceae	Salmon River fleabane				SC	CI
Eriogonum capistratum var. *welshii*	Polygonaceae	Welsh's buckwheat	S	S	G4/T2, 9		L
Eriogonum maledonum	Polygonaceae	Guardian buckwheat		S	G1, 11		CE
Haplopappus insecticruris	Asteraceae	Bugleg goldenweed	S			SC	L
Lomatogonium rotatum	Gentianaceae	Marsh felwort	S		S1		D
Oxytropis besseyi var. *salmonensis*	Fabaceae	Challis crazyweed	S	S	G5/T3,12		CE
Penstemon lemhiensis	Scrophulariaceae	Lemhi penstemon	S	S		SC	CI

Scientific Name	Family	Common Name	BLM	FS-R4	INPS[1]	Fed.	Distr.
Physaria didymocarpa var. *lyatra*	Brassicaceae	Salmon twin bladderpod	S			SC	CI
Poa abbreviata var. marshii	Gramineae	Marsh's bluegrass		S	G5/T2,12		
Primula alcalina	Primulaceae	Alkali primrose	S		G1, 8	SC	CI
Salix candida	Salicaceae	Hoary willow	S		SS		P
Spiranthes diluvialis	Orchidaceae	Ute Ladies'-tresses				T	L
Sullivantia hapemanii var. *hapemanii*	Saxifragaceae	Hapeman's sullivantia				SC	CI
Thelypodium repandum	Cruciferae	Wavy leaf thelypody	S	S	G3, 11	SC	CE
Thlaspi idahoense var. *aileeniae*	Brassicaceae	Stanley thlaspi		S	G4/T3,12		CI
Xanthoparmelia idahoensis	Parmeliaceae	Idaho range lichen	S		G2, 8		CI

[1]GLOBALLY RARE SPECIES

Globally Rare species are assigned to one of four categories: Globally Extinct (GX), Global Priority 1 (G1), Global Priority 2 (G2), or Global Priority 3 (G3). Global ranks are defined below. In addition, each globally rare species that is not currently listed as Endangered or Threatened under the Endangered Species Act receives a Threat Priority rank. This one-through-twelve rank is based on the old USFWS Listing Priority criteria and is explained below. The INPS will continue to recommend species for the federal Candidate list, and also for Conservation Agreements, as part of the Idaho Conservation Effort.

Global Rank:

G = Global rank indicator; denotes rank based on rangewide status.
T = Trinomial rank indicator; denotes rangewide status of variety or subspecies.
X = Considered extinct throughout its range.

1 = Critically imperiled because of extreme rarity or because of some factor of its biology making it especially vulnerable to extinction (typically 5 or fewer occurrences.
2 = Imperiled because of rarity or because of other factors demonstrably making it very vulnerable to extinction (typically 6 to 20 occurrences).
3 = Rare or uncommon, but not imperiled (typically 21 to 100 occurrences).
4 = Not rare and apparently secure, but with cause for long-term concern (usually more than 100 occurrences).
5 = Demonstrably widespread, abundant, and secure.

Threat Priority:

Priority	Taxonomy	Threat	
		Magnitude	Immediacy
1	Monotypic genus	High	Imminent
2	Species		
3	Subspecies/Variety		
4	Monotypic genus		Non-imminent
5	Species		
6	Subspecies/Variety		
7	Monotypic genus	Low	Imminent
8	Species		
9	Subspecies/Variety		
10	Monotypic genus		Non-imminent
11	Species		
12	Subspecies/Variety		

Idaho Native Plant Society, 1998.

Table 3-26: Habitat and Location Information for Known Special Status Plant Species

Scientific Name	Location	Habitat	Soils	Community
Astragalus amblytropis	Salmon River from the East Fork to Ellis, and the East Fork Salmon River, especially Road Cr., Herd Cr., and Spar Canyon.	Steep erosive slopes, little vegetated, south facing, dry.	Challis volcanic weatherings including rhyolitic and andesitic weatherings.	*A. confertifolia, O. hymenoides, A. tridentata wyomingensis, C. nauseosus., E. nudicaulis, S. hystrix.*
Astragalus amnis-amissi	Near Mackay, Idaho in canyons of the Lost River Range.	Steep canyons, in moist cracks and ledges.	Limestone, calcareous.	
Astragalus aquilonius	Round Valley and Bradshaw Flat, as well as associated with *T. repandum.* Also at southern end of the Lemhi and Lost River Ranges.	Most abundant on the gentle slopes near Challis, Idaho but also on steep erosive slopes and in washes; generally south facing, dry.	Challis volcanic weatherings, limestone gravelly slopes and shallow sandy loams.	*A. tridentata wyomingensis, P. secunda, S. hystrix, C. viscidiflorus, A. confertifolia, A. spicatum, E. ambiguus salmonis.*
Astragalus diversifolius	Thousand Springs wetland	Alkaline wet meadows	Soils often alkaline with obvious whitish deposits.	*Salix spp., Carex spp.*
Astragalus leptaleus	Most populations known from along the Big Lost River above the confluence with Thousand Springs Cr. Also along Road Creek and tributaries.	Riparian, at the edge of the riparian area or beneath shrubs; usually where moist, but not saturated.	Various. Soils often alkaline with obvious whitish deposits.	*S. geyeriana, S. boothii, P. pratensis, O. deflexa, D. cespitosa, A. eucosmus, A. alpinus, S. debilis, J. balticus, Sisyrinchium idahoense.*
Astragalus vixilliflexus var. *nubilus*	White Cloud Mountains, Thompson Creek area.	Subalpine/alpine.	Weatherings of Challis volcanics.	*A. tridentata vaseyana, F. idahoensis.*
Coryphantha missouriensis *Coryphantha vivipara*	These species are fairly common throughout the RA.	Generally in dry sage/grass habitats on gentle slopes.	Sandy loam to loam.	*A. tridentata wyomingensis, P. secunda, A. arbuscula, S. hystrix, A. spicatum.*
Cymopterus douglasii	Lost River Range.	Alpine and subalpine meadows above 9,500 feet elevation.	Calcareous or dolomitic substrates.	*Forb and grass types.*
Cymopterus ibapensis	Mouth of Railroad Canyon (Lemhi County).	Gravelly slopes, valley bottom to timberline.	Limestone.	*A. tridentata wyomingensis, A. arbuscula nova, P. sandbergii.*
Draba incerta	One BLM location is known near Jerry Peak within the Lake Creek ACEC.	Northwest facing, 50% slope.	Moderately deep gravelly moist soil derived from Challis volcanics.	*Phlox pulvinata, Cymopteris bipinnatus, Sedum lanceolatum, Potentialla diversifolia.*
Draba trichocarpa	Stanley Basin.	Windswept lithic knobs and ridges.	Decomposed granitics.	*A. tridentata vaseyana.*
Eatonella nivia	One location known within the Malm Gulch ACEC. The species is disjunct from the Great Basin.	Mid-elevation desert.	Sandy to gravelly thin soil, often on basalt.	*A. tridentata wyomingensis.*
Elaegnus commutata	Small population occurs along the Salmon River within the Bayhorse Campground.	Riparian, edge riparian.	Floodplain alluvium.	*Salix geyeriana, Salix exigua, Populus tremuloides.*
Epipactis gigantea	Elk Bend, hot springs	Springside, thermal springs.	Limestone weatherings.	*Carex, Juncus.*

Scientific Name	Location	Habitat	Soils	Community
Eriogonum capistratus var. *welshii*	Antelope Flat, east of Mackay, ID.	Alluvial fans of Big Lost River Range.	Calcareous gravels.	*A. arbuscula nova*
Eriogonum maledonum	Sawtooth National Recreation Area.	Unstable scree slopes.	Granitics.	*A. tridentata vaseyana*
Gymnosteris parvula	No populations are known, but a record is suspected near Friday Spring in Round Valley.	Sandy-loam flats.	Sandy.	*A. tridentata tridentata*
Lomatogonium rotatum	Summit Creek ACEC, Thousand Springs wetland.	Spring-fed calcareous headwaters system.	Highly alkaline clay.	*Salix boothii, B. occidentatlis, P. pratensis, J. balticus, C. microptera, Sysirinchium idahoense, Phlox kelsyi.*
Oxytropis besseyi var. *salmonensis*	A Challis endemic, this species is relatively common in the Challis, Idaho area, along the East Fork Salmon River, and along the Salmon River to Ellis, Idaho.	Steep (30%) to more gentle slopes, generally south facing, or in washes. Usually dry, sparsely vegetated, open communities.	Sandy to gravelly erosive substrates derived from Challis volcanics.	*O. hymenoides, A. spicatum, A. tridentata wyomingensis, A. confertifolia, P. secunda, S. hystrix, E. nudicaulis, E. ambiguus salmonis.*
Primula alcalina	Summit Creek ACEC.	Spring-fed calcareous headwater wetland systems.	Highly alkaline clay.	*Salix boothii, B. occidentatlis, P. pratensis, J. balticus, C. microptera, Sysirinchium idahoense, Phlox kelsyi.*
Salix candida	Summit Creek ACEC.	Spring-fed calcareous headwater wetland systems.	Highly alkaline clay.	*Salix boothii, B. occidentatlis, P. pratensis, J. balticus, C. microptera, Sysirinchium idahoense, Phlox kelsyi.*
Stipa pinetorum	The species is known from Custer and Clark counties, generally at higher elevations than BLM lands.	Dry rocky areas, from sagebrush to higher elevations.	No information.	No information.
Thelypodium repandum	Salmon River from the East Fork Salmon River to Ellis, Idaho, and the East Fork Salmon River, especially Road Cr., Herd Cr. and Spar Canyon.	Steep erosive slopes, little vegetated, south facing, dry.	Challis volcanic weatherings, including rhyolitic and andesitic weatherings.	*A. confertifolia, O. hymenoides, A. tridentata wyomingensis, C. nauseosus., E. nudicaulis, S. hystrix.*
Xanthoparmelia idahoensis	No populations known in Custer County; only known populations occur in Lemhi County, near the town of Salmon.	Bare bentonite outcrops.	Lacustrine ash deposits.	Occurs on bare slopes. Surrounding area: *Atriplex confertifolia, Sarcobatus vermiculatus.*

Table 3-27: Rare and Endemic Plant Species Known or Likely to Occur in the Challis Resource Area, by Distribution

NOTE: Species known only from the Challis area are identified with an asterisk. Other species are endemic to central Idaho, but do not have as restricted a distribution as the Challis endemics. Species that are also considered sensitive are listed in *Table 3-25: Special Status Plant Species Known or Very Likely to Occur in the Challis Resource Area.*

Scientific Name	Common Name	BLM[1]	Distribution[2]
Allium simillimum	Dwarf onion	Y	CI
Astragalus adanus	Boise milkvetch	Y	P
Astragalus platytropis	Broad-keeled milkvetch	Y	L
Carex eurycarpa	Wide-fruited sedge	L	D
Castilleja crista-galli	Cockscomb paintbrush	M	P
Castilleja longispica	Yellow paintbrush	L	L
Chaenactis evermannii	Evermann's fleabane	Y	I
Chrysothamnus parryi salmonensis	Salmon River rabbitbrush	Y	CE
*Cryptantha salmonensis**	Salmon River cryptantha	Y	CE
Cryptantha scoparia	Desert cryptantha	Y	P
Draba hitchcockii sp. *nov*	Hitchcock's draba	M	CI
Draba oreibata	Limestone draba	Y	D
Elymus ambiguus var. *salmonis*	Salmon River wild rye	Y	CI
Encelopsis nudicaulis	Naked sunray	Y	D
Eriastrum sparsiflorum wilcoxii	Eriastrum	Y	D
Erigeron asperugineus	Rough fleabane	Y	L
Frasera montana	White frasera	Y	CI
Gilia leptomeria	Great Basin gilia	Y	P
Gilia spicata	Spicate gilia	Y	P
Haplopappus greenei	Greene's haplopappus	L	D
*Hymenopappus filiformis idahoensis**	Hymenopappus	Y	CE
Kelseya uniflora	Kelseya	L	L

Scientific Name	Common Name	BLM[1]	Distribution[2]
Langloisia setosissima	Langloisia	M	D
Lesquerella carinata	Keeled bladderpod	Y	CI
Lithophragma tenella thompsonii	Slender fringecup	Y	K
Lomatium idahoense	Idaho biscuitroot	L	CI
Penstemon payettensis	Payette penstemon	L	P
Phacelia idahoensis	Idaho phacelia	M	CI
Phacelia incana	Hoary phacelia	M	P
Phlox albomarginata	White margined phlox	Y	CI
Phlox austromontana	Desert phlox	L	L
Physaria geyeri var. *purpurea*	Geyer's twinpod	Y	CI
Ribes hendersonii	Henderson's gooseberry	Y	CI
Syntheris pinnatifida canescens	Cutleaf synthyris	L	L

[1] BLM = potential for occurrence on BLM public lands (Y = yes, L = likely, M = maybe).
[2] Distribution: D = disjunct, P = peripheral, L = limited, CI = central Idaho, CE = Challis endemic.

Noxious Weeds

Table 3-29: Noxious Weed List for the State of Idaho (see page 145) lists all weeds identified as noxious under the Idaho State Weed Law (Chapter 34, Idaho Code) (noxious weed species known to occur in the Challis Resource Area are highlighted, and species likely to spread to the RA during the life of the RMP (approximately 20 years) are marked with an asterisk). Other weedy and poisonous species which present management challenges in the RA but are not on the Idaho Noxious Weed List are presented in *Table 3-28: Undesirable Species Known to Occur in the Challis Resource Area.* These species are not included on the State list for various reasons, such as they are (a) too widespread to mandate treatment, (b) not a significant agricultural threat, or (c) troublesome, but not noxious. One undesirable species of concern is cheatgrass (*Bromus tectorum).* This annual grass was introduced into the Great Basin region from Europe, probably in the late 1880s. It has spread throughout the region to the point where it currently exists in every county in the Great Basin (Karl *et. al.* 1995, quoted in Quigley and Arbelbide 1997). An excellent description of the cheatgrass problem, including ecology, thresholds, and control, is contained in *An Assessment of Ecosystem Components in the Interior Columbia Basin and Portions of the Klamath and Great Basins* (Quigley and Arbelbide, tech. eds. 1997). *Map 28: Known Noxious Weed Infestations* illustrates the general locations of weed infestations. In general, road corridors are the main areas of infestation, but some populations have been located

well away from roads.

Weed infestations can occur or spread when weed seeds are spread by human activities such as road maintenance, carried by livestock or wildlife, or dispersed by water or wind. In addition, ground disturbing activities provide open sites for weeds to invade.

Noxious weed control efforts are done under contract with Custer and Lemhi counties. The BLM identifies the need for noxious weed control in particular areas and prepares an annual Pesticide Use Proposal and Environmental Assessment. Meetings are held with the County Weed Supervisor to plan treatment areas and strategies each year. The counties perform much of the actual weed control, with BLM oversight. Most noxious weed control has consisted of spraying leafy spurge and spotted knapweed with herbicides, normally 2,4-D or Picloram. Other noxious weed species treated include henbane, Dyer's Woad, toadflax, and several types of thistle. Other treatment methods used include mechanical treatments (pulling) in sensitive areas (such as areas adjacent to streams) and biological control methods, such as the use of naturally occurring insects or diseases that attack the specific noxious weed. Most of the noxious weeds present within the Challis Resource Area are introduced plants from other parts of the world, such as eastern Europe or Eurasia. They become noxious because their naturally occurring diseases and/or insects that would normally keep them under control have not been introduced along with the plant. Biological control methods seek to control introduced noxious plants by reintroducing the naturally occurring control agents (diseases or insects) that occurred in the area where the plant originated.

Poisonous plants, while posing a threat to livestock, are generally not designated as noxious weeds by the State. These plants are native, usually perennial, and would not be possible to control. The most significant poisonous plants found in the Challis Resource Area include larkspur (*Delphinium occidentale*), halogeton (*Halogeton glomeratus*), and death camas (*Zygadenus venenosus*). These plants could be treated under *Vegetation Treatment on BLM Lands in the Thirteen Western States - FEIS* (BLM 1991).

Table 3-28: Undesirable Species Known to Occur in the Challis Resource Area

Tumble pigweed	*Amaranthus albaus*
Quackgrass	*Agropyron repens*
Cheatgrass	*Bromus tectorum*
Blue mustard	*Chorispora tenella*
Meadow thistle	*Cirsium scariosum*
Bull thistle	*Cirsium vulgare*
Tall larkspur	*Delphinium occidentale*
Flixweed	*Descurainia sophia*
Curly cup gumweed	*Grindelia squarrosa*
Broom snakeweed	*Gutierrezia sarothrae*
Halogeton	*Halogeton glomeratus*
Foxtail barley	*Hordeum jubatum*
Kochia	*Kochia scoparia*
Prickly lettuce	*Lactuca serriola*
Russian thistle	*Salsola iberica*
Tumble mustard	*Sisymbrium altissimum*
Medusahead*	*Taeniatherum caput-medusae*
Common tansy	*Tanacetum vulgare*
Field pennycress	*Thlaspi arvense*
Seaside arrowgrass	*Triglochin maritima*
Common mullein	*Verbascum thapsus*
Meadow deathcamas	*Zygadenus venenosus*

*Species likely to infest during the life of the RMP (about 20 years).

Spotted knapweed

Leafy spurge

Table 3-29: Noxious Weed List for the State of Idaho

Jointed goatgrass	*Aegilops cylindrica*
Skeletonleaf bursage*	*Ambrosia tomentosa*
Hoary cress (or Whitetop)	*Cardaria draba*
Musk (or nodding) thistle	*Carduus nutans*
Diffuse knapweed	*Centaurea diffusa*
Spotted knapweed	*Centaurea maculosa*
Meadow knapweed	*Centaurea pratense*
Russian knapweed	*Centaurea repens*
Yellow starthistle*	*Centaurea solstitialis*
Rush skeletonweed	*Chondrilla juncea*
Canada thistle	*Cirsium arvense*
Poison hemlock	*Conium maculatum*
Field bindweed	*Convolvulus arvensis*
Common crupina	*Crupina vulgaris*
Scotch broom	*Cytisus scoparius*
Toothed spurge	*Euphorbia dentata*
Leafy spurge	*Euphorbia esula*
Orange hawkweed	*Hieracium aurantiacum*
Yellow (or meadow) hawkweed	*Hieracium pretense*
Black henbane	*Hyoscyamus niger*
Dyer's woad	*Isatis tinctoria*
Perennial pepperweed*	*Lepidium latifolium*
Dalmation toadflax	*Linaria dalmatica*
Yellow toadflax	*Linaria vulgaris*
Purple loosestrife*	*Lythrum salicaria*
Milium	*Milium vernale*
Matgrass	*Nardus stricta*
Scotch thistle	*Onopordon acanthium*
Tansy ragwort	*Senecio jacobaea*
Silver-leaf nightshade	*Solanum elaeagnifolium*
Buffalo bur	*Solanum rostratum*
Perennial sowthistle	*Sonchus arvensis*
Johnsongrass	*Sorghum halepense*
Puncture vine*	*Tribulus terrestris*
Syrian beancaper	*Zygophyllum fabago*

Note: Noxious weed species known to occur in the Challis Resource Area are highlighted in bold type.

*Species likely to infest during the life of the Challis RMP (about 20 years).

Sources: Idaho Department of Agriculture, October 1997 list of species present in the Challis RA; *and* Callihan, Robert H. and Timothy W. Miller. 1997. A Pictorial Guide to Idaho's Noxious Weeds. Noxious Weed Advisory Council, Idaho Department of Agriculture, Boise.

Visual Resource Management.

Law, Regulation, and Policy

Major legal authorities for the visual resource program are found in the Federal Land Policy and Management Act of 1976 (43 U.S.C. 1701 *et seq.*) and the National Environmental Policy Act of 1969 (43 U.S.C. 4321 *et seq.*).

Affected Environment

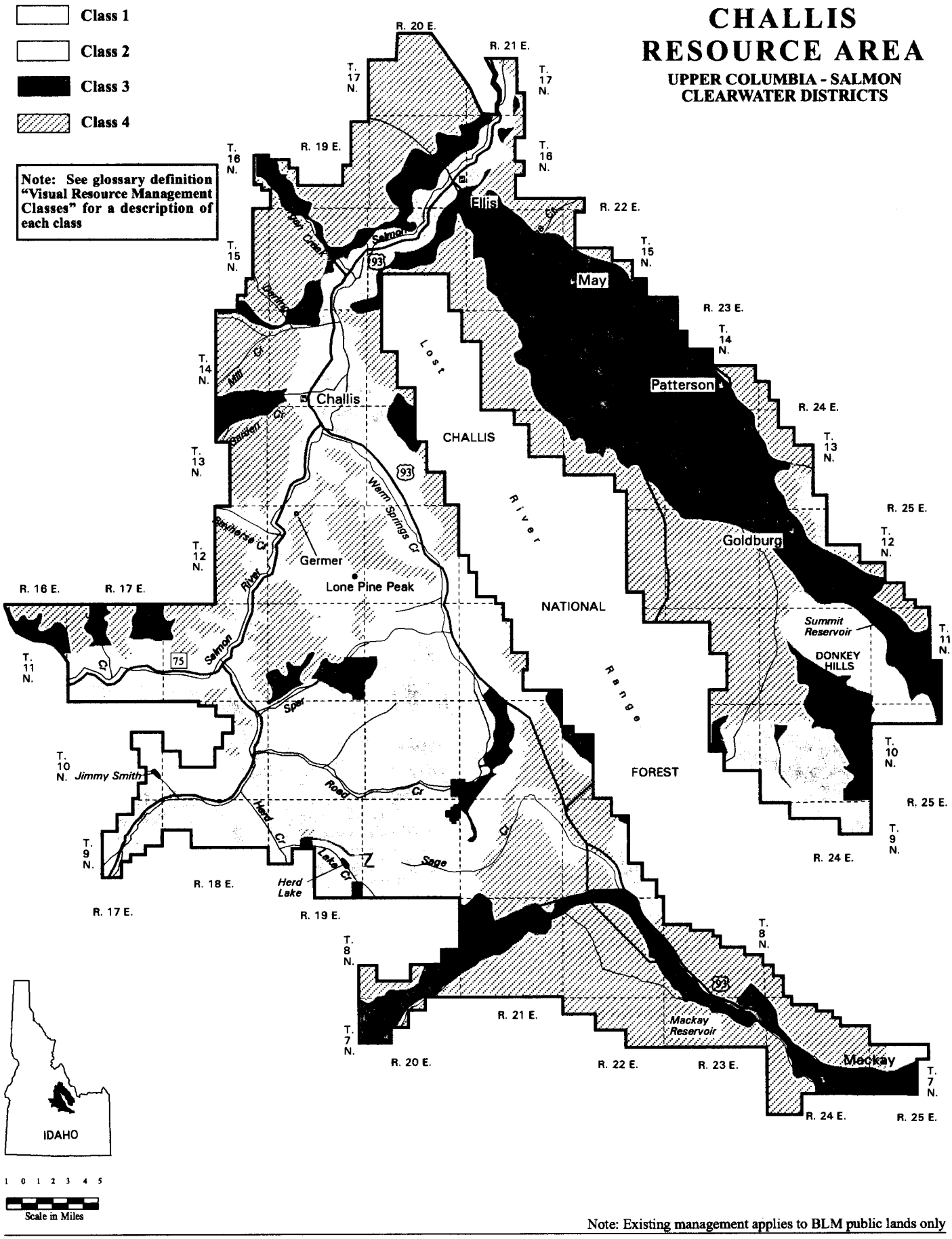
The visual resources of the Challis Resource Area were inventoried and classified in accordance with procedures similar to those outlined in the BLM Handbook 8410-1 during preparation of the *Challis Management Framework Plan* (MFP) (1979), the *Ellis-Pahsimeroi MFP* (1982), and the *Mackay MFP* (1983, as amended). The classification process considered scenic quality and visual and public sensitivity. More specifically, class designations were derived from an overlay technique which combined the maps of scenic quality, sensitivity levels, and distance zones. Overlays helped identify areas with similar combinations of factors. These areas were assigned one of five visual management classes according to predetermined criteria listed in *Visual Resource Management Program* (BLM 1980). Management classes describe the different degrees of modification allowed on basic elements of the landscape (see *Glossary*: visual resource management classes). Generally, the lower the class number, the more sensitive the area is to visual intrusions.

Table 3-30 and *Map 3-4: Existing Visual Resource Management* show the acreage of the Challis RA currently within each Visual Resource Management (VRM) class.

Table 3-30: Acreage for VRM Classes in the Challis RA*

	VRM Class	Acreage	% of RA
I	(Preservation)	191,521	24.2
II	(Retention)	97,376	12.3
III	(Partial Retention)	170,746	21.5
IV	(Modification)	332,924	42.0
V	(Rehabilitation or Enhancement)	0	0.0

*Acres are approximations from the Challis, Ellis-Pahsimeroi, and Mackay Management Framework Plans, and therefore do not equal the total acreage for the Challis RA (792,567 acres).



Note: Existing management applies to BLM public lands only

Class I VRM rating is reserved for designated areas, such as WSAs and Wild and Scenic Rivers, where preservation of the landscape is the primary management goal. Class II VRM rating is used for areas where the visual environment is the same high quality as designated areas, but the area has no Congressional designation. This classification could include areas such as ACECs and SRMAs. Class III VRM rating is reserved for areas where development is evident, but does not dominate the viewshed (generally highway corridors and rural areas where the scenery is not a major resource concern). Class IV VRM rating is generally reserved for areas where the visual intrusions dominate the viewshed, but are in character with the landscape (areas such as rural communities, multiple subdivisions, mining developments, etc.). A Class V VRM rating is reserved for areas where the natural character of the landscape has been disturbed to a point where rehabilitation is needed to bring it up to one of the other four classes. It is often used as an interim classification until objectives of another class can be reached. This classification is often used for dumpsites, minesites, or the like.

The visual quality of the Challis RA is very high, due to inherent characteristics of the area's landforms, vegetation, and land use patterns and because there are few visual intrusions. Resource uses which lower the visual quality of the RA include powerlines, gravel pits, unauthorized dumps, casual OHV use (roadways and hillclimbs), and heavy livestock use. In most cases, proposed projects are analyzed for visual intrusions that could occur; when practical, mitigation measures are developed in order to decrease the impacts on visual resources. However, it is rare for visual concerns to halt a project.

The outstanding visual resources of the Challis RA include the following two areas.

Upper Salmon River Special Recreation Management Area - This SRMA contains a very rugged riverine canyon of the main Salmon River which is generally followed by Highways 75 and 93. The scenic view of this area has been recognized locally, regionally, and nationally, being listed as "eligible" for study as a potential addition to the National Wild and Scenic Rivers system (National Park Service 1982). The two highways that follow the main Salmon River canyon have a Scenic Byway designation. Currently, the entire SRMA is VRM Class I.

East Fork Salmon River - A tributary to the main Salmon River, this riverine valley winds its way through hayfields and steep canyons. There are portions of three Wilderness Study Areas (WSAs) within the river corridor: Jerry Peak West, Corral-Horse Basin, and Boulder Creek. No portions of these WSAs have been recommended suitable for wilderness designation. This river has also been listed as "eligible" for study as a potential addition to the National Wild and Scenic Rivers system (National Park Service 1982). The East Fork Salmon River has recently been identified by the BLM as a Wildlife Viewing Route. Currently, the river canyon has a VRM Class I designation.

The demand for high quality visual experiences in the RA is growing. Recreational use of the RA is increasing, and many visitors are drawn to the RA especially for the "scenery." The supply of outstanding scenery is moderate to high, especially when viewsheds are combined with National Forest system lands. According to several sources, recreation/tourism activities which

depend on high quality visual resources are a major component of the local, regional, and State-wide economy. The *1987 Idaho Leisure Travel and Recreation Survey* revealed that 53% of all visitors to Idaho have come for recreational purposes. This recreation use is often dependent on the visual resource. According to *Outdoor Recreation in a Nation of Communities* (Task Force on Outdoor Recreation Resources 1988: 62), the most popular land-based recreation activities of Americans are sightseeing (46.9%), picnicking (46.2%), walking for pleasure (41.3%), and driving for pleasure (in order to enjoy scenery) (38.4%). An Idaho Department of Commerce study (1990) found that 40 to 50% of all tourist visitations were for sightseeing.

Water Resources.

Law, Regulation, and Policy

Hydrology and Watershed Management: Hydrology and watershed management within BLM public lands is authorized under many laws and executive orders, including the major authorities listed below. Many of these authorities are described further in *Appendix E, Item 1,* pp. 638-643.

1) Taylor Grazing Act of 1934, as amended (43 U.S.C. 315).
2) Soil Conservation and Domestic Allotment Act of 1935, as amended (16 U.S.C. 590).
3) Appropriations Act of 1952, McCarran Amendment (43 U.S.C. 666).
4) Watershed Protection and Flood Control Act of 1954, as amended (16 U.S.C. 1001 *et seq.*).
5) Federal Land Policy and Management Act of 1976 (43 U.S.C. 1701 *et seq.*).
6) Clean Water Act of 1977 (33 U.S.C. 404).
7) Public Rangelands Improvement Act of 1978 (43 U.S.C. 1901 *et seq.*).
8) Classification and Multiple Use Act (43 U.S.C. 1411-18).
9) Executive Order (Public Water Reserve No. 107) of April 17, 1926, which withdrew and reserved important springs and waterholes on public lands.
10) Executive Order 11738 of September 10, 1973, which directs each Federal agency to enforce the Clean Air Act and Clean Water Act in the procurement of goods, materials, and services.
11) Executive Order 11752 of December 17, 1973, which mandates that Federal agencies provide national leadership to protect and enhance the quality of air, water, and land resources through compliance with applicable Federal, state, and local pollution standards.
12) Executive Order 11988 (amended by Executive Order 12148) of May 24, 1977.
13) Executive Order 11990 of May 24, 1977.
14) Executive Order 12088 of 1978 (Federal Compliance with Pollution Control Standards) requires Federal compliance with pollution control laws.

Water Quality: The Clean Water Act of 1977, as amended in 1987, provides for the protection, restoration, or improvement of water quality, enables states to establish programs for regulating and managing nonpoint source pollution, and directs Federal agencies to comply with state water quality laws. Various executive orders and Department of Interior and BLM manuals also direct the BLM to maintain and improve water quality. The Idaho Department of Health and Welfare Division of Environmental Quality (DEQ) has responsibility for ensuring water quality within Idaho. Specific water quality standards for each beneficial use are identified in the Idaho code.

Affected Environment

Hydrology and Watershed

The Challis Resource Area is within the Columbia River hydrologic region and the lower Snake River sub-region. The principal drainage of the RA is the Salmon River and its tributaries; the East Fork Salmon River and Pahsimeroi River are major drainages contributing to the Salmon River. The RA also includes a large part of the Big Lost River Basin and a small portion within the Little Lost River Basin (see *Map 25: Geography and Principal Drainage Basins*).

The Salmon River flows for 43.3 miles through the RA, with an average bed gradient of about 2.1%. The East Fork Salmon River flows for about 23 miles from the Forest Service/BLM boundary to its confluence with the main Salmon River. Within this area the East Fork Salmon River has an average gradient of about 1% and an average channel width of 40 to 60 feet. The major tributaries to the East Fork Salmon River are relatively small (7 to 19 feet) with steep gradients (4 to 5%). These steep tributaries are best characterized as boulder/cobble plunge pool type systems; pool:riffle ratios generally fall between 20:80 to 30:70, and average depths range from 9 to 14 inches. (EastFork West Biological Evaluation, January 1993) The Pahsimeroi River flows into the Salmon River at Ellis, Idaho and flows through the Pahsimeroi Valley for about 40 miles, with a bed gradient of 1.45%. Much of the Pahsimeroi River is intermittent, especially at the upper reaches. The Big Lost River flows for about 38 miles from the Forest Service/BLM boundary to the point below Mackay Reservoir, where it leaves the Challis Resource Area - BLM to enter the Big Butte Resource Area - BLM. The bed gradient for the Big Lost River averages 4%. Contributing creeks to these principal rivers generally have much higher gradients.

Peak flows within drainages of the RA typically occur between April 15 and July 15 as a result of snowmelt. Spring runoff is usually 20 to 50 times base flow. Spring flows generally vary on a diurnal basis in response to freeze-thaw conditions occurring each day. Base flows throughout the remainder of the year are maintained by ground water and spring discharges. Overland flow runoff from precipitation is generally insufficient to sustain flows for an extended period of time. High intensity and widely dispersed summer convective thunderstorms can produce high discharges for a short duration.

Watershed erosion susceptibility was evaluated in 1977 using a terrain analysis procedure which considered physical features such as slope gradient, soil type, precipitation factors, and geology. The following table summarizes the portion of the Challis Resource Area in each class (Challis MFP 1979; Ellis-Pahsimeroi MFP 1982; and Mackay MFP 1983).

Table 3-31: Watershed Erosion Susceptibility; % of Challis RA by Susceptibility Class

Low to Slight	32%
Moderate	40%
High	21%
Severe	7%

A riparian inventory was conducted under contract from 1994-1995 throughout the Resource Area. A total of 84.1 miles were inventoried in 1994 within the main Salmon River and the East Fork Salmon River watersheds, and 43.9 miles were inventoried in 1995 within the Pahsimeroi River watershed. The RA contains approximately 340.1 miles of riverine riparian area. Information from this inventory and observational information about other riparian areas in the RA indicate that the overall riparian condition can be summarized as follows (see PRMP, *Attachment 1: Riparian-Wetland Area Function Classification*, pp. 101-102):

Riparian Area Function Classification	miles	percent
Proper Functioning Condition	121.8	35.8
Functional-at-risk: upward trend	40.5	11.9
Functional-at-risk: trend not apparent	132.2	38.9
Functional-at-risk: downward trend	16.7	4.9
Non-functional	28.9	8.5
Totals	340.1	100.0

Ground Water Quantity and Quality

The occurrence and distribution of ground water in the Challis Resource Area is determined by area geology. Primary sources of regional ground water include infiltration, stream channel losses, and water in fractures and faults of bedrock formations. The principal water-bearing deposits include alluvium and colluvium composed of glacial outwash deposits. Challis volcanics underlie most of the RA. Little is known about the water-bearing characteristics of Challis volcanics, except that water is commonly transported through joints, fractures, and faults. Wells in these formations are generally lower-yielding and deeper than those in alluvial deposits. Limestone and dolomite carbonates underlie parts of the Lost River Range and tend to conduct water in large fracture zones or caverns.

The flow of perennial and intermittent springs and streams is sustained by shallow ground water flow on a significant portion of rangelands (particularly high elevation lands). Ground water in alluvial valleys throughout the RA is closely linked to surface flows in stream and river channels. Alluvial materials in much of the RA are coarse, relatively free of silt and clays, and very permeable. As a result, streams tend to lose water very rapidly after they leave the upper basins and begin flowing across the alluvium. The seepage losses are very significant and affect surface waters in the Big Lost River, Little Lost River, and Pahsimeroi River basins. Seepage losses are not confined to the stream channels; they can be significant wherever water is diverted into ditches and onto irrigated fields as well. Conversely, during high flow events, surface water discharges increase dramatically when the alluvial storage capacities are exceeded. Channel and sheet flow erosion on alluvial fans can be significant as a result of rising water tables or saturated surface soils.

Spring and ground waters are generally classified as bicarbonate types. Most of the wells and spring waters sampled have been of good to excellent quality and suitable for all uses. Ground water in the RA is generally believed to be of adequate quantity and good to excellent quality -

suitable for the purposes intended on a Resource Area-wide basis.

Surface Water Quantity and Quality

The Challis Resource Area contains about 340.1 miles of streams and two small natural lakes (Red Lake, comprising less than five acres, and Herd Lake, covering about 25 acres). Reservoirs in the RA include Mackay Reservoir, just northwest of the town of Mackay, Idaho in the Big Lost River drainage, and Summit Reservoir in the Little Lost River drainage. Reservoir storage capacity in Mackay reservoir is up to 44,370 acre-feet. Average annual discharge estimates from the three principal watersheds in the RA are 1,430,000 acre-feet per year from the Salmon River (which includes the East Fork Salmon River and Pahsimeroi River drainages), 235,500 acre-feet per year from the Big Lost River, and 49,300 acre-feet per year from the Little Lost River.

Within the Challis Resource Area, approximately 2,300 on-site and developed claims are being filed by the BLM through the State of Idaho water rights adjudication process. Most of these claims are less than .02 cubic feet per second (cfs). These claims are being pursued in order to protect water-dependent uses on public lands. To date, the following streams have been identified for minimum instream flow claims: the Salmon River at Challis and Salmon, Idaho, the Pahsimeroi River, Hat Creek, the East Fork Salmon River, Squaw Creek, and Herd Creek. Other priority streams will be identified and processed for minimum instream flow claims in the future.

Surface waters originating on public lands are used for water-based recreation activities, domestic and agricultural water supplies, and maintenance of cold water fisheries and habitat. The City of Challis uses Garden Creek for its municipal supply. Municipal treatment facilities within the City of Challis have generally been adequate to accommodate any water quality problems within Garden Creek. Most other domestic water sources are from ground water on private land.

Surface water quality varies throughout the RA and is dependent on land use, local geology, and discharge. Extensive efforts to study and collect water and watershed data last occurred in the late 1970s and early 1980s. Since that time miscellaneous and periodic data collection has taken place. As a means of determining current water quality conditions and future trends within the Challis Resource Area, annual monitoring was implemented in 1993. Temperature data, macroinvertebrate samples, and limited water chemistry have been collected annually. In addition to these parameters, several single-event studies such as fecal coliform levels and ground water monitoring were performed by the Idaho Department of Health and Welfare's Division of Environmental Quality. Water quality conditions are assessed through a review of support of beneficial uses identified for each body of water. Assessment of support of the beneficial uses is accomplished through water quality sampling and a review of riparian habitat and channel characteristics. Beneficial uses and supported status for many of the streams in the Challis Resource Area are shown in *Appendix J, Item 1: Beneficial Use Classifications for Drainage Segments,* pp. 657-661.

"Water quality limited segments" (see *Glossary*, p. 186) are stream reaches officially identified by the State of Idaho which do not fully support the State designated and/or BLM identified beneficial uses for a given stream segment. These segments have one or more water quality-

related factors which limit the full attainment of full support of one or more beneficial uses. "Water quality limited segments" within the Challis Resource Area are identified in *Appendix J, Item 1: Beneficial Use Classifications for Drainage Segments,* pp. 657-661 (see stream segments noted with an asterisk "*").

Total Maximum Daily Loads (TMDLs) will need to be calculated for priority streams listed as "water quality limited segments." TMDLs are maximum pollutant loads that are allowable from all activities within the watershed, while still fully supporting beneficial uses. Basin and Watershed Area Groups established by Idaho State Law will help prioritize those streams on which TMDLs will be calculated and monitored.

Most surface water in the RA originates in the high mountainous areas above the principal drainages and is of high quality near its source. However, water quality in many tributary streams becomes degraded as waters travel down the mountain to the principal drainage. Water may flow through or adjacent to irrigated croplands, mine tailings, feedlots, roads, population centers, open rangeland, or wilderness. Degradation occurs as sediments from soil erosion or other transported pollutants are deposited in the stream. Water quality is also affected by the inflow of ground water which is, as a general rule, of good to excellent quality.

Concentrations of major inorganic constituents (measured as dissolved solids) generally increase as waters move downstream. Although concentrations of total dissolved solids tend to decrease with increasing flows, an increasing ground water component (which is often high in dissolved solids) can cause increasing concentrations in surface water flows.

Bacteriological water quality data indicate a wide variation in coliform levels over time. Generally, coliform levels vary directly with sediment and turbidity during runoff events and with the presence of livestock in the stream bottoms during low flow periods. Coliform levels at BLM sites below private land are often higher than at BLM sites above private land. Levels of coliform are almost always in excess of recommended drinking water criteria throughout the Resource Area. Cases of giardiasis believed to have been contracted from waters in the RA have been reported. Generally, watersheds with big game or livestock use or high recreational use have the greatest potential for high biological water pollutants. Most natural surface waters in the RA are probably biologically contaminated to some degree and a threat to human health if consumed untreated.

The sediment yield for streams in the RA varies depending on geology, soil type, precipitation, land use, and the physical characteristics of a given watershed. Sediment yields are accelerated in many areas by surface-disturbing land uses such as grazing, mining, road construction and maintenance, and off-highway vehicle use. Nutrient loading from grazing and agricultural practices is contributing to excessive nutrient impacts (Idaho Department of Water Resources, DEQ 1988).

Stream temperature is sometimes a limiting factor to salmonid production within the Challis RA. The impacts of high water temperature in the Resource Area are highly variable and result from a combination of several different factors. Poor vegetative condition in riparian areas can allow

excessive solar radiation to reach the stream, resulting in higher water temperatures. This effect is even more significant and damaging to fisheries populations during low flow or drought years. Diurnal variations in stream temperature are also exaggerated under these conditions. Conversely, areas with adequate mature riparian vegetation shade the stream channel, reduce the input of solar radiation, maintain cooler water temperatures (even in drought years), and reduce the diurnal fluctuation of water temperatures, thus enhancing the survival of fisheries resources. These conditions are particularly important during periods of low flow. Water temperature also has a significant influence on the concentration of dissolved oxygen in the water column; cooler temperatures (required for salmonid survival) have a higher oxygen saturation potential.

Summary of Surface Water Quality, by Principal Drainage Basin

The following paragraphs summarize the water quality of each main drainage within the Challis Resource Area. A more detailed description of water quality conditions within each drainage is provided in *Appendix J, Item 2*, pp. 662-666.

Overall, water quality in most of the tributaries of the East Fork Salmon River appears to be in good to fair condition, with three streams in good/stable condition, two streams exhibiting an upward trend, four streams remaining in fair, but static, condition, and one stream remaining in poor condition, but stable. In general, the upper reaches of each stream tend to be in better condition than reaches near the mouth. There is potential for continued improvement throughout the watershed.

The Main Salmon River Watershed, with the exception of Little Hat Creek, appears to be in good to fair condition, either remaining static and/or indicating slight to moderate improvement over time.

Water quality in the Upper Pahsimeroi River and most of its tributaries appears to be in good condition. Current trend is unknown, since monitoring has just recently been implemented in the majority of tributaries; however, there is slightly more degradation of water quality as one nears the mouth of the Pahsimeroi River, which is primarily due to private land use and irrigation diversions. Several outlying streams have been shown to exhibit less than desired aquatic health; these small, unvegetated streams at the upper end of the watershed have poor overall water quality conditions, but still maintain high potential for improvement.

Aquatic monitoring was implemented in 1997 in the Little Lost River Watershed. Preliminary results indicate that water chemistry is within desired levels. Although there is limited information available, water quality appears to be in good condition throughout the watershed.

At this time the BLM has little information about the Big Lost River Watershed, because monitoring of that watershed has not been conducted. It is believed that most streams meet temperature and pH requirements for cold water biota. Through observation and professional judgement, the majority of streams appear to be in a functional-at-risk category. Extrapolating from these conclusions, overall water quality would seem to be in fair condition, with the potential for improvement.

Wilderness Study Areas.

Law, Regulation, and Policy

Wilderness authority on public lands is found in the Federal Land Policy and Management Act of 1976 (43 U.S.C. 1701 *et seq.*) and in "Wilderness Study Policy; Policies, Criteria and Guidelines for Conducting Wilderness Studies on Public Lands" (*Federal Register*, Vol. 47, No. 23, 5098-5122). BLM guidance for Wilderness Study Areas is contained in BLM Manual H-8550-1 "Interim Management Policy and Guidelines for Lands Under Wilderness Review" (1995). Management guidance for the Wilderness Study Areas located in the Challis Resource Area is described in the *Challis MFP Amendment and Final EIS, Wilderness* (1982), *Big Lost/Pahsimeroi Final EIS, Wilderness* (1986), and *The Small Wilderness EIS* (1989).

Affected Environment

Seven Wilderness Study Areas (WSAs) totaling 142,260 acres of public lands are located within the Challis Resource Area (see *Map 42: Wilderness Study Areas*). The RA does not contain any designated Wilderness lands. However, the Frank Church - River of No Return (FC-RONR) Wilderness and Sawtooth Wilderness are on USFS lands within 25 air miles of the RA (see *Map 29: Local Wilderness Status*). The 2.2 million acre FC-RONR Wilderness is the largest in the contiguous 48 states, and is a popular recreation destination; the Wilderness had 475,000 Recreation Visitor Days in 1990 (Ken Stauffer, personal communication, Salmon National Forest). Several communities near the RA (Challis, Salmon, Stanley, Mackay, Sun Valley-Ketchum) depend on recreation-tourism for some portion of their local economies. Some of this recreation is specifically Wilderness-oriented, while other recreation opportunities depend on the scenery protected by WSA status. For example, portions of Mount Borah, the highest peak in Idaho and a popular destination for hikers and climbers, are located within the Borah Peak WSA.

The WSAs within the Challis RA were identified through an inventory process conducted between 1979 and 1981, following mandates in FLMPA, Section 603 and Section 202. WSA boundaries include portions recommended by the BLM to Congress as suitable for wilderness designation (see *Map 42: Wilderness Study Areas*). The Challis RMP is not intended to affect existing BLM recommendations on WSA suitability for wilderness designation, or to influence Congress' decision on which WSAs become designated wilderness. Instead, RMP decisions discuss management of the WSAs if *released* by Congress from wilderness review (see PRMP, WSAs - Management if Released from Wilderness Review, pp. 91-93).

Table 3-32 provides information about each WSA, including total acreage by designating authority and portions recommended to Congress as suitable for wilderness designation. All of these WSAs await either Congressional designation as wilderness, or formal release from wilderness review.

Table 3-32: Wilderness Study Areas in the Challis Resource Area

WSA #	WSA Name	Acreage by Designating Authority[1]		Suitable Portions[2] (acres)
		Section 603	Section 202	
ID 45-1	Goldburg		3,290	0
ID 45-12	Burnt Creek	24,980		8,300
ID 46-11	Corral-Horse Basin	48,500		0
ID 46-13	Boulder Creek		1,930	0
ID 46-14	Jerry Peak	46,150		26,750
ID 46-14a	Jerry Peak West	13,530		0
ID 47-4	Borah Peak		3,880	3,880
Totals		133,160	9,100	38,930

[1] Indicates the authority under which the WSA was designated: FLPMA Section 603 or 202.
[2] Portions recommended by the BLM to Congress as suitable for Wilderness designation.

The values that qualified each WSA for wilderness study have remained relatively unchanged. These values include naturalness, roadlessness, and opportunities for primitive and unconfined recreation. Authorized uses within the WSAs include livestock grazing, OHV use on existing roads and trails, and recreational uses in general (sightseeing, backpacking, hiking, horseback riding, etc.). Some unauthorized OHV use and firewood cutting have occurred in the WSAs since designation. Unauthorized OHV use is common in the WSAs; however, new boundary signing and BLM Ranger patrols are expected to discourage both unauthorized vehicle use and firewood cutting.

The affected environment of each WSA is summarized below. Each summary discusses adjacent USFS roadless areas (if any) (see *Map 29: Local Wilderness Status*); the general topography and vegetative characteristics of the WSA; any man-made intrusions within the WSA (which existed prior to WSA designation); and recreational use of the WSA. A more detailed description of the affected environment for each WSA may be reviewed in the following BLM documents, which are available for review in the Salmon Field Office: *Challis MFP Amendment and Final EIS, Wilderness* (1982), *Big Lost/Pahsimeroi Final EIS, Wilderness* (1986), and *The Small Wilderness EIS* (1989).

Goldburg WSA

The Goldburg WSA contains 3,290 acres (recommended nonsuitable), and is adjacent to the USFS North Lemhi Rare II area (340,416 acres), recommended by the USFS as nonsuitable for wilderness designation. The Goldburg WSA is characterized by moderately steep sagebrush/grass-covered slopes, with scattered patches of Douglas-fir forest in the upper elevations. Recreational OHV use is uncommon in the WSA. The WSA presents a natural-appearing environment, with only a few fences and scattered water developments.

Burnt Creek WSA

The Burnt Creek WSA contains 24,980 acres (8,300 acres recommended suitable), and is contiguous with the U. S. Forest Service RARE II Area 4-210, Borah Peak, which is also recommended suitable. The eastern and northern portions of the WSA are characterized by open sagebrush/grass-covered hills. The southern and western portions are steeper, with scattered pockets of Douglas-fir and juniper. Man-made intrusions include the following: the Burnt Creek and Short Creek roads, approximately eight miles of unimproved but noticeable vehicle ways, the remains of an old dam which can be seen on Dry Creek, five developed springs, and eight miles of grazing allotment fence. Recreational OHV use in the Burnt Creek WSA is estimated to be 100 visitor days annually, and is generally associated with two-wheel motorcycles and ATVs used for recreation and hunting. Because of the roads up Burnt Creek and Short Creek and vehicle ways above the old Dry Creek Reservoir, OHV users have relatively easy access into the three major drainages of the WSA. However, opportunities for solitude exist in the WSA due to its large size, topographic relief, vegetative screening, and remoteness.

Corral-Horse Basin WSA

The 48,500-acre Corral-Horse Basin WSA (recommended nonsuitable) is dominated by sagebrush/grass vegetation and scattered forested areas. The forested areas (approximately 2,000 acres) include 1,648 acres of commercial timber. Commercial timber volume is estimated at 12.36 MMBF (million board feet). All commercial forest stands are virgin old growth stands which have never been harvested. The WSA is the central home range of the Challis wild horse herd. Man-made developments include scattered fences and livestock waterholes. The fences blend into the natural landscape when viewed from more than one-half mile. Most waterholes have revegetated naturally, and appear to be a natural part of the landscape. Access to areas within the WSA is limited to some four-wheel drive trails and two poorly maintained roads (Anderson Ranch Road and Broken Wagon Road). Recreational uses include sightseeing, rockhounding, hunting, and wildlife and wild horse viewing. Visitor use is estimated at 1,000 visitor days annually for all types of recreation uses. The Challis ORV management plan currently restricts vehicle use to existing roads and trails because of WSA status. However, in the Sand Hollow area of the WSA, 3,905 acres are closed to OHV use due to fragile soils.

Boulder Creek WSA

The Boulder Creek WSA contains 1,930 acres (recommended nonsuitable), and is adjacent to the USFS Boulder/White Cloud Rare II area (433,000 acres). The portions of the RARE II area which are contiguous with the WSA were not recommended suitable for wilderness designation. The WSA is characterized by moderately steep sagebrush/grass-covered slopes, with small timber patches on the north and south ends. There are two short underground livestock water pipelines in the WSA. Three Forest Service trails pass through the WSA and provide access to the Sawtooth National Recreation Area (SNRA). Motorized recreational use is limited to trailbikes and is estimated at no more than 40 user days per year (most of this is "pass through" use by individuals heading into the SNRA). In conjunction with adjacent roadless lands, the WSA offers opportunities for solitude and primitive recreation.

Jerry Peak WSA

The Jerry Peak WSA (46,150 acres; 26,750 acres recommended suitable) is characterized by a variety of landforms and vegetation types, from low elevation sagebrush/grass to high elevation forested/subalpine areas. Forested sites (6,539 acres) include 3,843 acres of commercial timber, mostly old growth. Some stands in the eastern portion of the WSA were logged during the 1960s. Commercial timber volume is estimated at 28.8 MMBF. Most of the commercial timber is located between Herd Lake and Sage Creek and is suitable for logging. Ninety percent of the timber is Douglas-fir, with the remainder consisting of limber pine, subalpine fir, and Engelmann spruce. For the most part the timber consists of medium sawtimber (approximately 16 inches DBH). Slopes vary from 15 to 80 percent, with an average of 45 percent.

Man-made developments include scattered fences and spring developments associated with livestock management. Four unimproved two-track vehicle ways enter the WSA. The overall influence of human intrusions is light, due to the dispersal of developments.

Primary recreation activities are hunting, fishing and sightseeing. Hiking, backpacking, horseback riding and other recreational pursuits occur to a lesser extent. Herd Lake, accessible by road, is a primary destination point for many visitors. Visitor use is estimated to be 1,000 visitor days annually for all types or recreation. OHV use as a principal activity is estimated to be 150 visitor days annually. Three developed sites are contiguous to the WSA - the Herd Lake Overlook, Herd Lake Campground, and Upper Lake Creek Campground. The Upper Lake Creek Campground was closed following the 1983 earthquake, which caused severe damage to the road.
The area provides outstanding opportunities for solitude. Large tracts of undeveloped BLM lands to the north and USFS lands to the south contribute to the maintenance of solitude.

Jerry Peak West WSA

The 13,500-acre Jerry Peak West WSA (recommended nonsuitable) is a thin strip of land located between the East Fork Salmon River and the Challis National Forest. The WSA is bounded by land ownership lines rather than geographical landmarks. Vegetation in the WSA varies from riparian willow bottoms to sagebrush/grass-covered foothills and small forested areas at the edge

of the Challis National Forest. Man-made developments include a fence and three spring developments. Recreation use in the WSA is low, and OHV use is virtually nonexistent. Presently, visitor use is estimated to be 40 visitor days annually for all types of recreation. The terrain is steep and most access points are controlled by private landowners.

Borah Peak WSA

The 3,800-acre Borah Peak WSA (recommended suitable) is located 15 miles northwest of Mackay, Idaho, and is contiguous with that portion of the 119,000-acre Borah Peak RARE II area that the USFS has recommended suitable for wilderness designation. The Borah Peak WSA is characterized by moderately steep to steep slopes sparsely covered with sagebrush/grass vegetation. Forested areas occupy approximately 311 acres. Human-caused intrusions are numerous: Elkhorn Creek is dewatered by an irrigation diversion, the western boundary of the WSA is defined by an existing high voltage transmission line, and the WSA contains two miles of pasture division fence and two livestock water troughs. Recreation use is primarily limited to hunting and motorized vehicle use on existing trails. The extremely rough, rocky terrain inhibits other uses.

Jerry Peak WSA and Herd Lake

Wild Horses and Burros.

Law, Regulation, and Policy

Wild horses and burros on BLM public lands are administered under the Wild Free-Roaming Horse and Burro Act of 1971, as amended (16 U.S.C. 1331-1340). Regulations governing this program are found in 43 CFR 4700. The Challis wild horse herd is managed under a Herd Management Area Plan (HMAP) written in 1976 and updated in 1979 and 1989.

Affected Environment

Wild Burros

A small herd of wild burros formerly utilized a portion of the Morgan Creek allotment. Through the *Ellis-Pahsimeroi Management Framework Plan* (1982), a decision was made that the herd was not a viable herd at the time the Wild Free-Roaming Horse and Burro Act (PL 92-195) was passed. The existing burros were removed, and the area is no longer utilized as a Herd Management Area for wild burros.

Wild Horses

The Challis wild horse Herd Management Area (HMA) is shown on *Map 48: Wild Horses*. The HMA is bordered on the north by the Salmon River, on the west by the East Fork Salmon River, on the south by the ridgeline between Herd Creek and Road Creek, and on the east by U.S. Highway 93 and the watershed boundary between the Salmon River drainage and the Lost River drainage. Land status within the wild horse HMA is shown in *Table 3-33*.

Table 3-33: Land Status of Challis Wild Horse Herd Management Area

Land Status	Acres	Percent
BLM	154,150	94
State of Idaho	9,454	5
Private	1,116	1
Total	164,720	100

Within the above acreage, two areas are closed to wild horse and livestock use due to fragile soils. The Malm Gulch/Germer Basin area has been closed to all livestock and wild horse grazing since 1969. This area has been fenced to exclude livestock, and any wild horses found within the area are gathered during scheduled roundups. The Sand Hollow area has been closed to all wild horse and livestock grazing since 1979. Livestock access is controlled by drift fencing, but the area is too large to economically fence all of it. Limited numbers of wild horses use the upper portion of the Sand Hollow area. Any horses found in the area are gathered during regularly scheduled roundups. Private lands within and adjacent to the Herd Management Area are generally used for

purposes that are compatible with wild horse management. There have been very few instances of wild horses straying from the Herd Management Area boundaries.

The revised Herd Management Area Plan (HMAP) for the Challis wild horse herd (1976, revised 1979 and 1989) states that the herd will be managed to maintain 185 animals, with gatherings every other year to reduce the population to that level. This number was chosen as an appropriate management level at which the range could sustain wild horse use over the long term while maintaining an equilibrium with other resource uses. This has resulted in wild horse numbers varying from about 185 to about 253 animals between gatherings, as the herd normally increases at a rate of about 17% per year. Horses are gathered from the Herd Management Area every other year based on the limiting factor for this herd, which is the amount of winter forage available in each specific area. Excess horses are gathered by helicopter and BLM personnel on horseback and taken to corrals in Salmon. There they are freeze-branded, receive veterinary care, and are placed for private adoption under the BLM Adopt-a-Horse program. Gathering is done in accordance with procedures shown in *Attachment 5: Standard Operating Procedures - Wild Horses and Burros,* pp. 111-112.

Wild horse gathering

The diet of horses consists primarily of grasses, with a strong dietary overlap between horses and cattle (Hansen *et al* 1977, Hubbard and Hansen 1976, McInnis and Vavra 1987, Vavra and Sneva 1978). A study done in 1975 for the Salmon District BLM showed that grasses and grasslike plants made up 60 to 91 percent of the diet of wild horses on a seasonal basis, with bluebunch wheatgrass the major component of their diet (see *Appendix K, Item 1: Relative Percent Density of Discerned Contents From Wild Horse Fecal Samples*, pp. 667).

The 1977 Challis range inventory identified thirteen broad vegetation types; all of these types are found within the Herd Management Area. *Table 3-34* shows acres of these major vegetation types and the major vegetation species associated with each type in the Herd Management Area.

Table 3-34: Major Vegetation Types and Associated Vegetation in the Challis Herd Management Area

Vegetation Type	Acres*	Major Associated Vegetation Species
Wet meadow	254	Sedges, Kentucky bluegrass, roses, currants, willows, rushes
Wyoming big sage	60,144	Wyoming big sagebrush, bluebunch wheatgrass, Sandberg bluegrass
Mountain big sage	33,730	Mountain big sagebrush, Idaho fescue, bluebunch wheatgrass
Basin big sage	1,617	Basin big sagebrush, thickspike wheatgrass, western wheatgrass
Low sage	1,142	Low sagebrush, Idaho fescue, bluebunch wheatgrass, Sandberg bluegrass
Black sage	7,074	Black sagebrush, bluebunch wheatgrass
Three-tip sage	13,728	Three-tip sagebrush, Idaho fescue, bluebunch wheatgrass
Mountain mahogany	2,364	Mountain mahogany, bluebunch wheatgrass, Idaho fescue
Douglas-fir	6,300	Douglas-fir, snowberry, pinegrass
Shadscale	11,720	Shadscale, needle-and-thread grass, Indian ricegrass, sand dropseed
Nuttall saltbush	617	Nuttall saltbush, Indian ricegrass, bottle-brush squirreltail
Chicken sage	6,675	Chicken sage, Hood's phlox, Sandberg bluegrass
Riparian zones	92	Cottonwood, aspen, birch, alder, Kentucky bluegrass, slender wheatgrass

*does not include 8,693 acres of rock.

Source: Challis Herd Management Area Plan, Salmon District BLM, 1989 update.

In the 1977 inventory, range condition for the Herd Management Area was rated as follows:

Condition	Acres[1]
Good	15,601
Fair	71,103
Poor	52,453

[1]Does not include 6,300 acres of Douglas-fir type and 8,693 acres of rock. Also does not reflect the results of the 1994 upland inventory performed on the Mountain Springs (San Felipe) Allotment.

Wild horse use of riparian areas has been identified by the BLM as a potential problem. A great deal of work has been done in recent years to identify and correct riparian problems caused by livestock grazing. Ongoing riparian monitoring studies could identify the role of wild horses in riparian degradation, and may result in modifications to wild horse management.

The Challis Herd Management Area is well watered by natural springs and livestock water developments. In the past, there has been no need to construct water developments specifically for wild horse use. Fences have been constructed to aid livestock management. Under specifications of the Challis MFP (1979), fences within the Herd Management Area can be developed, but would be evaluated on a case-by-case basis and, when possible, designed to allow for wild horse movement. Existing fences are generally tied to a natural boundary, allowing places for wild horses to move around the ends of the fences.

Wild horses in the Challis herd do not display any unique characteristics, but instead exhibit characteristics that show the diversity of draft and saddle horses that were their ancestors. The herd is managed for healthy, good conformation horses that are pleasing to the eye, with unique colors a secondary consideration.

The wild horse herd generally appears healthy and viable. As noted above, the herd usually increases at a rate of about 17% per year. At each gathering, horses are examined by a licensed veterinarian, who notes the general health of the captured animals. No significant animal health problems have been noted in past roundups. Potential problems to the herd could result from harassment by off-highway vehicle (OHV) users, deliberate rustling, disease, severe winter weather, and fire. OHV use is currently addressed by an MFP decision to monitor OHV use and restrict organized events on critical winter range. Deliberate wild horse rustling is controlled by a BLM law enforcement ranger. Severe winter weather cannot be controlled, but managing for levels of wild horses that are within the capacity of winter range is within the scope of BLM management. Wildfires within the Herd Management Area are rare and do not generally cover enough area to be a problem for wild horses.

The Challis MFP contained a decision to provide a public viewing area for wild horse observations. Due to budget constraints, this area was never developed. The public demand for this type of viewing area is believed to be low, but probably still exists. As tourism in the Challis area continues to increase, this type of public viewing area may become popular.

Wildlife.

Law, Regulation, and Policy

The following laws, executive orders, and policies provide guidance for the management of wildlife species and habitats. An expanded description of many of these authorities is provided in *Appendix E, Item 1*, pp. 638-643.

1) Endangered Species Act of 1973, as amended (16 USC 1531 *et seq.*).
2) Federal Land Policy and Management Act (FLPMA) (43 USC 1701).
3) Public Rangelands Improvements Act of 1978 (43 USC 1901 *et seq.*).
4) Sikes Act of 1960 (16 USC 670), as amended.
5) Wild and Free-Roaming Horse and Burro Act of 1971 (16 USC 1331).
6) Executive Order 12342 of January 1982 - Permits effective predator control with environmental safeguards.
7) Executive Order 11990, May 1977 - "Protection of Wetlands."
8) Executive Order 11989, May 1977 - "Off-Road Vehicle Use."
9) The *BLM Fish and Wildlife Resource Management Policy*, signed by Director Burford in 1983 (1) recognizes State management of resident species and that a State-Federal partnership is essential for species-habitat management programs; (2) encourages interdisciplinary teamwork in development of resource management options that meet fish and wildlife objectives; and (3) initiates active cooperation with state, local, and other Federal agencies in all facets of the wildlife program.
10) The "Interagency Memorandum of Understanding Concerning Animal Damage Control and NEPA Compliance" (BLM/APHIS; August 5, 1994) assigns responsibility for carrying out animal damage management, including compliance with NEPA and issuance of Records of Decision to APHIS.

Additional guidance is provided by the BLM Manual, Sections 6800-6840, and other miscellaneous supplemental guidance.

Under the authority of treaties such as the Treaty with the Eastern Shoshoni and Bannock, 1868, the BLM has responsibility to manage trust resources, including wildlife, for Federally recognized tribes which have treaty rights on public lands managed by the Bureau.

BLM policy includes a commitment to conserve 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 Master MOU between the IDFG and BLM states that the BLM and IDFG agree to manage and/or conserve habitats and populations of the sensitive species listed in the MOU, to minimize the need for listing these animals as threatened or endangered.

Affected Environment

This wildlife section is divided into four subsections - big game, upland game and waterfowl, non-game wildlife, and special status wildlife species.

Big Game

The Challis Resource Area contains big game populations of elk, mule deer, pronghorn antelope, and bighorn sheep. Estimated big game numbers and season of use are listed in *Table 3-35.* Trophy game animals include black bear and mountain lion; these species are discussed under the subsection "Non-game Wildlife - Predators and Furbearers."

Table 3-35: Estimated Big Game Numbers and Season of Use for the Challis Resource Area

Species	*Number*[1]	*Season of Use*
Elk	3,150 to 6,100 350 to 1,550	12/1 to 4/30 5/1 to 11/30
Mule Deer	5,100 to 20,700 2,200 to 12,200	12/1 to 4/30 5/1 to 11/30
Antelope	2,300 to 6,600 2,100 to 6,000	11/1 to 5/1 4/30 to 10/31
Bighorn Sheep	240 to 565 60 to 240	11/1 to 4/30 5/1 to 10/31

[1]Estimates are for BLM lands only, and were developed by the Idaho Department of Fish and Game (1992). Population numbers fluctuate annually, depending on hunter harvest, weather, and habitat condition on BLM, private, State, and National Forest lands. Occasional moose and mountain goats are observed on BLM lands, but numbers are not high enough to warrant listing.

Elk

Elk populations have been increasing in the RA during the last 10 to 15 years, and areas of use have expanded. Elk may now be seen almost anywhere in the RA where suitable habitat is present. IDFG management is directed at stabilizing elk populations and maintaining existing numbers through hunter harvest (IDFG 1991a).

Important elk habitats are illustrated on *Map 21: Elk Winter Range and Donkey Hills Calving Area.* Crucial winter/yearlong ranges for elk include the area around Willow Creek Summit, the Donkey Hills, the Pahsimeroi Mountains south of Ellis, Idaho, the Lone Pine/Germer Peak area, and the Ellis Creek/Morgan Creek watersheds. Major calving areas are present in the Donkey Hills and along the migration corridor between Willow Creek Summit and the White Cloud Mountains. Calving occurs on winter and early spring ranges if deep snow delays migration to

summer range.

Preferred areas of use in the Challis Resource Area are usually away from well-traveled roads (security areas) and characterized by vegetation mosaics of timbered or brushy hiding cover and open sagebrush-grassland foraging sites. Important hiding cover is provided by timber stands, patches of mountain mahogany, aspen-willow riparian zones, and rugged terrain. Close proximity to water is an important factor during spring, summer, and fall. Yearlong or spring-summer-fall elk ranges are present throughout the RA at higher elevations wherever forested habitat sites and topography provide good security from roads and other human activity. Most spring-summer-fall elk range is on adjacent National Forest lands.

The condition of spring-summer-fall ranges can be just as important to elk populations as more limited winter ranges. On spring ranges, the availability of nutritious forage during final months of gestation prior to the June calving season can affect birthing and calf survival. On summer-fall ranges, the availability of quality forage is an important factor in the build-up of body fat reserves for animals to survive the winter.

Only limited inventories and monitoring studies of habitat conditions have been conducted on elk ranges in the RA. In the 1970s, browse form class inventories and pellet group transects were conducted on big game ranges in scattered areas. Forest and grassland cover types were mapped in the Donkey Hills, and elk and mule deer pellet group transects were used to determine areas of heavy use. Nested frequency trend studies have been established in areas of livestock use to monitor vegetative trend. Utilization studies of elk use on bluebunch wheatgrass were conducted on the Willow Creek Summit elk winter range. Kratville (1989) provided data on elk habitat selection and distribution, but quantitative inventories, analyses and monitoring studies specific to elk habitat conditions have generally not been conducted due to limited funding and other priorities. General observations suggest that existing habitat conditions are sufficient to maintain current populations.

Elk diets in the RA are similar to cattle diets, although elk make somewhat less use of grass. During winter, grasses make up slightly over half the diet, and forbs and browse comprise the remainder. Studies by Kvale (1981), Wittinger (1978), and Hansen (1975) indicate that winter-spring grass use amounts to 51 percent. Winter and spring forb use amounts to 34 percent and 43 percent, respectively. Winter and spring use on browse amounts to 16 percent and 5 percent, respectively. Use of grasses and forbs increases greatly during summer.

Mule Deer

Mule deer populations in the RA are currently considered stable, and current management direction is to maintain existing numbers (IDFG 1991b). Mule deer can be found in variable numbers throughout the RA. Mule deer winter ranges are illustrated on *Map 32: Mule Deer Winter Range*. Yearlong or spring-summer-fall mule deer ranges are present throughout the RA wherever forested and brushy habitat sites or topography provide security cover, and where water and food sources are readily available. As with elk, the condition of spring-summer-fall ranges can be as important to population survival and stability as the condition and availability of more

limited winter ranges.

Limited inventories and monitoring studies of mule deer habitats have been conducted in conjunction with the elk habitat studies described above. Quantitative inventories, analyses, and monitoring studies specific to mule deer habitat conditions have not been conducted due to limited funding and other priorities. General observations suggest that habitat conditions are sufficient to maintain current mule deer populations.

Preferred areas of use are characterized by vegetation mosaics of timbered or brushy hiding cover mixed with sagebrush-grass and mountain mahogany foraging sites. Important cover types include timber stands, willow, aspen, and tall sage. Close proximity to water is an important factor during spring, summer, and fall. Extensive blocks of sagebrush-grass vegetation provide only marginal habitat due to lack of good hiding cover.

Specific fawning and fawn rearing areas have not been delineated in the RA. Fawning habitat has been characterized by Leckenby, *et. al.* (1982) and Hall (1985) as the presence of herbaceous succulent forage, close proximity to water, 40% canopy cover of shrubs more than 28 inches tall, and within 160 feet of tree cover. Riparian zones and aspen stands are important components of good fawning and fawn rearing cover (Leckenby *et. al.* 1982 and Hall 1985).

Food habit studies conducted in the RA (Kvale 1981, Wittinger 1978, Hansen 1975, Yeo 1981) indicate that local mule deer diets are not significantly different from other areas in the West in terms of browse, forb, and grass composition. However, poor shrub species diversity in much of the RA forces deer to depend heavily on big sage. Mountain big sage, Wyoming big sage and three-tip sage comprise up to 80% of winter mule deer diets in the RA. Mountain mahogany and green rabbitbrush are heavily used where they occur.

Pronghorn Antelope

Antelope population levels in the RA were described as optimum by the IDFG in 1991 (IDFG 1991c). Numbers have declined since that time due to a number of reasons, including special depredation hunts permitted by the IDFG to reduce crop damage claims. Current IDFG management direction is to increase numbers slightly above existing levels.

Pronghorn antelope make extensive use of sagebrush-grassland habitat types at all elevations. Annual variations in snow distribution and depth influence antelope distribution on crucial winter ranges. Proximity to water affects antelope distribution on spring/summer/fall ranges. Areas distant from water are used only during winter. Antelope winter ranges in the RA are illustrated on *Map 3: Antelope Winter Range*.

As with other big game species, the condition of summer/fall ranges can be an important factor in the winter survival and stability of antelope populations. Limited inventories and monitoring studies of antelope habitats have been conducted in conjunction with upland trend studies on areas grazed by livestock. Quantitative inventories, analyses, and monitoring studies specific to antelope habitat conditions have not been conducted by the BLM due to limited funding and other

priorities. The IDFG has conducted a number of site-specific antelope habitat, behavior and population distribution studies in the RA (Bernt 1976; Bodie 1979; Autenrieth 1986; Fichter and Nielson 1959; Fichter 1957a; Fichter and Nielson 1962; Fichter and Nielson 1957b). Some of these studies identify antelope habitat components in the RA that were considered less than satisfactory. None of these studies have been repeated to determine if these habitat components have changed.

Fawning is usually widely scattered across broad areas; however, a few specific fawning areas have been identified. Fawning areas and breeding territories are clustered near water sources. Habitat diversity (cover and height of sagebrush, presence of forbs and grasses) is an important factor in fawning success (Barrett, *et. al.* 1981). Loss of shrubs or herbaceous cover reduces habitat carrying capacity and fawning success (IDFG 1991c). Forbs and grasses are a crucial source of forage during spring, and provide necessary cover to conceal fawns from predators.

Antelope diets consist of nearly 70% sagebrush on a yearlong basis. Forbs make up 40% of the diet in summer or fall and up to 25% in spring. Grass makes up only 5% of summer and fall diets. In early spring, however, perennial grasses are one of the first forage plants to become green, and grass constitutes up to 25% of the diet at that time (Wildlife Section, Challis Unit Resource Analysis; BLM 1978). Chicken sage (*Tanacetum nuttalii*) makes up 90% of antelope winter diets on some winter ranges in the RA (Bernt 1976).

Bighorn Sheep

Historically, bighorn sheep were abundant throughout most of the RA. Settlement resulted in severe population declines and complete loss of some populations due to the introduction of scabies and other diseases. Most lambing occurs on traditional areas on adjacent National Forest lands, but some lambing is known to occur on winter ranges in Morgan Creek, Birch Creek/Bayhorse Creek, and the Cronk's Canyon areas. Important bighorn sheep winter ranges are illustrated on *Map 17.*

Most summer-fall bighorn sheep use occurs on adjacent National Forest lands. However, a small number of bighorn sheep remain yearlong on BLM lands in the Morgan Creek and Cronk's Canyon areas.

Limited inventories and monitoring studies of bighorn sheep habitat conditions have been conducted in conjunction with upland trend studies on areas grazed by livestock. Most have not been re-read to determine if there have been any significant changes in habitat conditions. The IDFG and other investigators have conducted a number of site-specific bighorn sheep studies in the RA (Lauer and Peek, 1976; Ballard 1991; Peek et.al. 1979; Morgan 1970). Earlier studies indicated that forage competition between cattle, mule deer and bighorn sheep was a problem on some areas of bighorn sheep winter range. Cattle grazing has since been reduced on portions of each bighorn sheep winter range, mule deer numbers have declined, and prescribed burning was conducted in two areas to improve forage conditions. On the Morgan Creek bighorn sheep range, Daubenmire vegetative trend study data suggest that habitat conditions have improved since the early 1970s (Scott, pers. comm.) Nevertheless, recent investigations indicate that disease, drought

and poor forage conditions are significant limiting factors for RA sheep populations (Ballard 1991). Quantitative inventories, analyses, and monitoring studies specific to bighorn sheep habitat conditions have not been conducted due to limited funding and other priorities.

The largest populations of bighorn sheep in the area use BLM lands in the Morgan Creek watershed (a tributary of the main Salmon River north of Challis) and lands along the East Fork Salmon River. These two herds have varied from 150 to 300 animals, depending on the effects of weather, predation, and removal of animals by the IDFG for transplanting programs. The Birch Creek population, located immediately south of Challis, Idaho, consists of only 40 to 50 animals. An estimated 20 to 30 sheep are commonly present in the Cronk's Canyon ACEC, established in 1987 to maintain habitat for this small population.

During recent years, the East Fork Salmon River and Morgan Creek bighorn sheep populations have provided transplant stock for establishing new populations locally and regionally. Several future transplant sites in the Resource Area have been identified by the IDFG where new populations would use BLM lands. These include Jerry Peak, Germer Peak, and the areas of Herd Creek and the East Fork Salmon River adjacent to Sheep Mountain on the Challis National Forest (IDFG 1990a).

Bighorn sheep require areas adjacent to extremely steep, rough, or precipitous terrain which provide escape and security cover. Shrubby mountain mahogany and open sagebrush-grass sites interspersed with steep escape cover are typical of foraging and loafing areas. Stands of dense timber and brush are usually avoided, except when sheep are forced to move through such areas during migration from summer to winter ranges. As with other big game species, the proximity of water, forage availability, and forage quality are important factors during spring, summer, and fall.

Bighorn sheep seek out succulent forage when feeding. Prescribed burning has been used to enhance forage quality and availability on some bighorn sheep ranges in the RA. Diet studies indicate that bighorn sheep diets in the RA consist of more than 80% grasses (Lauer and Peek, 1976; Ballard 1991); the remainder consists of forbs and shrubs.

Factors affecting the stability and productivity of bighorn sheep populations are complex. Bighorn sheep are highly susceptible to a number of diseases. Increased levels of stress due to disturbance, limited forage availability, or poor habitat condition can lower disease resistance and reduce reproductive success. Bighorn sheep diets and cattle diets are essentially the same. Competition for available forage can occur on bighorn sheep winter ranges that are grazed by cattle. Competition between domestic livestock, other big game species, and bighorn sheep includes avoidance behavior. Although bighorn sheep may be seen using habitat near other animals one day, the proximity of other animals can stress the sheep enough to push them out of the area.

Upland Game and Waterfowl

Sage grouse, blue grouse, Hungarian partridge, and chukar partridge are the primary upland game birds in the RA. Ruffed grouse may be present in small numbers in some low elevation riparian areas. Mourning doves nest in low densities in most habitat types. Ring-necked pheasants and wild turkeys are found in the Round Valley area (primarily private lands). Cottontail and pygmy rabbits are present in variable numbers.

Sage grouse, blue grouse, and chukar partridge receive significant hunter attention during fall seasons when populations are high. When bird populations are low, fewer hunter days are spent afield. Waterfowl hunting demand is relatively light due to limited availability of waterfowl hunting areas on public lands. However, land acquisitions by the BLM and IDFG in the Chilly Slough area have provided public access to new waterfowl hunting areas.

Sage Grouse

Sage grouse populations in the RA appear to be well below historic levels. Populations are also down throughout southern Idaho. Drought, habitat loss, predation, habitat condition, and hunting are all factors that may be contributing to this decline.

Sage grouse utilize traditional winter and summer ranges similar to big game animals (see *Map 36: Sage Grouse Winter Ranges and Strutting Grounds*). The birds are almost exclusively dependent on sagebrush and herbaceous vegetation for cover. Sagebrush makes up more than 90% of their diet during winter. Hens are highly selective for nest sites in areas of specific height and canopy cover of big sage (Hall 1985). Most nesting occurs near strutting grounds (Autenrieth 1981; Wallestad and Pyrah 1974) that are used traditionally each year (IDFG 1990b). Due to the presence of water, insects, and succulent forage, riparian areas are important brood-rearing habitats and migration corridors (Autenrieth 1981, Call and Maser 1985).

Sage grouse habitat conditions vary greatly throughout the RA. Herbaceous cover is an important factor in sage grouse nesting and brood rearing success (Call and Maser 1985). Residual herbaceous cover remaining after livestock use may be less than adequate on some areas of sage grouse habitat in the RA. Hall (1985) asserts that grazing to a 1 to 2-inch stubble height during nesting or brood rearing periods can be detrimental to sage grouse and is equivalent to bare ground in terms of habitat value. The diversity and availability of forbs, grasses, sagebrush canopy cover, and sagebrush height are primary indicators of sage grouse habitat quality (Call and Maser 1985). Sage grouse habitat is less than satisfactory on some sites in the Resource Area due to poor diversity and height of forbs and grasses. Analyses and monitoring studies of sage grouse habitat conditions have only recently been implemented in the RA.

Blue Grouse

Blue grouse habitat is closely associated with Douglas-fir forested areas and aspen/willow riparian habitat types (see *Map D: Forest Lands*). Blue grouse winter in high elevation timber, often on adjacent National Forests, where they feed on needles and buds of Douglas-fir. In spring they

migrate to lower elevation breeding grounds that are traditionally used every year (USFWS 1984). Specific breeding grounds within the Challis RA have not been identified. Following breeding, females seek brushy nesting cover under tall sagebrush or other brushy areas with herbaceous cover (IDFG 1990b). As with sage grouse, riparian areas are important blue grouse brood rearing habitats due to the presence of insects, succulent forbs, and berry-producing shrubs. Herbaceous cover is an important component of brood-rearing habitat, and its presence or absence will affect areas of use and brood survival (Harju 1974, Zwickel 1972). The quality of blue grouse breeding and nesting habitat is largely unknown in the RA.

Chukar Partridge

Chukar partridge, an introduced exotic species, are present throughout the lower elevations of the RA, usually associated with rock outcrops or small cliffs and talus rock adjacent to water sources. Riparian habitats adjacent to rocky escape cover are important brood rearing areas due to the presence of insects, water, and succulent plant foods. Studies and analyses of chukar partridge habitats have not been conducted in the RA. The condition of riparian habitats may contribute to brood-rearing success for this species.

Waterfowl and Shorebirds

The most common waterfowl species in the Resource Area are the Canada goose, mallard, and common goldeneye. Shorebirds include spotted sandpipers, willets, sandhill cranes, long-billed curlews and many others. Several local areas provide important habitat for waterfowl and shorebirds: the main Salmon River, Summit Reservoir, Mackay Reservoir, Jimmy Smith Lake, Herd Lake, and Chilly Slough. Each area contains wetland or open aquatic habitat that is on or adjacent to public lands. The most extensive waterfowl habitat area is Chilly Slough. IDFG (1990c) management plans call for protecting and improving waterfowl habitat through land and easement acquisitions. In 1987, the Thousand Springs/Chilly Slough Area of Critical Environmental Concern (ACEC) was designated to highlight and manage wetland values on seven tracts of public land (totaling 824 acres) in Chilly Slough. An interagency effort to acquire additional lands and easements in the area has resulted in acquisition of 920 acres through Chilly Slough interagency partnership.

Non-game Wildlife

Approximately 307 species of vertebrate non-game, furbearing, and predatory wildlife species inhabit the RA. Data regarding the abundance and distribution of non-game species, furbearers, and predators is limited. Significant differences in habitat requirements exist between species, and good condition habitat for one species is often poor condition habitat for another. To maintain diverse, viable, and abundant populations of these species, a mosaic of biologically and structurally diverse habitat types is necessary.

In general, structural diversity of vegetation relates directly to wildlife diversity; the greater the structural diversity, the greater the wildlife diversity (Dealy *et. al.* 1981). The "Biodiversity" section of ***Chapter 3*** also includes a discussion of structural diversity and its importance to the

diversity of plant and animal communities. Riparian zones, aspen stands, mountain mahogany, and conifer forest habitats in the RA are highest in structural diversity. Riparian zones are the most important habitats for wildlife (Thomas *et. al.* 1979), due to the presence of water and highly variable structural diversity. Aspen stands provide nest sites for cavity nesting birds, 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 non-game birds. Large, old mature live trees are a habitat component necessary to support many species of birds, bats, and other vertebrate and invertebrate species. The structural diversity of many riparian habitats in the Resource Area has declined due to losses of shrubs, trees, and herbaceous species important to proper riparian function. Important aspen riparian habitat sites are declining in the RA, based on the numbers of decadent and dead aspen stands and the evident lack of aspen regeneration.

Raptors

Important raptor nesting habitat includes cliff sites used by golden eagles, prairie falcons, and red-tail hawks; forested habitat sites (including aspen and cottonwood-riparian sites) are used by goshawks, Cooper's hawks, sharp-shinned hawks, owls, and osprey. Important raptor hunting areas are usually adjacent to nest sites. In 1978, raptor cliff nest sites were thoroughly inventoried in the RA. Very little follow-up monitoring of nesting activity has occurred due to budget constraints. Very few inventories of owls or accipiter hawks have been conducted in the RA. Suitable osprey nesting habitat exists on private and public lands along the main Salmon River.

Predators and Furbearers

Important predators in the RA include the black bear, mountain lion, coyote, red fox, and bobcat. The black bear and mountain lion are classed as trophy game animals in Idaho. Black bears are normally found in forested and riparian habitat types, while mountain lions are usually associated with remote, rough topography. Coyotes are common in the RA. Tracks and other sign are easily located, and howling coyotes can be heard regularly. Coyotes cause occasional livestock losses and also prey on elk calves and deer and antelope fawns. Beaver can be found in various numbers in almost every watershed with perennial water in the RA.

Special Status Wildlife Species

Table 3-36 summarizes the special status bird, mammal, amphibian, and reptile species (see *Glossary*: special status species) which are currently known to occur or may possibly occur in the Challis Resource Area. (Special status fish species are described in ***Chapter 3*** - Fisheries, pp. 222-227.) The discussion below provides additional information about some of the endangered, threatened, proposed, and sensitive species listed in *Table 3-36*.

Endangered Species

In 1995 and 1996, a total of 35 endangered gray wolves were released in National Forest Wilderness Areas adjacent to the Challis RA. The wolves are categorized under the ESA as an "experimental-nonessential" population, as outlined in the final rules published in the *Federal*

Register, Vol. 59, No. 224, November 22, 1994. Wolves are a wide-ranging species, and occasional wolves from this population are known to cross BLM lands in the Challis RA during their wanderings.

Endangered peregrine falcons historically nested on cliff sites in the area. Peregrine falcons were reintroduced in 1988 when 8 birds were released on a BLM site in Chilly Slough north of Mackay, Idaho. Additional releases have taken place on adjacent National Forest lands. These releases are likely to result in future establishment of nesting pairs on BLM lands.

Threatened Species

More than 60 bald eagles have been counted wintering along the Salmon and Pahsimeroi rivers in the RA. Cottonwood riparian vegetation along the Salmon River provides bald eagle winter roost and hunting sites. No bald eagle nesting occurs in the RA, but potential exists for nesting to occur.

Bald Eagle

Other Special Status Terrestrial Species

Species Proposed for Listing as Threatened or Endangered: The RA is located within the range of the Canada lynx, a species proposed for listing as threatened. Lynx are known to occur on the adjacent Salmon-Challis National Forest. Forested areas in the Challis RA may provide marginal habitat for lynx which occupy much more extensive home ranges on the adjacent National Forest.

State Sensitive Species: Little is known about the presence or absence, distribution, and abundance of most "sensitive" species in the area. Extremely rare sightings of wolverines have been reported in the RA. Goshawks are occasionally seen in forested areas and are likely nesting on RA lands. Trumpeter swans have been documented in Chilly Slough. Long-billed curlews are a relatively common nesting species in the RA. Boreal owls, flammulated owls, pygmy nuthatches and other sensitive species are likely present in higher elevation timbered habitats in the RA. Western toads have been documented in aspen-riparian habitat sites.

Table 3-36: Special Status Wildlife Species of the Challis Resource Area

Class	Type	Species	Occurrence
Endangered	Mammal	Gray wolf	present
	Bird	Peregrine falcon	present
Threatened	Bird	Bald eagle	present
Proposed	Mammal	Canada lynx	present
Sensitive	Mammal	Long-eared myotis	unknown
		Long-legged myotis	unknown
		Fringed myotis	unknown
		Pygmy rabbit	present
		Small-footed myotis	present
		Spotted bat	unknown
		Townsend's big-eared bat	present
		Wolverine	present
		Yuma myotis	present
		Dark kangaroo mouse	unknown
		Kit fox	unknown
	Bird	Trumpeter swan	present
		Ferruginous hawk	present
		Northern goshawk	present
		Harlequin duck	unknown
		Northern harrier	present
		Prairie falcon	present
		Flammulated owl	unknown
		Great gray owl	unknown
		Boreal owl	unknown
		White-headed woodpecker	unknown
		Black-backed woodpecker	unknown
		Three-toed woodpecker	present
		Lewis' woodpecker	present
		Red-naped sapsucker	present
		Sage grouse	present

Class	Type	Species	Occurrence
Sensitive *(continued)*	Bird *(continued)*	Long-billed curlew	present
		Pygmy nuthatch	unknown
		Loggerhead shrike	present
		Dusky flycatcher	present
		Cordilleran flycatcher	present
		Hammond's flycatcher	present
		Willow flycatcher	present
		Townsend's warbler	unknown
		Yellow warbler	present
		MacGillivray's warbler	present
		Wilson's warbler	present
		Solitary vireo	unknown
		Bobolink	present
		Swainson's thrush	present
		Veery	present
		Calliope hummingbird	present
		Rufous hummingbird	present
		Yellow-headed blackbird	present
		Grasshopper sparrow	unknown
		Brewer's sparrow	present
		Sage sparrow	present
		Green-tailed towhee	present
		Williamson's sapsucker	present
		Western burrowing owl	present
		Olive-side flycatcher	present
	Amphibian	Spotted frog	present
		Western toad	present

Source: Sensitive Species Supplement to the Master Memorandum of Understanding Between the Idaho Department of Fish and Game and the Bureau of Land Management. 11/6/97.

Wild and Scenic Rivers.

Law, Regulation, and Policy

The Wild and Scenic Rivers Act of 1968 (16 U.S.C. 1271-87 *et seq.*) is the basic authority for the BLM's Wild and Scenic Rivers program. Other laws which affect Wild and Scenic Rivers management include the Federal Land Policy and Management Act of 1976 (43 U.S.C. 1701 *et seq.*), the National Environmental Policy Act of 1969 (42 U.S.C. 4321 *et seq.*), and the Land and Water Conservation Fund Act of 1965 (16 U.S.C. 4601 *et seq.*).

Affected Environment

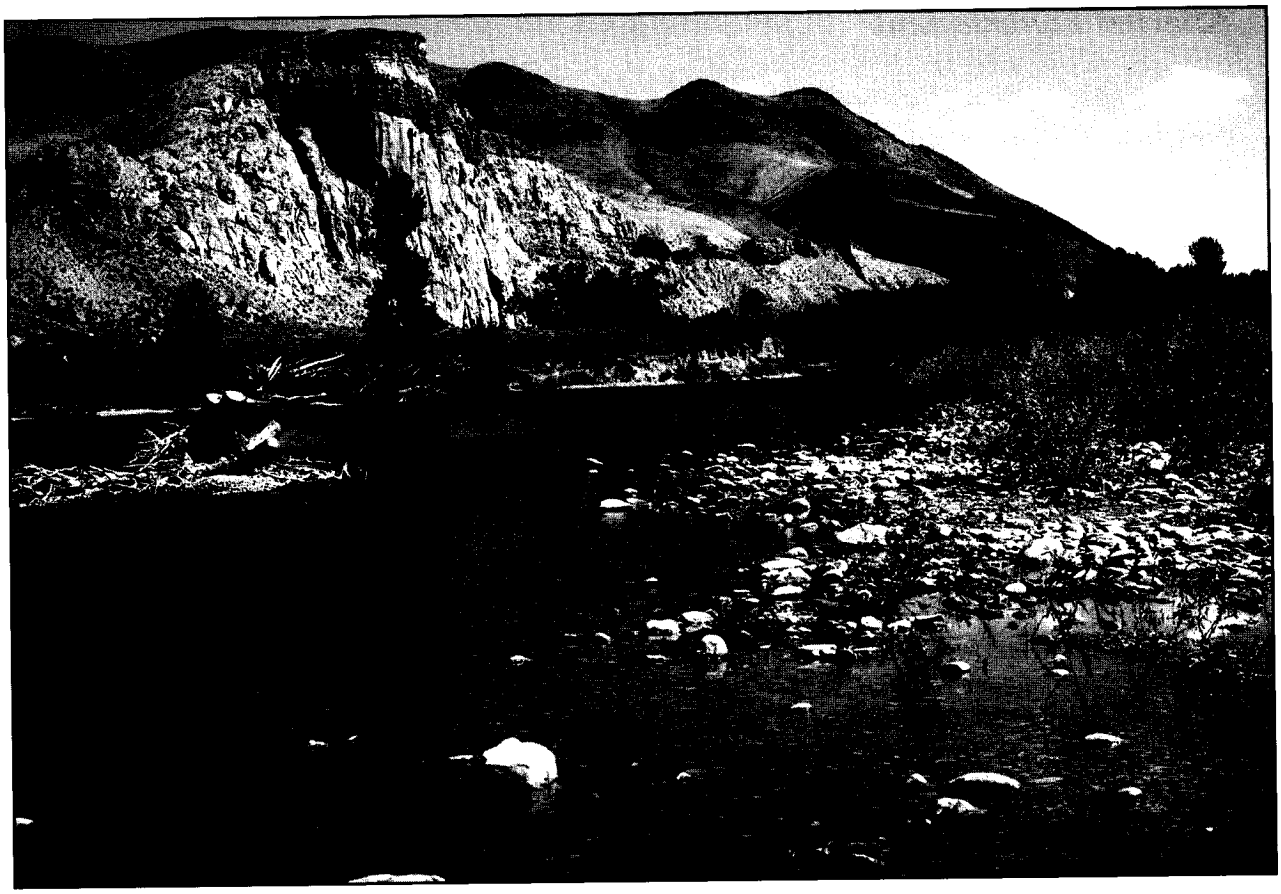
To date, no wild, scenic, or recreational rivers have been designated within the Challis Resource Area (see *Glossary*: Wild and Scenic River, p. 187). Within the immediate region, the U.S. Forest Service manages the designated "wild" Middle Fork of the Salmon Wild and Scenic River and the designated "wild" and "recreational" Main Salmon Wild and Scenic River.

The Challis Resource Area has completed a Wild and Scenic River eligibility evaluation of 201 river segments, to determine their eligibility for potential inclusion in the National Wild and Scenic River System. The Resource Area provided an initial eligibility report (the "National Wild and Scenic Rivers Eligibility Report") to the public in July, 1992. Based on written comments and input received at public meetings, several changes were made to that report; a revised report on eligibility was provided to the public on March 22, 1993, with an addendum in June, 1993 (which incorporated additional public comments). The March, 1993 report contains full descriptions of each river segment included in the eligibility evaluation, and the criteria used in the eligibility phase of the Wild and Scenic Rivers study (also see *Glossary*: Wild and Scenic Rivers Study, p. 187; and PRMP, *Attachment 18*: *Wild and Scenic Rivers Study,* pp. 152-153).

Since the June, 1993 addendum was published, the following changes have been made to the eligibility status of some rivers. (1) New information on fisheries and wildlife resources indicates five river segments found "not eligible" in the Eligibility Report are, in fact, eligible, based on their fisheries or wildlife OR values: North Fork Birch Creek (MS-52), McKim Creek (MS-02), Spud Creek (MS-28), Donkey Creek (P-23), and Goldburg Creek (P-24). (2) One river segment, East Fork Salmon River "B" (EF-01b) which was erroneously deferred to a later determination of eligibility, has been found eligible for further study. (3) Fishery OR values believed to be present on the North Fork Big Lost River (BL-16) have not been confirmed upon further review. Therefore, river segment BL-16 is no longer eligible for further study.

Those rivers found eligible for further study have been included in a Wild and Scenic Rivers suitability study (see DRMP, Management Concern: Wild and Scenic Rivers, pp. 392a-399b; and PRMP, Wild and Scenic Rivers, pp. 98-100). Until a Record of Decision is signed for the Challis Resource Management Plan, all rivers found eligible are being managed for protection of OR values and maintenance of the free-flowing character of the rivers. Upon signing of the Record of Decision, rivers which were found "unsuitable" in the Resource Management Plan will be

released from Wild and Scenic River management. Only the rivers which were found "suitable" in the study, and those which are eligible but are deferred for later coordinated suitability study with either the State of Idaho, the Upper Snake River District of BLM, or the U.S. Forest Service, will continue to be managed consistent with the requirements of the Wild and Scenic Rivers Act, pending formal designation or release by Congress.



Main Salmon River