

# Social-Economic-Tribal Component

## Key Terms Used in This Section

**Amenity** — Resource use, object, feature, quality, or experience that is pleasing to the mind or senses; typically refers to values for which monetary values are not or cannot be established, such as scenic or wilderness values.

**Animal Unit Month (AUM)** — The amount of feed or forage required by one animal-unit grazing on a pasture for one month. An animal-unit is one mature cow plus calf, or one horse, or five domestic sheep.

**Band** — A group of people who share a culture, territory, and sense of mutual recognition. Bands are primarily those American Indian groups from the pre-treaty-making period.

**Beneficiary** — The recipient for whose benefit property is held in trust.

**Ceded lands** — Lands that tribes ceded to the United States by treaty in exchange for reservation of specific land and resource rights, annuities, and other promises in the treaties.

**Commodity** — Commercial article that can be bought, sold, and transported, such as mining, agricultural, timber, or other forest products.

**Community (human)** — A group of people residing in the same place and under the same government: especially defined places such as towns. A “community of interest” refers to people who share a common concern but may not be located in the same place.

**Consultation** — (1) An active, affirmative process which (a) identifies issues and seeks input from appropriate American Indian governments, community groups, and individuals; and (b) considers their interests as a necessary and integral part of the BLM and Forest Service decision-making process. (2) The federal government has a legal obligation to consult with American Indian tribes. This legal obligation is based in such laws as Native American Graves Protection and Repatriation Act, American Indian Religious Freedom Act, and numerous other executive orders and statutes. This legal responsibility is, through consultation, to consider Indian interests and account for those interests in the decision. (3) Consultation also refers to a separate requirement under Section 7 of the Endangered Species Act for federal agencies to consult with the U.S. Fish and Wildlife Service and/or National Marine Fisheries Service with regard to federal actions that may affect listed threatened or endangered species or critical habitat.

**Economically Specialized Community** — A community whose employment in one or more industry groups (for example, agriculture, mining, construction, or manufacturing), as a percentage of total community employment, is greater than the

same percentage for the economic subregion in which the community is located. For instance, if the jobs in a particular industry group in the economic subregion make up 5 percent of total employment, but the jobs in the local community in that industry account for 10 percent of total community employment, the community would be considered economically specialized in that industry.

**In-migration** — The movement of new residents into an area.

**Isolated Community** — A community located more than 35 to 50 miles from any town with a population greater than 9,000. Communities with populations between about 1,900 and 9,000 are referred to as “isolated trade centers.”

**Lifeways** — The manner and means by which a group of people lives; their way of life. Components include language(s), subsistence strategies, religion, economic structure, physical mannerisms, and shared attitudes.

**Out-migration** — The movement of former residents away from an area.

**RAC/PAC** — Resource Advisory Councils (RACs) were established by the BLM to provide a forum for non-federal partners to engage in discussion with BLM managers regarding management of federal lands. Provincial Advisory Committees (PACs) were established by the Forest Service, under the Northwest Forest Plan, to provide a forum for non-federal groups and individuals to advise and make recommendations to federal land managers regarding management of federal lands. There are 12 RAC or PAC areas in the project area. Each area has its own advisory council or committee.

**Recreation Visit** — A visit by one individual to a recreation area for the purpose of participating in one or more recreation activities for any length of time. (Only the primary activity for the visitor is recorded.)

**Resiliency (human community)** — The ability of a community to adapt to externally induced changes such as larger economic and social forces.

**Tribe** — Term used to designate any Indian tribe, band, nation, or other organized group or community, including any Alaska Native village or regional or village corporation as defined in or established pursuant to the Alaska Native Claims Settlement Act, which is recognized as eligible for the special programs and services provided by the United States to Indians because of their status as Indians.

**Trustee** — One that holds property for the benefit of another.

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## Summary of Conditions and Trends

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### Social and Economic Considerations

- ♦ The project area is sparsely populated and rural, especially in areas with a large amount of federal lands. Some areas are experiencing rapid population growth, especially those areas offering high quality recreation and scenery. Population growth can stimulate economic growth and provide new economic opportunities, which may promote economic diversification.
- ♦ Development for a growing human population is encroaching on previously undeveloped areas adjacent to lands administered by the Forest Service or BLM. Population growth and associated new development can put stress on the political and physical infrastructure of rural communities, diminish habitat for wildlife, and increase agency costs to manage fire to protect people and structures.
- ♦ The factors that appear important in making communities resilient to economic and social change include population size and growth rate, economic diversity, social and cultural attributes, amenity setting, and quality of life. The ability of agencies to contribute to the maintenance or improvement of community resiliency depends in part on how well federal land uses and management strategies influence these factors in a positive way.
- ♦ Agency social and economic policy has historically emphasized the goal of supporting rural and tribal communities, specifically promoting continued production of goods and services from adjacent federal lands for those communities deemed dependent on federal timber harvest and processing and livestock forage.
- ♦ Predictability in timber sale volume from federal lands has been increasingly difficult to achieve. Advancing knowledge about the landscape-scale effects of timber harvest, changing societal goals that emphasize habitat protection over commodity production, and changing forest health conditions have challenged traditional assumptions about availability of timber sale volume from federal lands.
- ♦ Changing levels and values of commodity outputs can affect budgets of counties that have benefitted from federal sharing of receipts from sales of commodities and services on BLM- and Forest Service-administered lands.
- ♦ Recreation is an important use of federal lands in the project area in terms of economic value and amount of use. Most recreation use is tied to roads and accessible water bodies, although primitive and semi-primitive recreation is important as well.
- ♦ The public has invested substantial land and capital in building road systems on federal lands in the project area, primarily to serve commodity uses. On National Forest System lands, commercial timber harvest has financed 90 percent of the construction cost and 70 percent of the maintenance cost. Recreation now accounts for 60 percent of the use. Decreasing trends in timber harvesting and new road management objectives make the cost of managing and maintaining these road systems a key issue.
- ♦ At the local level, some communities rely on economic activity supported by harvest and processing of forest products, livestock grazing, mining, and recreation. Forest products and livestock grazing no longer solely dictate the economic prosperity of the region, even though they remain economically and culturally important in rural areas. The economic dependence of communities on these industries is highest in areas that are geographically isolated and offer few alternative employment opportunities.

### Federal Trust Responsibility and Tribal Rights and Interests

- ♦ The relationship that American Indians have with federal lands may be affected by proposed actions on forestlands and rangelands because of changes in vegetation structure, composition, and density; existing roads; and watershed conditions.
  - ♦ Culturally significant species such as anadromous fish and the habitat necessary to support healthy, sustainable, and harvestable aquatic and terrestrial species constitute a major, but not the only, American Indian relationship potentially affected by the ICBEMP decision, along with other factors that keep the ecosystem healthy.
  - ♦ Indian tribes have low confidence and trust that their rights and interests are considered when decisions are proposed and made for actions to be taken on BLM- or Forest Service -administered lands.
  - ♦ Indian tribes feel that they are not included in the decision-making process commensurate with their legal status, and that government-to-government consultation is not taking place.
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# Social and Economic Considerations

## Introduction

This section describes current social and economic conditions and trends in the interior Columbia River Basin, the upper Klamath River Basin, and the upper portion of the northern Great Basin. The project area includes 92 counties in parts of four states, with more than 510 communities—cities, towns, villages, and other unincorporated places. There are 471 communities in the project area whose population is tracked by the U.S. Census. The project area is the heart of what was known in the early 1800s as the Oregon Country. For an historical overview of human uses of these lands, see the Introduction to Chapter 2, the Humans and Land Management/Snapshots in Time section, and the *Assessment of Ecosystem Components*, Vol. IV (Quigley and Arbelbide 1997).

The relationship of social, economic, and political systems to Forest Service- and BLM-administered lands in the project area is described to establish the context for making land use choices, while considering human needs and expectations for these lands.

A description of population characteristics is followed by an overview of how resources associated with Forest Service- or BLM-administered (federal) lands in the project area have been used to meet the social and economic needs of people. Employment generated by federal land uses is then described at both the project area level and by Resource Advisory Council/Provincial Advisory Committee (RAC/PAC) area. Attributes of counties are displayed to help describe the interrelationships of counties and their local communities with federal lands. The discussion then turns to communities, with special attention given to community population, isolation, and economic specialization; socio-economic resiliency; and quality of life. Particular challenges for tribal reservations and communities are mentioned. Finally, an overview of public attitudes, beliefs, and values regarding the use of federal lands is given, including a discus-

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*The broad-scale level of analysis and estimation of effects, as well as data limitations, make it impossible to provide specific effects for each community in this planning process.*

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sion of attachments that people feel for special places, and the role of “place” in tribal culture, traditions, and religion.

Much of the material in this section was derived from the *Assessment of Ecosystem Components in the Interior Columbia Basin and Portions of the Klamath and Great Basins* (Quigley and Arbelbide 1997), including the *Economic Assessment of the Basin* (Haynes and Horne 1997) and *Social Assessment* (McCool et al. 1997). Other sources are referenced as needed. In this section, “agencies” refers to the Forest Service and BLM, and “federal lands” refers to lands administered by the Forest Service or BLM, unless otherwise specified.

## Social, Economic, and Political Systems

A description of social, economic, and political systems provides needed context for agency decisions regarding social and economic objectives. People-oriented policies of the Forest Service and BLM historically have had a local focus, emphasizing the well-being of individuals, user groups, and communities that are socially or economically connected to federal lands.

Human social, economic, and political systems are described and analyzed differently from one another, although there may be substantial overlap. Social units include individuals, families, small groups, societies, and cultures. Political units include communities, cities, counties, states, tribes, and the nation. The administrative units of the Forest Service and BLM are political entities. Economic systems are extensions of both social and political systems.

Politicians and agency managers seek to influence and contribute to economic activity within their respective jurisdictions. However, the nature of economic systems limits this influence. Economies change as resources constantly shift to more efficient uses according to market forces, changing technologies, and consumer preferences. Rather than a hierarchical structure of separate “units,” economies are a complex web of interdependent economic relationships operating across many jurisdictions, both public and private, over a large area. The ability of political leaders and agency managers to achieve local economic objectives is limited by their ability to anticipate, account for, and influence larger economic forces.

Another factor relevant to economic and social objectives is the size of the area over which land

## Major Changes from the Draft EISs

### Social-Economics

#### Number of Communities and Counties

The original project area covered parts of seven states and 100 counties. Deletion from the project area of the small portions of the basin within Nevada, Utah, and Wyoming (see Chapter 1) reduced the number of counties within the area by seven and the number of communities tracked by the U.S. Census by six. Skamania County, Washington, was also deleted, as it falls completely within the area covered by the Northwest Forest Plan (which also was removed from the project area, see Chapter 1). Some of the analysis work done for the Draft EISs that is carried forward to this Supplement reflects the slightly larger original project area.

#### Display of Conditions, Trends, and Effects

In the Draft EISs, economic and social effects were discussed by economic subregions, defined as trading areas by the Bureau of Economic Analysis. This Supplemental Draft EIS uses Resource Advisory Council/Provincial Advisory Committee (RAC/PAC) areas as the base level for display of estimated effects, both socio-economic and biophysical. However, because of their relatively broad scale (each RAC/PAC includes several counties, many subbasins, and a wide variety of communities) and their delineation by hydrographic rather than social/economic/political boundaries, RAC/PACs are of limited usefulness in responding to the need to assess social and economic effects at the finer, or more local, scale. Therefore, pertinent economic and social conditions are also described for counties, and to the extent possible, for communities or groups of communities.

#### Recreation Jobs

In the Draft EISs Haynes and Horne (1997) estimated that, as of 1990, there were approximately 220,000 jobs on lands administered by the Forest Service or BLM associated with livestock grazing, recreation, and timber harvest. Of those, about 190,000 were associated with recreation. In response to comments on the original methodology, and with further review and analysis, the estimate of recreation-associated jobs was reduced to about 77,000 as of 1994 (Crone and Haynes in press), and the total estimate of jobs associated with livestock grazing, recreation, and timber harvest (accounting for some declines in grazing and timber jobs in the first part of the decade) was reduced to 95,000 (Crone and Haynes 1999).

management activities and related products are planned. Effects of land use decisions are difficult to reasonably predict for areas smaller than those for which uses are estimated. For example, if the location of planned timber harvest is a broad multi-county area, the effects on timber-related employment on a smaller area, such as a single county, city, or community can be difficult to predict.

Estimated biophysical and socio-economic effects of land management decisions can be displayed at a number of levels, or scales, each of which provides some useful information. The broadest scale for this planning process is the project area (see Chapter 1 for description). In the Draft EISs, biophysical effects were displayed and evaluated primarily by 13 Ecological Reporting Units (ERUs), which are broad-scale landscape areas delineated on the basis of similar biophysical environments. Economic and social effects were discussed by economic subregions,

defined as trading areas by the Bureau of Economic Analysis (Map 2-24).

The Supplemental Draft EIS uses RAC/PAC areas as the base level for display of estimated, biophysical and socio-economic effects in part, based on public comments. Some economic and social conditions are also described for counties, and to the extent possible, for communities or groups of communities, to provide some basis for evaluating probable effects of management alternatives at a more local level. This is discussed further in Chapter 4.

### Population

#### Characterization and Trends

Population density, distribution, and change, along with the demographics of the project area, are useful



**Map 2-24. Counties and Economic Subregions.**

factors for describing past and potential economic growth and community resiliency. These factors also provide an understanding of how changing federal land uses could affect cultural and social values of people living in the project area. High population density can be an important indicator of the resiliency of economic systems, because it generally corresponds to areas with high economic diversity.

The project area is sparsely populated, with a density of approximately 11 people per square mile compared to the national average of 70. Population density also differs greatly by county. Nearly half of the population of the project area is located in 12 of the 92 counties, showing a very uneven distribution of population. Only six counties have sufficient population to be classified as metropolitan counties. The total 1998 population in the project area, based on the most recent Bureau of Census estimates, was about 3.3 million people (USDC, Census Bureau, 1999 [a] and [b]). Washington residents constitute 39 percent of the project area population, compared to 37 percent in Idaho, 13 percent in Oregon, and 11 percent in Montana. The most populated county is Spokane, Washington, with a 1998 population of approximately 408,000.

In spite of the recent increases in population, the basin remains far more rural than the U.S. as a whole. Only 31 percent of project area residents live in urban areas, compared to over 77 percent of the U.S. population who live in urban areas. Over 90 percent of the 470 communities in the basin are considered to be rural (Harris, Brown, and McLaughlin 1995).

The basin has a greater proportion of whites (92 percent) and of American Indians (2.4 percent) than the nation as a whole (80 percent and 0.8 percent, respectively), and smaller proportions of African-Americans, Hispanics, and Asians. The percentage of residents of the project area with at least a high school diploma and at least some college education is greater than the national average. The population age distribution is similar to the national average, but with a somewhat larger percentage of people under 18 years of age in the basin, and a somewhat smaller proportion of people in the prime wage-earning years (25 to 49). For additional discussion of demographics in the interior Columbia Basin, see Haynes and Horne (1997) and McGinnis and Christensen (1996).

There are 19 American Indian reservations and one colony, some with and some without trust lands, that are wholly or partially within the interior basin counties. (Several of these lie outside the actual project area boundary, but are within a county that is at least partially within the project area.) These lands

cover about 8,950,000 acres, or approximately 5 percent of the land base of the project area. However, in six counties, reservation and trust lands account for more than 40 percent of the land base. In 1990, approximately 115,000 people—not all American Indian—(four percent of the project area population) lived within the borders of these lands. See the Federal Trust Responsibility/Tribal Rights and Interests section, Appendix 8, and Hanes (1995) for further discussions.

In the interior Columbia River Basin, the rate of population change differs among counties. From 1960 through the early 1990s, a study of population figures by county reveals three distinct patterns. The most predominant pattern showed a decrease in the 1960s, reflecting the national trend of rural-to-urban net migration; followed by a reversal of that trend and a gain (or only minor losses) in population for many interior Columbia River Basin counties in the 1970s (again, reflecting a national “rural renaissance” trend); followed once more in the 1980s by a resumption of the rural-to-urban migration pattern (Johnson 1993); and finally capped by a relatively significant upturn in most interior basin county populations during the first part of the 1990s.

Two alternate patterns were experienced on the one hand, by the largest (and generally least populated) counties, which steadily lost population from 1960 through the early 1990s; and, on the other hand, by the more populated, urbanized, or recreation and tourism counties, which saw continued population growth through the entire 35-year period.

Counties in which recreation and tourism play a large role in the county economy showed large increases in population (Johnson and Beale 1995) (Map 2-25). These 16 counties with substantial recreation accounted for only 16 percent of the basin’s population in 1994, yet they reported about 22 percent of the total population increase in the project area from 1990 to 1994. In these counties, about 77 percent of the population growth is accounted for by net migration (Johnson and Beale 1995), compared to 60 percent and 57 percent in metropolitan and other counties. Counties with high technology manufacturing (such as electronics and instruments) and services (such as medical, business, engineering, and educational) also had relatively high population growth rates during the early 1990s.

Although agriculturally based lifestyles dominate the interior basin, lifestyles differ substantially in rural counties where rapid population growth is occurring. Compared to households nationally, lifestyles in rural rapid growth areas appear to be oriented more toward the natural environment, occupations related



**Map 2-25. Recreation and Metropolitan Counties.**

to natural resources, and recreation opportunities on federally managed resources (McCool et al. 1997). Lifestyles within the 16 counties in the project area with significant recreation also differ from regional averages, suggesting the importance of environmentally based amenities to the lifestyles of many people moving to the interior basin.

McCool and Haynes (1996) described two projections of future population growth, one based on conservative projections done by the Bureau of Economic Analysis (BEA) and one done by ICBEMP scientists that reflects the more rapid growth actually occurring in the project area (Figure 2-18). Project area population in many areas already exceeds the BEA projection for 5 to 15 years from now, suggesting that the BEA projections may be too conservative. Under the high estimate, the project area’s population would double by the year 2040, although the overall population density would still remain well below the national average.

### Urban–Rural–Wildland Interface

Recent and projected population growth is highest in locations known as the urban-rural-wildland interface areas, where developed private lands meet undeveloped public lands. As the population of the United States grows older, and as more individuals and businesses access markets electronically or through airline and other shipping/delivery services, the trend of increasing population migration to rural areas with high quality of life is expected to continue. The

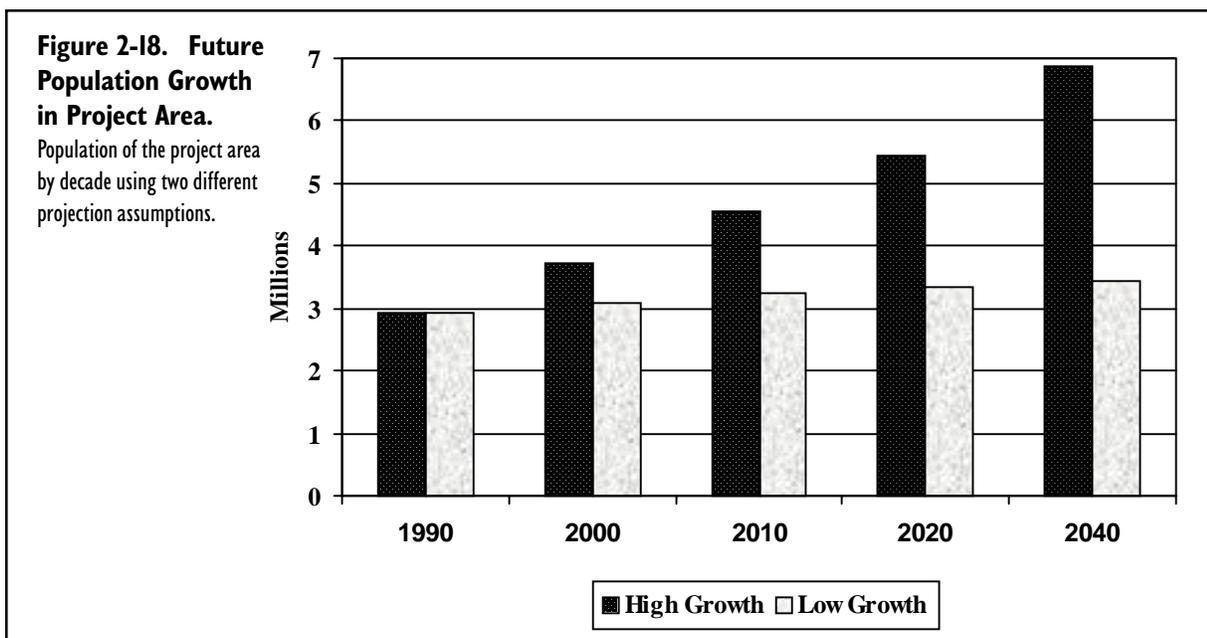
resulting growth in numbers of residential dwellings near forested landscapes has presented new challenges in fire prevention and suppression for federal and local agencies (Map 2-26) and has the potential to fragment habitat and increase conflicts with wildlife.

Because of significant concerns about fire protection in urban-rural-wildland interface areas, the Western Governors Association recently initiated an effort involving diverse interests to develop an “Urban/Rural/Wildland Interface Fire Policy Action Report.” Federal land managers are called upon in the report to manage fuels in the interface areas (Western Governors Association 1995).

### Environmental Justice

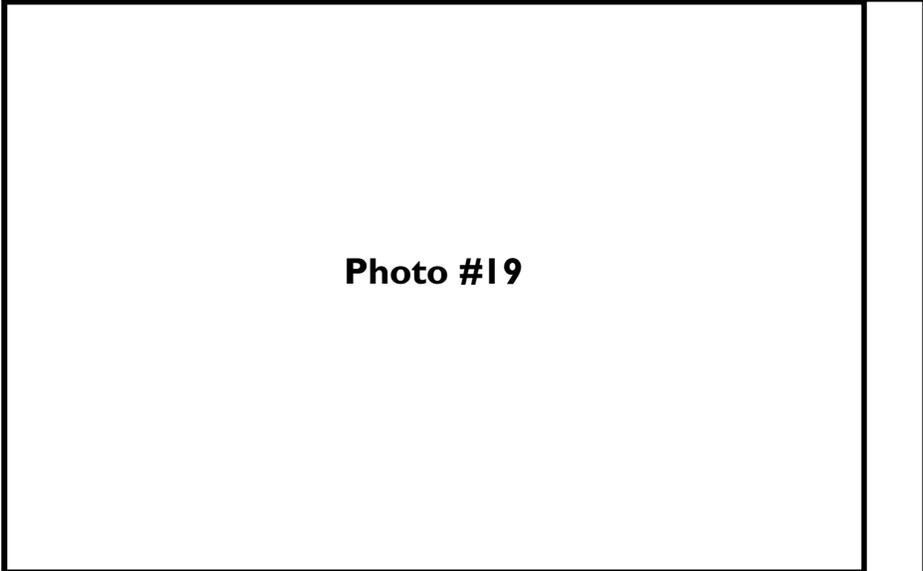
Executive Order 12898 (59 Fed. Reg. 7629, 1994) directs that federal agencies shall identify and address, as appropriate, “...disproportionately high and adverse human health or environmental effects of [their] programs, policies, and activities on minority populations and low-income populations...” Appendix 7 shows per capita income data, poverty rates, and racial/ethnic proportions of populations at the county level. This type of information is not available at the individual community level.

More detailed information on location of American Indian tribes, reservations, and communities associated with reservations is found in other parts of this chapter. Hanes and Hansis (1995) also provide a good overview of the geographic locations, and uses of and





**Map 2-26. Urban-Rural-Wildland Interface: Fire Risk.**



**Photo #19**

Photo by Karen Wattenmaker.

The growth in numbers of homes near forested landscapes is presenting new challenges for fire prevention and suppression.

numbers of Hispanics hunt, fish and camp on public lands. However, the proportion of Hispanic recreational users is still well below their proportion of the population.

Public lands are also used by large numbers of Hispanics who earn income in forestry-related activities. They are employed by labor contractors to reforest, prune, and thin trees, and they have been employed as firefighters to a lesser extent. Hispanics also have been involved in the harvest of special forest products, such as huckleberries, mushrooms, and beargrass.

relationships to the public lands by the American Indian tribes in the basin.

Hanes and Hansis (1995) also provide an overview for other ethnic groups in the basin. The Hispanic population is concentrated in seven river basins, with the largest number living in the Yakima Valley from Ellensburg to the Tri-Cities in Washington; smaller but significant concentrations living along the Snake River in Idaho, Oregon, and Washington, and in the Wenatchee, Washington areas; and smaller numbers living in the Deschutes and Klamath basins in Oregon. Other ethnic minorities are relatively evenly spread throughout the basin. A few concentrations of Japanese-Americans, who are the largest contingent of Asians, are located here as an outcome of the internment camps of World War II. The large number of Southeast Asian users generally travel over from the large urban areas west of the Cascades, but are not generally permanent residents in the basin. The African-American population is small and does not currently use public lands even proportionally to its small numbers.

Hispanics, originally drawn to the interior Columbia River Basin by jobs in irrigated agriculture, have begun to use lands, especially national forests, both for income and recreation. As more and more first and second generation Hispanics work outside the agricultural sector, their use of public lands for recreation has increased and is predicted to continue to increase. Some of this recreation involves large family outings to nearby parks, while increasing

Southeast Asians, although a very small minority of the residents of the basin, also use public lands for the harvesting of special forest products. Many come from the west side of the Cascades to harvest mushrooms and floral greens. The harvesting of some of these crops may provide a backdrop for family and social cohesion. In some cases, whole families go to public lands, to camp, harvest forest products, and socialize in extended kin networks (Richards 1994). As with other low-income populations, Hispanic and Asian harvesters could be affected by policies or programs that determine fees for recreation or harvest permits, or which affect water quality or hygiene in harvesters' camp sites.

Members of minority populations are employed in forestry-related activities, including mill work, harvesting, and reforestation. However, data do not currently exist to quantify the actual proportions of minorities in local workforces.

As discussed later in this chapter, road access is an issue for many public land users in the basin, including minority groups. Roads are important for gaining access to public lands for harvesting special forest products, recreating, and accessing places of importance for cultural, spiritual, or recreational reasons. Potential road closures in the basin may be of concern to many of these users.

Chapter 4 discusses potential impacts of changes in federal agency policies and practices on all users, including minority and low-income populations, to the degree practicable at this broad-scale plan.

Additional assessments for effects related to environmental justice are more appropriately conducted at a mid-scale level.

## Land Ownership and Major Uses

There are approximately 128.5 million acres of land within the bounds of the project area. Forest Service- or BLM-administered lands make up a substantial portion—63.5 million acres, or just under half—of those lands. Forest Service- or BLM-administered lands were either reserved from settlement or were considered part of the public domain during the early part of the century. These lands are substantial assets that are important to the nation, as well as to the region.

The ownership pattern of the remaining lands includes approximately 6 percent “other federal” plus state, county, and city ownership; 3 percent tribal; and 41 percent private. The proportion of Forest Service- and BLM-administered land varies considerably by county (Map 2-27). Although economic contributions from federal lands to the regional economy are proportionally far less than the land ownership percentages, the local dominance of these lands has important local economic implications, and perhaps even greater social and cultural implications.

## Recreation and Scenery

### Supply of Recreation

The project area provides recreational opportunities of local, regional, national, and international importance. It has, on average, substantially greater amounts of available outdoor recreation opportunities compared to the national average, much of it supplied by federal lands (Molitor and Bolon 1995). The BLM and Forest Service provide more than 90 percent of the federally managed recreation acres throughout the project area.

Recreation opportunities on public lands in the project area have been inventoried using the Recreation Opportunity Spectrum (ROS), which considers characteristics such as road access, amount of development, density of recreation use, level of facility development, and natural resource management (Clark and Stankey 1979). Combined categories for this project include primitive/semi-primitive (combining primitive, semi-primitive nonmotorized, and semi-primitive motorized classes), roaded natural (roaded natural and roaded modified classes), and rural/urban (rural and urban classes).

The ROS is a convenient way to inventory and display recreation settings, but it does not include the main attractions that draw people to recreation settings, such as water, fish, wildlife, and highly valued scenery. The presence of water has been, and will continue to be, one of the most important draws for recreation visitors. The project area contains an abundance of wild and remote water environments, containing nearly three times the national average.

Federal lands supply large amounts of primitive and semi-primitive recreation opportunities (Map 2-28), much of which has been given special status by the Congress, such as in wilderness or wilderness study areas, wild and scenic rivers, national scenic areas, and national recreation areas. The project area contains 70 percent of unroaded areas in the lower 48 states that are 200,000 acres or larger. Few regions in the lower 48 states can match this combination of large-scale undeveloped areas and low human population density.

Access to wildland-based recreation opportunities is important to the rural-oriented lifestyle of area residents and contributes importantly to the region's identity. Nationally, the greatest shortages in recreational opportunities are for primitive camping, backpacking, hiking, horseback riding, nature study, and wildlife observation (Haynes and Horne 1997). These are recreational settings for which the project area's agency-administered lands have a comparative advantage over other parts of the country.

In the future, recreation demands for these lands are likely to continue to increase. The basin offers more recreational opportunities, especially in undeveloped and remote settings (primitive and semi-primitive ROS), than other regions of the nation. The relative importance of these opportunities are likely to increase over time.

### Recreation Use

Between 1991 and 1993, an average of approximately 72 million recreation visits per year occurred on Forest Service- and BLM-administered lands in the project area (Crone and Haynes in press[a]). Day use and motorized viewing accounted for just over half of the recreation visits. Camping, trail use, winter sports

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*Road closures in some areas may be beneficial for aquatic and terrestrial habitat, but such closures may also have adverse effects on recreation use.*

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**Map 2-27. Forest Service- and BLM-Administered Land by County.**



**Map 2-28. Recreation Opportunity Spectrum.**

and fishing were the next most popular recreation activities, each with 8 to 9.5 percent of the total recreation visits (Table 2-26).

Roaded natural settings receive about 75 percent of all activity days in the project area. Activities such as trail use occur mainly in primitive/semi-primitive areas, while camping is mixed, with about half of the visits occurring in roaded natural settings and one-quarter each in primitive/semi-primitive and rural/urban settings.

**Issues in Recreation Supply and Management**

Two main issues for recreation management in the basin both deal with roads and access. On one hand, maintaining and potentially increasing over time the supply of unroaded recreation opportunity (primitive/semi-primitive recreation areas) is important to meet the growing regional and national demand for this type of recreation. On the other hand, over half of the recreation use in the project area relies on some form of motorized use and access. As discussed elsewhere in this EIS, the size and condition of the road system on public lands in the project area is a significant concern for both terrestrial and aquatic ecosystem condition and restoration. Budget requirements for road system maintenance are also a major concern. Road closures in some areas may be beneficial for aquatic and terrestrial habitat, but such

closures may also have adverse effects on recreation use, depending on the road system, the recreation areas accessed, and current use levels. As discussed later in this section, recreation is a significant and growing contributor to local economies. One challenge in local implementation of the management direction of this plan will be to balance the needs of the biophysical environments with economic, social, and cultural needs when making decisions about which roads should be left open or closed.

**Scenery**

Scenery is important to both residents of and visitors to the project area, contributing to quality of life and supporting economic benefits through recreation and tourism. According to the Forest Service’s 1990 Resources Planning Act program update, viewing scenery has the highest participation rate of any recreation activity in the United States, with approximately 21 percent of the population participating.

**Cultural Resources**

Federally administered lands must comply with a number of federal laws and regulations protecting cultural resources, including the Antiquities Act and the National Historic Preservation Act. Cultural resources are generally defined as the nonrenewable evidence of human occupation or activity as seen in any area, site, building, structure, artifact, ruin, object, work of art, architecture, or natural feature,

**Table 2-26. Estimated Recreation Visits to All Federal Lands in the Interior Columbia Basin (1991–1993 Average).**

Recreation Activity	Recreation Visits <sup>1</sup>	% of Total
Camping	6,805,000	9.5
Day Use	17,499,000	24.4
Fishing	5,683,000	7.9
Hunting	3,101,000	4.3
Motor Boating	1,889,000	2.6
Motor Viewing	18,765,000	26.1
Nonmotor Boating	1,294,000	1.8
Off-Highway Vehicle Use	1,690,000	2.4
Snowmobiling	1,776,000	2.5
Trail Use	5,790,000	8.1
Viewing Wildlife	1,803,000	2.5
Winter Sports	5,731,000	8.0
<b>Total</b>	<b>71,826,000</b>	<b>100.1</b>

<sup>1</sup> Rounded to nearest 1,000

Source: Crone and Haynes (in press)

which was important in human history at the national, state, or local level. The project area has been occupied by humans for more than 12,000 years; hence, it has much evidence of human activity. By its very nature this evidence is site-specific and beyond the scope of the broad-scale nature of this EIS. This in no way detracts from the significance of cultural resources or the need to appropriately protect them. The inventory, detailed descriptions, and protection or mitigation of site-specific cultural resources are better discussed on a local basis, and will be addressed in BLM and Forest Service land use plans, activity plans, and other local environmental and ecosystem analyses.

### Livestock Grazing and Grazing Fees

Grazing has been an important part of the interior Columbia River Basin since the mid 1800s. Until 1905, livestock operators used public lands on an unregulated basis. Between 1905 and 1934, the Forest Service began to introduce allotments and grazing systems on lands they administered. From 1934 through 1946, with passage of the Taylor Grazing Act, allotment-based grazing was extended to BLM-administered lands. After World War II, both the Forest Service and the BLM began to make expanded investments in range rehabilitation and management as authorized in the Multiple Use-Sustained Yield Act, the Federal Land Policy and Management Act, and the Public Rangelands Improvement Act of 1978. The amount of forage in terms of AUMs that was authorized for use

by permittees on BLM- and Forest Service-administered lands during the 1990s is shown in Figure 2-19. (Authorized AUMs may be less than permitted AUMs because of seasonal or multi-year restrictions in grazing, or other agreements limiting actual grazing to lower levels than were permitted). (For a more complete cultural and administrative history of grazing on public lands, see discussions in Frewing-Runyon [1995] and Haynes and Horne [1997]. Also see the Factors Influencing Ecosystems section later in this chapter.)

Livestock operations are an important part of the agriculture sector in the project area. Cattle and calf sales accounted for an average of 29 percent of total agricultural output in the basin as a whole for the period 1982–1992. Sales of cattle raised at least in part on BLM and Forest Service forage accounted for an average of 2 percent of total agricultural sales in the project area. Table 2-27 presents information about the role of agriculture and livestock operations over that time period in the nine BEA economic trade regions constituting the project area (Map 2-24, earlier in this section), and the estimated dependency of cattle and sheep operations on forage produced on federal lands.

The Butte and Missoula BEA areas have the highest percentages of agricultural products sold that come from cattle/calf sales; (They also have the lowest overall agricultural output of the trade regions in the basin). All but one other trade region show cattle/calf sales contributing 30 percent or less to total agricul-

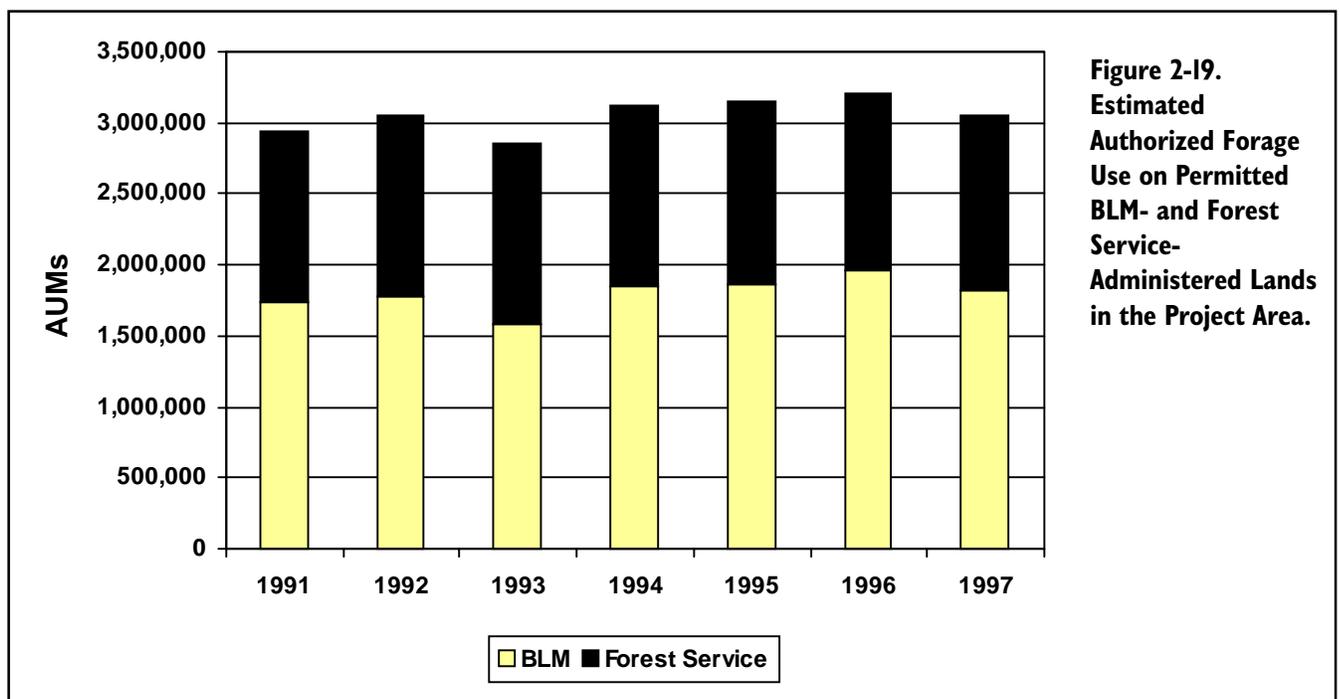


Figure 2-19. Estimated Authorized Forage Use on Permitted BLM- and Forest Service-Administered Lands in the Project Area.

**Table 2-27. Role of Agriculture and Cattle and Calf Sales in Regional Economies of the Project Area (Average 1982–1992).**

BEA Regions	Farm/Ranch Income as Percent of Total Labor Income	Value of Agricultural Products Sold (millions of 1992 \$)	Cattle/Calf Sales as Percent of Total Agricultural Output	Dependency on Federal AUMs <sup>1</sup>
Tri-Cities	12.3	2,196	22.3	1.4
Spokane	3.0	646	14.5	2.5
Missoula	0.7	117	48.1	1.0
Idaho Falls	7.8	852	25.6	11.2
Twin Falls	17.2	962	30.1	6.1
Boise	4.5	1,098	45.4	11.9
Pendleton	9.5	780	30.0	6.6
Redmond-Bend	5.0	388	30.1	9.1
Butte	0.4	57	76.2	2.4
<b>Total Project Area</b>	<b>6.6</b>	<b>7,096</b>	<b>28.8</b>	<b>7.0</b>

<sup>1</sup> Dependency is defined as the portion of total feed consumed by cattle and sheep in an area provided by permitted use of Forest Service- and BLM-administered lands. The column displaying dependency on federal land AUMs understates rancher dependency on federal grazing permits due to the nature of seasonal grazing systems and the number of cattle in feedlots and dairies that also consume feed and contribute to total cattle/calf sales. DeForest (in Haynes and Horne, 1997, p. 1769) calculates that accounting for seasonal use patterns could increase dependency figures by 20 percent.

Source: Frewing-Runyon 1995.

tural output. Dependency on federal lands for cattle and sheep feed/forage (measured in Animal Unit Months) ranges from 12 percent down to 1 percent.

However, figures for these large geographic areas mask much higher variability by county. For instance Frewing-Runyon (1995) found cattle/calf sales contribution to value of agricultural output ranging from a high of 92 percent to less than 1 percent. Dependency on federal forage ranged from about 40 percent to none.

Even county-level information masks variability among communities within counties. Reyna (1998) derived industry “specialization ratios” for 411 communities in the project area, which compare the proportion of jobs in an industry sector at the community level with the same proportion of jobs found in that industry over a broader area, such as the regional trade area within which the community falls. A ratio greater than one indicates that the local community has a greater proportion of its employment in that sector when compared to the broader economic region—that is, the local economy tends to be specialized in that industry. The larger the ratio, the more specialized the local economy. Reyna’s results show that economic specialization in an industry such as agriculture, or agricultural services, can vary from none to very high among communities within any one county.

It is apparent from this information that changes in federal land management policies that affect livestock grazing on federal lands, or that increase the costs of grazing, have impacts that vary from region to region, from county to county, and from community to community. Similarly, the ability of individual ranches to cope with changes in federal grazing policies and practices varies depending on the size of the herd, dependence on federal forage, availability and cost of alternative sources of feed and forage, amount of debt, interest rates on that debt, and the percent of household income coming from off-ranch employment or business activity(ies).

Holders of BLM or Forest Service grazing permits typically run larger, more profitable operations than non-permit holders (Haynes and Horne 1997). Holders of federal grazing permits do not rely solely on Forest Service- or BLM-administered lands for livestock forage. In fact, federal forage as a percent of total feed for cattle is less than 25 percent on average in the four states within the basin (Table 2-28). For sheep, the figure is somewhat higher (sheep operations make up less than 20 percent of total federal grazing permittees, and the average number of sheep run per permittee is generally significantly lower than cattle).

However, average dependency on Forest Service and BLM forage does not wholly represent the reliance of

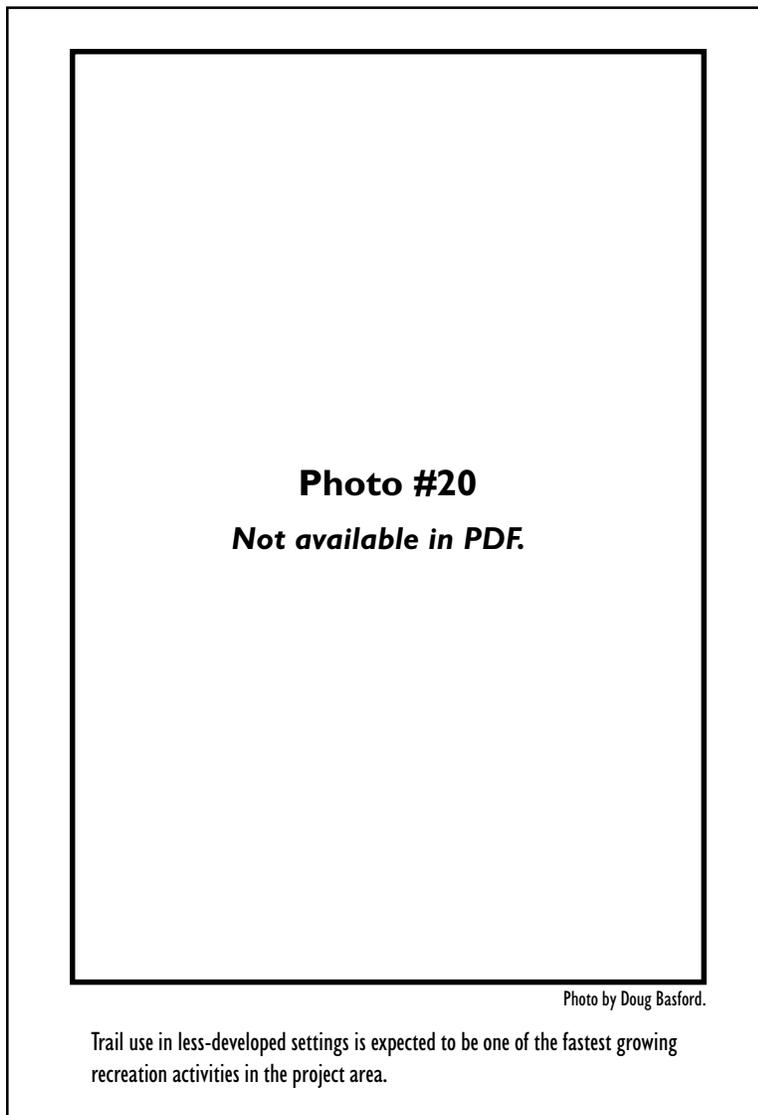
**Table 2-28. Average Dependency of Federal Grazing Permittees on Federal Forage, 1992.**

State	Number of Permittees	Cattle Dependent	Sheep Dependent
Idaho	3,675	23%	35%
Montana	4,710	11%	35%
Oregon	1,790	23%	27%
Washington	450	13%	0%

Source: USDI BLM 1994a.

permittees on this forage. Federal forage often is more significant to ranchers than suggested by total supply figures because of seasonal grazing patterns. It is not the total feed, but the number of livestock feeding part of the year on federal range, that many

stress as an important factor. Seasonal use of Forest Service- and BLM-administered lands occurs approximately 25 to 30 percent during spring, 24 to 30 percent during summer, 21 to 27 percent during fall, and 2 to 7 percent in during winter (Haynes and Horne 1997).



The Departments of Interior and Agriculture projected in 1994 that the number of cattle grazing on public lands will decline by about one percent per year for the next 20 years (Haynes and Horne 1997). This expected decline reflects stocking rate reductions from recognition of continuing resource damage, a declining economic feasibility of livestock grazing, and implementation of recovery plans for federally listed species.

Evidence also indicates that as ranchers grow older, more operators leave the profession than enter it. In some rural areas that are experiencing population growth, base properties (home ranches) on which herds overwinter are being converted to resort or residential developments or to dairy operations. For sheep, the elimination of the wool subsidy resulted in some marginally profitable operations selling off all of their lambs, rather than retaining female lambs as replacement ewes. These, and other ongoing trends, are acting to reduce the size of herds and flocks operating on Forest Service- and BLM-administered lands (USDI BLM 1994a).

Grazing fees for most western public lands administered by the BLM and Forest Service have been \$1.35 per animal unit month (AUM) since 1996, down \$0.26 from 1995. The formula used for calculating the fee, established by Congress in the 1978



Access to wildland-based recreational activities, such as fishing, is important to the lifestyle of area residents—no matter what their age.

The project area contains world-class salmon and trout recreational fisheries.

**Photo #22**  
***Not available in PDF.***

Photo by Doug Basford.

Public Rangeland Improvement Act, has continued under a presidential executive order issued in 1986, in which the grazing fee cannot fall below \$1.35 per AUM. The annually adjusted grazing fee, which takes effect every March 1, is computed by using a 1966 base value of \$1.23 per AUM, which is then adjusted according to three factors: current private grazing land lease rates, beef cattle prices, and the cost of livestock production. The fee decreased for 1996, and has remained at the minimum level because of lower beef cattle prices and higher production costs.

## Commercial Timber Harvest and Other Forest Products

### Regional Trends

Timber supply and demand are determined by the simultaneous interaction of global, national, regional, and local consumers, producers, and land owners. As a proportion of the total United States harvest, timber harvest levels in the project area have declined from a 1970 high of 13 percent to about 10 percent today. Harvest levels as a percent of the national total are expected to decline only slightly below that figure over the next 30 to 40 years.

Although harvest levels in the project area declined as a proportion of the national total, harvest in actual volume terms (million cubic feet) from all owners actually increased about 12 percent from 1970 to 1991. Between 1986 and 1991, increases in harvests from

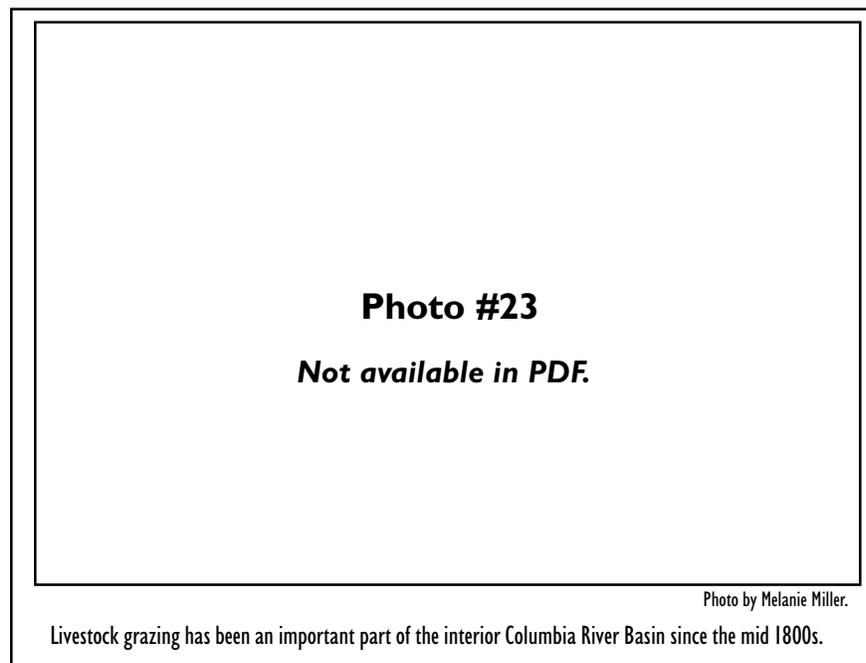
other public and private lands offset declines from National Forest System and forest industry lands.

By 1991, timber harvest from all public lands had dropped to about 52 percent of the total for the project area, compared to about 56 percent in 1986, and nearly 60 percent in 1970. Harvest from BLM-administered lands historically has been 10 to 15 percent of that total.

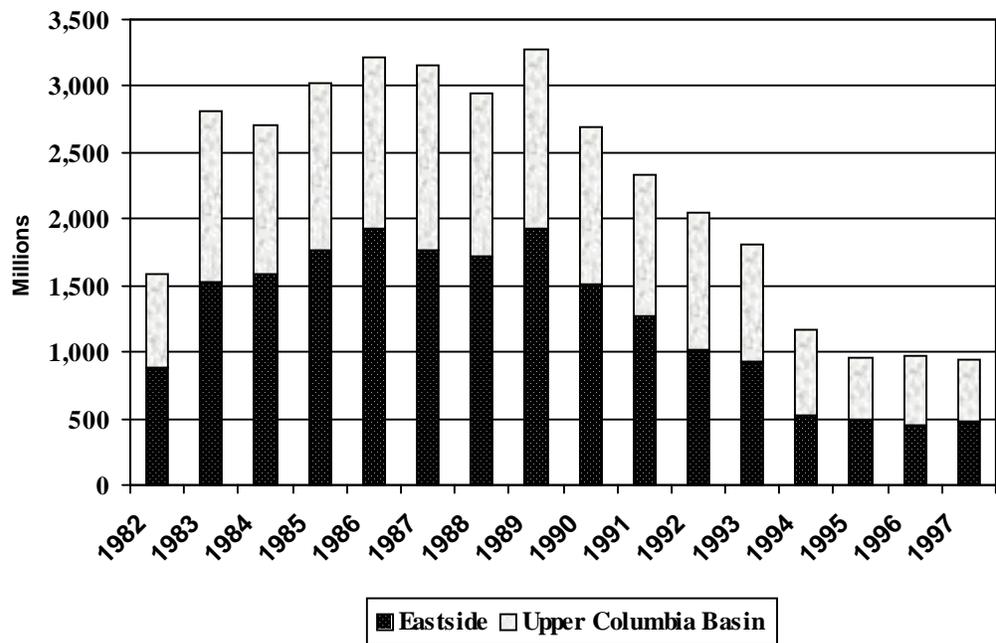
During the 1990s, there has been a significant decline in timber harvest from federal lands, partly because management changes have taken place to protect habitats of threatened, endangered, and other species of concern from further degradation, but with some contribution from softening demand for timber, and competition from imports that occurred in the latter part of the decade. In the past 40 years, federal lands supplied up to 60 percent of timber harvest from the project area; that contribution is expected to be only about 35 percent over the next 30 to 40 years (Haynes and Horne 1997).

As shown in Figure 2-20, harvest volume from National Forest System lands, which account for 85 to 90 percent of federal lands harvest in the project area, decreased from a 1989 high of almost 3.3 billion board feet to just under 1.2 billion within five years. It dropped further to 949 million board feet by 1997—an overall decline of 71 percent in nine years. Note, however, that the National Forest System timber harvest was only 1.5 billion board feet in 1982, and then doubled as the nation came out of the economic recession of the early 1980s, following the traditional cyclical pattern of the timber industry.

It is not possible to draw specific conclusions about the relationships among timber harvest from federal lands, economic specialization in wood products manufacturing, and economic status of individual counties or communities. The proportion of National Forest System timber as a percentage of total harvest from individual counties varies widely, from none to as high as 95 percent. But, just as with range and livestock, Reyna (1998) found that the county-level information masks variability among communities within counties. Those economic specialization ratios show that specialization in the wood products manufacturing sector for communities within a county can range from none to very high.



**Figure 2-20. Timber Harvested from National Forest System Lands in the Interior Columbia Basin, 1982–1997.**



There can be several reasons for these variations. Often, wood products mills may be located in only one or two towns in a sparsely populated county. Or, a mill may be physically located between two communities, both of which rely on the mill for employment, but the mill's physical or postal address associates it with just one of the communities. Communities in counties that have fairly low harvest from federal lands may be highly specialized in wood products manufacturing because of harvest available from private lands. And, finally, depending on geography, transportation infrastructure, and trade patterns, a community in a county with little federal lands harvest may still have mills that draw timber supply from federal lands harvest in adjacent counties. Conversely, because of the same factors, a county with a high percentage of federal lands harvest may have much of the harvest volume go to mills in other counties.

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***Declining and less predictable federal timber availability, along with technological and other changes in the forest products industry, have affected people directly through job losses and indirectly through effects on federal government revenue sharing.***

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Because of competition with outside buyers, local mills can no longer assume they can compete for local timber sales, even when the volume of timber for sale in an area is maintained or increased. In 1994, concern with "outside" competition even led to a proposal for an "Inland Empire" sustained yield unit that would have encompassed most national forests in the upper Columbia River Basin portion of the project area. This proposal would have excluded participation of timber purchasers from western and central Oregon and Washington in timber sales on national forests in the upper Columbia River Basin, bringing relief to mills in the upper basin that were competing for timber sales in the area. Although never adopted, it is an indication of the concern for maintaining the economic viability of local mills and communities.

Declining and less predictable federal timber availability, along with technological and other changes in the forest products industry, have affected people. The former has resulted from two major factors: actual reductions of timber availability caused by declining forest health; and the challenges and complexities of meeting current regulations and policies in relation to broader issues such as ecosystem health, declines in anadromous fish runs, and concerns for the health of other plant and animal species. These effects have contributed to decreasing employment opportunities for forest products employment, which in turn have contributed to economic and social hardships in communities with high employment in firms dependent on federal timber. Declining

timber availability has affected people directly through job losses and indirectly through effects on federal government revenue sharing, with reduced funds for schools and roads.

### Special Forest Products

Because of the economic significance of logging and milling, the role of special forest products is sometimes overlooked. However, the collection of forest plants for commercial processing and trade in the project area is a small but growing industry. It is estimated that this industry is already producing several hundred million dollars per year in product sales. More than three-fifths of this value came from floral greens and Christmas ornaments. Other significant special forest products include wild edible mushrooms, huckleberries, and medicinals. In this industry, an estimated 70 percent of jobs involve low-paying and seasonal harvesting activities. The other 30 percent of jobs, which are better paying, are in processing and marketing (Schlosser and Blatner 1994).

The number of permits granted to collect special forest and range products is expected to increase substantially. This will result in the need to manage

the resource to assure it remains sustainable. Adjustments to forest and range management practices may be necessary to meet the growth needs of species used as special forest products.

### Minerals and Energy

For more than a century, mining of deposits of gold, silver, and other base metals—including copper, lead, and zinc—has contributed to the regional economy. Extraction of other metals, including aluminum, molybdenum, tungsten, nickel, chromium, magnesium and antimony have also contributed to the regional and local economies. Production of non-metallic minerals, particularly phosphate rock, have been another source of regional mining economic activity. Common variety minerals (natural aggregates including sand, gravel and crushed rock) have been important to local economies throughout the project area for construction and repair of infrastructure, including roads, buildings, runways, dams, canals, etc. (See Eastside Draft EIS Appendix 2-3, 1997; and Haynes and Horne 1997 for more details on mineral deposits and values in the basin.) Development of coal, oil, natural gas, and geothermal resources has also been locally important. Discovery and development of oil, natural gas, and geothermal resources may expand in the future. No coal is expected to be mined within the project area in the foreseeable future. (See the Eastside Draft EIS, Appendix 2-3.)

The majority of the mineral industry in the project area is localized in a relatively few counties. However, production of some minerals from the basin has been significant, both nationally and internationally. For instance, phosphate production represents 12 percent of national and 4 percent of world phosphate production. Silver production constitutes 30 percent of national and 4 percent of world output. Gold from Montana, Idaho, and Washington accounts for 11 percent of national and 1.5 percent of world output. Most metal mining activity has occurred in the Upper Columbia River Basin portion of the project area. The Butte (Montana) and Coeur d'Alene (Idaho) mining districts have contributed more than 90 percent of all the base-metal and silver produced in the basin (Haynes and Horne 1997). Phosphate production is focused in Caribou County in southeastern Idaho.

Exploration and development of locatable or hard rock minerals is authorized and regulated principally by the Mining Law of 1872; by the

**Photo #24**  
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Photo by Ravi Miro Fry.

In 1991, timber harvest from Forest Service-administered lands accounted for 46 percent of the project area.

Mineral Leasing Act of 1920 for phosphate rock, and oil and gas; and by the Mineral Materials Act of 1947 for common variety or saleable minerals. Mining operations must also comply with other federal laws, including the Clean Water Act. The Forest Service and Bureau of Land Management have limited authority to regulate or preclude mining activities on federal lands because of the preeminent authority held by the mining laws mentioned. However, the agencies can stipulate mitigation requirements on mines that are operating, or are proposing to operate, under valid existing rights in order to protect or minimize impacts on resources and to assure reclamation of disturbed land.

Mineral exploration and production activities now represent a small and declining (on a proportional basis) part of the basin's economy. Employment in the mining industry averaged less than 0.5 percent of total employment in 1996 in the project area (excluding northern Nevada and western Wyoming). This was somewhat lower than the national average of 0.58 percent (Crone and Haynes in 1999). Because mining is generally a higher-wage industry, earnings from mining employment would amount to a somewhat higher percentage of total earnings in the basin—probably about 1.2 percent, based on 1990 employment/earnings relationships.

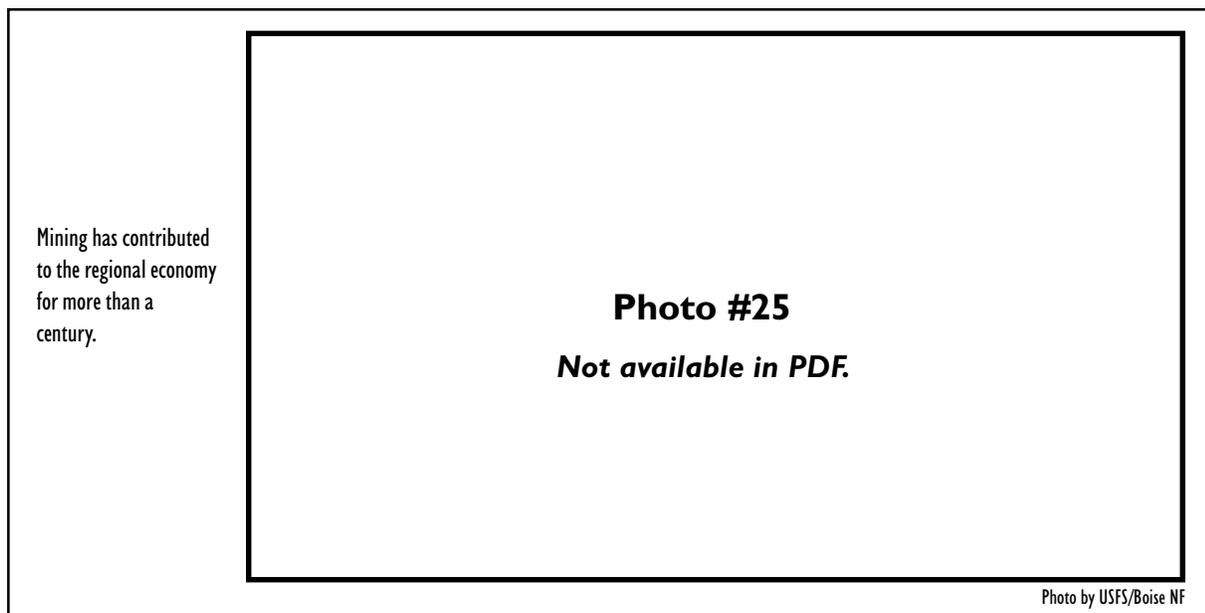
Reyna (1998) found 49 communities in 32 counties (33 communities in 19 counties just in Idaho) that have an economic specialization in mining. Mining is important to jobs, income, and infrastructure in and around those communities. But when compared with the

large, diverse and growing economy of the entire basin, it represents a relatively minor share of gross state product (GSP) in the project area. In 1990, mining, including aggregates, was estimated to have contributed 4.2 percent of the total economic activity (GSP) in the project area, including those portions of Nevada, Utah, and Wyoming falling within the project area as defined in the Draft EISs. Over three-fourths of this contribution to the regional economy was from nonfuel minerals, a share which, in relative terms, is significantly above the one percent contribution of nonfuel minerals to the national economy (Haynes and Horne 1997).

Substantial areas of mineral deposits still remain in the project area for potential future exploitation. Whether mining activity will occur in the future for any given deposit will depend on a number of factors, including the type of mineral, size and grade of deposit, national and global demand and prices, technology, and access. Most of these factors are not affected by BLM or Forest Service policy or regulation. The major effect the agencies can have is on production costs through mitigation requirements for mining operations and access.

### Road System

Road access is important to many users. It supports the bulk of economic activity generated from federal lands and represents a substantial public investment. This discussion describes the amount and type of



roads on agency lands, construction and maintenance costs for the road system, and the human uses and values attributed to roaded and unroaded areas.

### Road Inventory

The inventoried road system on Forest Service- or BLM-administered land in the project area includes approximately 91,300 miles of roads. A large proportion (80 to 85 percent) of the roads serve high clearance vehicles (roads designed and maintained to a low standard), leaving 15 to 20 percent of roads for passenger vehicles (roads designed and maintained to a high standard). Low standard roads provide for operational needs for most land and resource management and protection, and they also provide dispersed, roaded recreation. The remaining high standard roads serve both management and concentrated recreation use. It is estimated that about 30 percent of the low standard roads are closed to the public by gates or earth barriers for all or most of the year.

### Construction and Maintenance Costs

Roads are tangible physical and financial assets that represent a substantial commitment of public land and capital. Roads in the project area typically cost from \$10,000 to \$150,000 per mile to construct and \$100 to \$1,600 per mile annually to maintain, depending on the topography and type of road built. Based on current construction costs, the road system would cost approximately \$1.8 billion to build today. Historically, commercial timber harvest paid for 90 percent of construction costs and 70 percent of maintenance costs. The rest were funded by congressional appropriations. The deferred maintenance process has identified a needed annual budget of approximately \$85 million to maintain a road system of 91,000 miles. The total funds appropriated are less than 30 percent of that. In addition to direct budget costs, roads reduce or eliminate the productive capacity of those acres committed to the road prism and waste areas.

Currently in the Pacific Northwest, national forests are approximately 30 to 50 percent short of funds needed to maintain the current road system to existing standards. Construction and reconstruction funds decreased from about \$200 million in 1980 to \$25 million in 1995. This reflects both lower appropriated funding as well as declines associated with purchaser credits from timber sales (which declined from 5.2 billion board feet in 1980 to less than 1 billion in 1995). Use of the transportation system on Pacific Northwest national forests has changed over the past decade. In the 1980s, road usage was approximately 70 percent timber harvest, 20 percent recreation, and 10 percent administrative traffic. Since the reduction in timber

sale programs, this has shifted to 35 percent timber, 60 percent recreation, and 5 percent administrative traffic (Kozlow 1995).

### Economic and Social Importance

Roads have enabled most of the economic activity generated by federal lands in the project area to take place, such as timber management and harvest, grazing access, access to mining operations, and gathering special forest products. Roads are also integral to, or provide access to, most recreation uses, including winter recreation. However, increasing scarcity of unroaded areas and appreciation for benefits of unroaded lands result in substantial nonmarket values associated with those unroaded lands. The benefits of unroaded areas can include high quality water, good habitat for wildlife and fish, ecosystems with limited human disturbance, scenery, primitive recreation, and existence value (the value people place on knowing that wild unroaded lands exist, even if they don't physically visit those lands). The extent of road development is critical for determining whether an area is considered for wilderness or similar designation. Building roads in areas previously valued for their unroaded condition generates a cost for lost opportunity, in addition to added benefits associated with automobile access.

American Indians have used roads built during this century for faster and easier access to traditional hunting, fishing, and gathering grounds, as well as to some cultural and spiritual sites. Yet roads have also disrupted the natural characteristics of many cultural and spiritual sites and areas. And they have made access easier for non-Indians, increasing disturbance at traditional sites and opening the way for greater competition for fish, game, and plants at traditional fishing, hunting, and gathering sites. Tribes are interested in road management policies that would in some instances continue to provide tribal access but restrict non-tribal use, at least during certain times of the year.

In order to restore or protect certain environmental conditions, road management options now include various degrees of road closures, lower maintenance levels, and full road obliteration. This "disinvestment" approach is also a logical response to reduced road maintenance funding that can be expected if commercial use decreases and congressional appropriations do not make up the difference. Costs of this strategy include the cost of closing and obliterating roads, short-term environmental costs, and lost access to managers and the public. The total cost of lost access depends on miles of roads closed, road maintenance class, and location.

## Physical and Biological Effects

Road construction and use have been found to have potentially major consequences on both physical and biological ecosystem components. Building roads in steep terrain may destabilize soil and geological structures, causing minor to major road failures and resulting sediment and other debris in streams below the road. Major slumps can cause serious erosion and loss of vegetation, and may contribute to downstream property damage from landslides or associated flooding and mudflows. Sedimentation of streams is known to have adverse effects on fish and other aquatic populations, destroying food sources, filling in spawning gravels, and even causing major changes in stream character (for example, scouring, bank erosion, channel straightening, and flushing out large woody debris).

Road construction can also have negative effects on wildlife populations. Research has shown in recent years that many animals associated with undisturbed late-successional forest are sensitive to interactions with humans and vehicles that roads bring. Wildlife populations may avoid areas after roads are built, effectively fragmenting habitat and making dispersal and interbreeding more difficult. Animals may run from the sight or sound of people and vehicles, using energy they would not normally expend. This can be especially critical during high-stress times of the year, such as breeding, bearing young, or during lean winter months. Roads also provide humans access to wildlife populations for easier hunting as well as poaching.

Additional discussions of roads, road densities, and their effects on aquatic and terrestrial wildlife and plant species may be found in the Factors of Influence section, later in this chapter.

## Economic and Social Characteristics and Relationships

A discussion of the different kinds of economic contributions that National Forest- or BLM-administered lands provide society is important because land-use choices will benefit people differently. Recognition of these differences is important for achieving economic and social goals.

### Local, Regional, and National Uses

Traditional commodity uses of Forest Service- or BLM-administered lands have favored local use and generated local income. Uses that are now growing in importance favor regional and national

users and interests over local use and generate benefits accordingly. This can be interpreted as a shift of Forest Service- or BLM-administered lands from being primarily local and regional assets to being regional and national assets. While these lands have always been national assets by definition, the actual use and way the lands are valued increasingly reflect this.

Traditional commodities produced from federal lands, particularly timber, have generally carried market prices, or prices at least similar to what would be found in private economic markets. These goods have been paid for directly by the purchaser, who then either did the processing or sold them to a processor. As the goods change hands and move from raw material stage to finished product (whether a board or a side of beef), money also exchanges hands which then makes its way into the local and regional economies through payments to workers, purchases of supplies and materials, and so forth. These expenditures create the classic economic “ripple effect,” whereby an initial payment supports more economic activity than just the initial one. In addition, government revenue-sharing payments (such as 25 percent payments to counties), provide additional economic support to local areas. Typically, local areas closest to the federal lands have reaped substantial economic benefits from their adjacency to available resources.

There is a growing difference between valuing Forest Service- or BLM-administered lands based on how they serve national demands versus economic contributions they make locally. The economic value and societal importance of these lands continue to increase as use increases and as the unique attributes they possess become more scarce. However, this increased value does not necessarily generate income to support local jobs or other economic activity, and it does not necessarily generate funds to support local government investments in infrastructure or social services that traditional commodity production generated. Much of the value is captured by those living elsewhere, who either travel to federal lands to recreate, use water downstream from federal lands, catch fish

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***While these lands have always been national assets by definition, the actual use and way the lands are valued increasingly reflect this. There is no question that project area resources have national value aside from their role in the local and regional marketplace.***

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spawned in federally managed streams, or benefit from the protection of important federally-managed ecosystems. A complete accounting of economic benefits would include value obtained by people who may not ever visit the project area, but who benefit from knowing it exists now and in the future. Often referred to as existence or preservation value (Duffield et al. 1994), these indirect benefits can be substantially greater than benefits flowing from direct use of a resource. The magnitude of the numbers are subject to dispute, but there is no question that project area resources have national value aside from their role in the local and regional marketplace.

### **Payments to Local Government**

The Forest Service and BLM make payments to counties to compensate them for the non-taxable status of the federal lands in their jurisdiction. The formulas used to calculate the amount of money received vary by agency and product. Generally there is a “per acre” payment associated with county population (PILT, or Payments In Lieu of Taxes), and an additional “revenue-sharing” payment based on revenues received by the federal government from timber sales, grazing fees, recreation fees, special use permits, and other uses. Appendix 7 shows percentages of county budgets made up of federal PILT and other revenue-sharing payments in the early 1990s.

Potential reductions in these payments caused by changes in federal land uses are a concern to county governments who rely on this revenue. For counties within the jurisdiction of the Northwest Forest Plan (Western Oregon, Western Washington, Northern California), the Congress passed legislation to guarantee a major portion of historical payments to those counties whose payments would otherwise have dropped substantially because of the major decline in timber harvests as a result of spotted owl protection measures. Under the current legislation, the percentage of the payments guaranteed drops by 3 percent per year through 2003, at which time they will end.

The governments of sparsely populated counties and rural communities may be relatively unprepared to deal with the kinds of changes in revenue sharing that might result from fundamental shifts in federal land management policies. Rural governments are mostly part-time governments. For example, in the State of Idaho, there are 199 incorporated cities, 179 (90 percent) of which have populations below 5,000 people. Of these 179 communities, only 7 have full-time city administrators. Many municipalities with populations under 5,000 have a city clerk as their only full-time employee. Mayors and city council members in the typical rural community receive little or no pay. Budgets are small

and discretionary dollars are non-existent. These attributes of smaller, rural communities may make it difficult for them to withstand complex changes. This can lead local governments to rely more heavily for technical and financial assistance on higher levels of government (Harris et al. 1996).

## **Overview of Employment**

A discussion of the contribution that agency lands make to economic growth and employment is included because growth and employment are affected by agency land use choices and are key elements of major public issues.

### **Regional Employment Status**

The economy of the project area has undergone substantial change over the past three decades (Table 2-29). In terms of jobs, the project area has grown much faster than the nation as a whole. The number of jobs has increased even during periods when employment in manufacturing (other than instruments and electronics), mining, logging, farming, and ranching was either stagnant, falling, or moving erratically (Rasker 1995). Employment in service industries has increased substantially, and the number of households receiving “nonlabor income” (income from transfer payments, dividends, interests, and rents) has grown. Increases in service employment includes gains in recreation and tourism plus gains in business, education, management, and engineering services generated by new residents. Evidence of this change is shown in part by the 61 percent of job growth since 1969 in services, retail sales, and finance, insurance and real estate. Rapid employment growth is also found in advanced technology, retail trade, transportation services, and construction.

Much of this economic growth has been centered in metropolitan counties and counties experiencing rapid population growth. However, analyses that focus exclusively at regional levels, such as Rasker (1995), Niemi and Whitelaw (1995), and Power (1996), tell only part of the story. By focusing on the region as a whole, studies can overlook the significant differences between large cities and small rural communities in the region (Harris, Brown, and McLaughlin 1995), and even among small communities (Robison, et al. 1996) most affected by federal land management policies. Table 2-30 shows specific examples of differences among regions at the RAC/PAC level, where employment percentages in some

**Table 2-29. Employment By Industry in the Project Area.<sup>1</sup>**

Item	1969	1992	% Change 1969-1992	1996	% Change 1992-1996
<b>Total Employment</b>	908,954	1,619,923	78.2	1,921,147	18.6
Farm and Ranch Employment	120,504	112,264	-6.8	126,867	13.0
Nonfarm Employment <sup>2</sup>	788,450	1,507,659	91.2	1,794,280	19.0
Agriculture Services, Forestry, Fisheries	9,308	35,208	278.3	44,591	26.7
Mining	8,590	10,372	20.7	11,381	9.7
Construction	42,243	81,929	93.9	117,024	42.8
Manufacturing	119,703	176,067	47.1	197,397	12.1
Transportation, Communications and Utilities	44,931	67,304	49.8	75,925	12.8
Wholesale Trade	38,110	72,826	91.1	81,301	11.6
Retail Trade	141,661	279,555	97.3	340,554	21.8
Finance, Insurance and Real Estate	51,879	90,684	74.8	102,279	12.8
Services	153,587	411,911	168.2	509,914	23.8
Federal Government (Civilian)	29,178	37,965	30.1	36,926	-2.7
Military	28,188	25,391	9.9	23,368	-8.0
State and Local Government	116,924	206,629	76.7	236,765	14.6

<sup>1</sup> Employment data are for the project area as described in the original Draft EISs. They include data for the relatively sparsely populated areas in Wyoming, Utah, Nevada, and along the eastern side of the Cascade Crest in Washington and Oregon that are not included as part of the decision space for the Supplemental Draft EIS.

<sup>2</sup> Note that the sum of the individual sectors add up to somewhat less than total Nonfarm Employment because of employment data disclosure restrictions or other data limitations at the county level within a sector. Numbers not included for specific sectors for these reasons, however, are included in the next broader category.

Source: Bureau of Economic Analysis, Regional Economic Information System (CDROM)

RAC/PACs are higher than the project area as a whole and/or U.S. averages (for example, Southeastern Oregon RAC for agricultural services; Upper Columbia-Salmon/Clearwater R4 RAC for mining).

At the community level, Reyna (1998) examined the economic specialization in mining, agriculture, and wood products manufacturing of 411 communities in the project area. Economic specialization was measured by comparing a community's employment in those economic sectors with employment in the same sectors for the larger economic (BEA) subregion in which the community lies. If the community's employment percentage in a sector was greater than that for its BEA area, it was considered to be economically specialized in that sector. He found 49 communities with economic specialization in mining (30 high to very high); 266 communities economically specialized in agriculture, which includes livestock production and grazing (123 high to very high); and 137 communities with economic specialization in wood products manufacturing (85 high to very high).

### ***Employment Associated with Forest Service- or BLM-administered Lands***

Direct employment generated from Forest Service- or BLM-administered lands falls mostly into job categories such as manufacturing (especially wood products), agriculture (especially livestock grazing), agricultural services (including forestry services), mining, and federal employment. Another employment sector affected by agency land use is recreation and tourism, although this is not a formalized economic sector and does not have directly measurable employment data. Rather, direct employment related to recreation and tourism is found primarily in various components of the retail trade and services sectors.

Together, these employment categories are the ones most likely to be affected as a result of changing federal land uses. Currently, about 95,000 jobs are associated with livestock grazing, recreation, and timber harvest on lands administered by the Forest

**Table 2-30. Employment in Economic Sectors of the United States, Percent by Sector, RAC/PACs and the Basin<sup>1</sup>, 1996.**

Industry	United States	Basin Average <sup>1</sup>	Butte RAC	Klamath PAC	Deschutes PAC	John Day Snake RAC	South		Upper Snake		Upper Columbia		Eastern		Yakima		Eastern		Upper Columbia	
							Oregon RAC	River RAC	River RAC	R1 RAC	Washington RAC	PAC	Cascades PAC	Washington RAC	Salmon-Clearwater R4 RAC					
Agriculture services	1.24	<b>2.20</b>	<b>1.67</b>	<b>2.37</b>	<b>1.81</b>	<b>2.76</b>	<b>4.23</b>	<b>2.14</b>	<b>3.39</b>	<b>2.28</b>	<b>1.82</b>	<b>3.34</b>	<b>4.77</b>	<b>1.40</b>						
Mining	0.58	<b>0.59</b>	0.47	0.10	0.12	0.04	0.34	0.23	0.41	<b>2.01</b>	0.15	0.06	0.19	<b>0.74</b>						
Construction	5.33	<b>6.09</b>	<b>6.93</b>	<b>5.67</b>	<b>7.18</b>	3.98	3.85	<b>7.63</b>	<b>6.55</b>	<b>7.92</b>	<b>5.46</b>	<b>4.45</b>	<b>5.57</b>	<b>7.38</b>						
Manufacturing	12.63	10.27	9.07	13.68	12.01	11.39	9.99	13.87	8.75	7.79	9.53	8.68	6.59	12.22						
SIC 24 <sup>2</sup>	0.57 <sup>3</sup>	2.00	3.44	8.58	5.69	2.39	3.22	1.99	0.31	2.84	0.94	1.17	1.15	4.58						
Transportation	4.73	3.95	<b>4.99</b>	4.01	3.08	4.03	4.10	4.31	4.37	3.36	3.70	3.41	2.78	3.83						
Trade	21.48	<b>21.96</b>	<b>23.03</b>	<b>22.39</b>	<b>22.85</b>	19.69	<b>21.97</b>	21.39	<b>23.40</b>	20.16	<b>22.07</b>	<b>21.59</b>	<b>22.74</b>	<b>23.00</b>						
FIRE <sup>4</sup>	7.41	5.32	5.93	4.70	5.58	4.05	3.35	6.30	4.20	5.41	6.21	4.35	5.44	5.62						
Services	30.44	26.54	<b>30.46</b>	25.65	27.61	24.38	20.08	26.64	25.77	19.17	26.44	27.96	22.26	25.53						
Government (all)	14.24	<b>15.46</b>	<b>14.34</b>	<b>15.17</b>	12.36	<b>17.62</b>	<b>16.98</b>	<b>13.90</b>	<b>14.42</b>	<b>20.53</b>	<b>16.97</b>	14.20	<b>14.93</b>	<b>17.07</b>						
State and local	10.88	<b>12.32</b>	<b>11.05</b>	<b>11.69</b>	9.88	<b>14.35</b>	<b>13.51</b>	10.02	<b>12.11</b>	<b>11.80</b>	<b>13.28</b>	<b>12.08</b>	<b>12.34</b>	<b>14.31</b>						
Farm employment	1.93	<b>6.56</b>	<b>2.99</b>	<b>6.21</b>	<b>5.45</b>	<b>10.46</b>	<b>14.44</b>	<b>3.39</b>	<b>8.38</b>	<b>6.15</b>	<b>6.66</b>	<b>11.72</b>	<b>14.55</b>	<b>2.73</b>						

Bold - Values above the national average.

<sup>1</sup> Numbers are for the entire interior Columbia River Basin assessment area.

<sup>2</sup> SIC 24 - Standard Industrial Classification for lumber and wood products. Manufacturing number includes SIC 24.

<sup>3</sup> National SIC 24 figure from 1990 data (Beuter 1996).

<sup>4</sup> FIRE - Finance, insurance, and real estate.

Abbreviations used in this table:

- RAC - Resource Advisory Council
- PAC - Provincial Advisory Committee
- R1 - Forest Service Northern Region
- R4 - Forest Service Intermountain Region
- SIC - Standard Industrial Classification

Service or BLM in the project area. It was estimated that recreation accounts for 81 percent of these jobs, timber harvest for 9 percent, livestock grazing for 1 percent, and various forestry services (silviculture, thinning, planting, etc.) for the remaining 8 percent (Crone and Haynes 1999).

Employment data by county and other county data can be found in Appendix 7.

## Manufacturing

Manufacturing jobs overall make up a smaller percentage of total employment in the project area than they do nationally, suggesting that the area is not comparatively strong in manufacturing. However, this is not the case for the wood products component of manufacturing. Wood products manufacturing, a job category closely tied to federal timber harvest, falls under the general manufacturing sector and is still perceived by many to dictate the economic health of the overall regional economy. This view is no longer accurate at the project area, economic (BEA) subregion, or in most cases, the RAC/PAC level. The reduced regional importance of wood products manufacturing is due more to rapid growth in other sectors of the economy than to declines in the wood products industry.

Although no longer dictating overall economic health of the region, wood products manufacturing employment is still above the national average in much of the project area and is locally important to a number of communities. For the project area as a whole, and for 11 of 12 RAC/PACs, wood products manufacturing is a proportionally larger part of total employment in the project area than it is nationally. While the latest national percentage available is 0.57 percent (Haynes and Horne 1997; Crone and Haynes 1999), the project area average in 1996 was 2 percent. The highest project area percentage, as of 1996, was found in the Klamath PAC at 8.6 percent, while the lowest percentage is in the Upper Snake River RAC, which is just over 0.3 percent. As mentioned earlier, Reyna (1998) found 85 individual communities that are highly to very highly specialized in wood products manufacturing.

As detailed below, timber industry employment (related to timber harvest from all ownerships) in the project area over the past two decades has followed a pattern similar to other areas of the western United States. Employment reached a peak in 1979 with historically high timber harvest levels, then declined during the recession of the early 1980s. Employment climbed again to another high point around 1989–1990, following another peak in timber harvest levels.

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***Although no longer the regional economic driver that it once was, wood products manufacturing employment is still proportionally above the national average in much of the project area, and is locally important to a number of communities.***

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But total employment did not climb to the same levels reached a decade earlier, primarily because of technological advances in harvesting and processing methods. (This trend toward fewer jobs per volume of wood processed was more pronounced in the Idaho and Montana portions of the project area than in eastern Washington and eastern Oregon during that period.)

Between 1978 and 1982, timber industry employment in Idaho and Montana dropped from nearly 28,000 to just over 18,000. It then climbed back to almost 22,000 by 1990, before beginning another decline by 1993. In eastern Oregon/eastern Washington, timber industry employment dropped from an estimated 24,000 in 1978 to about 16,500 in 1982. It then climbed back to about 23,000 by 1990, before beginning to decline again by 1993. Between 1990 and 1996, timber industry employment for the entire project area declined from nearly 45,000 to about 38,500.

Reductions in employment were due to several factors, including the recession of 1990, legally imposed reductions on federal timber sales, technological improvements in harvesting and milling, and changes in the mix of products manufactured by the region's timber industry. Changes in milling technology and competitive product marketing are longer-run forces gradually reducing the industry's employment per unit of wood product produced.

Employment in the pulp and paper manufacturing sector is acknowledged but not dealt with in detail in this EIS. This is not to suggest that there will be no effects in the pulp and paper employment sector, but rather suggests that this sector will respond differently to supply-induced changes than the solid wood products sector.

The pulp and paper manufacturing sector consists of pulp processing, paper processing, and paper converting (such as envelope and bag manufacturing). The pulp sector is most likely to be affected by changes in forestry activity, but low prices from a huge supply of pulp on the global open market, utilization of alternate supply sources and species, and improved pulp recovery processes can allow

these industries to maintain installed capacities (FEMAT 1993). Therefore, Forest Service and BLM policies and associated effects on timber harvest in the project area are not expected to have significant direct impacts on pulp and paper manufacturing employment in the project area. This is not to suggest there will be no impacts on the pulp and paper industry, but that the industry will respond to supply (and changes) differently than the solid wood products sector.

### **Agricultural Services and Farm Employment**

Unlike the manufacturing group overall, the agricultural services group has a higher percentage of total employment in the project area than nationally (approximately 2.3 percent in the project area vs. 1.2 percent nationally), showing the comparative economic importance of this employment. Individually, all RAC/PACs show an employment percentage higher than national levels. The highest percentages of employment in agricultural services for the project area are in the Eastern Washington Cascades RAC and the Southeastern Oregon RAC, with 4.8 percent and 4.2 percent respectively.

Farm employment for the project area is significantly higher than the national average—about 7 percent compared to the national average of 1.9 percent. As with agricultural services, farm employment is greatest in the Eastern Washington Cascades RAC and the Southeastern Oregon RAC, with 14.6 percent and 14.4 percent respectively.

### **Mineral Resources**

The mineral industry generally provides somewhat less employment in the project area than the national average (less than 0.5 percent vs. 0.6 percent). All of the RAC/PACs, with the exception of the Upper Columbia-Salmon/Clearwater-R4 RAC (2.0 percent) and the Upper Columbia-Salmon/Clearwater-R1 RAC (0.7 percent) fall below both the regional and national averages in minerals-related employment.

As noted earlier, Reyna (1998) found 49 communities in 32 counties (33 communities in 19 counties just in Idaho) that have an economic specialization in mining. Mining is important to jobs, income, and infrastructure in and around those communities.

### **Forest Service and BLM Employment**

Federal employment associated with Forest Service or BLM administration of public lands can be important locally, both in terms of job numbers and wages per

job. This importance results from agency policy, particularly with the Forest Service, to locate administrative units in small, rural communities. The estimated 9,000 to 10,000 jobs in the project area may not be substantial regionally, but on a local basis, several dozen to a hundred or more jobs are very important to the vitality of these individual rural communities. Wages and salaries of federal employees stationed in rural communities in the region, and purchases of goods and services from local businesses to support the offices, also contribute to local economies.

In addition to contributing to local governmental revenues or economic activity in rural counties, the BLM and the Forest Service both have programs that result in direct spending within their jurisdictional areas. This money contributes to economic activity in rural settings. The two agencies spend millions of dollars annually for supplies and contract services to support their range, recreation, timber, fire management, and minerals programs, as well as for maintenance of roads and facilities (estimates of this spending are discussed in the “Implementation Costs” section).

### **Recreation**

Recreation-based employment, while not directly measured by the Bureau of Economic Analysis as a separate industry, is estimated to generate approximately 4.5 percent of employment in the project area (Crone and Haynes in press and 1999). This is slightly larger than the estimated combined percentage (3.5 percent) of all jobs associated with ranching, mining, and lumber and wood products manufacturing in the project area. Recreation-related employment must be estimated from the proportion of other industry group employment that supports recreation; for example, amusement, retail, lodging, eating and drinking, and gas stations.

Project area-wide recreation on Forest Service- and BLM-administered lands within the project area supports an estimated 77,000 jobs (Crone and Haynes in press and 1999). A regional economic study conducted by the Forest Service in the central Rocky Mountains recognized the export nature of some tourist-related service industries. The effect of these service/tourist industries on the local economy was found to be similar to the earnings returned to a local firm from the export of physical commodities (DeVilbiss 1992).

## Communities

As discussed early in this section, this EIS uses RAC/PAC areas as the base level of display for all estimated biophysical and socio-economic effects. However, a RAC/PAC area is very broad scale and is delineated along physical and hydrographic lines, rather than social/economic/political boundaries. While there may be some correlation between the two, transportation and trade routes and locations of large vs. small communities play the greater role in peoples' social and economic lives and interactions with others. For American Indians, the administrative designation of reservation boundaries, which also do not often follow physical and hydrographic features, has played an enormous role in their social, economic, and political lives over the past century. Therefore, in addition to the RAC/PAC level, socio-economic attributes and conditions will also be discussed in relation to counties, larger trade centers, and rural and tribal communities. The juxtaposition of the 92 counties in the project area with the RAC/PAC areas are shown on Map 2-29.

Smaller rural and tribal communities are of particular focus in this discussion. These communities, as a whole, are more subject to potential effects from various external forces: national and international market fluctuations; changing technology and transportation modes; population fluxes; and changes in historical land use policies, such as those currently being examined by the BLM and Forest Service. The well-being of rural communities that are economically or socially connected to Forest Service- or BLM-administered lands has historically been an important, perhaps dominant, factor driving the social policies of these agencies. An understanding of the

relationship between agency policy, land-use choices, and rural communities is a valuable component of the affected environment. Concern about the future of rural and tribal communities, especially those with higher than average employment in industries that rely on management of resources on Forest Service- and BLM-administered lands, has been strongly expressed from many sources throughout the project area during the ICBEMP process.

Within the project area, there are 12 RAC/PAC areas, which encompass fairly large pieces of the landscape (see Map 2-1, in the Introduction to this chapter). At a smaller scale, are all or part of 92 counties: 42 in Idaho, 12 in northwestern Montana, 18 in eastern Oregon, and 20 in Washington east of the Cascades (see Maps 2-24 and 2-29).

In 1998, responding to a congressional request for additional community-level information in the project area, the ICBEMP staff prepared a report (Reyna 1998) analyzing a total of 543 communities (511 of which are in the revised project area boundaries). The report provided information about the relative status of communities as major regional trade centers, isolated trade centers, or geographically isolated communities. It provided 1992 population figures for most of the communities, including a number of very small communities not officially tracked by the Census Bureau, and described the communities' proximity to Forest Service- and BLM-administered lands and to American Indian reservations. Reyna then used the employment data collected by Harris et al. (1996) to characterize the economic specialization of each community in 12 economic sectors. (Specialization in the "recreation sector" could not be computed, because economic activity related to recreation is spread among the trade and services sectors

### Human Communities

The term community has several definitions, sometimes referring to ecological plant and animal communities and sometimes referring specifically to human communities. Human communities can be groups of like-minded people who gain strength from their relationships and associations. "Communities of interest" are people employed in a similar profession, people who participate in the same activities, or those who share a set of values—for example, the "ranching community" or the "environmental community." As used in this section, the term community has a more traditional definition: spatially-defined places such as towns. The community is where people socialize, work, shop, and raise their children; it is often the focus of their social lives. Counties are an important political scale to consider, but leaving the discussion at that level would mask many differences among communities within a given county. See the Glossary for additional definitions related to ecological communities.



**Map 2-29. RAC/PACs and Counties.**

[lodging, food, service stations, recreation supplies, and the like], and is not tracked directly by the Bureau of Economic Analysis or other statistical agencies.) The tables from the Reyna (1998) report showing community attributes, as well as the calculations of economic specialization by economic sector for each community, are reproduced in Appendix 7.

The Bureau of Census recognizes and tracks 471 of the 511 communities listed in the (1998) within the boundaries of the revised project area (Map 2-30). Of these, 418 are classified as incorporated places and 53 are Census-Designated Places – areas of population concentration that are unincorporated but have an identity to the local population (USDC Census Bureau, 1992).

As of July 1, 1998, there were 42 communities, including four Census-Designated Places, with populations of 10,000 or higher (USDC Census Bureau, 1999-a). Approximately 32 communities (including 10 Census-Designated Places) have between 5,000 and 10,000 people. Twenty more Census-Designated Places are geographically closely associated with larger towns and trade centers (essentially unincorporated suburbs or nearby unincorporated settlements). Of the roughly 380 other smaller rural (including tribal) communities tracked by the Bureau of Census, approximately 75% are communities of 1,500 or fewer people, and 44% are communities of fewer than 500 people. The smallest communities still tracked by the Bureau of Census range down to fewer than a dozen people.

Of the 511 communities listed by Reyna (1998), 64 communities are located on or near American Indian reservations (Map 2-31). A few of these are large trade centers that are close to reservations, but would not be considered “tribal communities”—Pocatello and Lewiston, Idaho; Pendleton, Oregon; and Yakima, Washington. Other smaller towns, such as Omak, Zillah, and Sunnyside, Washington; Madras, Oregon; and Blackfoot, Idaho, are on the periphery of reservation lands but are more mixed cultural, economic, and trading centers along major transportation routes. All but 3 of the 64 communities are tracked either as incorporated places or CDPs by the Census Bureau. Thirteen CDPs are associated with reservations, such as Fort Hall CDP on the Fort Hall Reservation (Shoshone–Bannock tribes) and White Swan CDP in the Yakama Nation. Of the 61 communities on or near Indian reservations that are tracked by Census, about 55 percent have populations of 1,000 or less, and 39 percent have fewer than 500 people. Population density of many of the CDPs is quite low, because the CDPs cover a fairly large geographical area.

For the Interior Columbia Basin Ecosystem Management Project, many types of information about communities in the project area were collected.

Harris et al. (1996) contains a complete description of this information, which included Community Self-Assessments—interviews with 1,350 community leaders and residents in nearly half (198 out of 476) of the (original) project area’s communities. Profiles of the economic structure of each community were developed (Robison, as cited in Harris et al. 1996). These will be valuable sources of information for the Forest Service and BLM to use in future planning, and for communities themselves.

## ***Community Stability and Community Dependency on Resource Availability***

Various concepts of community stability, resource dependency, and even flow/sustained yield of resource outputs—particularly timber—have for years dominated discussions of local community economic and social impacts from changing federal land management policies. Both the Eastside and UCRB Draft EISs discussed these issues at length. However, those concepts are of a relatively static, or “fixed in time,” nature, and have not been particularly useful in recognizing the multitude of external forces that affect the well-being of communities, or in describing the potential ability of communities to adapt, or respond in a positive way, to those changes. (Readers who wish to review these issues and related discussion are referred to the original Draft EISs: pages 2-194 to 2-201 in the Eastside Draft EIS, and pages 2-191 to 2-195 in the UCRB Draft EIS.)

The Draft EISs did take the attributes underlying the basic notions of community stability and resource dependency a step further, developing county-level “timber/forage importance indices.” These indices were developed by first measuring the status of factors such as percent federal land in the county, percent timber harvest or range production coming from federal lands in the county, population change over the past 12 to 15 years, federal revenue-sharing payments as a percent of county budget, economic diversity ratings, percent of total county employment in natural resource-related sectors, and recreation visits to national forests. These factors were scored and then summed to create index ratings of low, medium low, medium high, and high.

The “timber/forage importance” index ratings gave an indication of the importance of federal lands and use of resources from federal lands to the overall socio-economic status of each county. The measured attributes are in and of themselves of interest, and help to understand the current levels and intensities of county economic interactions with federal lands and resources produced

from federal lands. However, the indices that were developed did not prove to be as useful as desired for assessing the ability of counties and communities to adapt to change—in particular to changes from re-direction of federal land use policies and related management actions in the project area. (The attributes used for developing the “timber/forage importance” indices in the Draft EISs are reproduced in Appendix 7 as part of the descriptive county-level information included with this Supplemental Draft EIS.)

## **Community and Socio-economic Resiliency**

### **Community Resiliency**

Recently, many social scientists documenting challenges facing rural communities throughout the country have concluded that stability is not the only way to achieve the broader goal of prosperous, vital communities. Community resiliency—the ability to successfully deal with the inevitable multiple social and economic changes that are evident in our society—is one of the most important indicators of a community’s health and vitality. Focusing on resiliency, and the components that increase or decrease resiliency, is also very useful when economic development agencies and similar parties are developing programs of assistance to help communities improve their vitality and prosperity and increase their ability to adapt to current and future changes. Harris et al. (1996) described resiliency as consisting of population size, economic strength and diversity, attractiveness and surrounding amenities, strong leadership, and other factors such as community residents’ ability to work together and be proactive toward change. This definition of resiliency is similar to the concept of community capacity that evolved during the development of the Northwest Forest Plan (FEMAT 1993).

Harris et al. (1996) used the Community Self-Assessment information to develop a relative scale of community resiliency for rural communities of fewer than 10,000 people in the project area, to measure how well-equipped communities are to deal with change. The most resilient communities tended to be larger in population, have an economy based on a mix of industries, view themselves as autonomous, and have worked as a community to develop strategies for the future. Many communities are beginning to work together to identify ways of capitalizing on their location and other characteristics to cope with the many changes affecting their health and vitality. (See the Draft EISs for a more thorough discussion of the various components of diversity and of community

social and cultural attributes that Harris et al. [1996] derived as components of community resiliency from their survey work in project area communities.)

### **Socio-economic Resiliency**

Following Harris et al. (1996), as well as similar work by other social scientists, McCool et al. (1997) developed a theoretical framework for socio-economic resiliency that focused on five factors: population size (which may tend to increase skill mix and social and cultural diversity); economic diversity; civic infrastructure (leadership, positive outlook, and social cohesion); amenities (both natural and human-made, such as libraries, arts, and the like); and location (both in the biophysical environment and relative to other communities, growth centers, and the like). However, they did not provide actual measures or examples of these factors or their integration into a resiliency measure.

More recently, Horne and Haynes (1999) developed a measure of socio-economic resiliency, which they felt could be useful for understanding the extent to which changing federal land use policies may affect social and economic systems within the project area. They wanted a measure that was quantifiable and that contained good proxies for a more complex set of variables, such as those used by Harris et al. (1996) or proposed by McCool et al. (1997). Looking at these works, as well as other research done, they propose a socio-economic resiliency measure based on three factors: economic diversity or resiliency, population density, and lifestyle diversity. Data exist to quantify each of the factors, and a process was developed to score and combine the results into socio-economic resiliency ratings. They applied this process to the counties within the Interior Columbia Basin project area and provided tabular and mapped results.

As can be seen in Map 2-32, high-resiliency ratings (based on the Horne and Haynes process) tend to lie along major transportation corridors (Interstates 82, 84, 86, and 90; the Columbia-Snake River waterway to Lewiston, Idaho). A second group of counties with high resiliency is associated with areas having high scenic amenities and quality of life along the east slope of the Cascade Range and the northern Rocky Mountains. The metropolitan areas are really multi-county complexes linked by trading and commuting patterns. Areas with medium socio-economic resiliency tend to connect or fill in areas of high resiliency. In contrast, large expanses of areas with low socio-economic resiliency are found in the arid parts of the project area—eastern Oregon and southern Idaho, as well as the more rugged and isolated portions of central Idaho, western Montana, and eastern Washington (Horne and Haynes 1999).



**Map 2-30. Communities Included in the Analysis.**



**Map 2-31. Communities Associated with American Indian Reservations.**



**Map 2-32. Socio-economic Resiliency Ratings.**

Horne and Haynes (1999) are careful to explain that their results are not necessarily new or better (more “right”) answers. Rather, the results are indicators of a complex of components that can influence the ability of communities, or groups of communities, to change and adapt to a variety of social and economic factors that are constantly in a state of flux. Their results provide additional information, along with that from other sources and analyses, to help land managers and the public understand the spatial patterns of the different responses economic and social systems may exhibit when faced with significant challenges (Horne and Haynes 1999).

### **Isolated and Economically Specialized Communities**

As described earlier, Reyna (1998) examined geographic attributes for 511 communities in the original project area, and employment data for 411 of those communities. He identified trade centers; “not-isolated” towns within “city circles” around those trade centers; smaller “isolated trade centers”—towns with populations roughly between 2,000 and 9,000; and isolated towns—those outside the city circles and less than 2,000 population. He then calculated economic “specialization ratios” for each community, for each of 12 economic sectors: agriculture, agricultural services, mining, construction, trade, transportation, services, federal government, state and local government, wood products manufacturing, other manufacturing, and finance/insurance/real estate (FIRE). Reyna measured economic specialization by comparing a community’s employment in each economic sector listed with employment in the same sector for the economic subregion in which the community lies. If the community’s employment percentage in a sector was greater than that for its economic subregion, it was considered to be economically specialized in that sector. Specialization ratios were categorized as low, medium, high, and very high. The display of attributes by community and the results of the economic specialization calculations by community are displayed in Appendix 7.

The findings from the report indicate that isolated towns differ from not-isolated towns in terms of the degree to which they are economically specialized in different sectors, the amount of federal lands likely to be nearby, and the likelihood of having a BLM or Forest Service office located there. Findings also showed that specialization in isolated communities is most likely to be in the agriculture (crops and livestock), agricultural services, wood products manufacturing, mining, and federal government sectors.

A visual summary of the concentration of isolated and economically-specialized communities by subbasin within the project area is shown in Map 2-33.

While the Harris et al. (1996) and Horne and Haynes (1999) reports look specifically at various measures, both factual and perceptual, of community adaptability and resiliency, the Reyna (1998) report lays out some current economic attributes of a large number of communities in the project area, but it does not attempt to draw conclusions about community resiliency or adaptability. The findings of the report in terms of type and degree of economic specialization, along with other community attributes presented, are intended to be additional information for planners, policy-makers, and the public to use, along with other pertinent information, to address issues of economic concern arising from changing federal land use policies.

### **County and Community Information**

A variety of information is presented in Appendix 7 on the 92 counties in the project area, including employment and population data, per capita income, poverty levels, figures on federal timber and range production earlier in the decade, BLM- and Forest Service-administered lands as a percentage of the total county land base, and socio-economic resiliency ratings. This information provides context for socio-economic conditions within the basin at a scale broader than the community level.

Results from the Reyna (1998) report for communities within the project area are also reproduced in Appendix 7.

This information will help in the assessment of potential effects of the alternatives on communities or groups of communities. While community status within a county may vary widely among communities, the overall set of conditions at the county level, including some sense of socio-economic resiliency, helps indicate whether communities within the county that need more assistance are surrounded by a strong, or a not so strong, support structure (county government, social agencies, educational opportunities, and the like).

### **Attitudes, Beliefs, and Values**

This section summarizes what is known about some public attitudes (favorable or unfavorable views of objects or events), beliefs (what people think is true),



**Map 2-33. Subbasins with Isolated and Economically Specialized Communities.**

and values (the things people hold dear to them) associated with ecosystem management. It is included in this chapter because not only have the physical, biological, social, and economic resources and opportunities in the project area changed, but people's perceptions of them have changed as well. Trends in these attitudes and values are important components of the social setting.

## **Environmental Issues**

Dunlap and Scarce (1991) examined trends in attitudes toward environmental issues over the past 20 years, including issues such as threats posed by environmental problems, support for government actions, willingness to pay for environmental protection, perceived seriousness of environmental problems, and tradeoffs between environmental protection and economic development. They concluded that, as of 1991,

*Public concern for environmental quality has reached an all-time high. While questions about the strength of environmental concern remains unclear, growing majorities see environmental problems as serious, worsening, and increasingly threatening to human well-being.*

Dunlap and Van Liere (1978) characterized these attitudes as rejecting the notion that nature exists solely for human use. Recent national surveys have found that a majority of the American public supports the environment and believes environmental issues should be a high social priority. A 1995 survey of Northwest residents (Harris and Associates 1995) found that 57 percent considered themselves an "environmentalist" while 41 percent did not.

However, support for environmental issues may be lower than it was several years ago, as more people question the costs of environmental protection. People today appear to be looking for a balance between restoration of natural processes and continued social and economic direct-use benefits. Most people believe such a solution is possible (Roper Starch 1994).

Support for endangered species laws and regulations is strong but may have decreased slightly in recent years. The public is increasingly concerned with seeking a balance between species protection and costs to society. A majority of Pacific Northwest

residents support reauthorization of the Endangered Species Act yet believe it is only somewhat effective in protecting plants and animals (Harris and Associates 1995). Support for salmon recovery, and a willingness to accept resulting socio-economic impacts, seemed to be stronger than that for endangered species in general. However, most people perceive that the major barriers to recovery are dams and overfishing, rather than lack of suitable habitat.

## **Rural and Urban Perspectives**

Survey research typically finds differences in opinions between residents of small, rural towns in the interior basin and residents of larger urban areas. National samples tend to be stronger on environmental protection, be less sympathetic to local economic impacts, and have greater trust in the Forest Service and environmental organizations than do local residents. For example, residents of small towns in the Pacific Northwest were less likely than city residents to favor strengthening the federal role in resource protection (Harris and Associates 1995). The same survey also showed a larger percentage of respondents from small towns and rural areas in Idaho, Oregon, and Washington, relative to their urban and suburban counterparts, believe that current government policies tend to favor the environment too much over jobs. When rural community leaders were asked, "what is the biggest problem facing rural communities," the most frequent response focused on the need for balancing the environment and the economy (McBeth 1995).

Citizens in rural communities have expressed the opinion that environmental and economic concerns must be balanced. For instance, in studies of more than 20 communities of southern and southeastern Idaho, respondents selected "air quality", "water quality", and "open spaces" as the three most satisfying aspects of their community life (Idaho State University 1990–1995). Conversely, respondents chose a "lack of employment opportunities" and a "lack of retail shopping" as the most dissatisfying features of rural life. The respondents' emphasis on the environment shows that the traditional sense of place and attachment to the land still plays the most significant role in rural life. Furthermore, the emphasis on employment opportunities is also rooted in the desire to preserve the community. Specifically, rural citizens largely desire increased employment opportunities so their children will be able to remain in the community.

## **Local Participation in Public Land Management**

Both locally and nationally, people believe that local residents and others most affected by public land management should participate and have a strong say in the outcome. The 1995 Harris poll, for example, found that support for increased environmental protection is significantly greater when state or local governments take the initiative than when the federal government does.

## **Biological Systems vs. Commodity Production**

Another important change in societal values is the broader acceptance of viewpoints that emphasize natural biological systems over commodity production and other human uses (Steel et al. 1994). People with this philosophy were more likely to support bans on clearcutting, creation of wilderness areas, and protection of old-growth areas, while those people who emphasize human uses of ecosystem resources were more likely to set aside endangered species laws to preserve jobs or to give economic concerns a higher priority in forest decision making. Additional survey research conducted for this project showed a preference for the viewpoint emphasizing biological systems.

## **Sense of Place**

Another type of value to be considered in ecosystem management is sense of place (Quigley and Arbelbide 1997; Galliano and Loeffler 1999). Forest Service- and BLM-administered lands in the project area contain many places that have special meaning to area residents, former residents, people whose forebears lived or worked in the area, visitors, and others living outside the area who may have a general appreciation that the basin, or certain areas within the basin such as the Columbia River, Hells Canyon, or River of No Return Wilderness, exist. Sense of place refers to how people define specific landscape locations based on their meanings and images. The importance of place as it is exemplified in American Indian culture is discussed later in this chapter. Areas such as historical mining areas, old railroad beds, ceded lands, Civilian Conservation Corps structures, or the presence of a nearby Japanese internment camp may have current or historical meaning to particular ethnic or minority groups.

Place assessment is a way to inventory the locations, names, and broad meanings of the attachments that people share for geographic areas. The concept of place has not been widely or uniformly used by federal land management agencies, either within or outside the project area. Specific areas, such as Hells Canyon National Recreation Area, have place assessments conducted for specific planning projects. The task of defining places has proven to be a positive process for involving community residents and stimulating discussion about common visions for public land management. The goal in such efforts was not to protect the places identified, or to allocate federal lands to one use or another based on them, but simply to have another source of information available when making resource management decisions.

Galliano and Loeffler (1999) (Williams 1995, Tuan 1974) recommended that, for the purpose of public land management, place assessment should occur at a community level, avoiding defining places that have meaning only to a few individuals or places that are so broad they have little meaning in a management context.

# **Federal Trust Responsibility and Tribal Rights and Interests**

## **Introduction**

American Indians have occupied the Columbia Basin for more than 12,000 years. By the time of European settlement, the interior Columbia River Basin was home to an estimated 50,000 American Indians. This section describes the specific cultural history and legal context for federal trust responsibilities and tribal rights and interests, and existing federal agency relations with the project area's affected American Indian tribes. It also provides more detail on major issues which tribes have indicated to be of specific concern to them, which are also summarized in Chapter 1. For a brief overview of the first settlers of the region, see the *Humans and Land Management: Snapshots in Time* section earlier in this document. For additional background information on American Indian tribes, see Appendix 8.

American Indian uses of Forest Service- or BLM-administered lands are greatly influenced by their cultural, social, economic, religious, and governmental interests and treaty-reserved rights. The U.S. government has a unique responsibility to Indian tribes with regard to tribal rights and interests (discussed in more detail later in this section), which is relevant to decisions to be made through this project relative to ecosystem-based management in the project area. The condition and status of many resources of interest and concern to tribes are described earlier in this chapter in the sections on landscape health, terrestrial source habitats, terrestrial and aquatic species, and aquatic/riparian/hydrologic resources. Additional information on social and economic considerations that affect American Indian tribes is found in the preceding socio-economic section.

## Cultures

Culture is the whole set of learned behavior patterns common to a group of people, their interactive behavior systems, and their material goods. People rely on their culture to live, to relate to others as collective groups, and to understand and function in their world. A culture includes religious, economic, political, communication, and kinship systems. Together these elements of culture guide group behaviors and instruct members of the group. A culture area is an area where groups of people and their cultures, in this case American Indian tribes or bands, share similar cultural traits and networks.

Most of the prehistoric cultures of the project area belonged to either the Plateau or Northern Great Basin culture areas. The Pit River and Shasta tribes, who are associated with the Klamath Tribe, are grouped within the Californian Culture Area. More than 30 plateau bands historically occupied the northern portion of the interior Columbia River Basin and part of the Klamath Basin. Many bands, including the Bannock, Northern Paiute, and Shoshoni, occupied most of the project area's southern half.

Differences existed among cultures, especially between tribal culture areas. An example of how diverse these cultures were can be seen in the area's 13 distinct native languages, which were associated with 8 separate language families. (By comparison,

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***Most American Indian uses of public lands today are rooted in traditional native cultures and socio-economic practices.***

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Europe has only 3 native language families.) Chinook jargon and sign languages helped people communicate across language and cultural barriers, especially for trade purposes. Map 2-34 shows the locations of American Indian reservations in the project area. Table 2-31 lists the project area's federally recognized tribes in each culture area and the bands within each tribe. Appendix 8 provides more information on each tribe.

The economic, political, religious, and social systems of American Indian groups were interdependent and integrated. Native peoples traditionally organized by families, autonomous villages, and to a lesser degree, bands. Their associations and alliances were closest with neighboring villages. Political, economic, and subsistence strategies were focused on local environments. However, trade networks, trade centers, and task groupings, which interacted with surrounding culture areas, extended the focus of bands and villages.

Access to and availability of natural resources were crucial to native people, who formed attachments to specific places for fishing, hunting, and gathering during a yearly cycle of seasonal migrations (see also Cultural Place Attachments and Harvestability discussions later in this section, and see Figure 2-21). People collected food, medicines, and other materials and used many places and resources for religious practices and social gatherings. Plants, usually gathered from scablands, meadows, canyons, aquatic environments, and forests, are thought to have provided over half of native people's diets. The rest of their diet came from fish, mammals, and birds, which were available in varying amounts. These and other natural resources were an integral part of tribal culture, and are still culturally significant to American Indians.

It is estimated that American Indians of the Columbia may have harvested 18 million pounds of fish annually, both for their own uses and for trade purposes. In the higher deserts and headwater areas, where fish were less abundant, American Indians hunted large wildlife species such as deer, pronghorn, bighorn sheep, moose, elk, bison, and bear for food and clothing. For some people, edible plants (especially roots, celeries, berries, fruits, and nuts) provided a significant amount of their nutritional needs. Some plants were used for ceremonial, medicinal, and/or commercial purposes. Hunting and fishing practices reflected a conservation ethic—such as primarily catching male trout and salmon on the spawning beds and restricting fishing to nights or certain days, thus allowing a portion of fish to pass. Conservation elements also were embodied by selective digging



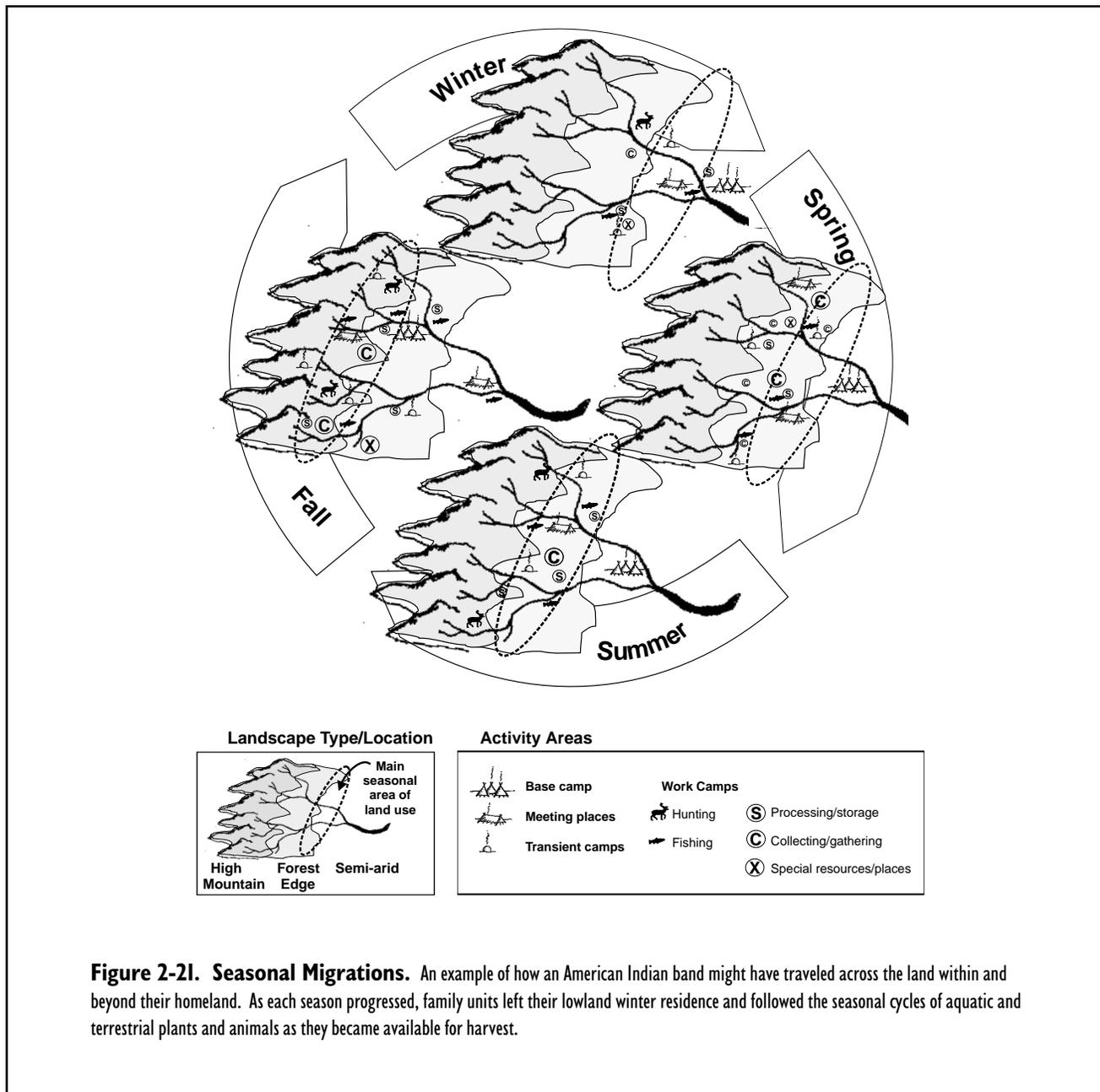
**Map 2-34. American Indian Reservations.**

**Table 2-31. Affected Tribes and Bands in the Project Area.**

Name of Federally Recognized Tribe(s) <sup>1</sup>	Culture Area	Names of Bands and/or Tribes
Blackfeet Tribe	Plains	Southern Piegan, Bloods, Siksika, Northern Piegan
Burns Paiute Tribe	Great Basin	Wada Tika, Hunipui, Walpapi, Koa agai, Kidu
Coeur d Alene Tribe	Plateau	Coeur d Alene, Spokane, San Joe (St Joseph) River
Confederated Salish & Kootenai Tribes	Plateau	Salish (Flathead), Kootenai, Upper Pend d Oreilles
Confederated Tribes of the Colville Reservation	Plateau	Methow, Sanpoil, Lakes (Senijextee), Colville (Sweelpoo), Entiat (Pisquouse), Nespelem, Chelan (Kow-was-say-ee), Moses Columbia (Senkaiuse), Chief Joseph band of Nez Perce, Wenatchi (Wenatshapam/Pisquouse), Southern Okanogan (Sinkaietk), Snake River Palus (Palouse)
Confederated Tribes of the Umatilla Indian Reservation	Plateau	Umatilla, Cayuse, Walla Walla
Confederated Tribes of the Warm Springs	Plateau	Wasco, Dalles (Kigal-twal-la), Dog River, Reservation Warm Springs (Taih) or Upper Deschutes, Lower Deschutes Wyam, Tenino, John Day River (Dock-Spus)
	Great Basin	Northern Paiutes
Confederated Tribes and Bands of the Yakama Nation	Plateau	Klickitat, Klinquit, Liay-was, Kow-was-say-ee, Oche-chotes, Palouse, Shyiks, Pisquouse, Se-ap-cat, Skinpah, Wishram, Wenatshpam, Yakama, Kahmilt-pah
Fort Bidwell Indian Community of Paiute Indians	Great Basin	Gidutikad
Fort McDermitt Paiute and Shoshone Tribes	Great Basin	Northern Paiute, Shoshone
Kalispel Tribe of Indians	Plateau	Aqulispi lem, Slate ise
Klamath Tribes of Oregon	Plateau Great Basin	Klamath, (Ma klaks), Modocs, Yahooskin
Kootenai Tribe of Idaho	Plateau	Upper and Lower Kootenai
Nez Perce Tribe	Plateau	Nez Perce (Ni mi pu), Upper and Lower Wallowa (Pikunema, Lamata)
NW Band of Shoshoni Nation	Great Basin	Eastern Shoshone (Washakie)
Pit River Tribe of California	California	Ajumawi, Aporige, Astariwawi, Atsuge, Atwamsini, Hammawi, Hewisedawi, Illmawi, Itsatawi, Kosalektawi, Madesi
Quartz Valley Indian Community	California	Shasta, Karok
Shoshone Tribe of the Wind River Reservation	Great Basin	Eastern Shoshone, Arapahoe (not affected)
Shoshone-Bannock Tribes (Fort Hall Reservation)	Great Basin	Eastern Shoshone (including Lemhi), Bannock
Shoshone-Paiute Tribes (Duck Valley Reservation)	Great Basin	Western Shoshone, Northern Paiute
Spokane Tribe	Plateau	Upper Spokane (Snxwemi ne), Middle Spokane (Sqasi Ini), Lower Spokane (Sineka It), Chewelah
Summit Lake Paiute	Great Basin	Paiute

Band names in parentheses are either used in treaty or executive order documents or are names recognized by tribes. Legally recognized or the most common spellings were used for most tribe and band names. There were actually many more bands than are indicated; only the more generally used designations are shown.

An "Indian tribe" means any Indian tribe, band, nation, or other organized group or community, including any Alaska Native village or regional or village corporation as defined in or established pursuant to the Alaska Native Claims Settlement Act, which is recognized as eligible for the special programs and services provided by the United States to Indians because of their status as Indians.



techniques for plant food harvesting, and the timing of harvests for native plants and animals.

Well-traveled routes between villages, temporary camps, resources, and gathering places were used for seasonal migrations. Winter and summer villages, which served as residential bases, were established based on the availability of water, shelter, food, and other resource needs. Resources were not found in the same abundance in each band's subsistence area. The annually varying abundance of anadromous fish, subsistence animals, and food plants in known gathering areas was balanced by trade with other bands. The geography and distribution of resources in each band's

subsistence areas along with differing family strategies created unique seasonal migration patterns.

Both Plateau and Great Basin groups had resource areas that drew bands together to share resources in particularly rich places. Premier fisheries were found in the Columbia, Snake, and Klamath rivers; and The Dalles/Celilo Falls, Kettle Falls, Upper Klamath Lake, and Boise Falls. Well-known plant gathering places in the project area included the Grande Ronde Valley in Oregon, Idaho's Camas Prairie, and meadows and prairies south of the Spokane River in Washington. These places were also significant meeting areas, trade centers, and habitation sites.

## Changes in Uses of and Relationships with the Land

### *Early Land Uses and Relationships*

Although early populations are difficult to estimate, the project area's tribal population was likely highest in the mid 1700s. American Indian populations generally had increased in areas and times that had abundant natural resources, and they decreased during long periods of scarce resources. The introduction of the horse in the 1700s and early 1800s increased people's ability to collect and store food, which in turn increased native populations. In the early 1800s, diseases introduced by European settlers and missionaries significantly reduced native populations by as much as 90 percent in large regions in the project area, decimating societies and cultures.

By the 1860s, the Oregon Trail and military roads opened the way for mass Euroamerican settlement, and Indian peoples no longer constituted the majority population in the area. The culture and philosophy of the new people were quite different from the native people's system of seasonal migrations and interdependence with natural resources. In general, the new Americans settled in one place year-round, which created different, potentially more disruptive, impacts on the landscape compared to the seasonal migratory patterns of American Indians.

Native people had burned vegetation to maintain their environment at certain times of the year, but their fires differed in intensity, timing, and location from later fires in project area ecosystems. The new settlers introduced additional disturbances to native systems, including intensive commercial fishing, sheep and cattle grazing, agriculture, fire suppression, and generally more efficient means for large scale resource extraction, among others. Specific modifications to native systems are summarized in other parts of this chapter and described in more detail in the *Scientific Assessment* (Quigley and Arbelbide 1997).

Land uses and seasonal migration patterns for Indian people were altered as a result of the influx of new settlers with new cultures. The steady growth of Euroamerican populations caused conflicts over resource use and availability, as well as pressure to change American Indian cultures. The competition and conflict between native and Euroamerican people in the 1800s resulted in a treaty-making period between tribes and the U.S. government.

### *After the Treaty-making Period*

When the federal government signed treaties with American Indians, it assumed a legal obligation in which the Indians trusted the United States to fulfill commitments given in exchange for cessation of Indian claims to land. Treaties are agreements between sovereign nations and are considered "the supreme law of the land" in the U.S. Constitution (Article VI. Clause 2). Tribes were identified as distinct groupings of American Indian people with a political structure. Such federal 'recognition' as a political entity had and still has some trust obligations and entitlement to many federal Indian services.

In signing treaties, most tribes ceded lands in exchange for set-asides, exclusive-use reservations, services, and promises of access to traditional land uses such as hunting, fishing, gathering, and livestock grazing. The tribes hoped this would preserve their cultural and subsistence activities and traditional economic lifeways for current and future generations. Indian reservations were seen by both tribes and government as a way to limit conflicts and allow tribes to retain some land even though reservations were often outside tribal homelands.

American Indian use of the land became restricted by removal from their homelands and a shift onto Indian reservations (Map 2-34, earlier in this section). Many tribes lost their ability to remain self-sufficient because they were deprived of a land base large enough to supply a subsistence, and they became dependent on federal government assurances in the treaties. Bands, communities, and even families were divided among reservations, often further separating them from their traditional use areas and resources. However, many Indians continued off-reservation use of their homelands, and some maintained off-reservation communities.

Traditional lifeways persisted even as Indians increasingly conformed to non-Indian lifestyles. The largely separate reservation communities often imitated and interacted with counterpart, non-Indian communities. The internal conflicts and divisions that accompanied cultural changes were limited by social forces based on family ties, a shared heritage, and cultural background.

These same factors bound people and their communities to certain off-reservation lands. American Indians seasonally sought out familiar resources and places, regardless of land ownership. They developed understandings with landowners and trade opportunities with those communities they encountered. During economically depressed periods, such as the Great Depression, renewed reliance on traditional

foods and other practices helped sustain many tribal economies. Inevitable conflicts over land use led to reduced tribal access to resources and traditional places.

American Indians changed along with regional developments and governmental regulations. For example, many Indian families came to depend increasingly on automated modes and routes of travel. Various federal agencies management actions and policies for public lands in the early 1900s changed and continue to change American Indian uses of lands in many ways. By the mid 1900s, assimilation policies and influences caused traditional cultures and values to become narrower aspects of American Indian life. However, traditional cultures and values are themselves largely unchanged. Most American Indian uses of public lands today are rooted in traditional native cultures and socio-economic practices. Of special relevance to federal land managers are the places and natural resources that traditional Indian communities continue to recognize as a part of their living cultural heritage.

## Legal Agreements

### ***Federal Trust Responsibility***

The trust responsibility is not defined, in part because of reluctance by both tribes and the Congress to place limits on “trust.” The modern concept of trust responsibility can be traced to the Treaty of Ghent, 1814. Chief Justice Marshall later characterized American Indian tribes as “domestic dependent nations” involving (1) the government or nation-state status of tribes, and (2) a special tribal relationship with the United States (Cohen 1982). Marshall described the trust relationship as one that “resembles that of a ward to his guardian.” This relationship has been consistently recognized by federal courts ever since and has been described as “special”, “unique”, “moral”, and “solemn”.

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***The primary focus of the federal government trust responsibility is the protection of Indian-owned assets, natural resources on reservations, and the treaty rights and interests that tribes reserved on off-reservation lands.***

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In addition, the rights reserved by the tribes in treaties and agreements, or which were not expressly terminated by the Congress, continue to this day. These tribal rights and authorities extend to any natural resources which are reserved by treaties, executive orders, and federal statutes. The federal courts have developed the Canons of Construction, guiding premises, that treaties and other federal actions “should when possible be read as protecting Indian rights in a manner favorable to Indians” (Cohen 1982).

The judiciary interpretation of tribal rights and treaty language continues to evolve and define federal legal responsibilities. For example, a 1994 court decision involving shellfishing rights determined that treaty-reserved resources were not limited to those actually harvested at treaty time because the right to take any species, without limit, pre-existed the treaties (*United States vs. State of Washington* 1994).

The primary focus of the federal government trust responsibility is the protection of Indian-owned assets, natural resources on reservations, and the treaty rights and interests that tribes reserved on off-reservation lands. Congress also adopted laws and policies that protect tribes’ rights to self-determination and promote the social well-being of tribes and their members. Under various laws and policies, agencies have a responsibility to implement federal resource laws in a manner consistent with a tribes’ ability to protect their members, to manage their own resources, and to maintain themselves as distinct cultural and political entities. Forest Service and BLM responsibilities apply to those actions under their authority, affecting management activities on lands they administer relative to plant and animal habitats, for example.

In carrying out their responsibilities, the BLM and Forest Service must assess proposed actions to determine potential impacts on treaty rights, treaty resources, or other tribal interests. Where potential impacts exist, the agencies must consult with affected tribes and explicitly address those impacts in planning documents and final decisions. Consultation with the tribes, described later in this section, is an essential step in carrying out that responsibility.

A key issue is the federal government’s obligation to ensure that tribal treaty rights and interests will be protected. Agencies often consider that their responsibility is carried out when tribal interests have been considered prior to making land use decisions. However, consultation and consideration alone may not be enough to redeem federal responsibilities. Tribes contend that treaty resources must actually be protected before land management activities can proceed. Despite the legal disputes about procedural

## Cultural Significance

Cultural significance refers to a set of relationships between a group of people, their culture, and their world (landscapes, places, and living and inanimate things). These relationships define and are defined by the values, uses, meanings, and relevance people hold for their world, behaviors, activities, or events. Culturally significant relationships and elements should be understood and treated within the context of the culture that identifies, manages, and values them.

For example, the cultural significance of salmon in American culture is multi-dimensional. It is a food source, a symbol of persistence and fortitude in a life cycle struggle, an economic industry, a prized game fish, a regional political and environmental issue, and a symbol of the Pacific Northwest region. For many American Indians, additional significance of salmon is founded in their religions, socio-cultural values, and identity as a community or a people.

A better understanding of significance is found in how people relate to salmon through any of the above ways. For sports fishermen, salmon is revered for its size and fight; a single large catch brings individual esteem. Fishing stories provide social bonding and bravado. Indian fishermen revere salmon (steelhead included) as a divinely provided food; it is a "lead-fish" essential on the tables at community dinners. A large catch of fish (enough to both sell and give away) brings social esteem to both the fisherman and the skilled salmon handlers who prepare and serve the catch. Stories about salmon bond individuals, family, society, places, and land together.

duties associated with project decision-making processes and substantive duties consisting of guarantees, federal fulfillment of trust is ultimately measured by the actual effects of federal actions.

### Other Agreements

Although the treaty-making era ended in 1871, negotiations with tribes continued and resulted in agreements ratified by Congress. Executive orders were signed in the late 1800s and early 1900s with the intent to reserve lands for tribal use, identify certain services, and occasionally to identify rights for non-treaty tribes. Both agreements and executive orders officially recognized tribes and created rights and liabilities that are virtually identical to those established by treaties (Cohen 1982). With regard to the applicability of the basic trust doctrine, Congress has not drawn distinctions between treaty and non-treaty tribes (Cohen 1982).

## Tribal Governments

Tribal governments have broad social and natural resource responsibilities toward their memberships and often operate under different cultural and organizational goals than federal agencies. Enrolled tribal

members are entitled to exercise those reserved rights and benefits held by a tribal government but are subject to tribal government regulations. Differences in the character of tribal organizations exist among tribes based on how they were given federal recognition, provided reservations, and whether they adopted the Indian Reorganization Act of 1934. This act encouraged tribes to organize themselves under formal constitutions approved by the Secretary of the Interior.

Tribes have interest in reservations (owned communally by a tribe), Indian allotments (owned by individuals), and off-reservation lands (where tribes have no legal title to the land); however, the nature of interest and legal rights varies. Some tribes have a legal right to fish at all usual and accustomed places (specified in treaties) for both on and off-reservation lands, regardless of property ownership.

The Bureau of Indian Affairs (BIA) represents virtually the entire governing authority over Indian tribes, including housing, schooling, and various other aspects of their social structure. The Self-Determination and Education Assistance Act, P.L. 93-638, passed in 1975, authorized the tribes to contract to operate BIA programs. Since then, the act has been amended three times (1988, 1991, and 1994), giving participating tribes even broader authority to manage and operate Bureau of Indian Affairs and other Department of Interior agency programs.

As a result, tribes now develop and conduct a number of research and management programs comparable to those done by federal and state agencies. For example, many have developed or are in the process of developing water quality restoration plans. Many tribes also now have a Tribal Employment Rights Ordinance (TERO) (see Appendix 8), which is the core of a comprehensive legal framework of tribal, federal, and contract law designed to promote tribal preference in employment, contracting, and purchase of products and services on or near the particular reservation.

Tribes' traditional and complex cultural ties to public lands still generate tribal concerns about how public lands are managed. Tribal governments, now with enhanced governing authority, directly address the broad social and natural resource concerns of their citizens. Most tribes have evolving internal organizations and deliberative skills to deal with land management agencies. Many are asking federal agencies to take a more proactive role on their behalf, especially in areas of treaty rights, treaty resources, and ecosystem health.

## Current Federal Agency Relations

Existing relationships between tribes and federal agencies have evolved rapidly in recent years, partly as a result of empowerment of tribal governments and numerous federal court cases involving

treaty-reserved fishing rights. The momentum has increased in response to new legal interpretations, legislation, executive orders, and departmental direction that encourages acknowledgment of tribal government issues, government-to-government consultation, and resolution of tribal concerns through consensus-seeking approaches. A chronology of these events can be found in Appendix 8.

Current Forest Service and BLM relations with tribes vary across the project area. The frequency of agency-tribe contacts often depends more on the nature of an established relationship than on whether an agency is proposing actions with potential effects on tribal interests. When an agency such as the BLM or Forest Service initiates an action (such as developing this EIS), the agency consults with affected American Indian tribes. Agencies tend to consult only those tribes which have overlapping ceded lands or neighboring reservation lands, although affected Indian groups also include others with interests in land management action(s)—even if they are non-federally recognized American Indian communities.

A number of federal agencies have revised their policies to respond to American Indian issues. These often recognize the necessity of mutual understanding and collaborative works to establish common goals and perspectives, emphasizing efforts to integrate tribal rights and interests in federal land management. Tribal perspectives are now expected to be identified and understood through the consultation process. (See further discussion of Consultation and Participation, later in this section.)

### **Consultation with Tribes**

When used in the context of government-to-government relationships, the term consultation means:

1. An active, affirmative process which (a) identifies issues and seeks input from appropriate American Indian governments; and (b) considers their interests as a necessary and integral part of the BLM and Forest Service decision-making process.
2. The federal government has a legal obligation to consult with American Indian tribes. This legal obligation is based in such laws as Native American Graves Protection and Repatriation Act, American Indian Religious Freedom Act, and numerous other executive orders and statutes. This legal responsibility is, through consultation, to consider Indian interests and account for those interests in the decision.

The term consultation also refers to a variety of other processes and is used differently in other sections of this document. For example, consultation also refers to a requirement under Section 7 of the Endangered Species Act that federal agencies consult with the U.S. Fish and Wildlife Service and/or National Marine Fisheries Service with regard to federal actions that may affect listed threatened or endangered species or critical habitat. Consultation with American Indian tribes is a separate process. However, both are required under federal law.

Current agency regulations and federal law require the BLM and Forest Service to consider tribal interests when conducting actions that may affect natural resources on tribal lands and/or the socio-economic well-being of its people. Examples of these interests and assets include, but are not limited to, air quality, water quality and quantity, anadromous fish runs, migrating wildlife, and cultural and religious interests of the tribe. Agencies must carry out their activities in a manner that does not harm or degrade Indian trust assets, avoids adverse impacts when possible, and mitigates impacts where they cannot be avoided. Federal policies also require explicit discussion and consideration of Indian trust assets in environmental assessments and impact statements (U.S. Army Corps of Engineers 1995).

## **American Indian Issues**

Many tangible and intangible resources, values, and issues that interest American Indians are the same as those that interest members of the general public, which are described in Appendix 1-4 of the Eastside Draft EIS and Appendix D of the UCRB Draft EIS, and are summarized in Chapter 1 of the supplemental Draft EIS. Some issues and concerns are unique to American Indians because of tribal interests, land ownership, and other characteristics that are different from those of the general public. A number of these issues are complex and often sensitive. Although many issues are similar among tribes, each tribe emphasizes those issues specific to its interests, and there may be variation in how individual tribes think land management agencies should respond. Tribal perspectives are expected to be identified and understood through the consultation process.

## **Politico–Legal Relations**

### **Treaty Federal Trust Responsibility**

Differing perceptions exist between the tribes and the federal government regarding trust obligations of the federal government in off-reservation settings. Tribes consider the trust obligation to be a substantive duty, one that should ensure protection of tribal interests on public lands as well as on trust lands. Where neither treaty rights nor federal trust responsibilities exist, tribes expect at least an adherence to a policy of prioritization, in which protection of tribal interests enjoys a standing over certain forms of other interests such as prioritization of water rights or uses. Tribes contend that federal land management agencies neither historically managed nor currently manage

natural resources within the context of treaty agreements or federal trust responsibilities. They assert that federal agencies are obligated to protect and restore the habitats needed to support resources on which meaningful exercise of treaty rights depends.

Because the U.S. courts have not defined the precise scope of the federal-Indian trust relationship, agencies often are unsure when a responsibility is met or redeemed. Therefore, federal policy primarily focuses on consideration of treaty rights and tribal interests, commonly through a government-to-government consultation process. This interpretation of trust responsibilities has been recently identified in the Department of the Interior's Manual release 512 DM 2 (December 1, 1995), and in the Department of Agriculture's Regulation No. 1020-6 (October 16, 1992). Agencies must identify if any proposed activity will have an impact on Indian interests on public or trust lands, ensure such impacts are explicitly addressed, consult with affected tribes and document potential conflicts fully incorporating tribal views, and explain how a decision is consistent with the federal government's trust responsibility.

Treaty resources located outside reservation boundaries have "in common" status; that is, resources are not reserved for the exclusive use of tribes. As such, these are considered "treaty resources" rather than "trust resources". Off-reservation resources of interest to tribes may be subject to competing and conflicting uses which in some circumstances may be more compelling and supersede the tribal rights and interests.

Despite these divergent interpretations, treaty rights and trust obligations serve to further shape a unique intergovernmental relationship requiring at minimum that federal agencies identify tribal interests and needs and account for these in their decisions.

### **Consultation, Coordination, and Collaboration**

The intergovernmental consultation process serves as the primary means for federal agencies to carry out their trust responsibilities. Legal requirements for federal agencies to consult tribes and American Indian communities has its basis in federal law, court interpretations, and executive orders (see Appendix 8).

Consultation serves at least five purposes:

- ♦ To identify and clarify the issues,
- ♦ To provide for an exchange of existing information and identify where information is needed,

- ♦ To identify and serve as a process for conflict resolution,
- ♦ To provide an opportunity to discuss and explain the decision,
- ♦ To fulfill the core of the federal trust obligation.

Consultation should be viewed as an ongoing relationship between an agency (or agencies) and a tribe (or tribes), characterized by consensus-seeking approaches to reach mutual understanding and resolve issues. It can be either a formal process of negotiation, cooperation, and policy level decision-making between tribal governments and the federal government, or a more informal process.

Consultation has been variably defined and implemented. Among tribes there are as many definitions for consultation and fulfillment of trust as there are Indian nations. For example, the Confederated Tribes of the Umatilla Indian Reservation define consultation as a formal process of negotiation, cooperation, and policy-level decision-making between sovereigns on a government-to-government basis aimed at reaching mutual decisions that will protect tribal lifestyle, culture, treaty rights, religion, and economy. Other tribes may define it differently. For that reason, consultation is conducted with each tribe individually.

Regardless of definition or type of process, all tribes believe that consultation and collaboration must be substantive, which occurs when: (1) opportunities for involvement are commensurate with the governmental status of tribes, (2) there is an agency focus on being responsive (more than polite listening), and (3) the subsequent decisions/outcomes reflect agency responsiveness through results, which may include shared agreement or mutually identified mitigation. Effective collaboration from the tribal perspective must include collaboration in implementation as well as full representation on any intergovernmental oversight groups that may be established. The challenge of agency-tribe consultation lies in achieving federal consideration of different cultural values, legal responsibilities, management processes, and collaborative relationships.

Formal consultation on every site-specific federal activity would be impossible for every tribal government to undertake. For many it would be preferable to have policy level decision-making, involving tribal policy makers, that would apply to all activities. A useful model of agency-tribe interactions is seen to include three important components: policy making, federal activities, and technical level management. Each component is viewed as an individual process

operating concurrently and relative to the others, reflected in government-to-government consultation.

Currently, agency-tribe relations infrequently incorporate such a strategy formally. Consequently, agency-tribal relations often are not addressed in a context that would enable adaptive responses to agency operations and tribal rights and concerns. Collaborative processes to establish agreeable consultation procedures and concerted efforts to provide shared understanding of agency missions and tribal rights and concerns are lacking.

## ***Ethno-habitat Management***

### **Culturally Important Species and Habitats**

The availability of culturally significant species and access to socially and/or traditionally important habitats (ethno-habitats) support the well-being of Indian communities. Many social, cultural, and economic activities center on the harvest, preparation, trade, and consumption of such resources. The occurrence of culturally significant species can be predicted through their known associations with types of landscapes and habitats. The presence and health of ethno-habitats can be assessed by using ecological information and the cultural expertise of a tribe and traditional users. The degree of access to resources and places can be determined by examining the potential effects of physical obstacles, administrative barriers, and/or behavior constraints that management actions may impose.

Availability of culturally important species is a key component of the issue of harvestability, discussed in more detail below. Table 2-32 presents species population trends in the project area from historical to current periods for many species of special interest to tribes.

### **Basin-wide Habitat Standards**

Restoration of native species habitats is central to many tribal interests. However, the term “restoration” can have varying meanings, and its lack of a single definition is seen to impede effective restoration activities. Many tribes consider current agency restoration efforts (including those under PACFISH) to be inadequate with regard to protection of habitats. Most tribes have their own restoration plans, such as the Upper Grand Ronde Plan and the Wy-Kan-Ush-Mi Wa-Kish-Wit, the Columbia River Intertribal Fish Commission Salmon Restoration Plan.

**Table 2-32. Population Trends of Species Associated with the Rights and Interests of Tribes in the Project Area.**

Species Name	Population Trend	Regulation	Comments
Anadromous salmonids	Declining	Federal, state, and tribal	Primary cause for decline is due to human-caused effects on habitat from hatcheries, dams, and harvests. Some species are currently listed as threatened or endangered, such as Snake River sockeye, and spring and fall chinook salmon.
Resident salmonids, whitefish	Declining	Federal, state, and tribal	Primary cause for decline is human-caused degradation of headwater and main-stem habitat and hatchery influences. Research on metapopulation interactions of species is still needed.
Sturgeon, lamprey	Declining	Federal, state, and tribal	Main-stem hydroelectric dams have changed free flowing systems into slack water environments, and these dams impede local migration. Much information is still needed on these species. Freshwater habitat degradation is thought to have a negative effect.
Sucker, sculpin, mussel	Unknown	Federal, state, and tribal	Detailed, accurate information is lacking on many of these species. Species endemic to portions of the project area are facing immediate threats to survival because of poor recruitment and water rights issues.
Mule deer, elk, black-tailed white-tailed deer, pronghorn, and moose	Significant increase from over-hunting in late 1800s. Current populations stable. White-tailed deer and elk increasing range. Pronghorn and moose recovering some lost historic range.	State and tribal for hunting numbers and seasons	In general, these big game species have increased due to control of commercial hunting in the late 1880s and their adaptability to early seral vegetation and edge habitat created by logging. Intensive management of habitat, as well as control over harvest, have increased populations.
Mountain goat	Declining populations, although historic range has increased into other habitats.	State and tribal for harvest	This species was impacted by competition for forage from domestic sheep and trophy poaching. Forage has not regenerated well due to fire suppression.
Bighorn sheep	General decline from historic populations, although some local gains in recent decades.	State and tribal for harvest	Bighorn sheep have declined because of disease transmission from domestic sheep, and fragmentation of seasonal range by roads and houses. They have also been impacted by competition for forage from domestic sheep and trophy poaching. Forage has not regenerated well due to fire suppression.
Grizzly bear, gray wolf	Declining since the mid 1800s to near extinction. In the past 30 years, increasing due to protection and immigration from Canada. Populations stable.	Protected by U.S. Fish and Wildlife Service threatened (grizzly) or endangered (gray wolf)	Grizzly bears are isolated in large blocks of relatively undisturbed moist and cold forest in northern Washington, Idaho, Montana, and the Yellowstone ecosystem. Wolf populations are increasing in the same habitat areas and starting to move into other habitats in northern portions of the project area. There is concern for poaching, public fear of predators, road access to habitat, prey base stability, isolation of populations, and conditioning of predators to human foods and livestock.

**Table 2-32. Population Trends of Species Associated with the Rights and Interests of Tribes in Project Area. (continued)**

Species Name	Population Trend	Regulation	Comments
Black bear	Variable by state. Some states have changed hunting regulations, populations have increased. Stable elsewhere.	State and tribal for harvest	Black bears are habitat generalists and have benefitted from early and seral vegetation and edge habitat created through logging. Population trends are not well known, nor is the impact of baiting, human conflicts, and harvest. Fire suppression and changes in berry production and habitat structure may impact bears. Competition between bears and domestic sheep for vegetation is a concern.
Jackrabbit, Nuttall's cottontail, pygmy rabbit, snowshoe hare, sage grouse, sharp-tailed grouse	Decreasing	State for harvest	Significant decline in sagebrush and salt desert shrub cover types, along with invasion of noxious weeds and other undesirable plants (such as cheatgrass), and excessive livestock grazing pressure, have seriously decreased forage and cover for grouse and rabbits. Snowshoe hares have been impacted by fire suppression and decreases in young lodgepole pine, riparian shrub, and hardwood stands.
Forest grouse (blue grouse, spruce grouse, and ruffed grouse)	Decreasing	State and tribal for harvest	Fire suppression, increasing stand density, decreasing shrub and riparian vegetation, and a decreasing large tree component have all impacted blue and spruce grouse. Ruffed grouse may be increasing in dense mid seral stands, but there is a lack of data.
Bald eagle, golden eagle, other raptors, Swainson's hawk, ferruginous hawk	Most are increasing. Rangeland hawks decreasing due to conflicts for winter range.	U.S. Fish and Wildlife Service and tribal	Raptors that declined due to pesticide use and human mortality have generally increased with regulation of pesticides and public education. Decline in the large tree component; old-forest, open stand structure; and prey species is still a concern. Swainson's and ferruginous hawks and others dependent on large open areas have declined due to conflicts in winter range.
Canada goose, ducks, coot, heron, swans	Geese are increasing. Ducks declined until a recent upward trend.	State, tribal, and U.S. Fish and Wildlife Service	Canada geese have responded well to artificial nest boxes, grazing, agriculture, and domestic grasses. All waterfowl have been impacted by a decline in wetlands, de-watering, lead shot, disease, and poaching.
Bitterroot, biscuitroot, maniposa, yampah	Stable, some locally impacted.	Tribal	Scabland species are generally not affected by livestock grazing or fire. Some areas are impacted by road construction and other ground disturbances. Some local losses noted for maniposa and yampah from past intensive grazing. Grazing time can conflict with tribal gathering practices. Noxious weeds, such as yellow starthistle, threaten some maniposa species. Also, some scablands are being invaded by noxious weeds such as diffuse knapweed.

**Table 2-32. Population Trends of Species Associated with the Rights and Interests of Tribes in Project Area. (continued)**

Species Name	Population Trend	Regulation	Comments
Willows, tules, cattails, wocas (lilypods), wappatoo	Decreasing	EPA, U.S. Fish and Wildlife Service, and tribal for wetlands	Degradation and loss of riparian and wetland habitat due to grazing, timber harvest, de-watering, mining, and roads have all caused declines in these species. Legally declared noxious weeds, such as purple loosestrife, are invading wetlands and have caused or are causing known declines in cattails.
Camas, yampah, beargrass	No data	Tribal	In general, upland herblands and meadows have decreased in geographic extent and condition because of fire suppression, excessive livestock grazing pressure, conifer encroachment, soil disturbance and compaction due to logging, and exotic/undesirable plant species invasions. Impacts on herbs from historically heavy sheep grazing are gradually showing recovery.
Mushrooms, elephant ears, morels, and other fungus sporocarps and beargrass	Unknown, wild mushrooms are a product of diverse and complex interactions within natural ecosystems.	Federal and state (wild mushroom harvesting falls under tribal regulation)	Commercial mushroom harvest, land management activities, and catastrophic events such as fire, disease, and insect epidemics all play a role in fungi productivity. There has been an increase in the harvest of special forest products and conflict with tribal gathering practices. There is a need for long-term study and monitoring of many commercially harvested species to understand their role in the productivity of ecosystems.
Huckleberry, elderberry, buffalo berry	Decreasing	Some units limit gathering	These species and other forested shrubs have declined due to suppression of fire, grazing, increased stand density (limiting light, water, and climate), and competition for harvest.
Chokecherry, serviceberry	Variable. Serviceberry expanded in some areas, but age and structure diversity is lower. Chokecherry in riparian areas has declined.	None	Changes to berry production and other qualities important to tribes are unknown. There have been increases in chokecherry harvests by the public. Increasing ages of shrubs due to fire suppression is a concern.
Juniper	Increasing in distribution, but decreasing structural diversity.	None	Juniper has invaded other habitat types and stands have become denser, older, and less diverse with fire suppression and excessive livestock grazing pressure.
Mountain mahogany	Declining	None	Mountain mahogany stands are becoming older, with a concomitant decrease in structural diversity. There has been a shortage of recruitment of new mahogany plants. Some areas are heavily browsed. Research on regeneration is needed.

Tribes feel that restoration should emphasize conservation and recovery of high quality habitats, especially in riparian areas. They place emphasis on the analysis of cumulative effects, including: (1) assessment of ongoing impacts in watersheds resulting from current and past BLM/Forest Service land management activities; (2) full inventory of watershed/riparian conditions and activities, such as stream crossings, road density, grazing, mining, logging and estimated sediment delivery; (3) correlation of stream conditions with habitat standards based on surveys of all listed fish bearing streams; and (4) suitability determination for grazing that goes beyond the concept of Proper Functioning Condition. Tribes also focus on restoring degraded conditions of watersheds, decreased salmonid populations, and loss of old-growth ponderosa pine and general old-growth structure.

Although tribes emphasize conservation measures, they also support adaptive management principles that address ecosystem health problems through prescribed burns and road re-construction and maintenance.

### Harvestability as Soon as Possible

The health and availability of resources for harvest are of great interest to American Indian cultures. Tribes use the concept of harvestable populations to define a desired level of harvest for subsistence, commercial, spiritual, and cultural needs. Habitat for harvestable population levels of salmonids and other fish, wildlife, and plant species is seen as critically important to tribal cultures and the meaningful exercise of reserved rights where they exist. Information and population trends for a sample of species of concern are shown in Table 2-32.

Many tribes interpret sustainability and harvestability of tribally important species to be an extension of federal concepts and of Endangered Species Act requirements for species viability. The BLM and Forest Service generally maintain that although they are not directly responsible for managing species populations, they are responsible for the habitats upon which species depend. They acknowledge that agency management actions can influence harvestability, but they have less control over a species' population response to that habitat. Management of plant species populations is more commonly the responsibility of the Forest Service and BLM, which have a greater opportunity to positively influence harvestability of these species.

Harvestability also is a combination of animal or plant availability and access to harvest them. Managing access is one of the more effective tools that the Forest Service and BLM have to protect a species and its habitat. However, while restrictions on access may

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***Habitat condition is the best measure of Forest Service and BLM ability to maintain or restore harvestability for most species, including widely distributed plants such as huckleberries and mushrooms.***

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protect a species and its habitat, it may also reduce harvestability by making animals or plants harder to take or gather.

Habitat condition is the best measure of Forest Service and BLM ability to maintain or restore harvestability for most species, including widely distributed plants such as huckleberries and mushrooms. Land use plans generally include habitat condition indicators for important aquatic and terrestrial species (such as fishes, elk, and deer). For some very rare species (such as plants restricted to only a few sites), actual population numbers are sometimes measured to prevent overharvest.

For some species associated with the rights and interests of tribes, sufficient habitat is or can be made available for harvestable populations in the shorter term (10 to 15 years). However, in the case of anadromous fish, habitat accounts for only a portion of one of several factors related to recovery and harvestability. Other factors outside the authority of Forest Service and BLM decision makers (harvest, hydropower, habitat on lands not administered by the Forest Service or BLM, and hatcheries) also contribute to harvestability of anadromous fish populations. The Pacific Salmon Treaty, the court case *U.S. vs. Oregon*, and the rebuilding goals of the Northwest Power Planning Council, among other efforts, have addressed the issue of salmon harvestability. Columbia River Tribes have developed a Tribal Restoration Plan, Wy-Kan-Ush-Mi Wa-Kish-Wit, which contains specific, quantified objectives.

There is a predicted disparity between harvestability and viability, a distinction which is relatively more critical for anadromous fish than for terrestrial wildlife and culturally significant plant species. Forest Service policy requires and BLM policy is consistent with providing habitat capable of supporting viable populations of existing native and non-native vertebrate species. The determination of a viable population level also defines the level of escapement required for salmon conservation purposes, which in turn has been used to describe the potential for future harvestable anadromous fish populations. The extent to which there may be a legal obligation imposed on the federal government to provide habitat capable of supporting harvestable levels of resources from public lands will not be resolved in this EIS.

## Socio-economics

### Tribal Economics and Employment

A number of elements relevant to Forest Service/BLM land management decisions are considered crucial to tribal community well-being, including:

- ♦ Indian reservations and allotments, ceded lands, traditional homelands, areas of tribal interest, and areas of mutual interest with other tribes;
- ♦ Cultural survival;
- ♦ Treaty rights;
- ♦ Trust assets and resources;
- ♦ American Indian religious practices;
- ♦ Cultural heritage resources and places; and
- ♦ Tribes' socio-economic well-being.

Tribal community health and well-being are thus based on a number of factors, including economic growth, employment, freedom to pursue traditional uses of the land, effective trust relationship with the federal government, and lack of infringements on religious practices.

Reservation communities are some of the most economically depressed areas in the United States (Bureau of Labor Statistics, American Indian Labor Force, January 1991). The employment and income levels in tribal communities tend to be significantly lower than state and national averages. For example, the average unemployment rate among counties containing tribal communities within the project area currently is approximately 10 percent (with some reservations estimated in 1995 to be as high as 73 percent [USDI Bureau of Indian Affairs 1995]); the current national unemployment rate is approximately 4.8 percent.

Tribes and tribal communities depend on Forest Service- and BLM-administered lands for economic, cultural, subsistence, religious, and treaty purposes. The culture as well as the rights and interests of American Indian people are rooted in these lands, their traditional homelands. Tribal teachings are based upon understanding the relationship between themselves, as a people, and the land and its re-

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***Tribes and tribal communities depend on Forest Service- and BLM-administered lands for economic, cultural, subsistence, religious, and treaty purposes.***

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sources. While these values cannot be quantified in an economic context, tribal economic participation and community well-being are important considerations in the management of these lands.

### Cultural Place Attachment

Indian people have long held pronounced and special attachments to the land, which are understood and expressed through their relationships with culturally significant places (see Cultures discussion, earlier in this section). Consequently, traditional land uses usually occur in the context of culturally significant places, through which place attachments and values have become embedded elements in Indian cultures and religious beliefs. Tribal interests in the integrity of such places involve a range of area types: areas of interest, landscapes, traditional use areas, and other localities such as ethno-habitats, burial sites, and archeological sites. Cultural places may be valued at the community, tribal, and inter-tribal levels.

While non-Indian people also have cultural place attachments, distinctions in the types and intensity of place attachments are recognized by traditional American Indian communities and tribes compared to those recognized by the general public. These differences are in part based on: (1) the greater length of time native cultures have spent in the project area; (2) the greater degree place attachments have been integrated into their culture systems of religion, economy, politics, and social / kinship; and (3) cultural values, histories, and relationships to landscapes, which vary from mainstream American culture and are typically not understood by the general public. Consequently, some cultural place information may be inappropriate for public dissemination. This is sometimes addressed with place assessments conducted solely for American Indian groups.

### Cultural Resource and Cultural Practices Protection

Federally administered lands must be in compliance with a number of federal laws and regulations protecting cultural resources, including the Antiquities Act, the Archeological Resources Protection Act (ARPA), the Native American Graves Protection and Repatriation Act (NAGPRA) and the National Historic Preservation Act (NHPA). Generally, academic and legal definitions define cultural resources as the physical and nonrenewable evidence of human occupation or activity as seen in any area, site, building, structure, artifact, ruin, object, work of art, architecture, or natural feature, which was important in human history at the national, state, or local level.

This definition refers mainly to archeological sites or other tangible entities, and is best assessed at the fine scale. The site-specific nature of this evidence is beyond the broad-scale scope of this document and is addressed in BLM and Forest Service land use plans, activity plans, and other local environmental and ecosystem analyses.

American Indians often find this definition too narrow. They consider cultural resources to include their entire heritage, including beliefs, traditions, customs, and spiritual relationship to the earth and natural resources (U.S. Army Corp of Engineers 1996). If federal protection of archeological sites and traditional cultural properties were better understood in

terms of tribal natural resource interests, consideration of heritage resources could be integrated with efforts to rehabilitate plant gathering places and native plant communities and efforts to restore watershed health and function.

Many Forest Service and BLM administrative offices have not always agreed with tribes on how to implement legal requirements for cultural resource protection (such as NAGPRA, NHPA, and ARPA). This includes plans for locating and evaluating Traditional Cultural Properties under Section 106 of NHPA, which would allow for full participation of tribes in performance of cultural resource inventories.