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Volume 1

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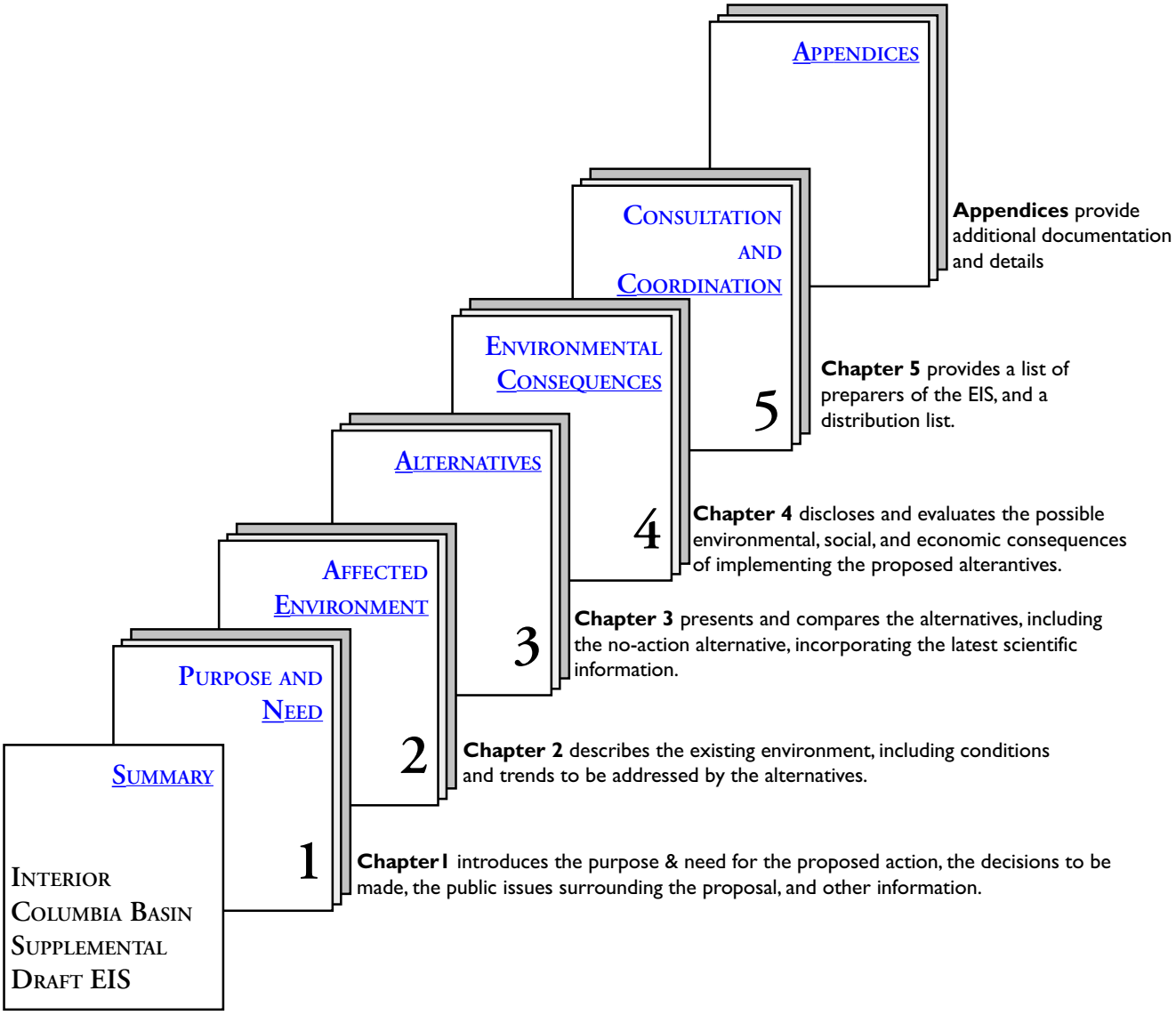

As the Nations principal conservation agency, the Department of the Interior has responsibility for most of nationally owned public lands and natural resources. This includes fostering the wisest uses of our land and water resources, protecting our fish and wildlife, preserving the environmental and cultural values of our national parks and historical places, and providing for the enjoyment of life through outdoor recreation. The Department assesses our energy and mineral resources and works to assure that their development is in the best interest of all our people. The Department also has a major responsibility for American Indian reservation communities and for people who live in Island Territories under U.S. administration.

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Interior Columbia Basin Ecosystem Management Project

Interior Columbia Basin Supplemental Draft Environmental Impact Statement

Volume 1

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Abstract

The U. S. Department of Agriculture, Forest Service, and the U. S. Department of the Interior, Bureau of Land Management (BLM), propose to develop and implement a coordinated, scientifically sound, broad-scale, ecosystem-based management strategy for lands they administer across parts of Idaho, Oregon, Montana, and Washington (approximately 63 million acres). The Interior Columbia Basin Ecosystem Management Project (ICBEMP) Supplemental Draft Environmental Impact Statement (EIS) supplements the Eastside and Upper Columbia River Basin (UCRB) Draft EISs released in June 1997. The Supplemental Draft EIS presents three management alternatives. *Alternative S1*, the no-action alternative, would continue current management on individual units of Forest Service- and BLM-administered lands under existing approved plans, as amended or modified by direction known as PACFISH, INFISH, and Eastside Screens, and by applicable Biological Opinions. *Alternatives S2 and S3* focus on restoring and maintaining ecosystems across the project area and providing for the social and economic needs of people, while reducing short- and long-term risks to natural resources from human and natural disturbances. Under Alternative S2, an emphasis on conducting analyses (such as Subbasin Review and Ecosystem Analysis at the Watershed Scale) prior to conducting management activities is intended to minimize short-term risk from management activities in areas where short-term risks are of most concern, and to ensure actions occur in the most appropriate locations in the most appropriate sequence. Under Alternative S3, some short-term risk is acceptable, and less emphasis is placed on conducting Subbasin Review and Ecosystem Analysis at the Watershed Scale prior to conducting management activities. More areas are identified under Alternative S3 as high priority for restoration compared to Alternative S2.

The *preferred alternative* identified by the Regional Executive Steering Committee is Alternative S2 (which replaces Alternative 4 of the Draft EISs as the preferred alternative), because the regional executives feel it responds best of all 10 alternatives (from the Draft EISs and the Supplemental Draft EIS) to the purpose and need statements and the five goals under a refined project focus. The analysis of effects of the alternatives indicates that Alternative S2 would provide the strongest and best strategy for: restoring the health of the forests, rangelands, and aquatic–riparian ecosystems in the project area; recovering plant and animal (including fish) species; avoiding future species listings; and providing a predictable level of goods and services from the lands administered by the BLM and the Forest Service. In general, Alternative S2 also would best address tribal rights and interests. Mitigation of adverse effects has been incorporated into the preferred alternative. Monitoring, determined to be an important part of adaptive management, is outlined in the Implementation Framework.

Comments on the Supplemental Draft EIS should be received no later than 90 days after the notice of availability of the EIS is published in the *Federal Register*. Comments should be sent to:

SDEIS
P. O. Box 420
Boise, ID 83701-0420

or electronically access the Project web page:
http://www.icbemp.gov/eis

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Dear Reader:

Thank you for your interest in the management of public lands in the interior Columbia River Basin. A more coordinated, ecosystem approach to managing Bureau of Land Management- and Forest Service-administered lands is needed. This Supplemental Draft Environmental Impact Statement (EIS) outlines three management alternatives for your review. Of the three alternatives presented, Alternative S2 has been identified as the preferred alternative.

This Supplemental Draft EIS supplements the Eastside and Upper Columbia River Basin Draft EISs released in June 1997, and is written to be a stand-alone document. The accompanying issues, alternatives, and analyses were significantly influenced by the more than 83,000 comments received on the Draft EISs. The responses to the public comments on the Draft EISs are found in Appendix 4, *Response to Comments*.

We look forward to receiving your comments on this draft document. Your opinions, insights and suggestions are critical to shaping a successful management strategy. Your written comments will be most helpful if they are specific, mention particular pages or chapters where appropriate and address one or more of the following issues:

- How well the preferred alternative meets the purpose and need statements,
- Which other alternative or parts of alternatives you would support or prefer, and why,
- Items that need clarification, and
- New information that could have a bearing on the analysis.

You will have 90 days to review this draft document. After full consideration of all comments received, a Final EIS and Record of Decision will be issued. The Record of Decision will amend 62 individual land use plans on the 32 Forest Service and Bureau of Land Management administrative units in the project area. The selected alternative will also replace the interim management strategies of PACFISH, INFISH, and the Eastside Screens.

We are accepting written comments through the mail at SDEIS; P.O. Box 420; Boise, ID 83701-0420 or electronically by accessing the project's web site at http://www.icbemp.gov/eis. (A copy of the Supplemental Draft EIS and the unattached appendices are also posted at this web site.)

We appreciate your interest and participation in crafting a management strategy for Forest Service- and Bureau of Land Management-administered lands in the interior Columbia River Basin.

Sincerely,

SUSAN GIANNETTINO
Project Manager

GEOFF MIDDAUGH
Deputy Project Manager

ICBEMP Supplemental Draft EIS

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Chapter 5

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Humans and Land Management: Snapshots in Time

Humans have been a part of the project area's ecosystems for many centuries. The story of how the environment has influenced people and how people have influenced the environment provides a valuable context for this EIS—including the purpose and need (Chapter 1), current conditions and trends (Chapter 2), and the alternatives described and analyzed in Chapters 3 and 4. It has taken decades for the condition of the environment to be what it is today, and it may take decades to change conditions to what people desire them to be. This section provides brief snapshots of this history (derived from Quigley and Arbelbide 1997).

First Settlement (pre-1800s)

Survival dictated movements and activities of the project area's first human inhabitants more than 12,000 years ago. These first people adapted culturally and socially to major climatic, environmental, and resource distribution changes, forming attachments to places they visited seasonally. Archeological evidence indicates that they were hunting nomads who followed big game herds (including mammoths, mastodons, musk oxen, and *bison antiquus*), and maintained settlements in riverine, lake, and wetland environments. As the climate moderated over the past 4,000 years, their settlement, land use, and seasonal migration strategies and patterns apparently shifted to more diversified systems with a greater use of upland and mountainous environments. These migratory settlement patterns allowed landscapes to recover during periods of non-use.

Natural resources were, and still are, an integral part of all aspects of the culture of Native Americans. Hundreds of plant and animal species, landscapes, minerals, and natural processes (such as weather) developed cultural significance through subsistence, religion, traditional stories, commerce, social values, and other mechanisms.

Native Americans actively participated in and interacted with ecosystems in many ways. They routinely started fires to aid their hunting and encourage growth of certain culturally significant plants. These fires differed from lightning-caused fires in terms of season, frequency, and intensity (Lewis 1985). The widespread use of fires by American Indians over long periods helped shape the mosaic of vegetation and its associated animal communities in the interior West. Tribes kept large herds of horses, which were introduced in the 1700s and early 1800s by Euroamericans. These non-native species grazed large portions of the project area. The intensity and frequency of these grazing patterns differed from those of native big game species.

Pioneer Settlement (1800s)

The abundant harvestable resources of the Columbia Basin were a principal attraction for early Euroamerican settlers. The earliest Euroamerican contact with native cultures in the project area occurred during the Lewis and Clark Expedition in 1804 to 1805; soon thereafter, the region opened up to further exploration, fur trade, military posts, missionary work, and settlement. The United States government encouraged western settlement. Private citizens, railroad companies, and timber and mining interests were granted free land in exchange for meeting various development requirements. The evolution of transportation played a major role in commercial development of the area.

Survival was the non-native settlers' driving force; however, their survival tactics had little in common with those of native people. Many Euroamerican settlers also had little concept of limits, particularly where natural resources were concerned—they saw the West as a vast area with a limitless supply of raw materials.

From 1840 to 1860, most overland migrants passed through the Columbia Basin and continued on to the Willamette Valley's open meadows and proximity to navigable waters. This began to change with the discovery of gold in the basin, which encouraged more people to migrate into the interior Oregon Country, the heart of what is now called the interior Columbia River Basin. The development of "local" economies resulting from

Agriculture, in addition to mining and timber, supported the region's economy near the close of the 19th century.

mining led to the formation of new territories. Transportation systems (wagon roads, steamboats, and later railroads) were rapidly developed to link the mines to trade centers and to the outside world.

Growing populations in California cities created a market for food and timber that could be produced in the Pacific Northwest and shipped along the coast. Commercial salmon fishing and cattle and sheep ranching became more profitable because of the new access to markets made possible by the railroads. Land grants given to the railroads further spurred development, with establishment of communities as transportation centers and with substantial forest lands being turned over to private ownership.

Following mining and agriculture, a third leg of the region's economy, the timber industry, took off near the close of the 19th century. Serving only local markets at first, the timber industry paralleled the development of mines and railroads; railroads needed wood for ties and trestles, mines needed timbers for shoring, and lumber mills needed access to the woods to extract logs. Throughout the period from the mid 1800s to the early 1900s, a dominant philosophy in the Congress was to dispose of public lands and to minimally manage those lands remaining in the public domain (Clawson 1962).

As the land became settled and developed, the natural environment began to change. For example, waterways were altered when beaver dams washed away after beavers were trapped out of the area. Further changes occurred when settlers built dams for irrigation and later to generate power, altering fish habitats. Settlers trapped predators, such as wolves, cougars, and coyotes, that were preying on their livestock. As a result, predators' traditional prey, such as elk, deer, and antelope, experienced rapid population growth. Overgrazing by both wild and domestic animals altered vegetation.

Euroamericans changed native people's cultures as well. Effects included: disease; population decimation and displacement; accommodations to new trade systems and goods; new cultural and religious beliefs and and practices; and competition for lands, traditional places, and resources. This period of direct competition and conflict between native and Euroamerican people culminated in a treaty-making period that ended in 1871. Treaties between Indian tribes and the U. S. government gave tribes exclusive title to reservation lands. Some treaties also established trust responsibilities for the federal government, in which the government promised access to lands for traditional uses, such as hunting, fishing, gathering, and livestock grazing.

In the early 1900s, tribal negotiations with state and federal agencies met with mixed results concerning treaty reserved rights to subsistence activities. American Indians' way of life and use of the land and its resources were altered, but traditional lifeways persisted even as Indians increasingly conformed to non-Indian lifestyles. During economically depressed periods, renewed reliance on traditional foods and other practices helped sustain many tribal economies.

Euroamerican settlers also began to view the land differently. By the 1900s, resource extraction was a major part of the West's economic base. After discovery of valuable mineral deposits throughout the West, the Mining Law of 1872 set direction for mining activity on public lands. Establishment of the Reclamation Service in 1902 led to construction of a vast network of dams, canals, and ditches that hastened settlement of the arid lands of the project area.

Recognizing Limits (early to mid 1900s)

As resources were used and land was settled, people began to realize that natural resource supplies were limited and that a public land management strategy was needed to ensure future supplies. The Congress responded by creating federal land management agencies responsible for managing public lands for sustainable natural resource production. The Forest Reserve (the Forest Service's predecessor) was formed in 1891. The Bureau of Land Management's predecessor, the Grazing Service, was established in 1934. In 1916, the National Park Service was created to administer the growing set of national parks and monuments. The agencies began to set and enforce land use limits.

The early Forest Service was guided by the Organic Act (1897) which stated that "dead, matured, or large growth of trees" could be designated and sold for the appraised value. The act further specified that harvest would preserve living and growing timber, and promote younger growth. The agency's mission was also defined by a multiple-purpose policy adopted in 1905: "Provide the greatest good for the greatest number in the long run."

Similarly, the Taylor Grazing Act (1937) gave specific direction to the Bureau of Land Management. By leasing public lands to stockraisers, the act sought to "stop injury to the public grazing lands ... by preventing overgrazing and soil deterioration; to provide for their orderly use, improvement, and development; [and] to stabilize the livestock industry dependent upon the public range." After nearly a century of policies to dispose of public lands and to minimally manage public lands, the federal government began to view the remaining public domain as a storehouse to sustain productive values.

Commodity Production (mid 1900s)

Public priorities shifted as the United States went through two world wars and the Great Depression. The depression brought the Civilian Conservation Corps, a federal program whose participants built much of the infrastructure still found on public lands, including hundreds of Forest Service roads, stock watering projects, ranger stations, campgrounds, and telephone systems. When public demand for natural resources increased exponentially, the agencies were able to meet expectations.

New Deal programs were critical in sustaining and building infrastructure in the interior Columbia Basin, especially the dam projects along the Columbia and Snake rivers. There was a broad public consensus to construct the dams, even though biologists recognized at the time that dams would be barriers to native salmon runs, a significant number of which spawn in streams on BLM- or Forest Service-administered lands (Peterson 1995).

The wars brought both economic prosperity and a heightened demand for resources such as timber, livestock, and minerals. Three factors caused the federal land management mission to change: the post-war housing boom; the prediction that there would be a rising, long-term demand for timber; and private timber shortages. In 1944 the administration decided that forested federal lands would become active timber sources rather than timber reserves. Timber production skyrocketed. From 1945 to 1970, timber harvest on federal lands in the project area increased about 5 percent per year, or 50 percent faster than the growth of the national economy.

Environmental Awareness (late 1900s)

The 1960s brought increasingly complex and conflicting demands on public land management within the project area. Wilderness enthusiasts and others sought to put recreation on an equal footing with extractive uses. Traditional commodity users—loggers, ranchers, and miners—argued for greater allocation to their particular needs. Members of a growing environmental movement wanted land management decisions to be based on interdisciplinary scientific information. The public wanted to be actively involved in land management decisions.

In recent years the Forest Service and BLM have experienced a transition in management emphasis, resulting from additional scientific knowledge, increased public environmental awareness, new legislation enacted by the Congress, and challenges in court. The Forest Service and the BLM are still required to supply resources for public use and allow access to commodity resources. Both agencies are also required to protect and improve natural resources.

Recent and long-standing legislation pertaining to natural resources and federal land management enacted by the Congress has created a complex collection of regulations that often result in conflicting management applications. Early legislation concerning federal land management activities primarily emphasized production and use of resources (General Accounting Office Report on Ecosystem Management, August 1994). The Congress enacted legislation creating incentives to provide specific levels of certain natural resource commodities and other uses from public land administered by the Forest Service or the BLM. Both agencies are required to share receipts from the sale or use of natural resources with the states or counties within which the activities occur. For many years congressionally appropriated funds have been linked to managing and harvesting timber, minerals, and livestock forage, as the Congress specified "target" levels of timber sales, along with the production of other goods and services from these lands.

More recently, increasing scientific and public concern about declining conditions of natural resources led the Congress to enact laws to protect specific natural resources. These laws include amendments to the 1948 Clean Water Act, major amendments to the 1955 Clean Air Act, and the enactment of the Endangered Species Act (1973). The Congress encouraged research on national forests by enacting the Forest and Rangeland Renewable Resources Planning Act of 1978, and the Cooperative Forestry Assistance Act of 1978.

Recognizing that activities on federal lands relate to protection of natural resources, the Congress also enacted a series of procedural laws requiring federal agencies to identify and disclose the potential effects of their activities. Primary among these laws is the National Environmental Policy Act (NEPA) (1969), which requires federal agencies to identify and consider the direct, indirect, and cumulative effects of activities on federal land, both alone and in conjunction with the activities of other agencies and landowners. The Forest and Rangeland Renewable Resources Planning Act (1974), the National Forest Management Act (1976), and the Federal Land Policy and Management Act (1976) all contain requirements for the Forest Service and/or BLM to develop long-term land management plans.

These laws continue to be interpreted through federal courts, sometimes requiring adjustments in how the Forest Service and BLM plan for and administer these lands.

Glossary

A

A1/A2 subwatershed — As defined in this EIS, refers to one of the components of the aquatic-riparian-hydrologic strategy. These areas provide a system of core subwatersheds that are the anchor for recovery and viability of widely distributed native fishes. Both A1 and A2 subwatersheds include important fish populations of one or more of the following: known strong populations for the seven key salmonids; important anadromous fish poulations in the Snake River Basin; genetically pure populations of anadromous fish ouside the Snake River Basin; and fringe populations for four of the key salmonids. A1 and A2 subwatersheds differ in their definition and their management direction, as described in Chapter 3.

Abiotic — Non-living (refers to air, rocks, soil particles, etc.).

Adaptive management — A type of natural resource management in which decisions are made as part of an ongoing process. Adaptive management involves planning, implementing, monitoring, evaluating, and incorporating new knowledge into management approaches based on scientific findings and the needs of society. Results are used to modify future management methods and policy.

Administrative unit — A management area—such as a Forest Service national forest or a BLM district, field, office, or resource area—under the administration of one line officer. Forest Service line officers include district rangers and forest supervisors; BLM line officers include district managers, field office managers, and area managers.

Air pollutant — Any substance in air that could, if in high enough concentration, harm humans, animals, vegetation, or material. Air pollutants may include almost any natural or artificial matter capable of being airborne, in the form of solid particles, liquid droplets, gases, or a combination of these.

Air quality — The composition of air with respect to quantities of pollution therein; used most frequently in connection with "standards" of maximum acceptable pollutant concentrations.

Allotment (grazing) — Area designated for the use of a certain number and kind of livestock for a prescribed period of time.

Allowable Sale Quantity (ASQ) — On a national forest, the quantity of timber that may be sold from a designated area covered by the forest plan for a specified time period.

Alluvium — General term for clay, silt, sand, or gravel deposited in the bed of a stream during relatively recent geologic time, as a result of stream action.

Alternative — In an EIS, one of a number of possible options for responding to the purpose and need for action.

Ambient air — Any unconfined portion of the atmosphere: open air and surrounding air. Often used interchangeably with "outdoor air."

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.

Anadromous fish — Fish that hatch in fresh water, migrate to the ocean, mature there, and return to fresh water to reproduce; for example, salmon and steelhead.

Animal Unit (AU) — Considered to be one mature cow of approximately 1,000 pounds, either dry or with calf up to 6 months of age, or their equivalent (one horse, five domestic sheep). This concept is based on a standardized amount of forage consumed.

Animal Unit Month (AUM) — The amount of feed or forage required by one animal unit grazing on a pasture for one month.

Annual (plant) **—** A plant whose life cycle is completed in one year or season.

Aquatic — Pertaining to water.

Aquatic ecosystem — A natural system based on a body of water (such as a stream, lake, or estuary) with its aquatic organisms and non-living components.

Aquatic Habitat Capacity — the amount and quality, relative to potential, of aquatic habitat necessary to support the numbers, sizes or age states, and life history types of salmonids that historically (approximately 250 years before present) have occurred within a subwatershed.

High - Sediment input and riparian conditions that influence the creation and maintenance of suitable habitat for salmonids and have not been substantially altered or constrained by human influences. The frequency of channel reorganizing events due to upslope activity also has not been changed. At the time of evaluation, the subwatershed supports approximately 75 to 100 percent of the potential haabitat capacity.

Moderate - Sediment input, riparian conditions, and / or the frequency of channel reorganizing events have been altered by human activities such that, at the time of evaluation, a subwatershed supports 50 to 75 percent of the potential habitat capacity.

Low - Sediment input, riparian conditions, and / or the frequency of channel reorganizing events have been altered such that, at the time of evaluation, a subwatershed supports less than 50 percent of the potential habitat capacity.

Aquatic (and riparian) health — Aquatic and riparian habitats that support animal and plant communities that can adapt to environmental changes and follow natural evolutionary and biogeographic processes. Healthy aquatic and riparian systems are resilient and recover rapidly from natural and human disturbance. They are stable and sustainable, in that they maintain their organization and autonomy over time and are resilient to stress. In a healthy aquatic / riparian system there is a high degree of connectivity from headwaters to downstream reaches, from streams to floodplains, and from subsurface to surface. Floods can spread into floodplains, and fish and wildlife populations can move freely throughout the watershed. Healthy aquatic and riparian ecosystems also maintain long-term soil productivity. Mineral and energy cycles continue without loss of efficiency.

Aquifer — Rock or rock formations (often sand, gravel, sandstone, or limestone) that contain or carry groundwater and act as water reservoirs.

Arid — Dry regions or climates that naturally lack sufficient moisture for crop production without irrigation.

Aspect — The direction the slope of a hillside or landform faces (for example, a slope with a southern aspect faces the south).

Assessment — The collection, integration, examination, and evaluation of information and values.

Attainment area — A geographic area that is in compliance with the National Ambient Air Quality Standards. An area considered to have air quality as good as or better than the national ambient air quality standards as defined in the Clean Air Act. An area may be an attainment area for one pollutant and a non-attainment area for others.

B

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

Bankfull width — The width of a stream channel measured between the tops of the most prominent banks on either side of the stream. Also refers to the width of the stream at the normal flood flow.
Basal area — (1) In forests, the cross-sectional area of a tree trunk measured at breast height (4.5 feet),

usually expressed in square feet per acre. (2) On rangeland, the cross-sectional area of the stem or stems of a plant or of all plants in a stand. Herbaceous and small woody plants are measured at or near the ground level; larger woody plants are measured at breast or other designated height.

Basalt — A "finely" or "fine" grained, dark, dense volcanic rock.

Basin (river) — (1) In general, the area of land that drains water, sediment, and dissolved materials to a common point along a stream channel. River basins are composed of large river systems. (2) In this EIS, the term refers to the equivalent of a 3rd-field hydrologic unit code, an area of about nine million acres, such as the Salmon River Basin. It also is used to refer to the interior Columbia River Basin assessment area (both Forest Service- and BLM-administered lands and other ownerships) as defined in the *Scientific Assessment* (Quigley and Arbelbide 1997).

Batholith — A large intrusive mass of igneous rock, usually granite.

Bayesian Belief Network (BBN) Model — A model in graphical form representing a multivariate probability distribution of random variables (Haas 1991). The graphical form of a BBN resembles a flowchart with variables (referred to as nodes) linked with arrows, representing casual influences among the variables. A BBN is directed so that influences among variables flow in one direction only, and acyclic because there are no arrows leading back to input variables. BBNs provide a quantitative framework that allows information from both empirical data and expert opinion to be combined in an evaluation process. Outcomes for each node are described by predicted levels of states, which are expressed as probabilities. For example, the state levels "Yes" (probability of occurrence = 0.65) and "No" (probability of non-occurrence = 0.35) could define a node representing a large flood event. For further information on the BBN models, see Quigley 1999.

Bedload — Sediment moving on or near a streambed.

Beneficial uses — Any of the various uses which may be made of water including, but not limited to, domestic water supplies, industrial water supplies, agricultural water supplies, navigation, recreation in and on the water, wildlife habitat, and aesthetics. The beneficial use depends on actual use, the ability of the water to support a non-existing use either now or in the future, and its likelihood of being used in a given manner. The use of water for the purpose of wastewater dilution or as a receiving water for a waste treatment facility effluent is not considered a beneficial use.

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

Best Management Practices (BMPs) — Practices designed to prevent or reduce water pollution.

Biogeochemical cycle — Natural processes (biological, geological, and chemical) that recycle nutrients in various chemical forms from the environment, to organisms, then back to the environment. Examples are the carbon, nitrogen, and hydrologic cycles.

Biological crust — Thin crust of living organisms on or just below the soil surface, composed of lichens, mosses, algae, fungi, cyanobacteria, and bacteria.

Biological diversity (biodiversity) — The variety and variability among living organisms and the ecological complexes in which they occur.

Biophysical — The combination of biological and physical components in an ecosystem.

Biotic — Living.

Biotic integrity — The ability to support and maintain a balanced, integrated, adaptive community of organisms having a species composition, diversity, and functional organization comparable to that of the natural habitat of the region.

Biomass — Dry weight of organic matter in plants and animals in an ecosystem, both above and below ground.

Board foot (bf) — A unit of wood 12" x 12" x 1".

Braided stream — A stream that flows in an interconnected network of channels.

Broadcast burning — Burning forest fuels as they are, with no piling or windthrowing.

Broad scale — A large, regional area, such as a river basin and typically a multi-state area. See Chapter 2 Introduction for complete discussion and comparison to mid and fine scale.

Broad-scale species — Those species whose source habitats could be mapped reliably using a block size of at least 247 acres (100 ha.).

Browse — Twigs, leaves, and young shoots of trees and shrubs that animals eat.

Bunch grass — A grass having the characteristic growth habit of forming a bunch; lacking stolons or rhizomes.

C

Candidate species — Plant and animal species that may be proposed for listing as endangered or threatened in the future, in the opinion of the U.S. Fish & Wildlife Service (USFWS) or the National Marine Fisheries Service (NMFS). The USFWS revised its list of candidate species in the February 28, 1996 *Federal Register*. Under their new system, only those species for which they have enough information to support a listing proposal will be called candidates.

Canopy — In a forest, the branches from the uppermost layer of trees; on rangeland, the vertical projection downward of the aerial portion of vegetation.

Canopy closure — The amount of ground surface shaded by tree canopies as seen from above. Used to describe how open or dense a stand of trees is, often expressed in 10 percent increments.

Carbon cycle — The ecological cycle in which carbon moves from carbon dioxide in the air into organic materials in plants and animals, and returned to carbon dioxide through respiration, death and decay of tissues, or fire.

Carbon dioxide — A colorless, odorless gas that occurs naturally in the earth's atmosphere and is emitted into the air by fossil fuel combustion.

Carbon monoxide — A colorless, odorless, poisonous gas produced by incomplete fossil fuel combustion; primarily emitted by motor vehicles and other mobile sources. Carbon monoxide is a criteria air pollutant that interferes with the blood's ability to carry oxygen to the body's tissues and results in numerous adverse health effects.

Carnivore — An organism that eats only meat. The gray wolf is an example of a carnivore.

Carrying capacity — The number of animals or plants that can be maintained over a specific period of time on a specified amount of land without damage to either the organisms or the habitat.

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.

Channel (stream) — The deepest part of a stream or riverbed through which the main current of water flows.

Channelization — Human-caused alterations to a stream channel that cause the channel to be fixed in place, such as levees, dikes, trenching, and rip-rap.

Class I area — Under the 1977 Clean Air Act amendments, all international parks, national parks larger than 6,000 acres, and national wilderness areas larger than 5,000 acres which existed on August 7, 1977. This class provides the most protection to pristine lands by severely limiting the amount of additional air pollution that can be added to these areas.

Clearcutting — A regeneration harvest method that removes all merchantable trees in a single cutting except for wildlife trees or snags. A "clearcut" is an area from which all merchantable trees have been cut.

Climate — The composite or generally prevailing weather conditions of a region throughout the year, averaged over a series of years.

Coarse Woody Debris (CWD) — Pieces of woody material derived from tree limbs, boles, and roots in various stages of decay, generally having a diameter of at least three inches and a length greater than three feet.

Collaboration — The relationship among the five federal agencies involved with ICBEMP (Forest Service, BLM, National Marine Fisheries Service, U.S. Fish and Wildlife Service, and Environmental Protection Agency) and with other federal, state, tribal, and local government officials. While shared understanding and commitment to action are the goal, and mutual or consensus agreement is considered appropriate, collaboration includes the full spectrum of involvement of the parties, such as:

- Informing - letting everyone know what each other is doing;
- Coordinating - assuring that efforts are not contradictory;
- Cooperating - making efforts complementary and synergistic;
- Mutual goal setting - mutually developing shared goals and expectations;
- Consensus - mutual support for a course of action.

Collaborative — Working together.

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

Community — (1) A group of species of plants and / or animals living and interacting at a particular time and place. (2) A group of people residing in the same place and under the same government; spatially defined places such as towns.

Community of interest — People who share a common concern but may not be located in the same place.

Compaction — Making soil hard and dense, decreasing its ability to support vegetation because the soil can hold less water and air and because roots have trouble penetrating the soil.

Competition — An interaction that occurs when two or more individuals make demands of the same resources that are in short supply.

Component — A part of a system.

Composition (species) **—** The mix of different species that make up a plant or animal community, and their relative abundance.

Connectivity — The arrangement of habitats that allows organisms and ecological processes to move across the landscape; patches of similar habitats are either close together or linked by corridors of appropriate vegetation. The opposite of fragmentation.

Conservation strategy/conservation agreement — Plans to remove or reduce threats to candidate and sensitive species of plants and animals so that a listing as threatened or endangered is unnecessary.

Consultation — (1) An active, affirmative process that (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's and Forest Service's 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 NAGPRA, AIRFA, 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) The term also refers to a 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 and endangered species or critical habitat.

Corridor (landscape) — Landscape elements that connect similar patches of habitat through an area with different characteristics. For example, streamside vegetation may create a corridor of willows and hardwoods between meadows or through a forest.

Cover — (1) Trees, shrubs, rocks, or other landscape features that allow an animal to partly or fully conceal itself. (2) The area of ground covered by plants of one or more species.

Cover type — A vegetation classification depicting a genus, species, group of species, or life form of tree, shrub, grass, or sedge. The present vegetation of an area.

Criteria pollutants — Air pollutants designated by the Environmental Protection Agency (EPA) as potentially harmful and for which ambient air standards have been set to protect the public health and welfare. The criteria pollutants are carbon monoxide, sulfur dioxide, particulate matter, nitrogen dioxide, ozone, hydrocarbons, and lead.

Crown — The part of a tree containing live foliage; treetops.

Crown fire — A forest fire that burns in the crowns of trees.

Cultural resources — 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.

Cumulative effects — Impacts on the environment that result from the incremental impact of an action when added to other past, present, and reasonably foreseeable future actions. Cumulative effects can result from individually minor but collectively significant actions taking place over a period of time. In this EIS, potential cumulative effects include those that were assessed for all ownerships, including lands administered by other federal agencies and non-federal lands, especially regarding terrestrial and aquatic species.

Current period — In this EIS, generally depicts conditions in the project area representative of the period between 1985 and 1995, approximately.

D

Data — Facts used in an analysis.

Debris (organic) — Logs, trees, limbs, branches, leaves, bark, etc., that accumulate, often in streams or riparian areas.

Decay (decomposition) — The breakdown of organic matter, usually as a result of bacterial or fungal actions.

Degradation — (1) General lowering of the earth's surface by erosion or moving of materials from one place to another. (2) Reduction in value or quality.

Degrade (habitats) — Measurably change a feature at a defined scale in a way that: further reduces habitat quality, where existing conditions meet or are worse than the objective; reduces habitat quality, where existing conditions are better than the objective.

De minimis — Very small or of little significance.

Demographic — Related to the vital statistics of human populations (size, density, growth, distribution, etc.) and the effect of these on social and economic conditions.

Density (stand) — The number of trees growing in a given area, usually expressed in terms of trees per acre.

Developed recreation — Recreation that requires facilities that in turn result in concentrated use of an area; for example, a campground.

Direct effects — Impacts on the environment that are caused by the action and occur at the same time and place.

Dispersed recreation — Recreation that does not occur in a developed recreation site; for example, hunting or backpacking.

Disturbance — Refers to events that alter the structure, composition, or function of terrestrial or aquatic habitats. Natural disturbances include, among others, drought, floods, wind, fires, wildlife grazing, and insects and diseases. Human-caused disturbances include, among others, actions such as timber harvest, livestock grazing, roads, and the introduction of exotic species.

Disturbance-recovery regime — Natural pattern of periodic disturbances, such as fire or flood, followed by a period of recovery from the disturbance (such as regrowth of a forest after fire).

Diversity — See biological diversity.

Dominant — A group of plants that by their collective size, mass, or number exert a primary influence on other ecosystem components.

Downed wood — A tree or part of a tree that is dead and laying on the ground.

Duff — The partially decomposed organic material of the forest floor that lies beneath freshly fallen leaves, needles, twigs, stems, bark, and fruit.

Drought — In reference to rangeland, a period without precipitation during which the soil water content is reduced to such an extent that plants suffer from lack of water. A drought year, in this EIS, refers to less than or equal to 75 percent of normally received precipitation in a year.

Dynamic equilibrium — A system that is maintained in a harmonious and integrated condition while continuous change, activity, or progress occurs.

E

Eastside Screens — Interim management direction establishing riparian, ecosystem, and wildlife standards for timber sales on Forest Service-administered lands in eastern Oregon and Washington.

Ecological integrity — In general, ecological integrity refers to the degree to which all ecological components and their interactions are represented and functioning; the quality of being complete; a sense of wholeness. Absolute measures of integrity do not exist. Proxies provide useful measures to estimate the integrity of major ecosystem components (forestland, rangeland, aquatic, and hydrologic). Estimating these integrity components in a relative sense across the project area helps to explain current conditions and to prioritize future management. Thus, areas of high integrity would represent areas where ecological functions and processes are better represented and functioning than areas rated as low integrity. In this EIS, ecological integrity is used to show the integrated condition of the biophysical environment within the project area.

Ecological processes — The flow and cycling of energy, materials, and organisms in an ecosystem. Examples of ecosystem processes discussed in this EIS include the carbon and hydrologic cycles, terrestrial and aquatic food webs, and plant succession, among others.

Ecological Reporting Unit (ERU) — In this EIS, a geographic mapping unit developed by the Science Integration Team to report information on the description of biophysical environments, the characterization of ecological processes, the discussion of past management activities and their effects, and the identification of landscape management opportunities.

Ecological significance — In the *Scientific Assessment* and this EIS, refers to a specific method of judging the significance of changes (from historical) of cover types and terrestrial community types, based on class changes, regional changes, and departure indices. See Hann, Jones, Karl, et al. (1997, page 409) for details.

Ecology — the science of the interrelationships between organisms and their environment; from the Greek *Oikos* meaning "house" or "place to live."

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. (See Reyna 1998 for more detail on determining economic specialization.)

Economic efficiency — Producing goods and services in areas best suited for that production based on natural biophysical advantage or an area's ability to best serve regional demands of people.

Economic region — A group of communities and their surrounding rural areas that are linked together through trade.

Economy — System of production, distribution, and consumption of economic goods.

Ecosystem — A complete, interacting system of living organisms and the land and water that make up their environment; the home places of all living things, including humans.

Ecosystem health — A condition where the parts and functions of an ecosystem are sustained over time and where the system's capacity for self-repair is maintained, such that goals for uses, values, and services of the ecosystem are met.

Ecosystem-based management — The use of an ecological approach to achieve multiple-use management of public lands by blending the needs of people and environmental values in such a way that Forest Service and BLM lands represent diverse, healthy, productive, and sustainable ecosystems.

Ecotone — A boundary or zone of transition between adjacent communities or environments, such as the boundary between a forest and a meadow or the boundary of a clearcut next to a mature forest stand. Species present in an ecotone are intermixed subsets of the adjacent communities.

Edge effect — The influence of two communities on populations in their adjoining boundary zone or ecotone, affecting the composition and density of the populations in these bordering areas.

Emergent (tree) — Live or dead tree that is taller than the overall stand and thus emerges above the rest. Emergent trees are important to many wildlife species that use forest stand-initiation structural stages.

Emission — A release of air contaminants into the outdoor atmosphere.

Endangered species — A plant or animal species listed under the Endangered Species Act that is in danger of extinction throughout all or a significant portion of its range.

Endemic species — Plants or animals that occur naturally in a certain region and whose distribution is relatively limited to a particular locality. "Endemism" is the occurrence of endemic species in an area.

Environment — The combination of external physical, biological, social, and cultural conditions affecting the growth and development of organisms and the nature of an individual or community.

Environmental Impact Statement (EIS) — A statement of environmental effects of a proposed action and alternatives to it. A Draft EIS is released to the public and other agencies for review and comment. A Final EIS is issued after consideration of public comments. A Record of Decision (ROD) is based on the information and analysis in the Final EIS.

Environmental Index — A measure of the capability of a watershed or subwatershed to support a species.

Environmental Outcome (terrestrial species) — A characterization of outcome, based on habitat capacity, range extent, and connectivity. See Chapter 4, Terrestrial Species Component, for a complete discussion.

Epidemic (outbreak) — The rapid spread, growth, and development of diseases or insect populations that affect large numbers of a host population throughout an area at the same time.

Erosion — The wearing away of the land surface by running water, wind, ice, gravity, or other geological activities; can be accelerated or intensified by human activities that reduce the stability of slopes or soils.

Ethno-habitats — Habitats that are socially and / or traditionally important to American Indian cultures.

Eutrophication — Changes that occur in a lake or other body of water due to excessive supplies of nutrients such as nitrates and phosphates, usually from runoff from the surrounding land.

Evapotranspiration — The actual total loss of water by evaporation from soil, water bodies, and transpiration from vegetation, over a given area with time.

Even-aged management — Method of forest management in which trees, usually of a single species, are maintained at about the same age and size and are harvested all at once so a new stand may grow.

Even-aged stands — Stands of trees of approximately the same age. Silvicultural methods that generate even-aged stands include clearcutting, shelterwood, and seed tree.

Excessive livestock grazing pressure — Grazing pressure that results in a decline in physiological vigor of plants, typically observed as a decline in reproductive output (for example, seeds and rhizomes) and growth, both above ground (for example, tiller production of grasses) and below ground (for example, root growth). This decline in physiological vigor results in decreased ability of the plant to compete for resources and results in alteration of plant species composition in plant communities. The connotation of this phrase is negative.

Exotic — A plant or animal species introduced from a distant place; not native to the area.

Extinction — Complete disappearance of a species from the earth.

Extirpation — Loss of populations from all or part of a species' range within a specified area.

F

Fauna — The vertebrate and invertebrate animals of an area or region.

Federal Land Policy and Management Act (1976) (FLPMA) — The act that establishes public land policy primarily for the Bureau of Land Management; establishes guidelines for its administration; and provides for the management, protection, development, and enhancement of the public lands, among other provisions.

Fines (sediment) — Sediment particles smaller than 0.2 inch. Excessive fines can trap newly hatched fish and decrease the amount of water percolating through spawning gravels. High fine sediment loads slow plant growth and reduce available food, oxygen, and light.

Fine scale — A single landscape, such as a watershed or subwatershed. See Chapter 2 Introduction for a complete discussion and comparison to broad and mid scale.

Fine-scale species — Those species whose source habitats could not be mapped reliably using a block size of at least 247 acres (100 ha.).

Fire-dependent systems — Forests, grasslands, and other ecosystems historically composed of species of plants that evolved with and are maintained by fire regimes.

Fire cycle, fire frequency — See fire return interval.

Fire-independent system — Forests, grasslands, and other ecosystems whose primary natural disturbances historically were decomposition, windthrow, flooding, or other disturbances other than fire.

Fire-intolerant — Species of plants that do not grow well with or die from the effects of too much fire. Generally these are shade-tolerant species.

Fire regime — The characteristics of fire in a given ecosystem, such as the frequency, predictability, intensity, and seasonality of fire.

Fire return interval — The average time between fires in a given area.

Fire-tolerant — Species of plants that can withstand certain frequency and intensity of fire. Generally these are shade-intolerant species.

Floodplain — The portion of a river valley or level lowland next to streams which is covered with water when the river or stream overflows its banks at flood stage.

Forage — Vegetation (both woody and non-woody) eaten by animals, especially grazing and browsing animals.

Forbs — Broad-leafed plants; includes plants that commonly are called weeds or wildflowers.

Forest health — The condition in which forest ecosystems sustain their complexity, diversity, resiliency, and productivity toprovide for specified human needs and values. It is a useful way to communicate about the current condition of the forest, especially with regard to resiliency, a part of forest health that describes the ability of the ecosystem to respond to disturbances. Forest health and resiliency can be described, in part, by species composition, density, and structure.

Forest plan (Forest Land and Resource Management Plan) — A document that guides natural resource management and establishes standards and guidelines for a national forest; required by the National Forest Management Act.

Fragmentation (habitat) — The break-up of a large land area (such as a forest) into smaller patches isolated by areas converted to a different land type. The opposite of connectivity.

Fringe environments — Those environments at the extreme edges of a species' distribution.

Fry — A recently hatched fish, after the yolk sac has been absorbed.

Fuel (fire) — Dry, dead parts of trees, shrubs, and other vegetation that can burn readily.

Fuel ladder — Vegetative structures or conditions such as low-growing tree branches, shrubs, or smaller trees that allow fire to move vertically from a surface fire to a crown fire.

Fuel load — The dry weight of combustible materials per unit area; usually expressed as tons per acre.

G

Game species — Wild animals that people hunt or fish for food or recreation according to prescribed seasons and limits.

Gene pool — All the genetic (hereditary) information contained in a reproducing population of a particular species.

Genetic adaptation — Changes in the genetic makeup of organisms that allow the species to gain a competitive reproductive and survival advantage under changed environmental conditions.

Genetic integrity — Gene complexes that have evolved together and are characteristic of locally adapted species.

Geoclimatic setting — The geology, climate (precipitation and temperature), vegetation, and geologic processes (such as landslides or debris flows) that are characteristic of a place; places with similar characteristics are said to have the same geoclimatic setting.

Geographic Information System (GIS) — An information processing technology to input, store, manipulate, analyze, and display data; a system of computer maps with corresponding site-specific information that can be combined electronically to provide reports and maps.

Geologic/geomorphic processes — The actions or events that shape and control the distribution of materials, their states, and their morphology, within the interior and on the surface of the earth. Examples of geologic processes include: volcanism, glaciation, streamflow, metamorphism (partial melting of rocks), and landsliding.

Geomorphology — The geologic study of the shape and evolution of the earth's landforms.

Glacial till — Mixed rock of clay, sand, gravel, and boulders transported and deposited by glaciers.

Glaciation — Alteration of the earth's solid surface through erosion and deposition by glacier ice.

Goals (management) — In this EIS, refers to descriptions of what an agency wants to accomplish.

Gradient — A rate of vertical elevation change per unit of horizontal distance; also called slope.

Grazing pressure — The ratio of forage demand to forage available, for any specified forage, at any point in time. (Thus, as forage demand increases relative to forage available, grazing pressure increases, and vice-versa.)

Greenstripping — The practice of planting strips of fire-resistant vegetation at strategic locations on the landscape to slow or stop wildfires.

Ground fire — A fire that burns the organic material in the soil layer and the decayed material or peat below the ground surface.

Groundwater — Water that sinks into the soil and is stored in slowly flowing and slowly renewed underground reservoirs called aquifers.

Guideline (management) — In this EIS, refers to suggested action, priority, process, or prescription that may be useful in meeting objectives; not required.

H

Habitat — A place that provides seasonal or year-round food, water, shelter, and other environmental conditions for an organism, community, or population of plants or animals.

Habitat capacity — A weight-averaged environmental index in which the weights are the areas of each hydrologic unit code (HUC). The weight average is presented in this EIS as a percentage of historical weight-average.

Habitats that have declined substantially in geographic extent from the historical to the current period — Those cover type-structural stage combinations that have declined by more than 20 percent in more than half of the ecological reporting units (ERUs) where the historical extent is 50 percent of the ERU area or greater and where the overall net change in extent from historical to current periods is negative.

Habitat type — A group of plant communities having similar habitat relationships.

Harvest — (1) Felling and removal of trees from the forest; (2) removal of game animals or fish from a population, typically by hunting or fishing.

Harvestable/harvestability — In this EIS, with regard to American Indian tribes, refers to a population of plants or animals that is self-sustaining and capable of producing a dependable harvest annually to meet spiritual, cultural, subsistence, and commercial needs.

Haziness — A reduction in viewing distance and ability to detect finer features on the landscape.

Headwaters — Beginning of a watershed; unbranched tributaries of a stream.

Herbaceous — Green and leaf-like in appearance or texture; includes grasses, grass-like plants, and forbs, with little or no woody component.

Herbivore — An animal that subsists on plants or plant materials, either primarily or entirely.

Hierarchy — (1) A ranked or graded series; (2) a sequence of items nested within each other, each smaller than and included within the previous one.

High quality waters — Waters whose quality is necessary to support threatened, endangered, proposed, candidate, and sensitive species restoration, conservation, or recover; waters / watersheds used as sources of public drinking water; waters / watersheds where groundwater recharge to Sole Source Aquifers is designated under the Safe Drinking Water Act; and waters whose quality is necessary to support all designated beneficial uses.

High restoration priority subbasins — Subbasins identified by the ICBEMP as high priority for restoration at the broad scale, where management intent is to concentrate restoration efforts (such as aquatic, water quality, vegetation management, or reestablishing fire) and to make restoration activities more effective and efficient.

Historical period — In this EIS, refers to information recorded during the early decades of Euroamerican settlement of the interior Columbia River Basin, approximately the mid 1800s, prior to major changes caused by this settlement and by subsequent patterns of land and resource use.

Historical Range of Variability (HRV) — The natural fluctuation of ecological and physical processes and functions that would have occurred during a specified period of time. In this EIS, refers to the range of conditions that are likely to have occurred prior to settlement of the project area by Euroamericans (approximately the mid 1800s), which would have varied within certain limits over time. HRV is discussed in this document only as a reference point, to establish a baseline set of conditions for which sufficient scientific or historical information is available to enable comparison to current conditions.

Home range — The area around an animal's established home which is visited during the animal's normal activities.

Homogeneous — Regular, similar; uniform throughout.

Hybridization — The cross-breeding of unlike individuals to produce hybrid offspring.

Hydrologic — Refers to the properties, distribution, and effects of water. "Hydrology" refers to the broad science of the waters of the earth—their occurrence, circulation, distribution, chemical and physical properties, and their reaction with the environment.

Hydrologic cycle (water cycle) — The ecological cycle that moves water from the air by precipitation to the earth and returns it to the atmosphere; a variety of processes are involved, including evaporation, run-off, infiltration, percolation, storage, and transpiration.

Hydrologic unit code (HUC) — A hierarchical coding system developed by the U.S. Geological Survey to identify geographic boundaries of watersheds of various sizes.

Hydrophobic (soil) — A condition in which soil becomes water-repellant, the capacity of soil to hold water is reduced, and chances for erosion are increased.

Hydrophytic plants — Plants that grow wholly or partly immersed in water.

I

Igneous rocks — Rocks formed by molten lava becoming solid.

Impermeable — Cannot be penetrated.

Implement — To carry out.

Indicator species — A species that is presumed to be sensitive to habitat changes; population changes of indicator species are believed to best indicate the effects of land management activities.

Indirect effects — Impacts on the environment that are caused by the action and are later in time or farther removed in distance but are still reasonably foreseeable.

Infiltration — The movement of water through soil pores and spaces.

INFISH — Interim Inland Native Fish Strategy for the Intermountain, Northern, and Pacific Northwest Regions (Forest Service).

Infrastructure — The basic facilities, equipment, and installations needed for the functioning of a system; commonly refers to such items as roads, bridges, power facilities, and the like.

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

Instream flow — Flow of water in its natural setting (as opposed to waters diverted for 'off-stream' uses such as industry or agriculture). Instream flow levels provided for environmental reasons enhance or maintain the habitat for riparian and aquatic life, with timing and quantities of flow characteristic of the natural setting.

Integration — Bringing the values and systems of different disciplines together to address policy questions with a common framework using consistent techniques and measurement units.

Interagency — Involving Forest Service, BLM, and other federal agencies.

Intergovernmental — Involving federal, state, tribal, county, or other government entities.

Intermittent stream — A stream that flows only at certain times of the year when it receives water from other streams or from surface sources such as melting snow.

Integrity — See ecological integrity.

Invasion (plant) — The movement of a plant species into a new area outside its former range.

Invertebrate — Small animals that lack a backbone or spinal column. Spiders, insects, and worms are examples of invertebrates.

Irretrievable commitment — A term that applies to losses of production or commitment of renewable natural resources. For example, while an area is used as a ski area, some or all of the timber production there is "irretrievably" lost. If the ski area closes, timber production could resume; therefore, the loss of timber production during the time the area is devoted to skiing is irretrievable but not irreversible, because it is possible for timber production to resume if the area is no longer used as a ski area.

Irreversible commitment — A term that applies to non-renewable resources, such as minerals and archaeological sites. Losses of these resources cannot be reversed. Irreversible effects can also refer to effects of actions on resources that can be renewed only after a very long period of time, such as the loss of soil productivity.

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." (See Reyna 1998 for additional details on how isolated communities were specified.)

Issue — A matter of controversy, dispute, or general concern over resource management activities or land uses. To be considered a "significant' environmental impact statement issue, it must be well defined, relevant to the proposed action, and within the ability of the agency to address through alternative management strategies.

L

Landscape — All the natural features such as grasslands, hills, forest, and water, which distinguish one part of the earth's surface from another part; usually that portion of land which the eye can comprehend in a single view, including all its natural characteristics.

Landscape composition — The types of stands or patches present across a given area of land.

Landscape ecology — The study of the ecological effects of spatial patterns in ecosystems.

Landscape structure — The mix and distribution of stand or patch sizes across a given area of land. Patch sizes, shapes, and distributions are a reflection of the major disturbance regimes operating on the landscape.

Large downed wood — Logs on the forest floor with a large end diameter of at least 21 inches.

Large snag — A standing dead tree with a diameter at breast height of at least 21 inches.

Large woody debris — Pieces of wood that are of a large enough size to affect stream channel morphology.

Lethal (stand-replacing) fires — In forests, fires in which less than 20 percent of the basal area or less than 10 percent of the canopy cover remains; in rangelands, fires in which most of the shrub overstory or encroaching trees are killed.

Lichens — Organisms made up of specific algae and fungi, forming identifiable crusts on soil, rocks, tree bark, and other surfaces. Lichens are primary producers in ecosystems; they contribute living material and nutrients, enrich the soil and increase soil moisture-holding capacity, and serve as food sources for certain animals. Lichens are slow-growing and sensitive to chemical and physical disturbances.

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.

Likelihood of persistence — A relative measure of risk (developed by the EIS Team, related to changes in habitat conditions) to the continued distribution of species in a Terrestrial Family on Forest Service- and BLM-administered lands. Three relative rating levels were used: good, fair, or poor; a rating is established for a Family based on the predicted effects on modeled species in that Family. See Chapter 4, Terrestrial Species Component, for a complete discussion.

Litter — The uppermost layer of organic debris on the soil surface, which is essentially the freshly fallen or slightly decomposed vegetation material such as stems, leaves, twigs, and fruits.

Long term — Generally refers to a period longer than 10 years. In Chapter 4 of this EIS, refers to the period evaluated by the Science Advisory Group, either at 100 years ('long term') or over an average of 10 decades into the future ('long term average').

Lower montane — A terrestrial community that generally is found in drier and warmer environments than the montane terrestrial community. The lower montane community supports a unique clustering of wildlife species.

M

Mainstem — The main channel of the river in a river basin, as opposed to the streams and smaller rivers that feed into it.

Maintain — (1) To continue. (2) For this document, the term is intended to convey the idea of keeping ecosystem functions, processes, and/or components (such as soil, air, water, vegetation) in such a condition that the ecosystem's ability to accomplish current

and future management objectives is not weakened. Management activities may be compatible with ecosystem maintenance if actions are designed to maintain or improve current ecosystem condition.

Management direction — A statement of goals and objectives, management prescriptions, and associated standards and guidelines for attaining them.

Mass movement, mass wasting (erosion) — Large land slump, where a mass of rock or soil slips in one large unit down from a cliff or slope.

Merchantable timber — Timber that can be bought or sold.

Microbes — Microscopic organisms such as fungi, bacteria, or algae.

Microbiotic crust — See Biological Crust.

Microclimate — The climatic conditions within a small habitat such as: a tree stump, under a boulder, in the space between grasses, or on the side of a slope.

Mid scale — A subregional area, such as a group of contiguous subbasins. See Chapter 2 Introduction for a complete discussion and comparison to fine and broad scale.

Migration corridor — The habitat pathway an animal uses to move from one place to another.

Minimize — Apply best available technology, management practices, and scientific knowledge to reduce the magnitude, extent, and/or duration of impacts.

Mitigation — Measures designed to counteract environmental impacts or to make impacts less severe.

Mixed stand — A stand consisting of two or more tree species.

Mixing height — Measured from the surface upward. The height to which relatively vigorous mixing of air due to convection occurs.

Monitoring — A process of collecting information to evaluate whether or not objectives of a project and its mitigation plan are being realized. Monitoring allows detection of undesirable and desirable changes so that management actions can be modified or designed to achieve desired goals and objectives while avoiding adverse effects to ecosystems.

Monoculture — A plant community (forest, range) consisting of only one species; uniform throughout.

Montane — A terrestrial community that generally is found in moderate environments between the lower montane (ponderosa pine) and subalpine terrestrial communities. Montane communities are generally moister than lower montane and warmer than subalpine, and support a unique clustering of wildlife species.

Morphology — Form and structure.

Mosaic — A pattern of vegetation in which two or more kinds of communities are interspersed in patches, such as clumps of shrubs with grassland between.

Multiple-use management — The management philosophy articulated by the Multiple Use-Sustained Yield Act of 1960. This law provides that the renewable resources of the national forests are to be managed in the combination that best meets the needs of the American people. It further stipulates that the Forest Service is to make judicious use of the land for some or all of these resources and related services over areas large enough to ensure that sufficient latitude exists to subsequently adjust management in conformity with changing needs and condidtions. The Federal Land Policy and Management Act provides similar direction for the BLM.

Mycorrhizae — The symbiotic relationship between certain fungi and the roots of certain plants, especially trees; important for plants to take nutrients from soil.

N

National Ambient Air Quality Standards (NAAQSs) — Standards set by the Federal Environmental Protection Agency for the maximum levels of air pollutants that can exist in the outdoor air without unacceptable effects on human health or the public welfare.

National Environmental Policy Act (NEPA) — An act of Congress passed in 1969 declaring a national policy to encourage productive and enjoyable harmony between people and the environment, to promote efforts that will prevent or eliminate damage to the environment and the biosphere and stimulate the health and welfare of people, and to enrich the understanding of the ecological systems and natural resources important to the nation, among other purposes.

National Forest Management Act (NFMA) — A law passed in 1976 requiring the preparation of Forest

Service regional guides and forest plans and the preparation of regulations to guide that development.

Native species — Species that normally live and thrive in a particular ecosystem.

Natural areas — Areas managed by various landowners that are mainly in a natural state and being managed to maintain or restore a degree of naturalness for research, monitoring, inventory, habitat protection, education, or social needs.

Natural resources — Water, soil, wild plants and animals, air, minerals, nutrients, and other resources produced by the earth's natural processes.

Natural scenic condition — Naturally appearing or only slightly altered, determined by using scenery management system methods described in the USDA Agriculture Handbook 701.

New action — Those actions that have not been implemented, or for which contracts have not been awarded, or for which permits have not been issued. (See ongoing action.)

Niche — The smallest unit of a habitat occupied by an organism, and / or the role of an organism in the environment.

Nitrogen cycle — Cyclic movement of nitrogen in different chemical forms from the environment, to organisms, and then back to the environment.

Nitrogen-fixing — Ability to remove nitrogen from the atmosphere and convert it to forms that can be used by plants, animals, and microbes. Very few specialized organisms have this ability, making them critical to the nitrogen cycle.

No-action alternative — The most likely condition expected to exist in the future if current management direction were to continue unchanged.

Nongame — Term for wild animals not commonly harvested for recreation, fur, food, or subsistence.

Nonlethal fire — In forests, fires in which more than 70 percent of the basal area or more than 90 percent of the canopy cover survives; in rangelands, fires in which more than 90 percent of the vegetative cover survives (implies that fire is occurring in an herbaceous-dominated community).

Non-point source pollution — Pollution whose source is not specific in location; the sources of the pollutant discharge are dispersed, not well defined or constant. Examples include sediments from logging activities and runoff from agricultural chemicals.

Non-vascular plants — Plants that do not have vessels or ducts to conduct water and food and therefore require a moist environment for survival; mosses and liverworts are examples of non-vascular plants.

Noxious weed — A plant species designated by federal or state law as generally possessing one or more of the following characteristics: aggressive and difficult to manage; parasitic; a carrier or host of serious insects or disease; or non-native, new, or not common to the United States. According to the Federal Noxious Weed Act (PL 93-639), a noxious weed is one that causes disease or has other adverse effects on man or his environment and therefore is detrimental to the agriculture and commerce of the United States and to the public health.

Nutrient cycles — Ecological processes in which nutrients and elements such as carbon, phosphorous, nitrogen, calcium, and others, circulate among animals, plants, soils, and air.

O

Objective (management) — In this EIS, indicates short-term (10 years or less) and / or long-term (longer than 10 years) outcome(s) that is (are) expected or desired. Objectives are more specific than goals, and they focus primarily on conditions or processes we are trying to achieve or prevent rather than on specific actions or restrictions. Whenever possible, time periods expected to attain the outcome are specified.

Old forest — (a) *Old single story forest* refers to mature forest characterized by a single canopy layer consisting of large or old trees. Understory trees are often absent, or present in randomly spaced patches. It generally consists of widely spaced, shade-intolerant species, such as ponderosa pine and western larch, adapted to a nonlethal, high frequency fire regime. (b) *Old multi-story forest* refers to mature forest characterized by two or more canopy layers with generally large or old trees in the upper canopy. Understory trees are also usually present, as a result of a lack of frequent disturbance to the understory. It can include both shade-tolerant and shade-intolerant species, and is generally adapted to a mixed fire regime of both lethal and nonlethal fires. Other characteristics of old forests include: variability in tree size; increasing numbers of snags and coarse woody debris; increasing appearance of decadence, such as broken tops,

sparse crowns, and decay in roots and stems; canopy gaps and understory patchiness; and old trees relative to the site and species. See Appendix 17 for details.

Omnivore — An animal that eats a combination of meat and vegetation. Grizzly bears and humans are examples of omnivores.

Ongoing actions — Those actions that have been implemented, or have contracts awarded or permits issued. (See new actions.)

Outcome (terrestrial species) — A characterization of the likely distribution and relative abundance of each species across its range in the project area. Two types of outcome are reported in the EIS: environmental outcomes and population outcomes. See Chapter 4, Terrestrial Species Component, for complete discussion.
Outcome-based objectives — Objectives that focus on conditions or processes to achieve or prevent, rather than on specific actions or restrictions.

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

Overfishing — Harvesting of so many fish of a species, especially immature ones, that there is not enough breeding stock left to replenish the species.

Overgrazing — Consumption of rangeland grass by grazing animals to the point that it cannot be renewed, or can be only slowly renewed, because of damage to the root system.

Overstory — The upper canopy layer.

Ozone — A strong smelling, pale blue, reactive toxic chemical gas consisting of three oxygen atoms. A pollutant formed in the atmosphere which can seriously affect the human respiratory system.

P

PACFISH — Interim Strategies for Managing Pacific Anadromous Fish-producing Watersheds in Eastern Oregon and Washington, Idaho, and Portions of California.

Park-like stand — Stand having scattered large overstory trees, few or no understory trees, and open growing conditions usually maintained by frequent ground fires.

Particulates — Solid particles or liquid droplets suspended or carried in the air.

Patch — An area of uniform vegetation that differs from what surrounds it in structure and composition. Examples might include a patch of forest surrounded by a cut-over area or a patch of dense young forest surrounded by a patch of open old forest.

Pathogen — An agent such as a fungus, virus, or bacterium that causes disease.

Pattern — The spatial arrangement of landscape elements (patches, corridors, matrix) that determines the function of a landscape as an ecological system.

Percolation — The oozing or draining of water through fine, porous soil surfaces.

Perennial — A plant that lives for three or more years.

Physiography — Pertains to the study of the formation and evolution of landforms.

PILT (Payments in Lieu of Taxes) — Payments made to counties by the Forest Service to mitigate losses to counties because public lands cannot be taxed.

Planning area — In this EIS, refers to either the UCRB EIS area or the Eastside EIS area, as defined in the UCRB and Eastside Draft EISs. Together the two planning areas are referred to as the 'project area'.

PM_{10} — Particulate matter that measures 10 micrometers in diameter or less, a size considered small enough to invade the alveolar regions of the lung. PM_{10} is one of the six pollutants for which there is a national ambient air quality standard.

Point source pollution — Pollution that comes from a single identifiable source such as a smokestack, a sewer, or a pipe.

Pool — Portion of a stream where the current is slow, often with deeper water than surrounding areas and with a smooth surface texture. Often occur above and below riffles and generally are formed around stream bends or obstructions such as logs, root wads, or boulders. Pools provide important feeding and resting areas for fish.

Pool attributes — Characteristics of a pool such as its depth, width, and surface texture.

Population outcome (terrestrial species) — A characterization of outcome, based on habitat capacity, range extent, and connectivity and which accounts for other influences that could have pervasive effects on a

species' population (such as other organisms and small population size). See Chapter 4, Terrestrial Species Component, for complete discussion.

Potential vegetation — Vegetation that would likely develop if all successional sequences were completed without human interference under present site conditions.

Potential Vegetation Group (PVG) — A group of potential vegetation types, grouped on the basis of similar general moisture or temperature environment and similar types of life forms.

Potential Vegetation Type (PVT) — A kind of physical and biological environment that produces a kind of vegetation; the species that might grow on a specific site in the absence of disturbance; can also refer to vegetation that would grow on a site in the presence of frequent disturbance that is an integral part of the ecosystem and its evolution. PVTs are identified by and named for indicator species of similar environmental conditions; for example, the Douglas-fir PVT indicates a cooler and moister environment than the ponderosa pine PVT.

Practicable — Capable of being done or used for a specified purpose.

Predator — Organism that captures and feeds on parts or all of an organism of another species.

Preferred alternative — The alternative identified in a Draft Environmental Impact Statement which has been initially selected by the agency as the most acceptable resolution to the problems identified in the purpose and need.

Prescribed fire — Intentional use of fire under specified conditions to achieve specific management objectives.

Prescribed natural fire — See "Wildland Fire Use for Resource Benefit".

Prescription — A management pathway to achieve a desired objective(s).

Productivity — (1) *Soil productivity*: the capacity of a soil to produce plant growth, due to the soil's chemical, physical, and biological properties (such as depth, temperature, water-holding capacity, and mineral, nutrient, and organic matter content). (2) *Vegetative productivity*: the rate of production of vegetation within a given period. (3) *General*: the innate capacity of an environment to support plant and animal life over time.

Programmatic EIS — An area-wide EIS that provides an overview when a large-scale plan is being prepared for the management of federally administered lands on a regional or multi-regional basis. A programmatic EIS is a necessary analysis of the affected environment and the potential cumulative effects of the reasonably foreseeable actions under that program or within that geographical area. Analyses of lesser scope or more site-specificity may be tiered to the analysis in a programmatic EIS.

Project area — In this EIS, refers to Forest Service- and BLM-administered lands to which decisions in the ICBEMP Record of Decision will apply. It encompasses both the "Eastside" and "UCRB" planning areas as described in the Draft EISs, minus the areas excluded from the decision space (see the Project Area section in Chapter 1).

Proper Functioning Condition (PFC) — Riparian and wetland areas achieve Proper Functioning Condition when adequate vegetation, landform, or large woody debris is present to dissipate stream energy associated with high water flows. This thereby reduces erosion and improves water quality; filters sediment, captures bedload, and aids floodplain development; improves floodwater retention and groundwater recharge; develops root masses that stabilize streambanks against cutting action; develops diverse ponding and channel characteristics to provide habitat and water depth, duration, and temperature necessary for fish production, waterfowl breeding, and other uses; and supports greater biodiversity. The functioning condition of riparian and wetland areas is a result of the interaction among geology, soil, water, and vegetation.

Proposed action — A proposal by a federal agency to authorize, recommend, or implement an action.

Q

Qualitative — Traits or characteristics that relate to quality and can't be measured with numbers.

Quality of life — Refers to the satisfaction people feel for the place where they live (or mayvisit) and for the place they occupy as part of that experience.

Quantitative — Traits or characteristics that can be measured with numbers.

R

RAC/PAC — Resource Advisory Council / Provincial Advisory Committee areas. Resource advisory councils (RACs) were established by the BLM to provide a forum for non-federal partners to engage in discussion with agency 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 agency land managers regarding management of federal lands.

Rainshadow — An area where little or no rain falls because it is located to the leeward side of a mountain or range whose opposite side is exposed to moisture-laden winds.

Rangeland — Land on which the native vegetation is predominantly grasses, grass-like plants, forbs, or shrubs; not forest.

Rangeland health — The degree to which the integrity of the soil and the ecological processes of rangeland ecosystems are sustained.

Record of Decision (ROD) — An official document in which a deciding official states the alternative that will be implemented from a prepared Final EIS.

Recovery — (1) Return of an ecosystem to a specified condition after a disturbance; (2) return of a previously threatened or endangered species to a condition of population viability.

Recovery plan — Identifies, justifies, and schedules the research and management actions necessary to reverse the decline of a species and ensure its long-term survival.

Recreation Opportunity Spectrum (ROS) — A framework for stratifying and defining classes of outdoor recreation environment, activities, and experience opportunities. The settings, activities, and opportunities for obtaining experiences have been arranged along a continuum or spectrum divided into seven classes: Primitive, Semiprimitive Nonmotorized, Semiprimitive Motorized, Roaded Modified, Roaded Natural, Rural, Urban.

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.)

Redd — Spawning nest made by salmon or steelhead in the gravel bed of a river.

Reforestation — Treatments or activities that help to regenerate stands of trees after disturbances such as harvest or wildfire. Typically, reforestation activities include preparing soil, controlling pests, and planting seeds or seedlings.

Refugia — Areas that have not been exposed to great environmental changes and disturbances undergone by the region as a whole; refugia provide conditions suitable for survival of species that may be declining elsewhere.

Regeneration — The process of establishing new plant seedlings, whether by natural means or artificial measures (planting).

Regional — In this EIS, generally refers to either the planning area (EIS area) or the project area (entire ICBEMP). In watershed discussions, also refers to first field hydrologic unit codes.

Rehabilitate — To repair and protect certain aspects of a system so that essential structures and functions are recovered, even though the overall system may not be exactly as it was before.

Resident fish — Fish that spend their entire life in freshwater; examples in the UCRB include bull trout and westslope cutthroat trout.

Resilient, resilience, resiliency — (1) The ability of a system to respond to disturbances. Resiliency is one of the properties that enable the system to persist in many different states or successional stages. (2) In human communities, refers to the ability of a community to respond to externally induced changes such as larger economic or social forces.

Resolution — (1) Degree of detail (finer resolution provides greater detail); (2) a solution.

Resource Management Plan (RMP) — A document that provides land and resource allocations, allowable uses, and resource goals, objectives, management actions, and monitoring for the Bureau of Land Management; required under the Federal Land Policy and Management Act.

Restoration — Holistic actions taken to modify an ecosystem to achieve desired, healthy, and functioning conditions and processes. Generally refers to the process of enabling the system to resume acting or continue to act following disturbance as if the distur-

bances were absent. Restoration management activities can be either active (such as control of noxious weeds, thinning of over-dense stands of trees, or redistributing roads) or more passive (more restrictive, hands-off management direction that is primarily conservation oriented).

Revegetation — Establishing or re-establishing desirable plants on areas where desirable plants are absent or of inadequate density, by management alone (natural revegetation) or by seeding or transplanting (artificial revegetation).

Riffle — Relatively shallow section of a stream or river with rapid current and a surface broken by gravel, rubble, or boulders.

Riparian area — Area with distinctive soil and vegetation between a stream or other body of water and the adjacent upland; includes wetlands and those portions of floodplains and valley bottoms that support riparian vegetation.

Riparian conservation area (RCA) — Delineated areas that encompass riparian ecosystems. Management activities in RCAs will be governed by ICBEMP objectives, standards, and guidelines when the Record of Decision is signed.

Riparian ecosystem — An ecosystem that is a transition between terrestrial and aquatic ecosystems; includes streams, lakes, wet areas, and adjacent vegetation communities and their associated soils which have free water at or near the surface; an ecosystem whose components are directly or indirectly attributed to the influence of water.

Risk assessment — Process of gathering data and making assumptions to estimate short- and long-term harmful effects on human health or the environment from particular products or activities.

Road — *BLM:* A route open normally to highway vehicles (such as trucks and automobiles); route may be improved, is maintained by mechanical means, and receives regular and continuous use; route must have purpose and intent to be maintained when necessary. *Forest Service*: A classified road is at least 50 inches wide and constructed andmaintained for vehicle use. An unclassified road is considered a road that was not constructed, maintained, or intended for highway use.

Rotation — Refers to each generation of a managed forest; the number of years between the time that a forest stand is regenerated and its final harvest.

Rubble — Loose, angular rock fragments.

Runoff (surface) — Fresh water from precipitation and melting ice that flows on the earth's surface into nearby streams, lakes, wetlands, and reservoirs.

S

Salmonids — Fishes of the family Salmonidae, including salmon, trout, chars, whitefish, ciscoes, and grayling.

Salvage — Harvest of trees that are dead, dying, or deteriorating due to fire, wind, insect or other damage, or disease.

Salvage sale — A timber sale undertaken to remove dead, dying, or deteriorating trees before the wood becomes worthless for processing into wood products and / or to prevent the spread of insects and diseases and thereby promote more healthy forests.

Scale — (1) The level of resolution under consideration (for example, broad scale or fine scale); (2) the ratio of length on a map to true length.

***Scientific Assessment* —** Refers to two documents produced by the ICBEMP Science Integration Team: *An Integrated Scientific Assessment for Ecosystem Management in the Interior Columbia Basin and Portions of the Klamath and Great Basins* (Quigley, Graham, and Haynes 1996), which examines historical and current biophysical, social, and economic systems in the project area; and the associated Staff Area Reports (STARs) published as *An Assessment of Ecosystem Components [AEC] in the Interior Columbia Basin and Portions of the Klamath and Great Basins* (Quigley and Arbelbide 1996).

Scoping — The early stages of preparation of an environmental impact statement, used to solicit public opinion, receive comments and suggestions, and determine the issues to be considered in the development and analysis of a range of alternatives. Scoping may involve public meetings, telephone conversations, mailings, letters, or other contacts.

Secure — Generally refers to reducing immediate threats to at-risk or non-functioning processes or resources through protection or restoration; also used to refer to acquisition or retention of water rights.

Sediment — Solid materials, both mineral and organic, in suspension or transported by water, gravity, ice, or air; may be moved and deposited away from their original position and eventually will settle to the bottom.

Seed trees — Mature trees left standing after timber harvest to provide seeds to regenerate the new stand; a harvest prescription.

Selective cutting — Cutting of intermediate-aged, mature, or diseased trees in an uneven-aged forest stand, either singly or in small groups. This encourages growth of younger trees and maintains an uneven-aged stand.

Semi-arid — Moderately dry; region or climate where moisture is normally greater than under arid conditions but still definitely limits the production of vegetation.

Sense of place — Refers to how individuals or groups define and relate to specific geographic locations.

Sensitive species — Species identified by a Forest Service regional forester or BLM state director for which population viability is a concern either (a) because of significant current or predicted downward trends in population numbers or density, or (b) because of significant current or predicted downward trends in habitat capability that would reduce a species' existing distribution.

Seral — Refers to the stages that plant communities go through during succession. Developmental stages have characteristic structure and plant species composition. Early seral refers to plants that are present soon after a disturbance or at the beginning of a new successional process (such as seedling or sapling growth stages in a forest); mid seral in a forest would refer to pole or medium sawtimber growth stages; late or old seral refers to plants present during a later stage of plant community succession (such as mature and old forest stages).

Seral stage — The developmental phase of a forest stand or rangeland with characteristic structure and plant species composition.

Shade-intolerant — Species of plants that do not grow well in or die from the effects of too much shade. Generally these are fire-tolerant species.

Shade-tolerant — Species of plants that can develop and grow in the shade of other plants. Generally these are fire-intolerant species.

Short-term — Generally refers to a period of 10 years or less.

Shrink-swell potential — The susceptibility of soil to change in volume due to a loss or gain in moisture content. A shrink-swell potential is typically associated with soils that have a high percentage of clay.

Silviculture — The practice of manipulating the establishment, composition, structure, growth, and rate of succession of forests to accomplish specific objectives.

Site — A specific location of an activity or project, such as a campground, a lake, or a stand of trees to be harvested.

Site potential — A measure of resource availability based on interactions among soils, climate, hydrology, and vegetation. Site potential represents the highest ecological status an area can attain given no political, social, or economic constraints. It defines the capability of an area, its potential, and how it functions.

Site potential tree height (SPTH) — The average maximum height of the tallest trees (200 years or older) for a given site class.

Smolt — Young salmon or trout migrating to the ocean and undergoing biological changes to enable them to move from freshwater streams to saltwater.

Snag — A standing dead tree, usually larger than five feet tall and six inches in diameter at breast height. Snags are important as habitat for a variety of wildlife species and their prey.

Soil — The earth material that has been so modified and acted upon by physical, chemical, and biological agents that it will support rooted plants.

Soil disturbance — In this EIS, used to describe effects of the alternatives on soil productivity.

Soil organic matter — A variety of compounds derived from weathering and decomposition of plant residue. Organic matter within the litter layer or surface soil horizon is an important nutrient reservoir for maintaining soil productivity.

Soil productivity — See productivity.

Soil structure — Refers to the physical structure of soils that enables air and water to move or be stored.

Soil texture — Relative amounts of sand, silt, and clay in a soil. Coarse-textured soils are generally sandy and often contain gravel of various sizes; fine-textured soils are very fine, sandy, silty, or clayey.

Source habitat — Those characteristics of vegetation that support long-term wildlife species persistence, or characteristics of vegetation that contribute to stable or positive population growth for a species in a specified area and time. Source habitats are described in Wisdom et al. (in press) using dominant vegetation

cover type and structural stage combinations that can be estimated reliably at the 247-acre (100-hectare) patch scale. Various combinations of these cover type–structural stages make up the source habitats for the terrestrial species discussed in this EIS, and provide the range of vegeation conditions required by these species for food, reproduction, and other needs.

Spatial — Related to or having the nature of space.

Spawning habitat — Areas used by adult fish for laying and fertilizing eggs.

Special status species — Refers to federally listed threatened, endangered, proposed, or candidate species; and species managed as sensitive species by the Forest Service and / or BLM.

Species — A population or series of populations of organisms that can interbreed freely with each other but not with members of other species.

Species richness — A measure of biological diversity, referring to the number of species in an area.

Species-seasonal combination — Represents a species and the season of year (summer, winter, or year-long) during which it uses source habitat. It also indicates that some species may migrate within or outside the project area. For example: blue grouse use forest mosaic habitat (Family 3) in the summer and broad-elevation old forests (Family 2) in the winter.

Stability — Ability of a living system to withstand or recover from externally imposed changes or stresses.

Stand — A group of trees in a specific area that are sufficiently alike in composition, age, arrangement, and condition so as to be distinguishable from the forest in adjoining areas.

Standard (management) — In this EIS, refers to required action, priority, process, or prescription that addresses how to achieve one or more objective(s). Standards can include restrictions on or prohibitions from taking an action in certain situations. Compliance with standards is mandatory.

Stand composition — The vegetative species that make up the stand.

Stand density — Refers to the number of trees growing in a given area, usually expressed in trees per acre.

Stand-replacing fire — See lethal fire.

Stand structure — The mix and distribution of tree sizes, layers, and ages in a forest. Some stands are all one size (single-story), some are two-story, and some are a mix of trees of different ages and sizes (multi-story).

State Implementation Plan (SIP) — A document prepared by each state describing existing air quality conditions and measures that will be taken to attain and maintain national ambient air quality standards.

Step-down — In this EIS, refers to the process of applying broad-scale science findings and land use decisions to site-specific areas using a hierarchical approach of understanding current resource conditions, risks, and opportunities.

Stewardship — Responsibility of federal agencies to manage natural resources on public land.

Stewardship harvest/stewardship thinning — Commercial timber harvest where the primary reason for harvesting timber is to obtain a land use plan objective that requires vegetation manipulation. Therefore, even if the timber could not be sold, the harvest would still take place or be accomplished through another means, such as prescribed fire.

Stream morphology — The study of the form and structure of streams.

Strongholds (fish) — Watersheds or subwatersheds that have the following characteristics: (1) presence of all major life-history forms (for example, resident, fluvial, and adfluvial) that historically occurred within the watershed; (2) numbers are stable or increasing, and the local population is likely to be at half or more of its historical size or density; (3) the population or metapopulation within the watershed, or within a larger region of which the watershed is a part, probably contains at least 5,000 individuals or 500 adults.

Structure — The size and arrangement, both vertically and horizontally, of vegetation.

Structural stage — A stage of development of a vegetation community that is classified on the dominant processes of growth, development, competition, and mortality.

Subalpine — A terrestrial community that generally is found in harsher environments than the montane terrestrial community. Subalpine communities are generally colder than montane and support a unique clustering of wildlife species.

Subbasin — A drainage area of approximately 800,000 to 1,000,000 acres, equivalent to a 4th-field hydrologic unit code (HUC). Hierarchically, subwatersheds (6th-field HUC) are contained within a watershed (5th-field HUC), which in turn are contained within a subbasin (4th-field HUC). This concept is shown graphically in Figure 2-1.

Subregional — In this EIS, generally refers to areas geographically smaller than "regional" but larger than a national forest or BLM district. In watershed discussions in this EIS, the term also refers to the equivalent of a second field hydrologic unit code, an area of about 22 million acres.

Subsistence — Customary and traditional uses of wild renewable resources (plants and animals) for food, shelter, fuel, clothing, tools, etc.

Subspecies — A distinct, geographically separated group of organisms within a species.

Substrate — The soil or underlying rock on which an organism is growing or to which it is attached.

Subwatershed — A drainage area of approximately 20,000 acres, equivalent to a 6th-field Hydrologic Unit Code (HUC). Hierarchically, subwatersheds (6th-field HUC) are contained within watershed (5th-field HUC), which in turn contained within a subbasin (4th-field HUC). This concept is shown graphically in Chapter 2.

Succession — A predictable process of changes in structure and composition of plant and animal communities over time. Conditions of the prior plant community or successional stage create conditions that are favorable for the establishment of the next stage. The different stages in succession are often referred to as seral stages.

Successional momentum — The increasing departure (change) of landscape vegetation, structure, composition, patch, pattern, and disturbance regimes away from the historical range at an increasing rate.

Surface fire — A fire that burns surface litter, dead woody fuels, other loose debris on the forest floor, and some small vegetation, without significant movement into the overstory, usually with a flame less than a few feet high.

Sustainability — (1) Meeting the needs of the present without compromising the abilities of future generations to meet their needs; emphasizing and maintaining the underlying ecological processes that ensure long-term productivity of goods, services, and values without impairing productivity of the land. (2) In commodity production, refers to the yield of a natural resource that can be produced continually at a given intensity of management.

Synergism (synergistic) - Cooperative actions such that the total effect is greater than the sum of the effects taken independently.

T

T — Terrestrial T watersheds (5th-field HUCs) identified by the EIS Team based on whether they contained source habitat for one or more of five "Families" of terrestrial species. These five Families represent groups of species associated with habitats that have declined substantially in the project area since the historical period. In addition, the pattern of source habitats within these watersheds is most similar to that found historically. T watersheds alone do not constitute a network of habitats for terrestrial species; however, they are one piece of the overall strategy to maintain and restore networks of habitat for terrestrial species.

Taxa (taxon) — Group of organisms that share common characteristics that differ from other groups and form the basis for categories of classification such as species, genus, family.

Tectonic — Relating to, causing, or resulting from structural deformation of the earth's crust.

Temporal — Related to time.

Terrestrial — Pertaining to the land.

Terrestrial communities — Groups of cover types with similar moisture and temperature regimes, elevational gradients, structures, and use by vertebrate wildlife species.

Terrestrial Family — An aggregate of groups of broad-based terrestrial vertebrate species of focus for ICBEMP, organized into "families" based on habitat requirements (Wisdom et al. in press). Twelve Terrestrial Families are discussed in this EIS.

Terrestrial Group — An aggregate of broad-scale terrestrial vertebrate species of focus for ICBEMP, organized into groups based on habitat requirements (Wisdom et al. in press). Forty terrestrial groups were identified.

Thermal cover — Cover used by animals to protect them against weather.

Thinning — An operation to remove stems from a forest for the purpose of reducing fuel, maintaining stand vigor, regulating stand density / composition, or for other resource benefits. Although thinning can result in commercial products, for the purposes of this EIS, thinning generally refers to non-commercial operations.

Threatened species — Species listed under the Endangered Species Act that are likely to become endangered within the foreseeable future throughout all or a significant portion of their range.

Tier — In an EIS, refers to incorporating by reference the analyses in an EIS of a broader scope. For example, a Forest Service project-level EIS could tier to the analysis in a Forest Plan EIS; a Forest Plan EIS could tier to a Regional Guide EIS.

Topography — Physical features of the ground surface such as hills, plains, mountains, steepness of slope, and other features.

Traditional timber harvest — A commercial operation to remove stems from a forest for the primary purpose of economic gain, with mitigation for other resources, such as forest health or wildlife, secondary in priority.

Transpiration — Water loss from plants during the course of photosynthesis.

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.

True firs — Coniferous trees of the genus *Abies*. Grand fir (*Abies grandis*) and Subalpine fir (*A. lasiocarpa*) are examples of true firs found in the project area. Douglas-fir (*Pseudotsuga menziesii*) is in a different genus and is more closely related to hemlocks than to true firs.

Trustee/Trust responsibilities (tribal) — A trustee is one who holds property for the benefit of another. The federal government's trust responsibility arises from promises made in treaties, executive orders, and agreements. 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.

Turbidity — The condition of a body of water that contains suspended material such as clay or silt particles, dead organisms, or small living plants and animals.

U

Umbrella species — A large-bodied wildlife species that has a large home range and broad requirements for habitats and resources; managing for an umbrella species is assumed to provide habitats and resources for other species.

Underburn — A burn by a surface fire that can consume ground vegetation and ladder fuels.

Understory — Plants that grow beneath the canopy of other plants. Usually refers to grasses, forbs, and low shrubs under a tree or shrub canopy.

Uneven-aged management — Method of forest management in which trees of different species in a given stand are maintained at many ages and sizes to permit continuous natural regeneration. Selective cutting is one example of an uneven-aged management method.

Uneven-aged stand — Stand of trees in which there are considerable differences in the ages of individual trees.

Ungulates — Hoofed, plant-eating mammals such as elk, deer, and cattle.

Unroaded area — Portion of the National Forest System that does not contain classified roads (see Road).

Unstable and potentially unstable lands — The unstable land component includes lands that are prone to mass failure under natural conditions (unroaded, unharvested), and where human activities such as road construction and timber harvest are likely to increase landslide distribution in time and space, to the point where this change is likely to

modify natural geomorphic and hydrologic processes (such as the delivery of sediment and wood to channels), which in turn will affect aquatic ecosystems including streams, seeps, wetlands, and marshes.

The following types of land are included: (1) active landslides and those that exhibit sound evidence of movement in the past 400 years; (2) inner gorges; (3) those lands identified as unstable by geologic investigations, using the criteria stated above (includes lands already classified by the Forest Service as unsuited for programmed timber harvest because of irreversible soil loss, and by the BLM as nonsuitable fragile lands). Highly erodible lands (that is, lands prone to sheet and rill erosion) are not included in this definition.

Upland — The portion of the landscape above the valley floor or stream.

V

Vascular plants — Plants that have specialized tissues which conduct nutrients, water, and sugars, along with other specialized parts such as roots, stems, and reproductive structures. Vascular plants include flowering plants, ferns, shrubs, grasses, trees, and many others.

Vegetative composition — The plant species present in a plant community.

Vertebrate — An animal with a backbone; mammals, fishes, birds, reptiles, and amphibians are vertebrates.

Viability — In general, viability means the ability of a population of a plant or animal species to persist for some specified time into the future. For planning purposes, a *viable population* is one that has the estimated numbers and distribution of reproductive individuals to ensure that its continued existence will be well distributed in the planning area.

Viable population — A population that is regarded as having the estimated numbers and distribution of reproductive individuals to ensure that its continued existence is well distributed in the project area.

Visual resources — The visible physical features of a landscape.

W

Water Quality Limited — A Clean Water Act classification for waters where application of best management practices or technology-based controls are not sufficient to achieve designated water quality standards.

Watershed — (1) The region draining into a river, river system, or body of water. (2) In this EIS, a watershed also refers specifically to a drainage area of approximately 50,000 to 100,000 acres, which is equivalent to a 5th-field Hydrologic Unit Code (HUC). Hierarchically, subwatersheds (6th-field HUC) are contained within a watershed (5th-field HUC), which in turn is contained within a subbasin (4th-field HUC). This concept is shown graphically in Figure 2-1.

Watershed Condition Indicators (WCIs) — An integrated suite of aquatic (including a biological component), riparian (including riparian-associated terrestrial species), and hydrologic (including uplands) condition measures that are intended to be used at the watershed scale. They are intended to assist in effectiveness monitoring and to indicate the current condition of a watershed in order to help land managers design projects. See Chapter 3, Base Level, Aquatic-Riparian-Hydrologic Component for details.

Weed — A plant considered undesirable, unattractive, or troublesome, usually introduced and growing without intentional cultivation.

Wetland — In general, an area soaked by surface or groundwater frequently enough to support vegetation that requires saturated soil conditions for growth and reproduction; generally includes swamps, marshes, springs, seeps, bogs, wet meadows, mudflats, natural ponds, and other similar areas. Legally, federal agencies define wetlands as possessing three essential characteristics: (1) hydrophytic vegetation, (2) hydric soils, and (3) wetland hydrology. The three technical characteristics specified are mandatory and must all be met for an area to be identified as a wetland. *Hydrophytic vegetation* is defined as plant life growing in water, soil, or on a substrate that is at least periodically deficient in oxygen as a result of excessive water content. *Hydric soils* are defined as soils that are saturated, flooded, or ponded long enough during the

growing season to develop anaerobic (without oxygen) conditions in the upper part of the soil profile. Generally, to be considered a hydric soil, there must be saturation at temperatures above freezing for at least seven days. *Wetland hydrology* is defined as permanent or periodic inundation, or soil saturation to the surface, at least seasonally.

Widely distributed species — Those species that occur on more than one administrative unit. Widely distributed species may be fine scale or broad scale depending on habitat resolution; however, in this EIS it was possible to disclose specific quantitative effects of the alternatives only on widely distributed species whose habitats could be reliably mapped using a block size of at least 247 acres.

Wide-ranging carnivores — In this EIS, refers to lynx, wolverine, grizzly bear, and gray wolf, which are considered wide-ranging because their territories cover great distances (often more than 50 miles).

Wilderness — Area where the earth and its community of life have not been seriously disturbed by humans and where humans are only temporary visitors. Specific lands may be designated by the U. S. Congress as wilderness areas and protected and managed to preserve their natural condition; "wilderness" can also refer to other areas that have pristine and natural characteristics.

Wildfire — A human or naturally caused fire that does not meet land management objectives.

"Wildland Fire Use for Resource Benefit" — Formerly referred to as "prescribed natural fire." A fire ignited by lightning but allowed to burn within specified conditions of fuels, weather, and topography, to achieve specific objectives.

Windthrow — Trees blown over by the wind.

Woody — Composed of wood or woody fibers.

X

Xeric — Very dry region or climate; tolerating or adapted to dry conditions.

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Key Acronyms

A1	Aquatic A1 Subwatershed (6th-field HUC)
A2	Aquatic A2 Subwatershed (6th-field HUC)
AIRFA	American Indian Religious Freedom Act
ARPA	Archaeological Resources Protection Act
ASQ	Allowable Sale Quantity
AUM	Animal Unit Month
BEA	Bureau of Economic Analysis
BIA	Bureau of Indian Affairs
BLM	Bureau of Land Management
BMP	Best Management Practice
BO	Biological Opinion
CDP	Census-designated Place
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CRBSUM	Columbia River Basin Successional Model
CWAP	Clean Water Act Protocol
CWD	Coarse Woody Debris
DBH	Diameter at Breast Height
DEIS	Draft Environmental Impact Statement
EAWS	Ecosystem Analysis at the Watershed Scale
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency
ERU	Ecological Reporting Unit
ESA	Endangered Species Act
ESC	Executive Steering Committee (ICBEMP)
FACA	Federal Advisory Committee Act
FEIS	Final Environmental Impact Statement
FEMAT	Forest Ecosystem Management Assessment Team
FERC	Federal Energy Regulatory Commission
FLPMA	Federal Lands Policy and Management Act
FOIA	Freedom of Information Act
FSEEE	Forest Service Employees for Environmental Ethics
GIS	Geographic Information System
HRV	Historical Range of Variability
HUC	Hydrologic Unit Code
ICBEMP	Interior Columbia Basin Ecosystem Management Project
IWM	Integrated Weed Management
MMBF	Million Board Feet
MOU	Memorandum of Understanding
NAAQS	National Ambient Air Quality Standards
NAGPRA	Native American Graves Protection and Repatriation Act
NEPA	National Environmental Policy Act
NFMA	National Forest Management Act
NMFS	National Marine Fisheries Service
NOI	Notice of Intent
NWFP	Northwest Forest Plan
PAC	Provincial Advisory Committee
PFC	Proper Functioning Condition
PILT	Payment in Lieu of Taxes
PVG	Potential Vegetation Group
PVT	Potential Vegetation Type
RAC	Resource Advisory Council
RCA	Riparian Conservation Area
RIST	Regional Implementation Support Team
RMO	Riparian Management Objective
ROD	Record of Decision
ROS	Recreation Opportunity Spectrum
RHCA	Riparian Habitat Conservation Area
SAG	Science Advisory Group (ICBEMP)
SIT	Science Integration Team (ICBEMP)
SDEIS	Supplemental Draft Environmental Impact Statement
T	Terrestrial T Watershed (5th-field HUC)
TEP	Threatened, Endangered, or Proposed Species
TERO	Tribal Employment Rights Office
TMDL	Total Maximum Daily Load
UCRB	Upper Columbia River Basin
USDA	U.S. Department of Agriculture
USDI	U.S. Department of the Interior
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
WCI	Watershed Condition Indicator