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Draft Environmental Impact Statement

Proposed Revised Land Management Plans for the Malheur, Umatilla, and Wallowa-Whitman National Forests

Volume 3



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Pacific Northwest Region

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Chapter 4. Consultation and Coordination

The following describes Federal, State, and local agencies, tribes and individuals who were consulted or were involved in the preparation of the EIS during the development of the draft environmental impact statement (DEIS). Public, governmental, and tribal involvement is mandated by CEQ regulations for implementing NEPA. This mandate is reflected in the Forest Service planning rule and handbook. Tribal involvement is mandated by additional policy and law as described below.

Tribal Consultation

The legal responsibilities of the Federal government to American Indian tribes are documented in statutes, executive orders, and case law enacted and interpreted for the protection and benefit of federally recognized American Indian tribes. The Forest Service honors American Indian reserved rights, including hunting, fishing, gathering, and grazing within present-day national forests, through consultation, coordination, and agreements with the affected American Indian tribes. The agency maintains a government-to-government relationship with federally recognized tribal governments. The Forest Service and the tribes meet to gain an understanding of each other's rights, responsibilities, and interests. Through these relationships, the Forest Service and the tribes build and enhance a mutual partnership, as well as pursue cooperative and partnership initiatives and efforts.

Numerous laws, executive orders, and regulations govern the relationship between American Indian tribes and the Federal government, which is represented here by Forest Service staff for the three national forests. In project planning and implementation, the Forest Service complies with these laws and regulations, and, in doing so, meaningfully consults with tribal governments.

In addition, numerous laws, regulations, and policies govern the use and protection of national forest resources that may be of tribal interest or subject to tribal reserved rights. Activities authorized or implemented by the Forest Service must comply with these laws, regulations, and policies, as they are intended to provide general guidance for the implementation of management practices and for the protection of resources, including those of interest to the tribes.

In the Blue Mountains forest plan area, a significant portion of lands ceded by the tribes in the various treaties were designated as part of the National Forest System by the Organic Administration Act of June 4, 1897. Lands were ceded through the Treaties of 1855 by the Confederated Tribes of the Umatilla Indian Reservation, the Confederated Tribes of the Warm Springs Reservation, the Nez Perce Tribe of Idaho, and the Confederated Tribes and Bands of the Yakama Indian Nation of the Yakama Reservation. The Klamath Tribes via the Treaty with the Klamath Nation of 1870 ceded lands extending into the Malheur National Forest. These treaties are known for their specific language recognizing certain reserved rights of the tribes in aboriginal use areas. The Burns Paiute Tribe, the Shoshone-Paiute Tribes of the Duck Valley Reservation, the Fort McDermitt Paiute and Shoshone Tribes, the Fort Bidwell Indian Community of Paiute Indians, and the Chief Joseph Band of the of the Nez Perce (now part of the Confederated Tribes of the Colville Reservation) are federally recognized American Indian tribes that also have interests in the management direction and project planning of the Blue Mountains national forests.

The Forest Service has the requirement to manage lands with full consideration of the Federal trust responsibilities to tribal rights and to the interests and treaty reserved rights and resources of federally recognized American Indian tribes.

The Blue Mountains forest plan revision team has met this responsibility by communicating and collaborating with interested American Indian tribes at the government-to-government and staff-to-staff levels. Details of tribal contacts, including information about letters and staff-to-staff and government-to-government meetings, are available in the project record.

Cooperating Agencies

The three Blue Mountain National Forests have convened a group (referred to as the “co-conveners”) of local, state, federal agencies and tribal governments to collaborate with the Forest Service during the development of the revised forest plans. Representatives from these agencies and tribes bring vast knowledge and a broad range of interests to the table and will enhance the ability of the Forest Service to identify important issues and to address them with an appropriate range of alternatives.

This group meets to review and develop content initiated by the Forest Service staff. The Cooperator group plays a key role in refining issue development, formulating alternatives, identifying key publics and implementing a public involvement strategy. Cooperators keep the Forest Service informed of new concerns for their organizations or communities of interest that maybe relevant to the forest plan revision process. In addition to the tribes, with whom the forests have government to government relationships with the following cooperative agencies have signed memorandums of understandings with the forests.

Cooperating agencies (documented with MOUs) include:

- State of Oregon
- Baker County, Oregon
- Grant County, Oregon
- Harney County, Oregon
- Morrow County, Oregon
- Umatilla County, Oregon
- Union County, Oregon
- Wallowa County, Oregon
- Wheeler County, Oregon
- Asotin County, Washington
- Columbia County, Washington
- Garfield County, Washington
- Walla Walla County, Washington

Cooperating agency representatives participated in meetings and briefings; reviewed public comments, helped to identify issues and develop alternatives; and provided analysis and document reviews to the Blue Mountains forest plan revision team.

The Forest Service has coordinated with state and county governments, as well in the development of the alternatives described in this DEIS.

State Government

Several State agencies have jurisdiction over certain activities and resources within the Blue Mountains forest plan revision area. As a result it is important that these agencies be represented in the planning process. The State has engaged in the planning process through the following agencies: Oregon Department of Fish and Wildlife, Oregon Department of Transportation, Oregon Department of Environmental Quality.

Federal Government

Several Federal agencies have resource management responsibilities within the three Blue Mountains national forest plan revision planning area. The US Fish and Wildlife Service and NOAA Fisheries have oversight responsibilities for compliance with the Endangered Species Act. The Forest Service has entered into consultation with the Service under the federal Streamlining Consultation Agreement for compliance with the Endangered Species Act. The Environmental Protection Agency is required to review and evaluate all Environmental Impact Statements for compliance with the Clean Water Act, Clean Air Act. Natural Resource Conservation Service and the Bureau of Land Management are being consulted with relative to adjacent public and private lands in the forest plan revision area.

Public Involvement

A critical element of the forest plan revision process is public involvement. The Forest Service has accomplished this through the following manner:

1. Public scoping and publication of the notice of intent in the federal register
2. Publication of the DEIS and subsequent public meetings

The notice of intent to prepare this DEIS was published in the Federal Register on March 29, 2010 (FR, Vol. 75, No. 59). The NOI asked for public comment (written) on the proposal by May 25, 2010. In addition, the Forest Service held one round of public meetings during the scoping period in several towns in Oregon and Washington (table 393). Numerous collaborative meetings were held throughout the forest plan revision process (prior to the scoping period), which included several field trips. During the scoping period, the Blue Mountains forest plan revision team received 4,174 total responses to the request for comment and included in this total are 110 unique and substantially different comment letters and 4,025 organized form letters. The content analysis report analyzing all the comments received is located in the project record.

Additionally, alternative development meetings were held with representatives of industry and special interests groups, including wilderness advocates, conservation groups, and snowmobile enthusiasts, such as John Day-Snake River Resource Advisory Committee, Wallowa County Natural Resource Advisory Committee, Blue Mountains Forest Partners, Hells Canyon Preservation Council, etc. the details are available in the project record. Chapter 4 provides more information regarding consultation and coordination with the public, federal, state and tribal government entities.

Information Sharing

The Forest Service will continue to use a number of information sharing techniques and tools to give people an opportunity to share new information and to be kept up to date on the planning process. This will include the Blue Mountain forest plan revision Website, Plan updates posted to the website, open houses at selected sites after publication of the DEIS and occasional newsletters and news releases. Lists of all persons, groups, officials and others who were contacted during the forest plan revision and NEPA review process are filed in the project record.

Table 393. Forest Service public meetings held prior to and during scoping period

Year	Type of Meeting	No. of Meetings	Locations
2004	Community Workshops (vision and desired conditions discussions)	20	La Grande, Enterprise, Baker City, Pendleton, Heppner, John Day, Burns, Portland, Oregon; Dayton and Pasco, Washington
	Co-convener Meetings*	5	La Grande and Baker City, Oregon
2005	Community Workshops (special designations, wild and scenic rivers, wilderness areas, and management areas discussion)	11	La Grande, Enterprise, Baker City, Pendleton, Heppner, John Day, Burns, Portland, and Milton-Freewater, Oregon; Dayton, and Pasco, Washington
	Field Trips	3	Malheur, Wallowa-Whitman, Umatilla National Forests
	Co-convener Meetings	6	La Grande and Baker City, Oregon
2006	Economic Workshops	2	La Grande and Baker City, Oregon
	Open Houses (to discuss strategies to achieve desired conditions)	7	La Grande, Enterprise, Pendleton, John Day, Burns, Sandy, Oregon and Dayton, Washington
	Co-convener Meetings	1	La Grande, Oregon
2008	Co-convener Meetings	2	La Grande, Oregon
2009	Co-convener Meetings	1	La Grande, Oregon
2010	Co-convener Meetings	2	La Grande, Oregon
4/6/2010	Public Meeting	1	John Day, OR - Federal Building, Juniper Hall, 431 Patterson
4/7/2010	Public Meeting	1	Burns, OR - Harney County Senior and Community Services Center, 17 S. Alder St.
4/13/2010	Public Meeting	1	Pendleton, OR - Pendleton Convention Center, Rooms 3 and 4, 1601 Westgate
4/14/2010	Public Meeting	1	Heppner, OR - Saint Patrick Senior Center, 182 N. Main St.
4/15/2010	Public Meeting	1	Dayton, WA - Columbia County Fairgrounds
4/20/2010	Public Meeting	1	Baker City, OR - Sunridge Inn, One Sunridge Lane
4/21/2010	Public Meeting	1	La Grande, OR - Eastern Oregon University, One University Blvd, Hoke Hall, Room 309
4/22/2010	Public Meeting	1	Joseph, OR - Civic Center, 102 E 1st St.
4/28/2010	Public Meeting	1	Portland, OR - Red Lion Convention Center, 1021 NE Grande Ave.
4/29/2010	Public Meeting	1	Pasco, WA - Franklin County PUD, 1411 West Clark
2011	Co-convener Meetings	3	La Grande, Oregon
2012	Co-convener Meetings	1	Baker City, Oregon
05/05/2013	Co-convener Meetings	1	Baker City, Oregon

* Co-convener meetings refers to meetings between the Blue Mountains forest plan revision team and representatives of the area counties, resource advisory committee members, tribal representatives, and the State of Oregon.

Preparers and Contributors

List of Preparers

This list of preparers is limited to those people who were members of the interdisciplinary team working on these documents. Their preparation could not have been completed without the support and assistance of employees of the Malheur, Umatilla, Wallowa-Whitman National Forests and our colleagues in the regional office. We also recognize the forest leadership teams as providing guidance during this process.

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Distribution of the Draft Environmental Impact Statement

This environmental impact statement has been distributed to, or made electronically available to, over 2,000 individuals and groups who specifically requested a copy of the document or commented during public involvement opportunities. In addition, copies have been sent (or in some cases made electronically available) to Federal agencies, federally recognized tribes, State and local governments, and organizations that have requested to be involved in the development of this analysis. These entities include the U.S. Environmental Protection Agency; U.S. Army Corps of Engineers; U.S. Department of the Interior; Federal Highway Administration; Advisory Council on Historic Preservation; USDA National Agricultural Library; State wildlife and fisheries management agencies; tribes; county commissions; and local community governments. Due to the number of people, agencies, and organizations, a complete listing has been omitted from this EIS, but is available upon request or on the [Blue Mountains plan revision Web site](#).

Glossary and Acronyms

Many definitions in this glossary are from the following sources. Some definitions are in general use within the Forest Service. Terms adequately defined in general dictionaries are not necessarily included, though some of those that are less well known are included for the convenience of the reader.

Partial Source List

- National Forest Management Act Regulations (36 CFR 219)
- Silviculture Terminology (Powell 2005)
- Dictionary of Forestry Terms (Society of American Forests 1971)
- Wildland Planning Glossary (USDA Forest Service 1976)
- Wildlife Habitats in Managed Forests, the Blue Mountains of Oregon and Washington (Thomas et al. 1979)
- Forest Service Manual or Forest Service Handbook
- A Glossary of Terms Used in Range Management, Second Edition (Society for Range Management 1974)
- Interior Columbia Basin Ecosystem Management Project DEIS (USDA Forest Service 1997)
- Wallowa-Whitman National Forest Land and Resource Management Plan (USDA Forest Service 1990)
- Interior Columbia Basin Ecosystem Management Project SDEIS (USDA Forest Service 2000)
- Interior Columbia Basin Ecosystem Management Project FEIS (USDA Forest Service 2000)
- A Dictionary of Ecology, Evolution, and Systematics (Cambridge University Press 1982)
- Webster's Dictionary
- HCNRA Public Land Use Regulations (36 CFR 292.41)
- HCNRA Private Land Use Regulations (36 CFR 292.21)

A

active management: Planned, intentional actions in an area that are specifically designed to obtain a desired objective or result.

active restoration: Refer to restoration.

administrative site: Areas such as work centers, fire lookouts, permitted ranch headquarters, seed orchards, communication sites, utility corridors, developed campgrounds, and other areas that are occupied or used by the Forest Service during the administration of work associated with national forest lands.

adaptive management: An approach to 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.

Effects are monitored for the purpose of learning and adjusting future management actions, which improves the efficiency and responsiveness of management.

administrative unit: A management area such as the Wallowa-Whitman National Forest, under the administration of one line officer. Forest Service line officers include district rangers and forest supervisors.

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 grazing for a prescribed period.

allotment management plan (AMP): A document that specifies the actions to be taken to manage and protect the rangeland resources and reach a given set of objectives.

allowable sale quantity (ASQ): The quantity of timber that may be sold from the area of suitable land covered by the forest plan for a time period specified by the plan. This quantity is usually expressed on an annual basis as the average “annual allowable sale quantity.”

all-terrain vehicle (ATV): Off-highway-vehicles with less than or equal to a 50 inch wheel base, three or more low-pressured tires, handle bar steering and a seat designed to be straddled.

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.

analysis file: A file containing records of the scoping and analysis processes conducted during the preparation of a NEPA document. The file is typically stored at the Forest Service office from which a final decision is issued.

animal unit: One mature cow of approximately 1,000 pounds, either dry or with calf up to 6 months of age, or the equivalent (one horse, five domestic sheep). This concept is based on a standardized amount of forage consumed.

animal unit month (AUM): The amount of forage required by one mature (1,000 lb.) cow or its equivalent for one month (based upon average forage consumption of 26 lb. of dry matter per day). Refer to head month.

annual assessment: Yearly assessment of the degree to which on-the-ground management is maintaining or making progress toward the desired conditions and objectives.

anthropogenic: Caused or produced through the agency of man; the scientific study of the origin of man.

aquatic: Pertaining to water.

Aquatic and Riparian Conservation Strategy (ARCS): A regional strategy designed to restore and maintain the processes that create and maintain conditions in aquatic ecosystems on national forest lands in Oregon and Washington.

aquatic ecosystem: Waters that serve as habitat for interrelated and interacting communities and populations of plants and animals. The stream channel, lake or estuary bed, water, biotic communities and the habitat features that occur therein.

assessment: The collection, integration, examination, and evaluation of information and values.

authorized grazing: Refer to grazing permit.

B

basal area: The cross-sectional area of the trunk of a tree or stand of trees at breast height (4.5 feet).

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) the term refers to the equivalent of a 3rd-field hydrologic unit code, an area of about nine million acres, such as the Snake River Basin.

benches: Mid-elevation flat or gently sloping sites. Grazing and homesteading/ranching activities were concentrated in these areas, which were also used by American Indians for pasturing livestock. Benches from 2,000 to 4,500 feet generally have potential to support the bunchgrass associations described for the lower and mid-position slopes. Cheatgrass brome, Kentucky bluegrass, and an assortment of annual and perennial forbs (including some noxious weeds) dominate much of the benchland, some of which was severely disturbed by early farming and ranching activities.

beneficial uses: Any of the various uses which may be made of the water, including, but not limited to, domestic water supplies, fisheries and other aquatic life, industrial water supplies, agricultural water supplies, navigation, recreation in and on the water, wildlife habitat, and aesthetics.

best management practices (BMPs): Practice or set of practices that enable a planned activity to occur while still protecting the resource managed, normally implemented and applied during the activity rather than after the activity.

best management practices (BMPs) (Watershed): A practice or a combination of practices, that is determined by the state (or designated area-wide planning agency) after problem assessment, examination of alternative practices, and appropriate public participation to be the most effective, practicable (including technological, economic, and institutional considerations) means of preventing, or reducing the amount of pollution generated by nonpoint sources to a level compatible with water quality goals.

big game: Those species of large mammals normally managed as a sport hunting resource. Generally includes; elk, moose, white-tailed deer, mule deer, mountain goat, bighorn sheep, black bear and mountain lion.

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

biological soil crust: Thin crust of living organisms on or just below the soil surface composed of dense, low-growing community of various combinations of algae, mosses, liverworts, cyanobacteria (blue-green algae), micro fungi, bacteria, and lichens; and provide important

components of grassland, shrub-steppe, and subalpine habitats. Also referred to as cryptogrammatic or microbiotic crust.

biophysical: The combination or grouping of biological and physical components in an ecosystem.

biotic: Living.

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

boreal: Pertaining to cool or cold temperature regions of the northern hemisphere; the northern coniferous zone.

broad scale: A large, regional area, such as an entire river basin and typically a multi-state area.

browse: That part of leaf and twig growth of shrubs, woody vines, and trees available for animal consumption.

Bureau of Land Management (BLM): An agency within the U.S. Department of the Interior with land management responsibility for the public domain lands.

C

candidate species: Plant and animal species that may be proposed for listing as endangered or threatened in the future by the U.S. Fish and Wildlife Service (USFWS) or the National Marine Fisheries Service (NMFS); these species have no legal protection under the Endangered Species Act (ESA).

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 cover: The proportion of the forest floor covered by the vertical projection of the tree crowns (Jennings et al. 1999).

capability: The potential of an area of land to produce resources, supply goods and services, and allow resource uses under an assumed set of management practices and at a given level of management intensity. Capability depends upon current conditions and site conditions such as climate, slope, landform, soils, and geology, as well as the application of management practices, such as silviculture or protection from fire, insects, and disease.

capital investment: An input that increases the stock of natural or man-made resources (assets) needed to maintain or increase the flow of outputs in the future. Benefits resulting from capital investments are normally recouped in excess of one year; activities that create or improve capital assets to obtain benefits occurring during several planning periods.

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.

cavity: The hollow excavated in a tree that is used by birds or mammals for roosting and/or reproduction.

ceded lands: Lands that American Indian 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.

channel morphology: The dimension (width, depth), shape and pattern (sinuous, meandering, straight) of a stream channel.

class I airshed: Under the 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.

climax: The final or mature seral stage in secondary plant succession that persists for an indefinite period of time if no major disturbances occur.

closed canopy: Greater than or equal to 60 percent canopy cover within the moist and cold upland forest potential vegetation groups; greater than or equal to 40 percent canopy cover within the dry upland forest potential vegetation group.

coarse woody material: Pieces of woody material derived from tree limbs, boles, and roots in various stages of decay, having a diameter of at least three inches.

co-conveners: A group of participating county commissioners from within the planning area that have served as co-meeting managers for the land management plan revision process and assisted in coordinating the public involvement processes and community collaborative workshops.

Code of Federal Regulations (CFR): A codification of the general and permanent rules published in the Federal Register (FR) by the executive departments and agencies of the federal government.

cold forest: High elevation forests dominated by subalpine fir, whitebark pine, spruce, and sometimes lodgepole pine.

collaboration: Working together; to cooperate willingly with an agency or instrumentality with which one is not immediately connected.

community resiliency: The ability of communities to adapt to changing ecological, social, and economic conditions.

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

compatible: Capable of existing together in harmony.

comprehensive evaluation: Evaluation of current social, economic, and ecological conditions and trends relative to the desired conditions and objectives, undertaken prior to plan revision and every five years thereafter.

comprehensive management plan (CMP): The document that establishes the array, levels, and manner of resource uses within the Hells Canyon National Recreation Area on the Wallowa-Whitman National Forest. It is incorporated as a part of the 1990 Land and Resource Management Plan.

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. Connectivity is the opposite of fragmentation.

conservation strategy or 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 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 the Native American Graves Protection and Repatriation Act, the American Indian Religious Freedom Act, and numerous other executive orders and statutes. This legal responsibility is, through consultation, to consider Indian interests and account for those interests in the decision; (3) the term also refers to a requirement under Section 7 of the Endangered Species Act (ESA) for federal agencies to consult with the USFWS and/or NOAA-Fisheries with regard to federal actions that may affect listed threatened and endangered species or critical habitat.

core area: The combination of core habitat (i.e., habitat that could supply all elements for the long-term security of species of conservation concern) and a core population (a group of one or more local populations that exist within core habitat) constitutes the basic unit on which to gauge recovery within a recovery unit. Core areas require both habitat and the species of conservation concern, and the number (replication) and characteristics of local populations inhabiting a core area provide a relative indication of the core area’s likelihood to persist. A core area represents the closest approximation of a biologically functioning unit.

corridor: A tract of land forming a passageway. Can refer to areas of wildlife movement, boundaries along rivers, or the present or future location of transportation or utility rights-of-way within its boundaries.

cost efficiency: The usefulness of specified inputs (costs) to produce specified outputs (benefits). In measuring cost efficiency, some outputs, including environmental, economic, or social impacts, are not assigned monetary values but are achieved at specified levels in the least cost manner. Cost efficiency is usually measured using present net value, although use of benefit-cost ratios and rates-of-return may be appropriate.

Council on Environmental Quality (CEQ): An advisory council to the President established by the National Environmental Policy Act (NEPA) of 1969. The council reviews federal programs for their effects on the environment, conducts environmental studies, and advises the President on environmental matters.

cover: (1) Trees, shrubs, rocks, or other landscape features that allow an animal to conceal itself partly or fully for protection from predators, or to ameliorate conditions of weather, or in which to reproduce; (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 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.

cubic feet per second (cfs): A rate of the flow, in streams and rivers, for example. It is equal to a volume of water one foot deep and one foot wide flowing a distance of one foot in one second. One cfs is equal to 7.48 gallons of water flowing each second.

cubic feet per second per square mile (CSM): The rate of streamflow per unit land area.

culture: The ideals, values, and beliefs that members of a society share to interpret experience and generate behavior that is reflected by their work and thought (Haviland 1999).

cultural resources: An object or definite location of human activity, occupation, or use identifiable through field survey, historical documentation, or oral evidence. Cultural resources are prehistoric, historic, archaeological, or architectural sites, structures, places, or objects and traditional cultural properties. Cultural resources include the entire spectrum of resources for which the Heritage Program is responsible, from artifacts to cultural landscapes, without regard to eligibility for listing on the National Register of Historic Places

cumulative effects or impacts: Cumulative effects or impacts are the impacts on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency (federal or nonfederal) or person undertakes such actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. Effects and impact are synonymous (40 CFR 1508.7).

current direction: The existing direction in approved management plans; continuation of existing policies, standards and guidelines; current budget updated for changing costs over time; and, to the extent possible, production of current levels and mixes of resource outputs.

D

decommission (building): Demolition, dismantling, removal, obliteration and/or disposal of a deteriorated or otherwise unneeded asset or component, including necessary cleanup work. This action eliminates the deferred maintenance needs for the fixed asset. Portions of an asset or component may remain if they do not cause problems nor require maintenance.

decommission (road): Permanently closing a road to vehicular use and left in a hydrological maintenance free condition. Decommissioning will include activities such as water barring, out sloping, recontouring, decompaction of road surface, removal of drainage structures, and road barricades as needed.

defensible space: An area surrounding a home or structure that has vegetation characteristics that minimize the spread of wildland fire and allows for safely defending the home against fire.

deferred maintenance: Maintenance that was not performed when it should have been or when it was scheduled and which, therefore, was put off or delayed for a future period. When allowed to accumulate without limits or consideration of useful life, deferred maintenance leads to deterioration of performance, increased costs to repair, and decrease in asset value. Deferred maintenance needs may be categorized as critical or noncritical at any point in time. Continued deferral of noncritical maintenance will normally result in an increase in critical deferred maintenance. Code compliance (such as safety, ADA, OSHA, or environmental), plan direction, best management practices, biological evaluations other regulatory or executive order compliance requirements, or applicable standards not met on schedule are considered deferred maintenance.

demography: The statistical study of populations, especially with reference to size and density, distributions, and vital statistics such as births, and deaths.

departure: The difference between an existing condition and the desired condition.

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

design criteria: Part Three of the land management plan that provides the parameters, including guidelines, for how future site-specific activities can occur within the context of the plan.

designated critical habitat: Specific areas within the geographical area occupied by a species at the time of listing under Endangered Species Act that contain physical or biological features essential to the conservation of the species.

desired condition: A portrayal of the land or resource condition that is expected to result if goals and objectives are fully achieved.

developed recreation: Recreation that requires facilities that in turn result in concentrated use of an area; for example, a campground. Examples of developed recreation areas are campgrounds and ski areas; facilities in these areas might include roads, parking lots, picnic tables, toilets, drinking water, ski lifts, and buildings.

developed site: Facility provided for developed recreation use. Refer to facilities.

diameter at breast height (d.b.h.): Tree diameter measured at 4.5 feet from the ground.

direct effects: Impacts on the environment caused by the action and occur at the same time and place.

disease: A harmful deviation from normal functioning of physiological processes, usually pathogenic or abiotic in origin.

disjunct: Populations that are separated geographically from the main distribution of a species. Many plants with disjunct populations are biologically unique because they are not found again for dozens to over one hundred miles. Disjunct populations are thus rare in this portion of their distribution.

dispersed (recreation): Recreation that does not occur in a developed recreation site; for example, hunting or backpacking.

dispersed campsites: Primitive sites typically used for overnight, dispersed recreation. Usually includes a hardened area around a fire pit, a barren area, and/or user-constructed facility.

displacement: Recreation visits are considered “displaced” or no longer consumed at a site or area when practical maximum capacity thresholds of the site or area are exceeded. Visitors are assumed to completely leave the national forest rather than seek an alternative location for their activity.

disturbance: 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 process: Events that alter the structure, function, or composition of aquatic or terrestrial habitats.

disturbance regime: Natural pattern of periodic disturbances, such as fire or flood, followed by a period of recovery from the disturbance such as growth of a forest after fire.

diversity: The distribution and abundance of different plant and animal communities and species within the area covered by a land and resource management plan.

down woody material: A tree or part of a tree that is dead and laying on the ground.

draft environmental impact statement (DEIS): The draft statement of predicted environmental effects that is required for major federal actions and released to the public and other agencies for comment and review.

dry forest: Low elevation forest dominated by ponderosa pine and sometimes Douglas-fir or grand fir.

E

early seral: Refer to seral stages.

early spring: Early spring is defined as that period when the perennial cool-season forage plants initiate growth and begin shoot elongation. It extends through the period of maximum carbohydrate use and the beginning of carbohydrate storage. The end of this period is determined by soil moisture. It ends prior to the time that soil moisture is expected to become limiting to the extent that essentially full regrowth cannot be ensured.

Eastside Screens: Regional Forester's Amendment 1, Interim management direction establishing riparian, ecosystem, and wildlife standards for timber sales on National Forest System lands in eastern Oregon and Washington (USDA Forest Service 1994).

ecological function: Refer to ecological processes.

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 for an 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.

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

ecological status: The degree of departure of current vegetation from the potential natural vegetation, or potential natural community often synonymous with seral stage.

economics: A social science concerned primarily with description, distribution, and consumption of goods and services.

economic well-being: A condition that enables people to work, provide income for their families, and generate economic wealth to local communities, the region, and the nation.

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 impacts:

direct economic impact: Effects caused directly by forest product harvest or processing or by forest uses.

indirect economic impact: Effects that occur when supporting industries sell goods or services to directly affected industries.

induced economic impact: Effects that occur when employees or owners of directly or indirectly affected industries spend their income within the economy.

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 diversity: The variety and relative extent of ecosystem types, including their composition, structure, and processes within all or a part of an area of analysis.

ecosystem 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 lands represent diverse, healthy, productive, and sustainable ecosystems.

ecosystem function (processes): The major process of ecosystems that regulate or influence the structure, composition, and pattern. These include nutrient cycles, energy flows, trophic levels (food chains), diversity patterns in time/space development and evolution, cybernetics (control), hydrologic cycles and weathering processes.

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 services: The combined resources and processes of natural ecosystems that provide benefit to humans, including, but not limited to, the production of food and water, the control of climate and disease, cycling of nutrients and crop pollination, spiritual and recreational benefits, and the preservation or maintenance of biodiversity.

ecosystem sustainability: The ability to sustain diversity, productivity, resilience to stress, health, renewability and/or yield of desired values, resource uses, products, or services from an ecosystem, while maintaining the integrity of the ecosystem over time.

edge: An area where plant communities meet or where successional stages or vegetation conditions within the plant communities come together.

effects: Environmental changes resulting from an action. Included are direct effects, which are caused by the action and occur at the same time and place, and indirect effects, which are caused by the action and are later in time or further removed in distance, but which are still reasonably foreseeable. Indirect effects may include growth-inducing effects and other effects related to induced changes in the pattern of land use, population density, or growth rate, and related effects on air and water and other natural systems, including ecosystems.

Effects include ecological (such as the effects on natural resources and on the components, structures, and functioning of affected ecosystems), aesthetic quality, historic, cultural, economic, social, or healthy effects, whether direct, indirect, or cumulative. Effects may also include those resulting from actions that may have both beneficial and detrimental effects even if on balance the agency believes that the effects will be beneficial (40 CFR 1508.8, 2).

eligible wild and scenic rivers: River segments that have been identified as eligible for inclusion in the national Wild and Scenic Rivers System under the authority of the Wild and Scenic Rivers Act. The river segment must be free-flowing and it must possess one or more outstandingly remarkable scenic, recreational, geological, fish and wildlife, historical, cultural, ecological or other value.

embeddedness: The degree that larger streambed particles (boulders, rubble, or gravel) are surrounded or covered by finer particle sizes such as fine sediment (Rhodes et al. 1994).

emission: A release of air contaminants into the outdoor atmosphere.

endangered species: Species listed under the Endangered Species Act by either the U.S. Fish and Wildlife Service or the National Marine Fisheries Service. Any species of animal or plant that is in danger of extinction throughout all or a significant portion of its range.

endemic: Occurring naturally in a certain region and distribution is relatively limited to a particular locality. Endemism is the occurrence of endemic species in an area.

environmental assessment (EA): A comprehensive evaluation of actions and their predictable short- and long-term environmental effects, which include physical, biological, economic, social, and environmental design factors and their interactions. It is a formal document that must follow the requirements of NEPA, the CEQ, and guidelines and directives of the agency responsible for the project proposal.

environmental impact statement (EIS): A statement of the environmental effects of a proposed action and alternatives to it. It is required for major federal actions under Section 102 of the National Environmental Policy Act (NEPA), and released to the public and other agencies for comment and review. 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 is based on the information and analysis in the final EIS.

ephemeral: A channel in which streamflow occurs inconsistently, infrequently, or seasonally and, except during periods of streamflow, does not intersect the local groundwater table.

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.

essential fish habitat: Identification by the National Marine Fisheries Service (NMFS) of habitat essential to conserve and enhance federal fishery resources that are fished commercially under the Magnuson-Stevens Fishery Conservation and Management Act.

evaluation: An essential companion activity to monitoring; the tool for translating data gathered by monitoring into useful information that could result in change or adaptive management.

even-aged management: The application of a combination of actions that results in the creation of stands in which trees of essentially the same age grow together. Managed even-aged forests are characterized by a distribution of stands of varying ages (and, therefore, tree sizes) throughout the forest area. The difference in age between trees forming the main canopy level of a stand usually does not exceed 20 percent of the age of the stand at harvest rotation age. Regeneration in a particular stand is obtained during a short period at or near the time that a stand has reached the desired age or size for regeneration and is harvested. Clearcut, shelterwood, or seed tree cutting methods produce even-aged stands.

evolutionarily significant units (ESU): The minimal unit of conservation management, the smallest population unit that can receive federal protection under the Endangered Species Act. An ESU is a set of populations that is morphologically and genetically distinct from other similar populations or a set of populations with a distinct evolutionary history.¹

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

¹ <http://darwin.eeb.uconn.edu/eeb310/lecture-notes/systematics/systematicsl3.html>

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

facility: A single or contiguous group of improvements that exists to shelter or to support Forest Service programs. The term may be used in either a broad or narrow context; for example, a facility may be a ranger station compound, lookout tower, leased office, work center, separate housing area, visitor center, research laboratory, recreation complex, utility system, or telecommunications site.

upgrade: Total redesign and construction of a camping facility. Location may change considerably depending on ecological, environmental, or social concerns. The overall goal would be to maintain a rustic appearance but promote designs and materials that would result in lower operation and maintenance costs. Some campground classifications may change to the next higher level but none would exceed a Level 4 site development for this planning period. Accessibility standards would be appropriate to the designated Recreation Opportunity Spectrum (ROS). A change in design standards has the potential to move the ROS to a higher development setting although that is not the intent of upgrading a facility.

facilities maintenance (annual): Work performed to maintain serviceability, or repair failures during the year in which they occur. Includes preventive and/or cyclic maintenance performed in the year in which it is scheduled to occur. Unscheduled or catastrophic failures of components or assets may need repaired as a part of annual maintenance.

preventive maintenance: Scheduled servicing, repairs, inspections, adjustments, and replacement of parts that result in fewer breakdowns and fewer premature replacements, and help achieve the expected life of the fixed asset. Inspections are a critical part of preventive maintenance as they provide the information for scheduling maintenance and evaluating its effectiveness.

facilities maintenance (deferred): Work that was not performed when it should have been or when it was scheduled and has been delayed to a future period. Deferred maintenance includes actions not taken to comply with codes for health and safety, accessibility, environmental factors and other compliance requirements or applicable standards. To reduce or eliminate deferred maintenance, rehabilitation or replacement may be necessary.

rehabilitation: Renovation or restoration of an existing fixed asset or any of its components in order to restore the functionality or life of the asset. Because there is no significant expansion or change of purpose for the fixed asset, the work primarily addresses deferred maintenance.

replacement: Substitution or exchange of an existing fixed asset or component with one having essentially the same capacity and purpose.

custodial: Replacement of nonfunctional site elements or facilities with in-kind materials or structures. Location, design, and configuration remain constant. Accessibility standards, where possible, are compatible with designated ROS settings.

decommission: Demolition, dismantling, removal, obliteration, and/or disposal of a deteriorated or otherwise unneeded asset or component, including necessary cleanup work. This action eliminates the deferred maintenance needs for the fixed asset. Portions of an asset or component may remain if they do not cause problems nor require maintenance.

fauna: The vertebrate and invertebrate animals of an area or region.

fall/winter season: This period basically begins when all key perennial forage plants have achieved dormancy. It runs through the dormant period and ends just before the initiation of new growth on the key cool season perennial forage species in the spring. In very general terms, this often begins in mid to late October and runs through February, March, or April depending on the elevation, aspect and the weather patterns for a given year.

farm/forest/grazing use: Any traditional agricultural, silvicultural, or livestock management use or combination thereof on farm/forest/grazing lands. This includes, but is not limited to, true farming, growing and harvesting timber, grazing of livestock, horticultural use, animal husbandry use, horse, cattle, and sheep ranching, and preparation and storage of the products raised on farm/forest/grazing land for on-site use or for disposal by marketing or otherwise. Farm/forest/grazing uses may also consist of uses related to, and in furtherance of, the protection of fish and wildlife habitat, and the pursuit of recreational activities.

Federal trust responsibility: The Forest Service shares in the federal government's overall trust responsibility to American Indian tribes where treaty or other legally defined rights apply to national forest lands. In redeeming this shared responsibility, the agency assists in carrying out the intent of the treaty and any subsequent case law or amendments, by operating in a just and responsive way; making efforts to adjust the management of national forest lands in favor of the concerns of the respective American Indian tribe(s), as far as practicable, while still maintaining a responsibility to all the people – the general public. These actions and adjustments need to be carried out through consultations with other tribal officials or their designees, on a government-to-government basis.

federally listed species: Species that are listed under the Endangered Species Act.

fine organic matter: Plant litter, duff, and woody material less than 3 inches in diameter.

fine-scale: A single landscape, such as a watershed or subwatershed.

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: Refer to fire return interval.

fire intensity: Areas of relatively homogenous burn effects related as low, moderate, or high as defined in Burned Area Emergency Rehabilitation Handbook, FSM 2509.13 Section 23.31.

low fire intensity: Soil surface litter and humus have not been destroyed by fire. Root crowns and surface roots will resprout. Potential surface erosion has not changed because of fire.

moderate fire intensity: On up to 40 percent of the area, the soil surface litter and humus have been destroyed by fire and the A horizon has had intense heating. Crusting of the soil surface produces accelerated erosion. Intensively burned areas may be water repellent. Root crowns and surface roots of grasses in the intensively burned area are dead and will not resprout.

high fire intensity: On 40 percent or more of the area, the soil surface litter and humus have been destroyed by fire and the A horizon has had intense heating. Crusting of the soil surface produces accelerated erosion. Intensively burned areas may be water repellent. Root crowns and surface roots of grasses in the intensively burned area are dead and will not resprout.

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 management plan: A plan that identifies and integrates all wildland fire management and related activities within the context of approved land/resource management plans. It defines a program to manage wildland fires (wildfire, prescribed fire, and wildland fire use). The plan is supplemented by operational plans, including but limited to preparedness plans, preplanned dispatch plans, and prevention plans. Fire management plans assure that wildland fire management goals and components are coordinated.

fire regime: The characteristics of fire in a given ecosystem, such as the frequency, predictability, intensity, and seasonality of fire. A natural fire regime is a general classification of the role fire would play across a landscape in the absence of modern human mechanical intervention but including the influence of aboriginal burning (Agee 1993; Brown 1995). Coarse-scale definitions for natural fire regimes were developed by Hardy and others (2001) and Schmidt and others (2002) and interpreted for fire and fuels management by Hann and Bunnell (2001). The five natural fire regimes are classified based on the average number of years between fires (fire frequency or Mean Fire Interval [MFI]) combined with the severity of the fire (the amount of vegetation replacement) and its effect on the dominant overstory vegetation. These five natural fire regimes are as follows:

fire regime 1: 0- to 35-year frequency and of low severity (most commonly associated with surface fires) to mixed severity (in which less than 75 percent of the dominant overstory vegetation is replaced).

fire regime 2: 0- to 35-year frequency and of high severity (stand replacement: greater than 75 percent of the dominant overstory vegetation is replaced).

fire regime 3: 35- to 200-year frequency and of mixed severity.

fire regime 4: 35- to 200-year frequency and of high severity.

fire regime 5: 200-year-plus frequency and of high severity.

fire regime condition class (FRCC): A classification of the degree of departure from the natural fire regime. The fire regime condition class classification is based on a relative measure describing the degree of departure from the historical natural fire regime. This departure can result in changes (or risks) to one, or more, of the following ecological components: vegetation (species composition, structural stages, stand age, canopy cover, and mosaic pattern across the landscape); fuel composition; fire frequency, severity, and pattern; and other associated disturbances.

condition class 1: Fire regimes are within the natural (historical) range, and the risk of losing key ecosystem components is low. Vegetation attributes (species composition, structure, and pattern) are intact and functioning within the natural (historical) range.

condition class 2: Fire regimes have been moderately altered from their natural (historical) range. Risk of losing key ecosystem components is moderate. Fire frequencies have departed from natural frequencies by one or more return intervals (either increased or decreased). This result in moderate changes to one or more of the following: fire size, intensity and severity, and landscape patterns. Vegetation and fuel attributes have been moderately altered from their natural (historical) range.

condition class 3: Fire regimes have been substantially altered from their natural (historical) range. The risk of losing key ecosystem components is high. Fire frequencies have departed from natural frequencies by multiple return intervals. Dramatic changes occur to one or more of the following: fire size, intensity, severity, and landscape patterns. Vegetation attributes have been substantially altered from their natural (historical) range.

fire return interval: The average time between fires in a given area.

fire suppression: All work and activities connected with fire-extinguishing operation, beginning with discovery and continuing until the fire is completely extinguished.

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

fish-producing: Streams, rivers, wetlands, ponds, lakes, and reservoirs that serve as spawning or rearing habitat for fish.

fledgling: A young bird that has acquired the feathers necessary for flight.

floodplain: The lowland and relatively flat areas joining inland and coastal waters including debris cones and flood-prone areas of off-shore islands, including at a minimum, that area subject to a one percent (100-year recurrence) or greater chance of flooding in any given year (Executive Order 11988, Section 6c); or the area of relatively flat land adjacent to streams that is inundated during times of high flow; or an area formed by the deposition of stream-transported sediment.

floodplain function: Collectively, the normal physical and biological processes that are responsible for the formation and maintenance of river floodplains and the biotic communities that inhabit them.

flow regime: The range of magnitude, duration, timing and frequency of streamflows characteristic of a given stream.

focal species: A group of species that serve as an umbrella function in terms of encompassing habitats needed for other species, are sensitive to the changes likely to occur in the area, or otherwise serve as an indicator of ecological sustainability (Lambeck et al. 1997, Noss et al. 1997 and Andelman et al. 2001).

food web: Networks of food chains or feeding relationships by which energy and nutrients are passed from one group of living organisms to another.

forb: Broad-leafed, herbaceous, nongrass-like plant species other than true grasses, sedges, and non-woody plants; fleshy leafed plants; having little or no woody material.

forage: All browse and herbaceous foods that are available to grazing animals. It may be grazed or harvested for feeding. Refer to rangeland vegetation.

forested vegetation treatment: Combination of uneven-aged management methods that may be used to achieve a desired forested structure including single-tree selection, group selection, precommercial thinning, commercial thinning, salvage, and sanitation cutting.

forest fragmentation: Refer to fragmentation.

forest health: The perceived condition of a forest derived from concerns about such factors as its age, structure, composition, function, vigor, presence of unusual levels of insects and disease and resilience to disturbance. Perception and interpretation of forest health are influenced by individual and cultural viewpoints, land management objectives, spatial and temporal scales, the relative health in stands that comprise the forest, and the appearance of the forest at a point in time.

forest land: Land at least 10 percent occupied by forest trees of any size or formerly having had such tree cover and not currently developed for non-forest use. Lands developed for non-forest use include areas for crops, improved pasture, residential, or administrative areas, improved roads of any width, and adjoining road clearing and powerline clearing of any width.

forest roads: Any road wholly or partly within, or adjacent to, and serving the national forest and which is necessary for the protection, administration, and utilization of the national forests and the use and development of its resources (23 USC 101).

Forest Service Handbook (FSH): Directives that provide detailed instructions on how to proceed with a specialized phase of a program or activity.

Forest Service Manual (FSM): A system of manuals that provides direction for Forest Service activities.

forest transportation facility: A classified road, designated trail, or designated airfield, including bridges, culverts, parking lots, log transfer facilities, safety devices and other transportation network appurtenances under Forest Service jurisdiction that is wholly or partially within or adjacent to National Forest System lands (36 CFR 212.1).

forest transportation system management: The planning, inventory, analysis, classification, record keeping, scheduling, construction, reconstruction, maintenance, decommissioning, and other operations undertaken to achieve environmentally sound, safe, cost-effective access for use, protection, administration, and management of national forest lands.

fragmentation (habitat): The break-up of a large continuous land area by reducing and dividing into smaller patches isolated by areas converted to a different land type. Habitat can be fragmented by natural events or development activities.

fragmentation (forest): The breakup of a large land forest area into smaller patches isolated by areas converted to a different land type. Opposite of connectivity.

free-flowing: A river or stream that exists or flows in natural condition without impoundment, diversion, straightening, rip-rapping, or other modification of the waterway (16 U.S.C. §1286).

fuel: Plants, both living and dead, and woody vegetative materials capable of burning.

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

fuel treatment: Any manipulation or removal of fuels to reduce the likelihood of ignition or to lessen potential damage and resistance to control.

functioning-at-risk: Riparian-wetland areas that are in functional condition but an existing soil, water, or vegetation attribute makes them susceptible to degradation (USDA Forest Service 1993).

G

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: Based on geology which is the study of the structure, processes, and chronology of the earth.

geological/geomorphic process: 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.

goal: A concise statement that describes a desired condition to be achieved sometime in the future. It is normally expressed in broad, general terms and is timeless in that it has no specific

date by which it is to be completed. Goal statements form the principal basis from which objectives are developed.

goods and services: The various outputs, including on-site uses, produced from forest and rangeland resources.

government-to-government consultation: The active and continuous process of contacting tribal leadership, soliciting their participation, involvement, comments, concerns, contributions, and traditional knowledge that will assist the agency in making informed decisions in planning, managing and decision-making actions.

graminoid: Grasses and grass-like plants such as sedges and rushes.

grassland: Land on which the vegetation is dominated by grasses, grass-like plants, or forbs.

grazable forestland: Forestland that produces, at least periodically, understory vegetation that can be grazed. In this document, that condition is defined as any forested site with an existing overstory canopy cover less than 60 percent with greater than about 200 pounds of forage production per year per acre.

grazing: The consumption of standing forage by livestock or wildlife.

grazing allotment: Area designated for the use of a certain number and kind of livestock for a prescribed period.

grazing lands: Any vegetated land that is grazed or has the potential to be grazed by animals (domestic or wild). This includes rangeland and grazable forestland.

grazing permit: Document authorizing livestock to use national forest lands or other lands under Forest Service control for livestock production.

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

groundwater: All of the water that has percolated through the surface soil into the bedrock.

Groundwater-dependent ecosystems: Communities of plants, animals, and other organisms whose extent and life processes are dependent on access to or discharge of groundwater. (USDA Forest Service 2011)

guideline: A guideline is a constraint on project and activity decision making that allows for departure from its terms, so long as the intent of the guideline is met. (§ 219.15(d)(3)). Guidelines are established to help achieve a desired condition or conditions, to avoid or mitigate undesirable effects, or to meet applicable legal requirements.

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.

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

harvestable/harvestability: 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.

head month: One month's use and occupancy of the range by one animal. For grazing fee purpose, it is a month's use and occupancy of range by one weaned or adult cow with or without calf, bull, steer, heifer, horse, burro, or mule, or five sheep or goats. Refer to animal unit month.

headwaters: Beginning of a watershed; the uppermost, unbranched tributaries of a stream.

healthy ecosystem: An ecosystem in which structure and functions allow the maintenance of the desired conditions of biological diversity, biotic integrity and ecological processes over time.

Hells Canyon National Recreation Area (HCNRA) Act: The Act of December 31, 1975, as amended (PL 94-199, 89 Statute 117), which established the Hells Canyon National Recreation Area.

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

herbicide: A pesticide used for killing or controlling the growth of plants.

herbivore: An animal that subsists on plants or plant materials, either primarily or entirely.

hibernacula: Habitat niches where certain animals (such as bats) overwinter, such as caves, mines, tree hollows, or loose bark.

hiding cover: Vegetation, primarily trees, capable of hiding 90 percent of a standing adult game animal from the view of a human at a distance equal to or less than 200 feet during all seasons of the year that elk or deer use the area. Generally, any vegetation used for security or to escape from danger.

high-severity fire: Refer to fire intensity.

historical conditions: Range of historical variation; range of the spatial, structural, compositional and temporal characteristics of ecosystem elements during a period specified to represent natural conditions.

historic property: Any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the National Register of Historic Places. This term includes artifacts, records, and remains that are related to and located within such properties. The term includes properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization and that meet the National Register of Historic Places criteria.

Historic Range of Variability (HRV): A means to define the boundaries of ecosystem behavior and patterns that have remained relatively consistent over long periods. HRV is usually defined for centuries to millennia before the period of widespread human population increases and associated ecosystem changes that began in roughly the early to middle 1800s for many regions of western North America.

human capital: An individual's education, skills, culture, and knowledge that enhance their contributions to society (Castle 1998).

human-caused disturbance: Refer to disturbance.

hydroelectric: Of or relating to the production of electricity by waterpower.

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 function: The behavioral characteristics of a watershed described in terms of ability to sustain favorable conditions of water flow. Favorable conditions of water flow are defined in terms of water quality, quantity, and timing.

hydrological regimes: The spatiotemporal dynamics of water flow and associated fluvial process in an ecosystem. Refer to flow regime.

hydrologic unit: A hydrologic unit is a drainage area delineated to nest in a multi-level, hierarchical drainage system. Its boundaries are defined by hydrographic and topographic criteria that delineate an area of land upstream from a specific point on a river, stream or similar surface waters. A hydrologic unit can accept surface water directly from upstream drainage areas, and indirectly from associated surface areas such as remnant, noncontributing, and diversions to form a drainage area with single or multiple outlet points.

hydrologic unit code (HUC): A hierarchical coding system developed by the U.S. Geological Survey to identify geographic boundaries of watersheds of various sizes (12).

4th-code HUC refers a subbasin generally about 450,000 acres in size.

5th-code HUC refers to a watershed. These areas generally range from 40,000 to 250,000 acres in size.

6th-code HUC refers to a subwatershed HU that generally ranges from 10,000 to 40,000 acres in size.

I

impacts: Refer to effects.

Impact Analysis for Planning (IMPLAN) Model: A computer–based system used by the Forest Service for constructing input-output models to measure economic input. The system includes a database for all counties in the United States and a set of computer programs to retrieve data and perform the computational tasks for input-output analysis.

implement: To carry out.

indicator species: Refer to management indicator species.

indirect effects: Impacts on the environments that are caused by the action and are later in time or farther removed in distance but are still reasonably foreseeable.

inert ingredient: An ingredient deficient in active properties, lacking the usual or anticipated chemical or biological action.

infestation: The attack or invasion by parasites or pests.

infiltration: The process by which water seeps into the soil, influenced by soil texture, aspect, and vegetation cover.

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

INFISH: Regional Forester’s Amendment 4, Inland Native Fish Strategy (USDA Forest Service 1995). Interim strategies for managing fish–producing watersheds in Eastern Oregon and Washington, Idaho, Western Montana and portions of Nevada.

insecticide: A pesticide employed against insects.

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 questions with a common framework using consistent techniques and measurement units.

interagency: Involving the Forest Service, Bureau of Land Management, Fish and Wildlife Service, National Marine Fisheries Service, Environmental Protection Agency, and/or other Federal agencies.

interdisciplinary team: A group of specialists assembled as a cohesive team with frequent interactions to solve a problem or perform a task.

intermittent stream: A stream in which the flow of water on the surface is discontinuous, or that alternates between zones of surface and sub-surface flow.

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

invasive nonnative species: Are those animal and plant species with an extraordinary capacity for multiplication and spread at the expense of other native species. Plants in this category may or may not be designated as noxious weeds.

invasive plant species: Nonnative plant species that invade or are introduced into an environment or ecosystem in which they did not evolve where they have the ability to compete with, and at times overshadow, the existing native plant species. Invasive species are also likely to cause economic or environmental harm or harm to human health. Invasive species include seeds, eggs, spores, or other biological material capable of propagating that species, that is not native to that ecosystem (with respect to a particular ecosystem). Noxious weeds are a specific type of invasive plants that carry a legal designation due to their potential for detrimental impacts to the environment.

Inventoried roadless areas (IRAs): Those areas identified in the Land Management Plan and listed on a set of inventoried roadless area maps, contained in Forest Service Roadless Area Conservation, Final Environmental Impact Statement, Volume 2, (USDA Forest Service 2000), which are held at the Washington Office of the Forest Service, or any update, correction, or revision of those maps through the land management planning process.

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

irretrievable commitment: 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: Applies to nonrenewable 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, such as the loss of soil productivity.

issue: A point, matter of controversy, dispute, question of public discussion, or general concern over resource management activities or land uses to be addressed or decided through the planning

process. 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.

K

key habitat: Specific areas within the geographic area occupied by the species on which are found those physical and biological features 1) essential to the conservation of the species, and 2) which may require special management considerations or protection.

keystone species: A species whose presence and role within an ecosystem has a disproportionate on other organisms within the system.

L

ladder fuels: Vegetation located below the crown level of forest trees, which can carry fire from the forest floor to tree crowns. Ladder fuels may be low growing tree branches, shrubs, or smaller trees. Fire can move from surface fuels by convection into the crowns with relative ease.

landform: One of the attributes or features that make up the Earth's surface such as a plain, mountain, or valley, as defined by its particular combination of bedrock and soils, erosion processes, and climatic influences.

land and resource management plan or land management plan: A document that provides broad strategic guidance and information for project and activity decision making in a national forest through plan components (desired conditions, suitable uses, guidelines, special areas, and objectives), as required by the National Forest Management Act and the Planning Rule.

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 character: Identifiable image made by particular attributes, qualities, and traits of a landscape.

landscape ecology: The study of ecological effects to spatial patterns in ecosystems.

landscape-level/landscape-scale: Refer to broad-scale.

landscape pattern: Number, frequency, size and juxtaposition of landscape elements (stands and patches) that are important to the determination or interpretation of ecological processes.

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.

land-use allocation: The commitment of a given area of land or a resource to one or more specific uses--for example, to campgrounds or wilderness.

late/old structure: Forest stands whose structural development incorporates the elements of the late and the old structural stages. The understory species can be found in all canopy layers. Overstory vigor begins to decline, as does tolerance to native pathogens and insects. In the late stage, the understory has become the dominant cover and the overstory is beginning to decline and collapse. In the old stage, stands in which all of the relic (pioneering) trees have died and which consist entirely of trees that grew from beneath. These structural stages may or may not contain the various characteristics sometimes identified with old growth structure.

late seral: Refer to seral stages.

late spring season: Late spring is defined as that period when the key perennial cool season forage plant growth is still occurring but soil moisture is beginning to limit growth. Livestock removal is not planned to occur during the time when assurance can be made that essentially full regrowth would occur.

late successional: The stage of ecological succession and type of vegetation that develops after a long period of time following a stand-replacing disturbance.

legacy tree: Trees that have been spared or have survived stand replacing disturbances (Mazurek and Zielinski, 2004). A legacy tree is any live tree greater than or equal to 21 inches d.b.h. and greater than 150 years old, located in a non-old forest stand.

lethal (stand-replacing) fires: Fires that result in stand replacement of the existing forested vegetation. Mortality levels are very high at all canopy levels within the stand. 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.

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.

limits of acceptable change (LAC): Process for establishing acceptable resource and social conditions while defining desired future conditions for wilderness or recreation settings that can be measured and managed (USDA Forest Service 1992).

local population: A group of individuals that spawn or breed in a particular area; the smallest group of individuals that is known to represent an interacting reproductive unit.

loess: Fine grained wind-deposited material predominantly of silt-size particles.

long term: Generally refers to a period longer than 10 years up to 100 years.

long-term sustained-yield timber capacity: The highest uniform wood yield from lands being managed for timber production that may be sustained under a specified management intensity consistent with multiple-use objectives.

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: To continue; or keep 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.

major population group: A group of either salmon populations or group of steelhead populations that are geographically and genetically cohesive. The major population group is a level of organization between demographically independent populations and evolutionarily significant units or distinct population segments.

management area: An area with similar management objectives and a common management prescription, as prescribed by the land management plan.

management concern: An issue, problem, or a condition which constrains the range of management practices identified by the Forest Service in the planning process.

management direction: A statement of multiple-use and other goals and objectives, the associated management prescriptions, and standards and guidelines for attaining them.

management indicator species (MIS): In the original forest plans, a species selected because its welfare is presumed to be an indicator of the welfare of other species using the same habitat. A species whose condition can be used to assess the impacts of management actions on a particular area.

management intensity: A management practice or combination of management practices and associated costs designed to obtain different levels of goods and services.

management practice: A specific activity, measure, course of action, or treatment.

management prescription: Management practices and intensity selected and scheduled for application on a specific area to attain multiple-use and other goals and objectives.

mechanical equipment: Any contrivance which travels over ground, snow, or water on wheels, tracks, skids, or by flotation that is powered by a living source. This term does not include nonmotorized river craft, wheelchairs, or other similar devices used solely to assist persons with disabilities.

mechanical fuel treatment: Treatment of fuels using mechanical means, such as thinning by chainsaw, crushing down wood, or piling down wood.

mechanized: Wheeled forms of transportation (including nonmotorized carts, wheelbarrows, bicycles and any other nonmotorized, wheeled vehicle.

mesic: Pertaining to conditions of moderate moisture or water supply; used of organisms occupying moist habitats.

metapopulations: A group of conspecific populations coexisting in time but not space.

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.

migration corridor: The habitat pathway an animal uses to move from one place to another.

minerals-locatable: Those hardrock minerals that are mined and processed for the recovery of metals. They also may include certain nonmetallic minerals and uncommon varieties of mineral materials, such as valuable and distinctive deposits of limestone or silica.

minerals-leasable: Coal, oil, gas, phosphate, sodium, potassium, oil shale, sulphur, and geothermal resources.

minerals-materials (salable): A collective term to describe common varieties of sand, gravel, stone, pumice, pumicite, cinders, clay, and other similar materials. Common varieties do not include deposits of those materials that may be locatable.

minimum impact suppression tactics: A set of guidelines prescribing safety, fire line procedures, tools, and equipment that has the least impact on the environment during suppression and mop-up phases of fire (USDA and USDI 2003).

mining: Any activity related to the discovery, extraction, and exploration of minerals under the Mining Act of 1872 and the Mineral Leasing Act of 1920 through the use of, among other things, hydraulic equipment, pans, ground sluicing, sluice boxes, rockers, or suction dredges.

mining claim: A particular parcel of public land, valuable for a specific mineral deposit or deposits, for which an individual has asserted a right of possession. The right is for developing and extracting a discovered mineral deposit.

mining lands: Lands primarily used for mining purposes as of June 13, 1994 and which are assigned to the mining land category in 36 CFR 292.22 of the private land use regulations.

mitigation: Measures designed and implemented to counteract environmental impacts or to make impacts less severe.

mixed-severity fire: These fire regimes will have the greatest toll on thinner barked and/or young age classes within the stand. Low intensity fires within the stand will favor overstory fire-resistant species (ponderosa pine, western larch, and Douglas fir). Crown fire potential does exist depending on stand structures and age classes of different stand cohorts of any available ladder fuels. If it occurs, the result will favor the return to grass and forbs.

moist forest: Area between drier, low elevation forests and higher elevation, cold forests.

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.

monitoring program: Prioritized criteria, indicators, and measures that are the means of measuring progress toward the desired conditions when conducting the annual and comprehensive evaluations.

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

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.

motorized equipment: Any machine powered by a nonliving source. This term does not include motorized river craft or small hand-held devices such as flashlights, shavers, wristwatches, and Geiger counters.

multi-story: More than one canopy layer.

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 conditions.

municipal watersheds (public supply watersheds): A watershed that serves a public water system as defined in Public Law 93-523 (Safe Drinking Water Act) or as defined in state safe drinking water regulations. The definition does not include communities served by a well or confined groundwater unaffected by Forest Service activities.

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 to declare a national policy which will encourage productive and enjoyable harmony between humankind and the environment, to promote efforts which will prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of humanity, to enrich the understanding of the ecological systems and natural resources important to the nation, and to establish a Council on Environmental Quality.

National Forest Management Act (NFMA): A law passed in 1976 as an amendment to the Forest and Rangeland Renewable Resources Planning Act, requiring the preparation of forest plans and the preparation of regulations to guide that development.

National Forest System (NFS): All national forest lands reserved or withdrawn from the public domain of the United States; all national forest lands acquired through purchase, exchange, donation, or other means; the National Grasslands and land utilization projects administered under Title III of the Bankhead-Jones Farm Tenant Act (50 Stat. 525, 7 U.S.C. 1010-1012); and other lands, waters, or interests therein which are administered by the Forest Service or are designated for administration through the Forest Service as a part of the system.

National Forest System road: A classified forest road under the jurisdiction of the Forest Service. The term National Forest System roads is synonymous with the term forest development roads as used in 23 USC 205. Generally referred to as a Forest Road (FR).

National Recreation Trail: Trails designated by the Secretary of the Interior or the Secretary of Agriculture as part of the national system of trails authorized by the National Trails System Act. National recreation trails provide a variety of outdoor recreation uses.

National Register of Historic Places: A listing (maintained by the U.S. National Park Service) of areas that have been designated as being of historical significance. The Register includes places of local and state significance as well as those of value to the Nation.

National Wild and Scenic River System: Includes rivers with outstanding scenic, recreational, geological, fish and wildlife, historic, cultural or other similar values designated by Congress under the Wild and Scenic Rivers Act for preservation of their free-flowing condition. Refer to Wild and Scenic River.

native species: Species that normally live and thrive in a particular ecosystem. Animals or plants that have historically occupied a given aquatic or terrestrial area.

natural disturbance: Periodic impact of natural events such as: fire, severe drought, insect or disease attack, or wind.

near natural rates of recovery: Rates not exceeding condition thresholds and meeting standards for forage and browse utilization.

neotropical: Those species of birds that nest in the United States or Canada and winter regularly in the Neotropics (south of the Tropic of Cancer and Capricorn) in Mexico, the Caribbean Islands, or Central or South America. 2).

net public benefits: An expression used to signify the overall long- term value to the nation of all outputs and positive effects (benefits) less all associated inputs and negative effects (costs) whether they can be quantitatively valued or not. Net public benefits are measured by both quantitative and qualitative criteria rather than a single measure or index. The maximization of net public benefits to be derived from management of units of the National Forest System is consistent with the principles of multiple use and sustained yield.

niche: A place or activity for which a thing is best fitted.

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

nonfunctional: Riparian-wetland areas that clearly are not providing adequate vegetation, landform, or large woody debris to dissipate stream energy associated with high flows and not reducing erosion or improving water quality. The absence of certain physical attributes, such as a floodplain where one should be, is an indicator of nonfunctioning conditions (Process for Assessing Proper Functioning Condition, USDI BLM 1993).

nongame species: Those species of animals that are not managed as a sport hunting resource.

nonlethal fire: Fires that consist of low intensity under burns with limited single tree or group torching. Fire related mortality to the dominant-fire resistant species is slow, but occurs because of this type of localized fire behavior. 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).

nonnative invasive species (NNIS): Plant species that are introduced into an area in which they did not evolve and in which they usually have few or no natural enemies to limit their reproduction and spread. These species can cause environmental harm by significantly changing ecosystem composition, structure, or processes and can cause economic harm or harm to human health.

nonpoint source pollution: Pollution whose source is general rather than 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. It is widely used in reference to agricultural and related pollutants, such as production of sediments by logging operations, agricultural pesticide applications, or automobile exhaust pollution.

nontreaty bands: The five bands of Nez Perce whose traditional homes lay outside the reduced reservation boundaries described in the Treaty of 1863.

noxious weeds: Plants designated as noxious weeds by the Secretary of Agriculture or by the responsible state official. Noxious weeds generally possess one or more of the following characteristics: aggressive and difficult to manage, poisonous, toxic, parasitic, a carrier or host of serious insects or disease, and being native or new to or not common to the united states or parts thereof. A noxious weed is one that causes disease or has other adverse effects on the human

environment and therefore is detrimental to the agriculture and commerce of the United States and to the public health.

nutrient cycling: Ecological processes in which nutrients and elements such as carbon, phosphorous, nitrogen, calcium, and others, circulate among animals, plants, soils, and air.

O

objective: A concise, time-specific statement that describes the incremental progress expected to take place to meet goals (desired conditions) over the planning period with respect to estimated quantities of services and accomplishments. Objectives are projections of outcomes based on certain social, economic, and ecological indicators that measure the plans performance and identify specific opportunities and possible future proposals in terms of ongoing programs and future projects to support the goals for the planning area.

off-channel: Aquatic habitats separated from the main stream or river, such as side-channels, oxbows, ponds, or sloughs, which may or may not be directly connected to a river or stream.

off-highway vehicle (OHV): Any motor vehicle designed for or capable of cross-country travel on or immediately over land, water, sand, snow, ice, marsh, swampland, or other natural terrain.

old forest: Old forests are ecosystems distinguished by old trees and related structural attributes. Old forest encompasses the later stages of stand development that typically differ from earlier stages in a variety of characteristics which may include tree size, accumulation of large dead woody material, number of canopy layers, species composition, and ecosystem function.

old forest multistory (OFMS): This structure class includes multiple age classes and vegetation layers, along with large, old trees. Decaying fallen trees may also be present that leave a discontinuous overstory canopy. Overstory diameters are generally greater than 20 inches.

old forest single story (OFSS): This structure class can include multiple age classes, but generally only includes one main overstory strata. Large, old trees are common. Decaying fallen trees may also be present that leave a discontinuous overstory canopy. Overstory diameters are generally greater than 20 inches.

ongoing actions: Those actions that have been implemented, or have contracts awarded or permits issued. Refer to new actions.

openings: Refers to meadows, clearcuts, and other areas of vegetation that do not provide hiding or thermal cover.

operational plan: A document approved by the forest supervisor which specifies at the project level, implementation of the management direction established in the forest plan.

outcome: The long-term results of a program activity compared to its intended purpose (Government Performance and Results Act of 1993 (5 U.S.C. 306)). Outcome is a state of being similar to long-term ecological, social, or economic condition or goal (such as the maintenance of an ecosystem's biodiversity, jobs and income, or the quality of a regions' surface water as measured by indicators).

outdoor recreation activities: Activities such as camping, picnicking, rafting, boating, hiking, rock climbing, fishing, hunting, horseback riding, and the viewing of wildlife or scenery.

outfitting: Providing through rental or livery any saddle or pack animal, vehicle or boat, tents or camping gear, or similar supplies or equipment, for pecuniary remuneration or other gain. The

term guide includes the holder's employees, agents, and instructors. Pecuniary remuneration means monetary reward (Washington Office Amendment 2709.11-95-11, 41-53C).

outputs: A broad term for describing any result, product, service or concern that a system produces by its activities. They are measurable and capable of being used to determine the effectiveness of programs and activities in meeting objectives. The unit of measure should indicate or serve as a proxy for what the recipients get rather than what the agency does in the process of producing the given output. Example: timber sold, recreation use, livestock grazing use, etc. Any good, service, or on-site use that is produced from rural resources.

outslope: Roads that are sloped towards the downhill side of the roadway to better match the natural drainage patterns and minimize the potential for diversion.

outstandingly remarkable values: Term used in the Wild and Scenic Rivers Act of 1968; to qualify as outstandingly remarkable, a resource value must be a unique, rare, or exemplary feature that is significant at a regional or national level.

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.

over-snow vehicle: A self-propelled vehicle intended for travel primarily on snow driven by a track or tracks in contact with the snow, and steered by a ski, ski's or tracks in contact with the snow.

overstory: Portion of the trees, in a forest or in a forested stand of more than one story, forming the upper or uppermost canopy.

overwinter: To keep livestock or plants alive through the winter by sheltering them, or to be kept alive in this way.

P

PACFISH: Regional Forester's Amendment 3, Interim strategies for managing anadromous fish-producing watersheds in Eastern Oregon and Washington, Idaho, and portions of California (USDA and USDI 1995).

paleontological sites: Areas that contain any remains, trace, or imprint of a plant or animal that has been preserved in the earth's crust before the Holocene epoch.

parcel: Contiguous tax lots under one ownership. For the purposes of the Private LURs, rights-of-way do not divide parcels into smaller units.

particulate emissions: Solid particles or liquid droplets that can be suspended or carried in the air, or released as air contaminants into the outdoor atmosphere.

PM₁₀– Particulate matter that measures 10 micrometers in diameter or less, a size considered small enough to invade the alveolar regions of the lung. PM₁₀ is one of the six pollutants for which there are National Ambient Air Quality Standards.

PM_{2.5} – Particulate matter that measures 2.5 micrometers in diameter or less.

passive management: Allowing nature to restore (heal) the natural balance between erosion/deposition, hydrologic, and vegetation processes by removing identified adversely affecting agents.

patch: An area of vegetation that is relatively homogeneous internally and differs from surrounding elements.

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.

pesticide: A chemical preparation used to control individuals or populations of injurious organisms.

permittee (livestock): Any entity that has been issued a grazing permit.

phases: Plant communities or seral stages within a steady state connected to each other by community pathways.

plan amendment: The process for making substantive changes to a land management plan for the desired conditions, suitable uses, special areas, objectives and guidelines.

plan component: Parts of a national forest land and resource management plan that cannot be changed without a plan amendment analysis as required by the National Environmental Policy Act and the Planning Rule. The four components of a land management plan are suitable uses, special areas, objectives, and guidelines.

planning area: The area of the National Forest System covered by a regional guide or forest plan.

planning criteria: Criteria prepared to guide the planning process. Criteria applied to collection and use of inventory data and information, analysis of the management situation, and the design, formulation, and evaluation of alternatives.

planning horizon: The overall time period considered in the planning process that spans all activities covered in the analysis or plan and all future conditions and effects of proposed actions which would influence the planning decisions.

planning record: A written record of the land management plan revision process containing detailed information and analysis used support conclusions and decisions made in the plan.

plant associations: A plant community type based on the land management potential, successional patterns and species composition.

plant communities: Any grouping of plants that have some structural similarity (Johnson and Simon 1987).

plateau: Any comparatively flat area of great extent and elevation; specifically an extensive land region considerably more elevated above the adjacent country; it is commonly limited on at least one side by an abrupt descent.

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.

potential natural community: The biotic community that would become established if all successional sequences were completed without interference by humans under present environmental conditions. Natural disturbances are inherent in development.

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 types (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.

precommercial thinning: The removal of trees not for immediate financial return but to reduce stocking to concentrate growth on the more desirable trees.

prehistoric site: An area that contains important evidence and remains of the life and activities of early societies that did not record their history.

prescribed fire: Any fire ignited by management actions to meet specific objectives. Prescribed fire is intended to mimic natural fire regimes to: 1) reduce the risk of fires burning outside of historic intensities and severities that could substantially reduce long-term productivity; 2) maintain tree species compositions that occur under the natural disturbance regime; 3) reduce competition; 4) increase nutrients; 5) prepare sites for natural regeneration; 6) improve forage resources; 7) enhance/create wildlife habitat; and 8) protect private and public property values. A written, approved prescribed fire plan must exist, and NEPA requirements (where applicable) must be met, prior to ignition.

prescription: A management pathway to achieve a desired objective(s).

present net value (PNV): The difference between the discounted value (benefits) of all outputs to which monetary values or established market prices are assigned and the total discounted costs of managing the planning area.

primitive recreation: Those types of recreation activities associated with unroaded land, for example: hiking, backpacking, and cross-country travel.

private land: Land not in federal, state, or local government ownership.

productive capacity: The growth and accumulation of plant biomass (primary productivity) as well as the growth of animal species that use the products (secondary productivity). Key elements of productivity include the physical, chemical, and biological properties of soils which provide for vegetative growth and the accumulation and cycling of nutrients.

productivity: Productivity is based on using natural resources no faster than they are produced or can be replaced and using natural resources without impairment of the long-term productive capacity of the ecosystem from which they are derived.

programmatic agreement (PA): This is a historic preservation document that records the terms and conditions agreed upon to resolve the potential adverse effects of a Federal agency program, complex undertaking or other situations in accordance with the Section 106 review under NHPA [36CFR800.14(b)].

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; improve flood-water retention and ground water recharge; develops root masses that stabilize stream banks against cutting action; develops diverse ponding and channel characteristics to provide the habitat and water depths, duration, and temperature necessary for aquatic vertebrate and invertebrate production, waterfowl breeding, and other issues; and supports greater biodiversity. The functioning condition of riparian and wetland areas is a result of the interaction among geology, soil, water and vegetation.

project: An organized effort to achieve an objective identified by location, timing, activities, outputs, effects, and time period and responsibilities for executions.

project-level: Site-specific analysis and planning processes for a specific project or set of projects usually on an individual ranger district.

proposed action: A proposal by a federal agency to authorize, recommend, or implement a management action.

preliminary administratively recommended wilderness area (PARWA): An area that has been determined to meet the criteria to be designated as wilderness and is proposed in this land management plan by the forest supervisor(s) to be recommended to Congress for inclusion into the National Wilderness Preservation System.

public issue: A subject or question of widespread public interest relating to management of the National Forest System.

public roads: Any road or street under the jurisdiction of and maintained by a public authority and open to public travel (23 U.S.C. §101(a)).

Q

qualitative: Traits or characteristics that relate to quality and cannot be measured with numbers.

quality of life: Refers to the satisfaction people feel for the places where they live (or may visit) and for the places they occupy as part of that experience.

quantitative: Traits or characteristics that can be measured with numbers.

R

range forage condition: The current composition or productivity of rangeland relative to what that rangeland is capable of producing as a potential natural community, and often synonymous with forage condition.

range analysis: The systematic interpretation, analysis, and evaluation of data for rangeland resource management planning. It provides ecological and other information for overall forestland and resource management planning and allotment management planning.

rangeland (range): Lands where the vegetation is predominately grasses, grass-like plants, forbs, or shrubs. Rangelands include natural grasslands, shrublands, savannahs, tundra, most deserts, and riparian and wetland plant communities, including marshes and wet meadows, with greater than about 200 pounds of forage production per year per acre.

rangeland resources: The physical and biotic resources of rangeland ecosystems.

rangeland resource inventory: The systematic acquisition of inventory data that characterizes the vegetation, soil, and other rangeland resources.

rangeland vegetation: Vegetation on all land with rangeland resource objectives or rangeland resource values, including riparian areas. Generally, the focus is on land supporting grass or grass-like plants, forbs, or shrubs during one or more ecological stages. Forested and nonforested sites providing forage and habitat for wild and domestic animal species are included.

rare combinations of aquatic, terrestrial and atmospheric habitats: Principally reflect physical environmental features of the landscape that are produced from a unique combination of soils, climate, precipitation, and aspect. Refer to the analysis files for a complete description.

rare plants: Plants that are federally listed as threatened, endangered, or proposed for federal listing; Forest Service Sensitive for Regions 1, 4, and 6, or disjunct species. This includes plants considered rare both globally (G1, G2, G3) or within states (S1, S2 or S3). Refer to the analysis files for a complete description.

real dollar value: A monetary value which compensates for the effects of inflation.

rearing habitat: Area in rivers or streams where juvenile salmon and trout find food and shelter to live and grow.

receipt shares: The portion of receipts derived from Forest Service resource management that is distributed to State and county governments, such as the Forest Service 25 percent fund payments.

recontour: To move soil back (usually with mechanical or hand tools) to a previous condition thus making an area blend with the natural landscape.

record of decision (ROD): An official document separate from, but associated, with a final environmental impact statement in which a deciding official identifies all alternatives, and specifies which were environmentally preferable, states the decision, and states whether all practicable means to avoid environmental harm from the alternative have been adopted, and if not, why not (40 CFR 1505.2).

recovery plans: A plan for the survival and conservation of species listed under the Endangered Species Act. The Act [Section 4(f)] requires that recovery plans contain: 1) objectives, measurable goals for delisting; 2) a comprehensive list of the actions necessary to achieve the delisting goals; and 3) an estimate of the cost and time required to carry out those actions. In addition, NOAA Recovery Planning Guidelines suggest that recovery plans include an assessment of the factors that led to population declines and/or which are impeding recovery. Finally, it is important that the plans include a comprehensive monitoring and evaluation program for gauging the effectiveness of recovery measures and overall progress toward recovery (USDI 1988).

recreation: Leisure time activity such as swimming, picnicking, boating, hunting, and fishing.

developed recreation: Recreation that requires facilities that, in turn, result in concentrated use of an area. Examples of developed recreation areas are campgrounds and ski areas; facilities in these areas might include roads, parking lots, picnic tables, toilets, drinking water, ski lifts, and buildings.

dispersed recreation: A general term referring to recreation use outside developed recreation sites; this includes activities such as scenic driving, hiking, backpacking, hunting, fishing, snowmobiling, horseback riding, cross-country skiing, and recreation in primitive environments.

recreation opportunity: The availability of choices for users to participate in the recreational activities they prefer within the settings they prefer.

recreation opportunity spectrum: A recreation opportunity setting is the combination of physical, biological, social, and managerial conditions that give value to a place. Thus, an opportunity includes qualities provided by-nature (vegetation; landscape, topography, scenery), qualities associated with recreational use (levels and types of use), and conditions provided by management (developments, roads, regulations). By combining variations of these qualities and conditions, management can provide a variety of opportunities for recreationists. The settings, activities, and opportunities for obtaining experiences have been arranged along a continuum or

spectrum divided into six classes: primitive, semiprimitive nonmotorized, semiprimitive motorized, roaded natural, rural, and urban (40 CFR 1505.2).

primitive - Area is characterized by an essentially unmodified natural environment of fairly large size. Interaction between users is very low and evidence of other users is minimal. The area is managed to be essentially free from evidence of human-induced restrictions and controls. Motorized use within the area is not permitted.

semiprimitive nonmotorized – Area is characterized by a predominantly natural or natural appearing environment of moderate to large size. Interaction between users is low, but there is often evidence of other users. The area is managed in such a way that minimum on-site controls and restrictions may be present, but would be subtle. Motorized recreation use is not permitted, but local roads used for other resource management activities may be present on a limited basis. Use of such roads is restricted to minimize impacts on recreational experience opportunities.

semiprimitive motorized – Area is characterized by a predominantly natural or natural appearing environment of moderate to large size. Concentration of users is low, but there is often evidence of other users. The area is managed in such a way that minimum on-site controls and restrictions use of local primitive or collector roads with predominantly natural surfaces and trails suitable for motor bikes is permitted.

roaded natural -Area is characterized by predominantly natural-appearing environments with moderate evidence of the sights and sounds of man. Such evidence usually harmonizes with the natural environment. Interaction between users may be moderate to high, with evidence of other users prevalent. Resource modification and utilization practices are evident, but harmonize with the natural environment. Conventional motorized use is allowed and incorporated into construction standards and design of facilities

rural -Area is characterized by substantially modified natural environment. Resource modification and utilization practices are to enhance specific recreation activities and to maintain vegetative cover and soil. Sights and sounds of humans are readily evident, and the interaction between users is often moderate to high. A considerable number of facilities is designed for use by a large number of people. Facilities are often provided for special activities. Moderate densities are provided far away from developed sites. Facilities for intensified motorized use and parking are available.

urban - Area is characterized by a substantially urbanized environment, although the background may have natural appearing elements. Resource modification and utilization practices are to enhance specific recreation activities. Vegetative cover is often exotic and manicured. Sights and sounds of humans, on-site, are predominant. Large numbers of users can be expected, both on site and in nearby areas. Facilities for highly intensified motor use and parking are available with forms of mass transit often available to carry people throughout the site.

recreation residences: Privately owned recreation cabins authorized by special use permit on National Forest System land that occupy planned, approved tracts or those groups of tracts established for recreation residence use.

recreation site: Specific places in the forest other than roads and trails that are used for recreational activities. These sites include a wide range of recreational activities and associated development. These sites include highly developed facilities like ski areas, resorts, and campgrounds. It also includes dispersed recreation sites that have few or no improvements but show the effects of repeated recreation use.

recreation visit: An entry of one person to a recreation site or area of land or water for the purpose of participating in one or more recreation activities for an unspecified period.

recreational facilities: Refers to facilities associated with or required for outdoor recreational activities and includes, but are not limited to, parks, campgrounds, hunting and fishing lodges, and interpretive displays.

recreational river: Refer to Wild And Scenic River.

redd: Nest in gravel of stream bottom where a fish deposits eggs.

reforestation: Treatments or activities that help to regenerate stands of trees after disturbances such as timber 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).

regeneration harvest: A timber harvest by which a new age class is created by using clearcutting, seed tree, shelterwood, or selection methods.

regulations: Generally refers to the CFR, Title 36, chapter II, which covers management of the Forest Service.

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.

relic: Persistent remnants of formerly widespread fauna or flora species existing in certain isolated areas or habitats. The existence of an organism or species in an otherwise extinct taxon (phylum, order, family, genus, or species) from an earlier time that has survived in an environment that has undergone considerable change.

renewable energy: Energy derived from natural sources, such as sunlight, wind, rain, tides, or geothermal resources, that does not consume the resource when used.

research natural area (RNA): An area set aside by a public or private agency specifically to preserve a representative sample of an ecological community, primarily for scientific and educational purposes. In Forest Service usage, Research Natural Areas are areas designated to ensure representative samples of as many of the major naturally-occurring plant communities as possible.

resident fish: Fish that spend their entire life in freshwater; examples include bull trout and westslope cutthroat trout.

resource: Anything which is beneficial or useful, be it animal, vegetable, mineral, a location, a labor force, a view, an experience, etc. Resources, in the context of land use planning, thus vary from such commodities as timber and minerals to such amenities as scenery, scenic viewpoints, or recreation opportunities.

Resource Advisory Council (RAC): RACs were established by the BLM, under the Federal Advisory Committee Act to provide a forum for nonfederal partners to engage in discussion with agency managers regarding management of federal lands.

responsible official: The Forest Service employee who has the authority to select and/or carry out a specific planning action.

restoration: Restoration is the process of assisting the recovery of an ecosystem that has been degraded, damaged, or destroyed. It is an intentional activity that initiates or accelerates the recovery of an ecosystem with respect to its health, integrity, and sustainability. Restoration is an attempt to return an ecosystem to its historic trajectory, but not necessarily to a former state.

resource allocation: The action of apportioning the supply of a resource to specific uses or to particular persons or organizations.

riparian area: An area with distinctive soils and vegetation between a stream, or other body of water, and the adjacent upland area consisting of vegetation that requires free, or unbound, water for survival.

riparian-dependent species: Plant species that rely on free or unbound water for establishment and survival, and animal species that would normally occupy, or rely on, riparian habitats.

riparian management areas (RMAs): Portions of watershed where riparian-dependent resources receive primary emphasis and management activities are subject to specific standards and guidelines. Riparian management areas include traditional riparian corridors, wetlands, intermittent headwater streams, and other areas where proper ecological functioning is crucial to maintenance of the streams' water, sediment, woody debris, and nutrient delivery system.

fish-bearing streams: Riparian management areas consist of the stream and the area on each side of the stream extending from the edges of the active stream channel to the top of the inner gorge, or to the outer edges of the 100-year floodplain, or to the outer edges of riparian vegetation, or to a distance equal to the height of two site-potential trees, or 300 feet slope distance (600 feet total, including both sides of the stream channel), whichever is greatest. In degraded or incised streams, the riparian management area should extend from the edge of the active channel to the outer extent of the former floodplain. It is expected that riparian management area widths along fish-bearing streams will not be less than described here.

permanently flowing non-fish-bearing streams: Riparian management areas consist of the stream and the area on each side of the stream extending from the edges of the active stream channel to the top of the inner gorge, or to the outer edges of the 100-year floodplain, or to the outer edges of riparian vegetation, or to a distance equal to the height of one site-potential tree, or 150 feet slope distance (300 feet total, including both sides of the stream channel), whichever is greatest. In degraded or incised streams, the riparian management area should extend from the water's edge to the outer extent of the former floodplain.

constructed ponds and reservoirs, and wetlands greater than 1 acre: Riparian management areas consist of the body of water or wetland and: the area to the outer edges of the riparian vegetation, or to the extent of seasonally saturated soil, or the extent of unstable and potentially unstable areas, or to a distance equal to the height of one site-potential tree, or 150 feet slope distance from the edge of the wetland greater than 1 acre or the maximum pool elevation of constructed ponds and reservoirs, whichever is greatest.

lakes and natural ponds: Riparian management areas consist of the body of water and the area to the outer edges of the riparian vegetation, or to the extent of seasonally saturated soil, or to the extent of unstable and potentially unstable areas, or to a distance equal to the height of two site-potential trees, or 300 feet slope distance, whichever is greatest.

seasonally flowing or intermittent streams, wetlands, seeps and springs less than 1 acre, and unstable and potentially unstable areas: This category applies to features with high

variability in size and site-specific characteristics. At a minimum, the riparian management areas should include:

- ◆ The extent of unstable and potentially unstable areas (including earthflows).
- ◆ The stream channel and extend to the top of the inner gorge, or in incised streams, to the edge of the former floodplain.
- ◆ The stream channel or wetland and the area from the edges of the stream channel or wetland to the outer edges of the riparian vegetation, extending from the edges of the stream channel to a distance equal to the height of one site-potential tree, or 100 feet slope distance, whichever is greatest. A site-potential tree height is the average maximum height of the tallest dominant trees for a given site class.
- ◆ Intermittent streams are defined as any nonpermanent flowing drainage feature having a definable channel and evidence of annual scour or deposition. This includes what are sometimes referred to as ephemeral streams if they meet these two physical criteria. Including intermittent streams, springs, and wetlands within riparian management areas is important for full implementation of the ARCS. Accurate identification of these features is critical to the correct implementation of the strategy and protection of the intermittent stream and wetland functions and processes. Identification of these features is difficult at times due to the lack of surface water or wet soils during dry periods. Fish-bearing intermittent streams are distinguished from non-fish-bearing intermittent streams by the presence of any species of fish for any duration. Many intermittent streams may be used as spawning and rearing streams, refuge areas during flood events in larger rivers and streams or travel routes for fish emigrating from lakes. In these instances, the guidelines for fish-bearing streams would apply to those sections of the intermittent stream used by the fish.

risk factors: Land-use disturbances that are negatively affecting watershed functions and processes and stream-riparian environments.

riverine: On or near the banks of a river; riparian.

road: A motor vehicle route over 50 inches wide, unless designated and managed as a trail. A road may be classified, unclassified, or temporary (36 CFR 212.1).

classified roads: Roads wholly or partially within or adjacent to national forest lands that are determined to be needed for long-term motor vehicle access, including state roads, county roads, privately owned roads, forest roads, and other roads authorized by the Forest Service (36 CFR 212.1).

closed road: A road with all use suspended year-long by an active form of facility management utilizing regulations and appropriate enforcement to secure and ensure user compliance with closure.

open road: A road that has no use restrictions or regulations imposed and is available for use by vehicles at any time during the year.

temporary roads: Roads authorized by contract, permit, lease, other written authorization, or emergency operation not intended to be a part of the forest transportation system and not necessary for long-term resource management (36 CFR 212.1).

unclassified roads: Roads on national forest lands that are not managed as part of the forest transportation system, such as unplanned roads, abandoned travel ways, and off-road vehicle tracks that have not been designated and managed as a trail; and those roads that were once

under permit or other authorization and were not decommissioned upon the termination of the authorization (36 CFR 212.1).

road construction: Activity that results in the addition of forest classified or temporary road miles (36 CFR 212.1). New construction activities may include vegetation clearing and grubbing, earthwork, drainage installation, instream activities, pit development or expansion, surfacing (including paving), and aggregate placement.

road decommissioning: Activities that result in the stabilization and restoration of unneeded roads to a more natural state (36 CFR 212.1, FSM 7703). Road decommissioning activities include revegetation, recontouring, water barring, roadbed scarification or ripping, culvert removal, berm construction, and side cast pullback.

road density: An indicator of the concentration of roads in an area.

road maintenance: The ongoing upkeep of a road necessary to retain or restore the road to the approved road management objective.

road maintenance levels (MLs): Maintenance levels define the level of service provided by, and maintenance required for, a specific road. Maintenance levels must be consistent with road management objectives and maintenance criteria. Roads assigned to MLs 2 through 5 are either constant service roads or intermittent service roads during the time they are open to traffic.

Level 1: Assigned to intermittent service roads during the times they are closed to vehicular traffic. The closure period must exceed 1 year. Basic custodial maintenance is performed to keep damage to adjacent resources to acceptable levels and to perpetuate the road to facilitate future management activities. Emphasis is normally given to maintaining drainage facilities and runoff patterns. Planned road deterioration may occur at this level. Appropriate traffic management strategies are prohibit and eliminate.

Roads receiving ML 1 maintenance may be of any type, class, or construction standard, and may be managed at any other maintenance level during the time they are open for traffic. However, while being maintained at ML 1, they are closed to vehicular traffic, subject to prohibitions and restrictions, and may be available and suitable for nonmotorized users.

ML 1 maintenance activities include road condition surveys, evaluation, and monitoring of maintenance needs. Activities include limited equipment operation, opening closed roads, manual cleaning of drainage structures, and vegetation management that stabilizes or reduces erosion. Repairs are scheduled and completed within funding limitations when critical resource damage is reported.

Roadway activities including blading, clearing logs, and noncritical repairs that can be delayed are accomplished when the road is placed in an active status.

Level 2: Assigned to roads open for use by high-clearance vehicles. Providing access for passenger cars is not a consideration. Traffic is normally minor, usually consisting of administrative, permitted, dispersed recreation, and/or other specialized uses. Log hauling may occur. Appropriate traffic management strategies are either to discourage or prohibit passenger cars or to accept or discourage high-clearance vehicles.

ML 2 maintenance activities include roadside brushing, hazard-tree removal, surface blading, drainage maintenance, structure maintenance, clearing logs, slide and slip cleanup and repair, sign maintenance and surface replacement. Drainage function and soil stabilization are of prime importance. Many roads in this category have grass in the travel way. User comfort is not a consideration.

Level 3: Assigned to roads open and maintained for travel by prudent drivers in standard passenger cars. User comfort and convenience are not considered priorities.

Roads in this maintenance level are typically low-speed, single-lane, with turnouts and spot surfacing. Some roads may be fully surfaced with either native or processed material. Appropriate traffic management strategies are encourage or accept. Discourage or prohibit strategies may be employed for certain classes of vehicles or users.

ML 3 maintenance activities include roadside brushing, hazard-tree removal, surface blading, drainage maintenance, structure maintenance, clearing logs, slide and slip cleanup and repair, sign maintenance and surface replacement. Drainage function and soil stabilization are of prime importance. Dust abatement and more frequent blading may be needed on segments of multi-purpose roads.

Level 4: Assigned to roads that provide a moderate degree of user comfort and convenience at moderate travel speeds. Most roads are double-lane and aggregate-surfaced. However, some roads may be single-lane. Some roads may be paved and/or dust abated. The most appropriate traffic-management strategy is encourage. However, the prohibit strategy may apply to specific classes of vehicles or users at certain times.

ML 4 maintenance activities include roadside brushing, hazard tree removal, surface blading, drainage maintenance, structure maintenance, clearing logs, slide and slip cleanup and repair, sign maintenance and surface replacement. Drainage function and soil stabilization are of prime importance. Dust abatement and more frequent blading may be needed on segments of multi-purpose roads.

Level 5: Assigned to roads that provide a high degree of user comfort and convenience. These roads are normally double lane, paved. Some may be aggregate-surfaced and dust-abated. The appropriate traffic management strategy is encourage.

ML 5 maintenance activities include roadside brushing, hazard-tree removal, surface blading, drainage maintenance, structure maintenance, logging out, slide and slip cleanup and repair, sign maintenance and surfacing replacement. Drainage function and soil stabilization are of prime importance. Dust abatement and more frequent blading may be needed on segments of multi-purpose roads. All of the ML 5 roads within a national forest have a permanent (paved) surface.

road management objectives: Road management objectives define the level of service provided by a National Forest System road consistent with the surrounding recreation opportunity spectrum (ROS) class.

semi-primitive nonmotorized (SPNM): Most semi-primitive nonmotorized areas do not have developed roads. All motorized traffic is prohibited. Semi-primitive nonmotorized roads provide hiking or equestrian trails on closed or decommissioned roads.

semi-primitive motorized (SPM): Semi-primitive motorized roads are generally used for four-wheel drive, logging, or ranching activities. Passenger-car use is discouraged by entrance conditions or signage. Users can expect SPM roads where there are no attractions such as viewpoints or trailheads.

- ◆ **low-level SPM:** Native surface roads suitable for high-clearance vehicles but not passenger cars or vehicles towing trailers. Users may need to back vehicles for long distances when meeting oncoming traffic. Maintenance activities occur usually every five years or when resource needs are identified. Roads are allowed to “brush in” and users are responsible for removing trees blocking the road. Ruts and potholes are accepted if

they do not contribute to sediment loading. Corresponds to road ML 2 and Traffic Service Level D (abbreviated: 2-D).

- ◆ **high-level SPM:** Single-lane native surface road or road surfaced with spot rock, strip rock or pit run material suitable for high-clearance vehicles. The road may have infrequent turnouts. Pit run material is applied to the road surface, but is not grid rolled, leaving a rough, rocky surface that drains well and discourages passenger car use. User maintenance is the same as for the low-level SPM. This standard meets resource and safety needs and is the minimum standard for accessing attractions such as viewpoints or trailheads. Maintaining current road alignment, road surface type, and corridor width are emphasized. Corresponds to ML 2 and Traffic Service Level C (abbreviated: 2-C).

roaded natural (RN): Roaded natural roads provide safe access for passenger cars. Maintenance activities generally occur annually or every two years, depending on funding and need. Forest Service clears these roads of brush and logs. Surface maintenance increases at higher levels. Because of increased speeds, turnouts are needed more frequently. Open local roads and some collector roads within RN are managed for high-clearance vehicles. In such cases, road-maintenance standards defined for SPM would be used.

- ◆ **low-level RN:** Road-surface type of either native or base course. Pit-run material is processed to provide a rough but suitable service for passenger cars. Dust increases during dry conditions, and the road provides good resource protection when wet. Corresponds to road Maintenance Level 3 and Traffic Service Level C (abbreviated: 3-C).
- ◆ **medium-level RN:** Road-surface type of crushed aggregate, maintained for passenger cars. Usually maintained annually, surfaces may “washboard” and become dusty with increased use. Corresponds to road Maintenance Level 3 and Traffic Service Level C or B (abbreviated: 3-C or 3-B).
- ◆ **high-level RN:** Road-surface type of an aggregate that has been dust-abated or treated with soil or silicone stabilizers, or asphalt emulsions. A dust-free, smooth surface for passenger cars is the desired product. This standard is often applied to provide double-lane access to attractions such as viewpoints or campgrounds. Corresponds to road Maintenance Level 4 and Traffic Service Level B or A (abbreviated: 4-B or 4-A).

rural (R): Rural is generally the highest standard of road. These arterial roads provide the main access to the national forest lands but generally lack the speeds and alignment provided by state highways. Roads are double-lane with a road-surface treatment and generally 24-feet wide. The road has center striping and often stripes marking the shoulders. Corresponds to a road Maintenance Level 5 and Traffic Service Level A (abbreviated: 5-A).

road prism: an area consisting of the road surfaces and any cut slope and road fill.

road reconstruction: Activity that results in improvement or realignment of an existing classified road as defined below. Reconstruction activities may include vegetation clearing and grubbing, earthwork, drainage installation, instream activities, surfacing (including paving), and aggregate placement.

road improvement: Activity that results in an increase of an existing road’s traffic service level, expands its capacity, or changes its original design function.

road realignment: Activity that results in a new location of an existing road or portions of an existing road and treatment of the old roadway (36 CFR 212.1).

road restoration: Road restoration activities are commensurate with the assigned maintenance level and include storm proofing, bridge replacement, installation of drainage dips and water bars, culvert installation and upgrade, surface shaping, and draining, surface material processing. Refer to road maintenance.

road spur: A dead-end road, usually with a length of 0.5 miles or less.

roads subject to the Highway Safety Act: National Forest System roads open to use by the public for standard passenger cars. This includes roads with access restricted on a seasonal basis and roads closed during extreme weather conditions or for emergencies, but which are otherwise open for general public use.

road surface types:

asphalt/concrete: A well-graded aggregate and asphalt cement.

aggregate: Stone, slag, gravel, or any other hard, inert, mineral material meeting certain specified quality requirements for use in a road pavement or surfacing structure.

chip seal: A road surface treatment consisting of one or more spray applications of asphalt followed immediately by an application of aggregate (chips) on a paved surface.

grid-rolled: Aggregate consisting of native materials of a quality that can be taken directly from a given source, without crushing or screening, and broken down to a specified maximum dimension on the road by grid-rolling.

paved: One or more bituminous bound layers of aggregate placed on a prepared road foundation.

pit run: Aggregate consisting of native materials from a given source with a maximum size and grading suitable for placing directly on a road without crushing or screening.

native surface: A road surface consisting of soil or aggregate materials naturally existing at the road location.

spot rock: Aggregate placed on a road as a pavement or surfacing structure in designated areas that are not continuous throughout the entire length of the road.

strip rock: Aggregate placed on a road as a surfacing structure in designated areas or portions of a road greater than 200 feet in length but not continuous throughout the entire length of the road.

surface treated: One or more applications of asphalt or other processed or natural materials to a road surface to provide traction, abate dust, protect, or renew the surface without increasing pavement structural capacity. Surface treatment is commensurate with existing surface.

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

S

sale schedule: The quantity of timber planned for sale by time period from an area of suitable land covered by a forest plan. The first period, usually a decade, of the selected sale schedule provides the allowable sale quantity. Future periods are shown to establish that long-term sustained yield will be achieved and maintained.

salmonids: Fishes of the family Salmonidae, including salmon, trout, chars, whitefish, ciscoes, and grayling.

salvage harvest: Harvest of trees that are dead, dying, or deteriorating due to fire, wind, insect or other damage, or disease.

sanitation harvest: Sanitation cuttings involve the elimination of trees that have been attacked or appear in imminent danger of attack by dangerous insects and fungi in order to prevent these pests from spreading to other trees. Sanitation cuttings differ from other forms of salvage cuttings only to the extent that they are combined with or represent precautions to reduce the spread of damaging organisms to the residual stands. They may also be undertaken in anticipation of attack in attempts to forestall the establishment of damaging organisms. They can be and usually are combined with salvage cuttings.

satisfactory condition: A condition in which the soil is adequately protected and the forage species composition and production meets the land management plan objectives or the trend in forage species composition and production is acceptable.

savannah: The transitional biome between grassland and desert or desert and rainforest, typically having drought resistant vegetation dominated by grasses with scattered tall trees.

scabland: A region characterized by elevated tracts of rocky ground with little or no soil cover.

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.

scenery management system (SMS): The SMS is the method that was adopted after the forest plan was completed in 1990. The SMS utilizes two indicators to determine desired landscape character: ecological landscape integrity and scenic integrity. Ecological landscape integrity evaluates whether the landscape is managed in a sustainable and ecologically sound manner. Scenic integrity evaluates whether the landscape character is being managed in a way that conserves constituent values in terms of the level of human-caused deviations that are acceptable to the public (USDA Forest Service 1993 SMS HANDBOOK).

scenic area: Places of outstanding or matchless beauty that require special management to preserve these qualities. They may be established under 36 CFR 294.1 whenever lands possessing outstanding or unique natural beauty warrant this classification.

scenic class: Scenic class indicates the importance or value of a particular landscape determined by constituent information.

scenic identity: The scenic image and identity is the landscape character of an area. The landscape character identifies the “ideal” or optimal set of valued scenery attributes and describes the setting provided by these scenery attributes within each biophysical setting. It is important to understanding of the process, structure, and functions that support the valued set of scenery attributes. This understanding helps identify conditions and stressors that put scenery resources at risk.

scenic integrity level: Measures the degree to which a landscape is free from visible disturbances that detract from the natural or socially valued appearance. Scenic integrity objectives establish the desired level of scenic integrity for an area. Scenic stability measures the degree to which the valued landscape character and its scenery attributes can be sustained through time and ecological progression. Scenic stability objectives establish the desired level of scenic stability for a particular area. It is used to describe an existing situation, an objective for management, or desired conditions.

very high scenic integrity: Scenery with fully intact landscape features and scenic compositions presenting the optimal landscape character in complete harmony, with very minute, if any, scenic discordance. Due to the optimal scenic integrity of the physical, biological, and cultural features in these scenic compositions, the landscape character and sense of place are expressed at the highest possible level. Very high scenic integrity is most compatible with wilderness, backcountry, biophysical, or cultural preserves, and other special classification areas.

high scenic integrity: Scenery with whole or nearly intact landscape features and scenic compositions that present the optimal landscape character completely or nearly in full, and contain scenic discordances that are not evident.

moderately high scenic integrity: Scenery with slightly altered landscape features and compositions in which the valued landscape character is the dominant scenic impression, yet minor discordance is apparent, but visually subordinate. The “moderate” level of scenic integrity in the Scenery Management Handbook has been split into two categories to reflect more accurately the scenic conditions on the in the Blue Mountains.

moderately low scenic integrity: Scenery with altered landscape features and compositions that display a beginning dominance of valued landscape character expression and readily noticeable discordance.

low scenic integrity: Scenery with obviously altered landscape features and compositions that dominate yet still express some aspects of valued landscape character. The scenic harmony of the valued landscape character is seriously fragmented and barely restorable within reasonable periods and resource expenditures.

very low scenic integrity: Scenery with extremely altered landscape features and composition that no longer sustains significant aspects of valued landscape character. The scenic harmony of the optimal landscape character does not exist and its restoration may be impossible if not unrealistic.

scenic integrity objective: An established goal for the management of the scenic resource applied to a specific portion of the forest.

scenic river areas: Refer to Wild and Scenic River.

scenic river: Refer to Wild and Scenic River.

science consistency review: Certification that the revised forest plan takes into account the best available science as required by the 2005 Planning Rule.

scoping process: A part of the NEPA process; the early stages of preparation of an environmental impact statement, early and open activities used to solicit public opinion, receive comments and suggestions, and determine the scope and significance of the issues to be considered in the development and analysis of a range of actions, alternatives, and impacts to be considered. Scoping may involve public meetings, telephone conversations, mailings, letters, or other contacts (40 CFR 1501.7).

screening: The reduction or elimination of the visual impact of any structure or land modification as seen from any public travel route within the national forests.

security: An area where wildlife, such as elk, retreat to for safety when disturbance in their usual range is intensified, such as by logging activities or during the hunting season. To qualify as a security area for elk there must be 250 contiguous acres that are more than one-half mile from open roads.

secondary productivity: The growth of animal species that use the products derived from The growth and accumulation of plant biomass (primary productivity).

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.

sediment regime: The rate, frequency, magnitude, and duration of sediment movement. Refer to flow regime.

selective cutting: Single-tree or group-selection cutting is the periodic removal of trees individually or in small groups from an uneven-aged forest in order to maintain diverse stands, with the sustainability and improvement of the forest using an ecosystem approach to management being a primary consideration.

self-reliance: Reliance on one's own capabilities, judgment, or resources through application of outdoor skills in an environment that offers a high degree of risk and challenge.

self-sustaining populations: Populations that are sufficiently abundant, interacting, and well-distributed in the plan area, within the bounds of their life history and distribution of the species and the capability of the landscape, to provide for their long-term persistence, resilience and adaptability over multiple generations.

sense of place: A reference for the physical, emotional, cultural, symbolic, and spiritual aspects of people's tangible and intangible relationships with the land and the meanings associated with them.

sensitive soils: Forest land areas that have a moderate to very high hazard for soil compaction. Erosion, displacement, mass wasting, or forest floor displacement.

sensitive species: Plant or animal species identified by a regional forester for which population viability is a concern either: 1) because of significant current or predicted downward trends in population numbers or density; or 2) because of significant current or predicted downward trends in habitat capability that would reduce a species' existing distribution. Those species that have appeared in the Federal Register as proposed for classification or are under consideration for official listing as endangered or threatened species, that are on an official state list, or that are recognized by the regional forester as needing special management to prevent placement on federal or state lists.

seral: Refers to the stages that plant communities go through during the progression in structure and composition over time. Development stages have characteristic structure and plant species composition. See succession for definitions of different seral 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.

shelterwood: The cutting of most trees, leaving those needed to produce sufficient shade to produce a new age class in a moderated microenvironment.

shrubland: Area of land where the potential vegetation is dominated by shrubs.

short term: Generally refers to a period of 10 years or less.

silvicultural system: A management process whereby forests are tended, harvested, and replaced, resulting in a forest of distinctive form. Systems are classified according to the method of carrying out the fellings that remove the mature crop and provide for regeneration and according to the type of forest thereby produced.

single-story: Vegetation with a single canopy layer.

site: (1) A specific location of an activity or project, such as a campground, a lake, or a stand of trees to be harvested; (2) The location of a significant event, a prehistoric or historic occupation or activity, or a building or structure, whether standing, ruined or vanished, where the location itself maintains historical or archeological value regardless of the value of any existing structure [36CFR65] (historic or archaeological definition).

site-potential tree: The average maximum height of the tallest trees for a given site class.

snag: A standing dead tree usually greater than five feet in height and six inches in diameter at breast height (d.b.h.).

social well-being: A condition that enables citizens, communities, and visitors to contribute to their wellness, values and quality of life.

society: A group of people who have a common homeland, are interdependent, and share a common culture.

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 function: The characteristic physical and biological activity of soils that influences productivity, capability, and resiliency.

soil productivity: The inherent 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). It is often expressed by some measure of biomass accumulation.

soil quality: The capacity of a soil to function within ecosystem boundaries to sustain biological productivity, maintain environmental quality, and promote plant and animal health.

soil stability: (1) Mass stability of the soil profile or resistance to mass failure; (2) stability of the soil surface with respect to accelerated sheet, rill, and gully erosion processes.

soil surveys: All soil surveys are made by examining, describing, and classifying soils in the field and delineating their areas on maps. The map scale for field mapping must be large enough to allow areas of minimum size to be delineated legibly. Recognition of the different soil survey levels is helpful for communicating about soil surveys and maps, even though the levels cannot be sharply separated from each other. The order of a survey is consequence of field procedures, the minimum size of delineation, and the kinds of map units that are used.

Order I Surveys: Are for very intensive land uses requiring very detailed information about soils, generally in small areas. The information can be used in planning for irrigation, drainage, truck crops, citrus or other specialty crops, experimental plots, individual building sites, and other uses that require a detailed and very precise knowledge of the soils and their variability.

Order II Surveys: Are for intensive land uses that require detailed information about soil resources for making predictions of suitability for use and of treatment needs. The

information can be used in planning for general agriculture, construction, urban development, and similar uses that require precise knowledge of the soils and their variability.

Order III Surveys: Are for land uses that do not require precise knowledge of small areas or detailed soils information. Such survey areas are usually dominated by a single land use and have few subordinate uses. The information can be used in planning for range, forest, recreational areas, and in community planning.

Order IV Surveys: Are for extensive land uses that need general soil information for broad statements concerning land-use potential and general land management. The information can be used in locating, comparing, and selecting suitable areas for major kinds of land use, in regional land-use planning, and in selecting areas for more intensive study and investigation.

Order V Surveys: Collect soils information in very large areas at a level of detail suitable for planning regional land use and interpreting information at a high level of generalization. The primary use of this information is selection of areas for more intensive study.

solid waste: Discarded solid waste materials resulting from mining, industrial, commercial, agricultural, silvicultural, and community activities. Does not include domestic sewage or pollutants such as silt, or dissolved materials in irrigation return flows.

source habitat: Habitat in such conditions that result in a positive or increasing population growth for a particular species. 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 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 FEIS, and provide the range of vegetation conditions required by these species for food, reproduction, and other needs (Wisdom et al. 2000).

spatial: Related to or having the nature of space.

special habitat: A habitat which has a special function not provided by plant communities and successional stages. Includes riparian zones, snags, dead and downed wood, and edges (Thomas 1979).

specially designated areas: Also referred to as special areas and is one of the plan components. Areas designated because of their unique or special characteristics, such as botanical areas or areas designated by stature or administrative processes such as wilderness, wild and scenic rivers, or research natural areas.

special use authorization: A permit, term permit lease, or easement which allows occupancy, use, rights, or privileges of national forest lands (36 CFR 251.51).

special use permit: A special authorization which provides permission without conveying any interest in land, to occupy and use national forest land or facilities for specified purpose, and which is revocable, terminable and noncompensable.

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

species composition: The species that occur on a site or in a successional stage of a plant community (Thomas 1979).

species diversity: The number of species occurring in a given area.

species of concern: Species for which management actions may be necessary to prevent listing under the Endangered Species Act. Criteria for selection as a species of concern include:

- Identified as candidate and proposed for listing under the Endangered Species Act.
- Has a G1 to G3 NatureServe ranking.
- Intraspecific taxa with NatureServe ranking of T1 to T3.
- Has been petitioned for listing under the Endangered Species Act.

sprouter: Flora capable of vegetative reproduction from roots or stems.

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.

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 initiation (SI): Stand conditions that arise following a stand-replacing disturbance such as wildfire or timber harvest. Colonizers disperse seed into disturbed areas, the seed germinates, and new seedlings establish and develop. A single canopy stratum of tree seedlings and saplings is present. Average tree diameters are generally less than five inches.

stand-replacement fire: A fire severity classification where at least 75 percent replacement of the upper layer of vegetation is removed.

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.

standard: A standard is a mandatory constraint on project and activity decision making, established to help achieve or maintain the desired condition or conditions, to avoid or mitigate undesirable effects, or to meet applicable legal requirements.

state and transition model: Nonequilibrium ecological model to describe vegetation dynamics of rangeland sites as adopted by the Natural Resource Conservation Service. Models recognize multiple steady states of vegetation and emphasize disturbance processes.

strategy: Part two of a land management plan that explains the suitable uses and includes the special designated areas, and management categories.

stream channel: Refer to channel.

stream class: Classification of streams based on the present and foreseeable uses made of the water and the potential effects of on-site changes in downstream uses. Four classes are defined as:

class I: Perennial or intermittent streams that provide a source of water for domestic use; are used by large numbers of anadromous fish or significant sports fish for spawning, rearing, or migration; and/or are major tributaries to the other Class I streams.

class II: Perennial or intermittent streams that are used by fish for spawning, rearing, or migration; and/or may be tributaries to Class I streams or other Class II streams.

class III: Other perennial streams not meeting higher-class criteria.

class IV: Other intermittent streams not meeting higher class criteria.

stem exclusion: The stage created when vigorous, fast growing trees occupy the growing space. Establishment of new trees is precluded by a lack of sunlight or moisture. This stage could be maintained by thinning or fire. Stands only have one dominant layer. Average tree diameters range from 5 to 20 inches.

stringers: Relatively narrow areas suitable to be occupied by forested plant associations within a landscape that is otherwise unsuitable due to site or environmental factors.

stronghold: Directly associated with strong populations. For native fish, strong populations have stable numbers or are increasing, and all major life history forms that historically occurred within the watershed are present.

stocking level: The ratio of the current stand density to an assumed ideal level of stand density.

structure: (1) Any permanent building or facility, or part thereof such as barns, outhouses, residences, and storage sheds including transmission line systems, substations, commercial radio transmitters, relays or repeater stations, antennas, and other electronic sites and associated structures; or (2) the size and arrangement of vegetation, both vertically and horizontally.

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 HUC watershed.

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

subwatershed: A drainage area of approximately 20,000 acres, equivalent to a 6th-field HUC (12 digit). Hierarchically, subwatersheds (6th field HUC) are contained within watersheds (5th field HUC, which in turn are contained within a subbasin (4th field HUC).

succession: The sequential replacement over time of one plant community by another, in the absence of major disturbance. Conditions of the prior plant community or successional stage create conditions that are favorable for the establishment of the next stage. The different stages of succession are often referred to as seral stages. Developmental stages are as follows:

early seral: Communities that occur early in the successional path and generally have less complex structural development than other successional communities. Seedling and sapling size classes are an example of early seral forests.

mid-seral: Communities that occur in the middle of the successional path. For forests, this usually corresponds to the pole or medium sawtimber growth stages.

late-seral: Communities that occur in the later stage of the successional path with mature, generally larger individuals, such as mature forests.

suitable habitat: Habitat that currently has both the fixed and variable stand attributes for a given species habitat requirements. Variable attributes change over time and may include seral stage, cover type and overstory canopy cover.

suitability: The appropriateness of applying certain resource management practices to a particular area of land, as determined by an analysis of the economic and environmental

consequences and the alternative uses foregone. A unit of land may be suitable for a variety of individual or combined management practices.

suitable uses: Uses that are compatible with the desired conditions and objectives for a given area which are identified as guidance for project and activity decision making and do not represent a commitment or final decision approving projects or activities.

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.

surface water development: The practice of diverting or impounding surface water sources by the construction of dams, diversions, canals, or ditches for use, such as irrigation, livestock watering, and human consumption.

sustainability: Meeting needs of the present generation without compromising the ability of future generations to meet their needs. Sustainability is composed of desirable social, economic, and ecological conditions or trends interacting at varying spatial and temporal scales, embodying the principles of multiple-use and sustained-yield (FSM 1905).

sustained-yield of products and services: The achievement and maintenance in perpetuity of a high-level annual or regular periodic output of the various renewable resources of the National Forest System without impairment of the productivity of the land.

sustainability framework: A frame of reference used within this land management plan to organize and integrate social, ecological, and economic parts of the plan with the people and places on the national forests.

T

talus: A slope formed by the accumulation of rock debris at the base of a cliff.

temporal: Related to time.

terrestrial: Pertaining to the land.

terrestrial wildlife: Wildlife species that dwell primarily on land (Thomas 1979).

thermal cover: Cover used by animals to ameliorate effects of weather; for elk, a stand of coniferous trees 40 feet or more tall with an average crown closure of 70 percent or more, for deer, cover may include saplings, shrubs, or trees at least five feet tall with 75 percent crown closure.

thermal regulation: The processes by which many animals actively maintain the temperature of all or parts of their body; the protection against local climatic extremes provided by, for example, shade produced by vegetation, protection from wind or sun, or protection from extreme cold.

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, thinning generally refers to noncommercial operations.

threatened species: Species listed under the Endangered Species Act by either the U.S. Fish and Wildlife Service or the National Marine Fisheries Service. These species are likely to become endangered within the foreseeable future throughout all or a significant portion of their range.

tiering: Refers to the coverage of general matters in broader environmental impact statements (such as the land management plan) with subsequent narrower statements or environmental analyses (such as an environmental impact statement or site-specific environmental assessment) incorporating, by reference, the general discussions and concentrating solely on the issues specific to the statement subsequently prepared.

timber harvest: The removal of trees for wood fiber utilization and other multiple-use purposes.

timber production: The purposeful growing, tending, harvesting, and regeneration of regulated crops of trees to be cut into logs, bolts, or other round sections for industrial or consumer use. For purposes of this subpart, the term timber production does not include production of fuelwood.

timber sale program quantity (TSPQ): The estimated average output of timber from the plan area. It includes projected outputs from lands generally suitable for timber harvest. The projected timber outputs reflect past and projected budget levels and organizational capacity to achieve the desired conditions and objectives in the plan.

total maximum daily load (TMDL): A calculation of the maximum amount of a pollutant that a waterbody can receive and still meet water quality standards, and an allocation of that amount to the pollutant's sources. The Clean Water Act, Section 303, establishes the water quality standards and TMDL programs.

traditional cultural areas: Those areas of the forest used by Native American Indian tribes for traditional activities and often referred to as “religious use areas” or “sacred areas.” They may include areas traditionally used for gathering of special forest products.

transportation facility jurisdiction: The legal right to control or regulate use of a transportation facility derived from fee title, an easement, an agreement, or other similar method. While jurisdiction requires authority, it does not necessarily reflect ownership.

travel corridors: An area of vegetation that provides completely or partially suitable habitat for animals to travel from one location to another.

travel route: A route, such as a county or national forest road or river or trail, that is open for use by members of the public.

treaty-reserved right: Tribal rights or interests reserved in treaties, by Native American Indian tribes for the use and benefit of their members. The uses include such activities as described in the respective treaty document. Only Congress may abolish or modify treaties or treaty rights.

treaty resource: A resource associated with the language in a specific treaty, usually interpreted to include collections or association of species; not limited to a single species. For example: fish may include all fish species (some treaties included rights to erect temporary houses for curing fish); roots and berries may include a wide variety of plants that will encompass the nature of the plants as they were used historically; grasses are necessarily included for the treaty reserved right to graze cattle or livestock. Hunting rights may include all species of animals hunted in historic and prehistoric times. As these apply to the Forest Service, they are public natural resources on national forest lands, to which American Indian tribes have reserved certain rights for taking or gathering.

tree decadence: Trees per acre with spiked or deformed tops, bole, or root decay.

trend: As used to define range conditions, the direction of change in range or forage condition or in ecological status.

tribe: Term used to designate any native American Indian tribe, band, nation, or other organized group or community which is recognized as eligible for the special programs and services provided by the United States to Indians because of their status as Indians.

trust resource: A resource or property that constitutes a corpus or object of trust that is held in trust status by another (trustee) on behalf of a beneficiary. A trustee is usually a governmental entity (Secretary of the Interior) who is assigned a trust duty to care for resources that are for the exclusive use and benefit of Indian tribes and/or their members. A beneficiary may be an Indian tribe or individual tribal member, who has property being held in trust status, for example: land, money, timber, or any Indian-owned asset.

U

underburn: A type of prescribed fire that burns ground vegetation and ladder fuels on the surface under a live tree overstory to meet specific management and/or resource objectives.

understory: Lower vegetation in a forest, the small trees and other woody species/shrubs growing under a more-or-less continuous cover of branches and foliage formed collectively by the taller adjacent trees and other woody growth.

understory reinitiation (UR): New age classes of trees establish as the overstory trees die or are thinned and no longer occupy all of the growing space. Regrowth of understory vegetation then occurs, and trees begin to develop in vertical layers. This stage contains multiple layers and multiple tree sizes. Average tree diameters range from 5 to 20 inches.

uneven-aged management: The application of a combination of actions needed to simultaneously maintain continuous high-forest cover, recurring regeneration of desirable species, and the orderly growth and development of trees through a range of diameter or age classes to provide a sustained yield of forest products. Cutting is usually regulated by specifying the number or proportion of trees of particular sizes to retain within each area, thereby maintaining a planned distribution of size classes. Cutting methods that develop and maintain uneven-aged stands are single-tree selection and group selection.

uneven-aged management (group selection): The group selection variant of uneven-aged management is designed to facilitate the establishment of shade intolerant species, reduce damage to the residual stand, and lengthen the cyclic entry period. The opening created under the group selection prescription would often be no larger than one to two tree heights (as influenced by aspect and slope) so as not to lose the site protection afforded by the surrounding trees. Size, shape, and location of groups should be designed to achieve landscape character goals and scenic integrity objectives.

uneven-aged management (single-tree selection): This silvicultural system is intended to perpetuate uneven-aged stands composed of intermingled trees of differing ages, species, and sizes. Individually selected trees are removed to maintain a desired range of tree sizes over a prescribed distribution. Cyclic entries designed to control the structure and species composition and provide the openings necessary for establishment and growth of the continuously occurring regeneration are a function of the site quality and resource considerations.

ungulates: Hoofed, plant-eating mammals such as elk, deer, and cattle.

upland: The portion of the landscape above the valley floor or stream.

unroaded area: Portion of the national forest that does not contain classified roads. Refer to road.

unsuitable range: Areas of land that should not be used by livestock because of unstable soils.

utility corridor: A parcel of land, without fixed limits or boundaries that is being used as the location for one or more transportation or utility rights-of-way.

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.

vector: An organism that carries or transmits a pathogenic agent from one host to another.

vegetation management: Activities designed primarily to promote the health of forest vegetation in order to achieve desired results. Vegetation management is the practice of manipulating the species mix, age, fuel load, and /or distribution of wildland plant communities within a prescribed or designated area in order to achieve desired results. It includes prescribed burning, grazing, chemical applications, biomass harvesting, and any other economically feasible method of enhancing, retarding, modifying, transplanting, or removing the aboveground parts of plants.

vegetation utilization: Indicates the degree to which vegetation is consumed by animals.

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.

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.

vision: Part one of a land management plan that describes the roles, contribution, and desired conditions of the national. This section also contains monitoring measures to assess progress toward the desired conditions.

W

water right: A right to use surface water or ground water evidenced by a court decree or by a permit or certificate approved by the state water resources department. Statutory exempt uses of surface water and ground water are not water rights, nor are time-limited licenses. A perfected water right is defined by applicant name, source, purpose, amount (quantity, rate and duty), season of use, priority date, point of diversion, place of use, and certificate number.

water quality: A term used to describe the chemical, physical, and biological characteristics of water, usually in respect to its suitability for a particular purpose.

watershed: (1) The region draining into a river, river system or body of water; or (2) subdivisions within a subbasin, which generally range in size from 40,000 to 250,000 acres; the fifth level (10-digit) in the hydrologic hierarchy.

watershed condition classes: Watersheds are rated as Class 1, 2, or 3.

Class 1 Condition: Watersheds exhibit high geomorphic, hydrologic, and biotic integrity relative to their natural potential condition. Drainage network is generally stable. Physical, chemical, and biological conditions suggest that soil, aquatic, and riparian systems are predominantly functional in terms of supporting beneficial uses.

Class 2 Condition: Watersheds exhibit moderate geomorphic, hydrologic, and biotic integrity relative to their natural potential condition. Portions of the watershed may exhibit an unstable drainage network. Physical, chemical, and biological conditions suggest that soil, aquatic, and riparian systems are at risk in being able to support beneficial uses.

Class 3 Condition: Watersheds exhibit low geomorphic, hydrologic, and biotic integrity relative to their natural potential condition. A majority of the drainage network may be unstable. Physical, chemical, and biological conditions suggest that soil, aquatic, and riparian systems do not support beneficial uses.

watershed function: The processes acting on hillslopes and stream channel within a drainage basin that control the movement of water, wood, sediment, and nutrients.

watershed integrity: The degree to which the physical and biological processes affecting the movement of water, sediment, wood, and nutrients are operating within normally expected ranges.

watershed runoff: Refer to runoff.

water yield: The amount of water that flows from a watershed within a specific period of time.

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

wetlands: Those areas that are inundated by surface or ground water with a frequency sufficient to support and under normal circumstances do or would support a prevalence of vegetative or aquatic life that requires saturated or seasonally saturated soil conditions for growth and reproduction. Wetlands generally include swamps, marshes, bogs, and similar areas such as sloughs, potholes, wet meadows, river overflows, mud flats, and natural ponds (Executive Order 11990, Section 7c).

wild and scenic river (WSR): Those rivers or sections of rivers designated as such by congressional action under the Wild and Scenic Rivers Act of 1968, as supplemented and amended. Wild and scenic rivers include all national forest lands within the designated wild and scenic river corridor (15). The following classifications are used:

wild river areas: Those rivers or sections of rivers that are free of impoundments and generally inaccessible except by trail, with watersheds or shorelines essentially primitive and waters unpolluted.

scenic river areas: Those rivers or sections of rivers that are free of impoundments, with watersheds still largely primitive and shorelines largely undeveloped, but accessible in places by roads.

recreational river areas: Those rivers or sections of rivers that are readily accessible by road or railroad, that may have some development along their shorelines, and that may have undergone some impoundment or diversion in the past.

study river areas: Those rivers formally designated by Congress to be studied under Sections 5(a) and 5(b) of the Wild and Scenic Rivers Act.

wilderness area: An area designated by congressional action under the Wilderness Act of 1964. Wilderness is defined as undeveloped federal land retaining its primeval character and influence without permanent improvements or human habitation. Wildernesses are protected and managed to preserve their natural conditions, which generally appear to have been affected primarily by the forces of nature with the imprint of human activity substantially unnoticeable; have outstanding opportunities for solitude or a primitive and unconfined type of recreation; are of sufficient size to make practical their preservation, enjoyment, and use in an unimpaired condition; and may contain features of scientific, educational, scenic, or historical value as well as ecologic and geologic interest.

The following indented terms and definitions generally relate to the management direction for wilderness areas.

authorized riding or harness stock: Any authorized animal that is ridden or harnessed to pull a wagon, cart, or other wheeled or sled-type vehicle. This includes the Equidae family (horses, mules, donkeys, asses, hinnies), and the Canidae family (dogs).

authorized pack stock: Any authorized animal used to pack or retrieve supplies, materials, equipment, or animal parts. This includes the Equidae family (horses, mules, donkeys, asses, hinnies), the Canidae family (dogs), and the Camelidae family (camels, llamas, alpacas, vicunas, guanacos).

unauthorized pack and riding stock: Any animals known or suspected to exchange diseases with state-managed native, introduced, or indigenous wildlife species or animals not included as authorized pack, riding, or harness stock.

authorized pets: Any domestic companion animal that is crated, caged, upon a leash, or otherwise under physical restrictive control. Exemptions include seeing-eye dogs, and dogs used by authorized Federal, state and local law enforcement officers in the performance of their official duties.

unauthorized pets: Any animals known or suspected to exchange diseases with state-managed native, introduced, or indigenous wildlife species. These include animals from the genus *Capra* (domestic goats) or any domesticated wildlife species that are currently managed by the state.

Wilderness Recreation Opportunity Spectrum (WROS): The WROS system was developed in conjunction with the Recreation Opportunity System (ROS). The terminology is similar, although settings are described in terms of pristine, primitive, and semi-primitive settings for wilderness. The descriptions of the primitive and semi-primitive settings for WROS differ slightly from the ROS descriptions and, to avoid confusion with ROS settings, are not abbreviated as acronyms.

Pristine: Visitation is very limited. Maintaining a natural and unmodified environment is emphasized. Visitors seldom and only temporarily displace wildlife throughout the year. This is the best opportunity for isolation and solitude, requiring a maximum degree of primitive skills, challenge, and risk. Access is difficult, requiring travel without trails or the use of routes created by animals or previous human visitation.

Primitive: Visitation is limited. The environment is essentially unmodified and natural with no long-term changes to the landscape except for facilities or structures that are deemed historically important to the area or experience. Signs of human use are minimal. Visitation does not displace wildlife during critical periods. High opportunity exists for exploring and experiencing considerable isolation and solitude. Primitive recreation skills are required with

a high degree of challenge and risk. Access is via trails maintained to a “most difficult” standard.

Semi-primitive: Visitation is low to moderate. The environment is essentially unmodified and natural, with no long-term changes to the landscape, except for facilities or structures that are historically important to the area or experience. Visitation does not displace wildlife during critical periods. Moderate opportunity exists for exploring and experiencing isolation, independence, and closeness to nature. No-trace camping and primitive skills are required, with a moderate to high degree of challenge and risk. Access is via constructed and maintained trails managed to “more difficult” or “most difficult” standards.

wildfire: An unplanned, unwanted wildland fire, including unauthorized human-caused fires, escaped wildland fire use events, escaped prescribed fire projects, and all other wildland fire where the objective is to put the fire out.

wildland: A nonurban, natural area that contains uncultivated land, timber, range, watershed, brush or grassland.

wildland fire: Any nonstructure fire, other than prescribed fire, that occurs in the wildland. This term encompasses fires previously called both wildfires and prescribed natural fires (USDA Forest Service 1998).

wildland fire situation analysis (WFSA): A decision-making process that evaluates alternative management strategies against selected safety, environmental, social, economic, political, and resource management objectives (USDA Forest Service 1998).

wildland fire suppression: An appropriate management response to wildland fire that results in curtailment of fire spread and eliminates all identified threats from the particular fire. All wildland fire suppression activities provide for firefighter and public safety as the highest consideration, but minimize loss of resource values, economic expenditures, and/or the use of critical firefighting resources (USDA Forest Service 1998).

wildland fire use (WFU): Formerly referred to as “prescribed natural fire.” The application of the appropriate management response to naturally ignited wildland fires to accomplish specific resource management objectives within a set of predefined conditions of fuels, weather, and topography.

wildland-urban interface (WUI): The area directly adjacent to home and communities.

windthrown: Refers to trees blown over by the wind.

winter range: The area available to and used by wildlife (big game) during the winter season. Generally, lands below 4,000 feet in elevation, on south and west aspects, that provides forage and thermal/snow intercept.

woodland: Dry, low elevation areas with a potential vegetation type of juniper.

X

xeric: Very dry region or climate; tolerating or adapted to dry conditions. Dry soil moisture regime. Some moisture is present but does not occur at optimum levels for plant growth. Irrigation or summer fallow is often necessary for crop production.

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Appendix to the Draft Environmental Impact Statement

Proposed Revised Land Management Plans for the Malheur, Umatilla, and Wallowa-Whitman National Forests

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Appendix A: Blue Mountains Forest Plan Revision Alternatives Analyzed in Detail

The alternatives were developed based on public involvement both during and prior to the scoping period for the proposed action and based on the purpose and need and issues. The alternatives present a range of analysis options, as required by National Environmental Policy Act (NEPA) regulations (40 CFR 1502.14).

NEPA requires an analysis of the no-action alternative (40 CFR 1502.14(d)). No action means that there would be no change in current management (FSH 1909.15(14.2)). Alternative A is the no-action alternative. This alternative would keep in effect the 1990 forest plans as amended and as modified by regulation.

The action alternatives modify elements of the 1990 forest plans to respond to new scientific information, management challenges, changed conditions, and the significant issues developed from public comments.

The alternatives provide a framework for analyzing different ways of meeting the purpose and need of the forest plans and for addressing the issues identified during the scoping period (chapter 1). These alternatives show a range of options for guiding land and resource management activities within the national forests of the Blue Mountains within the life of these plans. According to the National Forest Management Act of 1976, forest plans shall be revised at least every 15 years (P.L. 94-588).

There are six alternatives that will be analyzed in detail in the DEIS. In this document, alternative A, the no-action alternative, is described in Part 1—No-action Alternative Description. Part 2—Comparison of the Action Alternatives contains the description of alternatives B through F, the action alternatives. All alternatives incorporate material into the environmental impact statement by reference when the effect will be to cut down on bulk without impeding agency and public review of the action. The incorporated material shall be cited in the statement and its content briefly described (§1502.21).

Organization of the Forest Plan

The proposed draft revised plan includes “plan decisions” and “other content”. Once approved, any substantive changes to plan decisions will require a plan amendment. A change to other content may be made using an administrative correction process, whereby nonsubstantive errors, such as misspellings or typographical mistakes are corrected, or information (e.g., data and maps) is updated. The public is notified of all plan amendments and administrative corrections before they become effective.

Forest Plan Components

Forest plan component consist of goals and desired conditions, standards, guidelines, objectives, special areas, management areas, suitable uses and activities, and monitoring and evaluation.

The goals create the framework for the plan. Under each goal, there is a set of desired conditions, standards, guidelines and objectives. The goals and desired conditions are a set of interrelated ecological, social, and economic conditions. The Forests will manage the land and resources of the planning area to achieve or maintain the goals and desired conditions; allowing the national forests to contribute to a range of outcomes now and in the future. This emphasis on integration of the goals and desired conditions promotes an adaptive and active management philosophy, including working with partners, to accomplish this vision for the Blue Mountains.

The following goals and desired conditions explain the conditions, processes, and relationships that the Forest Service will seek to achieve. Some conditions may already exist. Some are achievable during the life of the forest plan. Others may take a longer period, possibly decades. Making progress toward achieving the goals and desired conditions will depend on funding and program direction provided by higher levels in the agency and Congress, as well as natural events.

Appendix A does not repeat the background and existing condition information provided in the forest plan. Each desired condition is associated with a brief background description and a brief existing condition description of each indicator, and statement of scale. Provided as information only, the background and existing condition descriptions are not plan direction.

Management actions that cause movement away from achieving goals and desired conditions in the short term are acceptable as long as the forests achieve or maintain the desired conditions in the long term.

Many desired conditions were derived from national fire regime condition class (FRCC) information, vegetation dynamics development tool (VDDT) modeling (ESSA Technologies Ltd. 2005), national Landfire modeling, collaborative workshops, and professional experience informed by estimates of historic range of variability (HRV).

Desired conditions set forth the desired social, economic, and ecological attributes of the three National Forests. They attempt to paint a picture of what we (the public and Forest Service) desire the forests to look like and/or the goods and services we desire them to provide. Desired conditions are broad expressions in general terms and are timeless in that there is no specific date by which they are to be completed. Desired conditions may only be achievable over a long timeframe (in some cases, several hundred years). In some cases, a desired condition matches the current condition, and the goal is to maintain it. Desired conditions are aspirations and are not commitments or final decisions to approve projects.

To be consistent with the desired conditions of the plan in assessing a project or activity, at the appropriate spatial scale described in the plan (e.g., landscape scale), each project or activity must be designed to meet one or more of the following conditions:

- Maintain or make progress toward one or more of the desired conditions of a plan without adversely affecting progress toward, or maintenance of, other desired conditions; or
- Be neutral with regard to progress toward plan desired conditions; or
- Maintain or make progress toward one or more of the desired conditions over the long term, even if the project or activity would adversely affect progress toward or maintenance of one or more desired conditions in the short term; or

- Maintain or make progress toward one or more of the desired conditions over the long term, even if the project or activity would adversely affect progress toward other desired conditions in a negligible way over the long term.

The project documentation should explain how the project is consistent with desired conditions and describe any short-term or negligible long-term adverse effects the project may have on the maintenance or attainment of any desired condition.

The desired conditions may apply at a forestwide **scale**, but many apply at a particular **scale**, such as at the subbasin, watershed or subwatershed. A subbasin refers to a 4th level Hydrologic Unit Code (HUC), which is generally about 450,000 acres in size. A watershed refers to a 5th level HUC, which generally range from 40,000 to 250,000 acres in size. A subwatershed refers to a 6th level HUC, which generally ranges from 10,000 to 40,000 acres in size.

Objectives are concise, time-specific statements of measurable planned results that make progress towards or maintain desired conditions (table A-48 through table A-50). An objective forms the basis for further planning to define the precise steps to be taken and the resources to be used in achieving desired conditions. The objectives represent just some of the expected outcomes or actions required for the Forest to make progress towards desired conditions. The plan only identifies the primary objectives (actions) that the three National Forests will initiate.

Variation in achieving objectives may occur during the life of the plans because of changes in environmental conditions, available budgets, and other factors. Influences on objectives include recent trends, past experiences, anticipated staffing levels, and budget projections.

A project or activity is consistent with the objectives of the plan if it contributes to or does not prevent the attainment of any desired conditions that apply to it. The project documentation should identify any applicable objective(s) to which the project contributes and document that the project does not prevent the attainment of any objectives. If there are no applicable objectives, the project must be consistent with the objectives identified in the plan, and the project document should state that fact.

Standards are constraints upon project and activity decision-making. The design of projects and activities absolutely must meet the standard requirement. A project or activity is consistent with a standard when its design is in accord with the explicit provisions of the standard; a plan amendment is the only way to vary from a standard. The standards are identified in table A-54.

Guidelines are components with which a project or activity must be consistent, in either of two ways:

- The project or activity is designed exactly in accord with the guideline; or
- The project or activity design varies from the exact words of the guideline, but is as effective in meeting the purpose of the guideline to contribute to the maintenance or attainment of the relevant desired conditions and objectives.

The design of projects and activities must follow guideline requirements; however, modification may occur for a specific project if the intent of the guideline is followed and the deviation is addressed in a decision document with supporting rationale. When deviation from a guideline does not meet the original intent, however, a plan amendment is required. The guidelines are identified in table A-54.

Special areas are lands that have designations by Congress or another delegated authority. Special areas are designated because of their unique or special characteristics. Special areas establishment may occur at the national level either through legislation (Congressional designation) or at the regional or local level through administrative action (administrative designation). The forest plan may recommend the establishment of new special areas. This plan provides direction for the following special areas: scenic byways and All-American roads, national designated trails, eligible and suitable wild and scenic rivers, scenic areas, botanical areas, geological areas, historical areas, Starkey experimental forest and range, research natural areas, and recommended and designated wilderness and wilderness study areas.

Where the plan provides plan decisions specific to a special area, a project or activity must be consistent with those area-specific decisions. The project documentation should describe how the project or activity is consistent with the area-specific decisions of the plan. Special areas are described in the desired conditions. There may be standards or guidelines identified for particular special areas. The acres allocated to each special area are identified in table A-1 and table A-40 through table A-43.

Management areas are spatially distinct areas with a unique set of plan components. The management areas range along a continuum from little development by humans in MA 1A to extensive human development in MA 5 (table A-1 and table A-40 through table A-43). The types of uses and desired settings define the land use that would occur in them under the revised forest plans. They occur across districts, mountain ranges, and ecosystems but have commonalities that make their overarching land uses similar.

Suitability describes the appropriateness of applying certain resource management practices (uses) to a particular area of land (table A-44 through table A-47). A unit of land may be suitable for a variety of individual or combined uses.

A project with the purpose of timber production may only occur in an area identified as suitable for timber production [16 U.S.C. 1604(k)]. The documentation for the project should confirm the project area meets the suitability requirements.

Except for projects with a purpose of timber production, a project or activity can be consistent with plan suitability determinations in either of two ways:

- The project or activity is a use identified in the plan as suitable for the location where the project or activity is to occur; or
- The project or activity is not a use identified in the plan as suitable for the location (the plan is silent on the use or the plan identifies the use as not suitable), but the responsible official determines that the use is appropriate for that location's desired conditions and objectives.

The project documentation should describe that the project or activity is either (1) considered suitable according to the plan, or (2) not considered suitable in the plan but nonetheless appropriate for that location.

Monitoring and evaluation consists of key element monitoring that will occur as implementation of the forest plan progresses (i.e., future site-specific actions; table A-57). Monitoring is part of an adaptive management process that measures the performance of plan implementation against the goals, desired conditions and objectives to which it aspires. It also evaluates whether implementation of standards and guidelines are producing the desired results.

Part 1: No-action Alternative Description

How the Alternative was Developed

The no-action alternative is required by the National Environmental Policy Act (NEPA). It is considered in detail in the environmental analysis in accordance with FSH 1909.15. It provides a baseline for comparison of the alternatives. No action means that management allocations, activities, and management direction described in the existing forest plans (as amended and as modified by regulation) continues for the next 15 years.

The Malheur, Umatilla, and Wallowa-Whitman National Forest Land and Resource Management Plans (forest plans) were signed in 1990. The Ochoco National Forest Land and Resource Management Plan was signed in 1991. There is a portion of the Ochoco is administered by the Malheur as one unit. All of the forest plans initially placed an emphasis on the production of wood products using even-aged regeneration harvest. The assumptions made in the forest plans were that ecological conditions were healthy and would remain so and that disturbances (such as fire, insects, and disease) would not substantially affect planned actions, desired outcomes, or outputs. Significant changes in this direction occurred in 1995 when the following three amendments were incorporated into the forest plans.

PACFISH

The decision supporting the environmental assessment for the “Implementation of Interim Strategies for Managing Anadromous Fish-producing Watersheds in Eastern Oregon and Washington, Idaho, and Portions of California” (USDA and USDI 1995a), commonly referred to as PACFISH, amended the forest plans to include management direction to slow the degradation of and begin the restoration of aquatic and riparian ecosystems for anadromous fish.

Inland Native Fish Strategy

The decision supporting the Environmental Assessment for the “Inland Native Fish Strategy, Interim Strategies for Managing Fish-producing Watersheds in Eastern Oregon and Washington, Idaho, Western Montana and Portions of Nevada” (USDA and USDI 1995b), commonly referred to as INFISH, amended the forest plans to include management direction, as a companion to the protection provided for anadromous fish by PACFISH, providing interim direction to protect habitat and populations of resident native fish outside of anadromous fish habitat.

These two amendments require the establishment of riparian habitat conservation areas (RHCAs) and riparian management objectives (RMOs), and focus on restoration of aquatic and riparian areas as habitat for native fish species. They provide substantial protection to fish species listed as threatened or endangered under the Endangered Species Act and their habitats by maintaining quality habitat where it exists and reducing risks to habitat and species over the short term.

Eastside Screens

In 1994, the Forest Service Pacific Northwest Region regional forester issued “Interim Direction Establishing Riparian, Ecosystem, and Wildlife Standards for Timber Sales on Eastside Forests” (USDA Forest Service 1995c), commonly referred to as the Eastside Screens. It amended the 1990 forest plans by establishing riparian, ecosystem, and wildlife standards for timber sales.

The Eastside Screens amendment emphasizes retaining and developing late old forest structures and patch sizes within the historic range of variability; maintaining or developing linkages

between old forests; meeting requirements for snags, downed logs, and green tree replacements; and retaining most trees greater than 21 inches in diameter.

Although these three amendments resulted in substantial changes to the direction in existing plans, objectives for timber harvest and allowable sale quantity (ASQ) were not adjusted. This summary of the no-action alternative updates the ASQ and some objectives for all forest plans using the amended direction.

Lands administered implementing the 1990 forest plans are intended to provide a mix of natural resource-based goods and services. Management direction focuses on providing sustained levels of resource output, including timber and wood products, livestock forage, big game, and minerals in an environmentally sound manner, while also providing other uses and values such as scenery, recreation opportunities, viewable wildlife, and clean air and water. Portions of the landscape are used for commodity production, while some portions are allocated to wilderness areas, scenic areas, and research natural areas, among others.

Management Area Acres

Management areas, such as botanical areas, historical areas, etc., are not consistently described or identified in the three forest plans. While not all national forests have the same types of special areas, in general they have similar management expectations across large areas.

For purposes of comparing acres, the current management areas have been put into the same categories as alternatives B through F. The crosswalk showing how the current management areas were assigned to this scheme is in the analysis file and is available upon request. The tables showing the acres by management area for alternatives B through F are in Part 2—Comparison of the Action Alternatives.

Table A-1 does not include the Hells Canyon National Recreation Area (HCNRA). The HCNRA Comprehensive Management Plan (CMP) is part of the Wallowa-Whitman National Forest Land and Resource Management Plan and guides management of the HCNRA. This plan carries forward in its entirety the HCNRA CMP, which was updated in 2003. Table A-1 displays the portion of the Ochoco administered by the Malheur as part of the Malheur.

The management area acres displayed in Table A-1 are from the 1990 forest plans and have not been recalculated using the most current GIS technology. Adding the acreages in table A-1 will not produce a sum equal to the total acreage for each national forest because of overlapping management areas. The overlapping management areas result in the total acreage of all management areas being greater than the official national forest acreages. For example, several research natural areas (MA 2B) and wild and scenic rivers (MA 2A) overlap into congressionally designated wilderness areas (MA 1A).

Table A-1. Management area designation, name, and acreage by national forest for alternative A (note: 2F and 2G units are miles) based on 1990 forest plan

Management Area Designation and Name	Malheur	Umatilla	Wallowa-Whitman**
1A – Congressionally Designated Wilderness Areas	82,557	304,173	373,676*
1B – Preliminary Administratively Recommended Wilderness Areas	0	0	0
1C – Wilderness Study Area	0	0	2,350
2A – Wild and Scenic River (Includes Designated, Eligible, and Suitable Rivers)	10,807	6,926	21,936
2B – Research Natural Areas	3,426	8,396	2,635
2C – Botanical Areas	30	817	0
2D – Geological Areas	40	416	0
2E – Historical Areas	0	1,178	0
2F – Scenic Byways and All-American Roads (miles)	0	0	0
2G – Nationally Designated Trails (miles)	0	0	0
2H – Scenic Areas	14,399	31,109	0
2I – Starkey Experimental Forest and Range	0	0	27,251
2J – Municipal Watersheds	519	12,581	0
3A – Backcountry (nonmotorized use)	47,535	29,760	0
3B – Backcountry (motorized use)	14,652	11,909	119,938
3C – Wildlife Corridor	0	0	0
4A – General Forest/Timber/Range	851,877	296,180	734,500
4A – General Forest/Timber/Range (excludes 4B RHCA)	798,021	255,898	612,820
4B – Riparian Management Areas (no RHCAs)	34,893	25,076	0
4B – RHCA (within 4A)	53,700	44,700	121,683
4B – RHCA (All)	168,545	237,514	360,123
4C – Old Forest	84,232	44,277	60,285
4D – Big Game Winter/Summer Range	293,453	130,215	396,703
4E – General Wildlife/Fish	50,741	430,166	60,326
4F - Visuals	217,328	65,775	4,287
5 – Developed Sites and Administrative Areas	647	4,922	7,111

*Wallowa-Whitman National Forest private inclusions are included in the acre totals for congressionally designated wilderness areas.

**In addition, this table does not include acreage for the HCNRA. This plan carries forward in its entirety the HCNRA CMP which was updated in 2003. The HCNRA CMP is the portion of the Wallowa-Whitman National Forest Land and Resource Management Plan that guides management of the HCNRA.

1990 Forest Plans Management Direction for Specific Resources

The forest plans for the Malheur, Ochoco, Umatilla, and Wallowa-Whitman National Forests are available in their entirety on the Blue Mountains Forest Plan Revision portion of the Wallowa-Whitman National Forest website.² The portions of the forest plans described here are highlights of direction for riparian and aquatic resources, old forest, invasive species, wildlife habitat (and more specifically elk habitat), timber, and rangeland management.

Management Direction for Riparian and Aquatic Resources

The current direction for the management of riparian and aquatic resources is found in the following strategies, which were amended to all three forest plans in 1995:

- Interim Strategies for Managing Anadromous Fish-producing Watersheds in Eastern Oregon and Washington, Idaho, and Portions of California (PACFISH)
- Interim Strategies for Managing Inland Fish-producing Watersheds in Eastern Oregon and Washington, Idaho, and Portions of California (INFISH)

The following section displays PACFISH and INFISH direction.

Many of the PACFISH and INFISH standards and guidelines are procedural, requiring coordination with other agencies, conducting inventories or assessments, or requirements to modify or establish specific permits or operating plans. Standards and guidelines are generally limitations on activities or uses for reasons of environmental protection, public safety and risk reduction, or to achieve goals and desired conditions.

PACFISH and INFISH Management Direction (General)

Objective. Restore watersheds to reverse or arrest adverse impacts to water quality and fish habitat. Areas where fish habitat(s) or water quality has been adversely affected shall be given high priority for corrective treatments that mitigate impacts or rehabilitate these areas.

Objective. Provide and maintain a diverse, well-distributed pattern of fish habitat to increase anadromous and inland native fish runs. For example:

- Meet state water quality standards for stream temperature and streamside vegetation;
- Maintain sufficient large woody debris to provide for continuous long-term supply in all channels;
- Promote bank, floodplain, and channel stability to provide resilience to disturbance and foster aquatic diversity; and
- Provide pools that are large, well distributed and persistent during low flows, and conserve or restore channel morphology appropriate to the climate and landform.

Guideline. Practices that maintain or promote sufficient residual vegetation and appropriate channel morphology and functions can be used to maintain, improve, or restore riparian and wetland functions.

² <http://www.fs.usda.gov/goto/BlueMtnsPlanRevision>

Objective. Achieve riparian and wetland area improvement and maintenance through management of existing uses, wherever feasible.

Objective. Limit or mitigate surface disturbance in floodplains, riparian areas, and aquatic habitats to prevent soil movement, loss, and sedimentation.

PACFISH and INFISH Aquatic Habitat and Watershed Direction

Objective. Manage and provide aquatic habitat to contribute to the maintenance of stocks of anadromous and inland native fish and to ensure consistent, effective, and efficient Endangered Species Act consultation.

Objective. Provide protection for all watersheds containing designated critical habitat for listed anadromous fish (Key Watersheds).

Objective. Provide a pattern of protection across the landscape with an emphasis on federally listed fish. Include watersheds that have strong assemblages, degraded watersheds with a high restoration potential, and watersheds that provide for meta-population objectives (Priority Watersheds).

Objective. Improve current conditions of watersheds by restoring degraded habitat and providing long-term protection to riparian and aquatic resources.

PACFISH and INFISH Livestock Grazing in RHCAs

Standard GM-1. Modify grazing practices (for example, accessibility of riparian areas to livestock, length of grazing season, stocking levels, timing of grazing) that retard or prevent attainment of RMOs or are likely to adversely affect aquatic resources. Suspend grazing if adjusting practices is not effective in meeting RMOs.

Standard GM-2. New livestock handling and/or management facilities shall be located outside of RHCAs. For existing livestock handling facilities inside RHCAs, assure that facilities do not prevent attainment of RMOs. Relocate or close facilities where these objectives cannot be met.

Standard GM-3. Limit livestock trailing, bedding, watering, loading, salting, and other handling efforts to those areas and times that would not retard attainment of RMOs or adversely affect aquatic resources.

Standard GM-4. Adjust wild horse and burro management to avoid impacts that prevent attainment of RMOs or adversely affect aquatic resources.

PACFISH and INFISH Timber Management in RHCAs

Standard TM-1. Prohibit timber harvest, including fuelwood cutting, in Riparian Habitat Conservation Areas (RHCAs), except as described below. Do not include RHCAs in the land base used to determine the Allowable Sale Quantity; however, any volume harvested can contribute to the timber sale program.

- a) Where catastrophic events such as fire, flooding, volcano, wind, or insects cause damage that results in degraded riparian conditions, allow salvage and fuel cutting in RHCAs only where present and future woody debris needs are met, where cutting would not retard or prevent attainment of other riparian management objectives (RMOs), and where adverse effects can be avoided to aquatic resources. Ecosystem Analysis at the Watershed Scale shall be completed prior to harvest, including salvage and fuel wood cutting, in RHCAs.

- b) Apply silvicultural practices for RHCAs to acquire desired vegetation characteristics where needed to attain RMOs. Apply silvicultural practices in a manner that does not retard attainment of RMOs and that avoids adverse effects on aquatic resources.

PACFISH and INFISH Fire Management in RHCAs

Standard FM-1. Design fuel treatment and fire suppression strategies, practices, and actions so as to not prevent attainment of RMOs and to minimize disturbances of riparian ground cover and vegetation. Strategies should recognize the role of fire in ecosystem function and identify those instances where fire suppression or fuel management actions could perpetuate or be damaging to long-term ecosystem function or aquatic resources.

Standard FM-2. Locate incident bases, camps, helibases, staging areas, helispots, and other centers for incident activities outside of RHCAs. If the only suitable location for such activities is within the RHCAs, an exemption may be granted following a review and recommendation by a resource advisor. The advisor would prescribe the location, use conditions, and rehabilitation requirements, with avoidance of adverse effects to aquatic resources a primary goal. Use an interdisciplinary team, including a fishery biologist, to predetermine incident base and helibase locations during pre-suppression planning.

Standard FM-3. Prohibit delivery of chemical retardant, foam, or additives to surface waters. An exception may be warranted in situations where overriding immediate safety imperatives exist, or, following a review and recommendation by a resource advisor and a fishery biologist, when the action agency determines an escaped fire would cause more long-term damage to fish habitats than chemical delivery to surface waters.

Standard FM-4. Prescribed burn projects and prescriptions should be designed to contribute to the attainment of the RMOs.

Standard FM-5. Immediately establish an emergency team to develop a rehabilitation treatment plan to attain RMOs and avoid adverse effects on aquatic resources whenever RHCAs are significantly damaged by a wildfire or a prescribed fire is burning out of prescription.

PACFISH and INFISH Road Management in RHCAs

Standard RF-1. Cooperate with federal, tribal, state, and county agencies and cost-share partners to achieve consistency in road design, operation, and maintenance necessary to attain RMOs.

Standard RF-2. For each existing or planned road, meet the RMOs and avoid adverse effects on aquatic resources as described below:

- a) Ecosystem Analysis at the Watershed Scale shall be completed prior to construction of new roads or landings in RHCAs.
- b) Road and landing locations in RHCAs shall be minimized.
- c) Initiate development and implementation of a Road Management Plan or a Transportation Management Plan.

At a minimum, the plan shall address the following items:

- ◆ Road design criteria, elements, and standards that govern construction and reconstruction.
- ◆ Road management objectives for each road.
- ◆ Criteria that govern road operation, maintenance, and management.
- ◆ Requirements for pre-, during-, and post-storm inspections and maintenance.

- ◆ Regulation of traffic during wet periods to minimize erosion and sediment delivery and accomplish other objectives.
 - ◆ Implementation and effectiveness of monitoring plans for road stability, drainage, and erosion control.
 - ◆ Mitigation plans for road failures.
- d) Avoid sediment delivery to streams from the road surface. Outsloping of the roadway surface is preferred, except in cases where outsloping would increase sediment delivery to streams or where outsloping is infeasible or unsafe. Route road drainage away from potentially unstable stream channels, fills, and hillslopes.
- e) Avoid disruption of natural hydrologic flow paths.
- f) Avoid side casting of soils or snow. Side casting of road material is prohibited on road segments within or abutting RHCAs.

Standard RF-3. Determine the influence of each road on RMOs. Meet RMOs and avoid adverse effects on aquatic resources by:

- a) Reconstructing road and drainage features that do not meet design criteria or operation and maintenance standards that have been shown to be less effective than designed for controlling sediment delivery, that retard attainment of RMOs, or that do not protect watersheds from increased sedimentation.
- b) Prioritizing reconstruction based on the current and potential damage to aquatic resources and their watersheds, the ecological value of the riparian resources affected, and the feasibility of options such as helicopter logging and road relocation out of RHCAs.
- c) Closing and stabilizing or obliterating and stabilizing roads not needed for future management activities. Prioritize these actions based on the current and potential damage to aquatic resources in watersheds and the ecological value of the riparian resources affected.

Standard RF-4. Construct new and improve existing culverts, bridges, and other stream crossings to accommodate a 100-year flood, including associated bedload and debris, where those existing structures would or do pose a substantial risk to riparian conditions. Such improvements should include those structures that do not meet design and operation maintenance criteria that have been shown to be less effective than designed for controlling erosion, or that retard attainment of RMOs. Priority for upgrading shall be based on risks and the ecological value of the riparian resources affected. Construct and maintain crossings to prevent diversion of stream flow out of the channel and down the road in the event of crossing failures.

Standard RF-5. Provide and maintain fish passage at all crossings of existing and potential fish-bearing streams.

Standard RF-6. Develop and implement a road management plan or a transportation management plan that will meet the RMOs.

PACFISH and INFISH Minerals Management in RHCAs

Standard MM-1. Avoid adverse impacts to listed species and designated critical habitat from mineral operations. If the Notice of Intent indicates that a mineral operation would be located in an RHCA and could affect attainment of RMOs or could adversely affect listed anadromous fish, then require a reclamation plan, approved Plan of Operations (or other such governing document), and reclamation bond. For effects that cannot be avoided, such plans and bonds must

address the following items to attain RMOs and avoid adverse effects on listed anadromous fish: the costs of removing facilities, equipment, and materials; recontouring disturbed areas to approximate pre-mining topography; isolating and neutralizing or removing toxic or potentially toxic materials; salvage and replacement of topsoil; and seedbed preparation and re-vegetation. Ensure Reclamation Plan contain measurable attainment and bond release criteria for each reclamation activity.

Standard MM-2. Locate structures, support facilities, and roads outside RHCAs. Where no alternative to siting facilities in RHCAs exists, locate and construct the facilities in ways that avoid impacts to RHCAs and streams and that avoid adverse effects on aquatic resources. Where no alternative to road construction exists, keep roads to the minimum necessary for the approved mineral activity. Close, obliterate, and re-vegetate roads no longer required for mineral or land management activities.

Standard MM-3. Prohibit solid and sanitary waste facilities in RHCAs. If no alternative to locating mine waste (waste rock, spent ore, tailings) facilities in RHCAs exists, and if releases can be prevented and stability can be ensured, then:

- a) Analyze the waste material using the best conventional sampling methods and analytic techniques to determine its chemical and physical stability characteristics.
- b) Locate and design the waste facilities using the best conventional techniques to ensure mass stability and prevent the release of acid or toxic materials. If the best conventional technology is not sufficient to prevent such releases and ensure stability over the long term, prohibit such facilities in RHCAs.
- c) Monitor waste and waste facilities to confirm predictions of chemical and physical stability, and make adjustments to operations as needed to avoid adverse effects to aquatic resources and to attain RMOs.
- d) Reclaim and monitor waste facilities to assure chemical and physical stability and re-vegetation, to avoid adverse effects to aquatic resources, and to attain the RMOs.
- e) Require reclamation bonds adequate to ensure long-term chemical and physical stability and successful re-vegetation of mine waste facilities.

Standard MM-4. For leasable minerals, prohibit surface occupancy within RHCAs for oil, gas, and geothermal exploration and development activities where contracts and leases do not already exist, unless there are no other options for location and RMOs can be attained and adverse effects to aquatic resources can be avoided. Adjust the operating plans of existing contracts to (1) eliminate impacts that prevent attainment of RMOs and (2) avoid adverse effects to native aquatic species.

Standard MM-5. Permit sand and gravel mining and extraction within RHCAs only if no alternatives exist, if the action(s) will not retard or prevent attainment of RMOs, and if adverse effects to native aquatic species can be avoided.

Standard MM-6. Develop inspection, monitoring, and reporting requirements for mineral activities. Evaluate and apply the results of inspection and monitoring to modify mineral plans, leases, or permits as needed to avoid adverse effects on native aquatic species and to eliminate impacts that prevent attainment of RMOs.

PACFISH and INFISH Hydro and Surface Water Projects in RHCAs (Lands)

Standard LH-1. For hydroelectric and other surface water development proposals, require instream flows and habitat conditions that maintain or restore riparian resources, favorable channel conditions, and fish passage, reproduction, and growth. Coordinate this process with the appropriate state agencies. During relicensing of hydroelectric projects, provide to the Federal Energy Regulatory Commission (FERC) written and timely license conditions that require fish passage and flows and habitat conditions that maintain/restore riparian resources and channel integrity. Coordinate relicensing projects with the appropriate state agencies.

Standard LH-2. Locate new hydroelectric ancillary facilities outside RHCAs. For existing ancillary facilities inside the RHCA that are essential to proper management, provide recommendations to FERC to assure that the facilities would not prevent attainment of the RMOs and that adverse effects on aquatic resources are avoided. Where these objectives cannot be met, provide recommendations to FERC that such ancillary facilities should be relocated. Locate, operate, and maintain hydroelectric facilities that must be located in RHCAs to avoid adverse effects on aquatic resources.

Standard LH-4. Use land acquisition, exchange, and conservation easements to meet RMOs and facilitate restoration of fish stocks and other species at risk of extinction.

PACFISH and INFISH Leases and Permits in RHCAs

Standard LH-3. Issue leases, permits, rights-of-way, and easements to avoid adverse effects on aquatic resources and to avoid effects that would be inconsistent with or prevent attainment of RMOs. Where the authority to do so was retained, adjust existing leases, permits, rights-of-way, and easements to eliminate effects that would retard or prevent attainment of the RMOs or adversely affect aquatic resources. If adjustments are not effective, eliminate the activity. Where the authority to adjust was not retained, negotiate to make changes in existing leases, permits, rights-of-way, and easements to eliminate effects that would prevent attainment of the RMOs or adversely affect aquatic resources. Priority for modifying easements would be based on the current and potential adverse effects on aquatic resources and the ecological value of the riparian resources affected.

PACFISH and INFISH Fuel, Pesticides, and Herbicides in RHCAs

Standard RA-3. Apply herbicides, pesticides, and other toxicants and chemicals in a manner that does not retard or prevent attainment of RMOs and that avoids adverse effects on aquatic resources.

Standard RA-4. Prohibit storage of fuels and other toxicants within RHCAs. Prohibit refueling within RHCAs unless there are no other alternatives. Refueling sites within RHCAs shall be approved by the Forest Service or Bureau of Land management and have an approved spill containment plan.

Standard RA-5. Locate water drafting sites to avoid adverse effects on aquatic resources and instream flow and in a manner that does not retard or prevent attainment of RMOs.

PACFISH and INFISH Recreation in RHCAs

Standard RM-1. Design, construct, and operate recreation facilities (including trails) and dispersed sites in a manner that does not retard or prevent attainment of RMOs and avoids effects on aquatic resources.

Complete Ecosystem Analysis at the Watershed Scale prior to construction of new recreation facilities in RHCAs.

For existing recreation facilities inside RHCAs, assure that facilities or use of facilities will not prevent attainment of RMOs or adversely affect native aquatic species. Relocate or close recreation facilities where RMOs cannot be met or adverse effects on aquatic resources cannot be avoided.

Standard RM-2. Adjust dispersed and developed recreation practices that retard or prevent attainment of RMOs or adversely affect aquatic resources. Where adjustment measures such as education, use limitations, traffic control devices, increased maintenance, relocation of facilities, and/or specific sites closures are not effective in meeting RMOs and avoiding adverse effects on aquatic resources, eliminate the practice or occupancy.

PACFISH and INFISH Watershed and Habitat Restoration in RHCAs

Standard WR-1. Design and implement watershed restoration projects in a manner that promotes the long-term ecological integrity of ecosystems, conserves the genetic integrity of native species, and contributes to attainment of RMOs.

Standard WR-2. Cooperate with Federal, State, local, and Tribal agencies, and private landowners to develop watershed-based Coordinated Resource Management Plans (CRMPs) or other cooperative agreements to meet RMOs.

Standard WR-3. Do not use planned restoration as a substitute for preventing habitat degradation (i.e., use planned restoration only to mitigate existing problems, not to mitigate the effects of proposed activities).

Standard FW-1. Design and implement fish and wildlife habitat restoration and enhancement actions in a manner that contributes to attainment of the RMOs.

Standard FW-2. Design, construct, and operate fish and wildlife interpretive and other user-enhancement facilities in a manner that does not retard or prevent attainment of RMOs or adversely affect aquatic resources. For existing fish and wildlife interpretive and other user-enhanced facilities inside RHCAs, assure that RMOs are met and adverse effects on aquatic resources are avoided. Where RMOs cannot be met or adverse effects on aquatic resources avoided, relocate or close such facilities.

Standard FW-3. Cooperate with Federal, tribal, and State wildlife management agencies to identify and eliminate wild ungulate impacts that prevent attainment of the RMOs or adversely affect listed anadromous and inland native fish.

Standard FW-4. Cooperate with Federal, tribal, and State wildlife management agencies to identify and eliminate wild adverse effects on native anadromous and inland fish associated with habitat manipulation, fish stocking, fish harvest, and poaching.

Standard RA-1. Identify and cooperate with Federal, tribal, State, and local governments to secure instream flows needed to maintain riparian resources, channel conditions, and aquatic habitat.

Standard RA-2. Trees may be felled in RHCAs when they pose a safety risk. Keep felled trees on site when needed to meet woody debris objectives.

PACFISH and INFISH Riparian Habitat Conservation Area Widths Descriptions

Riparian Area Minimum Widths

Fish-bearing Streams

Interim RHCAs consist of the stream and the area on each side of the stream extending from the edges of the active stream channel to the top of the inner gorge, or to the outer edges of the 100-year floodplain, or to the outer edges of riparian vegetation, or to a distance equal to the height of two site-potential trees, or 300 feet slope distance (600 feet total, including both sides of the stream channel), whichever is greatest.

Permanently-flowing Non-fish Bearing Streams

Interim RHCAs consist of the stream and the area on each side of the stream extending from the edges of the active stream channel to the top of the inner gorge, or to the outer edges of the 100-year floodplain, or to the outer edges of riparian vegetation, or to a distance equal to the height of one site-potential tree, or 150 feet slope distance (300 feet total, including both sides of the stream channel), whichever is greatest.

Constructed Ponds, Reservoirs, and Wetlands Greater than 1 Acre

Interim RHCAs consist of the body of water or wetland and: the area to the outer edges of the riparian vegetation, or to the extent of seasonally saturated soil, or the extent of moderately and highly unstable areas, or to a distance equal to the height of one site-potential tree, or 150 feet slope distance from the edge of the maximum pool elevation of constructed ponds and reservoirs, or from the edge of the wetland, pond or lake, whichever is greatest.

Lakes and Natural Ponds

Same as constructed ponds, reservoirs, and wetlands greater than 1 acre.

RHCAs: Seasonally flowing or intermittent streams, wetlands smaller than 1 acre, landslides, and landslide-prone areas.

RMAs: Seasonally flowing, intermittent and ephemeral streams, wetlands smaller than 1 acre, and unstable areas

This category applies to features with high variability in size and site-specific characteristics. At a minimum, the RHCAs should include:

- a) The extent of landslides and landslide-prone areas
- b) The intermittent stream channel and the area to the top of the inner gorge.
- c) The intermittent stream channel or wetland and the area to the outer edges of the riparian vegetation.
- d) For priority watersheds, the area from the edges of the stream channel, wetland, landslide, or landslide-prone area to a distance equal to the height of one site-potential tree, or 100 feet slope distance, whichever is greatest.
- e) For watersheds not identified as Priority Watersheds, the area from the edges of the stream channel, wetland, landslide, or landslide-prone area to a distance equal to the height of one-half site-potential tree, or 50 feet slope distance, whichever is greatest.

Non-forested Rangeland Ecosystems

The Interim RHCA width for permanently flowing streams in categories 1 and 2 is the extent of the 100-year flood plain.

Table A-2. PACFISH and INFISH interim riparian management objectives

Habitat Feature		Riparian Management Objectives									
Water Temperature		No measurable increase in maximum water temperature (7-day moving average of daily maximum temperature measured as the average of the maximum daily temperature of the warmest consecutive 7-day period). Maximum water temperatures below 59F within adult holding habitat and below 48F within spawning and rearing habitats.									
Large woody debris (forested systems)		East of Cascade Crest in Oregon, Washington, Idaho: > 20 pieces per mile; > 12 inch diameter; > 35 foot length									
Bank Stability (nonforested systems)		> 80% stable									
Lower Bank Angle (nonforested systems)		> 75% of banks with < 90 degree angle									
Width/Depth Ratio (all systems)		< 10, mean wetted depth divided by mean depth									
Pool Frequency	Wetted width (feet)	10	20	25	50	75	100	125	150	200	
	Pools per mile	96	56	47	26	23	18	14	12	9	

Management Direction for Old Forest

All three forest plans designate management areas for old growth. None of the 1990 forest plans allow scheduled timber harvest in designated old growth management areas.

For areas outside of designated old growth management areas, the following direction applies.

Current direction for timber sales includes “Interim Management Direction Establishing Riparian, Ecosystem and Wildlife Standards for Timber Sales” (Eastside Screens), which was amended into the three forest plans in 1995 (USDA and USDI 1995b). The Eastside Screens requirements are shown on the following page.

The following activities are not subject to Eastside Screens direction:

- Personal use firewood sales
- Post and pole sales
- Sales to protect health and safety
- Sales to modify vegetation within recreation special use areas

The following sales are not subject to the historic range of variability analysis, but must apply wildlife standards:

- Pre-commercial thinning sales
- Sales of material sold as fiber
- Sales of dead material less than 7 inches d.b.h., with incidental green volume

- Salvage sales, with incidental green volume, located outside currently mapped old-growth
- Commercial thinning and understory removal sales located outside currently mapped old-growth

All other sales are subject to the historic range of variability analysis. The historic range of variability is a way of characterizing the landscape for patterns of stand structure by biophysical environment and comparing them to pre-settlement conditions.

Eastside Screens Requirements

1. DETERMINE the historic range of variability:
 - ◆ describe the dominant historical disturbance regime
 - ◆ characterize the landscape pattern and abundance of structural stages maintained by the disturbance regime
 - ◆ describe spatial pattern and distribution of structural stages under the Historic Range of Variability disturbance regime
 - ◆ map the current pattern of structural stages AND calculate their abundance by biophysical environmental setting
2. CHARACTERIZE the proposed timber sale and its associated watershed for patterns of stand structure by biophysical environment within a watershed and compare to the historic range of variability.

Scenario A: WHERE either late/old structure (LOS), single story, or multi-story falls BELOW HRV, NO NET LOSS of LOS from that biophysical environment. DO NOT ALLOW timber sale harvest activities to occur within LOS stages that are BELOW HRV.

3. Some timber sale activities can occur WITHIN the LOS multi-story stages that are AT or ABOVE the historic range of variability in a manner to MAINTAIN or ENHANCE LOS within that biophysical environment. It is ALLOWABLE to manipulate one type of LOS to move stands into the LOS stage that is DEFICIT (LOS multi to LOS single), if this meets historical conditions.
4. OUTSIDE LOS, many types of timber sale activities are ALLOWED. The intent is still to maintain and/or enhance LOS components in stands subject to timber harvest as much as possible, by adhering to the following standards:
 - a. MAINTAIN ALL remnant late and old seral (LOS) and/or structural live trees ≥ 21 " d.b.h. that currently exist within stands proposed for harvest activities;
 - b. MANIPULATE vegetative structure that does not meet LOS conditions, in a manner that moves it towards these conditions as appropriate to meet the Historic Range of Variability.
 - c. MAINTAIN open, park-like stand conditions where this condition occurred historically. Manipulate vegetation in a manner to encourage the development and maintenance of large diameter, open canopy structure.
5. Maintain or enhance the current level of connectivity between LOS stands and between all Forest Plan designated old-growth habitats by maintaining stands between them.
 - d. CONNECT these LOS and old-growth habitats with each other in a contiguous network pattern by at least two different directions;

- Connectivity corridors should be as SHORT as possible
 - A connectivity corridor stand is one in which MEDIUM diameter or larger trees are COMMON, canopy covers are within the TOP 1/3 of SITE POTENTIAL, and stand WIDTH is at least 400 feet wide at the narrowest point;
 - Harvesting within connectivity corridors IS PERMITTED IF, all criteria in the above element can be met (maintained during harvest).
- e. Reduce fragmentation of LOS stands, or at least, DO NOT INCREASE it from current levels. Stands that do not currently meet LOS that are located within, or surrounded by, blocks of LOS stands SHOULD NOT be considered for even-aged regeneration harvest, or group selection at this time.
6. All sale activities WILL MAINTAIN snags and GTR trees of > 21" d.b.h., at 100% potential population levels of primary cavity excavators;

- ◆ Pre-activity down logs may be removed only when they exceed the quantities listed below:

Species	Pieces/acre	Diameter	Piece size and total feet
Ponderosa pine	3-6	12"	> 6' and 20-40 ft.
Mixed conifer	15-20	12"	> 6' and 100-140 ft.
Lodgepole pine	15-20	8"	> 8' and 120-160 ft.

- ◆ These down log criteria are NOT INTENDED TO PRECLUDE the use of prescribed fire. Consumption WILL NOT EXCEED 3 inches total of diameter reduction in the featured large logs.
 - ◆ Leave logs in current lengths, DO NOT CUT them into pieces. Longer logs may be counted for multiple "pieces" without cutting them.
 - ◆ For all stands, snags >20 inches dbh are preferred and should be left whenever possible, with snags down to the 15 inch category being left when larger snags are not available.
 - ◆ Leave pre-activity (currently existing) levels of down logs, unless they exceed the quantities listed below. Harvest activities should supplement pre-activity levels of down logs up to the maximum level. Exceptions can be made where fire protection needs for life and property cannot be accomplished with this quantity of debris left on site.
7. Follow the following goshawk requirements. Protect known active and historically used goshawk nest sites. Harvest is prohibited in the 30 acres surrounding active and historical goshawk nest sites. Establish a 400-acre post fledging area around every active nest site.

Scenario B: If the single story LOS stage is within or exceeds the historic range of variability within a watershed, or if both LOS single and multi-story are within or exceed the historic range of variability, then harvest can occur within these stages as long as LOS conditions do not fall below the Historic Range of Variability. Enhance LOS structure and attributes as possible.

8. Harvest activities can occur in order of the following three priorities:
- (a) within stands OTHER THAN LOS
 - (b) within smaller, isolated LOS stands less than 100 acres in size, and/or at the edges of large blocks of LOS stands (> 100 acres)
 - (c) Within the interior of large LOS stands (> 100 acres)

9. MAINTAIN connectivity as directed in SCENARIO A.
10. Non-fragmentation Standards - within the interior of large LOS stands > 100 acres, harvest activities ARE LIMITED TO non-fragmenting prescriptions (i.e., thinning, single-tree selection, salvage, understory removal, and other non-regeneration activities). GROUP SELECTION IS ONLY ALLOWED when openings created either mimic the natural forest pattern, and/or DO NOT EXCEED one-half acre in size.
11. ADHERE to the specific wildlife prescriptions for SNAGS, GREEN TREE REPLACEMENTS, and DOWN LOGS, as described in SCENARIO A.
12. Follow SCENARIO A, with the following EXCEPTION for goshawk post fledging areas in 5) (c):
 - ◆ A 400-acre "post fledging area" will be established around every active nest site. While harvesting activities can occur within this area, up to 60% of the area should be retained in LOS conditions, (i.e., if 35% of the area is now in LOS stands, then it all needs to be retained; if 75% of the area is now in LOS stands, then some can be harvested, as long as this late and old stand structure does not drop below 60% of the area).

Management Direction for Invasive Species

In 2005, the regional forester amended the 1990 forest plans with the direction displayed below. Many standards and guidelines in the 1990 forest plans were superseded by this new amendment. The numbering is not sequential because the selected alternative adopted no standard for standards 5, 9, 10, and 17.

2005 Preventing and Managing Invasive Plants FEIS ROD Element

Standards and Guidelines

Standard 1. Prevention of invasive plant introduction, establishment and spread will be addressed in watershed analysis; roads analysis; fire and fuels management plans, Burned Area Emergency Recovery Plans; emergency wildland fire situation analysis; wildland fire implementation plans; grazing allotment management plans, recreation management plans, vegetation management plans, and other land management assessments.

Standard 2. Actions conducted or authorized by written permit by the Forest Service that will operate outside the limits of the road prism (including public works and service contracts), require the cleaning of all heavy equipment (bulldozers, skidders, graders, backhoes, dump trucks, etc.) prior to entering National Forest System Lands.

This standard does not apply to initial attack of wildland fires, and other emergency situations where cleaning would delay response time.

Standard 3. Use weed-free straw and mulch for all projects, conducted or authorized by the Forest Service, on National Forest System Lands. If State certified straw and/or mulch is not available, individual Forests should require sources certified to be weed free using the North American Weed Free Forage Program standards (see Appendix O) or a similar certification process.

Standard 4. Use only pelletized or certified weed free feed on all National Forest System lands. If state certified weed free feed is not available, individual Forests should require feed certified to be weed free using North American Weed Free Forage Program standards or a similar certification process. This standard may need to be phased in as a certification processes are established.

Standard 6. Use available administrative mechanisms to incorporate invasive plant prevention practices into rangeland management. Examples of administrative mechanisms include, but are not limited to, revising permits and grazing allotment management plans, providing annual operating instructions, and adaptive management. Plan and implement practices in cooperation with the grazing permit holder.

Standard 7. Inspect active gravel, fill, sand stockpiles, quarry sites, and borrow material for invasive plants before use and transport. Treat or require treatment of infested sources before any use of pit material. Use only gravel, fill, sand, and rock that is judged to be weed free by District or Forest weed specialists.

Standard 8. Conduct road blading, brushing and ditch cleaning in areas with high concentrations of invasive plants in consultation with District or Forest-level invasive plant specialists, incorporate invasive plant prevention practices as appropriate.

Standard 11. Prioritize infestations of invasive plants for treatment at the landscape, watershed or larger multiple forest/multiple owner scale.

Standard 12. Develop a long-term site strategy for restoring/re-vegetating invasive plant sites prior to treatment.

Standard 13. Native plant materials are the first choice in re-vegetation for restoration and rehabilitation where timely natural regeneration of the native plant community is not likely to occur. Non-native, noninvasive plant species may be used in any of the following situations: 1) when needed in emergency conditions to protect basic resource values (e.g., soil stability, water quality and to help prevent the establishment of invasive species), 2) as an interim, non-persistent measure designed to aid in the reestablishment of native plants, 3) if native plant materials are not available, or 4) in permanently altered plant communities. Under no circumstances will nonnative invasive plant species be used for re-vegetation.

Standard 14. Use only APHIS and State-approved biological control agents. Agents demonstrated to have direct negative impacts on non-target organisms would not be released.

Standard 15. Application of any herbicides to treat invasive plants will be performed or directly supervised by a State or Federally licensed applicator. All treatment projects that involve the use of herbicides will develop and implement herbicide transportation and handling safety plan.

Standard 16. Select from herbicide formulations containing one or more of the following 10 active ingredients: chlorsulfuron, clopyralid, glyphosate, imazapic, imazapyr, metsulfuron methyl, picloram, sethoxydim, sulfometuron methyl, and triclopyr.

Mixtures of herbicide formulations containing 3 or less of these active ingredients may be applied where the sum of all individual Hazard Quotients for the relevant application scenarios is less than 1.0.

All herbicide application methods are allowed including wicking, wiping, injection, spot, broadcast and aerial, as permitted by the product label. Chlorsulfuron, metsulfuron methyl, and sulfometuron methyl will not be applied aerially. The use of triclopyr is limited to selective application techniques only (e.g., spot spraying, wiping, basal bark, cut stump, injection).

Additional herbicides and herbicide mixtures may be added in the future at either the Forest Plan or project level through appropriate risk analysis and NEPA/ESA procedures. This standard will be applied to invasive plant projects with NEPA decisions signed after March 1, 2006.

Standard 18. Use only adjuvants (e.g. surfactants, dyes) and inert ingredients reviewed in Forest Service hazard and risk assessment documents such as SERA, 1997a, 1997b; Bakke, 2003.

Standard 19. To minimize or eliminate direct or indirect negative effects to non-target plants, terrestrial animals, water quality and aquatic biota (including amphibians) from the application of herbicide, use site-specific soil characteristics, proximity to surface water and local water table depth to determine herbicide formulation, size of buffers needed, if any, and application method and timing. Consider herbicides registered for aquatic use where herbicide is likely to be delivered to surface waters.

Standard 20. Design invasive plant treatments to minimize or eliminate adverse effects to species and critical habitats proposed and/or listed under the Endangered Species Act. This may involve surveying for listed or proposed plants prior to implementing actions within unsurveyed habitat if the action has a reasonable potential to adversely affect the plant species. Use site-specific project design (e.g. application rate and method, timing, wind speed and direction, nozzle type and size, buffers, etc.) to mitigate the potential for adverse disturbance and/or contaminant exposure.

Standard 21. Provide a minimum buffer of 300 feet for aerial application of herbicides near developed campgrounds, recreation residences and private land (unless otherwise authorized by adjacent private landowners).

Standard 22. Prohibit aerial application of herbicides within legally designated municipal watersheds.

Standard 23. Prior to implementation of herbicide treatment projects, National Forest system staff will ensure timely public notification. Treatment areas will be posted to inform the public and forest workers of herbicide application dates and herbicides used. If requested, individuals may be notified in advance of spray dates.

Desired Conditions

In National Forest lands across Region Six, healthy native plant communities remain diverse and resilient, and damaged ecosystems are being restored. High quality habitat is provided for native organisms throughout the region. Invasive plants do not jeopardize the ability of the National Forests to provide goods and services communities expect. The need for invasive plant treatment is reduced due to the effectiveness and habitual nature of preventative actions, and the success of restoration efforts.

Goals and Objectives

Goal 1 Protect ecosystems from the impacts of invasive plants through an integrated approach that emphasizes prevention, early detection, and early treatment. All employees and users of the National Forest recognize that they play an important role in preventing and detecting invasive plants.

Objective 1.1 Implement appropriate invasive plant prevention practices to help reduce the introduction, establishment and spread of invasive plants associated with management actions and land use activities.

Objective 1.2 Educate the workforce and the public to help identify, report, and prevent invasive plants

Objective 1.3 Detect new infestations of invasive plants promptly by creating and maintaining complete, up-to-date inventories of infested areas, and proactively identifying and inspecting susceptible areas not infested with invasive plants.

Objective 1.4 Use an integrated approach to treating areas infested with invasive plants. Utilize a combination of available tools including manual, cultural, mechanical, herbicides, biological control.

Objective 1.5 Control new invasive plant infestations promptly, suppress or contain expansion of infestations where control is not practical, conduct follow up inspection of treated sites to prevent reestablishment.

Goal 2 Minimize the creation of conditions that favor invasive plant introduction, establishment and spread during land management actions and land use activities. Continually review and adjust land management practices to help reduce the creation of conditions that favor invasive plant communities.

Objective 2.1 Reduce soil disturbance while achieving project objectives through timber harvest, fuel treatments, and other activities that potentially produce large amounts of bare ground

Objective 2.2 Retain native vegetation consistent with site capability and integrated resource management objectives to suppress invasive plants and prevent their establishment and growth.

Objective 2.3 Reduce the introduction, establishment and spread of invasive plants during fire suppression and fire rehabilitation activities by minimizing the conditions that promote invasive plant germination and establishment.

Objective 2.4 Incorporate invasive plant prevention as an important consideration in all recreational land use and access decisions. Use Forest-level Access and Travel Management planning to manage both on-highway and off-highway travel and travel routes to reduce the introduction, establishment and spread of invasive plants.

Objective 2.5 Place greater emphasis on managing previously “unmanaged recreation” (OHVs, dispersed recreation, etc.) to help reduce creation of soil conditions that favor invasive plants, and reduce transport of invasive plant seeds and propagules.

Goal 3 Protect the health of people who work, visit, or live in or near National Forests, while effectively treating invasive plants. Identify, avoid, or mitigate potential human health effects from invasive plants and treatments.

Objective 3.1 Avoid or minimize public exposure to herbicides, fertilizer, and smoke.

Objective 3.2 Reduce reliance on herbicide use over time in Region Six

Goal 4 Implement invasive plant treatment strategies that protect sensitive ecosystem components, and maintain biological diversity and function within ecosystems. Reduce loss or degradation of native habitat from invasive plants while minimizing adverse effects from treatment projects.

Objective 4.1 Maintain water quality while implementing invasive plant treatments.

Objective 4.2 Protect non-target plants and animals from negative effects of both invasive plants and applied herbicides. Where herbicide treatment of invasive plants is necessary within the riparian zone, select treatment methods and chemicals so that herbicide application is consistent with riparian management direction contained in PACFISH, INFISH, and the Aquatic Conservation Strategies of the Northwest Forest Plan.

Objective 4.3 Protect threatened, endangered, and sensitive species habitat threatened by invasive plants. Design treatment projects to protect threatened, endangered, and sensitive species and maintain species viability.

Goal 5 Expand collaborative efforts between the Forest Service, our partners, and the public to share learning experiences regarding the prevention and control of invasive plants, and the protection and restoration of native plant communities.

Objective 5.1 Use an adaptive management approach to invasive plant management that emphasizes monitoring, learning, and adjusting management techniques. Evaluate treatment effectiveness and adjust future treatment actions based on the results of these evaluations.

Objective 5.2 Collaborate with tribal, other federal, state, local and private land managers to increase availability and use of appropriate native plants for all land ownerships.

Objective 5.3 Work effectively with neighbors in all aspects of invasive plant management: share information and resources, support cooperative weed management, and work together to reduce the inappropriate use of invasive plants (landscaping, erosion control, etc.).

Management Direction for Wildlife

Open Road Density

Open road density and corresponding human disturbance play a key role in determining whether wildlife remains in an area. Human disturbance associated with open roads can displace individual animals and make them vulnerable to harassment, reduce the amount of suitable habitat, and disturb nests and roosting activities.

Table A-3. Open road density by management area, 1990 forest plans

National Forest	Road Density	Management Area(s)*	Plan Component
MAL	1.5 miles/square mile	MA 4D Wildlife Emphasis	Standard
	2.2 miles/square mile	MA 4D Winter Range	
	3.2 miles/square mile	Summer Range**	
UMA	2 miles/square mile	Forestwide	Desired condition
WAW	1.5 miles/square mile	MA 4E Winter Range MA 4D General Wildlife/Fish	Standard
	2.5 miles/square mile	MA 4A General Forest	

* See crosswalk in project record for more information.

** Includes all areas outside wildlife emphasis, winter range, and designated wilderness areas.

Management Indicator Species

Forest plans are required to identify management indicator species (MIS). These species are selected because their population changes are believed to indicate the effects of management activities. The MIS identified for the 1990 forest plans are displayed in Table A-4.

Table A-4. 1990 forest plans management indicator species identified by national forest and criteria for selection

Management Indicator Species	MAL	UMA	WAW	OCH	Criteria for Selection
Rocky Mountain elk	X	X	X		Commonly hunted; general habitat needs; cover/forage/roads
American marten	X	X	X		Old growth; dead and down tree habitat; mature habitat with large trees
Pileated woodpecker	X	X	X	X	Old growth; mature and old growth stands at high elevations
Northern goshawk			X		Mature to old conifer stands
Northern three-toed woodpecker	X	X			Old growth; dead and down in mature and old lodgepole pine
Lewis' woodpecker	X				Dead and defective habitat
Yellow-bellied sapsucker	X				Dead and defective habitat
Red-breasted sapsucker	X				Dead and defective habitat
Williamson's sapsucker	X				Dead and defective habitat
Downy woodpecker	X				Dead and defective habitat
Hairy woodpecker	X				Dead and defective habitat
White-headed woodpecker	X				Dead and defective habitat
Black-backed woodpecker	X				Dead and defective habitat
Northern flicker	X				Dead and defective habitat; Old growth juniper habitat
Primary cavity excavators ¹		X	X	X	Snag habitat; dead and down tree habitats; standing dead trees
Resident trout ²			X	X	High quality water and fishery habitat
Rainbow trout (resident)		X			Streams/riparian habitats
Rainbow/redband trout	X				Non-anadromous riparian
Steelhead trout	X	X	X		Anadromous riparian; streams/riparian habitats; high quality water and fishery habitat
Bull trout	X				Non-anadromous riparian
Cutthroat trout	X				Non-anadromous riparian

1. Primary cavity excavator definition or list:

- Ochoco National Forest: wildlife species that excavate cavities in snags
- Umatilla National Forest: wildlife species that excavate cavities in snags
- Wallowa-Whitman National Forest: common flicker, Lewis' woodpecker, yellow-bellied sapsucker, Williamson's sapsucker, hairy woodpecker, downy woodpecker, white-headed woodpecker, black-backed woodpecker three-toed woodpecker, northern three-toed woodpecker, mountain chickadee, white-breasted nuthatch, red-breasted nuthatch and pygmy nuthatch
- Malheur National Forest: did not use a primary cavity excavators group

2. Resident trout definition:

- Wallowa-Whitman National Forest: did not define resident trout
- Other national forests: did not use a resident trout group

Habitat Effectiveness Index for Rocky Mountain elk

The Habitat Effectiveness Index (HEI) model is used to predict the influence of forest management on elk. It predicts how effectively an area supports elk. It is intended to be only a relative measure of habitat effectiveness and does not consider many factors that influence the actual number of elk found in an area. Those factors include hunting, predation, disease, changes in weather and forage production, and competition with other species for forage. Model parameters include open road density, cover-to-forage ratio, and cover quality. Further discussion of the model can be found in the 1990 forest plans.

Table A-5. Comparison of Habitat Effectiveness Index*/cover standards for management areas (the management area identifiers are those used in the 1990 forest plans)

Umatilla National Forest	Malheur National Forest	Wallowa-Whitman National Forest**
<p>A10, C4,F4 – Elk habitat will be managed to achieve an HEI of no less than 60</p> <p>A10, C4 – 30% of area is cover with minimum of 15% (20% desired) of satisfactory cover.</p> <p>F4 – 30% of summer and winter area as cover with minimum of 10% (15-20% desired) of satisfactory cover</p> <p>C7,E2 – Elk habitat will be managed to achieve an HEI of no less than 45; 30% of area is cover with minimum of 10% (15-20% desired) of satisfactory cover.</p> <p>E1 – Elk habitat will be managed to achieve an HEI of at least 30; cover not mentioned</p> <p>C8 – (grass-tree mosaic) minimum HEI of 70% and 30% of summer and winter area as cover with minimum of 10% (15-20% desired) of satisfactory cover</p> <p>C3 – (winter range) minimum HEI of 70% with 30% of area as cover with minimum of 10% (15-20% desired) of satisfactory cover</p> <p>C3a – (sensitive winter range) minimum HEI of 70% with 30% of area as cover with minimum of 10% (15-20% desired) of satisfactory cover</p>	<p>1-Manage elk summer range to provide 20% cover and an HEI of 0.4. The mix of sat/mar cover can vary by summer range.</p> <p>4A-Manage winter range to provide 25% cover and an HEI of 0.5.</p> <p>20A, 20B, 21- Manage wildlife emphasis areas to provide and HEI of 0.7 and 40% cover</p> <p>Ochoco National Forest-No HEI standards and guidelines for management areas</p>	<p>1 – General forest will be managed to obtain an 0.5 HEI</p> <p>3, 3a, 18 – Manage winter range and selected summer ranges to achieve an HEI of 74%</p> <p>Attempt to achieve an HEI of 0.5 in timber sale planning. ***</p> <p>1 – Retain at least 30% of the forested area within a project in satisfactory or marginal cover.***</p>

* HEI including discounts for roads open to motor vehicle traffic, as described in Wildlife Habitats in Managed Forests (Thomas et al. 1979). Marginal cover, satisfactory cover, and forage areas will be managed to meet size and spacing criteria as described in Habitat Effectiveness for Elk on Blue Mountain Winter Ranges (Thomas et al. 1988).

** The Wallowa-Whitman National Forest does not have forestwide elk standards. Those listed are from MA 3 Timber/Wildlife Emphasis.

*** From the record of decision.

Management Direction for Timber Harvest

Direction pertaining to timber sales is included in the Eastside Screens as well as in other portions of the 1990 forest plans. Tables A-6 and A-7 are specific to the lands suitable for timber production and the allowable sale quantity.

Table A-6. Lands suitable for timber production (acres) as shown in the 1990 forest plans and adjustments based on 2011 suitable acres, per alternative A (no action)

Year	MAL*	UMA	WAW**	Total
1990	985,000	619,000	837,000	2,441,000
2011 update***	780,000	380,000	590,000	1,750,000

* Includes Ochoco National Forest acres administered by the Malheur National Forest.

** The HCNRA was removed from Wallowa-Whitman National Forest lands suitable for timber production by regulation in 1994.

*** 2011 figures are based on recalculated timber suitability acres accounting for amendments and updated vegetation/soil mapping.

Table A-7. Allowable sale quantity (MMBF) as shown in the 1990 forest plans and 2011 actual outputs, per alternative A (no action)

Year	MAL*	UMA	WAW	Total
1990	234	124	141	499
2011	55	51	46	152

* Includes 34 MMBF from the portion of the Ochoco National Forest administered by the Emigrant Creek Ranger District of the Malheur National Forest.

Management Direction for Rangeland Vegetation and Domestic Livestock Grazing

Table A-8 displays the current upland grazing standards contained in each plan. See Table A-9 for livestock grazing direction in RHCAs. The maximum utilization figures apply regardless of what is consuming the forage. One level of utilization applies when rangeland is satisfactory condition and another when rangeland is in unsatisfactory condition (see glossary for definitions). Different utilization levels are also allowed depending on the level of management within an allotment.

Management level is defined as:

Level B Stewardship (minimum level): Livestock use managed within current grazing capacity. Cost-effective improvements used only to maintain stewardship of range.

Level C Extensive: Livestock managed to achieve full utilization of allocated forage.

Level D Intensive: Livestock managed to optimize forage production and utilization. May involve fencing and water development to implement complex grazing systems.

Sat: Satisfactory range condition—Forage condition is at least fair, with stable trend, and allotment is not classified PC (basic resource damage) or PD (other resource damage).

Unsat: Unsatisfactory range condition.

Table A-8. Management direction for the maximum percent utilization of livestock grazing in uplands

National Forest	Management Level	Forested		Grasslands		Shrubland	
		Sat	Unsat	Sat	Unsat	Sat	Unsat
MAL*	Stewardship B	40%	0-30%	50%	0-30%	40%	0-25%
	Extensive C	45%	0-35%	55%	0-35%	50%	0-30%
UMA	Stewardship B	40%	0-30%	50%	0-30%	40%	0-25%
	Extensive C	45%	0-35%	55%	0-35%	45%	0-30%
	Intensive D	50%	0-40%	60%	0-40%	50%	0-35%
WAW	Stewardship B	40%	0-30%	50%	0-30%	40%	0-25%
	Extensive C	45%	0-35%	55%	0-35%	45%	0-30%
	Intensive D	50%	0-40%	60%	0-40%	50%	0-35%
OCH	Stewardship B	40%	0-30%	50%	0-30%	40%	0-25%
	Extensive C	45%	0-35%	55%	0-35%	45%	0-30%
	Intensive D	50%	0-40%	55%	0-40%	50%	0-35%

* Does not mention level D.

Sat=satisfactory, Unsat = unsatisfactory

For the Umatilla National Forest, utilization of transitory range (where timber harvest has occurred during the last 30 years) shall not exceed 60 percent for domestic livestock.

Domestic Sheep Grazing

Wallowa-Whitman and Umatilla National Forests

Standard: Manage the conflict between bighorn sheep and domestic sheep in coordination with state wildlife agencies.

Malheur National Forest

Standard: Do not stock livestock allotments in bighorn sheep range with domestic sheep.

Table A-9. Management direction for maximum percent utilization of livestock grazing in riparian areas

National Forest	Management Level	Grass and grass-like		Shrubs	
		Sat	Unsat	Sat	Unsat
MAL*	Stewardship B	40%	0-30%	30%	0-25%
	Extensive C	45%	0-35%	40%	0-30%
UMA	Stewardship B	40%	0-30%	30%	0-25%
	Extensive C	45%	0-35%	40%	0-30%
	Intensive D	50%	0-40%	50%	0-35%
WAW	Stewardship B	40%	0-30%	30%	0-25%
	Extensive C	45%	0-35%	40%	0-30%
	Intensive D	50%	0-40%	50%	0-35%
OCH	Stewardship B	40%	0-30%	30%	0-25%
	Extensive C	45%	0-35%	40%	0-30%
	Intensive D	50%	0-40%	50%	0-35%

* Does not mention level D.

Sat=satisfactory, Unsat = unsatisfactory

Part 2: Comparison of the Action Alternatives

Introduction

This document describes the components of the action alternatives (alternatives B, C, D, E, and F) in detail and compares the differences. The components of a forest plan include:

- Goals and desired conditions
- Management areas
- Special areas
- Suitable uses and activities
- Objectives
- Monitoring and evaluation
- Standards
- Guidelines

Elements Common to the Action Alternatives

Laws and Regulations

All action alternatives are designed to comply with applicable laws, regulations, and policies that govern the Forest Service and the management of National Forest System lands. This plan revision is guided by the 2000 Planning Rule that includes transition provisions allowing the Forest Service to use the 1982 planning rule provisions to amend or revise plans. Generally, laws and regulations are not repeated in the text of the revised forest plans or in this appendix. A brief description of applicable laws and regulations is included in chapter 1 of the DEIS.

Technical Information

Each action alternative is evaluated using the same set of technical assumptions and data. The same sets of criteria are used to develop calculations of acres in different ecological conditions, available for certain uses such as range, timber production or harvest, wilderness, or other uses, and for production of goods and services.

Special Designations

All of the existing areas protected by special designations during the life of the 1990 forest plans maintain those special designations across the action alternatives. Discussions of any additional special areas or proposed additional special areas are included in the individual action alternative descriptions.

Goals and Desired Conditions (Action Alternatives)

The goals and desired conditions for the action alternatives were developed collaboratively. These goals and desired conditions are common to each of the action alternatives except desired condition 2.7, Roads and Trail Access, although the alternatives are designed to respond to the purpose and need and significant issues in different ways. The rate of achieving desired conditions may vary by alternative due to differences in the suitability of lands for different activities and to differences in management intensity as reflected by differences in objectives.

The three goals for the Malheur, Umatilla and Wallowa-Whitman National Forests Forest Plans are:

- Goal 1: Promote Ecological Integrity
- Goal 2: Promote Social Well-Being
- Goal 3: Promote Economic Well-Being

These three goals are the framework for the plan organization. The desired conditions, objectives, and standards and guidelines each fall under corresponding goals (table A-10).

Table A-10. A list of primary goals and corresponding desired conditions identified to meet the goals

Goal 1: Promote Ecological Integrity	Goal 2: Promote Social Well-Being
1.1 Watershed Function	2.1 Scenery
1.1.1 Hydrologic Function	2.2 Old Forest
1.1.2 Riparian Function	2.3 Recreation
1.1.3 Wetland Function	2.4 Hunting and Fishing
1.1.4 Groundwater-dependent Ecosystem Function	2.5 Rocky Mountain Elk
1.1.5 Stream Channel Function	2.6 Cultural Resources
1.1.6 Aquatic Habitat Function	2.7 Roads and Trails Access
1.2 Species Diversity	2.8 Wildland Urban Interface
1.3 Productive Capacity	2.9 Tribal Rights and Interests
1.4 Disturbance Processes	2.10 Culturally Significant Foods
1.4.1 Wildland Fire (planned and unplanned ignitions)	2.11 Community Resiliency
1.4.2 Insects and Disease	2.12 Wild Horses
1.5 Invasive Species	
1.6 Structural Stages	Goal 3: Promote Economic Well-Being
1.7 Plant Species Composition	3.1 Facilities and Infrastructure
1.8 Stand Density	3.2 Land Ownership
1.9 Air Quality	3.3 Goods and Services
1.10 Soil Quality	3.3.1 Forest Products
1.11 Water Quality	3.3.2 Livestock Grazing
1.12 Landscape Patterns	3.3.3 Special Uses
1.13 Special Plant Habitats	3.3.4 Mineral and Geological Resources
1.14 Snags and Down Wood	3.3.5 Water Use

Goal 1: Promote Ecological Integrity

Ecological integrity is a condition that sustains the wholeness or completeness of ecosystem structure, composition, and function. The national forests’ contribution to ecological function is described by watershed function, species diversity, productive capacity, disturbance processes, and invasive species. Ecological structure and composition are described by structural stages; plant species composition; stand density; and air, soil, and water quality. Landscape patterns, special plant habitats, and snags and down wood are also indicators of sustainability in the Blue Mountains national forests. Although the primary focus of this section is ecological integrity, this goal and the desired conditions are interrelated with the social and economic components of sustainability.

Desired Conditions

1.1 Watershed Function

The desired conditions for 1.1 Watershed Function are described by Key Watersheds and All Watersheds and in 1.1.1 Hydrologic Function, 1.1.2 Riparian Function, 1.1.3 Wetland Function, 1.1.4 Groundwater Dependent Ecosystem Function, 1.1.5 Stream Channel Function, and 1.1.6 Aquatic Habitat Function. Key watersheds are defined in the glossary.

Key Watersheds

Desired Condition: Networks of watersheds with good habitat and functionally intact ecosystems contribute to and enhance conservation and recovery of specific threatened or endangered fish species and provide high water quality and quantity. The networks contribute to short-term conservation and long-term recovery at the major population group, core area or other appropriate population scale.

Roads in key watersheds do not present substantial risk to aquatic resources.

Key watersheds have high watershed integrity and provide resilient aquatic and riparian ecosystems.

Scale: Subwatershed.

All Watersheds

Desired Condition: The watershed-scale processes that control the routing of water, sediment, wood, and organic material operate at levels that result in self-sustaining riparian and aquatic ecosystems that do not require human intervention or restoration.

Scale: Watershed or subwatershed.

Desired Condition: The distribution, diversity, and complexity of watershed and landscape-scale features, including natural disturbance regimes, provide aquatic and riparian ecosystems to which species, populations, and communities are uniquely adapted.

Scale: Subbasin.

Desired Condition: Connectivity exists within watersheds. Lateral, longitudinal, and drainage network connections include floodplains, wetlands, upslope areas, headwater tributaries, and intact habitat refugia. These network connections provide chemically and physically unobstructed routes to areas critical for fulfilling life history requirements of aquatic, riparian-dependent, and many upland species of plants and animals.

Scale: Connectivity is between watersheds at the subbasin scale for forestwide planning; between subwatersheds at the watershed scale for project planning.

1.1.1 Hydrologic Function

Desired Condition: Instream flows, including water yield, timing, frequency, magnitude, and duration of runoff, are sufficient to create and sustain riparian, aquatic, and wetland habitats and to retain patterns of movement of sediment, nutrients, and wood. The timing, magnitude, duration, and spatial distribution of peak, high, and low flows are within the natural range of variability in which the system developed.

Scale: Watershed.

Desired Condition: The species composition and structural diversity of native plant communities in riparian management areas, including wetlands, provides adequate summer and winter thermal regulation, nutrient filtering, appropriate rates of surface erosion, bank erosion, and channel migration and supplies amounts and distributions of coarse woody debris and fine particulate organic matter sufficient to sustain physical complexity and stability.

Scale: Watershed scale for forestwide planning; subwatershed scale for project planning.

Desired Condition: The timing, variability, and duration of floodplain inundation are within the natural range of variability.

Scale: Watershed.

Desired Condition: The sediment regime is within the natural range of variability. Elements of the sediment regime include the timing, volume, rate, and character of sediment input, storage, and transport.

Scale: Watershed.

Desired Condition: The timing, duration, and variability of inundation, or water table elevation, in wetlands, seeps, and springs are within the natural range of variability.

Scale: Subwatershed.

1.1.2 Riparian Function

Desired Condition: Riparian management areas (RMAs) within any given watershed reflect a natural composition of native flora and fauna and a distribution of physical, chemical, and biological conditions appropriate to natural disturbance regimes affecting the area.

Scale: Subwatershed.

Desired Condition: Key riparian processes and conditions (including slope stability and associated vegetative root strength, bank stability, wood delivery to streams, and, within the riparian management areas, input of leafy and organic matter to aquatic and terrestrial systems, solar shading, microclimate, and water quality) are operating consistent with local disturbance regimes.

Scale: Subwatershed.

Desired Condition: Riparian vegetation has the species composition, structural diversity, age class diversity, and extent that is characteristic of the setting in which it occurs and the hydrologic and disturbance regimes in which it developed. The condition and composition of small habitat patches may change over small temporal and spatial scales but remains relatively constant at larger scales.

Scale: Subwatershed to subbasin.

Desired Condition: Riparian shrub communities occupy their historical range and extent. Individual plants are capable of reaching the full potential for a typical individual of a particular species, as defined by plant height, width, and growth form. Individual plants are able to propagate, or reproduce, vegetatively and/or sexually. Plant communities are similar in species composition, age class structure, canopy density, and ground cover to plant associations (Crowe and Clausnitzer 1997) that are representative of a particular setting.

Scale: Subwatershed.

Desired Condition: Riparian areas consist of native assemblages of riparian-dependent plants and animals free of persistent non-native species and provide for dispersal and travel corridors, as well as connectivity, between geographically important areas for both terrestrial and aquatic animals and plant species within the planning area.

Scale: Subwatershed.

1.1.3 Wetland Function

Desired Condition: The extent and diversity of wetland types in the Blue Mountains is maintained or increased.

Scale: Subbasin.

Desired Condition: The surface and subsurface flow paths that support wetland habitats are undisturbed. The timing and duration of inundation of wetlands are within natural ranges. Plant species composition in wetlands is characteristic of the biophysical setting in which they occur.

Scale: Subwatershed.

1.1.4 Groundwater Dependent Ecosystem Function

Desired Condition: Springs, peatlands and groundwater fed wetlands in the Blue Mountains are maintaining or regaining their ecological structure and function.

The aquifer supplying water to groundwater dependent ecosystems is not being affected by groundwater withdrawal or loss of recharge. Soils of groundwater dependent ecosystems are intact and functional; erosion and deposition are within the natural range. Runout channels, if present, are functioning naturally and are not entrenched, eroded, or substantially altered. Vegetation is composed of the anticipated cover of plant species associated with the site environment; hydric species are present and are not replaced by upland species. Livestock herbivory and trampling are not adversely affecting sites.

Scale: Subwatershed.

1.1.5 Stream Channel Function

Desired Condition: The physical integrity of the aquatic system, including shorelines, banks, and bottom configurations, are properly functioning and in dynamic equilibrium with the flow and sediment regimes under which aquatic systems have evolved.

Scale: Subwatershed to watershed.

Desired Condition: Channel morphology, structure, complexity, and diversity are in ranges that are characteristic of the local geology, climate, and geologic processes.

Scale: Subwatershed.

Desired Condition: The sediment regime under which aquatic ecosystems evolved is maintained, including the timing, volume, rate and character of input, storage, and transport.

Scale: Watershed.

1.1.6 Aquatic Habitat Function

Desired Condition: Aquatic habitats contribute to ecological conditions capable of supporting self-sustaining populations of native species diversity of plant, invertebrate, and vertebrate riparian-dependent species.

National forests in the Blue Mountains contribute to the protection of population strongholds for listed or proposed threatened and endangered species, state classified sensitive species, and narrow endemics, as these strongholds provide high quality habitat and support expansion and re-colonization of species to adjacent watersheds. These areas conserve key demographic processes likely to influence the persistence of populations or metapopulations.

Scale: Subwatershed to subbasin.

Desired Condition: Habitat elements (including spawning and rearing habitat, substrate, pool habitat, winter habitat, migration corridors, cover, food, habitat complexity, water quality, refugia, productivity, and connectivity) are in functional condition and are sufficiently distributed to support self-sustaining populations of native resident and anadromous fish.

Native fish species have access to historically occupied aquatic habitats and connectivity between habitats allows for the interaction of local populations.

Scale: Subbasin.

1.2 Species Diversity

Desired Condition: The natural range of habitats for native and desired non-native fish, wildlife, and native plant species, including threatened and endangered species, species identified as regional forester's sensitive species (RFSS), and focal species, is of adequate quality, distribution, and abundance to contribute to maintaining native and desired non-native species diversity. This includes the ability of species and individuals to interact, disperse, and find security within habitats in the planning area. These habitat conditions are resilient and sustainable considering the range of possible climate change scenarios.

Population strongholds for the fish focal species (Table A-11) provide high quality habitat and support expansion and re-colonization of species to adjacent unoccupied habitats. These areas conserve key demographic processes likely to influence the sustainability of aquatic species.

Federally listed species trend towards recovery or are delisted. Management activities improve the conservation status of species identified as being focal species or of local or regional conservation concern. Habitats and populations are managed in accordance with conservation planning documents, recovery plans, best available scientific information, and local knowledge.

Specialized habitat components, such as caves, standing dead trees, seeps, and springs, are found across the landscape in amounts and types commensurate with the natural communities in which they occur.

Scale: The desired condition for species diversity can be applied at a variety of scales (i.e., forestwide, watershed, and subwatershed). During project analysis and implementation, this desired condition should be used concurrently with information outlined in the strategy and design criteria part of this plan and with consideration of the best available climate change projections.

Additional information about focal species and their conservation strategies is available from the project record.

Table A-11. Terrestrial and aquatic focal and management indicator species for the action alternatives

Family	Group	Common Name	Focal Species	Management Indicator Species
Alpine/boreal	Alpine	Gray-crowned rosy-finch	X	
	Boreal forest	Boreal owl	X	
		Water vole	X	
Forest mosaic	All forested communities	Northern goshawk	X	
Medium/large trees	All forested communities	Cassin's finch	X	
	Cool/moist forest	Pileated woodpecker	X	X
		American marten	X	
	Dry forest	White-headed woodpecker	X	X
Open forest	All forested communities	Western bluebird	X	
		Fox sparrow	X	
		Mule deer		MAL only
	Post-fire habitat	Lewis's woodpecker	X	
		Black-backed woodpecker	X	
Upland grassland	Upland grassland	Upland sandpiper	X	
Human disturbance	Habitat generalist	Peregrine falcon	X	
		Wolverine	X	
		Rocky Mountain Elk		WAW/UMA only
Woodland/grass/shrub	Woodland/grass/shrub	Golden eagle	X	
		Lark sparrow	X	
		Pallid bat	X	
	Juniper woodland	Ash-throated flycatcher	X	
	Woodland/shrub	Loggerhead shrike	X	
	Shrub	Sage thrasher	X	
	Grass/shrub	Rocky Mountain bighorn sheep	X	
		California bighorn	X	
		Northern harrier	X	
Chambers/caves	Chambers/caves	Townsend's big-eared bat	X	
Riparian	Shrubby/deciduous riparian	Red-naped sapsucker	X	
		MacGillivray's warbler	X	

Family	Group	Common Name	Focal Species	Management Indicator Species
	Conifer riparian	Inland tailed frog	X	
		Black swift	X	
	Marsh with adjacent large trees	Black-crowned night-heron	X	
		Riparian/large tree or snag/open water	Wood duck	X
	Harlequin Duck		X	
	Bald eagle		X	
Wetland	Pond/small lake/backwater	Columbia spotted frog	X	
		Painted turtle	X	
	Marsh	Marsh wren	X	
	Marsh/wet meadow	Wilson's snipe	X	
	Marsh/open water	Eared grebe	X	
Aquatic habitat		Bull trout	X	
		Redband trout	X	
		Steelhead	X	
		Spring Chinook salmon	X	

1.3 Productive Capacity

Long-term productivity of aquatic, riparian, and terrestrial ecosystems within the national forests are maintained or restored by both ecological processes and through the use of sustainable management practices, as described in the combined ecological desired conditions. The result of maintenance and restoration treatments is that forest and rangeland ecosystems provide goods and services for human consumption without impairing their long-term productive capacity. However, the restoration of some nutrient cycling processes within some ecosystems consistent with their historic disturbance regimes may result in lower levels of productive capacity, in comparison to existing conditions.

Scale: Forestwide.

1.4 Disturbance Processes

1.4.1 Wildland Fire (planned and unplanned ignitions)

Desired Condition: Wildland fire plays an ecological role in creating the resilient forest and rangeland conditions needed to adapt to the conditions that result from climate changes. Table A-12 displays the desired condition ranges for wildland fire within the categories of fire severity, fire frequency, and amount of high severity fire by potential vegetation group. The range of desired conditions displayed allow for variation in the mix of fire severity, frequency, and amount of stand-replacing wildfire (high severity) by potential vegetation group across the landscape to respond to potential changes in climate. Wildland fire may be suitable on all acres, depending on expected fire effects and resource objectives.

Scale: Subwatershed for fire regime condition classes 1 and 2, watershed for fire regime condition class 3, and subbasin for fire regime condition classes 4 and 5.

Table A-12. Desired conditions for wildland fire severity and frequency within each potential vegetation group

Potential Vegetation Group	Fire Regime Condition Class	Fire Severity	Frequency (years)	High Severity Wildfire (percent)
Cold upland forest	IV	mixed-high	100-200	40-80%
Moist upland forest	III	mixed	30-150	20-40%
Dry upland forest	I	low-mixed	5-25	5-15%
Dry upland woodland	III	mixed	80-160	25-45%
Cold upland shrubland	III - IV	mixed-high	30-60	30-100%
Moist upland shrubland	II - III	mixed-high	10-40	30-100%
Dry upland shrubland	II	high	20-40	20-80%
Cold upland herbland	IV	high	30-80	55-100%
Moist upland herbland	II	high	20-40	20-80%
Dry upland herbland	II	high	5-20	40-80%
Cool/Cold riparian forest	III - IV	mixed-high	100-200	40-90%

Desired Condition: Fire regime condition class measures the degree of departure from the historical range of variability for vegetation characteristics, fuel composition, fire frequency, severity and pattern, and other associated disturbances. In landscapes that exhibit a moderate or high degree of departure (condition class II or III), the degree of departure is decreased to low or moderate (condition class I or II). In landscapes that exhibit a low degree of departure (condition class I), conditions are maintained over time. Over the long-term, landscapes exhibit a low degree of departure (condition class I) from the historical range of variability. Fire behavior, effects, and other associated disturbances are similar to those that occurred prior to fire exclusion (suppression) and mimic the natural fire regime. Composition and structure of vegetation and fuels characteristics are similar to the conditions that existed under the historical fire regime condition classes IV and V. Risk of loss of key ecosystem components is reduced.

Scale: Minimum scale of subwatershed. Scale may be changed to watershed or subbasin level if justified as more appropriate through project analysis.

1.4.2 Insects and Disease

Desired Condition: Characteristic levels of insect and disease activity contribute to diverse landscape conditions and provide important wildlife habitat components, such as hollow trees, dead wood, and mistletoe brooms. The desired conditions for vegetation structure, stand density, and species composition (displayed in table A-13, table A-14, and table A-15) create stand conditions with low to moderate susceptibility to insects and diseases across the majority of the upland forest potential vegetation groups. These stand conditions result in ecologically resilient forests with composition, structure, and density characteristics that are fully compatible with periodic disturbance occurring at characteristic levels of severity, intensity, size, and spatial distribution.

Scale: Minimum scale of subwatershed. Scale may be changed to watershed or subbasin level if justified as more appropriate through project analysis.

1.5 Invasive Species

Desired Condition: Healthy, native and desired non-native animal communities and native plant communities dominate the landscape and are resilient given current and projected climate conditions. Invasive species (aquatic and terrestrial, plant and animal) are absent or occur in small areas. Invasive species do not jeopardize the ability of the national forests to provide the goods and services communities expect or the habitat that plant and animal community diversity depends upon. New invasive species resulting from changes in plant and animal habitats due to changes in climate occur only at low levels.

Scale: Watershed scale.

1.6 Structural Stages

Desired Condition: The distribution and abundance of forested structural stages creates conditions that are ecologically resilient, sustainable, and compatible while maintaining disturbance processes within the desired conditions. Table A-13 displays the desired conditions for the percent of each upland forest or woodland potential vegetation group in each of the forested structural stages. The range of desired conditions allows for variations in the mix of structural stage combinations across the landscape to respond to potential changes in climate.

Within the cold and moist upland forest potential vegetation groups, the desired diameter distribution within the stem exclusion and understory re-initiation stages is to have equal representation in the 5 to 10, 10 to 15, and 15 to 20-inch diameter classes. Figure A-1 describes the forested environment structural stages.

Within the dry upland forest potential vegetation group, the desired diameter distribution within the stem exclusion and understory re-initiation stages is: 25 percent in the 5 to 10 inch diameter class, 25 percent in the 10 to 15 inch diameter class, and 50 percent in the 15 to 20 -inch diameter class.

Scale: Minimum scale of subwatershed. Scale may be changed to watershed or subbasin level if justified as more appropriate through project analysis.

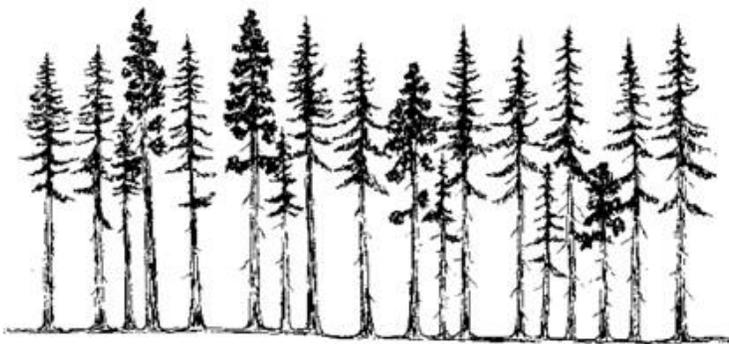
Table A-13. Desired conditions for forested structural stages, described as a percent of each upland forest or woodland potential vegetation group

Potential Vegetation Group	Stand Initiation	Stem Exclusion	Understory Reinitiation	Old Forest Single story	Old Forest Multi-story
Cold upland forest	20-45	15-30	10-25	5-20	10-25
Moist upland forest	20-30	20-30	15-25	10-20	15-20
Dry upland forest	15-30	10-20	0-5	40-65	1-15
Dry upland woodland	5-10	10-20	1-5	20-40	30-50

Forested Structural Stages



Stand Initiation (SI): Following a stand-replacing disturbance such as wildfire or tree harvest, growing space is occupied rapidly by vegetation that either survives the disturbance, or colonizes the area afterward. Survivors survive the disturbance above ground or they initiate new growth from underground organs or from seeds on the site. Colonizers disperse seed into disturbed areas, it germinates, and then new plants establish and develop. A single canopy stratum of tree seedlings and saplings is present in this stage. This stage generally includes trees less than 5 inches DBH.



Stem Exclusion (SE): In this single-cohort stand structure, trees initially grow fast and quickly occupy all of their growing space, competing strongly for sunlight and moisture. Because trees are tall and reduce subcanopy light levels, understory plants (including smaller trees) are shaded and grow more slowly. Species needing sunlight usually die; shrubs and herbs may go dormant. In this stage, establishment of new trees is precluded by a lack of sunlight (stem exclusion closed canopy) or soil moisture (stem exclusion open canopy). This stage generally consists of a continuous single layer of trees and can vary from small trees up to those approaching 21 inches DBH.



Understory Re-initiation (UR): As the forest develops, a new age class of trees (cohort) eventually gets established after overstory trees begin to die, or because they no longer fully occupy their growing space. Regrowth of understory seedlings and other vegetation then occurs and trees begin to stratify into vertical layers. This stage consists of overstory trees at a low to moderate density, with small trees underneath. Trees can range in size from 5– 21 inches DBH.



Old Forest Single-story (OFSS) and Multi-story (OFMS): Many age classes and vegetation layers mark these structural stages containing a predominance of old trees generally larger in diameter. The definition of a large tree varies, depending on the productive potential of the site. Snags and decayed fallen trees may also be present, leaving a discontinuous overstory canopy. The drawing shows a single-layer stand of ponderosa pine, reflecting the influence of frequent surface fire on dry-forest sites (old forest single story OFSS). Surface fire is not common on cold or moist sites, so these environments generally have multi-layer stands (2 or more layers) with large trees in the uppermost stratum (old forest multi-story OFMS).

Sources: Based on O'Hara and others (1996), Oliver and Larson (1996), and Spies (1997).

Figure A-1. Forested structural stage descriptions

Desired Condition: The distribution and abundance of herbland and shrubland structural stages create conditions that are ecologically resilient, sustainable, and compatible with maintaining disturbance processes within the desired conditions. The structural diversity of herblands and shrublands are characteristic of the settings in which they occur and the disturbance regimes in which they developed. These conditions support the capacity of the plants to reproduce and persist on the landscape. Variations in the mix of structural stage combinations across the landscape allow herblands and shrublands to respond to potential changes in climate. The desired conditions for structural stages includes shrubland and herbland potential vegetation groups, as well as grass and shrub layers in forested environments.

Scale: Herbland and shrubland desired conditions should apply at the project scale (minimum of 1,000 acres).

1.7 Plant Species Composition

Desired Condition: The mix of species composition tolerance classes across the landscape creates conditions that are ecologically resilient, sustainable, and compatible with maintaining disturbance processes within the desired conditions. Sites having the potential to support forested vegetation now and in the future, given regional climate projections, are occupied by stands of trees within the ranges displayed in table A-14. Table A-14 displays the desired condition ranges for the percent of each upland forest or woodland potential vegetation group in each of the species composition tolerance classes. The range of desired conditions allows for variations in the mix of species composition tolerance classes combinations across the landscape to respond to potential changes in climate.

The mix of species in the grass and shrub layer of forests as well as shrub and herbland vegetation contain a diverse array of native species, distributed across the landscape reflecting historical conditions. Perennial native bunchgrasses dominate many grass and shrublands. Native grasses, grass-like plants (sedges and rushes), forbs and various shrubs characterize the forest understory. Riparian zones consist of meadows with obligate wetland species including native grasses, sedges and rushes, riparian hardwoods, and structurally diverse shrublands.

Scale: Minimum scale of subwatershed. Scale may be changed to watershed or subbasin level if justified as more appropriate through project analysis.

Table A-14. Desired conditions for species composition, described as a percent of each upland forest or woodland potential vegetation group

Potential Vegetation Group	Shade-intolerant Species Composition	Mixed-tolerance Species Composition	Shade-tolerant Species Composition
Cold upland forest	40-60	5-20	25-50
Moist upland forest	30-60	20-40	10-30
Dry upland forest	75-90	0	5-20
Dry upland woodland	75-90	0	5-20

1.8 Stand Density

Desired Condition: The range of vegetation densities across the landscape creates conditions that are ecologically resilient, sustainable, and compatible with maintaining disturbance processes within the desired conditions. Table A-15 displays the desired condition ranges for the percent of

each upland forest or woodland potential vegetation group in each of the stand density classes (open canopy or closed canopy). The range of desired conditions allows for variations in the mix of vegetation density combinations across the landscape to respond to potential changes in climate. Low-density vegetation is more likely to survive possible future drought stress, fires, and insects and disease outbreaks.

Table A-15. Desired conditions for stand density, described as a percent of each upland forest or woodland potential vegetation group

Potential Vegetation Group	Open Stand Density	Closed Stand Density
Cold upland forest	20-30	65-80
Moist upland forest	30-40	60-80
Dry upland forest	80-90	5-20
Dry upland woodland	80-90	5-20

Note: Dry upland forest closed stand density is 40 percent canopy cover or greater. Cold and moist upland forest closed stand density is 60 percent canopy cover or greater.

Scale: Minimum scale of subwatershed. Scale may be changed to watershed or subbasin level if justified as more appropriate through project analysis.

Desired Condition: The distribution and abundance of vegetation density within herblands and shrublands create conditions that are ecologically resilient, sustainable, and compatible with maintaining disturbance processes within the desired conditions. These conditions support the capacity of the plants to reproduce and persist on the landscape. Variations in the mix of vegetation density combinations across the landscape allow herblands and shrublands to respond to potential changes in climate. The desired conditions for vegetation density includes shrubland and herbland potential vegetation groups, as well as grass and shrub layers in forested environments.

Scale: Herbland and shrubland desired conditions should be applied at the project scale (minimum of 1,000 acres).

1.9 Air Quality

Desired Condition: National forest air quality and emissions produced from forest activities complies with state ambient air quality standards (Oregon, Idaho, and Washington) and federal air quality and smoke management plans.

Scale: Smoke emissions are relevant at the scale of the Blue Mountains as well as the local airsheds surrounding local communities and the broader areas that encompass designated wilderness areas.

1.10 Soil Quality

Desired Condition: The productive potential of forest and range soils is maintained at levels that contribute to long-term sustainability of ecosystems considering the range of possible climate change scenarios. Soil physical and chemical properties (texture, porosity, strength, coarse fragment content, and fertility) and organic matter (surface woody debris, humus) are at levels that maintain soil productive potential and hydrologic function (infiltration, percolation, and runoff).

Surface erosion rates and sediment deposition are within the natural range of variability for each biophysical setting.

Scale: Subwatershed to watershed depending on the severity of the disturbance.

1.11 Water Quality

Desired Condition: Water quality of surface and groundwater is sufficient to support healthy riparian, aquatic, and wetland ecosystems. It is within the range that maintains the biological, physical, and chemical integrity of the system and is capable of benefiting the survival, growth, reproduction, and migration of individuals composing aquatic and riparian communities.

The quality of water emanating from the national forests is sufficient to provide for state-designated beneficial uses, including human uses.

Water quality in streams within the national forests is sufficient to meet applicable state, local, and tribal water quality criteria.

Scale: Forestwide.

1.12 Landscape Patterns

Desired Condition: Landscape patterns are spatially and temporally diverse and have a positive influence on overall ecological function and scenic integrity. Landscape patterns provide a connectivity, allowing animals to move across landscapes. Landscape patterns are resilient and sustainable considering the range of possible climate change scenarios.

Scale: Forestwide.

1.13 Special Plant Habitats

Desired Condition: special plant habitats include mountain mahogany, aspen, cottonwood, sagebrush steppe, and whitebark pine. They provide high quality habitat for associated species. The distribution and abundance of structural stages and vegetation density classes within these special plant habitats are consistent with their HRV and create conditions that are ecologically resilient, sustainable, and compatible with maintaining disturbance processes within the desired conditions. Variations in the mix of structural stages and vegetation density combinations across the landscape allow special plant habitats to respond to potential changes in climate.

Whitebark Pine

Desired Condition: There is no net loss in whitebark pine habitat on National Forest System lands. Genetic diversity is conserved across the landscape. Degraded habitat and connectivity are restored wherever necessary, including in designated wilderness. Populations exhibit an increase in age class diversity. The risk of mortality from mountain pine beetle and stand-replacing fire is reduced. Resistance to white pine blister rust is increased (Aubry et al. 2008, Keane et al. 2012).

Fire may be used as one tool to achieve these desired conditions. Minimize negative impacts to whitebark pine resulting from fire suppression activities.

Scale: The identification and protection of whitebark pine special plant habitats are primarily accomplished at project level planning. The sustainability of special plant habitats is best addressed at the forestwide scale utilizing consideration of the best available climate projections.

Aspen

Desired Condition: The amount of aspen forest area is increased across the landscape. Genetic diversity is maintained through preservation of existing clones. The distribution and abundance of age and structural classes are consistent with the HRV and create conditions that are ecologically resilient, sustainable, and compatible with maintaining disturbance processes within the desired conditions (see table A-16). Aspen clones older than 80 years old that are healthy and adequately stocked would generally not be regenerated to achieve the desired conditions for the percent of aspen forest area in age classes less than 80 years old. Fire may be used as a tool to achieve these desired conditions. Protection of suckers from ungulate browsing is critical for survival of aspen regeneration, generally for a minimum of 10 years.

Table A-16. Desired Conditions for age and structural composition of aspen

Age (Years)	Structural Class	Percent of aspen forest area
0-40	SI	45-50
40-80	SE, UR	45-50
80+	OFMS, OFSS	5-10

Source: Swanson et al. 2010

Scale: The identification and protection of aspen special plant habitats are primarily accomplished at project level planning. The sustainability of special plant habitats is best addressed at the forestwide scale utilizing consideration of the best available climate projections.

Sagebrush Steppe Special Habitat

Desired Condition: There is no net loss of sagebrush steppe habitat on National Forest System lands and 70 percent of the existing sagebrush rangelands are in later structural stages (sagebrush classes 3, 4, and 5). The remaining 30 percent of the landscape includes areas of juniper encroachment, non-sagebrush shrub lands, annual grasslands, and nonnative perennial grasslands that potentially could be re-habilitated and enhanced as sagebrush habitat. The understory is comprised of native species, resulting in conditions that are sustainable and resilient to disturbance, i.e., they are capable of recovering to their potential community without intervention after a disturbance.

Scale: The identification and protection of sagebrush steppe special habitat is primarily accomplished at project level planning. The sustainability of special plant habitats is best addressed at the forestwide scale utilizing consideration of the best available climate projections.

1.14 Snags and Down Wood

Desired Condition: Snags and down wood occur within all of the potential vegetation groups and vegetation cover types (lodgpole) at levels identified within table A-17, table A-18, and table A-19. Snags and down wood persist across the landscape either singularly or in patches. Snags and down wood density will be highest following disturbance events, such as wildfire, wind events, and insects and disease outbreaks. Snags and down wood density will tend to be higher in riparian areas. Snags are the major source of down wood in both upland and riparian areas.

Snags and down wood provide habitat for the following focal species: boreal owl, pileated woodpecker, American marten, white-headed woodpecker, western bluebird, fringed myotis, Lewis's woodpecker, black-backed woodpecker, wood duck, bald eagle, and red-naped sapsucker.

Scale: The desired condition and the levels of snags and down wood presented within table A-17, table A-18, and table A-19 can be applied at a variety of scales: forestwide, watershed, and subwatershed. During project analysis and implementation, the desired condition, along with the snag and down wood levels presented in the tables, will be used concurrently with information outlined in Part Two: Strategy and Part Three: Design Criteria within the forest plan.

Table A-17. Ranges of down wood (desired percentage range of tons per acre across the forested landscape)

Potential Vegetation Group	0-10 tons	10-20 tons	20-45 tons	45-65 tons	65-90 tons	90-plus tons	Desired Residual Tons Comprised of Material Greater than 12 Inches Diameter*
Cold upland forest	0-5%	70-80%	5-20%	2-4%	1-2%	1-2%	40-50%
Moist upland forest	0-5%	70-80%	5-20%	1-2%	1-2%	1-2%	50-60%
Dry upland forest	60-80%	5-15%	2-4%	1-2%	1-2%	1-2%	60-80%
Lodgepole pine forest	0-5%	80-95%	1-10%	1-10%	1-2%	1-2%	10-20%

* The intent of the 12-inch down wood portion of the desired condition is not that 12 inches exactly is needed, but instead that retention of the largest potential size class based on the size of the existing overstory trees is emphasized.

Table A-18. Desired percentage ranges across the landscape of snags (dead trees) per acre 10 inches d.b.h. and greater and less than 20 inches d.b.h.

Potential Vegetation Group	1-2 dead trees	2-6 dead trees	6-10 dead trees	10-14 dead trees	14-18 dead trees	more than 18 dead trees
Cold upland forest	45-55%	5-10%	0-1%	5-10%	1-5%	20-30%
Moist upland forest	35-45%	10-20%	0-1%	5-10%	2-5%	25-35%
Dry upland forest	65-75%	10-15%	0-1%	5-10%	1-5%	5-15%
Lodgepole pine forest	60-70%	5-10%	0-1%	5-10%	2-5%	20-30%

Table A-19. Desired percentage ranges across the landscape of snags (dead trees) per acre 20 inches d.b.h. and greater

Potential Vegetation Group	1-2 dead trees	2-6 dead trees	6-10 dead trees	10-14 dead trees	14-18 dead trees	more than 18 dead trees
Cold upland forest	70-80%	10-20%	1-3%	1-10%	2-4%	1-3%
Moist upland forest	55-65%	15-25%	2-6%	5-9%	2-6%	1-5%
Dry upland forest	75-85%	10-20%	1-3%	2-4%	1-2%	1-2%
Lodgepole pine forest	NA	NA	NA	NA	NA	NA

Goal 2: Promote Social Well-being

Social well-being contributes to national forest resilience by fostering public use patterns and restoration strategies that support human communities, livelihoods, cultures, and social values. National forests contribute to community resilience by providing jobs, ecosystem services, scenery, and recreational opportunities. Each individual's ties to the land, traditional cultures, and communities help characterize social well-being (Pierce Coffey and Byron 2001).

Attachments to places in and adjacent to the national forests reflect core values that shape and define social, economic, and ecological sustainability within the Blue Mountains and elsewhere (Endter-Wada et al. 1998). Examples include the values different people place on biodiversity, scenery, economic opportunities, self-reliance, tradition, and ecological integrity (Brown and Reed 2000). These and a suite of other values form the basis for collaborative discussions about national forest management and, ultimately, how it affects social well-being.

A diverse and complex set of values that contribute to one's social well-being can be tied to natural resources-related work, including restoration, ranching, and recreation. This work allows people to live in communities that are adjacent to the national forests. These values may include viewing or hunting wildlife, being able to do natural resource-related work, knowing that restoration efforts are supporting fish populations, and being part of an environment where human traditions and cultures can be maintained.

2.1 Scenery

Description: Scenery is a highly valued forest resource and is quantified through the use of the scenery management system. The scenery management system provides the framework to effectively integrate scenic values and ecological considerations, to achieve a scenic integrity and scenic stability for future generations. Although the scenic resources vary by location, all activities that forest visitors experience are performed in a scenic environment composed of the natural and constructed features within the landscape. The scenery management system process involves identifying scenic components as they relate to people, mapping these components and assigning a value to aesthetics. These components are inventoried and provided guidance for the development of the desired scenic integrity and stability levels.

The following components have been inventoried for the Blue Mountains national forests:

- Landscape character descriptions
- Scenic attractiveness
- Existing scenic integrity
- Existing scenic stability
- Concern levels
- Landscape visibility
- Distance zones
- Scenic class

Scenic integrity and stability objectives are associated with public observation points such as travel routes, use areas and waterbodies.

Table A-20. Scenic integrity levels and scenic stability levels (desired condition)

Scenic Class	Scenic Integrity Levels					Scenic Stability				
	Very High	High	Moderate	Low	Very Low	Very High	High	Moderate	Low	Very Low
1	x	x				x	x			
2	x	x	x			x	x	x	x	
3	x	x	x			x	x	x	x	
4		x	x	x		x	x	x	x	
5		x	x	x		x	x	x	x	
6		x	x	x		x	x	x	x	
7		x	x	x		x	x	x	x	

Scenic Class 1

Desired Condition: In Scenic Class 1, the scenery is highly valued, distinctive, and viewed frequently for a continuous duration. The view is highly intact with no utility corridors or other energy developments present and with minimal management disturbances. High to very high scenic integrity is present. All naturally occurring or historically valued dominant attributes of the scenic character are present. The ecological condition maintains a high to very high level of scenic stability.

Scale: Forestwide.

Scenic Classes 2 and 3

Desired Condition: In Scenic Classes 2 and 3 the scenery is valued, typical, and viewed frequently, but not continuously. The view is predominately intact, with alterations compatible with valued scenic attributes. Utility corridors and other energy developments are not present. Moderate to very high scenic integrity is maintained. Most dominant scenery attributes are present and are likely to be sustained. Ecological conditions may pose a threat to the valued scenic attributes. Low to very high scenic stability can be maintained.

Scale: Forestwide.

Scenic Classes 4, 5, 6, and 7

Desired Condition: In Scenic Classes 4, 5, 6, and 7, the scenery is not distinct in form, line, texture and color, viewing frequency is low, and durations are short. The scenery is usually visually intact and disturbances do not dominate the view. Disturbances are shaped and blended with the natural terrain. Visible utility corridors are linear features with feathered and undulating edges. Corridor floors are contoured to blend into natural contours and have groupings of low growing shrubs and boulders that break up the unnatural appearance of a cleared forest floor. Other energy developments are also blended into the natural surroundings. Low to high scenic integrity is maintained. The dominant scenery attributes of the valued landscape character are present and likely to be sustained. Low to very high scenic stability is maintained.

Scale: Forestwide.

2.2 Old Forest and Individual Large Diameter and/or Old Trees

2.2.1 Old Forest

Desired Condition: Old forest (OFMS and OFSS) is a forested structural stage that has an abundance of physiologically old trees (for the species and site conditions) that are dominant in the overstory and are usually larger in diameter. Old forest stands are maintained and restored across the landscape to provide a wide variety of ecological and social values. See the ecological desired conditions for specific ranges for the percent of each upland forest or woodland potential vegetation group in old forest structural stages. Like other forested structural stages, the management of old forest is also guided by other ecological desired conditions, such as stand density (see desired condition Stand Density 1.8), plant species composition (see desired condition Plant Species Composition 1.7), fire regime condition classes (see desired condition 1.4.1 Wildland Fire), and landscape patterns (see desired condition 1.12 Landscape Patterns).

Scale: See the ecological desired conditions for forested structural stages.

2.2.2 Individual Old Trees

Desired Condition: Individual live old trees are maintained both within and outside of old forest stands to meet a wide variety of ecological and social values. For most tree species, certain physical tree characteristics can be used to infer old age. Old age for most tree species is generally considered to be greater than 150 years in age. However, old tree characteristics and old age may vary by species and site. A description of these characteristics and age should be further developed on a site-specific project basis.

Scale: Forestwide

2.3 Recreation

Desired Condition: Outdoor recreation and relaxation in natural environments enrich the lifestyle and mental and physical condition of national forest visitors. Recreation user satisfaction is maintained or improved over time. Valued recreation activities continue to be provided as traditional uses and generational activities. Providers include Forest Service, other agencies, and private operators. National forest visitors have opportunities to learn environmental ethics, develop outdoor recreation skills, respect other outdoors users, and take on appropriate challenges and risks. Recreation use creates minimal amounts of resource damage. Recreation facilities are properly maintained and meet all health, safety and accessibility requirements. Facility structures are of consistent design and character. Facilities complement the natural environment by using materials that fit with the surrounding landscape. Scenic integrity is commensurate with the inventoried scenic class.

Scale: Forestwide.

2.3.1 Developed Recreation

Desired Condition: Developed facilities, such as campgrounds, restrooms, picnic areas, trailheads, snow parks, and boating and fishing sites, are well maintained, fully functional, provide for visitor safety, and are accessible to people with disabilities. Potable water and sanitary systems provided at the sites meet required health standards. Areas of highly concentrated use provide a full suite of amenities that provide for people of all ages, ethnicities, and abilities. The facilities are fully utilized with occupancy rates approaching 90 to 100 percent during peak use periods and occupancy rates of 25 to 40 percent during non-peak

summer and fall periods. Facilities provide some comfort for the user as well as site protection. New construction and reconstruction projects utilize a contemporary/rustic design based on the use of native or durable materials (i.e., naturally found materials or materials that appear natural). Facility structures are of consistent design and character. Facilities complement the natural environment by using materials that fit with the surrounding landscape. Impacts to natural resources from concentrated visitor use are minimal. Partnerships with private providers are encouraged and sustained at high-end developed areas, such as ski areas, trams, lodges, and concessionaire-operated campgrounds. Some special use permits, such as recreation residences, are retained and provide for recreation opportunities not available to the general public. Scenic integrity is commensurate with the inventoried scenic class.

Scale: Recreational setting.

2.3.2 Dispersed Recreation

Desired Condition: Dispersed recreation allows national forest visitors opportunities to recreate independent of developed recreation facilities. Encounters with other visitors are common along travel routes; however, activities away from developed facilities provide for fewer encounters. Recreation activities and access are readily available in this setting. Areas and facilities accommodate a variety of motorized and nonmotorized uses and are primarily used by visitors to begin and end recreational experiences with a majority of the time spent away from developed facilities. The rustic amenities provided are well maintained and fully functional. Rustic facilities are provided for site protection and sanitary purposes and fit in with the surrounding area. Partnerships with private providers are encouraged and sustained for specialty services, such as big game outfitting and guiding, horseback riding, shuttle services, and bicycle touring. Some special use permits, such as for members only events and limited entry contests, are retained and provide for recreation opportunities not available to the general public. Scenic integrity is commensurate with the inventoried scenic class.

Scale: Recreational setting.

2.3.3 Backcountry Recreation

Desired Condition: Backcountry recreation allows national forest visitors opportunities to recreate independent of developed recreation sites with the exception of trails that facilitate access. Encounters with other people are uncommon or rare, and motorized uses are uncommon except near main portals. Recreation activities that require minimal amenities are available. The setting presents visitors with opportunities to be alone, and backcountry skills and abilities are required. The rustic amenities provided are well maintained and functional. Rustic and rudimentary facilities are provided primarily for site protection, information, and sanitary purposes. Materials used are rustic and minimal. Partnerships with private providers are encouraged and sustained for specialty services, such as backcountry skiing, jet boat and raft trips, and big game outfitting and guiding services.

Scale: Recreational setting.

2.4 Hunting and Fishing

Desired Condition: Opportunities for hunting and fishing are available in a variety of settings. The national forests provide a mix of opportunities that foster hunting and fishing visitor activities, support Oregon and Washington Departments of Fish and Wildlife management objectives, and contribute to local, tribal, and regional economies and lifestyles.

Scale: Forestwide.

2.5 Rocky Mountain Elk

Desired Condition: In landscapes where elk use is promoted, as identified in coordination with state wildlife agencies, there is a mosaic of forage and cover areas, with minimal or no motor vehicle access through forage areas. There is an emphasis on maintaining existing cover areas in most winter range, which often compose smaller portions of the landscape, motor vehicle access and uses on winter range is minimized or eliminated during winter. Maintaining adequate forage areas close to cover and far from roads and trails open to motor vehicle uses is emphasized for most spring, summer, and fall range. For landscapes where hunting occurs, motor vehicle access is restricted so that elk can effectively use cover and topography as security. During hunting seasons, emphasis is placed on closing roads and trails to motor vehicles within landscapes that are flat and open; however, less emphasis is placed on closing roads and trails to motor vehicles within landscapes that are steep and have more cover, as identified in coordination with state wildlife agencies.

Maintaining a mosaic of elk forage and cover areas for a given season and landscape varies based on the biophysical potential of each landscape to sustain cover areas and based on the capability to maintain or enhance adequate forage areas that provide higher nutritional resources far from motor vehicle access. In areas where elk have the potential to damage adjacent private lands or there is a need to meet other goals of management across mixed land ownerships, the quantity of forage and cover areas may be reduced, such as in the wildland-urban interface where the goal may be to reduce the risk of wildfire, in these locations, forage and cover may not be optimal for elk.

Scale: A variety of spatial extents and boundaries (administrative, hydrologic, or ecological) ranging from individual projects to areas as large as state wildlife areas or other administrative or jurisdictional boundaries. In general, monitoring change in habitat conditions for elk requires evaluation at smaller spatial extents, such as areas the size of subwatersheds (5,000 to 20,000 acres), but typically not as small as individual projects. Monitoring change in habitat condition or compliance in management direction for elk is appropriate when considering all management activities that occur or that are proposed over longer time periods of 5 to 15 years, as opposed to individual project activities over shorter time periods.

2.6 Cultural Resources

Desired Condition: Significant prehistoric and historic sites and traditional cultural properties are protected and are managed to standard as part of the Heritage Program. Traditional cultural properties are available for appropriate use. Knowledge of cultural resources is enhanced by scientific study, and public understanding of cultural history is enhanced through interpretation and education.

Scale: Forestwide.

2.7 Roads and Trails Access

Desired Condition: Road systems are safe and responsive to public needs and desires, are affordable and efficiently managed, have minimal effect on aquatic and terrestrial systems, and are in balance with available funding. Road density is at a level appropriate to avoid causing resource concerns. Administrative use supports Forest Service management objectives. Conflicts between user groups are minimized, and users take on appropriate challenges and risks.

Roads needed for the long term are identified and investments are made to minimize their effect on the ecosystem and to meet the mobility requirements anticipated in the future.

A system of roads, trails, and areas designated for nonmotorized and motor vehicle use is identified and is available for public use. Motor vehicle use that can cause ground disturbance occurs only on designated routes and in designated motor vehicle use areas as documented on the motor vehicle use map (MVUM). Trails designated for motor vehicle use provide a variety of recreational experiences, including various difficulty levels and trail lengths, access to scenic areas, and routes through assorted ecosystems. Loop trails, closed road systems, and trailhead developments meet the needs of increased recreation use. Snowmobile use is managed to provide varying challenges and distances while respecting ecological systems and other users.

Opportunities for trails where motor vehicle use is prohibited are emphasized in backcountry and wilderness areas. Trails where motor vehicle use is prohibited provide a range of difficulty for a variety of recreational experiences, including mechanized transportation (except in wilderness areas), foot travel, and pack or riding stock. Trails are located to provide experiences in different ecosystem types and scenic settings and do not contribute to resource damage.

Rights-of-way and easements provide adequate and legal access to National Forest System lands. Jurisdiction of county, state, and local access roads is appropriate to assure management objectives are met for both private and state lands.

The need for tribal access to traditional sites is acknowledged and supported.

Access and Open Motor Vehicle Route Density for Alternative B

The desired condition for open motor vehicle route density within watersheds in MA 3B is 1.5 miles of per square mile or less.

The desired condition for open motor vehicle route density within watersheds in MA 4A is 2.4 miles per square mile or less. Within subwatersheds, an exception is made for winter elk habitat, where the route density is 1.5 miles per square mile or less. This applies to each management area within a subwatershed.

Access and Open Motor Vehicle Route Density for Alternative C

The desired condition for open motor vehicle route density within watersheds in MA 3C is 1 mile per square mile or less. In addition, all cross-country over-the-snow vehicle travel is prohibited within MA3C, and over-the-snow vehicle travel permitted only on routes designated open to summer motor vehicle travel.

For alternative C, no National Forest System lands would be allocated to MA 3B.

The desired condition for open motor vehicle route density within watersheds in MA 4A is 2.4 miles per square mile or less. Within subwatersheds, an exception is made for winter elk habitat, where the open motor vehicle route density is 1.5 miles per square mile or less. This applies to each management area within a subwatershed.

Access and Open Motor Vehicle Route Density for Alternative D

The desired condition for open motor vehicle route density within watersheds in MA 4A is 3 miles per square mile or less. Within subwatersheds, an exception is made for winter elk habitat, where the open motor vehicle route density is 1.5 miles per square mile or less.

Access and Open Motor Vehicle Route Density for Alternatives E and F

The desired condition for open motor vehicle route density within watersheds in MA 3C is 1 mile per square mile or less. In addition, all cross-country over-the-snow vehicle travel is prohibited within MA 3C, and over-the-snow vehicle travel permitted only on routes designated open to summer motor vehicle travel.

The desired condition for open motor vehicle route density within watersheds within MA 3B is to minimize the number of miles per square mile as determined by a roads analysis.

The open motor vehicle route density in winter elk habitat is 1.5 miles square mile or less.

The desired condition is to reduce road-related sedimentation by reducing road density and reducing hydrologic connectivity of the road system.

Scale: Forestwide.

2.8 Wildland-urban Interface

Desired Condition: Vegetation treatments within the wildland-urban interface (WUI) areas are based on wildfire protection objectives, which may over-ride ecological desired conditions. Vegetative structure would result in fire intensity that allows for safe and effective suppression actions within wildland-urban interface areas. In general, vegetation density would be more open, with lighter fuel loadings, in comparison to areas outside wildland-urban interface. Fire risk within wildland-urban interface areas would be managed so as not to limit the ability to use fire for resource restoration in areas adjacent to wildland-urban interface areas.

Scale: Forestwide.

2.9 Tribal Rights and Interests

Desired Condition: National Forest System lands administered by the Malheur, Umatilla, and Wallowa-Whitman National Forests are available for tribal members to exercise their reserved rights. The ability to utilize trust resources contributes to the exercise of tribal rights, interests, and cultures in a manner that promotes sustainability of the ecosystem.

Scale: Forestwide.

2.10 Culturally Significant Foods

Desired Condition: Culturally significant foods are available and accessible and are sustained by the ecological and cultural processes under which they historically developed.

Scale: Forestwide.

2.11 Community Resilience

Desired Condition: The management of the Blue Mountains national forests contributes to outputs and opportunities that support community infrastructure. The national forests foster healthy and resilient communities and American Indian tribes by providing sustainable ecological services or products. In turn, communities use their infrastructure (which includes manufacturing facilities, local knowledge, skilled workers, and social networks/relationships) to support natural resource management and restoration activities. Local communities and tribes that rely on the resources of the Blue Mountains national forests are resilient and adapt well to changing conditions. Climate change scenarios may foreclose some opportunities while providing others.

Being able to adapt to multiple potential scenarios is important to maintaining resilient communities. They have the capacity to collectively create and pursue ecological and economic opportunities that foster sustainability.

Scale: Forestwide.

2.12 Wild Horses

Desired Condition: A viable, free-roaming wild horse herd (consistent with the desire of the herd management plan in effect at the time of project level planning) that is genetically diverse and is in ecological balance with other approved multiple uses is present within the Murderers Creek Wild Horse Territory. In concert, this leads towards stable or improving habitat conditions.

Scale: The Murderers Creek Wild Horse Territory/Herd Management Area.

Goal 3: Promote Economic Well-being

Economic well-being is a condition that enables people to work, provide income for their families, and support the economies of local communities, American Indian tribes, the region, and the Nation. The contributions of the national forests to economic well-being are described for capital and wealth and for the economic production of goods and services.

There are many other values, benefits, and costs not addressed in the following discussion of economic well-being. They include the multitude of benefits and costs not traded in the marketplace and values that are difficult to express in monetary terms or other quantitative measures. These values, benefits, and costs are an important part of social and economic sustainability. They are addressed in the social well-being section.

Local economic conditions are interrelated with changes in the economies of Oregon, Idaho, and Washington, as well as with changes in regional, national, and global economies. Recognizing the interdependency between the Forest Service's need for forest management work and the degree to which local industries, infrastructure, employment (including youth), skilled workforce, and other factors provide for this need is important to sustaining and restoring the ecological integrity of the national forests and social and economic conditions of the communities.

Historically, the national forests of the Blue Mountains made significant contributions to area communities, both socially and economically. These national forests still contribute in vital ways to community resilience by providing jobs and quality of life. However, they are not the sole providers of economic stability for communities in the area. Recognizing mutual benefits of the relationships between local communities and the national forests is critical to understanding the contributions to the maintenance and enhancement of other desired conditions, such as healthy forests, clean water and air, scenery, cultural and historic resources, skilled workforce, and manufacturing infrastructure in the context of other local, regional, and national conditions.

3.1 Facilities and Infrastructure

Desired Condition: Administrative facilities are safe, efficient, cost-effective, and are maintained at a function and use level that meets management needs. Facilities meet all applicable health and safety standards. Impacts to natural resources are minimal. Administrative facilities complement and harmonize with natural settings. The form of structures is derived by the function and from the landscape setting. For example, structures in mountainous, timbered landscapes have steep rooflines and broad eaves and use durable indigenous materials, such as stone and heavy timbers, with the appearance derived from the local environment. Structures, signage, and other built

environment elements reflect the style and character inherent in the local environment (USDA Forest Service 2001).

Scale: Forestwide.

3.2 Land Ownership

Desired Condition: Property boundaries are marked to standard. Encroachments, title claims, and trespasses are identified and resolved. Property boundaries are maintained to reduce the likelihood of future encroachments, title claims, and trespass. Road and trail easements are prioritized and obtained to continue access across private lands and reduce re-routing costs.

Landownership adjustment by purchase, exchange, or other authority simplifies and improves management of the Blue Mountains national forests. Priorities for land acquisition include congressionally designated areas and lands that support known populations of threatened, endangered, proposed, or sensitive species.

Scale: Forestwide.

3.3 Goods and Services

The desired conditions for 3.3 Goods and Services are described in 3.3.1 Forest Products, 3.3.2 Livestock Grazing, 3.3.3 Special Uses, 3.3.4 Mineral and Geological Resources, and 3.3.5 Water Use.

3.3.1 Forest Products

Desired Condition: Land classified as suitable for timber production has a regularly scheduled timber harvest program that provides social and economic benefits while contributing to ecosystem health and sustainability. Land classified as unsuitable for timber production, but where timber harvesting can occur for other multiple-use purposes, has an irregular timber harvest program that contributes to ecosystem health and sustainability while providing benefits to people.

A predictable supply of timber outputs, known as the allowable sale quantity, contributes to a local forest products industry.

Small diameter biomass provides a variety of forest products, such as hog fuel, fuel chips, pulp, small diameter roundwood, and firewood.

Non-timber forest products, such as berries and mushrooms, continue to be available for gathering in sustainable amounts for general public, commercial, and tribal use.

Scale: Forestwide.

3.3.2 Livestock Grazing

Desired Condition: Grazing allotments contribute to a predictable supply of livestock forage that contributes to local ranching operation sustainability and local community growth while maintaining or achieving ecological desired conditions.

Scale: Forestwide.

3.3.3 Special Uses

Desired Condition: Special uses are authorized for uses that the national forests have a unique niche to provide. These authorizations are managed to protect natural resources values consistent with the ecological, social, and economic desired conditions.

Scale: Forestwide.

3.3.4 Mineral and Geological Resources

Desired Condition: Exploration, development, and production of mineral and energy resources contribute to the social and economic needs of the Nation as well as local communities, and are conducted so as to minimize adverse environmental effects on national forest surface resources.

3.3.5 Water Use

Desired Condition: Water is available in sufficient quantity downstream to meet human needs as well as the needs of aquatic species considering the range of possible climate change scenarios.

Water quality and quantity of groundwater resources, including seeps, springs, fens, and other groundwater-dependent ecosystems, is sufficient to provide for the extent and diversity of species normally associated with these habitats.

Scale: Watershed to subbasin.

Alternative Elements (Alternatives B through F)

As discussed in the introduction to Part 2—Comparison of the Action Alternatives, the alternative elements will include discussion and comparison of some of the forest plan components, including management areas, suitability determinations, objectives, standards, and guidelines. Most forest plan management direction will be common to each of the three national forests. Only where specifically noted will management direction be specific to only one of the national forests.

Management Areas

Management areas broadly describe areas where general management intent is similar. The purpose of management areas is to provide consistent guidance for similar portions of the national forest landscape when implementing or continuing management activities. The management areas generally range along a continuum from little development by humans in MA 1A to extensive human development in MA 5.

Management area descriptions and intent do not vary by alternative except for MA 4B. Not all management areas occur in all alternatives. Table A-40 to Table A-43 list the management areas by national forest for each of the alternatives. Management areas are the same for alternatives E and F. The tables do not include the Hells Canyon National Recreation Area, but they do display the portion of the Ochoco administered by the Malheur as part of the Malheur.

MA 1A Congressionally Designated Wilderness Areas

Description: As defined by the 1964 Wilderness Act, a wilderness area is undeveloped Federal land retaining its primitive character without permanent improvements or human habitation and is managed to preserve its natural conditions.

There are six designated wilderness areas within the Blue Mountains national forests that were established through a number of legislative acts, including the Oregon Wilderness Act (1984) and the Washington Wilderness Act (1984). These areas are displayed in table A-21.

Table A-21. Designated wilderness areas for each national forest

Wilderness Area Name	Acres*
Malheur National Forest Designated Wilderness Areas	
Strawberry Mountain	69,509
Monument Rock	13,047
Total	82,556
Umatilla National Forest Designated Wilderness Areas	
Wenaha-Tucannon	176,753
North Fork John Day	107,158
North Fork Umatilla	20,255
Total	304,166
Wallowa-Whitman National Forest Designated Wilderness Areas**	
Eagle Cap	351,859
Monument Rock	7,188
North Fork John Day	13,897
Total	372,944
Total All	759,666

* The management area acres displayed above are taken from the 1990 forest plans and have not been recalculated using the most current GIS technology.

** Wilderness area acres within the HCNRA are not included in this table.

Desired Condition: Designated wilderness areas exhibit primitive qualities. Opportunities for research, exploration, solitude, risk, challenge, and primitive recreation are widespread. On the trail system, opportunities for solitude are moderate to high, with few human encounters expected. Opportunities for solitude are high when traveling cross-country with almost no human encounters expected. Campsites may be visible at popular destinations along water features and at major trail junctions. These sites accommodate moderate use. Directional and regulatory signs are primarily found at trailheads outside of this management area but some signs may be present within these areas along trails and junctions. Buildings are rare within this management area; however, the preservation of historical features or retention of facilities for administrative use may occur. Ecosystems are influenced by natural processes with little or no human intervention. Geological and ecological processes, such as wildfire and insects and disease, operate relatively free from the influence of humans. Any influences upon these processes by humans is intended to protect human life; protect adjacent private property or private in-holdings; and reduce impacts to Federal facilities, historic or cultural structures, and threatened and endangered plant or animal species or species included in the regional forester's sensitive species list. Predominately diverse, native vegetation results from natural succession and disturbance processes, while nonnative vegetation is rare. The recreation opportunity spectrum is primitive.

MA 1B Preliminary Administratively Recommended Wilderness Areas (PARWA)

Description: The areas in MA 1B have been determined to meet the criteria established to qualify for designation as wilderness areas. These areas are recommended for designation and inclusion in the National Wilderness Preservation System (table A-22 to table A-25). Until a decision is made by Congress, these areas will be managed to protect the wilderness characteristics that meet the criteria for designation of these lands as designated wilderness areas.

Desired Condition: Recommended wilderness areas exhibit primitive qualities. Opportunities for research, exploration, solitude, risk, challenge, and primitive recreation are widespread. On the trail system, opportunities for solitude are moderate to high, with few human encounters expected. Opportunities for solitude are high when traveling cross-country with almost no human encounters expected. Ecosystems are influenced by natural processes with little or no human intervention. Geological and ecological processes, such as wildfire and insects and disease disturbances, operate relatively free from the influence of humans. Predominately diverse, native vegetation results from natural succession and disturbance processes, while nonnative vegetation is rare. Uses are conducive to maintaining the wilderness characteristics of the areas. The recreation opportunity spectrum is primitive.

Table A-22. Recommended wilderness areas for each alternative for the Malheur National Forest

PARWA	Alt. A	Alt. B	Alt. C	Alt. D	Alts. E and F
Aldrich Mountain	NA	NA	4,870	NA	NA
Cedar Grove	NA	NA	5,650	NA	NA
Dry Cabin	NA	NA	12,140	NA	NA
Greenhorn	NA	NA	12,630	NA	6,139
Jumpoff Joe	NA	NA	2,130	NA	NA
McClellan Mountain	NA	NA	23,150	NA	23,145
Myrtle Silvies	NA	NA	10,930	NA	NA
Shaketable	NA	NA	7,652	NA	NA
Strawberry Mountain Wilderness Area Additions	NA	1,160	3,983	NA	1,160
Totals	NA	1,160	83,810	NA	30,447

Table A-23. Recommended wilderness areas for each alternative for the Umatilla National Forest

PARWA	Alt. A	Alt. B	Alt. C	Alt. D	Alts. E and F
Asotin Creek	NA	NA	16,180	NA	NA
Greenhorn Mountain	NA	NA	11,275	NA	7,733
Hellhole	NA	NA	67,071	NA	21,980
Horseshoe Ridge	NA	NA	6,270	NA	NA
Jumpoff Joe	NA	NA	5,240	NA	NA
Meadow Creek	NA	NA	1,780	NA	NA
Mount Emily	NA	NA	5	NA	NA
North Fork John Day Wilderness Area Additions	NA	1,170	3,830	NA	1,241
North Fork Umatilla Wilderness Area Additions	NA	270	970	NA	235
North Mount Emily	NA	NA	4,616	NA	NA

PARWA	Alt. A	Alt. B	Alt. C	Alt. D	Alts. E and F
Owsley	NA	NA	7,620	NA	NA
Potomas	NA	NA	6,286	NA	NA
Skookum	NA	NA	9,440	NA	NA
South Fork Tower	NA	NA	15,840	NA	NA
Spangler	NA	NA	5,710	NA	NA
Squaw	NA	NA	2,580	NA	NA
Tiger Creek	NA	NA	5,566	NA	NA
Upper Tucannon	NA	NA	13,194	NA	8,880
W-T Three	NA	NA	1,865	NA	NA
Walla Walla River	NA	NA	34,790	NA	NA
Wenatchee Creek	NA	NA	18,910	NA	NA
Willow Springs	NA	NA	9,490	NA	NA
Totals	NA	1,440	248,535	NA	40,074

Table A-24. Recommended wilderness areas for each alternative for the Wallowa-Whitman National Forest

PARWA	Alt. A	Alt. B	Alt. C	Alt. D	Alts. E and F
Boulder Park	NA	NA	12,930	NA	NA
Castle Ridge	NA	NA	8,780	NA	NA
Dunns Bluff	NA	NA	760	NA	NA
Homestead	NA	NA	2,409	NA	NA
Huckleberry	NA	10,770	10,770	NA	10,770
Hurricane Creek	NA	NA	1,720	NA	NA
Joseph Canyon	NA	NA	6,750	NA	NA
Lake Fork	NA	NA	15,720	NA	NA
Little Creek	NA	NA	2,590	NA	NA
Little Eagle Meadow	NA	NA	6,840	NA	NA
Little Sheep	NA	NA	5,490	NA	NA
Marble Point	NA	NA	3,100	NA	NA
Monument Rock	NA	NA	5,850	NA	NA
Reservoir	NA	NA	15,300	NA	NA
Squaw	NA	NA	3,543	NA	NA
Twin Mountain	NA	NA	57,640	NA	9530
Upper Catherine Creek	NA	NA	7,020	NA	NA
Wildhorse	NA	NA	289	NA	NA
Totals	NA	10,770	172,749	NA	20,306

Table A-25. MA 1B acreage for each alternative for each national forest

National Forest	Alt. A	Alt. B	Alt. C	Alt. D	Alts. E and F
MAL	0	1,200	83,800	0	30,400
UMA	0	1,400	248,500	0	40,100
WAW	0	10,800	172,800	0	20,300

MA 1C Wilderness Study Area

Description: The Homestead Wilderness Study Area, including the neighboring Federal lands managed by the Bureau of Land Management, contains about 14,000 acres of public land.

Inventoried roadless areas were reviewed, and the portion of this roadless area managed by the Wallowa-Whitman National Forest increased from about 5,700 acres to about 9,000 acres. Most of the area is within the HCNRA, and the remainder of the roadless area is within the Whitman Ranger District. The 1991 Bureau of Land Management wilderness study process included the national forest acres and did not propose to recommend this roadless area for wilderness designation. Congress has not yet accepted the study, so these acres remain in the wilderness study area category. Wilderness values and resources will be protected until Congress either designates the area as part of the National Wilderness Preservation System or releases the area from consideration.

Desired Condition: The Homestead Wilderness Study Area provides opportunities for primitive recreation where natural processes dominate the landscape. The recreation opportunity spectrum is primitive.

MA 2A Wild and Scenic Rivers (Includes Designated, Eligible, and Suitable Rivers)

Description: This management area applies to river segments that have been designated as part of the Wild and Scenic Rivers System under the authority of the Wild and Scenic Rivers Act, as amended (1968) and the Oregon Omnibus River Act (1988) (see table A-26). Depending on the alternative, it also applies to rivers identified as eligible or suitable for designation (table A-27 and table A-28). The act requires that a detailed study report be prepared for all rivers mandated for study under section 5(a) of the Wild and Scenic Rivers Act, as amended, and for all other rivers identified by the Forest Service as eligible for inclusion in the National Wild and Scenic Rivers System (sec. 5(d)(1) of the act). Section 5(d)(1) study rivers found eligible are to be protected pending a suitability determination. Land management agencies must protect section 5(d)(1) study rivers found suitable for inclusion in the National Wild and Scenic Rivers System for their free-flowing condition, water quality, and outstandingly remarkable values. The existence of low dams, diversion works, or other minor structures at the time any river is proposed for inclusion in the National System does not automatically disqualify it for designation, but future construction of such structures is not allowed.

Across the Blue Mountains national forests, there are 11 rivers designated by Congress as wild and scenic. On those 11 rivers, about 142 miles are classified as wild, 68 miles as scenic, and 35 miles as recreational.

Desired Condition: Eligible, suitable and designated wild and scenic rivers are free flowing, without impoundment, diversion, straightening, rip-rapping or other modification of the waterways. Water quality and outstandingly remarkable values for each are protected and enhanced. Development and access levels are consistent with the classification of the stream or stream segment as designated (or deemed suitable or eligible in the case of river segments that are not designated).

Wild Rivers

Wild river segments are free flowing and are generally inaccessible except by trail and/or water; the shorelines are essentially natural appearing. Signs of human activity, including structures or evidence of resource use, are minimal. Visitors have the opportunity to interact with a natural environment with minimal sights and sounds of other people. Wild rivers within designated

wilderness areas meet the desired condition for MA 1A. The recreation opportunity spectrum is primitive to semiprimitive nonmotorized.

Table A-26. Miles of designated wild and scenic rivers for each national forest

River Name	Wild	Scenic	Recreational
Malheur National Forest			
Malheur River	6.0	6.0	0.0
North Fork Malheur River	0.0	25.5	0.0
Totals	6.0	31.5	0.0
Umatilla National Forest			
Wenaha River	18.7	2.7	0.2
Grande Ronde River*	17.4	0.0	1.5
North Fork John Day River*	24.3	10.5	8.9
Totals	60.4	13.2	10.6
Wallowa-Whitman National Forest**			
Eagle Creek	4.0	6.0	17.0
Grande Ronde River*	17.4	0.0	1.5
Joseph Creek	8.6	0.0	0.0
Imnaha River	15.0	0.0	0.0
Lostine River	5.0	11.0	0.0
Minam River	39.0	0.0	0.0
North Fork John Day River*	3.5	0.0	6.9
North Powder River	0.0	6.0	0.0
Totals	92.5	23.0	25.4
Total All*	141.5*	67.7	34.5*

* The Grande Ronde and North Fork John Day rivers are listed above for both the Umatilla and Wallowa-Whitman National Forests as administration is shared. Mileage for the North Fork John Day River is divided within the table to reflect the mileage within and administered by each national forest. The Grande Ronde River is part of the administrative boundary between the Umatilla and Wallowa-Whitman National Forests, and the mileage is displayed equally for each of the national forests and is only counted once in the overall total.

** Designated wild and scenic rivers (Rapid and Snake rivers and part of the Imnaha River) within the HCNRA are not included in this table.

Scenic Rivers

Scenic river segments are free flowing. Shorelines and viewing areas are largely natural appearing but are accessible by roads in some places. Some recreation structures, evidence of timber harvest roads, and other evidence of human activity may be present but do not detract from the near natural appearance and scenic qualities of the immediate environment. A variety of water related recreational opportunities are available. The recreation opportunity spectrum is semiprimitive nonmotorized to semiprimitive motorized.

Recreational Rivers

Recreational river segments are free flowing and are readily accessible from roads. Some major public use facilities, such as developed campgrounds, administrative buildings, bridges, private residences, and commercial businesses, may be within the corridor. Considerable development and silvicultural treatments may have occurred and may be evident near the river. A range of recreational opportunities is available in settings where visitors are likely to share their

recreational experience with other individuals or groups. The recreation opportunity spectrum is semiprimitive motorized to roaded natural.

Table A-27. Miles of eligible wild and scenic rivers for each national forest*

River Name	Wild	Scenic	Recreational	Potential Outstandingly Remarkable Values
Malheur National Forest				
Lake Creek	3.3	0.0	0.0	Scenery
Umatilla National Forest				
Bear Creek	4.6	0.0	0.0	Fisheries
Butte-West Fork Creek	13.9	0.0	0.0	Scenery, fisheries
Desolation Creek	0.0	0.0	21.4	Recreation, botanical
Lookingglass Creek	8.7	0.0	0.0	Fisheries, hydrological
North Fork Desolation Creek	0.0	0.0	6.8	Botanical
North and South Fork Wenaha River	26.3	0.0	0.0	Scenery, fisheries, botanical
Sheep Creek (in Washington)	0.0	0.0	0.5	Scenery, fisheries, botanical
South Fork Desolation Creek	8.9	0.0	0.0	Fisheries, botanical
Tucannon River	9.1	4.6	8.7	Recreation, fisheries, cultural, botanical
Totals	71.5	4.6	37.4	
Wallowa-Whitman National Forest				
Big Sheep Creek	10.0		39.1	Recreation, fisheries, cultural
Dutch Flat Creek/Van Patton Creek*	5.3	0	0	Scenery, recreation, geological, hydrological, botanical
East Eagle Creek*	9	2.1	4.5	Scenery, recreation, fisheries, hydrological, geological, cultural
Five Points Creek*	0	12.1	0	Scenery, fisheries, wildlife
Killamacue/Rock Creek	10.2	8.6	0	Scenery, recreation, geologic, botanical
North Fork Catherine Creek	11.1	0	2.6	Scenery, recreation, fisheries, wildlife
Swamp Creek	7.6	0	9.2	Fisheries, wildlife, cultural
Upper Grande Ronde River	11.7	0	18	Recreation, fisheries, wildlife, cultural
Totals	64.9	22.8	73.4	
Total All*	139.7	27.4	110.8	

* All of the eligible wild and scenic rivers remain eligible on the Malheur and Umatilla National Forests. In alternative B, C and D, all of the eligible wild and scenic rivers remain eligible on the Wallowa-Whitman National Forest.

Table A-28. Miles of suitable wild and scenic rivers for alternatives D, E, and F for the Wallowa-Whitman National Forest

River Name	Wild	Scenic	Recreational	Outstandingly Remarkable Values
Wallowa-Whitman National Forest*				
Dutch Flat Creek	5.3	0.0	0.0	Scenery, recreation, geological, hydrological, botanical
East Eagle Creek	9.0	2.1	4.5	Scenery, recreation, fisheries, hydrological, geological, cultural
Five Points Creek	0.0	12.1	0.0	Scenery, fisheries, wildlife
Totals	6.0	31.5	0.0	

* These rivers were determined suitable. Analysis is documented in the Dutch Flat Creek, Killamacue Creek, and Rock Creek Wild and Scenic River Study Report (1996) and Wild and Scenic River Study Report and Final Legislative EIS for Eight Rivers (1997).

MA 2B Research Natural Areas

Description: Research natural areas (RNAs) form a network of ecological reserves established for research and education purposes and for the maintenance of biodiversity. They are established to conserve unique ecological communities and are intended to promote and protect natural diversity. Research natural areas typify important vegetative, aquatic, and geological types, as well as other natural situations that have special and unique characteristics of scientific interest and importance.

Research, study, observation, monitoring, and educational activities that are nondestructive and nonmanipulative are generally allowed within research natural areas. While research natural areas are generally not suitable for livestock grazing, some incidental use by livestock could occur within these areas as administrative boundaries are typically not fenced. The network of established or proposed research natural areas within the national forests of the Blue Mountains is displayed in table A-29.

Desired Condition: Research natural areas and proposed research natural areas exhibit natural conditions with minimal human intervention, and ecological processes prevail. Under some circumstances (i.e., when there is an approved establishment report that includes a management plan), deliberate manipulation may occur to maintain the ecosystem or the unique feature for which the research natural area was established, except in wilderness areas. The recreation opportunity spectrum depends on the surrounding management areas.

Table A-29. Acres, status and change to research natural areas for each national forest with each alternative

Area Name	Alt. A	Alts. B, C, D, E, and F	Status	Change
Malheur National Forest				
Baldy Mountain	2,591	3,861	Proposed	Boundary update
Canyon Creek	738	738	Established	NA
Dixie Butte	86	335	Proposed	Boundary update
Dry Mountain	2,260	2,260	Established	NA
Dugout Creek ¹	908	908	Established	NA
Shaketable	375	385	Established	Boundary update
Silver Creek	802	802	Proposed	NA
Stinger Creek	354	1,663	Proposed	Boundary update
Strawberry Mountain	0	107	Proposed	New
Total	8,114	11,059		
Umatilla National Forest				
Birch Creek Cove	411	411	Proposed	NA
Kahler Creek Butte (formerly Kelly Creek Butte)	84	84	Proposed	NA
Mill Creek	7,702	7,486	Proposed	Boundary update ²
Pataha Bunchgrass	63	63	Established	NA
Rainbow Creek	570	570	Established	NA
Vinegar Hill	424	424	Proposed	NA
Wenaha Breaks (formerly Elk Flats-Wenaha Breaks)	1,970	1,970	Established	Boundary update
Total	11,224	11,008		
Wallowa-Whitman National Forest*				
Clear Creek Ridge	0	637	Proposed	New
Craig Mountain Lake	172	172	Proposed	NA
Glacier Lake	102	102	Proposed	NA
Haystack Rock	425	425	Proposed	NA
Horse Pasture Ridge	338	338	Proposed	NA
Indian Creek	1,003	1,003	Established	NA
Johnson (formerly Cougar Meadow)	131	131	Proposed	Name change
Lake Fork ¹	224	224	Proposed	Boundary update
Mount Joseph	705	705	Proposed	NA
Nebo ¹	0	1,695	Proposed	New
Point Prominence	365	365	Proposed	NA
Standley	0	742	Proposed	New
Gerald S. Strickler (formerly Government Meadow)	195	195	Established	Name change
Sturgill	0	139	Proposed	New
Tenderfoot Basin	0	891	Proposed	New
Vance Knoll	190	190	Established	NA
West Razz Lake	47	47	Proposed	NA
Totals	3,897	8,001		

1. Acres within the HCNRA are not included in this table.

2. This research natural area is also a designated municipal watershed

MA 2C Botanical Areas

Description: Botanical areas have special values and unique natural characteristics. Botanical areas contain specimens, groups of plant colonies, or plant communities that are significant because of form, color occurrence, habitat location, life history, ecology, variety, or other features. While botanical areas are generally not suitable for livestock grazing, some incidental use by livestock could occur within these areas as administrative boundaries typically are not fenced. The network of established or proposed botanical areas within the national forests of the Blue Mountains is displayed in table A-30.

Desired Condition: Botanical areas exhibit the natural composition, structure, and function of each area's unique ecosystem. The recreation opportunity spectrum depends on the surrounding management areas.

Table A-30. Botanical areas for each national forest

Area Name	Current Acres	Proposed Acres	Change
Malheur National Forest			
Fergy Spruce Grove	29	29	No changes proposed
Cedar Grove	94	116	Updated calculation from current mapping
Totals	123	145	
Umatilla National Forest			
Charley Creek	50	111	Increased acres to protect unique values
Ruckel Junction	5	5	No changes proposed
Karl Urban	500	500	Name changed from Sheep Creek Falls Botanical Area
Shimmiehorn Canyon	197	197	No changes proposed
Sourdough	0	1,511	Proposed
Farr Meadows	0	12	Proposed
Elk Flats Meadow	0	97	Proposed
Totals	695	2,437	
Wallowa-Whitman National Forest			
None	NA	NA	NA
Total All	818	2,582	

MA 2D Geological Areas

Description: Geological areas have outstanding formations or unique geological features of the earth's development, such as caves, fossils, dikes, cliffs, or faults. These areas are protected or enhanced, and where appropriate, public use and enjoyment is fostered. The network of established geological areas within the Malheur and Umatilla National Forests is displayed in table A-31.

Desired Condition: Geological areas display unusual formations and significant events. Developments provide public enjoyment and interpretation opportunities with high scenic, recreational, and historic value. Access within the areas is by nonmotorized trails. The recreation opportunity spectrum depends on the surrounding management areas.

Table A-31. Geological areas for the Malheur and Umatilla National Forests

Area Name	Acres
Malheur National Forest	
Magone Lake	185
Tex Bridge	1
Total	186
Umatilla National Forest	
Big Sink	416
Wallowa-Whitman National Forest	
None	NA
Total All	788

MA 2E Historical Areas

Description: These areas are protected or enhanced, and, where appropriate, public use and enjoyment is fostered. These areas are usually small (generally less than 1,000 acres). Historical areas have historic sites, buildings, or objects of significance. The network of established historical areas within the Malheur and Umatilla National Forests is displayed in in table A-32.

Desired Condition: Historical areas demonstrate legacies unique to the area. Developments exist to enhance public enjoyment and interpretation. Their high historic value is maintained. The recreation opportunity spectrum depends on the surrounding management areas.

Table A-32. Historical areas for the Malheur and Umatilla National Forests

Area Name	Acres
Malheur National Forest	
Sumpter Valley Railroad	13
Depression ERA CCC Buildings	11
Early and Intermediate Period Buildings	4
Historic Lookouts	7
Malheur Headwaters National Register District	4,950
Camas Oven Site	10
Pre-Mazama Site	10
Arch Rock Site	2
Historic Mining Districts	598
Obsidian Source Archaeological Complex	28,000
Total	33,605
Umatilla National Forest	
Greenhorn	90
Olive Lake-Fremont Powerhouse	1,000
Target Meadows	83
Total	1,173
Wallowa-Whitman National Forest	
None	NA
Total All	34,778

MA 2F Scenic Byways and All-American Roads

Description: The National Scenic Byways Program is a part of the U.S. Department of Transportation. The program is a grassroots, collaborative effort established to help recognize, preserve, and enhance selected roads throughout the United States. The U.S. Secretary of Transportation recognizes certain roads as all-American roads or national scenic byways based on one or more archeological, cultural, historic, natural, recreational, or scenic quality.

The purpose of the scenic byways program is to create a distinctive collection of designated roads, their stories, and treasured places by creating a unique travel experience and enhanced local quality of life through efforts to preserve, protect, interpret, and promote the intrinsic qualities of designated byways. Table A-33 displays the miles of designated national and state scenic byways and designated routes within the Blue Mountains national forests. Each of the scenic byways has additional mileage outside of national forest boundaries.

Desired Condition: The scenic integrity of scenic byways is high. Scenic byways connect communities with the surrounding natural environment. Constructed features contribute to the attractiveness of the landscape and/or theme. The recreation opportunity spectrum depends on the surrounding management areas.

Table A-33. Scenic byways within each national forest

Scenic Byway Name	Length (miles)	Designation
Malheur National Forest		
Journey Through Time Scenic Byway	13	State
Umatilla National Forest		
Blue Mountain Scenic Byway	48	State
Elkhorn Scenic Byway	3	State
Total	51	
Wallowa-Whitman National Forest		
Blue Mountain Scenic Byway	2	State
Hells Canyon Scenic Byway*	10	National
Journey Through Time Scenic Byway	21	State
Elkhorn Scenic Byway	52	State
Total	85	
Total All	149	

* A portion of the Hells Canyon Scenic Byway, an All-American Road, is within the HCNRA and is not included in this table.

MA 2G Nationally Designated Trails

Description: The National Trail System Act (1968) authorized the creation of a national trail system comprised of National Recreation Trails, National Scenic Trails, and National Historic Trails. These trails are included in the listing of specially designated areas because of their scenic, recreational, and historic value. Table A-34 displays the trails that are designated within the Malheur, Umatilla, and Wallowa-Whitman National Forests.

Desired Condition: Nationally designated trails meet standards commensurate with the significance of each trail. They are well maintained and are upgraded where necessary to minimize resource problems while providing a safe, consistent surface. Signage is adequate or is

improved. Their high scenic, recreational, and historic value is evident. The recreation opportunity spectrum depends on the surrounding management areas.

Table A-34. Nationally designated trails within each national forest

Trail Name	Length (miles)
Malheur National Forest	
Arch Rock National Recreation Trail	0.3
Cedar Grove National Recreation Trail	1.0
Malheur River National Recreation Trail	8.0
Total	9.3
Umatilla National Forest	
Jubilee Lake National Recreation Trail	3.0
North Fork John Day National Recreation Trail	22.9
South Winom Creek National Recreation Trail	4.0
Total	29.9
Wallowa-Whitman National Forest*	
Elkhorn Crest National Recreation Trail	23.0
High Wallowa National Recreation Trail	2.0
Oregon Trail National Historic Trail	8.3
Total	33.3
Total All	72.5

* The following designated trails are within the HCNRA and are not included in this table: Nez Perce-Nee Me Poo National Historic Trail and the Western Rim/Summit Ridge, Heaven's Gate, and Snake River National Recreation Trails.

MA 2H Scenic Areas

Description: Scenic areas are places of natural variety where unique physical characteristics provide pleasing views and dispersed recreational opportunities. Scenic areas are designated to protect or enhance, and, where appropriate, foster public use and enjoyment of areas with special landscapes noted for their natural beauty. There are three designated scenic areas within the national forests of the Blue Mountains. The network of established scenic areas within the Malheur and Umatilla National Forests is displayed in table A-35.

Desired Condition: Scenic areas provide a variety of recreational opportunities for public use and enjoyment while remaining mostly natural in appearance. While roads provide motor vehicle access to the unique natural beauty and sense of vastness of these areas, the supply and visibility of existing roads is subordinate to the overall scenic character of the landscape. The scenic integrity of these areas is high to very high. The recreation opportunity spectrum depends on the surrounding management areas.

Table A-35. Scenic areas within the Malheur and Umatilla National Forests

Name	Acres	Establishment
Malheur National Forests		
Vinegar Hill-Indian Rock Scenic Area	12,835	Established in 1966 by Regional Forester
Silver Creek Scenic Area	1,572	Proposed
Total	14,407	
Umatilla National Forest		
Vinegar Hill-Indian Rock Scenic Area	21,956	Established in 1966 by Regional Forester and amended in 1978 by adding the Desolation Unit
Grande Ronde Scenic Area	9,158	Established in 1979 by Regional Forester
Total	31,114	
Total All	45,521	

MA 21 Starkey Experimental Forest and Range

Description: The Starkey Experimental Forest and Range (Starkey) was established in 1940. It is managed to support existing research projects and to provide for future research needs. Experimental forests and ranges (EFRs) were established explicitly to conduct research benefitting and supporting National Forest System management. Management treatments on EFRs generally are integrated with and support research projects. The national network of EFRs, a land base authorized by Congress and designated by the Chiefs of the Forest Service over the last 100 years, provides sites where long-term ecological research can be maintained. Experimental forests and ranges are living laboratories where scientists not only make discoveries but also demonstrate relevant research results for cooperators and stakeholders. They provide opportunities to conduct the innovative research that will be required for sound management of future landscapes.

Starkey is a world-class research facility and a primary field location for long-term, operational scale scientific studies of the effects of management activities on ungulates and other wildlife, as well as effects of deer, elk and cattle on ecosystem process and function. Scientists conducting research at Starkey have generated numerous publications that have been instrumental in providing managers with defensible options and best management practices for managing roads and traffic, including off-road recreation, livestock grazing, and fuel treatments in relation to ungulates. Significant, long-term research on interactions between livestock and wild ungulates began in 1989, through a joint wildlife research project conducted by the Oregon Department of Fish and Wildlife, Oregon State University, and the U.S. Forest Service.

The Station Director will review and concur with management activities proposed within this Experimental Forest and Range.

Desired Condition: The Starkey provides opportunities to study deer, elk, cattle, and other wildlife, as well as other aspects of intensive forest and rangeland management including disturbance ecology (e.g., fire, insects and disease, large mammal grazing). A wide variety of land uses and human activities will continue to be included in management of Starkey including: active silviculture, fuels reduction, biofuel management, fire suppression, cattle grazing, public access, public uses of motorized and nonmotorized roads and trails, firewood cutting, camping and other nonconsumptive recreation, and protection of all research facilities. Public access and activities are managed to protect the facilities and meet research needs.

Depending on research objectives, studies range from nonmanipulative studies at very small scales, to experiments involving commercial timber harvesting across multiple stands. Typical forest practices, such as fuels reduction, prescribed fire, and timber harvest, are conducted as part of research direction and may result in a higher level of uncertainty of effects than is expected in other management areas, because research within experimental areas can include testing of novel prescriptions and management approaches. Timber harvest is allowed to meet specific resource objectives for Starkey. Timber harvest is not scheduled and does not contribute towards the allowable sale quantity.

Enclosures, exclosures, and long-term vegetation plots are maintained and protected to provide a continuous data stream to meet research objectives. However, future research may dictate treatment within these areas. Livestock management systems include 1) use of novel cattle grazing systems to facilitate habitat recovery in riparian systems, 2) manipulative ungulate treatments to evaluate cattle versus elk and deer herbivory effects on vegetation development, and 3) evaluating effects of ungulates on a wide variety of other resources (e.g., water quality, hydrology, nutrient cycling, forest productivity, and wildlife). The number of animals, as well as the allocation of this number between cattle, deer and elk, may be manipulated as part of the research conducted on the Starkey Experimental Forest and Range.

The recreation opportunity spectrum is roaded natural.

MA 2J Municipal Watersheds

Description: A municipal watershed is an area that serves a public water system as defined by the Safe Drinking Water Act. The act applies to systems that provide water for human consumption, have at least 15 service connections, or regularly provide water to at least 25 people. The act was amended in 1996 to require source water protection zones for groundwater wells that provide water for public use. The act regulates both community and non-community water systems.

Six communities in the Blue Mountains have water systems that derive water supplies directly from National Forest System lands (see table A-36).

The definition of municipal watershed in current Forest Service regulations does not include communities served by a well or confined groundwater unaffected by Forest Service activities. However, the Safe Drinking Water Act of 1974 was amended in 1996 to require source water protection zones for groundwater wells that provide water for municipal use. Designation of municipal watersheds recognizes the need to protect public water supplies. Municipal watersheds may be managed for multiple uses so long as management activities do not degrade water quality.

Management of some municipal water supply watersheds is subject to the terms of existing agreements between the Secretary of Agriculture and the respective cities.

In general, management of the municipal watersheds displayed in table A-36 is guided by existing agreements between the individual cities and either the Secretary of Agriculture or the Forest Service. Actions that could degrade water quality are either prohibited or are subject to approval by the respective city. For some communities, wells outside the national forest are the primary water source, but well-head protection zones may extend onto National Forest System lands.

Table A-36. Designated municipal watersheds for each national forest

Watershed	Acres	City	Establishment
Malheur National Forest			
Long Creek Municipal Watershed	256	Long Creek, OR	1937 Special Use Permit
Byram Gulch Municipal Watershed	279	Canyon City, OR	1926 Special Use Permit
Total	535		
Umatilla National Forest			
Mill Creek Municipal Watershed	20,300	Walla Walla, WA	1918 Agreement between Secretary of Agriculture and City of Walla Walla
Total	20,300		
Wallowa-Whitman National Forest			
Baker City Municipal Watershed (multiple streams)	9,322	Baker City, OR	1912 Agreement with Department of Agriculture
La Grande City Municipal Watershed (Beaver Creek)	15,161	La Grande, OR	1935 Agreement with Department of Agriculture
Total	24,483		
Total All	45,318		

In addition to the municipal watersheds listed in table A-36, nine communities in Oregon have watersheds or water sources located on or adjacent to National Forest System lands that should be protected in order to meet state source-water protection guidelines.

Within the Malheur National Forest

The town of Seneca uses two groundwater wells for its public water supply. The well-head protection zones for these wells may include National Forest System lands and require protection under the Safe Drinking Water Act. Prairie City obtains its water supply from Dixie Creek, which originates on National Forest System lands.

Twelve additional sites, including campgrounds and administrative sites and one privately owned site, provide water for public use and are regulated by provisions of the Safe Drinking Water Act as non-community water systems.

Within the Umatilla National Forest

The North Fork Umatilla River was designated as the municipal water supply for the city of Pendleton by the Oregon State Legislature in 1941. In 1984, the area was designated as a wilderness area and the city has since transferred its water intake to a point on the Umatilla River near the city of Pendleton.

Within the Wallowa-Whitman National Forest

The town of Granite has a water intake on National Forest System lands operating under special use permit. A wellhead protection zone for a groundwater well extends onto National Forest System lands.

The town of Halfway has municipal water rights on National Forest System lands but has converted the water system to groundwater sources on city-owned lands.

The upper Wallowa River, including Wallowa Lake, is designated by the Oregon Department of Environmental Quality as the municipal water supply for the city of Joseph. The city water intake is located near the outlet of Wallowa Lake and is not on National Forest System lands.

The city of Sumpter has a water intake operating under special use permit on National Forest System lands. The watershed is designated by Oregon Department of Environmental Quality as a municipal water supply.

The city of Wallowa owns municipal water rights on National Forest System lands (Bear Creek) but has converted its water system to groundwater sources on city-owned lands.

The communities of Richland and Greenhorn obtain their water from surface sources originating on National Forest System lands.

Fifteen additional sites within the Wallowa-Whitman National Forest, primarily campgrounds and administrative sites, provide water for human consumption and are regulated under the authority of the Safe Drinking Water Act as non-community water systems.

Desired Condition: With appropriate treatment, the quality of water used for human consumption meets or exceeds all associated state water quality criteria. The recreation opportunity spectrum is semi-primitive motorized.

MA 3A Backcountry (Nonmotorized Use)

Description: Use in MA 3A Backcountry (nonmotorized use) is nonmotorized year-round and is essentially primitive. Lands in this management area often provide high quality or undisturbed soil, water, and air; sources of public drinking water; diversity of plant and animal communities; habitat for species listed under the Endangered Species Act and other species that depend on large, undisturbed areas of land; primitive and semi-primitive nonmotorized dispersed recreation opportunities; natural appearing landscapes with high scenic quality, natural integrity, apparent naturalness, solitude and remoteness; and traditional cultural properties and sacred sites.

Desired Condition: Generally, natural ecological processes predominate.

The social setting is one of moderate to high challenge and risk, where people using these areas experience some isolation from the sights and sounds of others. Mechanized uses, such as bicycles, chainsaws, and generators, are allowed. Trail systems are constructed and maintained for use by hikers, equestrians, and cyclists. The scenic integrity of these areas is high. The recreation opportunity spectrum in MA 3A is semi-primitive or primitive nonmotorized.

MA 3B Backcountry (motorized use)

Description: Use in MA 3B Backcountry (motorized use) includes both motor vehicle use and nonmotorized use. These areas are relatively remote but may show signs of past activities. Motor vehicle access to these areas may be restricted seasonally, by route designations, or by area restrictions. These areas are characterized by semi-primitive nonmotorized and motorized dispersed recreation opportunities and modified appearing landscapes with moderate scenic quality.

Desired Condition: Generally, natural ecological processes predominate.

The social setting is one of moderate challenge and risk, where people using these areas experience some isolation from the sights and sounds of others. Motorized and mechanized uses,

such as motorcycles, OHVs, snowmobiles, bicycles, and motorized equipment such as chainsaws and generators are allowed. Trails and primitive developments are constructed and maintained for both motor vehicle and nonmotorized users. The open motor vehicle route density within HUC5 watersheds in this management area is no greater than 1.5 miles of open motor vehicle routes per square mile. The recreation opportunity spectrum in MA 3B is semi-primitive or motorized.

MA 3C Wildlife Corridor (alternatives C, E, and F)

Description: Wildlife corridors are areas designed to maintain habitat linkages between wilderness areas. Although disagreement exists regarding the utility of corridors, this management area emphasizes management for landscape connectivity, which is “the degree to which the landscape facilitates or impedes movement among resource patches,” (Taylor et al. 1993) or “the functional relationship among habitat patches, owing to the spatial contagion of habitat and the movement responses of organisms to landscape structure,” (With et al. 1997). A wide variety of vegetation structure and composition is present, with some showing evidence of past human disturbance and others showing affects primarily from natural disturbances, such as wildfires. Both summer and winter motor vehicle travel is restricted to designated routes. Recreation users can expect to find evidence of human activity in the form of vegetation management, mining, and road building. However, many of the roads that are closed to motor vehicle travel occur in these areas.

Desired Condition: Wildlife species using these areas experience minimal human disturbance. Thinning forested vegetation results in variable densities, with greater than 40 percent canopy cover, over greater than 75 percent of the area, during the life of the plan.

The social setting is one of little challenge and risk. The area’s many routes may not be available for motor vehicle travel. Within HUC5 watersheds in this management area, year round open motor vehicle route density is less than 1 mile per square mile, including over-the-snow motor vehicle routes. Over-the-snow motor vehicle travel is restricted to designated routes. Major travelways (i.e., state, county, and paved roads) remain open year round, and may be groomed for over-the-snow motor vehicle use in winter. The recreation opportunity spectrum in MA3C is semi-primitive motorized.

MA 4A General Forest

Description: General forest areas are managed to meet a variety of ecological and human needs. A wide variety of vegetative structure and composition is present, with some showing the effects of past management activities and others showing the effects of predominantly natural forces, such as wildfire and insects and disease. These lands often display high levels of management activity and associated roads. Visitors expect to see other people and evidence of human activities.

Desired Condition: General Forest contributes to the variety of native plant communities and the composition, structure, and patterns defined in the desired conditions. While the landscape is predominantly natural in appearance, there are some locations where the vegetation composition, structure, density and/or pattern is altered to meet short- or long-term management objectives that move the landscape towards the desired conditions. The area is maintained through ecological processes, as well as management activities. This management area contributes important habitat for aquatic, plant and wildlife species that benefit from functional habitat. Additionally, the area supplies a variety of dispersed or developed summer and winter recreational activities. Recreational use is generally dispersed and/or located at recreation developments, such as campgrounds with higher use levels. Facilities (whether Forest Service or permitted) are those

necessary to provide public or resource benefit, or provide for safety. This area has Forest Service system and other authorized routes. A wide spectrum of travelway types are present, ranging from maintenance level 1 through 5 roads (closed or primitive roads to highways) to trails that serve as recreational features themselves. The recreation opportunity spectrum in MA4A is roaded natural.

MA 4B Riparian Management Areas

Description: Riparian management areas (RMAs) are areas that include portions of watersheds where aquatic and riparian-dependent resources receive primary emphasis and where special management direction applies. Riparian management areas encompass lands adjacent to permanently flowing streams, ponds, lakes, wetlands, seeps, springs, and intermittent streams, including geologically unstable sites that may influence these lands. Riparian management areas will generally have minimum widths (displayed in table A-37, table A-38, and table A-39) but are designed to extend to the outer edge of riparian vegetation or to the outer extent of the 100-year floodplain, whichever is greater. Riparian management areas are managed to maintain and restore the riparian structure and function of intermittent and perennial streams, confer benefits to riparian-dependent plant and animal species, enhance habitat conservation for organisms that are dependent on the transition zone between upslope and riparian areas, and provide for greater connectivity within and between watersheds for both riparian and upland species.

Table A-37. Riparian management area widths for alternatives B, E, and F

Category	Minimum Riparian Management Area Width*
Fish-bearing streams	300 feet slope distance on either side of stream or to outer edge of 100-year floodplain, whichever is greatest
Permanently-flowing non-fish-bearing streams	150 feet slope distance on either side of stream or to outer edge of 100-year floodplain, whichever is greatest
Constructed ponds, reservoirs and wetlands greater than 1 acre	150 feet slope distance from the outer edge of wetland or from the maximum pool elevation, whichever is greatest
Lakes and natural ponds	300 feet slope distance
Seasonally-flowing, intermittent and ephemeral streams, wetlands smaller than 1 acre, and unstable areas	100 feet slope distance

* Additional delineation criteria apply, as described in the glossary.

Table A-38. Riparian management area widths for alternative C

Category	Minimum Riparian Management Area Width*
Fish-bearing streams	300 feet slope distance on either side of stream
Permanently-flowing non-fish-bearing streams	300 feet slope distance on either side of stream
Constructed ponds, reservoirs and wetlands greater than 1 acre	300 feet slope distance
Lakes and natural ponds	300 feet slope distance
Seasonally-flowing, intermittent and ephemeral streams, wetlands smaller than 1 acre, and unstable areas	300 feet slope distance

* Additional delineation criteria apply, as described in the glossary.

Table A-39. Riparian management area widths for alternative D

Category	Minimum Riparian Management Area Width*
Fish-bearing streams	100 feet slope distance on either side of stream or to outer edge of 100-year floodplain, whichever is greatest
Permanently-flowing non-fish-bearing streams	70 feet slope distance on either side of stream or to outer edge of 100-year floodplain, whichever is greatest
Constructed ponds, reservoirs and wetlands greater than 1 acre	50 feet slope distance from the outer edge of wetland or from the maximum pool elevation, whichever is greatest
Lakes and natural ponds	50 feet slope distance
Seasonally-flowing, intermittent and ephemeral streams, wetlands smaller than 1 acre, and unstable areas	50 feet slope distance

* Additional delineation criteria apply, as described in the glossary.

Riparian vegetation performs numerous key functions for stream ecosystems, including the provision of shade, bank stability, nutrient transfer, retention of organic material, and the supply of woody material.

Because riparian plant species vary in their establishment mechanisms, water requirements, and tolerance to flooding, differences in channel and floodplain morphology result in high spatial and temporal variability in species composition and age class structure within and along riparian zones. This makes riparian areas among the most biologically diverse and productive habitats on the landscape.

Healthy riparian areas are important for the protection of the water quality upon which aquatic species depend and are also used by approximately 75 percent of terrestrial vertebrate species in the Blue Mountains (Raedeke 1989, Thomas 1979). In addition, riparian areas provide critical habitat for numerous sensitive, rare, or uncommon plant and lichen species. Management activities within riparian management areas are designed to maintain, enhance, or restore the ecological processes responsible for the diversity, productivity, and sustainability of riparian habitats.

Management of riparian management areas focuses on the ecological processes and conditions within the riparian management areas and contributes to the value of the aquatic and riparian habitats they contain.

The glossary describes the full definition and criteria for delineating riparian management areas.

Desired Condition: Riparian management areas within any given watershed reflect a natural composition of native and desired nonnative plant and animal species and a distribution of physical and vegetative conditions appropriate to natural disturbance regimes affecting the area.

Key riparian processes and conditions, including slope stability and associated vegetative root strength; wood delivery to streams; input of leafy and organic matter to aquatic and terrestrial systems; solar shading; microclimate; and water quality, are within ranges typical of the biophysical setting and the corresponding disturbance regime. The recreation opportunity spectrum in MA 4B is semiprimitive to primitive.

Acres associated with MA 4B are only those acres within MA 4A General Forest. However, the desired conditions and standards and guidelines that apply to MA 4B apply to all riparian management areas.

MA 4C Old Forest

Description: Old forest is a late stage of stand development that develops over a relatively long period of time. Old forest has an abundance of physiologically old trees (for the species and site conditions) that are dominant in the overstory and are usually larger in diameter (see glossary for definition by potential vegetation group). Old forest is valued as wildlife habitat, contributions to riparian habitat, for recreation, and for aesthetic and cultural values.

Desired Condition: Old forest is maintained and restored to meet a wide variety of ecological and social values. Old forest provides habitat for wildlife, preserves aesthetic values, and contributes to landscape diversity. The amount of old forest is consistent with the HRV. See the ecological desired conditions for specific ranges for the percent of each upland forest or woodland potential vegetation group in old forest structural stages. The management of old forest is also guided by other ecological desired conditions, such as stand density, species composition, fire regime condition class, snags, and downed wood. The recreation opportunity spectrum in MA4C is semi-primitive motorized or nonmotorized.

MA 5 Developed Sites and Administrative Areas

Description: Developed sites, administrative areas, and permitted uses such as ski areas, developed campgrounds, recreation residences, administrative sites, communication sites, and utility corridors, are generally limited in extent to meet their designated purpose and occur as a place or feature on the landscape. Ecological values are conserved while protecting the health and safety of humans. Livestock grazing within developed and administrative sites is generally unsuitable, although some administrative sites are used to pasture Forest Service administrative stock. Transportation and motor vehicle access varies. Roads and trails typically are limited and provide access to the main site features, such as buildings, permit areas, and campsites. Some of these areas are used for administrative purposes such as employee housing, storage, and long-term condition and trend studies and conifer seed orchards. Though small, these areas are important data collection points that assist with understanding ecosystem function and resilience.

Desired Condition: Infrastructure design promotes employee, permit holder, and visitor safety. The appearance is neat, orderly, and complementary to the surrounding landscape setting. Facilities, structures, and other built elements blend with the natural landscape where possible and are consistent with landscape architecture principles found in the Forest Service Built Environment Image Guidelines (USDA Forest Service 2001). The scenic integrity of these areas is commensurate with the inventoried scenic class. Snags and down wood levels are generally less than in other management areas or are absent due to safety concerns. Administrative studies and seed orchards are maintained. The level of development of buildings and ancillary structures, such as water and power systems, is commensurate to support the objective of the developed site, permit area, or administrative area without exceeding the desired condition for scenic integrity in the area.

Vegetation treatments may include consideration of wildfire protection objectives, which may over-ride ecological desired conditions. In these instances, vegetative structure would result in fire intensity that allows for safe and effective suppression actions.

The recreation opportunity spectrum in MA5 is roaded natural to rural. The following descriptions further explain the desired conditions for specific facility types within the three national forests.

Communication Sites

Desired Condition: Communication facilities and ancillary features are designed to be consistent with the designated purpose while maintaining human health and safety values and inventoried scenic class. New facilities are designed to minimize impairing scenic, natural, and cultural resource values and to blend with the natural appearing landscape, repeating the form, line, color, and texture of the surrounding valued landscape character. Existing sites and facilities are improved to mitigate affects to on-site values and visual appearance, and to be consistent with the inventoried scenic class.

Utility Corridors

Desired Condition: Utility corridors and ancillary features are designed to be consistent with the designated purpose of providing power and telecommunication services to communities. Human health and safety values are maintained. Proposed new facilities are evaluated for compatibility with existing corridors and scenic, natural, and cultural resource values. Horizontal lines are softened through feathering and scalloping the edges of the corridors commensurate with vegetative and other resource needs. Proposals for new corridors are designed to minimize the visibility of the corridors and repeat the form, line, color and texture of the surrounding valued landscape character.

Developed Recreation Sites and Facilities

Desired Condition: Developed public facilities are operated by Forest Service personnel or permit holders. Sites such as campgrounds, picnic areas, trailheads, snow-parks, and boating and interpretive sites, are well maintained, fully functional, provide for visitor safety, and are accessible to people with disabilities. Potable water and sanitary systems are limited yet are provided at some sites and meet required health standards. Areas of highly concentrated use provide a full suite of amenities that provide for diversity of users. The facilities are fully utilized with occupancy rates approaching full capacity during peak use periods and moderate occupancy rates during non-peak summer and fall periods. Facilities provide some comfort for the user as well as site protection. New construction and reconstruction projects utilize a contemporary/rustic design based on the use of native or durable materials. Impacts to natural resources from concentrated visitor use are minimal. Partnerships with permit holders are encouraged and sustained at high-end public developed areas, such concessionaire-operated campgrounds.

Permitted Recreation Facilities

Desired Condition: Special use permit holders operate private facilities within the terms and conditions of the permit. Public uses are allowed at permitted sites such as lodges, organization camps, and trams. Private users are permitted at facilities such as recreation residences. No new recreation residence tracts or unoccupied lots are permitted.

Ski Areas

Desired Condition: Facilities and structures are designed to blend with the natural environment, using the principles in the Built Environment Image Guide for the National Forests and Grasslands (USDA Forest Service 2001). Removal of vegetation for ski runs is designed to blend with the natural patterns of the surrounding valued landscape character. Activities are consistent with the approved master development plan.

Administrative Site

Desired Condition: Administrative facilities include guard stations, administrative sites, pastures and airstrips and are safe, efficient, cost-effective, and are maintained at a function and use level that meets management needs and provide for universal accessibility. Facilities meet all applicable health and safety standards. Impacts to natural resources are minimal. Administrative facilities complement natural settings. The form of structures is derived by the function and from the landscape setting. For example, structures in mountainous, timbered landscapes have steep rooflines and broad eaves and use durable indigenous materials, such as stone and heavy timbers, with the appearance derived from the local environment. Structures, signage, and other built environment elements reflect the style and character inherent in the local environment (USDA Forest Service 2001).

Management Area Acreages (Action Alternatives)

The following tables display the management area designations and allocations for the action alternatives. All management areas are displayed in full. Overlap occurs between most management areas but is not accounted for in these tables. The overlapping management areas result in the total acreage of all management areas being greater than the official national forest acreages. For example, several research natural areas (MA 2B) and wild and scenic rivers (MA 2A) overlap into congressionally designated wilderness areas (MA 1A).

Wilderness area acres have been recalculated using the most current GIS technology. No additions or subtractions to any wilderness areas have been made since the 1990 forest plans were signed. Acres of private land inclusions are not included in any wilderness area acre calculations.

Scenic byways and national designated trails within the HCNRA are not included in these tables. The figures in the tables are rounded to the nearest hundred acres and to the nearest whole mile. In addition, these tables do not include acreage for the HCNRA. The HCNRA CMP, which was updated and approved in 2003, will be carried forward in its entirety. The HCNRA CMP is the portion of the Wallowa-Whitman National Forest Land and Resource Management Plan that guides management of the HCNRA. The tables display the portion of the Ochoco administered by the Malheur as part of the Malheur.

*Alternative B, Modified Proposed Action***Table A-40. Management area designation, name, and acreage for each national forest (2F and 2G show miles) in alternative B**

Management Area Designation and Name	Malheur	Umatilla	Wallowa-Whitman
1A – Congressionally Designated Wilderness Areas	82,600	304,200	372,900
1B – Recommended Wilderness Areas	1,200	1,400	10,800
1C – Wilderness Study Area	0	0	2,400
2A – Wild and Scenic River (Includes Designated, Eligible, and Suitable Rivers)	12,100	44,600	84,400
2B – Research Natural Areas	11,100	11,000	8,000
2C – Botanical Areas	100	2,400	0
2D – Geological Areas	200	400	0
2E – Historical Areas	34,000	1,200	24,700
2F – Scenic Byways and All-American Roads	13 miles	51 miles	85 miles
2G – Nationally Designated Trails	9.3 miles	29.9 miles	25.4 miles
2H – Scenic Areas	14,400	31,100	0
2I – Starkey Experimental Forest and Range	0	0	30,453
2J – Municipal Watersheds	500	20,200	24,500
3A – Backcountry (nonmotorized use)	59,300	19,300	0
3B – Backcountry (motorized use)	129,100	240,900	248,900
3C – Wildlife Corridor	0	0	0
4A – General Forest	1,252,000	640,300	848,000
4B – Riparian Management Areas (300/150/100 foot buffer)	192,900	237,500	362,500
4B – Riparian Management Areas (within 4A)	149,900	118,700	184,600
4C – Old Forest	0	0	0
5 – Developed Sites and Administrative Areas	2,200	3,700	7,700

*Alternative C***Table A-41. Management area designation, name, and acreage for each national forest (2F and 2G show miles) in alternative C**

Management Area Designation and Name	Malheur	Umatilla	Wallowa-Whitman
1A – Congressionally Designated Wilderness Areas	82,600	304,200	372,900
1B – Recommended Wilderness Areas	83,800	248,500	172,700
1C – Wilderness Study Area	0	0	2,400
2A – Wild and Scenic River (Includes Designated, Eligible, and Suitable Rivers)	12,100	44,600	84,400
2B – Research Natural Areas	11,100	11,000	8,000
2C – Botanical Areas	100	2,400	0
2D – Geological Areas	200	400	0
2E – Historical Areas	34,000	1,200	0
2F – Scenic Byways and All-American Roads	13 miles	51 miles	85 miles
2G – Nationally Designated Trails	9 miles	30 miles	25 miles
2H – Scenic Areas	14,400	31,100	0
2I – Starkey Experimental Forest and Range	0	0	30,500
2J – Municipal Watersheds	500	20,200	24,500
3A – Backcountry (nonmotorized use)	270,400	105,800	210,100
3B – Backcountry (motorized use)	0	0	0
3C – Wildlife Corridor	167,700	91,900	242,600
4A – General Forest/Timber/Range	702,500	329,000	397,200
4B – Riparian Management Areas (300-foot buffers)	369,000	499,800	727,500
4B – Riparian Management Areas (within 4A)	172,400	178,100	200,900
4C – Old Forest	205,100	94,800	91,000
5 – Developed Sites and Administrative Areas	2,200	3,700	7,700

Please read the explanatory information in the preceding paragraphs.

Alternative D

Table A-42. Management area designation, name, and acreage for each national forest (2F and 2G show miles) in alternative D

Management Area Designation and Name	Malheur	Umatilla	Wallowa-Whitman
1A – Congressionally Designated Wilderness Areas	82,600	304,200	372,900
1B – Recommended Wilderness Areas	0	0	0
1C – Wilderness Study Area	0	0	2,400
2A – Wild and Scenic River (Includes Designated, Eligible, and Suitable Rivers)	12,100	44,600	52,900
2B – Research Natural Areas	11,100	11,000	8,000
2C – Botanical Areas	100	2,400	0
2D – Geological Areas	200	400	0
2E – Historical Areas	34,000	1,200	24,700
2F – Scenic Byways and All-American Roads	13 miles	51 miles	85 miles
2G – Nationally Designated Trails	9 miles	30 miles	25 miles
2H – Scenic Areas	14,400	31,100	0
2I – Starkey Experimental Forest and Range	0	0	30,500
2J – Municipal Watersheds	500	20,200	24,500
3A – Backcountry (nonmotorized use)	0	0	0
3B – Backcountry (motorized use)	165,800	218,700	219,500
3C – Wildlife Corridor	0	0	0
4A – General Forest	1,359,800	742,300	998,700
4B – Riparian Management Areas (100/70/50 foot buffers)	83,100	106,900	162,900
4B – Riparian Management Areas (within 4A)	66,000	58,100	87,100
4C – Old Forest	0	0	0
5 – Developed Sites and Administrative Areas	2,200	3,700	7,700

Please read the explanatory information in the preceding paragraphs.

*Alternatives E and F***Table A-43. Management area designation, name, and acreage for each national forest (2F and 2G show miles) in alternatives E and F**

Management Area Designation and Name	Malheur	Umatilla	Wallowa-Whitman
1A – Congressionally Designated Wilderness Areas	82,600	304,200	372,900
1B – Recommended Wilderness Areas	30,400	40,100	20,300
1C – Wilderness Study Area	0	0	2,400
2A – Wild and Scenic River (Includes Designated, Eligible, and Suitable Rivers)	12,100	44,600	52,900
2B – Research Natural Areas	11,100	11,000	8,000
2C – Botanical Areas	100	2,400	0
2D – Geological Areas	200	400	0
2E – Historical Areas	34,000	1,200	24,700
2F – Scenic Byways and All-American Roads	13 miles	51 miles	85 miles
2G – Nationally Designated Trails	9 miles	30 miles	25 miles
2H – Scenic Areas	14,400	31,100	0
2I – Starkey Experimental Forest and Range	0	0	30,500
2J – Municipal Watersheds	500	20,200	24,500
3A – Backcountry (nonmotorized use)	53,600	70,100	104,500
3B – Backcountry (motorized use)	119,100	160,600	145,500
3C – Wildlife Corridor	0	21,600	6,500
4A – General Forest	1,245,600	625,200	844,300
4B – Riparian Management Areas (300/150/100 foot buffer)	192,900	237,500	362,500
4C – Old Forest	0	0	0
5 – Developed Sites and Administrative Areas	2,200	3,700	7,700

Suitability of Areas (Alternatives B through F)

An area may be identified as generally suitable for uses that are compatible with desired conditions and objectives for that area. An area may be identified as generally not suitable for uses that are not compatible with desired conditions and objectives for that area. Identification of an area as generally suitable or generally not suitable for a use is guidance for project and activity decision making and not a commitment nor a final decision approving projects and activities. Uses of specific areas are approved through project and activity decision making.

Management areas are used in this forest plan to help further refine suitable uses and guide management.

The management area designations and names follow:

- 1A Congressionally Designated Wilderness Areas
- 1B Preliminary Administratively Recommended Wilderness Areas
- 1C Wilderness Study Area
- 2A Wild and Scenic River (Includes Designated, Eligible, and Suitable Rivers)
- 2B Research Natural Areas
- 2C Botanical Areas
- 2D Geological Areas
- 2E Historical Areas
- 2F Scenic Byways and All American Roads
- 2G Nationally Designated Trails
- 2H Scenic Areas
- 2I Starkey Experimental Forest and Range
- 2J Municipal Watersheds
- 3A Backcountry (nonmotorized use)
- 3B Backcountry (motorized use)
- 3C Wildlife Corridors
- 4A General Forest
- 4B Riparian Management Areas
- 4C Old Forest
- 5 Developed Sites and Administrative Areas

For ease of comparison, general suitability determinations for management areas for each of the action alternatives are displayed in the following tables. Please note that some management areas are not proposed for each national forest or for each alternative.

Alternative B

Table A-44. General suitability matrix for management areas for alternative B

Use or Activity	Management Area																	
	1A	1B	1C	2A	2B	2C	2D	2E	2F	2G	2H	2I	2J*	3A	3B	4A	4B	5
Timber production	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	S	U	U
Timber harvest	U	U	U	S	U	S	S	S	S	S	S	S	S	S	S	S	S	S
Grazing (cattle and sheep)	S	S	S	S	U	U	S	S	S	S	S	S	U	S	S	S	S	U
Motor vehicle use (summer) ¹	U	U	U	U ²	U	S	S	S	S	S	S	U	U	U	S	S	S	S
Motor vehicle use (winter)	U	S	U	U ²	U	S	S	S	S	S	S	U	U	U	S	S ¹	S	S
Road construction	U	U	U	U ²	U	U	S	S	S	U	S	U	U	U	U	S	U	S
Trail construction (for motor vehicle use)	U	U	U	U ²	U	U	S	S	S	U	S	U	U	U	S	S	U	S
Mechanical fuel treatment	U	U	U	U ²	U	U	S	S	S	S	S	S	S	S	S	S	S	S
Energy development (wind farms, utility corridors, pipelines, etc.)	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	S	U	S

S designates use or activity as generally suitable. Refer to desired conditions and standards and guidelines for each management area and/or use for specific guidance.

U designates use or activity as generally not suitable. Refer to desired conditions and standards and guidelines for each management area and/or use for specific guidance.

* All activities in municipal watersheds are dependent on the agreement for management of the watershed between the Forest Service and the municipality.

1. indicates generally suitable applies only to use or activity on designated roads and trails and within designated areas.

2. indicates generally not suitable for wild and scenic rivers, generally suitable for recreational rivers.

Alternative C

Table A-45. General suitability matrix for management areas for alternative C

Use or Activity	Management Area																		
	1A	1B	1C	2A	2B	2C	2D	2E	2F	2G	2H	2I	2J*	3A	3C	4A	4B	4C	5
Timber production	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	S	U	U	U
Timber harvest	U	U	U	S	U	S	S	S	S	S	S	S	S	U	S	S	U	U	U
Grazing (cattle and sheep)	S	S	S	S	U	U	S	S	S	S	S	S	U	S	S	S	U	S	S
Motor vehicle use (summer) ¹	U	U	U	U ²	U	S	S	S	S	S	S	U	U	U	U	S	U	U	U
Motor vehicle use (winter)	U	U	U	U ²	U	S	S	S	S	S	S	U	U	U	S ¹	S	U	U	U
Road construction	U	U	U	U ²	U	U	S	S	S	U	S	U	U	U	U	S	U	U	U
Trail construction (for motor vehicle use)	U	U	U	U ²	U	U	S	S	S	U	S	U	U	U	U	S	U	U	U
Mechanical fuel treatment	U	U	U	U ²	U	U	S	S	S	S	S	S	S	U	S	S	U	S	S
Energy development (wind farms, utility corridors, pipelines, etc.)	U	U	U	U	U	U	S	S	S	S	S	S	S	U	S	S	U	U	S

S designates use or activity as generally suitable. Refer to desired conditions and standards and guidelines for each management area and/or use for specific guidance.

U designates use or activity as generally not suitable. Refer to desired conditions and standards and guidelines for each management area and/or use for specific guidance.

* All activities in municipal watersheds are dependent on the agreement for management of the watershed between the Forest Service and the municipality.

1. indicates generally suitable applies only to use or activity on designated roads and trails and within designated areas.
2. indicates generally not suitable for wild and scenic rivers, generally suitable for recreational rivers.

Alternative D

Table A-46. General suitability matrix for management areas for alternative D

Use or Activity	Management Area															
	1A	1C	2A	2B	2C	2D	2E	2F	2G	2H	2I	2J*	3B	4A	4B	5
Timber production	U	U	U	U	U	U	U	U	U	U	U	U	U	S	U	U
Timber harvest	U	U	S	U	S	S	S	S	S	S	S	S	S	S	S	S
Grazing (cattle and sheep)	S	S	S	U	U	S	S	S	S	S	S	U	S	S	S	U
Motor vehicle use (summer) ¹	U	U	U ²	U	S	S	S	S	S	S	U	U	S	S	S	S
Motor vehicle use (winter)	U	U	U ²	U	S	S	S	S	S	S	U	U	S	S ¹	S	S
Road construction	U	U	U ²	U	U	S	S	S	U	S	U	U	U	S	U	S
Trail construction (for motor vehicle use)	U	U	U ²	U	U	S	S	S	U	S	U	U	S	S	U	S
Mechanical fuel treatment	U	U	U ²	U	U	S	S	S	S	S	S	S	S	S	S	S
Energy development (wind farms, utility corridors, pipelines, etc.)	U	U	U	U	U	U	U	U	U	U	U	U	U	S	U	S

S designates use or activity as generally suitable. Refer to desired conditions and standards and guidelines for each management area and/or use for specific guidance.

U designates use or activity as generally not suitable. Refer to desired conditions and standards and guidelines for each management area and/or use for specific guidance.

* All activities in municipal watersheds are dependent on the agreement for management of the watershed between the Forest Service and the municipality.

1. indicates generally suitable applies only to use or activity on designated roads and trails and within designated areas.

2. indicates generally not suitable for wild and scenic rivers, generally suitable for recreational rivers.

Alternatives E and F

Table A-47. General suitability matrix for management areas for alternatives E and F

Use or Activity	Management Area																		
	1A	1B	1C	2A	2B	2C	2D	2E	2F	2G	2H	2I	2J*	3A	3B	3C	4A	4B	5
Timber production	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	S	U	U
Timber harvest	U	U	U	S	U	S	S	S	S	S	S	S	S	S	S	S	S	S	S
Grazing (cattle and sheep)	S	S	S	S	U	U	S	S	S	S	S	S	U	S	S	S	S	S	U
Motor vehicle use (summer) ¹	U	U	U	U ²	U	S	S	S	S	S	S	U	U	U	S	S	S	S	S
Motor vehicle use (winter)	U	S	U	U ²	U	S	S	S	S	S	S	U	U	U	S	S ¹	S	S	S
Road construction	U	U	U	U ²	U	U	S	S	S	U	S	U	U	U	U	S	S	U	S
Trail construction (for motor vehicle use)	U	U	U	U ²	U	U	S	S	S	U	S	U	U	U	S	S	S	U	S
Mechanical fuel treatment	U	U	U	U ²	U	U	S	S	S	S	S	S	S	S	S	S	S	S	S
Energy development (wind farms, utility corridors, pipelines, etc.)	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	S	U	S

S designates use or activity as generally suitable. Refer to desired conditions and standards and guidelines for each management area and/or use for specific guidance.

U designates use or activity as generally not suitable. Refer to desired conditions and standards and guidelines for each management area and/or use for specific guidance.

* All activities in municipal watersheds are dependent on the agreement for management of the watershed between the Forest Service and the municipality.

1 indicates generally suitable applies only to use or activity on designated roads and trails and within designated areas.

2 indicates generally not suitable for wild and scenic rivers, generally suitable for recreational rivers.

Objectives (Alternatives B through F)

Objectives are projections of Forest Service activities and program outcomes that are measurable and time specific. Like goals and desired conditions, objectives are not commitments or final decisions approving projects or activities. They are a way to measure progress towards meeting or maintaining the desired conditions over the life of the plan. The objectives reflect activities and program outcomes necessary to maintain or achieve desired conditions.

Objectives are based on ecological needs, community capacity, and expected funding, including budgets, partnerships, and cooperative agreements. The actual accomplishments will be dependent on actual funding, staffing levels, and local infrastructure. The objectives are not intended to limit or guarantee the amount of work that will be accomplished. More work may be accomplished if additional infrastructure or funding, such as increased budget allocations, partnerships, or other external sources, becomes available. Less work could occur if funding is less than expected, additional infrastructure is not constructed, or existing infrastructure declines and becomes unusable.

The identified objectives are just a partial list of the management activities expected to be accomplished to contribute to maintaining or achieving desired conditions during the first decade of the plan period, unless otherwise indicated within the objective statement. Objectives are displayed separately for each the Blue Mountains national forests (table A-48 to table A-50). The tables display the portion of the Ochoco administered by the Malheur as part of the Malheur.

More detail regarding the anticipated annual silvicultural, invasive and grazing accomplishments are provided in table A-48 to table A-50.

Table A-48. Comparison of objectives for the action alternatives for the Malheur National Forest. The objectives are just a partial list of the management activities expected to be accomplished to contribute to maintaining or achieving desired conditions during the first decade of the plan period, unless otherwise indicated within the objective statement.

Objective Statements for the Malheur National Forest	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F
1.1 Watershed Function³					
(W1) Increase the number of watersheds in condition class 1 (from CC2) and 2 (from CC3) through active restoration. Measure: number of subwatersheds (HUC6) with improved condition class.	16 watersheds	20 watersheds	16 watersheds	16 watersheds	16 watersheds
Improve hydrologic function by:					
• Improving forest vegetative conditions (acres) (WH1)	4,400 acres (annually)	2,000 acres (annually)	20,700 acres (annually)	7,800 acres (annually)	5,600 acres (annually)
• Improving soil hydrologic function in areas of detrimental soil disturbance (acres) (WH2)	450 acres	800 acres	400 acres	600 acres	540 acres
• Reducing road-related sedimentation by reducing road density and reducing hydrologic connectivity of the road system (road miles) (WH3)	25-30 miles road surface treated (annually)	45-75 miles road surface treated (annually)	50-80 miles road surface treated (annually)	30-35 miles road surface treated (annually)	30-35 miles road surface treated (annually)
Improve riparian and wetland function by:					
• Restoring floodplain connections, channel morphology, channel structure, and flow regime (flood flows and low flows) (stream miles) (WR1)	55 miles	60 miles	50 miles	80 miles	75 miles
• Restoring riparian/wetland species composition (riparian acres) by increasing natural seedling establishment, planting, fencing, or modifying riparian management (riparian acres) (WR2)	200 acres	300 acres	200 acres	300 acres	275 acres

³ All measures are proposed in priority watersheds.

Objective Statements for the Malheur National Forest	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F
<ul style="list-style-type: none"> Increasing effective stream shade (WQ objective 1) by increasing amount and extent of woody riparian species and increasing age-class structure of terrestrial vegetation in MA 4B (stream miles) (WR3) 	300 miles	600 miles	300 miles	450 miles	400 miles
Improve riparian and wetland function by (continued): <ul style="list-style-type: none"> Increasing extent and vegetative species diversity of off-channel and isolated wetlands by restoring hydrologic pathways, modifying existing water diversions, or fencing (number of sites) (WR4) 	20 sites	30 sites	30 sites	30 sites	30 sites
<ul style="list-style-type: none"> Increasing the number and extent of beaver-created wetlands (sites) 	10 sites	15 sites	10 sites	12 sites	10 sites
Improve stream channel and aquatic habitat function by: <ul style="list-style-type: none"> Improving riparian habitat conditions (riparian acres, WR1-3) 	400 acres (annually)	900 acres (annually)	900 acres (annually)	600 acres (annually)	570 acres (annually)
<ul style="list-style-type: none"> Restoring channel morphology to reflect natural conditions (miles) 	25 miles	40 miles	25 miles	38 miles	35 miles
<ul style="list-style-type: none"> Increasing habitat complexity through channel reconstruction, placement of large wood or other structures, habitat enhancement (miles) 	50 miles	170 miles	50 miles	75 miles	70 miles
<ul style="list-style-type: none"> Increasing aquatic habitat connectivity through culvert replacement (number of culverts) 	60 culverts 90 stream miles	100 culverts 125 stream miles	60 culverts 95 stream miles	90 culverts 143 stream miles	80 culverts 140 stream miles
1.2 Species Diversity					
In cooperation with state wildlife agencies, expand bull trout occurrence within 10 years into unoccupied suitable stream segments within its historic range.	1 segment	2 segments	0 segments	1 segment	1 segment

Objective Statements for the Malheur National Forest	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F
Increase the amount and quality of source habitat (open, OFSS in the dry upland forest potential vegetation group) for white headed woodpecker (per decade).	31,000 acres	26,000 acres	58,000 acres	64,000 acres	32,000 acres
Increase the amount and quality of source habitat (open canopy dry/moist upland forest potential vegetation group) for western bluebird and Cassin's finch.	43,000 acres (finch)	27,000 acres (finch)	69,000 acres (finch) 11,000 acres (bluebird)	49,000 acres (finch)	37,000 acres (finch)
Maintain mule deer security cover on a percentage of the landscape within MA 4A.	26% of landscape	28% of landscape	24% of landscape	24% of landscape	26% of landscape
Restore stronghold watersheds connectivity for aquatic species.	6-10 subwatersheds or 120-200 stream miles	8-12 subwatersheds or 160-240 stream miles	3-5 subwatersheds or 60-100 stream miles	4-6 subwatersheds or 80-120 stream miles	4-6 subwatersheds or 80-120 stream miles
Reduce juniper canopy cover to less than 10 percent in sagebrush steppe habitat.	NA	NA	NA	800 acres	800 acres
Reduce sagebrush density to less than 10 percent canopy cover in sagebrush steppe habitats where sagebrush canopy cover is greater than 25 percent.	NA	NA	NA	700 acres	700 acres
1.4 Disturbance Processes					
1.4.1 Wildland Fire (planned and unplanned ignitions)					
Treat stands using silvicultural treatments and/or prescribed burning (planned ignition) to move towards Fire Regime Condition Class 1 and 2 in the dry and moist upland forest potential vegetation groups (per decade).	166,000 acres	129,000 acres	205,000 acres	220,000 acres	178,000 acres
Treat stands using silvicultural treatments and/or prescribed burning (planned ignition) to decrease the potential for high severity wildfire in the dry upland forest potential vegetation group (per decade).	150,000 acres	115,000 acres	180,000 acres	185,000 acres	155,000 acres

Objective Statements for the Malheur National Forest	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F
Manage wildfire (unplanned ignition) for resource benefits: modify species composition, stand density, structural stages, fire frequency, and fire severity to move Fire Regime Condition Class 2 and 3 to Fire Regime Condition Class 1 and 2 (per decade).	NA	86,000 acres	NA	39,000 acres	39,000 acres
1.4.2 Insects and Disease					
Within the dry upland forest potential vegetation group, treat stands with moderate to high susceptibility ratings using silvicultural treatments and/or wildland fire to decrease insect and disease susceptibility to low or moderate (per decade).	170,000 acres	130,000 acres	230,000 acres	225,000 acres	180,000 acres
Within the moist upland forest potential vegetation group, treat stands with moderate to high susceptibility ratings using silvicultural treatments and/or wildland fire to decrease insect and disease susceptibility to low or moderate (per decade).	20,000 acres	15,000 acres	25,000 acres	25,000 acres	20,000 acres
1.5 Invasive Species					
Reduce current infestations of invasive plant species.	1,500 acres	1,500 acres	3,000 acres	1,500 acres	1,500 acres
1.6 Structural Stages					
Decrease mid-age multi-story forest (UR stage) in the dry and moist upland forest potential vegetation groups by continuing to manage towards a large diameter (old forest) condition (per decade).	130,000 acres	100,000 acres	160,000 acres	180,000 acres	140,000 acres
Increase OFSS (open canopy) in the dry upland forest potential vegetation group by converting OFMS to OFSS (per decade).	8,000 acres	1,500 acres	48,000 acres	16,000 acres	10,000 acres
1.7 Plant Species Composition					
Increase shade intolerant stands in the dry upland forest potential vegetation group (per decade).	170,000 acres	130,000 acres	230,000 acres	225,000 acres	180,000 acres

Objective Statements for the Malheur National Forest	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F
Manage rangeland vegetation to improve phases C and D to phase A or B.	NA	NA	NA	7,000 acres	7,000 acres
1.8 Stand Density					
Reduce the dry and moist upland forest potential vegetation groups that are in the closed stand density class (per decade).	166,000 acres	129,000 acres	205,000 acres	220,000 acres	178,000 acres
1.10 Soil Quality					
Implement erosion control and stabilization measures on unstable hillslopes. Possible activities include road realignment and improving forest vegetation conditions.	200-400 acres	300-500 acres	150-250 acres	200-400 acres	180-350 acres
Restore soil function (also see objectives for 1.1 Watershed Function).	150-300 acres	200-400 acres	75-150 acres	175-350 acres	150-300 acres
1.11 Water Quality					
Improve water quality through implementation of water quality restoration plans.	4-8 watersheds 160-320 stream miles	6-10 watersheds 240-400 stream miles	3-6 watersheds 120-240 stream miles	4-6 watersheds 160-240 stream miles	4-6 watersheds 120-220 stream miles
2.7 Roads and Trails Access					
Maintain the road system for safe and efficient travel and for the protection, management, and use of NFS lands. Where open motor vehicle route density exceeds desired conditions, implement route closures and/or decommissioning or consider designating routes for other uses (refer to 1.1 Watershed Function for road decommissioning/obliteration objectives).	Miles of road maintenance: 225 miles MLs 4/5 27 miles ML 3 900 miles ML 2 (annually)	Miles of road maintenance: 160 miles ML 4/5 11 miles ML 3 64 miles ML 2 (annually)	Miles of road maintenance: 280 miles MLs 4/5 44 miles ML 3 1,280 miles ML 2 (annually)	Miles of road maintenance: 250 miles MLs 4/5 38 miles ML 3 1,025 miles ML 2 (annually)	Miles of road maintenance: 240 miles MLs 4/5 35 miles ML 3 1,000 miles ML 2 (annually)
3.3 Goods and Services					
Contribute to local economies by harvesting sawlogs and timber volume other than sawlogs (TSPQ annually).	31 MMBF	16 MMBF	87 MMBF	56 MMBF	37 MMBF
Contribute to local economies by providing forage for cattle and sheep.	126,500 AUMs (annually)	62,200 AUMs (annually)	125,500 AUMs (annually)	123,500 AUMs (annually)	123,500 AUMs (annually)

Table A-49. Comparison of objectives for the action alternatives for the Umatilla National Forest. The objectives are just a partial list of the management activities expected to be accomplished to contribute to maintaining or achieving desired conditions during the first decade of the plan period, unless otherwise indicated within the objective statement.

Objective Statements for the Umatilla National Forest	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F
1.1 Watershed Function⁴					
(W1) Increase the number of watersheds in condition class 1 (from CC2) and 2 (from CC3). Measure: number of subwatersheds (HUC6) with improved condition class.	15 watersheds	20 watersheds	12 watersheds	14 watersheds	14 watersheds
Improve hydrologic function by:					
<ul style="list-style-type: none"> Improving forest vegetative conditions (acres) (WH1) 	2,500 acres (annually)	1,500 acres (annually)	12,600 acres (annually)	6,600 acres (annually)	3,700 acres (annually)
<ul style="list-style-type: none"> Improving soil hydrologic function in areas of detrimental soil disturbance (acres) (WH2) 	500 acres	900 acres	450 acres	750 acres	700 acres
<ul style="list-style-type: none"> Reducing road-related sedimentation by reducing road density and reducing hydrologic connectivity of the road system (road miles) (WH3) 	25-30 miles road surface treated (annually)	45-75 miles road surface treated (annually)	50-80 miles road surface treated (annually)	30-35 miles road surface treated (annually)	30-35 miles road surface treated (annually)
Improve riparian and wetland function by:					
<ul style="list-style-type: none"> Restoring floodplain connections, channel morphology, channel structure, and flow regime (flood flows and low flows) (stream miles) (WR1) 	60 miles	70 miles	55 miles	90 miles	85 miles
<ul style="list-style-type: none"> Restoring riparian/wetland species composition (riparian acres) by increasing natural seedling establishment, planting, fencing, or modifying riparian management (riparian acres) (WR2) 	110 acres	200 acres	110 acres	165 acres	150 acres
<ul style="list-style-type: none"> Increasing effective stream shade (WQ objective 1) by increasing amount and extent of woody riparian species and increasing age-class structure of terrestrial vegetation in MA 4B (stream miles) (WR3) 	150 miles	300 miles	150	225 miles	210 miles

⁴ All measures are proposed in priority watersheds.

Objective Statements for the Umatilla National Forest	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F
<ul style="list-style-type: none"> Increasing extent and vegetative species diversity of off-channel and isolated wetlands by restoring hydrologic pathways, modifying existing water diversions, or fencing (number of sites) (WR4) 	25 sites	35 sites	35 sites	40 sites	35 sites
<ul style="list-style-type: none"> Increasing the number and extent of beaver-created wetlands (sites) 	8 sites	15 sites	8 sites	10 sites	9 sites
Improve stream channel and aquatic habitat function by: <ul style="list-style-type: none"> Improving riparian habitat conditions (riparian acres, WR1-3) 	350 acres (annually)	800 acres (annually)	600 acres (annually)	525 acres (annually)	500 acres (annually)
<ul style="list-style-type: none"> Restoring channel morphology to reflect natural conditions (miles) 	30 miles	55 miles	30 miles	45 miles	40 miles
<ul style="list-style-type: none"> Increasing habitat complexity through channel reconstruction, placement of large wood or other structures, habitat enhancement (miles) 	60 miles	200 miles	60 miles	90 miles	85 miles
<ul style="list-style-type: none"> Increasing aquatic habitat connectivity through culvert replacement (number of culverts) 	50 culverts 45 stream miles	75 culverts 60 stream miles	50 culverts 45 stream miles	75 culverts 68 stream miles	70 culverts 60 stream miles
1.2 Species Diversity					
In cooperation with state wildlife agencies, expand bull trout occurrence within 10 years into unoccupied suitable stream segments within its historic range.	1 segment	2 segments	0 segments	1 segment	1 segment
Increase the amount and quality of source habitat (open, OFSS single story LOS in the dry upland forest potential vegetation group) for white-headed woodpecker. (per decade).	9,000 acres	8,000 acres	16,000 acres	12,000 acres	10,000 acres
Increase the amount and quality of source habitat (open canopy dry/moist upland forest potential vegetation group) for western bluebird and Cassin's finch.	44,000 acres (bluebird)	28,000 acres (bluebird)	91,000 acres (bluebird)	78,000 acres (bluebird)	53,000 acres (bluebird)
Maintain mule deer security cover on a percentage of the landscape within MA 4A.	33%	33%	28%	29%	32%

Objective Statements for the Umatilla National Forest	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F
Restore stronghold watersheds connectivity for aquatic species.	5-9 subwatersheds or 100-180 stream miles	8-10 subwatersheds or 160-200 stream miles	4-6 subwatersheds or 80-120 stream miles	3-5 subwatersheds or 60-100 stream miles	3-5 subwatersheds or 60-100 stream miles
1.4 Disturbance Processes					
1.4.1 Wildland Fire (planned and unplanned ignitions)					
Treat stands using silvicultural treatments and prescribed burning (planned ignition) to move towards Fire Regime Condition Class 1 and 2 in the dry and moist upland forest potential vegetation groups (per decade).	170,000 acres	140,000 acres	200,000 acres	220,000 acres	180,000 acres
Treat stands using silvicultural treatments and prescribed burning (planned ignition) to decrease the potential for high severity wildfire in the dry upland forest potential vegetation group (per decade).	95,000 acres	80,000 acres	110,000 acres	125,000 acres	100,000 acres
Manage wildfire (unplanned ignition) for resource benefits: modify species composition, stand density, structural stages, fire frequency, and fire severity to move Fire Regime Condition Classes 2 and 3 to Fire Regime Condition Classes 1 and 2 (per decade).	NA	52,000 acres	NA	37,000 acres	35,000 acres
1.4.2 Insects and Disease					
Within the dry upland forest potential vegetation group, treat stands with moderate to high susceptibility ratings using silvicultural treatments and/or wildland fire to decrease insect and disease susceptibility to low or moderate (per decade).	120,000 acres	100,000 acres	140,000 acres	155,000 acres	125,000 acres
Within the moist upland forest potential vegetation group, treat stands with moderate to high susceptibility ratings using silvicultural treatments and/or wildland fire to decrease insect and disease susceptibility to low or moderate (per decade).	40,000 acres	35,000 acres	50,000 acres	55,000 acres	45,000 acres

Objective Statements for the Umatilla National Forest	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F
1.5 Invasive Species					
Reduce current infestations of invasive plant species.	7,000 acres	7,000 acres	15,000 acres	7,000 acres	7,000 acres
1.6 Structural Stages					
Decrease mid-age multi-story forest (UR stage) in the dry and moist upland forest potential vegetation groups by continuing to manage towards a large diameter (old forest) condition (per decade).	140,000 acres	110,000 acres	160,000 acres	175,000 acres	145,000 acres
Increase the OFSS (open canopy) stage in the dry upland forest potential vegetation group by converting OFMS to OFSS (per decade).	2,500 acres	0 acres	17,000 acres	6,000 acres	3,000 acres
1.7 Plant Species Composition					
Increase shade intolerant stands in the dry upland forest potential vegetation group (per decade).	120,000 acres	100,000 acres	140,000 acres	155,000 acres	125,000 acres
Manage rangeland vegetation to improve phases C and D to phase A or B.	NA	NA	NA	6,000 acres	6,000 acres
1.8 Stand Density					
Reduce the dry and moist upland forest potential vegetation groups that are in the closed stand density class (per decade).	170,000 acres	140,000 acres	200,000 acres	220,000 acres	180,000 acres
1.10 Soil Quality					
Implement erosion control and stabilization measures on unstable hillslopes. Possible activities include road realignment and improving forest vegetation conditions.	200-400 acres	300-500 acres	150-250 acres	200-400 acres	200-360 acres
Restore soil function (also see objectives for 1.1 Watershed Function).	150-300 acres	200-400 acres	75-150 acres	175-350 acres	160-320 acres
1.11 Water Quality					
Improve water quality through implementation of water quality restoration plans.	5-7 watersheds 200-280 stream miles	6-10 watersheds 240-400 stream miles	4-6 watersheds 160-240 stream miles	5-7 watersheds 200-280 stream miles	5-7 watersheds 200-280 stream miles

Objective Statements for the Umatilla National Forest	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F
2.7 Roads and Trails Access					
Maintain the road system for safe and efficient travel and for the protection, management, and use of NFS lands. Where open motor vehicle route density exceeds desired conditions, implement route closures and/or decommissioning or consider designating routes for other uses (refer to 1.1 Watershed Function for road decommissioning/obliteration objectives).	Miles of road maintenance: 158 miles MLs 4/5 159 miles ML 3 110 miles ML 2 (annually)	Miles of road maintenance: 100 miles MLs 4/5 79 miles ML 3 30 miles ML 2 (annually)	Miles of road maintenance: 210 miles ML 4/5 300 miles ML 3 400 miles ML 2 (annually)	Miles of road maintenance: 200 miles ML 4/5 200 miles ML 3 140 miles ML 2 (annually)	Miles of road maintenance: 158 miles MLs 4/5 159 miles ML 3 110 miles ML 2 (annually)
3.3 Goods and Services					
Contribute to local economies by harvesting sawlogs and timber volume other than sawlogs (TSPQ annually).	29 MMBF	16 MMBF	76 MMBF	56 MMBF	36 MMBF
Contribute to local economies by providing forage for cattle and sheep.	35,600 AUMs annually	4200 AUMs annually	35,800 AUMs annually	35,800 AUMs annually	35,800 AUMs annually

Table A-50. Comparison of objectives for the action alternatives for the Wallowa-Whitman National Forest. The objectives are just a partial list of the management activities expected to be accomplished to contribute to maintaining or achieving desired conditions during the first decade of the plan period, unless otherwise indicated within the objective statement.

Objective Statements for the Wallowa-Whitman National Forest	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F
1.1 Watershed Function⁵					
(W1) Increase the number of watersheds in condition class 1 (from CC2) and 2 (from CC3) through active restoration. Measure: number of subwatersheds (HUC6) with improved condition class.	24 watersheds	30 watersheds	24 watersheds	24 watersheds	24 watersheds
Improve hydrologic function by:					
<ul style="list-style-type: none"> Improving forest vegetative conditions (acres) (WH1) 	3,500 acres (annually)	2,100 acres (annually)	17,700 acres (annually)	7,300 acres (annually)	4,600 acres (annually)
<ul style="list-style-type: none"> Improving soil hydrologic function in areas of detrimental soil disturbance (acres) (WH2) 	650 acres	1,200 acres	600 acres	950 acres	850 acres
<ul style="list-style-type: none"> Reducing road-related sedimentation by reducing road density and reducing hydrologic connectivity of the road system (road miles) (WH3) 	25-30 miles road surface treated (annually)	45-75 miles road surface treated (annually)	50-80 miles road surface treated (annually)	30-35 miles road surface treated (annually)	30-35 miles road surface treated (annually)
Improve riparian and wetland function by:					
<ul style="list-style-type: none"> Restoring floodplain connections, channel morphology, channel structure, and flow regime (flood flows and low flows) (stream miles) (WR1) 	60 miles	70 miles	55 miles	90 miles	80 miles
<ul style="list-style-type: none"> Restoring riparian/wetland species composition (riparian acres) by increasing natural seedling establishment, planting, fencing, or modifying riparian management (riparian acres) (WR2) 	150 acres	250 acres	150 acres	225 acres	210 acres

⁵ All measures are proposed in priority watersheds.

Objective Statements for the Wallowa-Whitman National Forest	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F
<ul style="list-style-type: none"> Increasing effective stream shade (WQ objective 1) by increasing amount and extent of woody riparian species and increasing age-class structure of terrestrial vegetation in MA 4B (stream miles) (WR3) 	250 miles	500 miles	250 miles	375 miles	350 miles
<ul style="list-style-type: none"> Increasing extent and vegetative species diversity of off-channel and isolated wetlands by restoring hydrologic pathways, modifying existing water diversions, or fencing (number of sites) (WR4) 	25 sites	35 sites	35 sites	40 sites	35 sites
<ul style="list-style-type: none"> Increasing the number and extent of beaver-created wetlands (sites) 	10 sites	20 sites	10 sites	12 sites	12 sites
Improve stream channel and aquatic habitat function by: <ul style="list-style-type: none"> Improving riparian habitat conditions (riparian acres, WR1-3) 	450 acres (annually)	1,000 acres (annually)	800 acres (annually)	675 acres (annually)	600 acres (annually)
<ul style="list-style-type: none"> Restoring channel morphology to reflect natural conditions (miles) 	40 miles	60 miles	40 miles	60 miles	50 miles
<ul style="list-style-type: none"> Increasing habitat complexity through channel reconstruction, placement of large wood or other structures, habitat enhancement (miles) 	75 miles	230 miles	75 miles	113 miles	100 miles
<ul style="list-style-type: none"> Increasing aquatic habitat connectivity through culvert replacement (number of culverts) 	60 culverts 90 stream miles	90 culverts 120 stream miles	60 culverts 90 stream miles	90 culverts 135 stream miles	80 culverts 120 stream miles
1.2 Species Diversity					
In cooperation with state wildlife agencies, expand bull trout occurrence within 10 years into unoccupied suitable stream segments within its historic range.	1 segment	2 segments	0 segments	1 segment	1 segment
Increase the amount and quality of source habitat (open, OFSS in the dry upland forest potential vegetation group) for white headed woodpecker (per decade).	8,000 acres	7,000 acres	19,000 acres	11,000 acres	9,000 acres

Objective Statements for the Wallowa-Whitman National Forest	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F
Increase the amount and quality of source habitat (open canopy dry/moist upland forest potential vegetation group) for western bluebird and Cassin’s finch.	41,000 acres (bluebird)	22,000 acres (bluebird)	85,000 acres (bluebird) 25,000 acres (finch)	66,000 acres (bluebird) 12,000 acres (finch)	44,000 acres (bluebird) 3,000 acres (finch)
Maintain Rocky Mountain elk security cover on a percentage of the landscape within MA 4A.	36%	36%	32%	33%	35%
Restore stronghold watersheds connectivity for aquatic species.	6-10 subwatersheds or 120-200 stream miles	8-12 subwatersheds or 160-240 stream miles	5-8 subwatersheds or 100-160 stream miles	6-9 subwatersheds or 120-180 stream miles	6-9 subwatersheds or 120-180 stream miles
1.4 Disturbance Processes					
1.4.1 Wildland Fire (planned and unplanned ignitions)					
Treat stands using silvicultural treatments and prescribed burning (planned ignition) to move towards Fire Regime Condition Class 1 and 2 in the dry and moist upland forest potential vegetation groups.	170,000 acres	155,000 acres	215,000 acres	220,000 acres	190,000 acres
Treat stands using silvicultural treatments and prescribed burning (planned ignition) to decrease the potential for high severity wildfire in the dry upland forest potential vegetation group.	110,000 acres	100,000 acres	140,000 acres	140,000 acres	120,000 acres
Manage wildfire (unplanned ignition) for resource benefits: modify species composition, stand density, structural stages, fire frequency, and fire severity to move Fire Regime Condition Class 2 and 3 to Fire Regime Condition Class 1 and 2.	NA	78,000 acres	NA	64,000 acres	76,000 acres
1.4.2 Insects and Disease					
Within the dry upland forest potential vegetation group, treat stands with moderate to high susceptibility ratings using silvicultural treatments and/or wildland fire to decrease insect and disease susceptibility to low or moderate.	135,000 acres	125,000 acres	170,000 acres	170,000 acres	150,000 acres

Objective Statements for the Wallowa-Whitman National Forest	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F
Within the moist upland forest potential vegetation group, treat stands with moderate to high susceptibility ratings using silvicultural treatments and/or wildland fire to decrease insect and disease susceptibility to low or moderate.	25,000 acres	23,000 acres	30,000 acres	35,000 acres	30,000 acres
1.5 Invasive Species					
Reduce current infestations of invasive plant species.	7,000 acres	7,000 acres	15,000 acres	7,000 acres	7,000 acres
1.6 Structural Stages					
Decrease mid-age multi-story forest (UR stage) in the dry and moist upland forest potential vegetation groups by continuing to manage towards a large diameter (old forest) condition.	135,000 acres	125,000 acres	170,000 acres	170,000 acres	150,000 acres
Increase OFSS (open canopy) in the dry upland forest potential vegetation group by converting OFMS to OFSS.	2,000 acres	0 acres	20,000 acres	5,000 acres	3,500 acres
1.7 Plant Species Composition					
Increase shade intolerant stands in the dry upland forest potential vegetation group.	135,000 acres	125,000 acres	170,000 acres	170,000 acres	150,000 acres
Manage rangeland vegetation to improve phases C and D to phase A or B.	NA	NA	NA	10,000 acres	10,000 acres
1.8 Stand Density					
Reduce the dry and moist upland forest potential vegetation groups that are in the closed stand density class.	170,000 acres	155,000 acres	215,000 acres	220,000 acres	190,000 acres
1.10 Soil Quality					
Implement erosion control and stabilization measures on unstable hillslopes. Possible activities include road realignment and improving forest vegetation conditions.	200-400 acres	200-400 acres	300-500 acres	150-250 acres	200-400 acres
Restore soil function (also see objectives for 1.1 Watershed Function).	150-300 acres	150-300 acres	200-400 acres	75-150 acres	175-350 acres

Objective Statements for the Wallowa-Whitman National Forest	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F
1.11 Water Quality					
Improve water quality through implementation of water quality restoration plans.	8-10 watersheds 320-400 stream miles	12-14 watersheds 480-560 stream miles	4-6 watersheds 160-240 stream miles	5-7 watersheds 200-280 stream miles	5-7 watersheds 200-280 stream miles
2.7 Roads and Trails Access					
Maintain the road system for safe and efficient travel and for the protection, management, and use of NFS lands. Where open motor vehicle route density exceeds desired conditions, implement route closures and/or decommissioning or consider designating routes for other uses (refer to 1.1 Watershed Function for road decommissioning/obliteration objectives).	Miles of road maintenance: 79 miles MLs 4/5 147 miles ML 3 218 miles ML 2 (annually)	Miles of road maintenance: 75 miles MLs 4/5 79 miles ML 3 50 miles ML 2 (annually)	Miles of road maintenance: 100 miles MLs 4/5 200 miles ML 3 400 miles ML 2 (annually)	Miles of road maintenance: 90 miles MLs 4/5 170 miles ML 3 150 miles ML 2 (annually)	Miles of road maintenance: 95 miles MLs 4/5 160 miles ML 3 218 miles ML 2 (annually)
3.3 Goods and Services					
Contribute to local economies by harvesting sawlogs and timber volume other than sawlogs (TSPQ annually).	27 MMBF	15 MMBF	80 MMBF	50 MMBF	34 MMBF
Contribute to local economies by providing forage for cattle and sheep.	109,000 AUMs (annually)	29,500 AUMs (annually)	84,500 AUMs (annually)	80,500 AUMs (annually)	80,500 AUMs (annually)

Table A-51. Malheur National Forest anticipated annual accomplishments for the action alternatives (as related to objectives)

Activity	Unit of Measure	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F
Acres Suitable for Timber Production	acres	770,000	530,000	1,080,000	770,000	770,000
Predicted Harvest Level (TSPQ)	MMBF	31	16	87	56	37
ASQ	MMBF	55	34	88	55	55
Timber Harvest (includes the following two rows)						
Even-aged regeneration harvest	acres	1,500	800	3,300	2,900	1,800
Uneven-aged and intermediate harvest	acres	5,600	2,600	17,200	9,600	6,500
Total Timber Harvest	acres	7,100	3,400	20,500	12,500	8,300
Planting	acres	700	400	1,600	1,400	900
Precommercial thinning	acres	1,400	1,000	3,000	1,400	1,400
Prescribed burning (planned ignition) and mechanical treatment of fuels (within and outside harvest units)	acres	16,600	12,900	20,500	22,000	17,800
Suppress invasive plants	acres	1,500	1,500	3,000	1,500	1,500
Cattle and sheep grazing	AUMs	126,500	62,200	125,500	123,500	123,500

Table A-52. Umatilla National Forest anticipated annual accomplishments for the action alternatives (as related to objectives)

Activity	Unit of Measure	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F
Acres Suitable for Timber Production	acres	420,000	260,000	610,000	420,000	420,000
Predicted Harvest Level (TSPQ)	MMBF	29	16	76	56	36
ASQ	MMBF	51	31	73	51	51
Timber Harvest (includes the following two rows)						
Even-aged regeneration harvest	acres	1,200	500	2,600	2,400	1,500
Uneven-aged and intermediate harvest	acres	4,000	1,800	13,000	8,200	4,900
Total Timber Harvest	acres	5,200	2,300	15,600	10,600	6,400
Planting	acres	600	200	1,300	1,200	700
Precommercial thinning	acres	1,600	1,500	3,200	1,600	1,600
Prescribed burning (planned ignition) and mechanical treatment of fuels (within and outside harvest units)	acres	19,100	12,300	16,000	20,600	16,400
Suppress invasive plants	acres	1,500	1,500	3,000	1,500	1,500
Cattle and sheep grazing	AUMs	35,600	4,200	35,800	35,800	35,800

Table A-53. Wallowa-Whitman National Forest anticipated annual accomplishments for the action alternatives (as related to objectives)

Activity	Unit of Measure	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F
Acres Suitable for Timber Production	acres	530,000	310,000	770,000	530,000	530,000
Predicted Harvest Level (TSPQ)	MMBF	27	15	80	50	34
ASQ	MMBF	46	22	75	46	46
Timber Harvest (includes the following two rows)						
Even-aged regeneration harvest	acres	1,000	500	2,500	2,000	1,400
Uneven-aged and intermediate harvest	acres	3,550	1,550	13,750	7,350	4,650
Total Timber Harvest	acres	4,550	2,050	16,250	9,350	6,050
Planting	acres	500	200	1,200	1,000	700
Precommercial thinning	acres	2,600	1,700	5,200	2,600	2,600
Prescribed burning (planned ignition) and mechanical treatment of fuels (within and outside harvest units)	acres	15,050	12,550	17,000	19,850	16,550
Suppress invasive plants	acres	3,500	3,500	3,500	3,500	3,500
Cattle and sheep grazing	AUMs	109,000	29,500	84,500	80,500	80,500

Standards and Guidelines (Alternatives B through F)

The vast majority of the standards and guidelines included in the proposed action published for the scoping period remain as part of alternative B, the modified proposed action. Changes and additions are noted in the following tables and are proposed to help emphasize the different ways that the action alternatives respond to the purpose and need and to the significant issues.

Forestwide Standards and Guidelines

Standards and guidelines are organized by resource or management action and generally apply to all three national forests. Where indicated, they apply only to the national forest(s) identified in the table. The standard and guideline designator column includes the current designator along with the one used for the proposed action (G- or S-) where applicable to ease comparison to the proposed action. New or modified standards and guidelines are identified.

Table A-54. Comparison of forestwide standards and guidelines for the action alternatives for each national forest

Standard or Guideline Designator	Alternative B	Alternative C	Alternative D	Alternatives E and F
Species Diversity				
Late Old Structure Habitat⁶				
WLD-HAB-1 G-1	Guideline Management activities that limit the ability of wildlife to disperse between patches of source habitat should be avoided; area and patch size of late old structure should be maintained or improved and road density within and between old forest patches should be maintained or reduced.	Standard Management activities that limit the ability of wildlife to disperse between patches of source habitat shall be avoided; area and patch size of late old structure shall be maintained and road density within and between old forest patches should be maintained or reduced.	This alternative has no corresponding standard or guideline.	These alternatives have no corresponding standard or guideline.
WLD-HAB-2 G-2	Guideline The extent of existing late old structure stands within the moist and cold old forest types that are 300 acres or larger should not be reduced or fragmented.	Standard The extent of existing late old structure stands within the moist and cold old forest types that are 300 acres or larger shall not be reduced or fragmented.	This alternative has no corresponding standard or guideline.	These alternatives have no corresponding standard or guideline.

⁶ Standards and guidelines for late old structure habitat apply to all three national forests

Standard or Guideline Designator	Alternative B	Alternative C	Alternative D	Alternatives E and F
WLD-HAB-3 G-3	Guideline Riparian corridors connecting moist and cold old forest types should not be reduced.	Standard Riparian corridors connecting moist and cold old forest types shall be improved.	This alternative has no corresponding standard or guideline.	These alternatives have no corresponding standard or guideline.
WLD-HAB-4 <i>New</i>	This alternative has no corresponding standard or guideline.	Standard Cold and moist late old structure habitats 300 acres or greater and separated by less than 2 miles shall be connected by forested corridors 300 feet wide or wider with a 60 percent or greater canopy cover.	This alternative has no corresponding standard or guideline.	These alternatives have no corresponding standard or guideline.
WLD-HAB-5 <i>New</i>	This alternative has no corresponding standard or guideline.	Standard Manage for old age trees so as much old forest structure as possible is sustained over time across the landscape. Sustain a mosaic of vegetation densities (overstory and understory), age classes and species composition across the landscape.	This alternative has no corresponding standard or guideline.	These alternatives have no corresponding standard or guideline.
Special Habitats⁷				
WLD-HAB-6 S-1	Standard Activities that have potential to cause abandonment or destruction of known denning, nesting, or roosting sites of threatened, endangered, or sensitive species shall not be authorized or allowed within 1,200 feet of those sites.	This alternative retains the alternative B modified management direction.	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.

⁷ Standards and guidelines for special habitats apply to all three national forests

Standard or Guideline Designator	Alternative B	Alternative C	Alternative D	Alternatives E and F
WLD-HAB-7 G-10	This alternative has no corresponding standard or guideline.	Standard Nest disturbing management activities shall not occur within a radius of 1,320 feet from known active goshawk nests between April 1 and August 1.	This alternative has no corresponding standard or guideline.	These alternatives have no corresponding standard or guideline.
WLD-HAB-8 <i>New</i>	This alternative has no corresponding standard or guideline.	Standard Establish northern goshawk dispersal post-fledgling family areas in appropriate habitat when current density does not attain a post-fledgling family area every two and one-half miles.	This alternative has no corresponding standard or guideline.	These alternatives have no corresponding standard or guideline.
WLD-HAB-9 <i>New</i>	Guideline Northern goshawk home range establishment: <ul style="list-style-type: none"> • Post-fledgling family areas will be approximately 600 acres in size. Post-fledgling family areas will include the nest sites and consist of the habitat most likely to be used by the fledglings during their early development. • Establish a minimum of three nest areas and three replacement nest areas per post-fledgling family area. The nest areas and replacement nest areas should be approximately 30 acres in size. A minimum total of 150 acres of nest areas should be identified within each post-fledgling family area. 	This alternative retains the alternative B modified management direction.	This alternative has no corresponding standard or guideline.	These alternatives have no corresponding standard or guideline.

Standard or Guideline Designator	Alternative B	Alternative C	Alternative D	Alternatives E and F
	<ul style="list-style-type: none"> Nest site selection will be based first on using active nest sites followed by the most recently used historical nest areas. When possible, all historical nest areas should be maintained. Manage for nest replacement sites to attain sufficient quality and size to replace the three suitable nest sites. 			
WLD-HAB-10 G-11	<p>Guideline To the extent practical, known cavity or nest trees should be preserved when conducting prescribed burning (planned ignition) activities, mechanical fuel treatments, and silvicultural treatments.</p>	<p>Standard Known cavity or nest trees shall be preserved when conducting prescribed burning (planned ignition) activities, mechanical fuel treatments, and silvicultural treatments.</p>	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.
WLD-HAB-11 <i>New</i>	This alternative has no corresponding standard or guideline.	<p>Standard Manage for breeding areas that will support a minimum of 3 reproductive pairs of pileated woodpeckers per watershed.</p>	This alternative has no corresponding standard or guideline.	These alternatives have no corresponding standard or guideline.
WLD-HAB-12 S-7	<p>Standard Where mechanical treatment activities occur within dry or cool moist forest habitat, all snags 21 inches d.b.h. and greater and 50 percent of the snags from 12 to 21 inches d.b.h. shall be retained, except for the removal of danger/hazard trees. Snags shall be retained in patches.</p>	This alternative retains the alternative B modified management direction.	This alternative has no corresponding standard or guideline.	These alternatives retain the alternative B modified management direction.
WLD-HAB-13 G-16	<p>Guideline Motor vehicle use within elk winter range should not be authorized or allowed between December 1 and April 30.</p>	<p>Standard Motor vehicle use within elk winter range shall not be authorized or allowed between December 1 and April 30.</p>	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.

Standard or Guideline Designator	Alternative B	Alternative C	Alternative D	Alternatives E and F
WLD-HAB-14 <i>New</i>	This alternative has no corresponding standard or guideline.	This alternative has no corresponding standard or guideline.	This alternative has no corresponding standard or guideline.	Guideline In greater sage-grouse habitat, developing new roads, motor vehicle trails, and artificial water impoundments should be avoided. During the breeding season, seasonal closure of open motor vehicle routes within 2 miles of known leks (protected activity centers) should be considered.
WLD-HAB-15 <i>New</i>	This alternative has no corresponding standard or guideline.	This alternative has no corresponding standard or guideline.	This alternative has no corresponding standard or guideline.	Guideline Surface occupancy for mineral or fossil fuel exploration or extraction should not be authorized or allowed within 3 miles of occupied greater sage-grouse leks (protected activity centers).
WLD-HAB-16 <i>New</i>	This alternative has no corresponding standard or guideline.	This alternative has no corresponding standard or guideline.	This alternative has no corresponding standard or guideline.	Guideline Power lines, communication towers, meteorological towers, and other tall structures should not be constructed within 2 miles of greater sage-grouse leks (protected activity centers).
WLD-HAB-17 <i>New</i>	This alternative has no corresponding standard or guideline.	This alternative has no corresponding standard or guideline.	This alternative has no corresponding standard or guideline.	Guideline Construction of wind turbines should not be authorized or allowed within 3 miles of known greater sage-grouse leks (protected activity centers).
WLD-HAB-18 G-7	Guideline Bat maternity and roost sites should not be disturbed.	This alternative retains the alternative B modified management direction.	This alternative has no corresponding standard or guideline.	These alternatives retain the alternative B modified management direction.

Standard or Guideline Designator	Alternative B	Alternative C	Alternative D	Alternatives E and F
Post Fire Habitat⁸				
WLD-HAB-19 G-4	Guideline Greater than 50 percent of post-fire source habitat should be retained and should not be salvage logged, except in the wildland urban interface.	This alternative has no corresponding standard or guideline.	This alternative has no corresponding standard or guideline.	These alternatives retain the alternative B modified management direction.
WLD-HAB-20 G-5 <i>Changed to standard</i>	Standard Salvage logging shall not occur within burned source habitat areas less than 100 acres, except for the removal of danger/hazard trees.	This alternative has no corresponding standard or guideline.	This alternative has no corresponding standard or guideline.	These alternatives retain the alternative B modified management direction.
WLD-HAB-21 G-6	Guideline Where salvage logging occurs, all snags 21 inches d.b.h. and greater and 50 percent of the snags from 12 to 21 inches d.b.h. should be retained except for the removal of danger/hazard trees. Snags should be retained in patches.	This alternative has no corresponding standard or guideline.	This alternative has no corresponding standard or guideline.	These alternatives retain the alternative B modified management direction.
WLD-HAB-22 <i>New</i>	This alternative has no corresponding standard or guideline.	This alternative has no corresponding standard or guideline.	This alternative has no corresponding standard or guideline.	Guideline Following wildfires greater than 10 acres in greater sage-grouse habitat at high risk of annual grass invasions, seeding with an appropriate mixture should be accomplished to reduce the probability of cheatgrass establishment.

⁸ Standards and guidelines for post-fire habitats apply to all three national forests

Standard or Guideline Designator	Alternative B	Alternative C	Alternative D	Alternatives E and F
Survey⁹				
WLD-HAB-23 <i>New</i>	This alternative has no corresponding standard or guideline.	Standard Prior to potentially disturbing activities, potential bat sites shall be surveyed to determine presence or absence of bats with a high degree of confidence.	This alternative has no corresponding standard or guideline.	These alternatives have no corresponding standard or guideline.
WLD-HAB-24 <i>New</i>	This alternative has no corresponding standard or guideline.	Standard At least one year of survey of the analysis area, including a half mile beyond the boundary prior to activities that modify habitat, shall be completed. Two years of survey shall be accomplished to verify questionable sightings, unconfirmed nest sites, etc., If nesting goshawks are found during the first year of inventory, a second year of inventory is not needed in that territory.	This alternative has no corresponding standard or guideline.	These alternatives have no corresponding standard or guideline.
Riparian Habitat¹⁰				
WLD-HAB-25 G-12	Guideline Where management activities occur within riparian habitat, the quantity, stature, and health of shrubs should not be reduced or degraded.	This alternative retains the alternative B modified management direction.	This alternative has no corresponding standard or guideline.	These alternatives retain the alternative B modified management direction.
WLD-HAB-26 G-14	Guideline Roads and trails should not be constructed within high elevation riparian areas.	Standard Roads and trails shall not be constructed within high elevation riparian areas.	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.

⁹ Standards for survey apply to all three national forests

¹⁰ Guidelines for riparian habitat apply to all three national forests

Standard or Guideline Designator	Alternative B	Alternative C	Alternative D	Alternatives E and F
WLD-HAB-27 G-15	Guideline Residual herbaceous vegetation within riparian areas should be maintained at a level adequate to prevent stream bank degradation.	Standard Residual herbaceous vegetation within riparian areas shall be maintained at a level adequate to prevent stream bank degradation.	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.
Open Habitat¹¹				
WLD-HAB-28 G-13	Guideline Vigor and areal extent of seed producing grasses and forbs should not be reduced.	This alternative retains the alternative B modified management direction.	This alternative has no corresponding standard or guideline.	These alternatives retain the alternative B modified management direction.
WLD-HAB-29 <i>New</i>	This alternative has no corresponding standard or guideline.	Guideline Where management activities occur within source habitat, the amount of shrubs in the early-seral stages of forest communities should not be reduced.	This alternative has no corresponding standard or guideline.	These alternatives have no corresponding standard or guideline.
Plant Species (federally listed and species at risk)				
Spalding's catch-fly (<i>Silene spaldingii</i>)¹²				
PL-TES-1 <i>New</i>	Standard Livestock grazing shall not be authorized or allowed during the <i>Silene spaldingii</i> active growth period (generally between May 15 and August 30) in pastures that exhibit low departure from the desired condition, unless the grazing management history demonstrates that livestock avoid <i>Silene spaldingii</i> occupied habitat.	This alternative has no corresponding standard or guideline.	This alternative has no corresponding standard or guideline.	These alternatives retain the alternative B modified management direction.

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¹² Standards apply to the Umatilla and Wallowa-Whitman National Forests

Standard or Guideline Designator	Alternative B	Alternative C	Alternative D	Alternatives E and F
PL-TES-2 <i>New</i>	Standard Livestock grazing shall not be authorized or allowed in pastures occupied by <i>Silene Spaldingii</i> that exhibit moderate or greater departure from desired condition.	This alternative has no corresponding standard or guideline.	This alternative has no corresponding standard or guideline.	These alternatives retain the alternative B modified management direction.
Plant Species (federally listed and species at risk) and Range Management and Domestic Livestock Grazing¹³				
PL-TES-3 <i>New</i>	Guideline Domestic livestock grazing should not be authorized or allowed in the fens/bogs sensitive plant habitat groups.	This alternative has no corresponding standard or guideline.	This alternative has no corresponding standard or guideline.	These alternatives retain the alternative B modified management direction.
PL-TES-4 <i>New</i>	Guideline Maximum forage utilization of key species should not exceed 30 percent in occupied habitat of threatened, endangered, and sensitive plant species, except where an approved conservation strategy, conservation agreement, or recovery plan approves an alternate use level.	This alternative has no corresponding standard or guideline.	This alternative has no corresponding standard or guideline.	These alternatives retain the alternative B modified management direction.
PL-TES-5 <i>New</i>	Guideline New water developments and salting should not be authorized or allowed within one-quarter mile of occupied habitat of threatened, endangered, or sensitive plant species.	This alternative has no corresponding standard or guideline.	This alternative has no corresponding standard or guideline.	These alternatives retain the alternative B modified management direction.

¹³ Guidelines apply to all three national forests

Standard or Guideline Designator	Alternative B	Alternative C	Alternative D	Alternatives E and F
Plant Species (federally listed and species at risk) and Timber Harvest and Silviculture¹²				
PL-TES-6 <i>New</i>	Guideline Timber harvest and associated vegetation activities should avoid the occupied habitat of threatened, endangered, and sensitive plant species (minimum 100 foot buffer), unless the silvicultural prescription will benefit the species or its habitat.	This alternative has no corresponding standard or guideline.	This alternative has no corresponding standard or guideline.	These alternatives retain the alternative B modified management direction.
Plant Species (federally listed and species at risk) and Wildfire (unplanned ignition) Management Activities/Fuels Management¹²				
PL-TES-7 <i>New</i>	Guideline Slash piles and other fuels should be managed to avoid the occupied habitat of threatened, endangered, and sensitive plant species (minimum 100 foot buffer).	This alternative has no corresponding standard or guideline.	This alternative has no corresponding standard or guideline.	These alternatives retain the alternative B modified management direction.
PL-TES-8 <i>New</i>	Guideline Wildland fire (planned and unplanned) suppression lines should not be constructed within occupied habitat of threatened, endangered, and sensitive plant species.	This alternative has no corresponding standard or guideline.	This alternative has no corresponding standard or guideline.	These alternatives retain the alternative B modified management direction.
Plant Species (federally listed and species at risk) and Road Construction¹²				
PL-TES-9 <i>New</i>	Guideline New road construction should be designed to avoid the occupied habitat of threatened, endangered, and sensitive plant species (minimum 25-foot buffer).	This alternative has no corresponding standard or guideline.	This alternative has no corresponding standard or guideline.	These alternatives retain the alternative B modified management direction.

Standard or Guideline Designator	Alternative B	Alternative C	Alternative D	Alternatives E and F
Plant Species (federally listed and species at risk) and Recreation Management¹²				
PL-TES-10 <i>New</i>	Guideline All new trail construction should be designed to avoid the occupied habitat of threatened, endangered, and sensitive plant species (minimum 25 foot buffer).	This alternative has no corresponding standard or guideline.	This alternative has no corresponding standard or guideline.	These alternatives retain the alternative B modified management direction.
Plant Species (federally listed and species at risk) and Minerals Management¹²				
PL-TES-11 <i>New</i>	Guideline Mining operations should be authorized or allowed only if activities are planned to avoid threatened and endangered plant species. Sensitive plant species should be avoided to the greatest extent possible.	This alternative has no corresponding standard or guideline.	This alternative has no corresponding standard or guideline.	These alternatives retain the alternative B modified management direction.
Plant Species (federally listed and species at risk) and Lands¹²				
PL-TES-12 <i>New</i>	Guideline Land exchanges should avoid the disposition of occupied habitat of threatened, endangered, and sensitive plant species.	This alternative has no corresponding standard or guideline.	This alternative has no corresponding standard or guideline.	These alternatives retain the alternative B modified management direction.
Wildland Fire¹⁴				
FIRE-1 S-8	Standard Safety shall be the top priority when conducting wildland fire (planned and unplanned) operations.	This alternative retains the alternative B modified management direction.	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.

¹⁴ Standards and guidelines apply to all three national forests.

Standard or Guideline Designator	Alternative B	Alternative C	Alternative D	Alternatives E and F
FIRE-2 G-27	<p>Guideline Minimum Impact Suppression Tactics (MIST) should be utilized in sensitive areas, such as designated wilderness areas, designated wild and scenic river corridors, research natural areas, botanical areas, riparian management areas, cultural and historic sites, developed recreation areas, special use permit areas that have structures, and historic and recreational trails. MIST techniques should also be used for post fire restoration activities.</p>	This alternative retains the alternative B modified management direction.	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.
FIRE-3 G-28	<p>Guideline Mechanical fireline should not be constructed in areas with greater than 35 percent slope or on highly erodible soils unless potential adverse effects can be mitigated.</p>	This alternative retains the alternative B modified management direction.	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.
FIRE-4 <i>New</i>	This alternative has no corresponding standard or guideline.	This alternative has no corresponding standard or guideline.	This alternative has no corresponding standard or guideline.	<p>Guideline Greater sage-grouse habitat should be identified in fire management plans and should be given high priority for protection.</p>
FIRE-5 <i>New</i>	This alternative has no corresponding standard or guideline.	This alternative has no corresponding standard or guideline.	This alternative has no corresponding standard or guideline.	<p>Guideline Prescribed fire should not be authorized or allowed within greater sage-grouse habitat unless the pre-burn assessment documents minimal risk of invasion by cheat grass or other invasive weeds.</p>

Standard or Guideline Designator	Alternative B	Alternative C	Alternative D	Alternatives E and F
Invasive Species (Aquatic and Terrestrial)¹⁵				
NOX-1 S-9	Standard See alternative A “Management Direction for Invasive Species.”	This alternative retains the alternative B modified management direction.	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.
NOX-2 G-29 <i>Changed to standard</i>	Standard Materials used for construction or restoration projects on National Forest System lands shall be free of invasive species.	This alternative retains the alternative B modified management direction.	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.
NOX-3 G-36 <i>Changed to standard</i>	Standard All activities shall be conducted to minimize or prevent the potential spread or establishment of invasive species.	This alternative retains the alternative B modified management direction.	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.
Timber Harvest and Silviculture¹⁶				
FOR-1 S-11	Standard Clearcutting, shelterwood, and other even-aged regeneration harvest methods shall be used only when an interdisciplinary team/line officer has determined that protection can be assured for resources, such as soil, watershed, fish, wildlife, recreation, aesthetics, and the regeneration of the timber resource. It shall also be determined as the optimal harvest method.	This alternative retains the alternative B modified management direction.	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.

¹⁵ Standards apply to all three national forests

¹⁶ Standards and guidelines apply to all three national forests

Standard or Guideline Designator	Alternative B	Alternative C	Alternative D	Alternatives E and F
FOR-2 S-12	<p>Standard Forest openings created by the application of even-aged regeneration harvest methods shall be limited to a maximum size of 40 acres. Exceptions are permitted on an individual basis after a 60-day public notice period and review by the regional forester. This maximum size opening limitation does not apply to areas harvested after large scale disturbances resulting from wildfire, insects, disease, windthrow, or other catastrophic events.</p>	This alternative retains the alternative B modified management direction.	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.
FOR-3 S-13	<p>Standard Cut blocks, patches, or strips created by the application of even-aged regeneration harvest methods shall be shaped and blended with the natural terrain.</p>	This alternative retains the alternative B modified management direction.	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.
FOR-4 S-14	<p>Standard Areas that are harvested using even-aged regeneration harvest methods on lands identified as suitable for timber production shall be capable of being adequately restocked within five years of final harvest. Adequately restocked is based on national forest or regional stocking standards.</p>	This alternative retains the alternative B modified management direction.	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.

Standard or Guideline Designator	Alternative B	Alternative C	Alternative D	Alternatives E and F
FOR-5 G-37	<p>Standard Stands shall generally have reached the culmination of mean annual increment of growth as per NFMA sec.6 (m) prior to harvest. This does not preclude the use of thinning or other stand improvement measures or salvage or sanitation harvesting of timber stands that are substantially damaged by fire, windthrow, or other catastrophic events or that are in imminent danger of insect or disease outbreaks. Exceptions: after consideration of multiple uses, include other activities, such as cutting for experimental and research purposes, removing particular species of trees, improving wildlife habitat, range, or recreation resources.</p>	<p>This alternative retains the alternative B modified management direction.</p>	<p>This alternative retains the alternative B modified management direction.</p>	<p>These alternatives retain the alternative B modified management direction.</p>
FOR-6 G-38	<p>Guideline Silvicultural treatments should include provisions to avoid detrimental changes in water temperatures, blockages of water courses, and deposits of sediment.</p>	<p>This alternative retains the alternative B modified management direction.</p>	<p>This alternative retains the alternative B modified management direction.</p>	<p>These alternatives retain the alternative B modified management direction.</p>
FOR-7 G-39	<p>Guideline Timber harvest projects should include provisions for the maintenance or restoration of soil and water resources, including protection for streams, stream banks, shorelines, lakes, wetlands, and other bodies of water.</p>	<p>This alternative retains the alternative B modified management direction.</p>	<p>This alternative retains the alternative B modified management direction.</p>	<p>These alternatives retain the alternative B modified management direction.</p>

Standard or Guideline Designator	Alternative B	Alternative C	Alternative D	Alternatives E and F
FOR-8 G-40	Guideline Silvicultural treatments should be developed through interdisciplinary review that considers multiple use of the general area and ensures that the harvest systems used are not selected primarily because they give the greatest dollar return or the greatest unit output of timber.	This alternative retains the alternative B modified management direction.	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.
FOR-9 G-41	Guideline Timber harvest should not cause irreversible damage to soil, slope, or other watershed conditions.	This alternative retains the alternative B modified management direction.	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.
FOR-10 G-42	Guideline Timber harvest on lands not suitable for timber production should occur only to meet multiple-use purposes other than timber production.	This alternative retains the alternative B modified management direction.	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.
Range Management and Domestic Livestock Grazing¹⁷				
RNG-1 G-43 <i>Modified</i>	Guideline Grazing after wildland fire (planned and unplanned) should be managed so as not to cause a trend away from the key species desired condition. This may include growing season deferment for one or more years following wildland fire.	Standard Grazing after wildland fire shall be deferred until vegetation recovers to a condition where grazing will not cause the percent composition of native species to be reduced (cause a downward trend in key species). This generally will be a minimum of 5 years, but could be up to 10 years depending on the extent and severity of the fire and other factors.	This alternative has no corresponding standard or guideline.	These alternatives retain the alternative B modified management direction.

¹⁷ Standards and guidelines apply to all three national forests

Standard or Guideline Designator	Alternative B	Alternative C	Alternative D	Alternatives E and F
RNG-2 G-44	<p>Guideline New fences should be designed to accommodate wildlife movement.</p>	<p>This alternative retains the alternative B modified management direction.</p>	<p>This alternative retains the alternative B modified management direction.</p>	<p>Guideline This alternative retains the alternative B modified management direction with the following addition: In greater sage-grouse habitat, fence construction within 1 mile of known leks (protected activity centers) and seasonal high use areas should not be authorized or allowed. Fence construction on the crest of low hills should not be authorized or allowed unless the fence is marked with anti-strike markers.</p>
RNG-3 G-45	<p>Guideline All new water developments should provide for small mammal and bird escape.</p>	<p>This alternative retains the alternative B modified management direction.</p>	<p>This alternative retains the alternative B modified management direction.</p>	<p>These alternatives retain the alternative B modified management direction.</p>
RNG-4 G-46	<p>Guideline In areas classified as less than fully capable or suitable, only limited grazing should be authorized or allowed only after the limitations of the site are considered in designing the site-specific allotment management plan.</p>	<p>This alternative retains the alternative B modified management direction.</p>	<p>This alternative retains the alternative B modified management direction.</p>	<p>These alternatives retain the alternative B modified management direction.</p>

Standard or Guideline Designator	Alternative B	Alternative C	Alternative D	Alternatives E and F																																											
RNG-5	<p>Maximum percent utilization by management system See MA 4B standards and guidelines for management direction for grazing within riparian management areas.</p> <p>Table A-54a. Key grass and forbs species utilization within upland sites</p> <table border="1"> <thead> <tr> <th rowspan="3">Management System</th> <th colspan="8">Maximum Percent Utilization</th> </tr> <tr> <th colspan="2">Alt. B Departure from Desired Condition (guideline)</th> <th colspan="2">Alt. C Departure from Desired Condition (standard)</th> <th colspan="2">Alt. D Departure from Desired Condition (guideline)</th> <th colspan="2">Alt. E and F Departure from Desired Condition (guideline)</th> </tr> <tr> <th>Low</th> <th>Moderate or Greater</th> <th>Low</th> <th>Moderate or Greater</th> <th>Low</th> <th>Moderate or Greater</th> <th>Low</th> <th>Moderate or Greater</th> </tr> </thead> <tbody> <tr> <td>Season long</td> <td>50%</td> <td>30%</td> <td>30%</td> <td>30%</td> <td>45%</td> <td>40%</td> <td>35%</td> <td>30%</td> </tr> <tr> <td>Management systems that incorporate deferment, rest, rotation</td> <td>55%</td> <td>35%</td> <td>30%</td> <td>30%</td> <td>50%</td> <td>45%</td> <td>40%</td> <td>35%</td> </tr> </tbody> </table> <p>Utilization should be based on a point in time measurement. Utilization includes all use by permitted livestock, wildlife, insects, wildfire, or recreational use. Utilization will be based on height-weight curves and/or ocular estimates or other approved measures. Utilization is based on key species. Low-moderate departure: phase A or B Moderate or greater departure: phase C or D</p>				Management System	Maximum Percent Utilization								Alt. B Departure from Desired Condition (guideline)		Alt. C Departure from Desired Condition (standard)		Alt. D Departure from Desired Condition (guideline)		Alt. E and F Departure from Desired Condition (guideline)		Low	Moderate or Greater	Season long	50%	30%	30%	30%	45%	40%	35%	30%	Management systems that incorporate deferment, rest, rotation	55%	35%	30%	30%	50%	45%	40%	35%						
Management System	Maximum Percent Utilization																																														
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Season long	50%	30%	30%	30%	45%	40%	35%	30%																																							
Management systems that incorporate deferment, rest, rotation	55%	35%	30%	30%	50%	45%	40%	35%																																							
RNG-6 G-47	<p>Guideline Upland shrub utilization should not exceed 45 percent as determined by any science-based method.</p>	<p>Standard Upland shrub utilization shall not exceed 25 percent as determined by any science-based method.</p>	<p>This alternative has no corresponding standard or guideline.</p>	<p>Guideline Upland shrub utilization should not exceed 40 percent as determined by any science-based method.</p>																																											

Standard or Guideline Designator	Alternative B	Alternative C	Alternative D	Alternatives E and F
RNG-7 <i>New</i>	This alternative has no corresponding standard or guideline.	This alternative has no corresponding standard or guideline.	This alternative has no corresponding standard or guideline.	<p>Guideline Grazing utilization within occupied greater sage-grouse habitats should not exceed 40 percent at any time during the grazing season and will be determined specifically for each greater sage-grouse habitat, i.e., grazing utilization measured as an average of the entire pasture or grazing unit will not be used to determine compliance with this guideline.</p>
RNG-8 <i>New</i>	This alternative has no corresponding standard or guideline.	This alternative has no corresponding standard or guideline.	This alternative has no corresponding standard or guideline.	<p>Guideline During greater sage-grouse breeding season, livestock turnout and trailing should avoid concentration on known greater sage-grouse leks (protected activity centers).</p>
Bighorn Sheep ¹⁸				
RNG-9 S-2	<p>Standard Domestic sheep or goat grazing shall not be authorized or allowed on lands where effective separation from bighorn sheep cannot be reasonably maintained.</p>	This alternative retains the alternative B modified management direction.	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.
RNG-10 S-3	<p>Standard The use of domestic goats or sheep for manipulation of vegetation (i.e., noxious weed control, fuels reduction) shall not be authorized or allowed within or adjacent to source habitat for bighorn sheep.</p>	This alternative retains the alternative B modified management direction.	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.

¹⁸ Standards and guidelines apply to all three national forests

Standard or Guideline Designator	Alternative B	Alternative C	Alternative D	Alternatives E and F
RNG-11 S-4	Standard The use of recreational pack goats shall not be authorized or allowed within or adjacent to source habitat for bighorn sheep.	This alternative retains the alternative B modified management direction.	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.
RNG-12 <i>New</i>	Standard An effective monitoring program shall be in place to detect presence of bighorn sheep in identified high-risk areas when authorized domestic sheep or goats are present on adjacent or nearby allotments.	This alternative retains the alternative B modified management direction.	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.
RNG-13 <i>New</i>	Guideline Trailing of domestic sheep or goats should not be authorized or allowed within 7 miles of bighorn sheep home ranges.	Standard Trailing of domestic sheep or goats shall not be authorized or allowed within 15 miles of bighorn sheep home ranges.	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.
RNG-14 <i>New</i>	Standard When effective monitoring has not been conducted for bighorn sheep presence, domestic sheep or goat grazing shall not be authorized.	This alternative retains the alternative B modified management direction.	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.
RNG-15 <i>New</i>	Standard Permitted domestic sheep and goats shall be counted onto and off of the allotment by the permittee. A reasonable effort to account for the disposition of any missing sheep must be made by the permittee.	This alternative retains the alternative B modified management direction.	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.
RNG-16 <i>New</i>	Standard When permitted sheep are found to be missing, the Forest Service shall be notified within 24 hours.	This alternative retains the alternative B modified management direction.	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.

Standard or Guideline Designator	Alternative B	Alternative C	Alternative D	Alternatives E and F
RNG-17 <i>New</i>	Standard Authorized domestic sheep or goats shall be individually marked in a manner that allows immediate identification of ownership at a distance during the grazing season at all times while on NFS lands.	This alternative retains the alternative B modified management direction.	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.
RNG-18 <i>New</i>	Standard Implement emergency actions when bighorn sheep presence is detected within 7 miles of active domestic sheep or goat grazing or trailing. Actions to be taken shall ensure separation between bighorn sheep and domestic sheep or goats.	This alternative retains the alternative B modified management direction.	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.
RNG-19 <i>New</i>	Guideline To maintain separation, when bighorn sheep are found within 7 miles of an active domestic sheep and goat allotment, implementation of emergency actions for domestic sheep and goat grazing could include: Reroute (move) domestic sheep or goats to a new routing path that will take them away from the likely bighorn movement; this may involve rerouting within the permitted allotment, movement to a different allotment, or, if the situation cannot otherwise be resolved, moving the permitted sheep off of the national forest until the situation can be resolved Inform the appropriate state agency of the bighorn sheep location	This alternative retains the alternative B modified management direction.	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.

Standard or Guideline Designator	Alternative B	Alternative C	Alternative D	Alternatives E and F
Scenery¹⁹				
SCEN-1 G-49	Guideline Short-term reductions to existing scenic integrity levels should be authorized only when needed to achieve the long-term restoration or rehabilitation of scenic integrity and/or scenic stability.	This alternative retains the alternative B modified management direction.	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.
Cultural Resources¹⁸				
CUL-1 G-50	Guideline Prehistoric, historic, and traditional cultural properties should be protected unless an exemption is specified in a programmatic agreement or a project specific mitigation plan is developed in consultation with the appropriate State Historic Preservation Officer.	This alternative retains the alternative B modified management direction.	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.
Key Watersheds²⁰				
KW-1 S-15	Standard There shall be no net increase in the mileage of Forest Roads in any key watershed unless the increase results in a reduction in road-related risk to watershed condition. Priority should be given to roads that pose the greatest relative ecological risks to riparian and aquatic ecosystems.	This alternative retains the alternative B modified management direction.	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.

¹⁹ Guideline applies to all three national forests

²⁰ Standards apply to all three national forests

Standard or Guideline Designator	Alternative B	Alternative C	Alternative D	Alternatives E and F
KW-2 S-16	Standard Hydroelectric and other surface water development authorizations shall include requirements for in-stream flows and habitat conditions that maintain or restore native fish and other desired aquatic species populations, riparian dependent resources, favorable channel conditions, and aquatic connectivity.	This alternative retains the alternative B modified management direction.	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.
KW-3 S-17	Standard New hydroelectric facilities and water developments shall not be located in a key watershed unless it can be demonstrated that there are minimal risks and/or no adverse effects to the fish and water resources for which the key watershed was established.	This alternative retains the alternative B modified management direction.	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.
Watershed Restoration²¹				
WR-1 G-57	Guideline Watershed restoration projects should be designed to maximize the use of natural ecological processes as a tool in meeting and maintaining restoration objectives.	This alternative retains the alternative B modified management direction.	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.
WR-2 G-58	Guideline Watershed restoration projects should be designed to minimize the need for long-term maintenance.	This alternative retains the alternative B modified management direction.	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.

²¹ Guidelines apply to all three national forests

Standard or Guideline Designator	Alternative B	Alternative C	Alternative D	Alternatives E and F
WR-3 <i>New</i>	This alternative has no corresponding standard or guideline.	This alternative has no corresponding standard or guideline.	This alternative has no corresponding standard or guideline.	Guideline Hydrologic connectivity and sediment delivery from roads and trails should be minimized. This includes roads inside and outside of riparian management areas.
Old Forest ²²				
OF-1 G-59	Guideline Management activities within or outside old forest stands should retain live old forest trees ≥ 21 inches d.b.h. Exceptions include: <ul style="list-style-type: none"> • Tree(s) need to be removed to favor hardwood species, such as aspen or cottonwood, or other special plant habitats • Late seral species, such as grand fir, are competing with large diameter early seral species, such as ponderosa pine • Tree(s) need to be removed to reduce danger/hazard trees along roads and in developed sites • A limited amount of old forest trees need to be removed where strategically critical to reinforce and improve effectiveness of fuel reduction in wildland-urban interfaces 	Standard Management activities within and outside old forest stands shall retain live trees ≥ 21 inches d.b.h.	This alternative has no corresponding standard or guideline.	Guideline Alternative E: Management activities within and outside old forest stands should generally emphasize retaining live old trees of desirable species. For most species, old trees are generally considered to be greater than 150 years in age and may exhibit certain old tree characteristics. However, these old tree characteristics may vary by site and should be further developed on a project-specific basis. Alternative F: Management activities should retain live old trees greater than 150 years old, except in lodgepole pine cover types (retain trees greater than 120 years old).
OF-2 <i>New</i>	Guideline New motor vehicle routes should not be constructed within old forest stands.	Standard New motor vehicle routes shall not be constructed in old forest stands.	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.

²² Standards and guidelines apply to all three national forests

Management Area Standards and Guidelines

The following standards and guidelines are organized by management area. Forestwide design criteria displayed in the previous table apply to all management areas.

Standards and guidelines are organized by resource or management action and generally apply to all three national forests. Where

indicated, they apply only to the national forest(s) identified in the table. The standard and guideline designator column includes the current designator along with the one used for the proposed action (G- or S-) where applicable to ease comparison. New or modified standards and guidelines are identified as such.

Table A-55. Comparison of management area specific standards and guidelines for the action alternatives for each national forest

Standard or Guideline Designator	Alternative B	Alternative C	Alternative D	Alternatives E and F
MA 1A Congressionally Designated Wilderness Areas²³				
MA 1A WIL-1 S-19	Standard With the exception of permitted livestock, animals other than pack stock and pets (see glossary) shall not be authorized or allowed in wilderness areas.	This alternative retains the alternative B modified management direction.	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.
MA 1A WIL-2 S-28	Standard Wheeled vehicles, such as wagons and game carts, shall not be authorized or allowed within wilderness areas.	This alternative retains the alternative B modified management direction.	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.
MA 1A WIL-3 G-61	Guideline New proposals for outfitter and guide special use permits or recreation event permits should be approved only when the special use or event is consistent with wilderness area desired conditions and a need is identified by a Needs Assessment and Capacity Analysis.	Standard New proposals for outfitter and guide special use permits or recreation event permits shall be approved only when the special use or event is consistent with wilderness area desired conditions and a need is identified by a Needs Assessment and Capacity Analysis.	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.

²³ Standards and guidelines apply to all three national forests

Standard or Guideline Designator	Alternative B	Alternative C	Alternative D	Alternatives E and F
MA 1A WIL-4 G-63	Guideline Party sizes greater than 12 people and/or 18 head of stock should not be authorized or allowed within wilderness areas.	Standard Party sizes greater than 12 people and/or 18 head of stock shall not be authorized or allowed within wilderness areas.	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.
MA 1A WIL-5 G-64	Guideline The hitching or tethering of a horse or other saddle or pack animal should not be authorized or allowed within 200 feet of lakes or within 100 feet of streams and posted wetlands within wilderness areas.	Standard The hitching or tethering of a horse or other saddle or pack animal shall not be authorized or allowed within 200 feet of lakes or within 100 feet of streams and posted wetlands within wilderness areas.	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.
MA 1A WIL-6 S-29	Standard Hitching or tethering of horses or other saddle or pack animals to trees, except for loading or unloading, shall not be authorized or allowed at campsites within wilderness areas.	This alternative retains the alternative B modified management direction.	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.
MA 1A Congressionally Designated Wilderness Areas within the Malheur National Forest				
MA 1A MAL-WIL-1 S-25	Standard Storing or abandoning personal property, equipment, and supplies for more than 72 hours shall not be authorized or allowed in the Strawberry Mountain Wilderness Area.	This alternative retains the alternative B modified management direction.	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.
MA 1A MAL-WIL-2 G-62	Guideline Camping and campfires should not be authorized or allowed within 200 feet of lakes, streams, or other camps within wilderness areas.	Standard Camping and campfires shall not be authorized or allowed within 200 feet of lakes, streams, or other camps within wilderness areas.	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.

Standard or Guideline Designator	Alternative B	Alternative C	Alternative D	Alternatives E and F
MA 1A Congressionally Designated Wilderness Areas within the Umatilla National Forest				
MA 1A UMA-WIL-2 G-62	Guideline Camping and campfires should not be authorized or allowed within 200 feet of lakes, streams, or other camps within wilderness areas.	Standard Camping and campfires shall not be authorized or allowed within 200 feet of lakes, streams, or other camps within wilderness areas.	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.
MA 1A Congressionally Designated Wilderness Areas within the Wallowa-Whitman National Forest				
MA 1A WAW-WIL-1 S-20	Standard Eagle Cap Wilderness Area visitors shall not be authorized unless they obtain and possess an entry permit.	This alternative retains the alternative B modified management direction.	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.
MA 1A WAW-WIL-2 S-21	Standard Campfires shall not be authorized or allowed within 100 feet of any lake or posted wetland in the Eagle Cap Wilderness Area.	This alternative retains the alternative B modified management direction.	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.
MA 1A WAW-WIL-3 S-22	Standard Campfires shall not be authorized or allowed within one-quarter mile of the following lakes in the Eagle Cap Wilderness Area: Bear Lake (Bear Creek Area), Blue Lake, Chimney Lake, Dollar Lake, Eagle Lake, Frazier Lake, Little Frazier Lake, Glacier Lake, Hobo Lake, Ice Lake, Jewett Lake, Lavery Lake, Maxwell Lake, Mirror Lake, Moccasin Lake, Prospect Lake, Steamboat Lake, Sunshine Lake, Swamp Lake, Tombstone Lake, Traverse Lake, and Upper Lake.	This alternative retains the alternative B modified management direction.	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.

Standard or Guideline Designator	Alternative B	Alternative C	Alternative D	Alternatives E and F
MA 1A WAW-WIL-4 S-23	Standard Grazing of horses and other saddle and pack animals shall not be authorized or allowed within 200 feet of any lake in the Eagle Cap Wilderness Area.	This alternative retains the alternative B modified management direction.	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.
MA 1A WAW-WIL-5 S-24	Standard Eagle Cap Wilderness Area visitors shall not be authorized or allowed to enter posted restoration sites.	This alternative retains the alternative B modified management direction.	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.
MA 1A WAW-WIL-6 S-25	Standard Storing or abandoning personal property, equipment, and supplies for more than 72 hours shall not be authorized or allowed in the Eagle Cap Wilderness Area.	This alternative retains the alternative B modified management direction.	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.
MA 1A WAW-WIL-7 S-26	Standard Party sizes greater than 12 people and/or 18 head of stock shall not be authorized or allowed in the Eagle Cap Wilderness Area.	This alternative retains the alternative B modified management direction.	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.
MA 1A WAW-WIL-8 S-27	Standard When camping, party sizes greater than 6 people and/or 9 head of stock shall not be authorized or allowed in the Lakes Basin Management Area of the Eagle Cap Wilderness Area.	This alternative retains the alternative B modified management direction.	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.

Standard or Guideline Designator	Alternative B	Alternative C	Alternative D	Alternatives E and F
Wildland Fire Management Activities within MA 1A²⁴				
MA 1A WIL-FIRE-1 G-65	<p>Guideline All firelines should be restored by actions such as scattering slash piles along and onto firelines, knocking down or burning all slash piles greater than 18 inches tall, pulling back and covering all sod with slash, and placing boulders, logs, and slash on firelines to discourage use and camouflage entrance points.</p> <p>Additionally, all firelines that are within 100 feet of intercepting trails, roads, or stream crossings should be restored by cutting stumps flush and close to the ground (height of 4 to 5 inches), covering tops with a layer of soil (1 to 2 inches), and chopping and roughening the ends of logs and stumps.</p>	This alternative retains the alternative B modified management direction.	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.
MA 1A WIL-FIRE-2 G-66	<p>Guideline Waterbars should be constructed on fireline slopes that exceed 10 percent.</p>	This alternative retains the alternative B modified management direction.	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.
MA 1A WIL-FIRE-3 G-67	<p>Guideline Garbage and trash should be removed.</p>	This alternative retains the alternative B modified management direction.	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.
MA 1A WIL-FIRE-4 G-68	<p>Guideline Camps should be restored by replacing logs and rocks, re-contouring terrain, scarifying soil, and scattering twigs, rocks, and dead branches to discourage use and camouflage entrance points.</p>	This alternative retains the alternative B modified management direction.	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.

²⁴ Guidelines apply to all three national forests

Standard or Guideline Designator	Alternative B	Alternative C	Alternative D	Alternatives E and F
MA 1A WIL-FIRE-5 G-69	Guideline Closed roads that were opened to provide access to wilderness areas should be closed after the use has concluded.	This alternative retains the alternative B modified management direction.	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.
MA 1A WIL-FIRE-6 G-70	Guideline Wilderness trails used as firelines should be returned to original condition after the use has concluded.	This alternative retains the alternative B modified management direction.	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.
MA 1B Preliminary Administratively Recommended Wilderness Areas and MA 1C Wilderness Study Areas ²⁵				
MA 1B/C WIL-ST-1 G-71	Guideline Existing and proposed uses that could compromise wilderness area eligibility prior to congressional designation should not be authorized.	Standard Existing and proposed uses that could compromise wilderness area eligibility prior to congressional designation shall not be authorized.	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.
MA 2A Wild and Scenic Rivers (includes Designated, Eligible, and Suitable Rivers) ²⁶				
MA 2A WSR-1 G-72	Guideline New proposals for outfitting and guiding special use permits or recreation event permits should be approved only when the special use or event is consistent with Outstandingly Remarkable Values (ORVs), wild and scenic rivers desired conditions, and when a need is identified by a needs assessment and capacity analysis.	This alternative retains the alternative B modified management direction.	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.

²⁵ Guideline applies to all three national forests

²⁶ Standards and guidelines apply to all three national forests

Standard or Guideline Designator	Alternative B	Alternative C	Alternative D	Alternatives E and F
MA 2A WSR-2 S-30	Standard Hitching or tethering of horses or other saddle or pack animals to trees, except for loading or unloading, shall not be authorized or allowed at campsites within wild and scenic river corridors.	This alternative retains the alternative B modified management direction.	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.
MA 2A WSR-3 G-73	Guideline Hitching, tethering, hobbling, and confining of saddle and pack animals within wild and scenic river corridors should be authorized or allowed only in designated stock facilities or at hardened campsites.	Standard Hitching, tethering, hobbling, and confining of saddle and pack animals within wild and scenic river corridors shall be authorized or allowed only in designated stock facilities or at hardened campsites.	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.
MA 2A WSR-4 G-74	Guideline New designated routes and trails should not be constructed within riparian management areas unless no other feasible alternative exists.	Standard New designated routes and trails shall not be constructed within riparian management areas.	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.
MA 2A WSR-5 G-75	Guideline Recreation livestock should be allowed or authorized only in designated areas.	Standard Recreation livestock shall be allowed or authorized only in designated areas.	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.
MA 2A WSR-6 G-76	Guideline Timber harvest roads should not be constructed within wild and scenic river corridors.	Standard Timber harvest roads shall not be constructed within wild and scenic river corridors	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.
MA 2A WSR-7 G-77	Guideline Firewood collection (except for use at onsite campfires) should be allowed only at designated sites within wild and scenic river corridors, preferably not within riparian management areas.	Standard Firewood collection (except for use at onsite campfires) shall be allowed only at designated sites within wild and scenic river corridors, outside riparian management areas.	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.

Standard or Guideline Designator	Alternative B	Alternative C	Alternative D	Alternatives E and F
MA 2A WSR-8 G-78	Guideline The construction of roads and river crossings that are visible from the river corridor of wild and scenic sections should not be authorized or allowed except when necessary to meet recreation purposes.	Standard The construction of roads and river crossings that are visible from the river corridor of wild and scenic sections shall not be authorized or allowed except when necessary to meet recreation purposes.	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.
MA 2A WSR-9 S-34	Standard Hazard trees shall be felled and left where they fall or moved to a desirable location within the wild and scenic river corridor.	This alternative retains the alternative B modified management direction.	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.
MA 2A WSR-10 S-35	Standard Mining of common minerals shall not be authorized.	This alternative retains the alternative B modified management direction.	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.
MA 2A WSR-11 S-36	Standard Oil and gas leasing shall not be authorized or allowed within 1,320 feet of the high water mark in wild river corridors.	Oil and gas leasing shall not be authorized or allowed within wild river corridors.	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.
MA 2A Wild and Scenic Rivers within the Malheur National Forest (includes Designated, Eligible, and Suitable Rivers)				
MA 2A MAL-WSR-1 S-37	Standard Motor vehicle use shall not be authorized or allowed on trail 303 within the Malheur Wild and Scenic River corridor and on trail 381 within the North Fork Malheur Wild and Scenic River corridor.	This alternative retains the alternative B modified management direction.	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.
MA 2A MAL-WSR-2 S-38	Standard Livestock grazing shall not be authorized between Crane Creek and the southern boundary of the Malheur National Forest between July 1 and September 15.	This alternative retains the alternative B modified management direction.	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.

Standard or Guideline Designator	Alternative B	Alternative C	Alternative D	Alternatives E and F
<p>MA 2A Wild and Scenic Rivers within the Umatilla National Forest (includes Designated, Eligible, and Suitable Rivers) There are no standards and guidelines specific to the Umatilla National Forest. The WSR standards and guidelines displayed previously for all three national forests apply.</p>				
<p>MA 2A Wild and Scenic Rivers within the Wallowa Whitman National Forest (includes Designated, Eligible, and Suitable Rivers)</p>				
MA 2A WAW-WSR-1 S-32	<p>Standard Camping shall not be authorized or allowed in the Lostine River corridor except in campgrounds, at trailheads, and in designated campsites.</p>	This alternative retains the alternative B modified management direction.	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.
MA 2A WAW-WSR-2 S-33	<p>Standard With the exception of trailheads and other designated areas, hitching, tethering, hobbling, and confining of saddle and pack animals shall not be authorized or allowed within the Lostine River corridor.</p>	This alternative retains the alternative B modified management direction.	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.
<p>MA 2B Research Natural Areas²⁷</p>				
MA 2B RNA-1 <i>New</i>	<p>Standard Management activities that directly or indirectly modify the integrity of the ecological processes shall not be authorized or allowed.</p>	This alternative retains the alternative B modified management direction.	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.
MA 2B RNA-2 G-86 <i>Changed to standard</i>	<p>Standard Mineral exploration and development activities shall be managed to minimize impacts to research natural areas.</p>	This alternative retains the alternative B modified management direction.	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.

²⁷ Standards and guidelines apply to all three national forests

Standard or Guideline Designator	Alternative B	Alternative C	Alternative D	Alternatives E and F
MA 2B RNA-3 G-87 <i>Changed to standard</i>	Standard Removal of common mineral material shall not be authorized or allowed within research natural areas.	This alternative retains the alternative B modified management direction.	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.
MA 2C Botanical Areas ²⁸				
MA 2C BOT-1 G-91	Guideline Visitor activities should be managed to avoid degradation to botanical areas.	This alternative retains the alternative B modified management direction.	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.
MA 2C BOT-2 G-92	Guideline Interpretive facilities should not conflict with the overall purpose of establishing botanical areas.	This alternative retains the alternative B modified management direction.	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.
MA 2C BOT-3 G-93	Guideline Silvicultural treatments should be allowed only when designed to enhance the special features of botanical areas.	This alternative retains the alternative B modified management direction.	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.
MA 2C BOT-4 G-94	Guideline Firewood collection should not be authorized or allowed within botanical areas.	This alternative retains the alternative B modified management direction.	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.
MA 2C BOT-5 G-95	Guideline Mineral exploration and development activities should be managed to minimize impacts to botanical areas.	This alternative retains the alternative B modified management direction.	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.
MA 2C BOT-6 G-96	Guideline Removal of common mineral material should not be authorized or allowed within botanical areas.	This alternative retains the alternative B modified management direction.	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.

²⁸Guidelines apply to all three national forests

Standard or Guideline Designator	Alternative B	Alternative C	Alternative D	Alternatives E and F
MA 2C BOT-7 G-97	Guideline Botanical areas should be managed as avoidance areas for utility corridors.	This alternative retains the alternative B modified management direction.	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.
MA 2C BOT-8 G-98	Guideline Planned fire should be used to maintain or enhance the vegetation condition for which the botanical area was established.	This alternative retains the alternative B modified management direction.	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.
MA 2C BOT-9 G-99	Guideline Endemic (normal) levels of insects and disease disturbance should be allowed within botanical areas.	This alternative retains the alternative B modified management direction.	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.
MA 2C BOT-10 G-100	Guideline Invasive species should be reduced or eradicated within botanical areas.	This alternative retains the alternative B modified management direction.	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.
MA 2I Starkey Experimental Forest and Range²⁹				
MA 2I STA EXP-1 <i>New</i>	Guideline To protect valuable infrastructure and assure compatibility with research needs and objectives, natural, unplanned ignitions should be suppressed with a high level of management response. Suppression activities are coordinated with the Station director, research project leader, or designee.	This alternative retains the alternative B modified management direction.	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.
MA 2I STA EXP-2 <i>New</i>	Guideline Planned ignitions should occur when/where compatible with research needs or objectives.	This alternative retains the alternative B modified management direction.	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.

²⁹ Standards and guidelines apply to Wallowa-Whitman National Forest

Standard or Guideline Designator	Alternative B	Alternative C	Alternative D	Alternatives E and F
MA 21 STA EXP-3 <i>New</i>	Standard Special forest product collection and firewood cutting shall only be allowed when/where compatible with research objectives.	This alternative retains the alternative B modified management direction.	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.
MA 21 STA EXP-4 <i>New</i>	Standard Vehicle access shall only be allowed on designated routes, unless necessary to meet research needs or objectives.	This alternative retains the alternative B modified management direction.	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.
MA 21 STA EXP-5 <i>New</i>	Standard Starkey EFR shall be closed to public access from fall until spring to protect deer and elk from harassment and stress during winter, with specific dates established periodically as consistent with research objectives.	This alternative retains the alternative B modified management direction.	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.
MA 21 STA EXP-6 <i>New</i>	Guideline Existing old growth stands should be retained and additional stands that are the closest to old growth structure should be retained at a rate of 20 percent of the land area.	This alternative retains the alternative B modified management direction.	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.
MA 21 STA EXP-7 <i>New</i>	Standard Plans of operation for existing locatable mineral claims shall be reviewed and modified, to the extent practicable, to be compatible with existing or planned research.	This alternative retains the alternative B modified management direction.	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.

Standard or Guideline Designator	Alternative B	Alternative C	Alternative D	Alternatives E and F
MA 2J Municipal Watersheds³⁰				
MA 2J MUN-WAT-1 S-39	Standard All management activities shall be designed to protect water quality at the intake in public water supply watersheds.	This alternative retains the alternative B modified management direction.	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.
MA 2J MUN-WAT-2 S-40	Standard Fertilizers and chemicals shall only be used in emergency situations, subject to the terms of existing agreements between individual cities and the U.S. Department of Agriculture.	This alternative retains the alternative B modified management direction.	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.
MA 3A Backcountry (nonmotorized use) and MA 3B Backcountry (motorized use)³¹				
MA 3A/B BACK-1 S-58	Standard Silvicultural treatments shall generally be limited to small diameter material and may take place only for the following reasons: To improve habitat for species with viability concerns, restore terrestrial or aquatic ecosystem composition and structural characteristics, or to maintain existing unique or important wildlife features or plant communities Appropriate administrative use When cutting, sale, or removal of timber is incidental to the implementation of another suitable management activity	Standard Silvicultural treatments shall not be allowed.	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.

³⁰Standards and guidelines apply to all three national forests

³¹Standards apply to all three national forests

Standard or Guideline Designator	Alternative B	Alternative C	Alternative D	Alternatives E and F
MA 3A/B BACK-2 S-59	<p>Standard New road construction shall be limited to that required for designated special uses or required by law to provide access to non-Federal land or valid existing rights.</p>	This alternative retains the alternative B modified management direction.	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.
MA 4B Riparian Management Areas				
General Management within Riparian Management Areas³²				
MA 4B RMA-1 G-101	<p>Guideline When riparian management areas are functioning properly, project activities should be designed to maintain those conditions. When riparian management areas are not properly functioning, project activities should be designed to improve those conditions. Project activities in riparian management areas should not result in long-term degradation to aquatic and riparian conditions at the watershed scale. Limited short term or site-scale effects from activities in riparian management areas may be acceptable when they support, or do not diminish, long-term benefits to aquatic and riparian resources.</p>	This alternative retains the alternative B modified management direction.	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.

³² Standards and guidelines apply to all three national forests.

Standard or Guideline Designator	Alternative B	Alternative C	Alternative D	Alternatives E and F
MA 4B RMA-2 S-41	Standard Herbicides, insecticides, pesticides and other toxicants, and other chemicals shall be applied only to maintain, protect, or enhance aquatic and riparian resources or to restore native plant communities.	This alternative retains the alternative B modified management direction.	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.
MA 4B RMA-3 G-102	Guideline Generally, trees needed to maintain, protect, or enhance aquatic and riparian resources that are felled for safety should be felled and left on site.	This alternative retains the alternative B modified management direction.	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.
MA 4B RMA-4 G-103	Guideline Water drafting sites should be located and managed to minimize adverse effects on stream channel stability, sedimentation, and in-stream flows needed to maintain riparian resources, channel conditions, and fish habitat.	This alternative retains the alternative B modified management direction.	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.
MA 4B RMA-5 S-42	Standard Pumps shall be screened at drafting sites to prevent entrainment of fish and shall have one-way valves to prevent back-flow into streams.	This alternative retains the alternative B modified management direction.	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.
MA 4B RMA-6 G-125	Guideline Fish habitat and water quality should be protected when withdrawing water for administrative purposes.	This alternative retains the alternative B modified management direction.	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.

Standard or Guideline Designator	Alternative B	Alternative C	Alternative D	Alternatives E and F
Wildland Fire Management Activities/Fuels Management within MA 4B³¹				
MA 4B RMA-FIRE-1 G-104	Guideline Disturbed areas, such as firelines, drop-points, camps, roads, and trails, should be restored by actions such as scattering slash piles, replacing logs and boulders, scarifying soils, recontouring terrain, and reseeding with native species.	This alternative retains the alternative B modified management direction.	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.
MA 4B RMA-FIRE-2 G-105	Guideline Chemicals and retardant should not be used for suppression and mop-up within riparian areas.	This alternative retains the alternative B modified management direction.	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.
MA 4B RMA-FIRE-3 G-106	Guideline Pumping directly from a stream channel should be avoided if chemical products are to be injected directly into the system. When chemicals are used, pumping should be conducted from a fold-a-tank that is located outside the riparian area.	This alternative retains the alternative B modified management direction.	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.
MA 4B RMA-FIRE-4 G-107	Guideline Pumps and charged hoses should not be back flushed into live water.	This alternative retains the alternative B modified management direction.	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.

Standard or Guideline Designator	Alternative B	Alternative C	Alternative D	Alternatives E and F
MA 4B RMA-FIRE-5 G-108	<p>Guideline Temporary firefighting facilities (e.g., incident bases, camps, helibases, staging areas, helispots, and other centers) for incident activities should be located outside riparian management areas. When no practical alternative exists, all appropriate measures to maintain, restore, or enhance aquatic and riparian dependent resources should be used. (See guideline MA4B RMA-FIRE-1).</p>	This alternative retains the alternative B modified management direction.	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.
MA 4B RMA-FIRE-6 G-109	<p>Guideline Aerial application of chemical retardant, foam, or other firefighting chemicals and petroleum should be avoided within 300 feet of waterways.</p>	This alternative retains the alternative B modified management direction.	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.
MA 4B RMA-FIRE-7 G-110	<p>Guideline Water drafting sites should be located and managed to minimize adverse effects on stream channel stability, sedimentation, and in-stream flows needed to maintain riparian resources, channel conditions, and fish habitat.</p>	This alternative retains the alternative B modified management direction.	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.
MA 4B RMA-FIRE-8 S-44	<p>Standard Portable pump set-ups shall include containment provisions for fuel spills and fuel containers shall have appropriate containment provisions. Vehicles shall be parked in locations that avoid entry of spilled fuel into streams.</p>	This alternative retains the alternative B modified management direction.	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.

Standard or Guideline Designator	Alternative B	Alternative C	Alternative D	Alternatives E and F
MA 4B RMA-FIRE-9 G-111	Guideline Generally, firelines should be located and configured to minimize sediment delivery, creation of new stream channels, and unauthorized roads and trails.	This alternative retains the alternative B modified management direction.	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.
MA 4B RMA-FIRE-10 S-45	Standard Minimum Impact Suppression Tactics (NWCG 2006) techniques for wildfire suppression activities shall be used in riparian management areas.	This alternative retains the alternative B modified management direction.	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.
MA 4B RMA-FIRE-11 S-46	Standard To minimize soil damage when chipping fuels within riparian management areas, chip bed depths on dry soils shall be limited to 7.5 cm or less (Busse et al. 2005).	This alternative retains the alternative B modified management direction.	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.
Timber Management and Silviculture within MA 4B³³				
MA 4B RMA-FOR-1 G-112	Guideline Silvicultural treatments should occur in riparian management areas only as necessary to maintain, restore or enhance conditions that are needed to support aquatic and riparian dependent resources.	This alternative retains the alternative B modified management direction.	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.

³³ Standards and guidelines apply to all three national forests.

Standard or Guideline Designator	Alternative B	Alternative C	Alternative D	Alternatives E and F
MA 4B RMA-FOR-2 S-47	<p>Standard Firewood collection shall not be authorized or allowed in the active floodplain or within primary source areas for large woody debris.</p> <p>Active floodplain is the area bordering a stream that is inundated by flows at a surface elevation defined by two-times the maximum bankfull depth (i.e., bankfull depth measured at thalweg).</p>	This alternative retains the alternative B modified management direction.	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.
MA 4B RMA-FOR-3 G-113	<p>Guideline New landings, designated skid trails, staging or decking should not occur in riparian management areas, unless there are no reasonable alternatives, in which case they should:</p> <ul style="list-style-type: none"> Be of minimum size Be located outside the active floodplain Minimize effects to large wood, bank integrity, temperature, and sediment levels 	This alternative retains the alternative B modified management direction.	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.
MA 4B RMA-FOR-4 G-114	<p>Guideline Yarding activities should achieve full suspension over the active channel.</p> <p>Active channel is the bankfull width of flowing perennial or intermittent streams.</p>	This alternative retains the alternative B modified management direction.	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.

Standard or Guideline Designator	Alternative B	Alternative C	Alternative D	Alternatives E and F																		
Range Management and Domestic Livestock Grazing within MA 4B³⁴																						
MA 4B RMA-RNG-1 S-48	<p>Standard New livestock handling and/or management facilities shall be located outside riparian management areas, except for those that inherently must be located in a riparian management area and those needed for resource protection.</p>	This alternative retains the alternative B modified management direction.	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.																		
MA 4B RMA-RNG-2 G-115	<p>Guideline Table A-55a displays the maximum utilization guidelines for riparian management areas.</p> <p>Table A-55a. Maximum utilization within riparian management areas*</p> <table border="1"> <thead> <tr> <th>Measure</th> <th>Alt. B</th> <th>Alt. C**</th> <th>Alt. D</th> <th>Alt. E</th> <th>Alt. F</th> </tr> </thead> <tbody> <tr> <td>Maximum percent utilization of woody vegetation (percent of mean annual vegetative production)</td> <td>40%</td> <td>25%</td> <td>40%</td> <td>25% within bull trout spawning and rearing reaches 40% for all other watercourses including anadromous fish reaches</td> <td>25% in bull trout spawning and rearing habitat (all three national forests) 35% in anadromous fish reaches (UMA and WAW) 40% outside bull trout spawning and rearing habitat (MAL) 40% outside anadromous fish reaches (UMA and WAW)</td> </tr> <tr> <td>Maximum percent utilization of herbaceous vegetation (percent of mean annual vegetative production)</td> <td>40%</td> <td>10%</td> <td>40%</td> <td>25% within bull trout spawning and rearing reaches 40% for all other watercourses including anadromous fish reaches</td> <td>25% in bull trout spawning and rearing habitat (all three national forests) 35% in anadromous fish reaches (UMA and WAW) 40% outside bull trout spawning and rearing habitat (MAL) 40% outside anadromous fish reaches (UMA and WAW)</td> </tr> </tbody> </table> <p>* In addition, the minimum residual stubble height (applies at the greenline) for all alternatives is 4 to 6 inches. The maximum bank alteration for all alternatives is 20 percent.</p> <p>** For alternative C, this is a standard for maximum utilization within riparian management areas.</p>				Measure	Alt. B	Alt. C**	Alt. D	Alt. E	Alt. F	Maximum percent utilization of woody vegetation (percent of mean annual vegetative production)	40%	25%	40%	25% within bull trout spawning and rearing reaches 40% for all other watercourses including anadromous fish reaches	25% in bull trout spawning and rearing habitat (all three national forests) 35% in anadromous fish reaches (UMA and WAW) 40% outside bull trout spawning and rearing habitat (MAL) 40% outside anadromous fish reaches (UMA and WAW)	Maximum percent utilization of herbaceous vegetation (percent of mean annual vegetative production)	40%	10%	40%	25% within bull trout spawning and rearing reaches 40% for all other watercourses including anadromous fish reaches	25% in bull trout spawning and rearing habitat (all three national forests) 35% in anadromous fish reaches (UMA and WAW) 40% outside bull trout spawning and rearing habitat (MAL) 40% outside anadromous fish reaches (UMA and WAW)
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³⁴ Standards and guidelines apply to all three national forests.

Standard or Guideline Designator	Alternative B	Alternative C	Alternative D	Alternatives E and F
MA 4B RMA-RNG-3 G-116	Guideline During allotment management planning, removing existing livestock handling or management facilities from riparian management areas should be considered.	This alternative retains the alternative B modified management direction.	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.
MA 4B RMA-RNG-4 G-117	Guideline Livestock trailing, bedding, watering, loading, and other handling in riparian management areas should be minimized.	This alternative retains the alternative B modified management direction.	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.
MA 4B RMA-RNG-5 G-118	Standard Trampling of federally listed threatened or endangered fish redds by livestock shall be avoided.	This alternative retains the alternative B modified management direction.	Guideline Trampling of federally listed threatened or endangered fish redds by livestock should be avoided.	These alternatives retain the alternative B modified management direction.
Roads Management within MA 4B³⁵				
MA 4B RMA-RD-1 S-49	Standard Side-casting (placement of unconsolidated earthen waste materials resulting from road construction or maintenance) in riparian management areas shall be avoided.	This alternative retains the alternative B modified management direction.	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.
MA 4B RMA-RD-2 S-50	Standard Fill material shall not be placed on organic debris in riparian management areas.	This alternative retains the alternative B modified management direction.	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.

³⁵ Standards and guidelines apply to all three national forests.

Standard or Guideline Designator	Alternative B	Alternative C	Alternative D	Alternatives E and F
MA 4B RMA-RD-3 S-51	Standard Disruption of natural hydrologic flow paths, including diversion of streamflow and interception of surface and subsurface flow shall be minimized or avoided when constructing or reconstructing roads or landings either inside or outside of riparian management areas.	This alternative retains the alternative B modified management direction.	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.
MA 4B RMA-RD-4 G-120	Guideline Wetlands and unstable areas should be avoided when reconstructing existing roads or constructing new roads and landings. Minimize impacts where avoidance is not practical.	This alternative retains the alternative B modified management direction.	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.
MA 4B RMA-RD-5 S-52	Standard New or replaced permanent stream crossings shall accommodate flows at least 20 percent greater than the 100-year flood event, including associated bedload and debris.	This alternative retains the alternative B modified management direction.	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.
MA 4B RMA-RD-6 S-53	Standard Where physically feasible, construction or reconstruction of stream crossings shall avoid diversion of streamflow out of the channel and down the road in the event of crossing failure.	This alternative retains the alternative B modified management direction.	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.
MA 4B RMA-RD-7 S-54	Standard In fish bearing streams, construction or reconstruction of stream crossings shall provide and maintain passage for all fish species and all life stages of fish.	This alternative retains the alternative B modified management direction.	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.

Standard or Guideline Designator	Alternative B	Alternative C	Alternative D	Alternatives E and F
MA 4B RMA-RD-8 G-121	Guideline Construction or reconstruction of stream crossings should allow passage for other riparian dependent species where connectivity has been identified as an issue.	This alternative retains the alternative B modified management direction.	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.
MA 4B RMA-RD-9 G-122	Guideline Fish passage barriers should be retained where they serve to restrict access by undesirable nonnative species and are consistent with restoration of habitat for native species.	This alternative retains the alternative B modified management direction.	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.
MA 4B RMA-RD-10 G-123	Guideline Hydrologic connectivity and sediment delivery from roads should be minimized. This includes roads inside and outside of riparian management areas.	This alternative retains the alternative B modified management direction.	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.
MA 4B RMA-RD-11 G-124	Guideline Road drainage should be routed away from potentially unstable channels, fills, and hillslopes. This applies both inside and outside of riparian management areas.	This alternative retains the alternative B modified management direction.	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.

Standard or Guideline Designator	Alternative B	Alternative C	Alternative D	Alternatives E and F
Recreation Management within MA 4B³⁶				
MA 4B RMA-REC-1 G-126	<p>Guideline Generally, placing new facilities or infrastructure within expected long-term channel migration zones should be avoided. Where activities, such as the placement or construction of road-stream crossings, boat ramps, docks, and interpretive trails, inherently must occur in riparian management areas, locate them to minimize impacts on riparian dependent resource conditions (e.g., within geologically stable areas, avoiding major spawning sites).</p>	<p>Standard Placing new facilities or infrastructure within expected long-term channel migration zones shall be avoided. Where activities, such as the placement or construction of road-stream crossings, boat ramps, docks, and interpretive trails, inherently must occur in riparian management areas, they shall be located to minimize impacts on riparian dependent resource conditions (e.g., within geologically stable areas, avoiding major spawning sites).</p>	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.
MA 4B RMA-REC-2 G-127	<p>Guideline Removing or relocating existing recreation facilities that are causing unacceptable impacts in riparian management areas should be considered.</p>	<p>Standard Existing recreation facilities that are causing unacceptable impacts in riparian management areas shall be relocated.</p>	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.

³⁶ Standards and guidelines apply to all three national forests.

Standard or Guideline Designator	Alternative B	Alternative C	Alternative D	Alternatives E and F
Minerals Management within MA 4B³⁷				
MA 4B RMA-MIN-1 G-128	<p>Guideline Adverse effects to aquatic and other riparian-dependent resources from mineral operations should be minimized or avoided. For operations in riparian management areas, ensure operators take all practicable measures to maintain, protect, and rehabilitate water quality and habitat for fish and wildlife and other riparian dependent resources that may be affected by the operations.</p>	This alternative retains the alternative B modified management direction.	This alternative retains the alternative B modified management direction.	
MA 4B RMA-MIN-2 G-129	<p>Guideline Structures, support facilities, and roads should be located outside riparian management areas. Where no alternative to siting facilities in riparian management areas exists, locate them in a way to minimize adverse effects to aquatic and other riparian-dependent resources. Existing roads should be maintained to minimize damage to aquatic and riparian dependent resources.</p>	This alternative retains the alternative B modified management direction.	This alternative retains the alternative B modified management direction.	

³⁷ Standards and guidelines apply to all three national forests.

Standard or Guideline Designator	Alternative B	Alternative C	Alternative D	Alternatives E and F
MA 4B RMA-MIN-3 S-55	<p>Standard</p> <p>Mine waste facilities with the potential to generate hazardous material (per CERCLA) shall be located outside of riparian management areas. If no reasonable alternative to locating these facilities in riparian management areas exists, then locate and design the waste facilities using the best conventional techniques to ensure mass stability and prevent the release of acid or toxic materials.</p>	This alternative retains the alternative B modified management direction.	This alternative retains the alternative B modified management direction.	This alternative retains the alternative B modified management direction.
MA 4B RMA-MIN-4 G-130	<p>Guideline</p> <p>Where possible, the operating plans for existing activities should be adjusted to minimize adverse effects to aquatic and riparian dependent resources in the riparian management areas.</p>	This alternative retains the alternative B modified management direction.	This alternative retains the alternative B modified management direction.	This alternative retains the alternative B modified management direction.

Standard or Guideline Designator	Alternative B	Alternative C	Alternative D	Alternatives E and F
Lands Ownership (Hydropower) within MA 4B³⁸				
MA 4B RMA-HYD-1 S-56	<p>Standard Authorizations for all new and existing special uses, including, but not limited to water diversion or transmission facilities (e.g., pipelines and ditches), energy transmission lines, roads, hydroelectric, and other surface water development proposals, shall result in the re-establishment, restoration, or mitigation of habitat conditions and ecological processes identified as being essential for the maintenance or improvement of habitat conditions for fish, water and other riparian dependent species and resources. These processes include in-stream flow regimes, physical and biological connectivity, water quality, and integrity and complexity of riparian and aquatic habitat.</p>	This alternative retains the alternative B modified management direction.	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.
MA 4B RMA-HYD-2 S-57	<p>Standard New support facilities shall be located outside of riparian management areas. Support facilities include any facilities or improvements (e.g., workshops, housing, switchyards, staging areas, and transmission lines) not directly integral to the production of hydroelectric power or necessary for the implementation of prescribed protection, mitigation or enhancement measures.</p>	This alternative retains the alternative B modified management direction.	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.

³⁸ Standards and guidelines apply to all three national forests.

Standard or Guideline Designator	Alternative B	Alternative C	Alternative D	Alternatives E and F
MA 4B RMA-HYD-3 G-131	Guideline If existing support facilities are located within the riparian management areas, they should be operated and maintained to restore or enhance aquatic and riparian dependent resources. At time of permit re-issuance, consider removing support facilities, where practical.	This alternative retains the alternative B modified management direction.	This alternative retains the alternative B modified management direction.	These alternatives retain the alternative B modified management direction.

The following management areas do not have specific standards or guidelines:

- MA 2D Geological Areas
- MA 2E Historical Areas
- MA 2F Scenic Byways and All-American Roads
- MA 2G Nationally Designated Trails
- MA 2H Scenic Areas
- MA 3C Wildlife Corridor
- MA 4A General Forest
- MA 5 Developed Sites and Administrative Areas

Budget Assumptions

Budget assumptions are discussed to inform the reader how the budget for the alternatives was determined.

The current budget is based on the three-year average using 2007 through 2009 budget data (table A-56). For the alternatives, the budget changes are based on differences in management activities discussed in the comparison of objectives, (table A-44, table A-45, and table A-46):

- Alternative B, modified proposed action: the budget remains flat for all activity areas.
- Alternative C: funding for vegetation management and other ground disturbing activities is de-emphasized in favor of watershed restoration (road closure and decommissioning and stream channel and fish passage improvements), invasive species control, and habitat improvements in the dry forest.
- Alternative D: budget is increased reflecting the emphasis on vegetation management, fuels reduction, road maintenance, and range management.
- Alternative E: budget is increased reflecting the emphasis on vegetation management but less than under alternative D. Fuels reduction is increased as is road treatments (reflected in wildlife and watershed management).
- Alternative F: budget is increased reflecting the emphasis on vegetation management and fuels reduction.

The following table displays the projected budget needs for the alternatives and for various programs and activities.

Table A-56. Budget assumptions for the action alternatives for each national forest

Management Activity	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F
Road Maintenance					
Malheur	flat	minus 80%	plus 40%	plus 15%	plus 15%
Umatilla	flat	minus 50%	plus 115%	plus 25%	plus 25%
Wallowa-Whitman	flat	minus 55%	plus 60%	minus 20%	minus 20%
Recreation	flat	flat	flat	flat	flat
Wildlife/Watershed Management	flat	plus 200%	plus 25%	plus 50%	plus 20%
Range Management					
Malheur	flat	minus 75%	plus 5%	flat	flat
Umatilla	flat	minus 90%	plus 30%	flat	flat
Wallowa-Whitman	flat	minus 75%	plus 45%	flat	flat
Vegetation Management					
Malheur	flat	minus 50%	plus 175%	plus 65%	plus 15%
Umatilla	flat	minus 45%	plus 170%	plus 80%	plus 20%
Wallowa-Whitman	flat	minus 50%	plus 195%	plus 70%	plus 20%
Fuels Reduction					
Malheur	flat	minus 40%	plus 20%	plus 20%	plus 5%
Umatilla	flat	minus 25%	plus 5%	plus 30%	plus 10%
Wallowa-Whitman	flat	minus 55%	plus 15%	plus 35%	plus 5%

Draft Monitoring and Evaluation Plan for Alternatives B, C, D, E, and F

There are three types of monitoring: implementation, effectiveness, and validation. Implementation monitoring determines if “we did what we said we would do.” Effectiveness monitoring determines how well a particular practice helps achieve a project objective. The purpose of validation monitoring is to test key assumptions and generally involves designed research.

This monitoring and evaluation plan is designed primarily to assess whether or not forest plan implementation is making progress toward achieving desired conditions described by various forest plan goals, objectives, and standards and guidelines (CFR 210.12(k)). Some desired conditions and goals will not be monitored. Some effectiveness monitoring is also in the monitoring plan.

Forest Service planning regulations also contain specific monitoring requirements that are incorporated into the monitoring and evaluation plan.

There are many other Forest Service monitoring programs designed to address specific questions. Those programs are not part of this monitoring plan.

Monitoring and evaluation are separate, sequential activities required by the National Forest Management Act (NFMA). Monitoring is the collection of data by observation or measurement. Evaluation is the analysis and interpretation of monitoring data. The results of monitoring and evaluation may lead to changes in forest plan management direction.

Monitoring the effects of climate change on the achievement of forest plan goals, objectives, and standards and guidelines within the life of a forest plan (10 to 15 years) is challenging. Due to the 10 to 20 year cycle of the Pacific Decadal Oscillation (PDO) and the overlapping 5 to 10 year cycle of the El Niño Southern Oscillation (ENSO) and their effects on climate, long-term data sets are needed to be able to detect differences due to climate change. Implicit in the evaluation phase of monitoring is that, where possible, the effects of climate both in the short term (PDO and ENSO) and in the long term would be incorporated into the evaluation.

Table A-57. Monitoring plan framework for the action alternatives for each national forest

Proposed Monitoring Question	Proposed Indicator						Plan Component
	Parameter	Related Programs/ Indicators	Monitoring Frequency, Evaluation Frequency	Monitoring Type	Precision/ Reliability	Why? L: legal requirement S: strategic C: consultation	
1. Status of select watershed conditions. Key ecosystem characteristics related to water resources and watershed conditions, such as water quality, quantity, timing and distribution provide the basis for monitoring watershed conditions.							
What is the status and trend of water quality?	Miles of state-listed impaired waters	State 303d-list	5 years	Implementation	Moderate	L, S, C	1.11 Water Quality
What is the status and trend of stream temperature?	Stream temperature	NRIS-AqS temperature data, other agency databases, RMRS stream temperature models	Annual, 5 years	Implementation	Moderate	L, S, C	FOR-6 G-38
What is the status and trend of streamflows?	Streamflow	Federal and state agency databases and Forest Service databases	Annual, 10 years	Implementation	Moderate	S, C	1.1.1 Hydrologic Function
Are watershed/aquatics standards and guidelines and BMPs being implemented at project sites (e.g., range, roads, recreation, and vegetation management)?	Multiple	Project files, field observations	Annual, 5 years	Implementation	High	L, S, C	1.1 Watershed Function

Proposed Monitoring Question	Proposed Indicator						Plan Component
	Parameter	Related Programs/ Indicators	Monitoring Frequency, Evaluation Frequency	Monitoring Type	Precision/ Reliability	Why? L: legal requirement S: strategic C: consultation	
Are watershed/aquatics standards and guidelines and BMPs effective at achieving desired on-site conditions at project sites (e.g., range, roads, recreation, and vegetation management)?	Multiple	Field observations	Annual, 5 years	Effectiveness	Moderate	L, S, C	1.1 Watershed Function
What is the status and trend of watershed condition in all watersheds and in key watersheds?	Multiple watershed condition indicators and attributes	Forest Service and other agency databases	3-5 years	Implementation	Moderate	S, C	1.1 Watershed Function
What is the status and trend of riparian vegetation condition?	Grazing utilization on riparian vegetation, PIBO parameters	PIBO and forest datasets	Annual, 5 years	Implementation	Moderate	L,S, C	1.1.2 Riparian Function
What is the change in the distribution of known sites for selected aquatic and riparian invasive species?	Presence of selected invasive species	Federal and state agency databases and Forest Service databases	Annual, 5 years	Implementation	High	S, C	1.5 Invasive Species
What is the status and trend of aquatic habitat?	Miles of stream habitat improved, PIBO parameters	Forest Service databases, PIBO datasets	Annual, 5 years	Implementation	Moderate	L,S, C	1.1.6 Aquatic Habitat
What is the status and trend of aquatic habitat connectivity?	Miles of stream reconnected	Forest Service databases	Annual, 5 years	Implementation	High	L,S, C	1.1.6 Aquatic Habitat

Proposed Monitoring Question	Proposed Indicator						Plan Component
	Parameter	Related Programs/ Indicators	Monitoring Frequency, Evaluation Frequency	Monitoring Type	Precision/ Reliability	Why? L: legal requirement S: strategic C: consultation	
2. Status of select ecological conditions including key characteristics of terrestrial and aquatic ecosystems.							
Have lands been adequately restocked within five years of regeneration harvest?	Stocking	FACTS	5 years, 5 years	Implementation	High	L	FOR-4 S-14
Have lands that are not suitable for timber production become suitable?	Forest extent, congressional designations	CVS, GIS	5 years, 5 years	Implementation	Moderate	L	3.3.1 Forest Products
What is the maximum size opening from even-aged management?	Opening sizes	FACTS	5 years, 5 years	Implementation	Moderate	L	FOR-3 S-12
What are the trends in Fire Regime Condition Class?	Acres by FRCC	CVS/FIA vegetation databases, remote sensing	Annual, 5 years	Implementation	Moderate	S	1.4.1 Wildland Fire
What are the trends in high insect and disease hazard acres?	Spread of selected insects and diseases	Insects and disease surveys	Annual, 5 years	Effectiveness	Moderate	S	1.4.2 Insects and Disease
What are the trends in stand density?	Trees per acre by potential vegetation group	CVS (FIA)	5 years, 5 years	Implementation	High	S	1.8 Stand Density
What are the trends in stand density?	Acres of stand density reduction treatment	FACTS	Annual, 5 years	Implementation	High	S	1.8 Stand Density

Proposed Monitoring Question	Proposed Indicator						Plan Component
	Parameter	Related Programs/ Indicators	Monitoring Frequency, Evaluation Frequency	Monitoring Type	Precision/ Reliability	Why? L: legal requirement S: strategic C: consultation	
What are the trends in the introduction, establishment, and spread of invasive plants?	Acres infested/acres treated	FACTS	Annual, 5 years	Implementation, effectiveness	Moderate	L	1.5 Invasive Species
What are the trends in early seral tree species (ponderosa pine and western larch) composition?	Acres with desired species composition	CVS (FIA)	5 years, 5 years	Implementation, effectiveness	Moderate	S	1.7 Plant Species Composition
3. Status of select set of the ecological conditions required under §219.9 to contribute to the recovery of federally listed T&E species, conserve proposed and candidate species, and maintain a viable population of each SOCC.							
What is the condition and trend in habitats for aquatic focal species (steelhead, spring Chinook salmon, bull trout, and redband trout)	See Status and Trend-Aquatic habitat, Status and Trend-Aquatic Habitat Connectivity	Forest Service databases, PIBO datasets	Annual, 5 years	Implementation, Effectiveness	Moderate	L, S, C	1.2 Species Diversity
4. Status of focal species to assess the ecological conditions required under § 219.9.							
What are the population trends and/or habitat trends of the management indicator species?	Pileated woodpeckers and white-headed woodpecker: follow regional protocol	See regional protocols	5 years, 5 years	Implementation, effectiveness	Moderate	L	1.2 Species Diversity
What are the population trends and/or habitat trends of the management indicator species?	Rocky Mountain elk (WAW and UMA only) and mule deer (MAL only)	State population data/open route density on winter range/FACTS	5 years, 5 years	Implementation, effectiveness	Moderate	L	1.2 Species Diversity

Proposed Monitoring Question	Proposed Indicator						Plan Component
	Parameter	Related Programs/ Indicators	Monitoring Frequency, Evaluation Frequency	Monitoring Type	Precision/ Reliability	Why? L: legal requirement S: strategic C: consultation	
What are the trends in source habitat and risk factors for boreal owl (UMA only), western bluebird, and fox sparrow?	Changes due to management or disturbance events	Accomplishment reports, FACTS, Fire GIS layer, open route density (boreal owl and western bluebird only)	2 years, 5 years	Implementation, effectiveness	Moderate	S	1.2 Species Diversity
What are the trends in source habitat and risk factors for Cassin's finch?	Changes due to management or disturbance events	Accomplishment reports, FACTS, Fire GIS layer	2 years, 2 years (5 years for alternatives B, C, and F, UMA only)	Implementation, effectiveness	Moderate	S	1.2 Species Diversity
What is the trend of northern goshawk (alternative C only)?	Follow established protocols			Implementation, effectiveness	Moderate	S	WLD-HAB-9
What are the trends in whitebark pine survival and recruitment?	Whitebark pine survival and recruitment	Whitebark pine transects and plots	5 years, 5 years	NA	Moderate	S	1.13 Special Habitats
5. Status of visitor use, visitor satisfaction, and progress toward meeting recreation objectives.							
Is recreation user satisfaction maintained or improved over time?	Visitor use	National Visitor Use Monitoring Data or similar national monitoring protocol	5 years	Effectiveness	High	S	2.3 Recreation

Proposed Monitoring Question	Proposed Indicator						Plan Component
	Parameter	Related Programs/ Indicators	Monitoring Frequency, Evaluation Frequency	Monitoring Type	Precision/ Reliability	Why? L: legal requirement S: strategic C: consultation	
Are recreation facilities properly maintained and meet all health, safety and accessibility requirements?	Recreation facility condition	National Visitor Use Monitoring Data or similar national monitoring protocol	5 years	Effectiveness	High	S	2.3 Recreation
6. Measurable changes on other plan area related to climate change and other stressors that may be affecting the plan area.							
Does new scientific information related to climate change indicate a need to change plan components?	New scientific findings	Best available scientific information	5 years	5 years	Low	S	1.2 Species Diversity, 2.11 Community Resiliency
7. Progress toward meeting the desired conditions and objectives in the plan, including for providing multiple use opportunities.							
Are watershed/aquatic restoration projects (e.g., road decommissioning, passage improvements, riparian stream habitat improvements, etc.) being implemented at a rate consistent with forest plan objectives?	Annual accomplishment metrics (e.g., road miles decommissioned)	Forest Service databases	Annual	Implementation	High	S, C	1.1 Watershed Function
Are structural stages trending towards the desired range of variation?	Structural stage distribution	CVS (FIA), FACTS, FS Veg Spatial	Annual, 5 years	Implementation, effectiveness	Moderate	S	1.6 Structural Stages
Are trends in percent of herblands and shrublands making progress towards achieving the desired condition?	CVS plots	CVS (FIA)	5 years, 5 years	Implementation, effectiveness	High	S	1.6 Structural Stages

Proposed Monitoring Question	Proposed Indicator						Plan Component
	Parameter	Related Programs/ Indicators	Monitoring Frequency, Evaluation Frequency	Monitoring Type	Precision/ Reliability	Why? L: legal requirement S: strategic C: consultation	
Are acres restored using wildfire consistent with levels expected in the forest plan (alternatives C, E, and F only)?	Acres of restoration from wildfire	FACTS	Annual, 5 years	Implementation	Moderate	S	1.4.1 Wildland Fire
Is the mix of wildfire severity and frequency within the range of variation shown in table A-12?	Wildfire severity and frequency	Remote sensing data	Annual, 5 years	Implementation	Moderate	S	1.4.1 Wildland Fire
Is open route density less than or equal to the desired condition?	Open route density in watersheds by management area	GIS, INFRA, MVUM	Annual, 5 years	Implementation	High	S	2.7 Roads and Trails Access
8. The effects of each management system to determine that they do not substantially and permanently impact the productivity of the lands (16 U.S.C. 1604(g)(3)C). Focus on key ecosystem characteristics in the plan area related to soils and soil productivity identified in the assessment and planning process.							
Are outputs of goods and services being produced consistent with the levels expected in the forest plan?	Acres of fuels reduction treatments, CCF timber harvest, AUMs	FACTS, TIM	Annual, 5 years	Implementation	High	L	3.3 Goods and Services

Appendix B: Methodology

Environmental consequences are the estimated physical, biological, social, and economic effects that would result from implementing the alternatives. NEPA requires the analysis and disclosure of direct, indirect, and cumulative effects to the affected environment. Environmental consequences are interchangeable with effects. The analysis of these anticipated effects provides a basis for comparing alternatives and a method by which the interdisciplinary team, the public, and the responsible official can assess the consequences through time and in a particular geographic area.

Agencies are required to insure the professional integrity of discussion and analysis of effects that are included in environmental impact statements. As part of that assurance, the methodologies used and relied upon for conclusions are to be identified (40 CFR 1502.24). This appendix provides the methodologies used in the analysis of environmental consequences that would result from implementing the alternatives.

Access

Whether an area is deemed generally suitable or unsuitable for a particular use can vary among alternatives depending on the focus or type of management emphasis of the alternative. If a use is compatible with achieving the goals and desired conditions within a particular management area, it is considered suitable. For example, an alternative designed to emphasize natural processes and less intrusive management would have fewer areas where motor vehicle use would be compatible with achieving the desired conditions than an alternative designed to emphasize a more active management approach would have. Management of National Forest System roads and trails has been and continues to be of interest to the public. While some people suggested allocating additional backcountry areas to provide opportunities for solitude and nonmotorized recreation, others requested that additional areas be designated suitable for motor vehicle use without reducing the area that is currently suitable.

Relationships, Social and Economic Well-being, and Resilience

Socio-economic Impact Zones

Three areas, or socio-economic impact zones, are used to characterize each national forest's economic and social conditions. Counties are selected and combined into the national forest-specific socio-economic zones displayed in table B-1. These socio-economic impact zones were primarily developed considering three criteria: (1) the number of Forest Service-administered acres in each county, which relates to county payments, (2) trade flows of national forest products and by-products moving to and between local processing facilities, and (3) interconnected county economies. More information about the county selection process is available from the project record.

A series of human ecology based social studies conducted within the last several years, and public involvement-related mapping exercises completed in conjunction with this plan revision process

were also considered in defining socio-economic impact zones. The resulting data suggest that community members tend to conduct business, recreate, and socialize within larger geographic regions called human resource units (HRUs) (James Kent Associates 2006). HRU boundaries generated by this work were similar to the county-based socio-economic impact zones in table B-1.

Table B-1. Socio-economic impact zones

Malheur Socio-economic Impact Zone	Umatilla Socio-economic Impact Zone	Wallowa-Whitman Socio-economic Impact Zone
Grant County, OR Harney County, OR	Grant County, OR Morrow County, OR Umatilla County, OR Union County, OR Wallowa County, OR Wheeler County, OR Asotin County, WA Columbia County, WA Garfield County, WA Walla Walla County, WA Nez Perce County, ID	Baker County, OR Union County, OR Wallowa County, OR

Data Sources and Methods

The sources for most of the social and demographic data are based on surveys conducted by the U.S. Census Bureau, Bureau of Labor, and Bureau of Economic Analysis. These data are generated at the county level. The advantage of using these data sources at the county scale is the data are readily available and consistent across different geographies. This analysis displays the data by county and by socio-economic impact zone along with state level data as a reference. One must recognize that counties are large and using data at this level often masks social and economic conditions and trends occurring at the subcounty or community scale. The potential subcounty changes are not quantifiable given the scale of forest plan decisions and are not addressed.

Industry level employment and income data are derived using IMPLAN model data and software (Minnesota Implan Group). The IMPLAN data and analysis system provides a level of specificity for employment and income at a finer industry scale than data reported by the Bureau of Economic Analysis. The IMPLAN data and analysis system is also a useful tool to estimate the potential contribution of alternative management strategies on the economies of the socio-economic impact zones.

Each national forest and its goods, services, and uses are assigned to the socio-economic impact zone bearing its name. This means the potential social and economic effects related to the management activities within the Malheur National Forest are not identified for businesses that do not exist in it the Malheur socio-economic impact zone, even though those businesses may exist in the other two socio-economic impact zones.

Additional information about data sources and methods is provided as the data are presented.

Livestock Grazing and Grazing Land Vegetation

Grazing by livestock or native herbivores can affect grazing land health, including removing plant material, trampling soils (compaction, displacement, and structural damage), and trailing (alteration of water flow patterns). With proper management these impacts are insignificant compared with the natural resilience of the grazing land ecosystem. However, excessive grazing can cause impacts that move a system beyond its short-term ability to maintain functionality. Excessive impacts for an extended period can cause the system to cross thresholds that permanently alter it beyond its ability to recover (Laycock 1994, Miller et al. 1994). It is assumed in this document that, in general utilization of 40 percent or less of the forage on the landscape would result in proper management (see discussion of utilization below).

Grazing land, especially riparian and wetland areas are subject to impacts from a wide variety of other uses and activities. The most critical of impacts come from roads (impacts to riparian/aquatic water relationships), large wild ungulates (impacts primarily to spring and fall rangelands), and fire (impacts from fire exclusion, wildfire/prescribed fire, and natural drought cycles).

All alternatives include management standards or guidelines that provide for the sustainability of the grazing lands of the planning area. Grazing land health and sustainability is defined by the degree to which the integrity of soils and the ecological processes of grazing land ecosystems are maintained in a healthy functional status over time in response to various disturbance processes. The determination of whether or not grazing lands are healthy depends on the levels of soil stability and watershed function, the integrity of nutrient cycles, plant species composition, and the level of disturbance resiliency relative to site potential.

The basic measures of grazing land health are tied to the state and transition models with phases A and B presumed to be capable of ensuring long-term sustainability and resiliency. Phase C is assumed to be of concern but is still likely to allow grazing land to operate within the range of natural variability. Phase D is assumed to have resulted from some impact that may have crossed a threshold. Although there is no direct measure of grazing land health parameters associated with these phases, impacts to grazing land vegetation are often directly related and correlated to impacts to the soil resource. Therefore, the use of the phases model is believed to be a good representation of soil stability, nutrient cycles, disturbance resiliency, plant species composition and health, and watershed function.

In order to provide context, especially for the economic and well-being section of this document, the total animal unit months (AUMs) available for each alternative must be estimated. For a variety of reasons, AUMs can vary on an annual basis, as well as by forest. For this reason, the number of cattle permitted between 2007 and 2009 was averaged for each forest and then divided by the number of suitable acres within active cattle allotments in 2010 to obtain an average AUM per suitable acre. This was then used to estimate the number of cattle AUMs for each alternative, including alternative A to allow unbiased comparison between alternatives.

Suitability and Capability for Livestock Grazing

A suitability determination is the process of evaluating a land area through a modeling of suitability and capability for a specified land use (such as permitted livestock grazing). Total land base acres minus (unsuitable and noncapable) gives the modeled suitability determination. This is a landscape scale estimation based on GIS modeling and is not a site-specific determination.

Information including existing vegetation, potential vegetation, and soils was used to make the capability and suitability identification.

Capability is the initial step in determination of suitability and reflects the potential of an area of land to produce resources, supply goods and services, and allow resource uses under an assumed set of management practices and at a given level of management activity. Capability depends upon current resource conditions and site conditions such as climate, slope, landform, soils, and geology, as well as the application of management practices, such as silviculture or protection from fire, insects, and disease. For forest planning purposes, capability does not vary by alternative and is determined once during the forest planning process.

Capability is determined by identifying all the lands within the project area that are National Forest System lands or other lands administered by the Forest Service, then subtracting areas with soil types not meeting criteria to sustain forage or grazing; areas covered by water; and areas with overstory tree canopy cover or unpalatable shrub cover greater than 60 percent. The remaining area is identified as capable rangeland.

Rangeland suitability is further refined from the capable rangeland. Once the capable rangeland is determined, acres that do not have a proposed management area prescription that would allow for grazing are subtracted. Administrative sites, recreation areas, and other areas of specific use are also subtracted, as are areas specifically closed to grazing by past actions or incompatibility of use between resources. The remaining area is identified as suitable rangeland to be used in the forest planning process.

Forest Plan Suitability Determination

For forest planning purposes, the combined “capability” and “suitability” analysis constitutes the suitability determination. This analysis is normally done separately for cattle and for sheep as appropriate, and possibly for other kinds of animals. It is normally completed for each alternative (or grouping of similar alternatives) being considered. Suitability may vary by alternative although capability normally will not.

The capability and suitability analysis and resultant suitability determination is not a decision to graze livestock on any specific area of land, nor is it a decision about or estimate of livestock grazing capacity. The capability/suitability analysis and suitability determination may or may not be used to provide supporting information for a decision to graze livestock on a specific area.

Any landscape area will contain areas that are capable and/or suitable, as well as areas that are modeled as being other than capable and/or suitable. Since the Forest Plan level Suitability Determination is based on a landscape scale modeling process and is dealing with a wide variety of very complex landscape parameters (e.g., slope, aspect, plant communities, soils, and so forth), it is inevitable that Suitable and Non-Suitable acres will intermingle on a land base of any significant size. Therefore, these Suitability Determinations are not intended to imply that livestock will be precluded from being found on lands that may be modeled as other than capable or suitable.

Forage Production Estimates

Estimates of forage production were based on average production (pounds per acre per year) for each grouping of plant associations. Approximately 500 individual plant associations were grouped into the 22 vegetation groups. Each plant association was classified into a temperature-

moisture matrix by the Area Ecologist. Vegetation groups are aggregations of plant associations found in the Blue Mountains (Powell et al. 2007 Johnson 1987, 1992) and represent a combination of temperature and moisture regimes. Table B-2 displays the average forage production for each of the vegetation groups. The forage estimates were derived from Johnson 1987 and 1992 field sampled measurements for each plant association.

Table B-2. Average forage production by plant association group

Vegetation Group	Representative plant association	Forage production (pounds per acre per year)
Cold Riparian Forest (Cold RF)	Subalpine fir / aquatic sedge	250
Cold Riparian Herbland (Cold RH)	Woodrush sedge	700
Cold Riparian Shrubland (Cold RS)	Willow / aquatic sedge	300
Cold Upland Forest (Cold UF)	Cws811, Grand fir/ grouse huck	30-500 (200)
Cold Upland Herbland (Cold UH)	Gs11, green fescue	500-1,300 (900)
Cold Upland Shrubland (Cold US)	Ss4915, Mountain big sage, needlegrass	50 – 450 (300)
Dry Upland Forest (Dry UF)	Cwg112, Grand fir pine grass	300 – 600 (450)
Dry Upland Herbland (Dry UH)	Gb41, Bluebunch wheatgrass	400 – 800 (600)
Dry Upland Shrubland (Dry US)	Sd9111, Stiff sagebrush / Sandberg's bluegrass	100 to 250 (200)
Dry Upland Woodland (Dry UW)	Cjs111, western juniper / low sagebrush	300 – 400 (350)
Low Soil Moisture Riparian Forest (Low SM RF)	Ponderosa pine / Common snowberry (floodplain)	200
Low Soil Moisture Riparian Herbland (Los SM RH)	Md3111, Kentucky bluegrass (dry meadow)	600
Low Soil Moisture Riparian Shrubland (Low SM RS)	Willow / Kentucky bluegrass	200
Moderate Soil Moisture Riparian Forest (Mod SM RF)	Black cottonwood / Common snowberry	200
Moderate Soil Moisture Riparian Herbland (mod SM RH)	False hellebore	200
Moist Upland Forest (Moist UF)	Cwf311, Grand fir / Twinflower	<200
Moist Upland Herbland (Moist UH)	Gb5917, Idaho fescue-bluebunch wheatgrass-balsamroot	200 – 1,000 (650)
Moist Upland Shrubland (Moist US)	Sd2911, Mountain big sagebrush / Idaho fescue-bluebunch	230 – 625 (425)
Moist Upland Woodland (Moist UW)	Cjs41, Western juniper / Mountain mahogany / Idaho fescue	300 – 700 (400)
Warm Riparian Forest (Warm RF)	Quaking aspen / Mesic forb	200

The estimates in table B-2 are coarse, and even though a single number was used to calculate potential forage, the reality is that production can be variable and influenced by site specifics such as the seral stage of vegetation being analyzed or annual variations due to weather. All of these variables need to be accounted for when this information is used for project level planning. The representative plant association was determined by using the plant association within each vegetation group that was most abundant as indicated by the current vegetation survey (CVS) data.

The current production figures were developed by multiplying the production figures in table B-2 by the total number of acres in each vegetation group, capability group, and national forest. The total acres within each vegetation group were derived from the output of the range suitability modeling process described above. The production figures represent the current vegetation conditions, which in the case of the forested groups are heavily influenced by overstory canopy cover. In general, the higher the overstory canopy cover, the lower the understory production. Production for forested areas that were also classified as noncapable was calculated by multiplying the noncapable, forested acres by 50 pounds per acre per year because much of the area, although being closed canopy, still could provide a minimum amount of forage.

Further information and greater detail are part of the project record.

Old Forest

The Pacific Northwest Region of the Forest Service (Region 6) has standards for the classification of vegetation, which were used during the process of developing a consistent set of structural stages for the Blue Mountains forest plan revision. However, the regional standards do not mandate a specific structure classification system, but instead provide flexibility to develop a classification system based on several different systems presented in the standards document. The first step in choosing a classification system was to compare what was currently in use by each national forest. All three national forests within the Blue Mountains used a slightly different system developed from guidance in the 1993 Eastside screens document. After several tri-Forest wildlife-silviculture-fuels meetings in 2004-05, it was decided that the forest plan revision team would use a consistent structural stage classification system based on Interior Columbia Basin Ecosystem Management Project (ICBEMP) science, which was also consistent with the region 6 standards. It was also decided that the revision team would use a potential vegetation classification system that linked to the ICBEMP science. The upland forest potential vegetation types selected were: cold forest, moist forest, and dry forest. The structural stages selected were: stand initiation, stem exclusion, understory reinitiation, old forest single-story, and old forest multi-story. The revision team also elected to track the cover type (dominant species composition) within each potential vegetation type. We used the definitions for old forest that were found in ICBEMP SDEIS appendix 17 a-b. The appendix states that the term “old forest” and “old growth” were used synonymously but they chose to use old forest because it was more evocative of the ecosystem being discussed. We also chose to use the term old forest in plan revision. The definitions used in ICBEMP were specific to different potential vegetation groups as described in the 1993 Region 6 “interim old growth definition” document. There are no other widely used, science based definitions for old forest that we know of. The definitions describe old forest characteristics for tree age, size, down wood, snags, number of layers, variation in tree size and spacing, and canopy gaps. Data sources for estimates of the current abundance of old forest included the Current Vegetation Survey (CVS) and vegetation polygon. Modeling of old forest was generally based on density of trees by diameter. The modeling typically used tree size as a

surrogate for age because size was the attribute most commonly available in the different sets of data we used. Tree age was generally not available.

Historical estimates of old forest were used as one of the factors for developing desired conditions. Historic estimates for old forest came from our locally built Vegetation Dynamics Development Tool (VDDT) model. Other factors such as potential climate change were also considered in developing the desired condition.

The amount of old forest under each of the alternatives was modeled using VDDT and displayed at years 20 and 50. For more information, see the vegetation modeling section.

Preliminary Administratively Recommended Additions to the National Wilderness Preservation System

As part of the plan revision process, the Forest Service is required to evaluate inventoried roadless areas and assess their wilderness character and to make recommendations regarding their inclusion in the National Wilderness Preservation System. Through the Wilderness Act of 1964 (PL 88-577), Congress created the National Wilderness Preservation System to provide protection for lands untrammled by man. This act provides direction for the USDA to recommend suitable primitive areas for addition to the National Wilderness Preservation System. The Forest Service can only recommend wilderness area allocations to Congress via forest plans, and only Congress can designate wilderness areas through the legislative process. Recommendations and designation are often controversial and Congress may defer the issue for many years before taking action. In the interim, the Forest Service is required to manage preliminary administratively recommended wilderness areas to protect their wilderness character and values for potential inclusion to the National Wilderness Preservation System.

During the 1980s, the national forests in the Blue Mountains evaluated 978,000 acres in 60 inventoried roadless areas for possible wilderness area recommendations to Congress. Of this total, no acres were recommended for wilderness area designation in the 1990 forest plans, primarily as a result of the intervening passage of the Oregon Wilderness Act of 1984 (P.L. 98-328) that designated 931,000 acres of wilderness state-wide and established the Oregon Cascades Recreation Area. Consequently, the 1990 Blue Mountain national forest plans allocated approximately 272,700 acres to management areas that partially preserved their undeveloped character, and 428,800 acres were allocated to management areas that allowed for active management, including further development of the transportation system. For the current forest plan revision process, a total of 84 potential wilderness areas comprising approximately 719,030 acres were evaluated for potential wilderness area recommendation. All of the acres evaluated are within the national forests and represent almost 13 percent of the total area.

In addition to the Blue Mountains Forest Plan Revision inventory process that considered National Forest System lands, the inventory also included an inventory of lands with wilderness character that was completed by the Bureau of Land Management. The Bureau of Land Management classified three areas near the Forest Service boundary as lands with wilderness character. These areas, situated adjacent to potential wilderness areas, are managed as Bureau of Land Management lands with wilderness character. The three areas comprise a relatively minor portion and contribution of the total potential wilderness area acres. The Bureau of Land

Management is the lead agency for these parcels, but they are included in the reports for those potential wilderness areas.

A total of 84 areas on the Blue Mountain national forests were evaluated for potential wilderness using standards outlined in Forest Service Handbook (FSH) 1909.12, Chapter 70 – Wilderness Evaluation. An area recommended as suitable for wilderness area designation must meet the tests of capability, availability, and need. In addition to the inherent wilderness quality it possesses, an area must provide opportunities and experiences that are dependent upon or enhanced by a wilderness environment. The ability of the Forest Service to manage the potential wilderness area must also be considered.

Capability is defined as the degree to which the area contains the basic characteristics that make it suitable for wilderness designation without regard to its availability for or need as wilderness. It is the degree to which an area contains wilderness qualities. These include the integrity of the natural environment and scenery; opportunities for solitude, challenge, and primitive recreation; and unique ecological or cultural features. Factors, such as size, shape, relationship to external influences, and boundary location, were examined to determine manageability (FSH 1909.12 Chapter 70 subpart 72.1).

Availability is conditioned by the value of and need for the wilderness area resource compared to the value of and need for other resources. A brief description of uses, wildlife, water resources, livestock grazing, timber, minerals, oil and gas, cultural resources, land use authorizations, lands not federally administered, and disturbances is included in the availability section of each potential wilderness area evaluation. These evaluations are available from the project record (FSH 1909.12 Chapter 70, subpart 72.2).

Need for wilderness designation is determined through an analysis of the degree to which an area contributes to the National Wilderness Preservation System based on several factors on both a regional and a local basis. Need evaluations have been documented in the Forest Service Region 6 Wilderness Need Evaluation for the Malheur, Umatilla, and Wallowa-Whitman National Forests (January 11, 2010). The Blue Mountain national forests needs evaluation includes potential contributions to the local and national distribution of wilderness areas and associated ecological and social values (FSH 1909.12 Chapter 70, subpart 72.3).

Inventoried roadless areas (IRAs) are defined by a combination of rules and regulations. As part of the forest plan revision process, inventoried roadless areas provided a starting point for the review process to assess all areas for potential wilderness area designation. Areas were evaluated based on criteria outlined above.

In this analysis, the alternatives differ in the total areas recommended for preliminary administratively recommended additions to the National Wilderness Preservation System and areas recommended for nonwilderness.

The following six factors and criteria from the Forest Service Handbook (FSH 1902.12, Chapter 70 Subpart 72.31) were used to assess wilderness need:

1. The location, size, and type of other wilderness areas in the general vicinity and their distance from the proposed area. Considering accessibility of areas to population centers and user groups. Public demand for wilderness may increase with proximity to growing population centers.

2. Present visitor pressure on other wilderness areas, the trends in use, changing patterns of use, population expansion factors, and trends and changes in transportation.
3. The extent to which nonwilderness lands on the national forests or other federal lands are likely to provide opportunities for unconfined outdoor recreation experiences.
4. The need to provide a refuge for those species that have demonstrated an inability to survive in less than primitive surroundings or the need for a protected area for other unique scientific values or phenomena.
5. Within social and biological limits, management may increase the capacity of established wildernesses to support human use without unacceptable depreciation of the wilderness resource.
6. An area's ability to provide for preservation of identifiable landform types and ecosystems. Consideration of this factor may include utilization of Edwin A. Hammond's subdivision of landform types and the Bailey-Kuchler ecosystem classification. This approach is helpful from the standpoint of rounding out the National Wilderness Preservation System and may be further subdivided to suit local, subregional, and regional needs.

Ecological Resilience

The data and analysis that was used to show the changes in forest structural stages for each forest was converted into graphs that showed the rate of change for each alternative. The ecological resilience analysis used this rate of change to compare the alternatives.

Soils

A summary of general soil types in the Blue Mountains is in the land type associations (LTAs) description (Sasich and Ottersberg 2006) and GIS layer. Landtype associations are differentiated based on 1) vegetation zones, 2) geology groups, and 3) landforms. There are 80 landtype associations in the Blue Mountains. In addition to the three characteristics that differentiate the landtype associations, Sasich and Ottersberg (2006) give information on volcanic ash, texture, rock fragments, depth to bedrock, soil climate, hydrologic and sedimentation properties and responses, productivity, vegetation recovery, limitations for roads and heavy machinery operability, timber and range suitability, and other characteristics. More detailed, site-specific soil information for most of Umatilla and Wallowa-Whitman National Forests and the northern part of the Malheur National Forest is in the Terrestrial Ecological Unit Inventory (TEUI) GIS layer and database. For areas that lack TEUI, Soil Resource Inventory information is available for each national forest at an intermediate scale.

Table B-3 displays the range (in acres) of detrimental soil conditions on the landscape as a result of historic timber harvest activities. The range (in acres) of detrimental soil conditions from ground-based timber harvest activities was determined by calculating 5 percent and 55 percent of the acres of timber harvest, the lowest published detrimental soil conditions (Bliss 2006, Craig 2005) and the highest published detrimental soil conditions (Harkenrider 1979) respectively. Five percent was added to the result to account for detrimental impacts from constructing National Forest System roads and temporary roads.

Table B-3. Estimated detrimental soil conditions (DSCs) for ground-based and cable and aerial logging systems for each national forest (existing condition)

National Forest	Ground-based Timber Harvest Activities		Cable and Aerial Timber Harvest Activities		Total Timber Harvest Activities	
	Harvest	Range of DSCs	Harvest	Range of DSCs	Harvest	Range of DSCs
MAL	407,486	40,748 to 244,491	49,347	3,454 to 5,428	456,833	44,202 to 249,919
UMA	185,936	18,593 to 111,561	64,654	4,525 to 7,111	250,590	23,118 to 118,672
WAW	300,676	30,067 to 180,405	24,846	1,739 to 2,733	325,522	31,806 to 183,138
Totals	894,098	89,408 to 536,457	138,847	9,718 to 15,272	1,032,945	99,126 to 551,729

The range (in acres) of detrimental soil conditions on the landscape as a result of historic aerial timber harvest activities was determined by calculating 2 percent and 6 percent of the acres of aerial timber harvest, the lowest published detrimental soil conditions (Allen 1997) and the highest published detrimental soil conditions (Bliss 2006) respectively. Again, 5 percent was added to the result to account for detrimental impacts from constructing National Forest System roads and temporary roads.

The ranges (in acres) of detrimental soil conditions for both ground-based and aerial harvest systems include impacts associated with site preparation activities and post-harvest treatments, including post-harvest slash treatment. The acres of past timber harvest activities were calculated using GIS data. Since some areas have been harvested more than once, acres for these areas will be included more than once in the totals displayed in table B-3.

Following is a brief description of the analysis procedure and calculations used to estimate change in detrimental soil conditions by alternative.

In evaluating the potential effects of the alternatives on soils, a comparison of the total acres that would be treated for each activity is used as a surrogate for potential detrimental soil effects. To estimate the amount of detrimental soil conditions resulting from those activities during the first decade of the plan period, the number of acres of potential detrimental soil condition is calculated using the following formula: acres of activity multiplied by percent soil disturbance factor of specific treatment per year. Acres of activity by national forest and alternative on an annual basis are displayed in table 110. The soil disturbance factor for timber management activities is displayed in table B-4.

Table B-4. Potential areal extent of new detrimental soil conditions associated with timber management activities for all alternatives (soil disturbance factor used to estimate new detrimental soil conditions for all alternatives)

Timber Management Activity	Detrimental Soil Conditions
Even-aged harvest with ground-based system	15%
Even-aged harvest with cable logging system	6%
Uneven-aged harvest with ground-based system	8%
Pre-commercial thinning and mechanical fuels treatment	5%

The process for assigning risk classes for grazing included determining the overlap of landtype associations with grazing suitability maps for each alternative. Each grazing suitability class was assigned a rating of low, moderate, or high (pers. comm. Steve Howes 2011) A rating of low risk to soils from grazing was given to landtype associations rated with high suitability. A rating of

moderate risk to soils from grazing was given to landtype associations rated with low to moderate suitability. A rating of high risk to soils from grazing was given to landtype associations rated unsuitable for grazing. Unsuitable grazing lands generally included landtype associations associated with steep slopes, very shallow and rocky soils, and/or sites producing less than 200 pounds of forage annually.

Air Quality

Air quality within the plan area, due to regional transport winds, can be affected by actions that occur at considerable distances from the area. The distance from these sources helps to buffer any potential adverse industrial/metropolitan pollutants. Population growth in the Pacific Northwest and southwestern Idaho, centered in Boise, may diminish this buffer in coming decades.

Current air quality effects on wilderness areas and surrounding Class 2 lands is primarily from smoke and regional haze that affects large areas of the West under certain, poorly understood conditions. The issue of regional haze and its effects on western vistas has been and is being studied at a scale beyond this analysis in programs, such as the Grand Canyon Visibility Transport Commission. In addition, impairment reduction goals for visibility have been mandated by the EPA.

Visibility monitoring in the Blue Mountains is accomplished through Forest Service participation in the Interagency Monitoring of Protected Visual Environments (IMPROVE) network. There are two IMPROVE monitors in the Blue Mountains, one in the Starkey Experimental Forest and Range and the other at the Bowman Dam in the HCNRA. The IMPROVE monitors collect aerosol samples that are then analyzed to obtain a chemical profile of the airborne particles that affect visibility. Using these monitors from 2000 to 2004, baseline visibility was established as part of the requirements of the Clean Air Act's Regional Haze Rule. The standard visual range was calculated by averaging the measurements for the worst days (20 percent of the total) and the best days (also 20 percent of the total). The results are figures for the worst-case day and best-case day. During the baseline period for the Starkey site, the standard visual range was 57 km for the worst-case days. The standard visual range for the best-case days is more than four times better (247 km). For the Bowman Dam site, the standard visual range for the worst-case days was 57 km, and it was 238 km for the best-case days. The Regional Haze Rule requires visibility to improve to the equivalent of natural conditions during worst-case days (average) by 2064, which are 156 km for the Starkey Experimental Forest and Range site and 176 km for the Bowman Dam site. Additionally, the rule requires no degradation during the best-case days by 2064.

Haze during these worst-case days at these sites is caused by two pollutants: organic carbon and ammonium nitrate. Organic carbon generally is a summer and fall pollutant that is caused primarily by wildland fires and other vegetative burning. Ammonium nitrate generally is a winter pollutant that occurs when cold, humid conditions prevail. Sources of ammonium nitrate include motor vehicle emissions, industrial boilers, fires, and ammonia from agricultural sources, including feedlots.

Watershed Function, Water Quality, and Water Uses

Biophysical and ecological conditions in the Blue Mountains have been assessed through a number of broad scale studies including ICBEMP (Quigley and Arbelbide 1997), the Eastside Ecosystem Management Assessment (Everett 1994, McIntosh et al. 1994), subbasin plans (NWPPC 2005), and recovery plans (USFWS 2002, Snake River Salmon Recovery Board 2006, USFWS 2008, Carmichael and Taylor 2009). In addition, approximately 50 watershed analyses have been conducted by the Forest Service for the three Blue Mountains national forests. Information from watershed analyses has been used by the Forest Service to prioritize restoration needs for vegetation, wildlife, fisheries, and watersheds (USDA Forest Service 2001, 2002, 2005). Previous analyses have all been conducted at either the subbasin or watershed scale and do not necessarily provide information with a consistent level of detail, or at the same scale used in this analysis. Instead, this analysis uses the results of a model developed specifically to assess watershed conditions in the Blue Mountains.

Watershed conditions in the Blue Mountains were assessed through the use of a sustainability model based on the Ecosystem Management Decision Support System (EMDS) (Reynolds 1996, 1999). The methods used are described in detail in (Gecy 2013). The basic approach uses detailed analysis of watershed, riparian, stream channel, and aquatic habitat attributes. Assessment of the state of these attributes is used to define the condition of the approximately 550 subwatersheds containing National Forest System lands in the Blue Mountains. Watershed condition is combined with information about the status and distribution of four selected focal species (bull trout, Chinook salmon, steelhead, and inland redband trout) to determine aquatic ecological condition (AEC), which is discussed in the “Aquatic Species Diversity and Viability” section of this document. One or more of these species occupies nearly all freshwater habitats in National Forest System lands in the Blue Mountains.

Focal species and watershed conditions were evaluated for each subwatershed containing National Forest System lands in the Blue Mountains. The modeling process, in combination with information from recovery plans, subbasin plans, and existing Forest Service analyses were used to identify key watersheds and a subset of those key watersheds called priority watersheds where the Forest Service would focus restoration efforts. Key and priority watershed selection are described in the analysis assumptions and methods section. This discussion addresses watershed conditions, as indicated by past management intensity, vegetation conditions, riparian conditions, and stream channel conditions.

Watershed conditions were evaluated based on existing forest and rangeland vegetation conditions and departure of vegetation from the historical range of variability (Countryman and Justice 2010) using the vegetation dynamics development tool (VDDT, ESSA Technologies Ltd. 2007). Road density and the percentage of road miles within or near riparian areas are used as an index of land use intensity (Lee et al. 1997) and the hydrologic connectivity of the road system to area streams (Wemple et al. 1996). Rangeland and riparian use intensity was estimated by summing current domestic livestock use by subwatershed and estimating average annual forage production in each subwatershed by vegetation class. The resulting measure compares actual livestock forage use to estimates of forage production (Holechek et al. 2006) and identifies relative livestock forage use across National Forest System lands.

Riparian and stream channel conditions were based on stream habitat surveys conducted by the Forest Service between 1989 and 2006. Survey data includes information on channel morphology,

substrate, riparian composition, and aquatic habitat features. In some cases, this data was supplemented with survey data from the PACFISH/INFISH Biological Opinion Effectiveness Monitoring Program (PIBO, Kershner et al. 2004, Archer 2009). Forest vegetation data was overlain on stream maps in GIS to identify the dominant near-stream vegetation composition and provides an alternate measure of riparian vegetation condition.

Riparian and stream channel conditions were compared to conditions in a set of reference reaches consisting of reaches located in existing roadless and wilderness areas that do not have roads within 300 feet of streams. This resulted in a subset of 588 possible reference reaches out of 2,889 reaches surveyed. Reference conditions were identified following methods similar to those described in Kershner et al. (2004) and Al-Chokhachy et al. (2010). Some stream attributes vary by channel type (e.g., pool abundance and pool-riffle ratio) or riparian vegetation type (large wood frequency). Separate models of riparian and aquatic habitat conditions were required for reaches surveyed from 1989 through 1995 and 1996 through 2006 due to differences in how some attributes were surveyed and because of the low number of stream reaches surveyed since 1995 (20 percent of the total).

Mid-scale Analysis

Mid-scale or watershed analysis is a process for identifying and characterizing the status and trends of key physical and ecological conditions and processes influencing aquatic and riparian ecosystems at watershed scales, identifying the primary management issues associated with those conditions, and identifying opportunities to address them. Watershed analysis is not a forest plan component, but is an important process for informing forest plan implementation, as it provides context for management activities.

Decision makers use the results of watershed analysis to diagnose the status and trend of aquatic and riparian resources; tailor and/or refine broad-scale desired conditions to finer scales; establish watershed-scale objectives for aquatic and riparian resource management; identify key management needs and opportunities, including restoration; and develop local monitoring programs. Watershed analysis is not a decision-making process, but provides the information needed to determine the types and scales of land management activities appropriate to attaining forest plan desired conditions. Specifically, this process provides the basis for developing watershed restoration programs and implementing a diverse range of land management activities in a manner that protects and/or enables natural recovery of watershed conditions.

Key and Priority Watersheds

The focus of watershed restoration is to complete needed restoration work from ridge top to valley bottom to provide healthy watersheds (Ziemer 2004, USDA Forest Service 2005). Not all watersheds are expected to be in good condition at the same time and the condition of some existing high quality watersheds will eventually be degraded by future disturbance, so that replacement high quality habitats will be needed for some populations of aquatic and riparian species (Reeves et al. 1995, Reeves and Duncan 2009).

Because of the extent of decline in populations of some aquatic species and the degradation of their habitats, protection of remaining strong populations and their habitats is crucial to their recovery (Sedell et al. 1997). A network of key watersheds is identified in order to meet this need. Key watersheds have a combination of relative population strength for one of four aquatic focal species (Chinook salmon, steelhead, inland redband trout, and bull trout), good watershed conditions, and good aquatic and riparian habitat condition (Reiss et al. 2008). Key watersheds

are identified at the subwatershed level and consist of areas approximately 10,000 to 40,000 acres. Key watersheds are expected to be managed so that risk to aquatic and riparian habitats is minimized.

Some of the attributes of key watersheds that make them important for aquatic species may also make them important for terrestrial wildlife species as they often encompass a variety of habitats important to various wildlife species, including source habitats, deer and elk summer range, deer and elk winter range, and migration corridors. Key watersheds are less likely to be affected by past land uses and more likely to be important to the maintenance of water quality and quantity for a variety of downstream uses, including human uses.

The intent of the strategy is to protect and restore whole watersheds while reducing the risk to remaining populations of aquatic species and increasing the availability and connectivity of high quality aquatic and riparian habitats. Watersheds in good condition would be maintained by reducing existing impacts, implementing best management practices (BMPs), and through more comprehensive project design that facilitates integration between different resource disciplines. Watershed restoration activities are prioritized so that investments are made in areas that have the highest restoration potential while providing the greatest benefit to multiple resources and the least risk to existing populations. These areas are identified as priority watersheds and are displayed in tables table B-5, table B-6, and table B-7.

The model developed for assessing watershed, riparian, and aquatic habitat conditions was also used to identify key watersheds, compare alternatives, and to assess the relative importance of National Forest System lands to the viability of selected focal species. A description of the methods is available from the project record.

There are 167 watersheds are identified as key watersheds in the three National Forests. These key watersheds are located in 17 of the 25 subbasins that include National Forest System lands in the Blue Mountains. From this set of key watersheds, 67 are identified as priorities for restoration, of which 26 are within the Malheur National Forest, 15 are within the Umatilla National Forest, and 26 are within the Wallowa-Whitman National Forest. Key and priority watersheds comprise 936,600 acres, or 54 percent of the area of the Malheur National Forest; 810,000 acres, or 58 percent of forest area in the Umatilla National Forest; and, 1,481,000 acres or 62 percent of forest area in the Wallowa-Whitman National Forest.

Priority watersheds are selected based on existing restoration priorities and include sites of ongoing restoration, or restoration actions that are expected to be completed or started during the life of the plan, so that priority watersheds consist of those areas where restoration actions are proposed or are being planned during the next 10 to 20 years. Priority watersheds are a subset of key watersheds. It is expected that when planned work is completed in priority watersheds, that individual forests will develop new sets of priority watersheds so that restoration needs are met over the long term but work remains focused in a smaller set of watersheds at any given time. Priority watersheds occupy 415,000 acres (24 percent) of the Malheur National Forest, 244,800 acres (17 percent) of the Umatilla National Forest and 310,500 acres (13 percent) of the Wallowa-Whitman National Forest. The full list of key and priority watersheds for the national forests is displayed in table B-5, table B-6, and table B-7.

Table B-5. Malheur National Forest key (KWS) and priority (P) watersheds by subbasin

Subbasin	HUC6	Name	NFS Acres	Category
Upper Malheur	170501160101	Upper Big Creek	12,605	KWS
	170501160102	Lake Creek	19,861	KWS
	170501160103	Bosonberg Creek	14,894	KWS
	170501160104	Summit Creek	23,226	P
	170501160105	Cliff Creek	29,183	KWS
	170501160201	Upper Wolf Creek	11,444	P
	170501160202	East Fork Wolf Creek	12,549	P
	170501160203	Squaw Creek	11,560	P
	170501160204	Calamity Creek	31,366	P
	170501160301	Upper Pine Creek	26,496	P
	170501161101	Swamp Creek	25,589	KWS
	170501161102	Elk Creek	13,531	KWS
	170501161103	Crane Creek	28,670	P
	170501161105	Skagway Creek	10,986	KWS
	170501161201	Upper Little Malheur River	31,501	KWS
Upper John Day	170702010104	Utley Creek	9,270	KWS
	170702010305	Corral Creek	16,061	KWS
	170702010306	Lower Deer Creek	12,271	KWS
	170702010401	Tex Creek	29,024	KWS
	170702010405	Lower Murderers Creek	3,130	KWS
	170702010601	Rail Creek	15,333	KWS
	170702010602	Deardorff Creek	10,858	KWS
	170702010603	Reynolds Creek	16,365	KWS
	170702010605	Dads Creek	7,079	KWS
	170702010701	Upper Canyon Creek	22,746	KWS
	170702010702	East Fork Canyon Creek	15,424	KWS
	170702010801	Strawberry Creek	9,639	KWS
	170702010805	Indian Creek	12,240	KWS
	170702010806	Castle Creek	6,313	KWS
	170702011006	Dry Creek	6,336	KWS
170702011103	Fields Creek	10,820	KWS	
Middle Fork John Day	170702030101	Squaw Creek	11,150	P
	170702030102	Idaho Creek-Summit Creek	13,237	P
	170702030103	Dry Fork	11,224	P
	170702030104	Clear Creek	12,158	P
	170702030105	Bridge Creek	11,484	P
	170702030106	Mill Creek	16,647	P
	170702030201	Vinegar Creek	17,851	P
	170702030202	Little Boulder Creek-Deerhorn	17,789	P

Subbasin	HUC6	Name	NFS Acres	Category
	170702030203	Granite Boulder Creek	21,628	P
	170702030204	Big Boulder Creek	10,709	P
	170702030205	Coyote Creek-Balance Creek	11,196	P
	170702030206	Middle Camp Creek	18,817	P
	170702030207	Lick Creek	10,448	P
	170702030208	Lower Camp Creek	10,495	P
	170702030302	Big Creek	16,231	P
Silvies	171200020103	Upper Scotty Creek	10,182	KWS
	171200020201	Upper Bear Creek	19,187	KWS
	171200020302	Upper Camp Creek	24,578	KWS
	171200020503	Myrtle Creek	26,967	KWS
	171200020601	Crowsfoot Creek	13,718	KWS
	171200020602	Whiskey Creek	19,037	KWS
	171200020603	Bear Canyon Creek	11,396	KWS
	171200020604	Little Emigrant Creek	22,971	KWS
	171200020606	Sawtooth Creek	12,495	KWS
Silver	171200040101	Still Spring Creek	14,915	P
	171200040102	Delintment Creek	17,597	P
	171200040103	Dodson Creek	11,794	P
	171200040104	Sawmill Creek	14,376	P
Total Acres			936,649	
Total Key Watershed Acres and Total Key Watersheds			521,592	33 KWS
Total Priority Watershed Acres and Total Priority Watersheds			415,057	26 P

Table B-6. Umatilla National Forest key (KWS) and priority (P) watersheds by subbasin

Subbasin	HUC6	Name	NFS Acres	Category
Lower Snake-Asotin	170601030201	North Fork Asotin Creek	24,962	KWS
	170601030202	Lick Creek	8,261	KWS
	170601030203	South Fork Asotin Creek	11,931	KWS
	170601030204	Charley Creek	9,241	KWS
	170601030206	Upper George Creek	8,722	KWS
Upper Grande Ronde	170601041002	Little Lookingglass Creek	20,572	KWS
Lower Grande Ronde	170601060301	Upper South Fork Wenaha River	20,345	KWS
	170601060302	Lower South Fork Wenaha River	14,791	KWS
	170601060303	North Fork Wenaha River	17,579	KWS
	170601060304	Beaver Creek	9,458	KWS
	170601060305	Wenaha River-Rock Creek	17,442	KWS
	170601060306	Upper Butte Creek	16,850	KWS
	170601060307	Lower Butte Creek	11,804	KWS
	170601060308	Wenaha River-Cross Canyon	19,412	KWS

Subbasin	HUC6	Name	NFS Acres	Category
	170601060309	Upper Crooked Creek	18,941	KWS
	170601060310	First Creek	13,628	KWS
	170601060311	Lower Crooked Creek	16,577	KWS
	170601060312	Lower Wenaha River	6,141	KWS
Tucannon	170601070601	Headwaters Tucannon River	24,491	P
	170601070602	Panjab Creek	16,254	P
	170601070603	Little Tucannon River	16,319	P
	170601070604	Cummings Creek	8,691	P
Walla Walla	170701020101	Upper South Fork Walla Walla River	17,886	KWS
	170701020102	Middle South Fork Walla Walla River	14,074	KWS
	170701020201	Upper Mill Creek	19,605	KWS
	170701020301	Upper North Fork Touchet River	15,560	KWS
Umatilla	170701030104	North Fork Umatilla River	17,491	KWS
	170701030202	East Meacham Creek	11,327	KWS
	170701030203	Butcher Creek	9,892	KWS
	170701030204	North Fork Meacham Creek	30,039	KWS
	170701030205	Camp Creek	15,774	KWS
	170701030206	Boston Canyon	8,086	KWS
North Fork John Day	170702020104	Trout Creek	6,483	KWS
	170702020105	North Fork John Day River-Crane Creek	18,857	KWS
	170702020204	Clear Creek	17,724	P
	170702020205	Lake Creek	12,015	P
	170702020206	Lower Granite Creek	17,807	P
	170702020301	North Fork John Day-Dixon Bar	13,003	KWS
	170702020302	Meadow Creek	17,191	KWS
	170702020303	Big Creek	21,148	KWS
	170702020304	North Fork John Day-Corral Creek	18,338	KWS
	170702020401	North Fork Desolation	14,896	P
	170702020402	Upper Desolation Creek-Battle Creek	21,252	P
	170702020403	Desolation Creek-Kelsay Creek	13,120	KWS
	170702020404	Lower Desolation	6,780	KWS
	170702020702	Meadow Brook	8,518	KWS
	170702020706	Upper Potamus Creek	14,935	KWS
	170702020801	Swale Creek	13,127	P
	170702020802	Little Wall Creek	19,706	P
	170702020803	Little Wall Creek-Skookum Creek	20,529	P
170702020804	Wilson Creek	14,849	P	
170702020805	Middle Big Wall	15,460	P	

Subbasin	HUC6	Name	NFS Acres	Category
	170702020806	Lower Big Wall Creek	11,663	P
Total Acres			809,548	
Total Key Watershed Acres and Total Key Watersheds			564,764	38 KWS
Total Priority Watershed Acres and Total Priority Watersheds			244,784	15 P

Table B-7. Wallowa-Whitman National Forest key (KWS) and priority (P) watersheds by subbasin

Subbasin	HUC6	Name	NFS Acres	Category
Brownlee	170502010601	Upper Pine Creek	17,996	P
	170502010603	Clear Creek	14,875	P
	170502010605	East Pine Creek	15,946	P
	170502010606	Pine Creek-Fish Creek	5,401	P
	170502010607	Upper North Pine Creek	18,793	KWS
	170502010608	Lake Fork Creek	20,027	KWS
	170502010609	Lower North Pine Creek	13,886	KWS
Burnt	170502020101	Upper North Fork Burnt River	16,117	KWS
	170502020102	Camp Creek	16,941	KWS
	170502020103	North Fork Burnt River-Patrick Creek	8,215	KWS
	170502020104	Trout Creek	19,169	KWS
	170502020105	North Fork Burnt River-Petticoat Creek	12,710	KWS
	170502020106	West Fork Burnt River	8,706	KWS
	170502020107	Middle Fork Burnt River	11,373	KWS
	170502020201	Upper South Fork Burnt River	20,137	KWS
	170502020202	Middle South Fork Burnt River	19,753	KWS
	170502020301	West Camp Creek	11,978	KWS
	170502020302	East Camp Creek	10,054	KWS
Powder	170502030101	Cracker Creek	18,149	KWS
	170502030105	Deer Creek	19,347	KWS
	170502030402	Lower Salmon Creek	2,683	KWS
	170502030404	Rock Creek	12,077	KWS
	170502030501	Upper North Powder River	12,175	KWS
	170502031002	West Eagle Creek	12,542	KWS
	170502031004	East Fork Eagle Creek	26,352	KWS
Imnaha	170601020101	North Fork Imnaha River	13,308	KWS
	170601020102	South Fork Imnaha River	17,760	KWS
	170601020103	Imnaha River-Rock Creek	11,121	KWS
	170601020104	Imnaha River-Dry Creek	21,378	KWS
	170601020105	Gumboot Creek	12,113	KWS
	170601020106	Imnaha River-Crazyman Creek	14,558	KWS
	170601020204	Freezeout Creek	9,198	KWS

Subbasin	HUC6	Name	NFS Acres	Category
	170601020205	Imnaha River-Chalk Creek	6,222	KWS
	170601020301	Upper Big Sheep Creek	12,526	P
	170601020302	Lick Creek	10,229	P
	170601020303	Big Sheep Creek-Tyee Creek	12,918	P
	170601020304	Big Sheep Creek-Carrol Creek	8,522	P
	170601020306	Big Sheep Creek-Steer Creek	15,064	KWS
	170601020407	Big Sheep Creek-Lower Little Sheep Creek	4,372	KWS
	170601020502	Imnaha River-Fence Creek	7,594	KWS
	170601020503	Upper Horse Creek	21,589	KWS
	170601020504	Lower Horse Creek	11,175	KWS
	170601020505	Upper Lightning Creek	16,776	KWS
	170601020506	Sleepy Creek	11,705	KWS
	170601020507	Lower Lightning Creek	9,778	KWS
	170601020508	Upper Cow Creek	13,855	KWS
	170601020509	Lower Cow Creek	10,276	KWS
	170601020510	Imnaha River-Thorn Creek	15,650	KWS
North Fork John Day	170702020101	North Fork John Day River-Baldy Creek	16,945	KWS
	170702020102	Trail Creek	12,074	KWS
	170702020103	North Fork John Day River-Onion Creek	7,644	KWS
	170702020201	Upper Granite Creek	7,142	P
	170702020202	Bull Run Creek	18,759	P
	170702020203	Beaver Creek	12,119	P
Upper Grande Ronde	170601040101	Grande Ronde River-Tanner Gulch	15,278	P
	170601040102	Limber Jim Creek	11,929	P
	170601040103	Grande Ronde River-Meadowbrook Creek	12,779	P
	170601040104	Chicken Creek	10,967	P
	170601040105	Sheep Creek	18,979	P
	170601040106	Little Fly Creek	10,559	P
	170601040107	Upper Fly Creek	10,304	P
	170601040108	Lower Fly Creek	8,926	P
	170601040109	Grande Ronde River-Warm Springs Creek	17,096	P
	170601040201	Upper Meadow Creek	16,054	KWS
	170601040202	Middle Meadow Creek	21,357	KWS
	170601040203	Upper McCoy Creek	12,144	KWS
	170601040204	Lower McCoy Creek	5,570	KWS
	170601040205	Dark Canyon Creek	10,040	KWS
170601040206	Lower Meadow Creek	18,155	KWS	

Subbasin	HUC6	Name	NFS Acres	Category
	170601040304	Spring Creek	13,325	KWS
	170601040306	Rock Creek	5,830	KWS
	170601040401	Upper Five Points Creek	13,032	KWS
	170601040402	Pelican Creek	11,319	KWS
	170601040403	Lower Five Points Creek	11,741	KWS
	170601040501	North Fork Catherine Creek	21,603	P
	170601040502	South Fork Catherine Creek	15,173	P
	170601040503	Catherine Creek-Milk Creek	4,771	P
	170601040504	Little Catherine Creek	6,902	P
	170601040506	Little Creek	3,177	P
	170601040702	Mill Creek	5,662	P
	170601040902	Upper Indian Creek	14,869	KWS
Wallowa	170601050101	Upper Wallowa River	26,932	KWS
	170601050106	Hurricane Creek	18,613	KWS
	170601050108	Spring Creek	4,650	KWS
	170601050109	Wallowa River-Wallowa Lake	4,396	KWS
	170601050201	Upper Lostine River	11,214	KWS
	170601050202	Lostine River-Lake Creek	17,090	KWS
	170601050204	Lower Lostine River	1,614	KWS
	170601050401	Upper Bear Creek	21,661	KWS
	170601050402	Lower Bear Creek	14,795	KWS
	170601050501	Upper Minam River	22,557	KWS
	170601050502	Minam River-China Cap Creek	21,828	KWS
	170601050503	North Minam River	13,978	KWS
	170601050504	Minam River-Chaparral Creek	22,457	KWS
	170601050505	Little Minam River	29,043	KWS
	170601050506	Minam River-Trout Creek	22,840	KWS
170601050507	Lower Minam River	4,246	KWS	
Lower Grande Ronde	170601060401	Upper Chesnimnus Creek	14,837	KWS
	170601060402	Devils Run Creek	12,899	KWS
	170601060403	Middle Chesnimnus Creek	17,793	KWS
	170601060407	Peavine Creek	15,111	KWS
	170601060502	Elk Creek	9,727	KWS
	170601060504	Joseph Creek-Sumac Creek	9,641	KWS
	170601060506	Davis Creek	7,946	KWS
	170601060507	Lower Swamp Creek	14,904	KWS
	170601060508	Joseph Creek-Cougar Creek	12,970	KWS
	170601060601	Joseph Creek-Peavine Creek	11,240	KWS
	170601060602	Joseph Creek-Rush Creek	5,669	KWS
	170601060603	Upper Cottonwood Creek	12,185	KWS

Subbasin	HUC6	Name	NFS Acres	Category
	170601060604	Broady Creek	10,272	KWS
	170601060605	Horse Creek	5,857	KWS
	170601060606	Lower Cottonwood Creek	6,710	KWS
Total Acres			1,480,992	
Total Key Watershed Acres and Total Key Watersheds			1,170,455	86 KWS
Total Priority Watershed Acres and Total Priority Watersheds			310,536	26 P

Analysis Methods for Watershed Conditions

The watershed condition model used to assess watershed, riparian area, and aquatic habitat conditions in National Forest System lands and identify key watersheds (Reiss et al. 2008) was adapted for use in this analysis (Gecy 2013a). Three attributes are used to represent hillslope conditions within subwatersheds: forested vegetation condition, roads, and use intensity by domestic livestock. These attributes influence the routing of water and sediment from hillslopes to stream channels. The condition of forested vegetation is based on the relative departure from the historical range of variability, as described in the forested vegetation, timber resources, and wildland fire section of this document and by Countryman and Justice (2010). The departure scores compare stand structure, stand density, and species composition for each of 21 potential vegetation groups occurring in the Blue Mountains to the range of historical conditions for each potential vegetation group. The departure score calculated for each subwatershed is a composite of the departure from HRV of each potential vegetation group occurring in the subwatershed. For this analysis, estimates of the projected change in departure scores of the three dominant forested potential vegetation groups (dry upland forest, cool upland forest, and moist upland forest) at 10 years and 20 years are used to assess changes in vegetation condition and results are applied to all subwatersheds within each national forest. These three potential vegetation groups account for 87 percent, 80 percent, and 70 percent of the area of the Malheur, Umatilla, and Wallowa-Whitman National Forests respectively. The percentage of change in departure scores in tables 142, 164, and 185 in chapter 3 reflects the expected improvement in forested vegetation conditions, and indicates the relative rate of change towards HRV expected in each alternative for the Malheur, Umatilla and Wallowa-Whitman national forests, respectively. In this analysis, vegetation changes are assessed at 10 years and 20 years. All other factors used in the analysis are assumed to take place in the first 10 years.

Two road attributes are used in the analysis: road density and hydrologically connected roads. Road density is used in part as a measure of past land use intensity as described in Lee et al. (1997). Hydrologically connected roads are defined as roads or portions of roads that route water and/or sediment directly to stream channels. The extent of hydrologically connected roads is estimated using GIS. It is approximated by the miles of roads occurring within 300 feet of any stream. Changes to the road system based on restoration objectives and that are expected to occur during the next 10 years are used to compare differences between the alternatives. The metric used in the analysis is based on the assumption that hydrologically connected roads act as additional channels that extend the channel network in a given subwatershed, resulting in increased rates of runoff and sediment delivery to streams.

Livestock use intensity, as defined by Holechek et al. (2006), is an estimate of forage use by domestic livestock relative to long-term average forage production and is used to scale livestock use to the inherent productivity of rangeland sites. The influence of grazing in this analysis is based on the conclusion of Holechek et al. (2006) that grazing is sustainable if long-term forage

use does not exceed 40 percent of available forage. Forage production for all vegetation types was estimated using methods described in the Livestock Grazing and Grazing Land Vegetation section of this document along with methods described by Johnson and Simon (1987) and Johnson and Clausnitzer (1992) and is summed by subwatershed. Forage use was estimated by summing animal unit months (AUMs) by subwatershed and converting AUMs to forage use using methods described in the Forest Service handbook (FSH2209.13 Chapter 90).

For this analysis, predicted changes in the condition of forested vegetation are averaged for each national forest and applied to all subwatersheds. Differences in livestock use are also applied to all watersheds on the basis that the differences in stocking rates are known for each national forest for each alternative but are not known for specific subwatersheds, except that in alternative C livestock grazing would not occur in subwatersheds containing ESA-listed fish species. All restoration actions are assumed to occur in priority watersheds. Therefore, changes in vegetation and livestock use affect the condition of all watersheds, but restoration of roads, riparian areas, and aquatic habitats change only the condition of priority watersheds.

Together, vegetation condition, roads, and livestock grazing intensity comprise 50 percent of the watershed condition scores for individual watersheds. Measures of riparian area and aquatic habitat condition comprise the remaining 50 percent. In the analysis that follows, changes in upslope watershed conditions are displayed for year 10 and year 20. It is assumed that all restoration work described in the objectives will occur in the first 10 years, but forested vegetation condition continues to change through year 20. Changes in watershed condition from years 10 through 20 are based solely on the change in forested vegetation conditions.

Influences on riparian habitat conditions discussed in the analysis include the extent of riparian management areas, intensity of grazing in riparian areas, and limits on forage utilization in riparian areas. Stream channel and aquatic habitat conditions are assessed in terms of the extent of passive and active measures that would be used to restore stream channel and aquatic habitat conditions.

The model used to assess watershed conditions for this analysis (EMDS, Reynolds 2006) assigns output scores in the range of +1 to -1. Model scores that approach +1 are said to support the proposition that watersheds (or an individual attribute) reflect good conditions and values approaching -1 are defined as offering no support for the proposition of good condition. In this analysis, only the upslope attributes influencing watershed condition are displayed. Differences in other attributes are discussed narratively. For display purposes, the range of output scores is divided into 3 classes (1, 2 and 3), and the number of watersheds falling into each class is displayed to show the relative influence on “condition” of changes in each attribute. Throughout this analysis, condition classes are displayed for all watersheds on each forest and then for priority watersheds.

Aquatic Species

Analysis Area

For purposes of Cumulative Effects, the area analyzed consists of fish habitats in the subbasins where the Blue Mountains national forests are located, as this is the scale at which population viability is analyzed. Indirect effects of National Forest System management on fish populations in these subbasins, is focused on effects to habitat in National Forest System lands for each species of conservation concern.

Management Indicator Species

Management indicator species under the existing 1990 forest plans for the Blue Mountain Forests were selected because their population changes were believed to indicate the effects of management activities. Redband trout, steelhead and other species of trout were variously selected as management indicator species for the existing 1990 Forest Plans, as required by CFR 219.19(a)(1) and the 1982 Planning Rule. These species are identified in tables 206 through 208 in the Affected Environment section of this DEIS. Only alternative A was analyzed for effects to the 1990 Forest Plan management indicator species, for reasons explained in chapter 3 of this DEIS.

Focal Species

In the present time, the concept of focal species is currently perceived as more useful for maintaining viability of populations of native fish and other aquatic species in the analysis area, rather than continued use of management indicator species. The utility of focal species for assessing viability of aquatic species populations is discussed in chapter 3 of this DEIS.

Focal species for plan revision were selected from a list of species chosen as focal species in the various Northwest Power and Planning Council Subbasin Plans in 2004. That list was first reviewed to exclude species whose habitats are entirely outside and downstream of National Forest System lands. From there, four native salmonid (trout and salmon) species were selected to represent the full range of stream and river habitats used by aquatic species for spawning and rearing in the three Blue Mountains national forests. These species are all considered cold or cool-water species and all require good water quality. Effects to their habitats is expected to serve as indicators of effects to the species, and to other aquatic species with similar distributions and habitat requirements. No warm-water or nonnative species were selected, as there are no current concerns for viability of any of these species.

No species were selected to represent isolated undeveloped headwater spring habitats, as the few native aquatic species which might otherwise be used are far too localized in their known distributions, and their viability will be assessed and managed through project-specific biological evaluations. Those species are identified and discussed in chapter 3.

Species selected as focal species were:

- spring Chinook salmon; large and medium rivers and large tributaries;
- Steelhead; medium rivers to small tributaries at middle elevations;
- bull trout; coldest high-elevation tributaries
- redband trout; medium rivers to small tributaries at middle and upper elevations; stream and river habitats where no other salmonid species are present

Species Distribution

Species presence/absence data from National Forest System stream inventories, combined with mapped distributions obtained from Streamnet.org, and local biologists' knowledge, was used to identify subwatersheds and stream reaches where spawning and rearing habitat for individual focal species and other species of conservation concern is present in National Forest System lands.

Species Population Status

Species viability and population viability status for listed species in each subbasin, was drawn from published species status assessments. National Marine Fisheries Service is the agency responsible for determining viability of steelhead and spring Chinook salmon populations and each species as a whole. U.S. Fish and Wildlife Service is the agency responsible for determining viability of bull trout and redband populations and viability of each species as a whole.

National Marine Fisheries Service is responsible under the Magnuson-Stevens Act for ensuring viability of all Pacific salmon species, including salmon species which are not currently listed as Threatened or Endangered. Federal agencies, whose management actions may affect viability of any salmon species, are required to consult with the National Marine Fisheries Service under the Act, to minimize risks to viability of salmon populations. National Marine Fisheries Service's most recent status assessment for steelhead and salmon populations present in planning area subbasins, is available online at: <http://www.nmfs.noaa.gov/pr/listing/reviews.htm>

U.S. Fish and Wildlife Service's most recent status assessment for bull trout is available online at: <http://www.fws.gov/pacific/bulltrout/5yrreview.html>.

By definition, any subbasin-scale population not currently listed or proposed as threatened or endangered under the Endangered Species Act, is considered Viable, for purposes of this analysis.

An interagency Conservation Assessment for redband trout was recently completed (May et al. 2010). That assessment defined redband conservation populations for purposes of assessing long-term viability of the species. U.S. Fish and Wildlife Service determinations of “not warranted for listing” in Federal Registers, served as the basis for assessing viability status for conservation populations in the Great Basin and Middle Snake River regions of the planning area, outside the current range of steelhead.

Aquatic species for which viability is a developing concern in one or more of the Blue Mountain national forests are identified as Sensitive species on the Regional Forester's sensitive species list for the Pacific Northwest Region.

Habitat Quantity

Gecy (2013a) describes how habitat for each focal species was quantified in each subwatershed and subbasin. The methods for determining general conditions of aquatic habitat quality in National Forest System lands and for all lands in each subbasin, are also described in Gecy (2013a).

Habitat Condition

Aquatic habitat conditions were determined at multiple scales, from subwatershed to subbasin. Methodology followed Reiss et al. (2008), as adapted for use in the Blue Mountains Aquatic Sustainability Model (Gecy 2013a). Model outputs describe general aquatic habitat conditions in each subbasin, and included average impacts to aquatic habitats in general from barrier culverts within National Forest System lands

A GIS map of distribution of each focal species was overlaid with locations of known culvert barriers within National Forest System lands in each subbasin. Specific location of culvert barriers relative to distribution of the species in each subbasin was assessed visually using

professional judgment to refine model conclusions regarding habitat conditions for individual species in each subbasin.

Effects to Focal Species

Protection

Outputs from the Blue Mountains Aquatic Sustainability Model include protection scores for National Forest System lands in each subbasin (Gecy 2013a). Those protection scores vary by alternative, based on changes in the relative mix of acres allocated as Suitable for timber production, livestock grazing and roaded access, through the various Management Areas. Gecy (2013a) describes the process by which the model integrated the acres in each management area to produce protection scores at the subbasin scale for each alternative. Protection scores reflect the degree to which species and their habitats at subbasin scale are protected from risk of negative effects from land management activities due to the balance of land allocations within each subbasin.

Key watersheds are considered current strongholds for focal species and are the foundation for sustaining viability for focal species populations. Gecy (2013a) describes the process for selection of key watersheds.

Protection of key watersheds, forestwide riparian management areas, and designated critical habitats are important considerations for assessing effects to viability of focal species and Endangered Species Act-listed species. The number and distribution of key and priority watersheds under PACFISH and INFISH was compared to the number and distribution of key and priority watersheds in new forest plan alternatives. The rationales for the proposed changes, and implications of those changes were evaluated qualitatively.

Effects to forestwide riparian management areas were discussed in the following sections: “Plant Species Diversity and Threatened, Endangered, and Sensitive Plants;” “Livestock Grazing and Grazing Land Vegetation;” and “Watershed Function, Water Quality, and Water Uses.” Effects to aquatic habitats in general, follow those conclusions.

Active Restoration of Priority Watersheds

Active restoration of priority watersheds is the meaningful measure of effects of active restoration of focal species. Priority watersheds were chosen for restoration based on the high probability of effectiveness of that restoration for maintaining and restoring viability of species of conservation concern. Local Forest Service biologists identified which key watersheds could meet these criteria, based on professional judgment and local knowledge of the species and habitats in the watersheds.

The “Watershed Function, Water Quality, and Water Uses” section discloses effects of active restoration of upland forest vegetation management in priority watersheds, treatments of forest roads for restoration of watershed function and hydrologic processes, and effects of active restoration of riparian and aquatic habitats. Effects to aquatic species from active restoration are indirectly affected similarly to effects to watershed function and water quality.

Climate Change

Hydrologic changes shown in tables 227 through 229 in chapter 3 were directly taken from maps in the documents cited in table footnotes. Changes in landscape processes (e.g., fire, drought, or

flood) at subbasin scale referenced Haak et al. (2010), who provided maps based on subwatersheds. Those subwatershed-based maps were overlaid with subbasin boundaries. Overall balance and relative location of heightened risk was assessed by initial visual balance of color coding at subbasin-scale in each in the risk maps.

Forested Vegetation, Timber Resources, and Wildland Fire

Benchmark Analysis

As required by the 1982 planning rule, a Benchmark Analysis was completed in 2010 as a part of the analysis of the management situation for the Blue Mountains revised forest plans. The Benchmark Analysis was used to define the range within which alternatives were constructed. This analysis calculated the maximum biological production potential for timber production both with and without departure from the base schedule (nondeclining flow). Other benchmarks included maximizing present net value (PNV) with and without departure from the base schedule and the minimum level of management needed to maintain and protect the unit as part of the National Forest System. The acres suitable for timber production that were used in the Benchmark Analysis (1.8 million acres) differed only slightly from those used in the analysis of alternatives B, E, and F (1.7 million acres). The Benchmark Analysis only modeled lands suitable for timber production.

Minimum management requirements (MMR) guide the development, analysis, implementation, and monitoring of forest plans. The Benchmark Analysis utilized the following minimum management requirements:

- No regeneration harvests or harvesting of trees greater than 21 inches d.b.h. occurred within old forest because of a deficit of old forest structure. All old forest stands were considered unsuitable for timber production but still available for harvest for objectives other than timber production.
- All areas that met the criteria for potential wilderness area designation were identified as unsuitable for timber production. Minimal harvest only occurred within these areas to meet objectives other than timber production.
- All riparian management areas (ARCS) were modeled as unsuitable for timber production.
- No harvest was scheduled within areas determined to be unsuitable for timber production due to concerns about sensitive soils or difficulty regenerating sites within five years.

The modeling strata were based on three components: forest type (cold, moist, and dry); land allocation (wilderness, reserved lands, and active management); and treatment type (plant, pre-commercial thin, partial harvest, salvage harvest, individual tree selection, group selection, shelterwood, and prescribed fire). Multipliers were used in the VDDT model to prioritize the potential for treatment between the different vegetation groups. The results of the modeling for each of the five benchmarks were summarized for the Malheur, Umatilla, and Wallowa-Whitman National Forests.

Timber Suitability

The NFMA requires that National Forest System lands be classified as to their suitability and availability for timber harvest and production. A timber suitability analysis following the NFMA

and 36 CFR 219.14 was completed as a part of the planning process. This process is basically a series of subtractions of land from the total forest land base utilizing the following 3 broad categories to identify lands not available for timber production:

1. National Forest System lands that have been withdrawn from wood product production. These are lands designated by Congress, the Secretary of Agriculture, or the Chief of the Forest Service for other multiple-use objectives that preclude timber production (e.g., units of the National Wilderness Preservation System and Research Natural Areas).
2. National Forest System lands (exclusive of withdrawn areas) that are not forested, including lands that are incapable of supporting 10 percent tree cover; administrative sites; and lands maintained in a nonforest condition, such as power line rights-of-way.
3. Available forestland physically unsuited for timber production due to the inability to ensure adequate restocking or the potential for irreversible damage to soils or watersheds. However, acres within these forest types are considered available for timber harvest where irreversible damage to soils or watersheds would not result and where such activities contributed to underlying management emphases and objectives.

Forestlands remaining after identifying the subset of unsuitable forestlands described above are those that are tentatively available for and capable of timber production, and are also referred to as tentatively suitable forestland. Tentatively suitable forestlands represent the maximum number of acres that could be managed for regular and predictable wood product outputs (i.e., timber production). These acres remained constant as a starting point for the development of alternatives. Tentatively suitable lands were then separated into two categories based on the design parameters and objectives for each alternative. The lands were identified as:

1. Suitable for timber production
2. Unsuitable for timber production, but available for timber harvest if needed to meet desired conditions and objectives (NFMA sec (6)(k))

The following table displays lands tentatively suitable for timber production by national forest. Inventoried roadless areas were also subtracted from lands tentatively suitable for timber production, thus reducing the number of acres available. While inventoried roadless areas are not suitable for timber production, silvicultural treatments which focus on the removal of generally small diameter timber could occur on an infrequent basis to improve threatened and endangered species habitat or to reduce the risk of uncharacteristic wildfire.

Table B-8. Acres of lands tentatively suitable for timber production (step A of 36 CFR 219.14)

Category	MAL	UMA	WAW
1. NFS lands total acres	1,700,000	1,400,000	1,800,000
a. Non-forest land	215,000	199,000	250,000
b. Potential for irreversible damage	0	0	0
c. No assurance of adequate restocking	139,000	37,000	150,000
d. Forest land withdrawn from production	101,000	347,000	390,000
2. Total unsuitable land	455,000	583,000	790,000
3. Tentatively suitable forest land	1,245,000	817,000	1,010,000

The design of the alternatives further influenced the acres suitable for timber production. Each alternative started with the areas identified as tentatively suitable (see 36 CFR 219.14 timber resource land suitability) for timber production displayed in the table above. Design parameters for each alternative resulted in a subtraction in acres suitable for timber production from the tentatively suitable acres. The main factors/criteria resulting in a change from suitable to unsuitable included changing classification of the following types of areas to unsuitable: old forest, riparian management areas, MA 3A and 3B (backcountry), MA 1B (preliminary administratively recommended wilderness areas), and specially designated areas (research natural areas, municipal watersheds, etc.). Under most of the alternatives, these management areas were not compatible with the definition of timber production (regularly scheduled entries) or objectives of the alternatives.

Vegetation Modeling

Active management treatments for the Blue Mountains DEIS alternatives were simulated using the vegetation dynamics development tool (VDDT) model in 2010 and 2011. The VDDT developed by ESSA Technologies, Ltd., of Vancouver, British Columbia, is a user-friendly computer tool that provides a modeling framework for examining the role of succession, various disturbance agents, and management actions for vegetation (Beukema and Kurz 2000). The VDDT model was designed to project changes in vegetation over time. It allows the projection of the combined effects of multiple factors—such as wildland fire, management treatments, pathogens, growth, and competition—over long time periods. The interaction of these factors can be quite complex and sometimes counterintuitive. The VDDT model provides a flexible framework for understanding this complexity by allowing users to define as many or as few interactions and connections as needed to tease out relationships.

The states within the model are described by combinations of vegetation structure and composition including: potential vegetation type, structural stage, species composition, number of tree layers, stand density (canopy cover), and tree diameter. The combinations of structure and composition for all of the models produced 403 different states. The transitions part of the model describes how vegetation transitions between the different states through time. The transitions are described as either deterministic or probabilistic. Probabilistic transitions are those that occur due to disturbances, such as fire, insects, disease, timber harvest, planting, or thinning. Natural transitions between different states due to succession through time (deterministic transitions) are also included in the model.

Each alternative was run through the VDDT model for 15 simulations, each with a length of 100 years. Vegetation data for each alternative was summarized by potential vegetation group for each national forest at years 20 and 50.

The following table displays descriptions of the seven different VDDT forested models used to model the DEIS alternatives. The seven VDDT models were summarized into three potential vegetation groups: cold upland forest (UF), moist upland forest, and dry upland forest.

Table B-9. VDDT model descriptions

VDDT Model	Potential Vegetation Group	Model Description
SW	Cold UF	Whitebark pine forest
CD	Cold UF	Cold dry forest (subalpine, spruce, LP)
CM	Moist UF	Moist grand fir, spruce, lodgepole, larch
DG	Dry UF	Dry grand fir forest
DD	Dry UF	Dry Douglas-fir forest
DP	Dry UF	Dry ponderosa pine forest
XP	Dry UF	Hot/dry ponderosa pine

The modeling landscape (forested environment) was further broken into four VDDT model groups in order to allocate different amounts of treatments based on the design of the DEIS alternatives. The VDDT model groups were based on a combination of the management areas in each alternative, and levels and types of treatment assumptions for each alternative (see following table). Each of the VDDT models in the previous table was included in one of the VDDT model groups in the following table. Into which model group a particular piece of land fell, as well as the percent of treatment, varied by alternative.

Table B-10. VDDT model groups

VDDT Model Group	Primary Management Area or Vegetation Type	Percent of EIS Alternative Harvest Acres Allocated to the Group
Wilderness areas	MA 1 (wilderness areas)	Zero
Minimal management	MA 3A and 3B (backcountry) and MA 2B (RNAs)	1%
Low level management	MA 2s (special areas), MA 4B Old Forest, and MA 4C Riparian Management Areas	10-20%
Active areas	General forest outside of old forest, MA 2s, and riparian areas	80-90%

In addition to the level of harvest within each VDDT model group, assumptions were made about the allocation of treatments between each of the VDDT potential vegetation groups. The following table displays the distribution of treatments between the cold, moist, and dry upland forest potential vegetation groups. The majority of treatments would occur in the dry upland forest potential vegetation group. The dry upland forest potential vegetation group exhibits the greatest degree of departure from the HRV/desired conditions. However, treatments would also occur in the moist and cold upland forest potential vegetation groups.

Table B-11. Treatment distribution by potential vegetation group (percent)

VDDT Potential Vegetation Group	Treatment Distribution between Potential Vegetation Groups
Cold UF	5-10%
Moist UF	10-30%
Dry UF	60-90%

All of the treatments (harvesting, fire, planting, fuels treatments) in the model are assumed to follow the following minimum management requirements (36CFR 219.27). Minimum management requirements (MMR) are defined as, “The minimum specific management requirements to be met in accomplishing goals and objectives for the National Forest System.” The requirements guide the development, analysis, approval, implementation, monitoring and evaluation of forest plans. The following broad items are discussed in section 219.27 of the 1982 planning rule:

- a. **Resource protection** - This includes conserving soil and water resources, providing for diversity of plant and animal communities, and providing for viable populations and habitat for vertebrate species.
- b. **Vegetation manipulation** - This includes requirements for adequate restocking, multiple use goals, and avoiding permanent impairment of productivity of the land.
- c. **Silvicultural practices** - This includes provisions for harvesting on lands not suited for timber production only to protect other multiple-use values, adequately re-stocking stands within 5 years of final harvest, and using treatments to prevent potentially damaging population increases of pests.
- d. **Even-aged management** - This includes provisions for management-created opening size and design elements.
- e. **Riparian areas** - Management practices should not cause detrimental changes in water temperature, chemical composition, blockages, or sediment.
- f. **Soil and water** - Conservation of soil and water resources shall be guided by official technical handbooks.
- g. **Diversity** - Management prescriptions shall preserve and enhance the diversity of plant and animal communities as compared to the natural forest condition, except as needed to meet overall multiple-use objectives.

The Blue Mountains Forest Plan Revision analysis assumptions were guided by:

- Preliminary analysis of existing conditions in the Blue Mountains, as compared to historical reference conditions (HRV) and draft desired conditions.
- Draft wildlife viability/diversity modeling results.
- Recommendations and conclusions from the Interior Columbia Basin Ecosystem Management Project (current scientific information).
- Draft process and recommendations from the regional aquatic and riparian conservation strategy.
- Lessons learned from Eastside Screens.

Because of a deficit of old forest structure in the Blue Mountains and viability concerns for species that depend on that resource, even-aged regeneration harvests would not occur within current old forest stands, and only minimal harvest of trees 21 inches d.b.h. and greater was assumed. Under alternatives B, E, and F, all old forest stands would be considered unsuitable for timber production, but still available for harvest to meet objectives other than timber production. With these alternatives, old forest stands could receive treatments to improve ecological resiliency, forest structure, species composition, or other desired conditions. Under alternative D, old forest would be considered suitable for timber production. With alternative C, old forest

stands would be considered unsuitable for timber production and timber harvest; silvicultural treatments in old forest would be limited, consisting mostly of thinning trees smaller than 8 inches d.b.h.

To protect those wildlife species needing solitude, all areas within the inventory meeting the criteria for potential wilderness area designation were identified as unsuitable for timber production and included in the minimal management VDDT model group. Minimal harvest would occur within these areas and no new roads would be built. Harvest would be allowed if used to meet primary objectives other than timber production.

Resource protection/soil and water/vegetation manipulation/silvicultural practices: To protect soil and water resources, no timber harvest would be scheduled within areas determined to be unsuitable for timber production due to concerns about sensitive soils or difficulty regenerating sites within five years.

Other treatment assumptions or highlights between alternatives include:

- Even-aged regeneration harvests (clearcut, shelterwood, and seed tree) would not occur in old forest (allocated or unallocated to a management area), regardless of the VDDT model group in which old forest occurs.
- Even-aged regeneration harvests would only occur in the active forest VDDT model group.
- Burning and harvesting treatments would improve ecological resiliency by favoring early seral species, such as ponderosa pine and western larch, by decreasing stand densities where and as needed, by decreasing the abundance of multi-layered stands on the landscape, and by increasing the percent of the landscape in larger-diameter stands.
- Under alternative A, regeneration harvests would be less than 5 percent of the total acres harvested.
- Under alternatives B, C, D, E, and F, regeneration harvests would increase to approximately 20 to 30 percent of the total acres harvested.
- Under alternative C, all old forest and riparian areas would be placed in the minimal level VDDT model group. However, some understory thinning of trees generally less than 8 inches in diameter would be expected to occur. Additionally, wildland fire would still occur in those areas.

Treatments were prioritized by the following areas:

- Priority/key watersheds (based on ARCS modeling)
- Wildland-urban interface
- Dry upland forest potential vegetation group (or areas most departed from the HRV/desired conditions)
- Areas with established road systems (primarily within MA 4A General Forest)

Areas where multiple factors overlap are a higher priority than those with only a single factor. Depending on cost sharing or other factors, lower priority work may still occur before higher priority work. This prioritization also recognizes the need for maintenance activities to prevent areas from becoming departed from the desired conditions and then needing more extensive restoration treatments.

A primary assumption for active restoration is that activities will occur in areas with established road systems (primarily within MA 4 General Forest). Areas where multiple factors overlap are a higher priority than those with only a single factor. Depending on cost sharing or other factors, lower priority work may still occur before higher priority work. This prioritization also recognizes the need for maintenance activities to prevent areas from becoming departed and then needing more expensive restoration treatments.

Historical Range of Variability (HRV)

Reference conditions for forested vegetation were established using the HRV based on the time period prior to Euro-American settlement (Morgan et al. 1994). Estimates of the HRV (circa 1860) for forested structural stages, species composition, and stand density were developed for this analysis in 2007 through modeling using the Vegetation Dynamics Development Tool (VDDT). VDDT (Beukema et al., 2003) was used to model historic conditions for seven dominant types of forested vegetation occurring within the Blue Mountains. The states within the model are described by combinations of vegetation structure and composition including: structural stage, species composition, number of tree layers, stand density (canopy cover), and tree diameter. The combinations of structure and composition for all of the models produced 403 different states. The transitions part of the model describes how vegetation transitions between the different states through time. The transitions are described as either deterministic or probabilistic. Deterministic transitions are those that occur due to vegetation growth over time. Probabilistic transitions are those that occur due to disturbances, such as fire, insects, and disease. Probabilities and time intervals for the probabilistic transitions were developed through literature searches, expert opinion, and current vegetation survey (CVS) data modeled in the Forest Vegetation Simulator (FVS). Results were summarized for 30 different modeling simulations for years 200-500. The mean value for the 300-year time period was calculated. HRV was calculated as two standard deviations around the mean. Models were summarized into three potential vegetation groups (cold, moist, and dry upland forest) for the purpose of developing the forest plan and effects analysis. The analysis area encompasses approximately 5.4 million acres of land managed by the U.S. Forest Service. The models were run on 4.3 million acres of forested land within the Malheur, Umatilla, and Wallowa-Whitman National Forests. Initial landscape conditions were developed from the Tri-forest existing vegetation layer. Other VDDT models (non-conifer) were developed for the 1.1 million acres of non-conifer lands.

The VDDT models that were used initially were originally developed as a part of the integrated analysis of landscape management scenarios (INLAS) project in the upper Grande Ronde River Subbasin in the late 1990s (Hemstrom et al. 2007). In addition to the 5 models developed as a part of INLAS, two additional models were developed to better describe the full range of forested environments in the Blue Mountains. The models were built around potential vegetation groups found in the Blue Mountains (Powell et al. 2007). The potential vegetation groups are aggregations of plant communities and plant associations as described by Johnson 1987 and 1992. The INLAS VDDT models, which were used both for future projections and estimating HRV, were modified into models that were strictly used for estimating HRV.

The VDDT models were run for 500 years with 30 different simulations (Monte Carlo). The output generally stabilized after 200 to 400 years. We analyzed the output from year 200 to year 500 to develop our ranges of HRV. Results were summarized for 30 different modeling simulations for years 200-500. The mean value, as well as standard deviations, were calculated for each of the 403 states for the 300-year time period. The HRV was calculated as two standard deviations around the mean. A database of the output was setup so that we could summarize the

output for any different combination of structure class that occurred in the data. Models were summarized into three potential vegetation groups (cold, moist, and dry upland forest) for the purpose of developing the forest plan and effects analysis.

The VDDT reference conditions/HRV were used as the primary basis for developing the desired conditions. Broad-scale assessments completed for the Blue Mountains physiographic province and the interior Columbia River basin suggest that upland forest ecosystems could be characterized as healthy, sustainable, and resilient if three of their ecosystem components – species composition, forest structure, and tree density – are within the HRV (Caraher et al. 1992, Gast et al. 1991, Lehmkuhl et al. 1994, Quigley et al. 1996, USDA Forest Service 2002). The underlying assumption of this goal is that ecosystems are most resilient and resistant to disturbance, including climate change, when they exist in a condition closest to that under which they evolved (Morgan et al. 1994). The HRV for forested structural stages, species composition, and stand density was used as the desired conditions for this analysis in order to create and/or maintain forest conditions that more closely resemble the historical conditions that existed prior to interruption of the historical fire regimes. By restoring and/or maintaining the historical forest structure, density, and species compositions that evolved under the historical fire regimes, forest health, sustainability, and ecological resiliency would be improved across the landscape.

Predicted Harvest Levels

The VDDT volume coefficients were applied against the VDDT harvest acres to generate a total volume estimate. The volume coefficients were applied to lands that are suitable for timber production as well as those lands unsuitable for timber production but available for timber harvest. The harvest volume estimates were based on the existing forest inventory (CVS plots) data, along with assumptions of how much of the existing volume would be removed for each treatment type. It was assumed that the bulk of the volume removed would be less than 21 inches d.b.h. (we followed the proposed action guideline/standard for harvesting large trees) and follow local utilization standards. There were 403 possible VDDT classes (combination of structural stage and cover class/species composition) and 8 different harvest treatments. Out of the 403 possible classes in VDDT, approximately 250 were represented in the inventory data. This generated approximately 2,000 different combinations of VDDT classes and prescription types with enough data to generate a potential harvest volume. Because of the large number of possible combinations of VDDT classes and prescription types, and the limited number of inventory plots, we only calculated harvest volumes for the Blues as a whole, and did not calculate separate coefficients for each forest. The CVS inventory based estimates of potential harvest volume were compared to actual harvest volumes based on recent timber sales in the Blue Mountains to calibrate the final result. The summary of the predicted harvest volume for each combination of VDDT class and prescription type is in the analysis file. Each combination includes an estimate of cubic feet, board feet, and biomass per acre. The treatment types were combined in a database with the 403 VDDT classes to create a table with 1,989 possible combinations. An average estimated harvest volume was calculated for each state class.

Allowable Sale Quantity

The allowable sale quantity (ASQ) is the upper limit of the amount of timber volume potentially available for harvest on forestlands suitable for timber production during a specified time period, usually a decade, while moving the landscape towards the desired conditions and while meeting other planning rule requirements. This volume is not a guaranteed harvest volume. Allowable sale quantity is the maximum amount of volume potentially available on timber suitable lands

unconstrained by budget. The actual volume offered would be the aggregate of individual project proposals and would be dependent upon a number of factors, including annual budget and organizational capabilities. Actual volumes offered may also include volumes harvested from lands unsuitable for timber production but available for timber harvest, such as riparian management areas and old forest. Allowable sale quantity volume is also described as chargeable volume because it would be applied toward the decadal allowable sale quantity.

Allowable sale quantity includes only those volumes that meet utilization standards and that would be removed from lands suitable for timber production. The calculation of allowable sale quantity assumed any restrictions associated with the current landscape condition. Volume not in the allowable sale quantity includes unsound material, salvageable dead logs (unless included in yield tables), fuelwood, or any volume generated from harvest activities within unsuitable forestland. Yield tables were developed using the forest vegetation simulator (FVS), (Wykoff 1986) and VDDT. Yields were assigned based on a combination of vegetation state class (tree size class and canopy cover) and type of treatment (e.g., commercial thin, selection, and regeneration harvest). Total volume estimates were generated for each alternative by multiplying the total acres treated with a particular prescription, times the yield for a particular vegetation state class.

The base schedule of treatment activities in the model reflects the intensities of management and the degree of timber utilization consistent with the goals, assumptions, and standards contained or used in development of a proposed alternative. The base schedule is a timber sale schedule formulated on the basis that the quantity of timber planned for sale and harvest for any future decade is equal to or greater than the planned sale and harvest for the preceding decade, and that this planned sale and harvest for any decade is not greater than the long-term sustained yield capacity (see following section). This definition expresses the principle of nondeclining flow. In addition to the long-term sustained yield capacity requirements, the first decade allowable sale quantity must meet the nondeclining flow requirements unless departure from the base schedule is determined to be warranted. The need for considering departures has not been identified at this time, so all of the alternatives would be consistent with the nondeclining flow requirements.

Wood product yields from suitable forestlands likely to result from an alternative management strategy depend on several factors, including the mix of allocations, the respective management emphasis, and associated forested vegetation desired conditions.

The VDDT model was used to estimate allowable sale quantity for each of the alternatives based on the assumptions discussed. As a starting point, the treatment acres from the benchmark analysis (nondeclining flow option) were used for the VDDT model. VDDT was run without consideration for budget, but with the same species viability and other considerations as required in each EIS alternative. The starting point treatment acres for each alternative were scaled to be the same proportion as the benchmark treatment acres relative to the benchmark suitable acres. The VDDT model was run for at least 5 decades to demonstrate compliance with the nondeclining flow requirement. The current VDDT model was used to run each alternative, including limitations on even-aged regeneration in old forest. The allowable sale quantity volume was calculated by summing the total VDDT calculated acres of each harvest type within each VDDT state class for the first decade multiplied by the allowable sale quantity yield table volume per acre for each combination of treatment type and VDDT state class. The VDDT output was evaluated for achievement of each of the alternatives' set of desired conditions, harvest volumes, and consistency with nondeclining flow.

Each allowable sale quantity run was completed using the same VDDT model that was used for each EIS alternative. Each allowable sale quantity run had 15 simulations for 5 decades.

Long-term Sustained Yield Capacity

Long-term sustained yield capacity is the maximum amount of timber volume that can be sustainably harvested on lands suitable for timber production once the desired future conditions have been achieved. Long-term sustained yield capacity was summarized for the future time period of year 200 to 300. Generally, long-term sustained yield capacity is equivalent to annual increment. In order for yield or timber harvest to be sustainable in the long term, annual yield or harvest would be equivalent to annual growth. In plain language, once desired conditions are achieved, harvest would not exceed growth so that desired conditions would be maintained over time. Long-term sustained yield capacity is calculated based on the determination of yield by prescription from regenerated stands, including, where appropriate, intermediate yields selected in the solution for a specific alternative. Calculations of long-term sustained yield capacity were not constrained by budget.

The VDDT model was used to estimate the long-term sustained yield capacity. Each long-term sustained yield capacity run was completed using the same VDDT model that was used for each EIS alternative. The acres from the benchmark analysis (nondeclining flow option) were used as a starting point. The VDDT model used in the benchmark model, with associated assumptions for level and types of treatments, was also used in the modeling of long-term sustained yield capacity. Each long-term sustained yield capacity run had 15 simulations for 30 decades. The VDDT model was run for at least 300 years to simulate sustainability over a rotation. The output was evaluated for achievement of desired conditions and sustainability and rerun as needed. Maintenance of desired landscape composition and level of harvest was also evaluated. The final acre output for each treatment type in each VDDT state class was linked to the long-term sustained yield capacity volume yield table through the unique combination of VDDT state class and treatment type. The volumes were accumulated over the period of time from year 200 to 300. This was translated into an average per acre per year volume. The output VDDT structure class distribution (landscape composition) was then summarized for year 200 to 300.

Forested Species Composition

Shade tolerance is a relative measure of a species' ability to grow and regenerate in the shade, in comparison to other tree species. In general, tree species that are more shade intolerant are also more fire tolerant, making them better adapted to low and mixed-severity fire. These species tend to have thicker bark, which insulates the cambium from heat and results in decreased fire-related mortality. Shade intolerant tree species also self-prune their lower branches, which increases their crown base height, increases the wind speed required to initiate crown fire, decreases the likelihood of a ground fire transitioning to a crown fire, and decreases fire hazard. Shade intolerant tree species such as ponderosa pine are also more drought tolerant. Species that better withstand drought and moisture stress are also less susceptible to attack by bark beetles because of natural defense mechanisms, such as the production of pitch. Tree species that are more shade intolerant include ponderosa pine, western larch, western white pine, and whitebark pine. Tree species that are relatively shade tolerant include Engelmann spruce, subalpine fir, and grand fir. Douglas-fir is intermediate along the shade tolerance ranking continuum. Because shade tolerance is a relative ranking, Douglas-fir may be included in either a shade tolerant or a mixed tolerance class, depending on the other tree species used in comparison.

The analysis of species composition for forested vegetation was conducted using the current vegetation survey (CVS) points. Each of the CVS points was classified into a species composition class of shade intolerant, mixed tolerance, and shade tolerant. The species composition was

determined by the dominant tree species based on basal area (see analysis file for a complete definition of species composition classes).

Table B-12 displays a crosswalk of cover type to species composition/shade tolerance classes by potential vegetation group. Because shade tolerance is a relative measure, a species may have been considered shade tolerant in one potential vegetation group but mixed tolerance in another potential vegetation group.

In the dry upland forest potential vegetation group, the shade intolerant species classes included ponderosa pine or western larch, while the shade tolerant species classes included grand fir or Douglas-fir.

In the moist upland forest potential vegetation group, the shade intolerant species classes included western larch, western white pine, or lodgepole pine, while the shade tolerant species classes included Engelmann spruce, grand fir, or subalpine fir. In the moist upland forest potential vegetation group, the mixed tolerance species classes included Douglas-fir.

In the cold upland forest potential vegetation group, the shade intolerant species classes included whitebark pine, lodgepole pine, western white pine, or western larch, while the shade tolerant species classes included subalpine fir or Engelmann spruce. In the cold upland forest potential vegetation group, the mixed tolerance species classes included Douglas-fir.

Table B-12. Crosswalk of cover type to species composition/shade tolerance class

Potential Vegetation Group	Cover type	Species composition/ shade tolerance class
Cold forest	Engelmann spruce	Shade tolerant
Cold forest	Subalpine fir	Shade tolerant
Cold forest	Douglas-fir	Mixed tolerance
Cold forest	Mountain hemlock	Shade tolerant
Cold forest	Whitebark pine	Shade intolerant
Cold forest	Lodgepole pine	Shade intolerant
Cold forest	Western larch	Shade intolerant
Cold forest	Western white pine	Shade intolerant
Moist forest	Douglas-fir	Mixed tolerance
Moist forest	Grand fir	Shade tolerant
Moist forest	Engelmann spruce	Shade tolerant
Moist forest	Subalpine fir	Shade tolerant
Moist forest	Western larch	Shade intolerant
Moist forest	Lodgepole pine	Shade intolerant
Moist forest	Western white pine	Shade intolerant
Dry forest	Douglas-fir	Shade tolerant
Dry forest	Ponderosa pine	Shade intolerant
Dry forest	Grand fir	Shade tolerant
Dry forest	Western larch	Shade intolerant
Dry forest	other	Shade tolerant

Fire Regime Condition Class Vegetation Succession Class Methodology

Vegetation data for each vegetation polygon was then classified into one of the five LANDFIRE succession classes (see table B-13) using a combination of d.b.h. and canopy cover for each potential vegetation group. Classification parameters for vegetation and fuel classes were based on those in the Rapid Assessment Reference Condition Model documentation for each potential vegetation group. In general, canopy cover within the dry upland forest potential vegetation group greater than 40 percent was classified as closed canopy, while canopy cover within the moist and cold upland forest potential vegetation groups greater than 60 percent canopy cover were classified as closed canopy.

Table B-13. Fire regime condition class vegetation succession class

Class	Description	Crosswalk to Blue Mountains Structural Stages*
A	Early seral (less than 5 inches d.b.h.)	SI
B	Mid seral closed (5-20 inches d.b.h. and closed canopy)	SE, UR
C	Mid seral open (5-20 inches d.b.h. and open canopy)	SE, UR
D	Late seral open (greater than 20 inches d.b.h. and open canopy)	OFSS, OFMS
E	Late seral closed (greater than 20 inches d.b.h. and closed canopy)	OFSS, OFMS

*SI – stand initiation; SE – stem exclusion; UR – understory regeneration; OFSS – old forest single story; OFMS – old forest multi-story

New HRV values for succession class were calculated for the Blue Mountains forest plan revision from 2005 to 2007. The VDDT was used to model historical conditions for dominant types of forested vegetation occurring within the Blue Mountains (Hemstrom 2007).

Active management treatments for the Blue Mountains DEIS alternatives were simulated using the VDDT model. The model contains a variety of forested vegetation states (combinations of potential vegetation type, size, species composition, and density) along with different probabilistic transitions (timber harvest, prescribed fire, planting, precommercial thinning, wildfire, and insect/disease) that cause changes between the different states. Natural transitions between different states due to succession through time (deterministic transitions) are also included in the model.

Table B-14 displays the seven different VDDT forested models used to model the DEIS alternatives. The seven VDDT models were summarized into three potential vegetation groups: cold upland forest, moist upland forest, and dry upland forest.

The modeling landscape (forested environment) was further broken into four VDDT model groups in order to allocate different amounts of treatments based on the design of the DEIS alternatives. The VDDT model groups were based on a combination of the management areas in each alternative, and levels and types of treatment assumptions for each alternative (see table B-15). Each of the VDDT models in table B-14 was included in the VDDT model groups in table B-15. Into which model group a particular piece of land fell, as well as the percent of treatment, varied by alternative.

Table B-14. VDDT models descriptions

VDDT Model	Potential Vegetation Group	Model Description
SW	Cold upland forest	Whitebark pine forest
CD	Cold upland forest	Cold dry forest (subalpine, spruce, LP)
CM	Moist upland forest	Moist grand fir, spruce, lodgepole, larch
DG	Dry upland forest	Dry grand fir forest
DD	Dry upland forest	Dry Douglas-fir forest
DP	Dry upland forest	Dry ponderosa pine forest
XP	Dry upland forest	Hot/dry ponderosa pine

Table B-15. VDDT model groups

VDDT Model Group	Primary Management Area or Vegetation Type	Percent of EIS Alternative Harvest Acres Allocated to the Group
Wilderness areas	MA 1 (wilderness areas)	Zero
Minimal management	MA 3A and 3B (backcountry) and MA 2B (RNAs)	1%
Low level management	MA 2s (special areas), MA 4B Old Forest, and MA 4C Riparian Management Areas	10-20%
Active areas	General forest outside of old forest, MA 2s, and riparian areas	80-90%

In addition to the level of harvest within each VDDT model group, assumptions were made about the allocation of treatments between each of the VDDT potential vegetation groups. Table B-16 displays the distribution of treatments between the cold, moist, and dry upland forest potential vegetation groups. The majority of treatments would occur in the dry upland forest potential vegetation group. The dry upland forest potential vegetation group exhibits the greatest degree of departure from the HRV/desired conditions. However, treatments would also occur in the moist and cold upland forest potential vegetation groups.

Table B-16. Treatment distribution by potential vegetation group (percent)

VDDT Potential Vegetation Group	Treatment Distribution between Potential Vegetation Groups
Cold upland forest	5-10%
Moist upland forest	10-30%
Dry upland forest	60-90%

All of the treatments (harvesting, fire, planting, fuels treatments) in the model are assumed to follow the following minimum management requirements (36CFR 219.27). Minimum management requirements are defined as, “The minimum specific management requirements to be met in accomplishing goals and objectives for the National Forest System.” The requirements guide the development, analysis, approval, implementation, monitoring and evaluation of forest plans. The following broad items are discussed in section 219.27 of the 1982 planning rule:

- a. **Resource protection** - This includes conserving soil and water resources, providing for diversity of plant and animal communities, and providing for viable populations and habitat for vertebrate species.
- b. **Vegetation manipulation** - This includes requirements for adequate restocking, multiple use goals, and avoiding permanent impairment of productivity of the land.
- c. **Silvicultural practices** - This includes provisions for harvesting on lands not suited for timber production only to protect other multiple-use values, adequately re-stocking stands within 5 years of final harvest, and using treatments to prevent potentially damaging population increases of pests.
- d. **Even-aged management** - This includes provisions for management-created opening size and design elements.
- e. **Riparian areas** - Management practices should not cause detrimental changes in water temperature, chemical composition, blockages, or sediment.
- f. **Soil and water** - Conservation of soil and water resources shall be guided by official technical handbooks.
- g. **Diversity** - Management prescriptions shall preserve and enhance the diversity of plant and animal communities as compared to the natural forest condition, except as needed to meet overall multiple-use objectives.

The Blue Mountains forest plan revision analysis assumptions were guided by:

- Preliminary analysis of existing conditions in the Blue Mountains, as compared to the HRV or other historical/reference conditions and draft desired conditions.
- Draft wildlife viability/diversity modeling results.
- Recommendations and conclusions from the Interior Columbia Basin Ecosystem Management Project (current scientific information).
- Draft process and recommendations from the regional aquatic and riparian conservation strategy.
- Lessons learned from Eastside Screens.

Wildlife

The methods used to assess terrestrial wildlife species are described in general. The methods section of the assessment of the current condition and the proposed action (alternative B) for the Blue Mountains forest plan revision (Wales et al. 2011) discloses further details of the models developed, the processes used to run them, and the analysis methods conducted to analyze the data.

Wisdom et al. (2000) conducted a broad scale analysis of the Interior Columbia Basin to develop an ecosystem-based strategy for managing the 145 million acres within the basin. They identified the habitat requirements for a wide variety of terrestrial species and referred to these requirements as source habitats, which they defined as those macro-vegetative characteristics (cover types and structural stages) that contribute to stationary or positive population growth for a species within its distributional range. Source habitats contribute to source environments, which represent the composite of all environmental conditions that result in stationary or positive population growth

in a specified area and within a specified time range (Raphael et al. 2001, Wisdom et al. 2000). The concept of source habitat is used in this analysis.

Management alternatives and their associated activities may have many effects, either positive or negative, on terrestrial wildlife habitat and species. Viability is a concern for all terrestrial species, but particularly for threatened, endangered, proposed, or sensitive species for which habitat and/or populations are suspected or known to be in decline. Although forest plans have only indirect effects (project implementation at the site-specific level has direct effects), the anticipated results of implementing the various management alternatives to most species in this analysis is measured by changes to habitat, habitat trends, and/or risk factors. For selected species, effects are displayed using outputs from modeling based on anticipated changes to potential vegetation groups or cover types and some combination of the following vegetation components:

- Size class
- Density
- Species composition
- Stand structure
- Snags and coarse woody debris (CWD)

During the reproductive and wintering portions of their life cycles, some wildlife species are sensitive to nearby human activities. Human activities, whether intentional or unintentional, can increase stress to some species and may reduce their reproductive success. Effects to species in this analysis are measured by changes in disruption or vulnerability as follows (Wisdom et al. 2000):

- Risk of human-related disruption to wide-ranging carnivores and other species
- Roadless areas and road densities related to road construction and decommissioning
- Road densities related to loss of snag and down wood habitat

Human activity in the case of bighorn sheep increases the risk of sheep contracting a disease. This species has no ESA status; however, the U.S. Fish and Wildlife Service have expressed concern about their population status and viability (Wisdom et al. 2000). Populations of this species were once common in suitable habitat but have declined during the last 150 years, and speculation for the cause points to disease transmission from domestic sheep. To determine their vulnerability, a combination of the following will be analyzed:

- Identified occupied bighorn sheep habitats (to infer bighorn sheep core herd home ranges)
- Acres suitable for domestic sheep grazing within bighorn sheep source habitat
- Distance of permitted sheep from bighorn sheep core herd home ranges
- Permeability of the landscape for travel by bighorn sheep
- Likelihood of contact between domestic sheep and bighorn sheep based on spatial and temporal overlap between grazing allotments and core herd home ranges

Habitats in the Blue Mountains were identified and summarized into habitat families as described in Suring et al. (2011). For each habitat family, focal species were identified to represent landscape attributes and functions (see the “Focal Species” section in chapter 3). A habitat family is a collection of focal species that share similarities in source habitats, with the similarities

arranged along major vegetative themes. The coarse filter analysis detected dominant trends common to most species in each habitat family (e.g., departure from HRV).

Species of conservation concern were identified using previous species assessments for the Blue Mountains and Columbia Basin (Lehmkuhl et al. 1997, Raphael et al. 2001, Wisdom et al. 2000), Nature Serve Heritage rankings (Andelman et al. 2004), Partners in Flight rankings (Carter et al. 2000), the Regional Forester's Sensitive Species List for Region 6, and state lists for Oregon and Washington. Terrestrial species were grouped by habitat associations, risks and threats were identified for each group, and a representative species (focal species) was selected for each group.

Both coarse and fine filter approaches were used to determine if the needs for focal wildlife species and their habitat would be met. The intent is to select a set of species that represent the full array of wildlife responses to conditions projected for management alternatives. A coarse filter approach assesses the conservation value of ecosystems and landscapes. The purpose of this approach is to maintain and, where needed, restore representative ecosystems and their inherent disturbance processes in order to conserve the majority of species without needing to consider them individually. The coarse filter approach compares habitat families and desired vegetative conditions described in the proposed revised forest plan to determine how well source habitats at the family level would be met.

A fine filter approach uses focal species within the habitat families to assess the ecological functions and habitat elements important to individual wildlife species and validates whether the coarse filter approach would accommodate the habitat needs of all species or if additional management direction is needed. By using this coarse and fine filter approach, species, or groups of species (i.e., habitat families), that require management attention would be less likely to be overlooked.

A number of authors have raised concerns about the conceptual, theoretical, and practical basis of taxon-based surrogate schemes, such as focal species (Andelman and Fagan 2000, Landres et al. 1988, Lindenmayer et al. 2000, Simberloff 1998). Still, it is an approach that has been and still is commonly used (Carignan and Villard 2002, Carroll et al. 2001, Roberge and Angelstam 2004, USDA and USDI 2000, Watson et al. 2001).

Lindenmayer et al. (2002) were concerned that the focal species approach would be the only approach used to guide landscape restoration, and pointed out some of the limitations of the focal species concept, including that the approach is data intensive, that scientific understanding is lacking for many species, and that there is a lack of testing to validate the approach. However, the focal species approach has recently been tested for some wide-ranging carnivores (Carroll et al. 2001) and birds (Watson et al. 2001) with promising results. Roberge and Angelstam (2004) recently reviewed the umbrella species concept and concluded that the focal species approach seems the most promising because it provides a systematic procedure for selection of umbrella species. Compared to other approaches, the focal species approach is a relatively rigorous way to deal with assessments that involve large numbers of species (Andelman et al. 2001, Roberge and Angelstam 2004).

Assessing the viability of focal species requires the development of a credible analysis process. The Interior Columbia Basin Ecosystem Management Project (ICBEMP) accomplished this through the use of Bayesian Belief Network (BBN) modeling process (Marcot et al. 2001, Raphael et al. 2001). The BBN combines scientific data with information from expert knowledge and experience to assess viability (Marcot et al. 2001, Marcot et al. 2006, Marcot et al. 2006a, Martin et al. 2005, McCann et al. 2006, Raphael et al. 2001). This is important when trying to

assess a multitude of species, many of which have little or no available empirical data. A BBN is an influence diagram that depicts the relationships among ecological factors, such as habitat and risks. These factors influence the likelihood of the outcome of some parameter(s) of interest, such as forest condition or wildlife species viability (Marcot et al. 2001). This approach provides a conceptual model that outlines the interconnections between ecosystem components and how a species is anticipated to respond to risk factors.

Following the model development guidelines in Marcot et al. (2006), focal species assessment models were developed using the BBN for many of the species. A detailed report (Wales et al. 2011) describing species source habitat, risks and threats to the species, and the various inputs used in the model for each focal species is available from the planning record. Five viability outcomes, A through E, were used to describe the environmental outcomes projected by the models (Raphael et al. 2001). The focal species assessment models produced percent likelihoods that a species would be classified into one of the five viability outcomes. The historical viability outcome and the existing viability outcome were calculated for each species. These viability outcomes were then converted into a current “level of concern” rating of low, moderate, or high based on the primary viability outcome (i.e., outcome 60 percent or greater) for the existing condition compared to historical conditions (Mellen-McLean 2011). Viability outcome scores were also computed for alternative B (the modified proposed action) at year 20 and year 50 for nine focal species (Wales et al. 2011) and then converted to a level of concern rating. A qualitative assessment was then conducted for all other alternatives, comparing the change in habitat and risk factors to either the existing condition or alternative B and assigning a level of concern based on whether the trend in these factors was positive, negative, or stable.

Some species were analyzed to establish historical and existing conditions but for a variety of reasons were not modeled for any alternative (Wales et al. 2011). For example, several species are associated with very limited habitat on National Forest System lands (e.g., northern harrier) or have habitats that have little active management within them (ash-throated flycatcher). There also is a group of species that were not modeled for existing conditions. These species were addressed through a qualitative analysis considering four criteria:

3. Distribution of habitat
4. Amounts of habitat
5. Risk factors
6. Current knowledge of populations

The snag analysis utilizes the concept of tolerance levels from DecAID (Mellen-McLean et al. 2009), a database of deadwood literature. A tolerance level is the specific value at the edge of a tolerance interval. For example, a 30 percent tolerance level for a habitat type of 2.5 snags greater than 10 inches d.b.h./acre means that 30 percent of the landscape would contain densities of these snags up to 2.5/acre. An 80 percent tolerance level of 30 snags greater than 10 inches d.b.h./acre means that 80 percent of the landscape would contain densities of these snags up to 30/acre. Mason and Countryman (2010) conducted a snag analysis using CVS plots, made comparisons with the results from DecAID, and then condensed snag distribution into fewer categories. Based on these condensed categories, a density of 2.5 for snags 20 inches d.b.h. in ponderosa pine that would be in the category of 2 to 4 trees per acre in DecAID will be in the 2 to 6 trees per acre using Mason and Countryman (2010). Both Mason and Countryman (2010) and DecAID used tolerance levels from unharvested inventory plots as a representation of HRV.

Caution should be exercised for those areas where tolerance levels were identified as being zero snags per acre and where the ranges given for current and historical levels start with zero. It is unlikely that a large area of the landscape is devoid of snags due to the various disturbance regimes (fire and insects and disease) that historically were at work. It follows then that where 75 percent of the landscape is identified as being in the range of zero to 2 snags per acre, it should not be interpreted as 75 percent of the landscape has zero snags, but rather that snags exist in low numbers for much of the landscape.

Rocky Mountain elk habitat was analyzed within the Blue Mountains during the 1990 planning effort using a habitat model developed by Thomas et al. (1979, 1988). Though the winter habitat model developed by Thomas et al. (1988) was never intended for application on spring-summer-fall ranges, it has been widely applied on non-winter ranges. Elk management on National Forest System lands has centered on providing hiding and thermal cover (ODFW 1989, Sally 2000, Smith and Long 1987, Thomas et al. 1988, Winn 1985). A large body of research has been conducted during the 27 years since publication of these models and this research needs to be incorporated into a new model. For example, Cook et al. (2005) saw little justification for retaining thermal cover as a primary component of habitat evaluation models for elk, and postulated that it may be time to shift attention towards the relationships between herd productivity and nutrition-based attributes of habitat.

The 1990 forest plans recognize that the Habitat Effectiveness Index (HEI) model was designed for habitat analysis at the subwatershed level or 3,000 to 15,000 acres in size but stated that for “planning purposes and analysis and comparison of alternatives, the HEI has been used to give a forestwide picture of habitat conditions for elk. Forestwide application of the model has masked the more subtle differences between alternatives during the 50 year planning horizon. However, generalized differences between alternatives can be addressed and are discussed below...” (USDA Forest Service 1990). The 1990 forest plans also recognized that the forestwide analysis did not account for the size or distribution of habitat components, but assumed that forage and cover areas were properly distributed throughout the national forest and were of usable size (USDA Forest Service 1990a). All three 1990 forest plans recognized that only those lands that have the potential for active management would be modeled. Since the 1990 forest plans were implemented, the HEI model has gone from being a computer model in DOS (Ager and Hitchcock 1994) to a model in ARCGIS. The ARCGIS model developed for the national forests in the Blue Mountains was used for this analysis.

Plant Species Diversity, Including Threatened, Endangered, and Sensitive Plants

Threatened and endangered plant species are designated by the US Fish and Wildlife Service and published in the Federal Register. There are two federally threatened plant species: MacFarlane’s four-o’clock (*Mirabilis macfarlanei*) and Spalding’s catchfly (*Silene spaldingii*). These two species are evaluated separately, with the results of the analysis reported in the EIS. Sensitive plant species are designated by the regional forester. The 2008 Regional Forester’s Special Status Species List was the list in effect at the time the analysis of plan components was initiated. To facilitate analysis, sensitive plant species are grouped into habitats following the approach used in the Analysis of Vascular Plants for the Interior Columbia Basin Ecosystem Management Project (Croft et al. 1997). This analysis identified six broad habitat types: alpine, aquatic/riparian, forests, grasslands, rock, and shrublands, which were further subdivided into habitat subgroups based on specific cover types or elevation zones. For this analysis, sensitive plant species were

assigned to one of the six broad habitat types, and then further subdivided if more distinct habitat groups were necessary to analyze forest plan components. This resulted in identifying 14 habitat groups. Table B-17 displays these habitat groups and their corresponding broad habitat type from the Interior Columbia Basin Ecosystem Management Project Analysis of Vascular Plants.

For each habitat group, forest plan components (goals, standards, guidelines and objectives), by alternative, are evaluated for their predicted ability to meet the direction set forth in Sections 219.26 and 219.27 of the 1982 planning rule and in their ability to achieve the desired conditions for federally listed plants and Pacific Northwest Region sensitive plants.

Table B-17. Habitat group for the sensitive plant species analysis

Blue Mountains Forest Plan Revision Group	ICBEMP Vascular Plant Habitat Type
Alpine fellfields and subalpine parkland	Alpine
Conifer forest	Forests
aspen, cottonwood	Forests
Sagebrush shrubland	Shrublands
Basalt lithosol	Shrublands
Grassland	Grasslands
Talus, Cliffs & rock outcrops	Rock
Aquatic	aquatic/riparian
Fen	aquatic/riparian
Seep/spring	aquatic/riparian
Riparian	aquatic/riparian
Intermittent stream	aquatic/riparian
Moist meadow	aquatic/riparian
Wet meadow	aquatic/riparian

Two underlying assumptions are central to the plant assessment process (Holmes, et al. 2009):

1. Diversity objectives will be achieved for all native plant species through ecosystem diversity plan components except for federally listed species and Pacific Northwest Region sensitive species. Species other than federally listed species and Pacific Northwest Region sensitive species have Natureserve global and state ranks which indicate that they are secure or they are demonstrably widespread and abundant.
2. A diversity outcome for any grouping of Pacific Northwest Region sensitive species via stratification on specialized habitats reflects the diversity outcome for each species in that group.

The results of this analysis are found in chapter 3 of the EIS.

Invasive Species

The methodology supports analysis to answer two central questions:

1. Do the alternatives achieve the desired condition?
2. How do the alternatives vary in the degree to which planned activities would create ground disturbances that may favor an introduction or spread of invasive species?

Assumptions:

1. Plan objectives to “reduce current infestations of invasive plant species,” as measured in acres, would be funded and achieved.
2. Control measures, whether manual, chemical, or biological control, may need to be applied more than once to invasive plant sites. The percent control, the reduction in the ability of the invasive plant to propagate, is assumed to be 80% (USDA Forest Service 2005, Desser 2006).

Table 362 (chapter 3) displays the average annual acres that have been treated during a three-year period (2009-2011) on the three national forests compared to the acres that would hypothetically need to be treated each year to make progress toward achieving the desired condition for invasive plants containment, control, and eradication. The objectives are for a five-year period because of the time it takes to control invasive plants given the existing soil seed bank, the typical need for retreatment, weather, and funding. The acreage needed to be effectively treated annually in table 362 was adjusted to account for need for retreatment (USDA Forest Service 2005, Desser 2006).

To compare alternatives in the degree to which ground disturbing activities could lead to further introduction and spread of invasive plants, an index was created to display the relative amount of soil disturbing activities (timber harvest and associated actions, fuels reductions, and animal unit months for livestock grazing) for each alternative for each national forest. The index equals the sum of annual projected acres of soil disturbing activities divided by the sum of these values for alternative B. The index value for alternative B is 1. No standard exists for measuring soil disturbance as a predictor of nonnative plant invasion, either as an observable measurable value or as a percent of managed lands. The index serves only to compare alternatives and suggest which alternatives are more or less likely to create conditions favorable to the invasion of nonnative invasive plants.

Recreation

Survey data for Forest Service related recreation were collected and analyzed for the National Visitor Use Monitoring (NVUM) system. Data for the first survey were collected between 2000 and 2003. The second round of National Visitor Use Monitoring data were collected for the three national forests in 2009. The scientists conducting the National Visitor Use Monitoring survey state that comparisons of the first and second round results are not appropriate due to changes in the study protocols. Only round 2 results are presented in table B-18.

Table B-18. Total national forest site visits for 2009

National Forest	Number of Visits
Malheur	261,400
Umatilla	379,800
Wallowa-Whitman	447,400

Special Areas

Wild and Scenic River Analysis Process

The wild and scenic river study process requires a determination to be made regarding a river's eligibility, classification, and suitability. Eligibility and classification represent an inventory of existing conditions. Eligibility is an evaluation of whether a river is free-flowing (without major dams, diversions, or channel modifications) and possesses one or more outstandingly remarkable values. These values should be a unique or exceptional representation for the area studied and must be related to the river or its immediate environment.

As per the Wild and Scenic River Act at 5(d) (1) and Forest Service Manual policy (FSM 1924.03) a systematic inventory was completed on the Malheur, Umatilla, and Wallow-Whitman National Forests. Each forest examined their rivers and streams for eligibility.

Tables B-19, B-20, and table 380 display the miles of designated, eligible, and suitable rivers, respectively, and the length of their classification segments. The management area, however, is measured in acres. The management area extends one-quarter mile from the river on each side for eligible rivers. For designated rivers, the management area boundary was established following formal designation.

Designated Rivers

All of the river segments that have been designated as part of the Wild and Scenic Rivers System under the authority of the Wild and Scenic Rivers Act, as amended (1968) and the Oregon Omnibus River Act (1988) have comprehensive river management plans (CRMP) in the Blue Mountains national forests, with the exception of the Wenaha River. The Forest Service continues work on the environmental impact statement (EIS) for the Wenaha comprehensive river management plan.

Each river's comprehensive river management plan was reviewed for consistency with revised forest plan components, in addition to determining if the comprehensive river management plan direction was protecting the outstandingly remarkable values for each river. The complete review of forest plan components for each river is available in the project record.

In addition, where visitor use management was required to protect outstandingly remarkable values, river managers were consulted to determine if visitation had increased during the life of the comprehensive river management plan. Monitoring records for the 1990 forest plans were consulted for changes in visitation in wild and scenic rivers corridors. No river segments were identified as having increases in visitor use that were impacting outstandingly remarkable values.

Eligible Rivers

The Wild and Scenic River Act provides specific direction in Section 5(d)(1) regarding the identification of potential wild and scenic rivers in Federal agency planning processes. Forest Service policy requires that rivers identified as potential wild and scenic rivers be evaluated as to their eligibility/ineligibility with the finding documented in the forest plan (Land and Resource Management Planning Handbook, Forest Service Handbook 1909.12, Chapter 80 Wild and Scenic River Evaluation).

A river is defined by the Wild and Scenic Rivers Act (P.L. 90-542, as amended) as, "a flowing body of water or estuary or a section, portion, or tributary thereof, including rivers, streams,

creeks, runs, kills, rills, and small lakes.” The National Wild and Scenic Rivers System: Guidelines for Eligibility, Classification and Management of River Areas (FR vol. 47, no. 173, 9/7/1982, Interagency Guidelines), also allows the consideration of intermittent rivers as eligible, if the volume of flow is sufficient enough to sustain or complement the outstandingly remarkable values identified within a river segment.

For each ranger district, the Forest Service created an eligibility inventory (located in the project record) as to whether a river is free flowing and possesses one or more outstandingly remarkable value(s). The following eligibility criteria were used to foster greater consistency within the agency and other Federal river-administering agencies. They are intended to set minimum thresholds to establish outstandingly remarkable values and are illustrative and not all-inclusive.

Table B-19. Designated wild and scenic rivers for each national forest

National Forest	River Name	Wild	Scenic	Recreational	Outstanding Remarkable Values
MAL	Malheur River	6.0	6.0	0.0	Scenery, geology, wildlife habitat, history
	North Fork Malheur River	0.0	25.5	0.0	Scenery, geology, wildlife, fisheries
	Totals	6.0	31.5	0.0	
UMA	Wenaha River	18.7	2.7	0.2	Recreation, scenery, wildlife, fisheries
	Grande Ronde River*	17.4	0.0	1.5	Recreation, fisheries, wildlife
	North Fork John Day River*	24.3	10.5	8.9	Scenic, recreation, fisheries, wildlife, cultural
	Totals	60.4	13.2	10.6	
WAW	Eagle Creek	4.0	6.0	17.0	Fish, recreation, scenery, cultural resources, geology/paleontology
	Grande Ronde River*	17.4	0.0	1.5	Recreation, fisheries, wildlife
	Joseph Creek	8.6	0.0	0.0	Scenic, recreation, geology, fish, water quality, wildlife, cultural resources
	Imnaha River	15.0	0.0	0.0	Scenic, recreation, fisheries, wildlife, historic, botanical, cultural resources
	Lostine River	5.0	11.0	0.0	Scenic, recreation, fisheries, wildlife, botanical
	Minam River	39.0	0.0	0.0	Scenic, recreation, geology, fisheries, wildlife
	North Fork John Day River*	3.5	0.0	6.9	Scenic, recreation, fisheries, wildlife, cultural
	North Powder River	0.0	6.0	0.0	Recreation, scenery
	Totals	104.3	23.0	25.4	

* The Grande Ronde and North Fork John Day rivers are listed above for both the Umatilla and Wallowa-Whitman National Forests as administration is shared. Mileage for the North Fork John Day River is divided within the table to reflect the mileage within and administered by each national forest. The Grande Ronde River is part of the administrative boundary between the Umatilla and Wallowa-Whitman National Forests, and the mileage is displayed equally for each of the national forests.

1. **Scenic:** The landscape elements of landform, vegetation, water, color, and related factors result in notable or exemplary visual features and/or attractions. When analyzing scenic values, additional factors such as seasonal variations in vegetation, scale of cultural modifications, and the length of time negative intrusions are viewed may be considered. Scenery and visual attractions may be highly diverse over the majority of the river or river segment.
2. **Recreational:** Recreational opportunities are, or have the potential to be, unique enough to attract visitors from outside of the region of comparison. Visitors are willing to travel long distances to use the river resources for recreational purposes. River-related opportunities could include, but are not limited to, sightseeing, wildlife observation, camping, photography, hiking, fishing, hunting, and boating/rafting.
3. **Geological:** The river or the area within the river corridor contains an example(s) of a geologic feature, process, or phenomena that is rare, unusual, or unique to the region of comparison. The feature(s) may be in an unusually active stage of development, represent a “textbook” example and/or represent a unique or rare combination of geologic features (erosional, volcanic, glacial and other geologic structures).
4. **Fish:** Fish values may be judged on the relative merits of either fish populations or habitat, or a combination of these river-related conditions.
 - a. **Populations:** The river is nationally or regionally an important producer of resident and/or anadromous fish species. Of particular significance is the presence of wild stocks and/or Federal or state listed or candidate threatened, endangered and sensitive species. Diversity of species is an important consideration and could, in itself, lead to a determination of outstandingly remarkable.
 - b. **Habitat:** The river provides exceptionally high quality habitat for fish species indigenous to the region of comparison. Of particular significance is habitat for wild stocks and/or Federal or state listed or candidate threatened, endangered and sensitive species. Diversity of habitats is an important consideration and could, in itself, lead to a determination of outstandingly remarkable.
5. **Wildlife:** Wildlife values may be judged on the relative merits of either wildlife populations or habitat, or a combination of these conditions.
 - a. **Populations:** The river or area within the river corridor contains nationally or regionally important populations of indigenous wildlife species. Of particular significance are species considered to be unique or populations of Federal or state listed or candidate, threatened, endangered, and sensitive species. Diversity of species is an important consideration and could, in itself, lead to a determination of outstandingly remarkable.
 - b. **Habitat:** The river or area within the river corridor provides exceptionally high quality habitat for wildlife of national or regional significance, or may provide unique habitat or a critical link in habitat conditions for Federal or state listed or candidate threatened, endangered and sensitive species. Contiguous habitat conditions are such that the biological needs of the species are met. Diversity of habitats is an important consideration and could, in itself, lead to a determination of outstandingly remarkable.
6. **Cultural:** The river, or area within the river corridor, contains important evidence of occupation or use by humans. Sites may have national or regional importance for interpreting history or prehistory.

- a. Prehistoric: The river or area within the river corridor contains a site(s) where there is evidence of occupation or use by Native Americans. Sites must have rare or unusual characteristics or exceptional human interest value(s). Sites may have national or regional importance for interpreting prehistory; may be rare and represent an area where a culture or cultural period was first identified and described; may have been used concurrently by two or more cultural groups; or may have been used by cultural groups for rare or sacred purposes.
 - b. Historic: The river or area within the river corridor contains a site(s) or feature(s) associated with a significant event, an important person, or a cultural activity of the past that was rare, unusual or one-of-kind in the region. A historic site(s) and/or feature(s) in most cases are 50 years old or older.
7. **Other Values:** While no specific national evaluation guidelines have been developed for the “other similar values” category, assessments of additional river-related values consistent with the foregoing guidance may be developed, including, but not limited to, hydrologic, paleontological, ecologic and botanic resources.

The potential classification of a river found to be eligible is based on the condition of the river and the adjacent lands as they currently exist. The Wild and Scenic River Act specifies three classification categories for eligible rivers: wild rivers, scenic rivers, and recreational rivers. Section 2(b) of the Wild and Scenic River Act defines each category (see “Affected Environment – MA 2A Designated, Eligible, and Suitable Wild and Scenic Rivers” section in chapter 3 of the draft EIS for definitions of each classification). Table B-20 lists the eligible wild and scenic rivers for each national forest.

Suitable Rivers

The final step in the river assessment process is the determination of suitability. This step provides the basis for the determination of which rivers to recommend to Congress as components of the National Wild and Scenic Rivers System. Suitability addresses two questions:

1. What is the best use of the river corridor? Should the outstanding values be fully protected, or are one or more other uses important enough to warrant not maintaining the river’s free-flow or fully protecting identified values?
2. Assuming the values are to be protected, what is the best method to protect the river corridor? Wild and Scenic River designation is one approach. In answering this question, the benefits and impacts of Wild and Scenic River designation must be evaluated and alternative protection methods considered.

A suitability study to assess the potential inclusion of a river within the wild and scenic river designation is conducted and considers the following questions:

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

Table B-20. Eligible wild and scenic rivers for each national forest

National Forest	River Name	Wild	Scenic	Recreational	Outstanding Remarkable Values
MAL	Lake Creek	3.3	0.0	0.0	Scenery
UMA	Bear Creek	4.6	0.0	0.0	Fisheries
	Butte-West Fork Creek	13.9	0.0	0.0	Scenery, fisheries
	Desolation Creek	0.0	0.0	21.4	Recreation, botanical
	Lookingglass Creek	8.7	0.0	0.0	Fisheries, hydrological
	North Fork Desolation Creek	0.0	0.0	6.8	Botanical
	North and South Fork Wenaha River	26.3	0.0	0.0	Scenery, fisheries, botanical
	Sheep Creek (in Washington)	0.0	0.0	0.5	Scenery, fisheries, botanical
	South Fork Desolation Creek	8.9	0.0	0.0	Fisheries, botanical
	Tucannon River	9.1	4.6	8.7	Recreation, fisheries, cultural, botanical
	Totals	71.5	4.6	37.4	
WAW	Big Sheep Creek	10.0		39.1	Recreation, fisheries, cultural
	Dutch Flat Creek/Van Patton Creek*	5.3	0.0	0.0	Scenery, recreation, geological, hydrological, botanical
	East Eagle Creek*	9.0	2.1	4.5	Scenery, recreation, fisheries, hydrological, geological, cultural
	Five Points Creek*	0.0	12.1	0.0	Scenery, fisheries, wildlife
	Killamacue/Rock Creek	10.2	8.6	0.0	Scenery, recreation, geologic, botanical
	North Fork Catherine Creek	11.1	0.0	2.6	Scenery, recreation, fisheries, wildlife
	Swamp Creek	7.6	0.0	9.2	Fisheries, wildlife, cultural
	Upper Grande Ronde River	11.7	0.0	18.0	Recreation, fisheries, wildlife, cultural
	Totals	64.9	22.8	73.4	
Total All	139.7	27.4	110.8		

* These rivers have been determined suitable in Dutch Flat Creek, Killamacue Creek and Rock Creek Wild and Scenic River Study Report (1996) and Wild and Scenic River Study Report and Final Legislative EIS for Eight Rivers (1997).

As provided in the Wild and Scenic River Act, Sections 4(a) and 5(c), the following factors were considered and documented as a basis for the suitability determination for each river in the suitability environmental impact statements:

1. Characteristics, which do or do not make the area a worthy addition to the national system
2. The current status of land ownership and use in the area
3. The reasonably foreseeable potential uses of the land and water that would be enhanced, foreclosed, or curtailed if the area were included in the system
4. The Federal agency that will administer the area, should it be added to the system
5. The extent to which the agency proposes that administration of the river, including the costs thereof, be shared by state and local agencies
6. The estimated cost to the United States of acquiring necessary lands and interests in land and of administering the area, should it be added to the system
7. A determination of the degree to which the state or its political subdivisions might participate in the preservation and administration of the river, should it be proposed for inclusion in the system
8. State/local government's ability to manage and protect the outstandingly remarkable values on non-Federal lands
9. The consistency of designation with other agency plans, programs or policies
10. Support or opposition to designation
11. Contribution to river system or basin integrity
12. Potential for water resources development
13. Contribution to other regional objectives/needs

Appendix C:

Cumulative Effects

Cumulative effects are those impacts on the environment that result from the incremental effects of an action when it is added to other past, present, and reasonably foreseeable future actions, regardless of which agency or person undertakes them (see 40 CFR 1508.7.). Analysis of cumulative effects informs the public and decision makers of possible effects resulting from cumulative actions on and off National Forest System lands which would not otherwise be disclosed. As addressed in the introduction of chapter 3 of the Environmental Impact Statement (EIS) this cumulative effects analysis does not attempt to quantify the effects of past human actions by adding up all prior actions on an action-by-action basis.

In order to evaluate cumulative effects at a landscape scale consideration of reasonably foreseeable future actions include programmatic documents, such as plans and policies that overlap in time and space with the indirect effects from the proposed forest plan. Spatial and temporal boundaries of effects vary by the affected resource and are indiscriminate of land ownership; however for consideration of forest planning they are generally limited to the geographic region of the Blue Mountains and the anticipated life of the proposed plan (15 to 20 years). Cumulative effects for individual resources are addressed within their respective section in chapter 3 of the EIS. In coordination with local land owners, other Federal agencies, State and local governments, and Indian tribes the following actions and plans were considered for cumulative effects:

Land Management Plans

- Hells Canyon Comprehensive Management Plan
- Bureau of Land Management Draft Travel Management Plans
- Bureau of Land Management Resource Management plans for Vale, Burns, and Prineville

Climate Change & Air Quality

- USDA Forest Service Pacific Northwest Region action plan for climate change
- State air quality regulations

Wildland Fire

- National Fire Plan and forest Fire Management Plans
- Community Wildfire Protection Plans

Ecosystems

- Oregon and Washington statewide conservation strategies
- Interior Columbia Basin Ecosystem Management Project (ICBEMP)

Fish and Wildlife

- Inland Native Fish Strategy Environmental Assessment and Finding of No Significant Impact. Interim strategies for managing fish-producing watersheds in eastern Oregon and Washington, Idaho, western Montana and portions of Nevada, USDA Forest Service
- Endangered Species Act - Section 7 Consultation, Biological Opinion - Implementation of interim strategies for managing anadromous fish-producing watersheds in Eastern Oregon and Washington, Idaho, and portions of California (PACFISH). National Marine Fisheries Service
- Endangered Species Act - Section 7 Consultation - Biological Opinion. Land and Resource Management Plans for the: Boise, Challis, Nez Perce, Payette, Salmon, Sawtooth, Umatilla, and Wallowa-Whitman National Forests, National Marine Fisheries Service
- Partners in Flight assessments

Species Recovery and Conservation Planning

- Snake River - Oregon Salmon and Steelhead Recovery Planning: The Expert Panel Process.
- Conservation and Recovery Plan for Oregon Steelhead Populations in the Middle Columbia River Steelhead Distinct Population Segment
- Bull trout recovery: monitoring and evaluation guidance. Report prepared by The Bull Trout Recovery Monitoring and Evaluation Technical Group (RMEG), Version 1
- Salmon habitat recovery plan with multi-species habitat strategy, Wallowa County and Nez Perce Tribe
- Oregon Subregion Greater Sage-Grouse Draft Regional Management Plan Amendment and EIS.

Watersheds

- Sub basin plans for Asotin, Burnt, Grande Ronde, Imnaha, John Day, Malheur, Powder, Snake Hells Canyon, Tucannon, Umatilla, Walla Walla rivers
- Water quality management plans for the Upper and Lower Grande Ronde, John Day, Malheur, Umatilla, Walla Walla, Asotin, Oregon Closed Basins, and Hell's Canyon
- Umatilla River Vision. Pendleton, Confederated Tribes of the Umatilla Indian Reservation, Department of Natural Resources
- Watershed prioritization documents, USDA Forest Service
 - ◆ Umatilla National Forest, 2001
 - ◆ Wallowa-Whitman National Forest, 2002
- Aquatic/watershed restoration strategy for the Malheur National Forest
- Aquatic and riparian conservation strategy (ARCS), USDA Forest Service
- Pacific Northwest Region Aquatic Restoration Strategy, USDA Forest Service

Appendix D:

Laws and Regulations Relevant to Forest Planning

There is a complex legal framework within which planning takes place for management actions proposed within National Forest System lands. The following list, while not comprehensive, will provide some guidance as to the laws, regulations, handbooks, and other guiding direction applied to planning for multiple uses and a range of resource needs. This list is intended to provide some context for the development of desired conditions, standards, guidelines, proposed management activities, and the decision making process.

Economic and Social Well-being

Multiple-Use Sustained Yield Act of 1960: Identifies principles for managing the resources of the National Forest Service. The direction to manage these resources for the greatest good over time includes the use of economic and social analysis to determine management of the National Forest System.

National Environmental Policy Act of 1969: Mandates consideration of the consequences to the quality of the human environment from proposed management actions. The agency must examine the potential impacts to physical and biological resources as well as potential socioeconomic impacts (40 CFR 1508.14).

Forest and Rangeland Renewable Resources Planning Act of 1974: As amended by the National Forest Management Act of 1976, requires consideration of potential economic consequences of land management planning.

Federal Land Policy and Management Act of 1976

Office of Management and Budget Circular A-116 (issued August 16, 1978): Requires executive branch agencies to conduct long range planning and impact analysis associated with major initiatives.

Executive Order No. 12898 on Environmental Justice (issued February 11, 1994): Mandates federal agencies to make achieving environmental justice part of their mission. This includes identification and response to disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority and low-income populations.

Civil Rights Act (Titles VI, VII, and IX)

1982 Planning Rule Procedures: The procedures of the 1982 National Forest System Land and Resource Management Planning Rule requires the comprehensive consideration of economic benefits and costs, specifically identifying the social sciences, economic considerations, cost-efficient alternatives, impacts on present net value, and impacts on local employment.

Livestock Grazing and Grazing Land Vegetation

Organic Administration Act of 1897: Gives regulatory authority to the President to establish National Forests. Authorizes the Secretary of Agriculture to promulgate rules and regulations for the use and occupancy of National Forests.

Taylor Grazing Act of 1934: Intended to "stop injury to the public grazing lands [excluding Alaska] 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".

Granger-Thye Act of 1950: Provides for the issuance of term grazing permits for up to 10 years. It also provides for the use of grazing receipts for range improvement work.

Multiple-Use Sustained-Yield Act of 1960: Provides that national forests are established and administered for several purposes, including livestock grazing. This act also authorizes the Secretary of Agriculture to develop the surface renewable resources of national forests for multiple uses and sustained yield of the services and products to be obtained from these lands, without impairment of the productivity of the land.

Wilderness Act of 1964: Provides that livestock grazing, and the activities and facilities needed to support it, are allowed to continue in wilderness areas when such grazing was established before designation.

National Environmental Policy Act of 1970: Directs all federal agencies to consider and report the potential environmental impacts of proposed federal actions.

Wild Horses and Burros Act of 1971: Protects wild free-roaming horses and burros from capture, branding, harassment, or death; and states they are to be considered in the area where presently found an integral part of the natural system of the public lands.

Forest and Rangeland Renewable Resource Planning Act of 1974: Directs the Secretary of Agriculture to develop a process for the revision of national forest land and resource management plans, including the identification of the suitability of lands for resource management.

Federal Land Policy and Management Act of 1976: States that public lands will be managed in a manner that will provide food and habitat for fish, wildlife, and domestic animals.

National Forest Management Act of 1976: Reorganized, expanded and otherwise amended the Forest and Rangeland Renewable Resources Planning Act of 1974, which called for the management of renewable resources on National Forest Lands. The NFMA requires the Secretary of Agriculture to assess forest lands, develop a management plan for each unit of the National Forest System. It is the primary statute governing the administration of National Forests.

Public Rangelands Improvement Act of 1978: Establishes and reaffirms the national policy and commitment to inventory and identify current public rangeland conditions and trends; manage, maintain and improve the condition of public rangelands so that they become as productive as feasible for all rangeland values in accordance with management objectives and the land use planning process; charge a fee for public grazing use which is equitable; continue the policy of protecting wild free-roaming horses and burros from capture, branding, harassment, or death, while at the same time facilitating the removal and disposal of excess wild free-roaming horses and burros which pose a threat to themselves and their habitat and to other rangeland values.

Rescission Act of 1995: Directs the Forest Service to complete site-specific NEPA analyses and decisions on allotments on a scheduled basis.

36 CFR 222

Forest Service Manual 2200: This manual summarized laws and regulations governing rangeland management and forest planning.

Forest Service Handbook 2209.13: Grazing Permit Administration Handbook

Allotment Management Plans: Developed through site-specific environmental analysis, an allotment management plan uses Forest Plan direction and current issues to determine desired conditions, areas suitable for grazing, and a broad strategy on how to meet desired conditions. They describe site-specific grazing strategies, stocking, structural and nonstructural range improvement needs, and coordination with other resources. The output, or animal unit months (AUMs), is a result of the allotment management plan requirements, range improvements, and the ability of the permit holder to manage forage and livestock.

Non-Use for Resource Protection Agreements: These agreements may be entered into to provide long term non-use needed to address recovery of rangeland resource conditions, provide forage on a temporary basis to allow resource recovery on other area grazing units, provide temporary resolution of conflicts created by bighorn sheep or wolf predation on livestock, or provide supplemental forage in times of drought to assist area livestock operators and lessen the resource impacts of grazing.

Preliminary Administrative Recommended Additions to the National Wilderness Preservation System (PARWA)

The statues listed below, along with other land use laws, executive orders, and policies guide management of designated wilderness in National Forest System lands. Forest Service Manual (FSM) 2320 - Wilderness Management provides additional direction pertinent to wilderness management of National Forest System lands.

The Wilderness Act, 1964 (P.L. 88-577): This act provides the statutory definition of wilderness and management requirements for these congressionally designated areas. This act established a National Wilderness Preservation System to be administered in such a manner as to leave these areas unimpaired for future use and enjoyment as wilderness. This act designated the Eagle Cap Wilderness and the Strawberry Mountain Wilderness as part of the National Wilderness Preservation System.

Public Law 94-199, 1975: This act established the Hells Canyon National Recreation Area in the States of Oregon and Idaho, and designated the Hells Canyon Wilderness as part of the National Wilderness Preservation System.

National Forest Management Act (NFMA) of 1976, (P.L. 94-588): Provides that management direction for wilderness be incorporated into Forest Plans and sets minimum standards for the content of the Plans.

The Endangered American Wilderness Act, 1978 (P.L. 95-237): This act designated certain undeveloped national forest lands as wilderness and also included the Oregon Omnibus Wilderness Act of 1978. By passing the Endangered Wilderness Act, Congress further established that areas previously modified or influenced by man should not be precluded from wilderness designation, nor should roadless areas near major cities since they provide primitive recreation opportunities close to population concentrations. The act designated the Wenaha-Tucannon Wilderness as part of the Nation Wilderness Preservation System.

The Oregon Wilderness Act, 1984 (P.L. 98-328): This act designated certain national forest system lands in the State of Oregon for inclusion in the National Wilderness Preservation System. The act designated the Monument Rock Wilderness, North Fork John Day Wilderness, North Fork Umatilla Wilderness, and designated additions to the Eagle Cap Wilderness, Hells Canyon Wilderness, and Strawberry Mountain Wilderness.

Regulations and policies have been passed in support of these laws, including the following:

- Forest Service Manual (FSM) 2320 Wilderness Management

Code of Federal Regulations (CFR)

- 36 CFR 293: Wilderness–Primitive Areas
- 36 CFR Part 294: Special Areas; Roadless Area Conservation: this final rule established prohibitions on road construction, road reconstruction, and timber harvesting in inventoried roadless areas on National Forest System lands.

Soils

The National Forest Management Act (NFMA) of 1976 requires that forest service management not result in substantial and permanent impairment of the productivity of the land and allows for timber harvest only where soil, slope, or other watershed conditions will not be irreversibly damaged.

FSM 2550 requires land managers to evaluate the effects of land management on soil quality. FSH 2509.18 directs forest service regions to develop soil quality standards, defines soil productivity as the inherent capacity of soil to support the growth of specified plants, plant communities, or a sequence of plant communities, and sets a threshold value of 15 percent reduction in inherent soil productivity as a basis for measurable or observable changes to soil properties or conditions

Air Quality

The **Federal Clean Air Act** of 1970 is designed to protect public health and welfare from air pollution. The Act requires the Forest Service to:

- Protect air quality related values in Class I areas, defined as National Parks and wilderness areas larger than 5,000 acres in existence as of August 7, 1977, and includes provisions for Prevention of Significant Deterioration of air quality from new pollution sources.
- Establishes National Ambient Air Quality Standards for six criteria pollutants: ozone, carbon monoxide, sulfur oxides, nitrogen oxides, and lead.

- Limits the emission of airborne particulate matter smaller than 10 micrometers in diameter (PM₁₀) and smaller than 2.5 micrometers in diameter (PM_{2.5}), that are known to affect human health

The **Regional Haze Rule of 1999** requires the states to develop implementation plans intended to reach the goal of natural background air quality in Class I areas by 2064.

Smoke Management Plans in Oregon and Washington, developed by Oregon Department of Forestry and Washington Department of Natural Resources, require the Forest Service to identify smoke sensitive areas, including communities, hospitals, nonattainment areas, and highways, and use appropriate mitigation and evaluation techniques to minimize smoke impacts to these areas from prescribed fires.

Watershed Function, Water Quality, and Water Uses

Executive Order 11988 directs federal agencies to avoid adverse impacts associated with the occupancy and modification of floodplains; minimize the impacts of floods on human safety, health, and welfare; and restore and preserve the natural values served by floodplains.

Executive Order 11990 directs federal agencies to take action to minimize the destruction, loss, or degradation of wetlands; to preserve and enhance the natural beneficial values of wetlands; and to avoid adverse impacts to wetlands where practicable.

Executive Order 12580 requires federal agency compliance with water pollution control legislation, including the Clean Water Act.

The Clean Water Act of 1972, as amended provides the primary authority for water pollution control programs at the state and national level. The objective of these programs is to “restore and maintain the chemical, physical, and biological integrity of the nation’s waters.” The act provides specific controls for the protection of wetlands, as well as the reduction of point and non-point sources of pollution.

The Safe Drinking Water Act of 1974 requires protection of water systems that provide water for human consumption and have at least 15 service connections, or provide water to at least 25 people. Smaller systems may be regulated under state law. An amendment to the act in 1996 requires source water protection zones for groundwater wells. Current forest service policy directs the national forests to identify watersheds providing the principal sources of community water during land management planning (FSM 2542.03).

Forest Service Manual (FSM) 2500 outlines Forest Service policy regarding watershed management including the implementation of all applicable federal laws and legislation.

Aquatic Species Diversity and Viability

Multiple-Use Sustained-Yield Act of 1960 (MUSYA) requires the Forest Service to manage National Forest System lands for multiple uses (including timber, recreation, fish and wildlife, range, and watershed). All renewable resources are to be managed in such a way that they are available for future generations. The harvesting and use of standing timber can be considered a

short-term use of a renewable resource. As a renewable resource, trees can be re-established and grown again if the productivity of the land is not impaired.

National Forest Management Act of 1976 (NFMA) requires development of a planning rule for the development of management plans for national forests. This act guides development and revision of such National Forest Land Management Plans and directs that such plans provide for diversity of plant and animal communities based on the suitability and capability of the specific land area in order to meet overall multiple-use objectives of the MUSYA.

1982 Planning Rule (1982 Planning Rule)

Section 219.19, Fish and Wildlife Resources (*Species Viability*) requires that “Fish and wildlife habitat shall be managed to maintain viable populations of existing native and desired nonnative vertebrate species in the planning area. For planning purposes, a viable population shall be regarded as one which has the estimated numbers and distribution of reproductive individuals to insure its continued existence is well distributed in the planning area. In order to insure that viable populations will be maintained, habitat must be provided to support, at least, a minimum number of reproductive individuals and that habitat must be well distributed so that those individuals can interact with others in the planning area”.

This section of the Rule contains seven requirements for meeting the objectives of maintaining viable vertebrate populations. The seven requirements are:

1. In order to estimate the effects of each alternative on fish and wildlife populations, certain vertebrate and/or invertebrate species present in the area shall be identified and selected as management indicator species and the reasons for their selection will be stated. These species shall be selected because their population changes are believed to indicate the effects of management activities. In the selection of management indicator species, the following categories shall be represented where appropriate: Endangered and threatened plant and animal species identified on State and Federal lists for the planning area; species with special habitat needs that may be influenced significantly by planned management programs; species commonly hunted, fished, or trapped; nongame species of special interest; and additional plant or animal species selected because their population changes are believed to indicate the effects of management activities on other species of selected major biological communities or on water quality. On the basis of available scientific information, the interdisciplinary team shall estimate the effects of changes in vegetation type, timber age classes, community composition, rotation age, and year-long suitability of habitat related to mobility of management indicator species. Where appropriate, measures to mitigate adverse effects shall be prescribed.
2. Planning alternatives shall be stated and evaluated in terms of both amount and quality of habitat and of animal population trends of the management indicator species.
3. Biologists from State fish and wildlife agencies and other Federal agencies shall be consulted in order to coordinate planning for fish and wildlife, including opportunities for the reintroduction of extirpated species.
4. Access and dispersal problems of hunting, fishing, and other visitor uses shall be considered.
5. The effects of pest and fire management on fish and wildlife populations shall be considered.

6. Population trends of the management indicator species will be monitored and relationships to habitat changes determined. This monitoring will be done in cooperation with State fish and wildlife agencies, to the extent practicable.
7. Habitat determined to be critical for threatened and endangered species shall be identified, and measures shall be prescribed to prevent the destruction or adverse modification of such habitat. Objectives shall be determined for threatened and endangered species that shall provide for, where possible, their removal from listing as threatened and endangered species through appropriate conservation measures, including the designation of special areas to meet the protection and management needs of such species.

Section 291. 27(g) (*Species Diversity*). This section of the act recognizes the importance of invertebrates and plants, in addition to vertebrate species addressed in the above section. This section requires that management prescriptions maintain full species diversity within the planning area, i.e., “shall preserve the diversity of plant and animal communities including endemics and desirable naturalize plant and animal species so it {diversity} is at least as great as that which would be expected in a natural forest. Reductions of plant and animal communities and tree species from that which would be expected in a natural forest, or from that similar to the existing diversity in the planning area, maybe prescribed only where needed to meet overall multiple-use objectives.”

National Environmental Policy Act (NEPA) of 1969 as amended encourages “productive and enjoyable harmony between man and his environment, to promote efforts which will prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of man; to enrich the understanding of the ecological systems and natural resources important to the Nations; and to establish a Council on Environmental Quality” (42 USC Sec. 4321). The law further states “it is the continuing policy of the Federal Government, in cooperation, to use all practical means and measures, including financial and technical assistance, in a manner calculated to foster and promote the general welfare, to create and maintain conditions under which man and nature can exist in productive harmony, and fulfill the social, economic, and other requirements of the present and future generation of Americans.” This law essentially pertains to public disclosure and participation, environmental analysis, and documentation.

Endangered Species Act of 1973, as amended (ESA) provides “a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved, to provide a program for the conservation of such endangered species and threatened species, and to take such tests as may be appropriate to achieve the purpose of the treaties and conventions set forth in subsection (a) of this section.” The Act also states “It is further declared to be the policy of congress that all Federal departments and agencies shall seek to conserve endangered species and threatened species and shall utilize their authorities in furtherance of the purposes of this Act.”

Under Section 7 of the 1973 Endangered Species Act (ESA) and related Secretarial Order 3206 (USDI/USDC 1997), federal activities that may have an effect on threatened and endangered species or their Designated Critical Habitats are subject to consultation with the U.S. Fish and Wildlife Service (USFWS) or the National Oceanic and Atmospheric Administration (NOAA Fisheries). These consultations typically result in Biological Opinions (BOs) from the consulting agencies and include terms and conditions for implementing management programs on national forest system lands.

Pursuant to the Act, a Recovery Plan has been adopted for Middle Columbia River steelhead trout (74FR50165, September 30, 2009) and a draft Plan has been published in the Federal Register for Snake River steelhead and Snake River Chinook salmon in southeastern Washington State (71FR13094, March 14, 2006). Other draft recovery plans are in various stages of preparation for bull trout by the U.S. Fish and Wildlife Service, and a combined draft Recovery Plan is in progress for Snake River Basin steelhead, Snake River Basin fall Chinook salmon, Snake River Basin Sockeye Salmon and Snake River Basin spring/summer Chinook salmon in the state of Oregon and will be finalized by National Marine Fisheries Service. These recovery plans, where completed, will constitute some of the best available science for these species.

Magnuson-Stevens Fishery Conservation and Management Act, Public Law 104-297 and the Sustainable Fisheries Act of 1996. (MSA) Under authority of the Magnuson-Stevens Fishery Conservation and Management Act and Public Law 104-297, the Sustainable Fisheries Act of 1996, the Pacific Fishery Management Council has identified all subbasins in the planning area within the historic range of Pacific salmon as Essential Fish Habitat (EFH) for both Chinook and coho salmon, with the exception of subbasins upstream of Hells Canyon, Oxbow and Brownlee dams on the Snake River. The Pacific Fishery Management Council defines EFH as “all currently viable waters and most of the habitat historically accessible to Chinook and coho salmon within the USGS hydrologic units identified...”

The Magnuson-Stevens Act mandates a consultation process for federal agencies whose activities may adversely affect EFH. This consultation process is intended to provide those agencies with technical assistance in making their activities consistent with conservation of EFH.

Forest Service Manual (FSM) 2600 outlines Forest Service policy regarding fisheries management, including the implementation of all applicable federal laws and legislation.

Forested Vegetation, Timber Resources, and Wildland Fire

These acts, along with other land use laws, executive orders, and policies guide the management of forested vegetation, timber resources, and wildland fire in National Forest System lands. Other pertinent laws can be found in Forest Service Manual (FSM) 2400 and 5100.

Organic Administration Act – June 4, 1897 (U.S.C.551): Authorizes the Secretary of Agriculture to establish regulations governing the occupancy and use of national forests and to protect the forests from destruction. Forests are established “to improve and protect the forest within the boundaries, or for the purpose of securing favorable conditions of water flows, and to furnish a continuous supply of timber for the use and necessities of citizens of the United States.”

The Knutson-Vandenberg Act of 1930 (16 U.S.C. 576-576b): as amended by the National Forest Management Act of 1976 (16 U.S.C. 472a), directs the Secretary to provide for improvement of the productivity of renewable resources within National Forest System timber sale areas. The act also authorizes the collection and use of timber receipts for these purposes.

Economy Act of 1932 – June 30, 1932 (41 U.S.C. 686): Provides for the procurement of materials, supplies, equipment, work, or services from other Federal agencies.

Sustained Yield Forest Management Act of 1944 and the Multiple Use Sustained Yield Act of 1960: allow for the production of multiple quality goods and resources at sustained levels over time, including forest products.

Reciprocal Fire Protection Act – May 27, 1955 (42 U.S.C. 1856): Authorizes reciprocal agreements with Federal, state, and other wildland fire protection organizations.

Multiple-Use Sustained Yield Act of 1960 – recognizes timber as one of five major resources for which national forests are to be managed. “It is the policy of the Congress that the national forests are established and shall be administered for outdoor recreation, range, timber, watershed and wildlife and fish purposes...The Secretary of Agriculture is authorized and directed to develop and administer the renewable surface resources of the National Forests for multiple-use and sustained yield of several products and services obtained there from...the achievement and maintenance in perpetuity of a high-level annual or regular periodic output of the various renewable resources of the national forests without impairment of the productivity of the land.”

The National Forest Roads and Trails Act of 1964 (16 U.S.C. 532-538): directs the Secretary to provide for the existence of an adequate system of roads and trails within and near national forests.

The Small Business Act of 1953, as amended (15 U.S.C. 644): provides for agencies to participate in programs with the Small Business Administration (SBA). This is the authority for the Small Business Timber Sale Set-Aside program (FSM 2439).

Wilderness Act – September 3, 1964 (16 U.S.C. 1131, 1132): Authorizes the Secretary of Agriculture to take such measures as may be necessary in the control of fire within designated wilderness.

The Endangered Species Act (ESA) of 1973: Requires Federal agencies to conserve threatened and endangered species.

Forest and Rangeland Renewable Resources Planning Act of 1974, as amended by the National Forest Management Act of 1976 – directs the Secretary to periodically assess the forest and rangeland resources of the Nation and to submit to Congress at regular intervals recommendations for long-range Forest Service programs essential to meet future resource needs. These acts set forth the requirements for Land and Resource Management Plans for the National Forest System. 36 CFR 219 regulations require the Forest Service to identify areas suitable and available for timber harvest and the allowable sale quantity (ASQ) from those lands. In addition, regulations require us to analyze the supply and demand for resource commodities. Provides for maintenance of land productivity and the need to protect and improve the soil and water resources.

Federal Noxious Weed Act of 1974: Authorizes the Secretary to cooperate with other Federal and state agencies and individuals in carrying out measures to eradicate, suppress, control or prevent the spread of noxious weeds.

The National Environmental Policy Act (NEPA) of 1969 (16 U.S.C. 4321): requires agencies to analyze the physical, social, and economic effects associated with proposed plans and decisions, to consider alternatives to the action proposed, and to document the results of the analysis.

The National Forest Management Act (NFMA) of 1976: sets forth the requirements for land and resource management plans for the National Forest System. It also amends several of the basic acts applicable to timber management. It specifically addresses most aspects of timber management and how it is related to other resources. It is the primary authority governing the management and use of timber resources on National Forests System lands. Directs the Secretary of Agriculture to specify guidelines for land management plans to ensure protection of forest resources. The NFMA requires assessment of alternative management actions to facilitate balanced, integrated approaches to resource protections and development and implementation of sound management practices to prevent excessive losses due to pests. “It is the policy of the congress that all forested lands in the National Forest System shall be maintained in appropriate forest cover with species of trees, degree of stocking, rate of growth, and conditions of stand designed to secure the maximum benefits of multiple use sustained yields. Plans developed shall provide for the diversity of plant and animal communities based on the suitability and capability of the specific land area in order to meet the overall multiple-use objectives, and within the multiple-use objective.”

The Forest Resources Conservation and Shortage Relief Act of 1990: as amended by the Forest Resources Conservation and Shortage Relief Act of 1997 (16 U.S.C. 620), sets forth restrictions on export of unprocessed timber originating from Federal lands. It addresses certain exceptions to export restrictions and establishes reporting requirements.

Section 323 of Public Law 108-7 (16 U.S.C. 2104 note) grants the Forest Service authority until September 30, 2013, to enter into stewardship contracting projects with private persons or public or private entities, by contract or agreement, to perform services to achieve land management goals for national forests or public lands that meet local and rural community needs.

Clean Air Act of 1977 (42 U.S.C. 1857): Provides for the protection and enhancement of the nation’s air resources.

Cooperative Forestry Assistance Act of 1978: Sets forth the basic Federal authority for forest insect and disease management and provides for cooperation with states and private individuals.

Healthy Forests Restoration Act – December 3, 2003 (16 U.S.C. 6501): provides processes for implementing hazardous fuel reduction projects on certain types of "at-risk" National Forest System (NFS) and Bureau of Land Management (BLM) lands, and also provides other authorities and direction to help reduce hazardous fuel and restore healthy forest and rangeland conditions on lands of all ownerships.

Tribal Forest Protection Act – 2004 (P.L. 108). This act authorizes the Secretary of Agriculture (with respect to land under the jurisdiction of the Forest Service) to carry out a project to protect Indian forest land or rangeland (including a project to restore Federal land that borders on or is adjacent to such land) under the Secretary’s jurisdiction and bordering or adjacent to the Indian forest land or rangeland under the Indian tribe’s jurisdiction.

Federal Land Assistance, Management and Enhancement Act of 2009. Authorizes a supplemental funding source for catastrophic emergency wildland fire suppression activities on Department of the Interior and National Forest System lands and requires the Secretary of the Interior and the Secretary of Agriculture to develop a cohesive wildland fire management strategy.

Executive Order 13112: Directs Federal agencies whose actions may affect the status of invasive species to (1) prevent the introduction of invasive species, (2) detect and respond rapidly to and control populations of such species in a cost effective and environmentally sound manner, as appropriations allow.

Key policies and guidance that have been developed in support of enacted laws include the following:

- The National Forest Directives System (Manuals, Handbooks and their current amendments) outlines the administrative framework for fire management activities, which includes protecting resources and other values from wildfire and using prescribed fire to meet land and resource management goals and objectives. The framework in these manuals and handbooks provides for cost-efficient wildfire protection and embraces the positive roles that fire plays on National Forest System lands. Specifically, fire management guidance can be found in Forest Service Manual 5100, chapters 10 through 90, and Forest Service Handbooks 5109.14, 5109.17, 5109.18, and their subsequent amendments.
- Review and Update of the 1995 Federal Wildland Fire Management Policy (2001)
- Guidance for Implementation of Federal Wildland Fire Management Policy (2008)
- A National Cohesive Wildland Fire Management Strategy (2011)

1982 Planning Rule Procedures: The procedures of the 1982 National Forest System Land and Resource Management Planning Rule require the identification of areas suitable for timber production and the allowable sale quantity from those lands. In addition, the procedures require the analysis of the supply and demand situation for resource commodities.

26 CFR 219.27 sets the minimum specific management requirements to be met in accomplishing goals and objectives for the National Forest System.

36 CFR 219.27(a)(3) requires that all management prescriptions utilize principles of integrated pest management to prevent or reduce serious, long lasting hazards and damage from pest organisms, consistent with the relative resource values involved.

36 CFR 219.27(c)(2) discusses the ASQ (allowable sale quantity) and states: “Nothing in this paragraph prohibits salvage or sanitation harvesting of timber stands which are substantially damaged by fire, windthrow, or other catastrophe, or which are in imminent danger of insect or disease attack and where such harvests are consistent with silvicultural and environmental standards.”

36 CFR 219.27(c)(7) states: “Timber harvest and other silvicultural treatments shall be used to prevent potentially damaging populations increases of forest pest organisms. Silvicultural treatments shall not be applied where such treatments would make stands susceptible to pest-caused damage levels inconsistent with management objectives.”

36 CFR 217 Requesting Review of National Forest Plans and Project Planning

36 CFR 219 Planning

36 CFR 219.16 (a) (2) (iii) allows for the harvesting of stands of timber that have not reached CMAI (Culmination of Mean Annual Increment) “which are in imminent danger from insect or disease attack.”

36 CFR 221 Timber Management Planning

36 CFR 223.1: Trees, portions of trees, and other forest products on National Forest System lands may be sold for the purpose of achieving the policies set forth in the Multiple Use Sustained Yield Act as amended and the Forest and Rangeland Renewable Resources Planning Act of 1974, as amended and the Program there under.

36 CFR 261.6(a): Cutting or otherwise damaging a forest product except as authorized by a permit or Federal law.

36 CFR 261.6(e): Loading, removing, or hauling a forest product acquired under any permit unless such product is identified as required in such permit.

36 CFR 261.10(c): Selling or offering for sale any merchandise or conducting any kind of work activity or service unless authorized by a Federal law, regulation, or permit.

36 CFR 261.10(i): Violating any condition or term of a permit.

FSM 2467: Sales of special forest products

FSM 2467.01: Authority: Forest officers may sell other forest products under provisions set out at 36 CFR 223.1.

FSM 2467.02: Objective: To sell other forest products where it would serve local needs and meet land management objectives.

FSM 2467.03: Policy: Use management measures that perpetuate or increase the production of miscellaneous forest products within applicable objectives, standards, and guidelines of the Shoshone National Forest land and resource management plan. Recover the fair market value of such products when it is practical to do so.

FSM 2467.04: Responsibility: See FSM 2404.2 for delegations of authority and assignments of responsibility to agency officials by organizational level. Regional Foresters shall develop appraisal and sale procedures, including defining the conditions of sale for forest products.

FSM 2467.1: Conditions of Use for Miscellaneous Forest Products: Conditions for use of miscellaneous forest products are set forth in FSH 2409.18, section 87.

FSM R6 Supplement No. 2430-2007-2: Minimum and Standard Rates

2431.31a - Standard Rates. Standard rates may be established by the Forest Supervisor for certain products, but may be no lower than minimum rates established in FSM 2431.31b and c. Standard rates should be based on current appraised rates, delivered product prices or bid prices adjusted to average conditions where the rates shall be applied. Rates are usually established for the forest as a whole. However, where significant variations in conditions and markets exist, forests may establish rates on a unit or zone basis. Consultation and coordination between adjoining forests is encouraged in order to standardize rates and to the extent practicable coordinate with Bureau of Land Management. Standard rates are governed by the guidelines outlined in FSM 2431.31a.

2431.31b - Minimum Rates. Minimum rates are the lowest rate for which the Region will sell forest products, except to provide for the removal of insect-infested, diseased, dead, or distressed timber in accordance with contract provisions specifically provided for catastrophically affected timber. Minimum rates are governed by the guidelines outlined in FSM 2431.31b.

Policy direction from the Forest Service Directives System in Forest Service Manuals (FSM)

2400 Timber Sale Management in Forest Service Handbooks (FSH) is listed here but not limited to:

- Timber Resource Planning Handbook
- Timber Management Information System Handbook
- Timber Sale Administration Handbook
- Silviculture Practices Handbook
- Timber Sale Preparation Handbook
- R-2 2409.26 Silvicultural Practice Handbook

There are numerous forest wide and management area standards and guidelines that apply to forested vegetation, timber resources, and wildland fire. All alternatives provide for satisfactory regeneration of harvested areas, for treatment of activity-related fuels, management of insects and diseases, and various wildland fire management strategies. Specific standards and guidelines designed to avoid or mitigate the effects from fire and fuels management activities, as well as provide direction regarding the use and management of fire, are addressed in the forest plan or Forest Service manuals and handbooks.

The Master Cooperative Fire Protection Agreement for the states of Oregon and Washington (2013) is an inter-agency agreement by which the Forest Service cooperates with its interagency partners regarding all aspects fire management. Participants in the agreement include Federal, State, and local agencies.³⁹

Terrestrial Wildlife Species Diversity and Viability

Below is a summary list of major laws, regulations, and policies that apply to wildlife management on National Forest System lands.

National Forest Management Act (NFMA) of 1976 requires that habitat be managed to support viable populations of native and desirable nonnative vertebrates. The 1982 National Forest Management Act Regulations (planning regulations) at 36 CFR 219 set forth a process for developing, adopting, and revising land and resource management plans for the National Forest System (36 CFR 219.1) and identifies requirements for integrating fish and wildlife resources in forest land management plans (36 CFR 219.13). For planning purposes, a viable population shall be regarded as one that has the estimated numbers and distribution of reproductive individuals to ensure its continued existence is well distributed in the planning area (36 CFR 219.19). Also, the 1982 planning provisions require that “Forest planning shall provide for diversity of plant and animal communities and tree species consistent with the over-all multiple-use objectives of the planning area” (36 CFR 219.26). Finally, 36 CFR 219.35 of the 2000 planning rule that allows the use of the 1982 rule requires the Forest Service to use best available science during analysis to inform the planning process.

NFMA regulations also require the identification of management indicator species (MIS) to assess how plan alternatives may affect wildlife populations (1982 planning rule section 219.19 (a)(1)) and as a monitoring tool upon plan implementation (219.19(a)(6)).

³⁹http://www.fs.fed.us/r1/fire/nrcg/Op_plans/2013%20AOP%20FINAL%20PNWCG%20Approved%20with%20Signature%20Pages.pdf

Some of the key elements of 39 CFR 219.19 related to MIS are:

“Each alternative shall establish objectives for the maintenance and improvement of habitat for MIS—to the degree consistent with overall multiple use objectives of the alternative”
219.19(a)

“In order to estimate the effects of each alternative on fish and wildlife populations, certain vertebrate and/or invertebrate species present in the area shall be identified and selected as MIS and the reasons for their selection will be stated. These species shall be selected because their population changes are believed to indicate the effects of management activities.”
219.19(a)(1)

“Planning alternatives shall be stated and evaluated in terms of both amount and quality of habitat and animal population trends of MIS.” 219.19(a)(2)

“Populations trends of the MIS will be monitored and relationships to habitat determined. This monitoring will be done with State fish and wildlife agencies, to the extent practicable.”
219.19(a)(6)

Essentially, the National Forest Management Act requires MIS to be selected “because their population trends are believed to indicate the effects of management activities.”

National Environmental Policy Act (NEPA) of 1970, as amended, provides regulations for implementing the procedural provisions of the Act. NEPA requires analysis and public disclosure of the effects to wildlife species and habitats from proposed federal actions in an Environmental Impact Statement or Environmental Assessment and/or supporting Specialist Reports that clearly describe the potential impacts of the alternatives.

NEPA implementing regulations gives specific direction concerning information and scientific data, “Agencies shall insure the professional integrity, including scientific integrity, of the discussions and analyses in environmental impact statements. They shall identify any methodologies used and shall make explicit reference by footnote to the scientific and other sources relied upon for conclusion in the statement.” [40 CFR 1502.24]

The Endangered Species Act of 1973 requires Federal agencies to conserve threatened and endangered species and the ecosystem on which they depend. Section 7(a)(1) outlines the procedures for Federal interagency cooperation designed to conserve federally listed species and their designated critical habitats. Section 7(a)(2) outlines the consultation process to ensure that the requirement that any action authorized, funded, or carried out by a Federal agency would not likely jeopardize the continued existence of a listed species, or result in the destruction or adverse modification of designated critical habitat be met.

The Migratory Bird Treaty Act of 1918 (16 U.S.C. 703-712) prohibits the taking of any migratory bird or any part, nest, or egg, except as permitted by regulation. The Migratory Bird Treaty Act was enacted in 1918. A 1972 agreement supplementing one of the bilateral treaties underlying the Migratory Bird Treaty Act had the effect of expanding the scope of the Act to cover bald eagles and other raptors. Implementing regulations define “take” under the Migratory Bird Treaty Act as “pursue, hunt, shoot, wound, kill, trap, capture, possess, or collect.” The original 1918 statute implemented the 1916 Convention between the U.S. and Great Britain (for Canada) for the protection of migratory birds. Later amendments implemented treaties between the U.S. and Mexico, the U.S. and Japan, and the U.S. and the Soviet Union (now Russia). This

law was originally intended as a hunting statute. Removal and/or destruction of vegetation are not a taking under the Migratory Bird Treaty Act.

The **Bald and Golden Eagle Protection Act** (16 U.S.C. 668-668c), enacted in 1940 and amended several times since then, prohibits anyone, without a permit issued by the Secretary of the Interior, from “taking” bald eagles, including their parts, nests, or eggs. The Act provides criminal and civil penalties for persons who “take, possess, sell, purchase, barter, offer to sell, purchase or barter, transport, export or import, at any time or any manner, any bald eagle ... [or any golden eagle], alive or dead, or any part, nest, or egg thereof.” The Act defines “take” as “pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb.”

"Disturb means to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, 1) injury to an eagle, 2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or 3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior."

In addition to immediate impacts, this definition also covers impacts that result from human-induced alterations initiated around a previously-used nest site during a time when eagles are not present, if, upon the eagles return, such alterations agitate or bother an eagle to a degree that injures an eagle or substantially interferes with normal breeding, feeding, or sheltering habits, and causes, or is likely to cause, a loss of productivity or nest abandonment.

The Fish and Wildlife Service has new regulations (Federal Register 74:46835-46879; 11 September 2009) that allow permits to take eagles under the Bald and Golden Eagle Protection Act (50 CFR 22.26). The regulations provide for individual and programmatic permits that are consistent with the goal of stable or increasing eagle breeding populations.

Treaty of 1855: Big game and managed species such as elk are an important source of subsistence food for tribal members. The rights to hunt and fish are key reserved rights in the Treaty of 1855 between the United States and The Confederated Tribes of the Umatilla Indian Reservation (CTUIR) and the Nez Perce “*the privilege of hunting, gathering roots and berries and pasturing their stock on unclaimed lands in common with citizens, is also secured to them*”. Therefore the Forest Service has certain legal responsibilities to American Indian tribes and whenever the Forest Service takes actions which adversely affect the habitat of big game, the treaty rights of these tribes are affected.

Treaty of 1868: The rights to hunt and fish are key reserved rights in the Treaty of 1868 between the United States and The Eastern band of Shoshoni and Bannock “... *they shall have the right to hunt on the unoccupied lands of the United States so long as game may be found thereon...*”. Therefore, the Forest Service has certain legal responsibilities to American Indian tribes and whenever the Forest Service takes actions which adversely affect the habitat of big game, the treaty rights of the Shoshoni and Bannock are affected.

Executive Order 13186: On January 10, 2001, President Clinton signed Executive Order 13186 for the “Responsibilities of Federal Agencies to Protect Migratory Birds” which directed federal agencies to develop an MOU with the US Fish and Wildlife Service to promote conservation of migratory birds. The MOU between the Forest Service and USFWS was signed by the Chief of the Forest Service in December 2008.

The MOU directs the agency to address the conservation of migratory bird habitat and populations when developing, amending, or revising management plans for national forests and grasslands, consistent with NFMA, the Endangered Species Act (ESA), and other authorities. When developing the list of species to be considered in the planning process, the Forest Service must:

- Consult the current USFWS Birds of Conservation Concern list, state lists, and comprehensive planning efforts for migratory birds
- Evaluate and consider management objectives and recommendations from conservation planning efforts for migratory birds
- Acknowledge special designations that may apply to all or part of the planning area, such as Globally Important Bird Areas in the United States
- Acknowledge such designations in the appropriate plan documents

Additionally, within the NEPA process, the Forest Service must evaluate the effects of agency actions on migratory birds, focusing first on species of management concern along with their priority habitats and key risk factors.

Executive Order 11990: On May 24, 1977, President Carter signed Executive Order 11990 for the “Protection of Wetlands” which required federal agencies to avoid to the extent possible the long and short-term adverse impacts associated with the destruction or modification of wetlands, and to avoid direct or indirect support of new construction in wetlands wherever there is a practicable alternative.

Executive Order 13443: On August 16, 2007, President Bush signed Executive Order 13443 for the “Facilitation of Hunting Heritage and Wildlife Conservation” which required federal agencies to (consistent with agency missions):

- (a) Evaluate the effect of agency actions on trends in hunting participation and, where appropriate to address declining trends, implement actions that expand and enhance hunting opportunities for the public;
- (b) Consider the economic and recreational values of hunting in agency actions, as appropriate;
- (c) Manage wildlife and wildlife habitats on public lands in a manner that expands and enhances hunting opportunities, including through the use of hunting in wildlife management planning;
- (d) Work collaboratively with State governments to manage and conserve game species and their habitats in a manner that respects private property rights and State management authority over wildlife resources;
- (e) Establish short and long term goals, in cooperation with State and tribal governments, and consistent with agency missions, to foster healthy and productive populations of game species and appropriate opportunities for the public to hunt those species;
- (f) Ensure that agency plans and actions consider programs and recommendations of comprehensive planning efforts such as State Wildlife Action Plans, the North American Waterfowl Management Plan, and other range-wide management plans for big game and upland game birds;

- (g) Seek the advice of State and tribal fish and wildlife agencies, and, as appropriate, consult with the Sporting Conservation Council and other organizations, with respect to the foregoing Federal activities.

USDA regulation 9500-004, adopted in 1983 and revised in 2008, reinforces the NFMA viability regulation by requiring that habitats on national forests be managed to support viable populations of native and desired nonnative plants, fish, and wildlife. For planning purposes, a viable population shall be regarded as one that has the estimated numbers and distribution of reproductive individuals to ensure its continued existence is well distributed in the planning area.

Forest Service Manual 2600 provides directives regarding wildlife, fish, and rare plant management. FSM 2620 includes direction regarding habitat planning and evaluation, including specific forest planning direction for meeting biological diversity requirements:

"A forest plan must address biological diversity through consideration of the distribution and abundance of plant and animal species, and communities to meet overall multiple-use objectives." [FSM 2622.01]

"Management of habitat provides for the maintenance of viable populations of existing native and desired nonnative wildlife, fish, and plant species, generally well-distributed throughout their current geographic range" [FSM 2622.01(2)]

"Maintain viable populations of all native and desired nonnative wildlife, fish and plant species in habitats distributed throughout their geographic range on National Forest System lands." [FSM 2670.22(2)]

"Management Indicators: Plant and animal species, communities, or special habitats selected for emphasis in planning, and which are monitored during forest plan implementation in order to assess the effects of management activities on their populations and the populations of other species with similar habitat needs which they may represent." [FSM 2620.5]

"Select management indicators for a forest plan or project that best represent the issues, concerns, and opportunities to support recovery of Federally-listed species, provide continued viability of sensitive species, and enhance management of wildlife and fish for commercial, recreational, scientific, subsistence, or aesthetic values or uses. Management indicators representing overall objectives for wildlife, fish, and plants may include species, groups of species with similar habitat relationships or habitats that are of high concern." [FSM 2621.1]

Document, in the permanent planning records for a forest plan, the rationale, assumptions, and procedures used in selecting management indicators." [FSM 2621.1(4)]

"Review, through the biological evaluation process, actions and programs authorized, funded, or carried out by the Forest Service to determine their potential for effect on threatened and endangered species and species proposed for listing." [FSM 2670.31(3)]

"Review programs and activities as part of the National Environmental Policy Act of 1969 process through a biological evaluation, to determine their potential effect on sensitive species." [FSM 2670.32(2)]

The Interior Columbia Basin Strategy: "The Strategy will be used to guide the amendment and revision of land and resource management plans for administrative units of the Forest Service and BLM within the Basin..."

“Management plans shall address ways to maintain and secure terrestrial habitats that are comparable to those classified by the science findings as “source” habitats that have declined substantially in geographic extent from the historical to the current period and habitats that have old-forest characteristics.”

Plant Species Diversity and Threatened, Endangered, and Sensitive Plants

The Forest Service has a legal requirement to maintain or improve habitat conditions for threatened, endangered, proposed or candidate species under the ESA. Species covered under ESA are those listed by the USDI, U.S. Fish and Wildlife Service. Sensitive species are protected under the Regional Forester’s Sensitive Species Program. The Blue Mountains national forests are required to identify and mitigate potential effects to these species from federal land-disturbing actions. In order to comply with the ESA and the Sensitive Species Program, forest botanists conduct inventories during project planning to locate and protect any threatened, endangered, proposed, candidate, and sensitive plant species.

The National Forest Management Act (NFMA) of 1976: “It is the policy of the Congress that all forested lands in the National Forest System shall be maintained in appropriate forest cover with species of trees, degree of stocking, rate of growth and conditions of stand designed to secure the maximum benefits of multiple use sustained yield. Plans developed shall provide for the diversity of plant and animal communities based on the suitability and capability of the specific land area in order to meet the overall multiple-use objectives, and within the multiple-use objective.”

The Endangered Species Act (ESA) of 1973: Requires federal agencies to conserve threatened and endangered species.

Nonnative Invasive Species

Federal Noxious Weed Act of 1974: States that each federal agency shall establish and adequately fund an undesirable plants management program, complete and implement cooperative agreements with State agencies regarding the management of undesirable plant species on Federal lands under the agency’s jurisdiction; and establish an integrated management system to control or contain undesirable plant species targeted under cooperative agreements.

Executive Order 13112: Directs Federal agencies to prevent the introduction of invasive species; detect and respond rapidly to and control populations of such species in a cost-effective and environmentally sound manner; to monitor invasive species populations accurately and reliably; to provide for restoration of native species and habitat conditions in ecosystems that have been invaded; to conduct research on invasive species and develop technologies to prevent introduction; and to provide for environmentally sound control of invasive species; and promote public education on invasive species and the means to address them. All of these actions are subject to the availability of appropriations.

Tribal and Treaty Resources

American Indian Religious Freedom Act (AIRFA) as amended (42 U.S.C. 1996): Protects and preserves for American Indians their inherent right of freedom to believe, express, and exercise the traditional religions of the American Indian, Eskimo, Aleut, and Native Hawaiians, including but not limited to access to sites, use, and possession of sacred objects and the freedom to worship through ceremonial and traditional rites.

Tribal Forest Protection Act of 2004 (Public Law 108-278): Authorizes the Secretary of Agriculture and the Secretary of the Interior to enter into an agreement or contract with Indian tribes meeting certain criteria to carry out projects to protect Indian forest land.

Congressional Acts: National Historic Preservation Act Sections 106 and 110; The Native American Grave Protection and Repatriation Act; American Indian Religious Freedom Act, 1978; Archaeological Resources Protection Act, 1979; Food Conservation and Energy Act of 2008 (The Farm Bill).

Heritage Program

Heritage resources are an important aspect of our country's history and cultural values, are nonrenewable resources, and are protected for present and future generations. A series of Federal laws have been enacted to protect heritage resources on Federal lands from damage or loss due to Federal programs and/or federally funded or permitted activities.

The following acts, along with other land use laws, executive orders, and policies, guide management of cultural resources on National Forest System lands. Other laws pertinent to historic property management on National Forest System lands can be found in Forest Service Manual (FSM) 2300 – Recreation, Wilderness, and Resource Management; Chapter 2360 – Heritage Program Management.

Antiquities Act of 1906 (16 U.S.C. 431) – This act protects historic or prehistoric remains or any object of antiquity on Federal lands and applies to both cultural and paleontological resources. It imposes criminal penalties for unauthorized destruction or appropriation of antiquities without a permit.

National Historic Preservation Act (NHPA) of 1966 (16 U.S.C. 470) – This act protects historic and archaeological values during the planning and implementation of Federal projects (CFR 36.800 and CFR 36.60). The law requires the following: (1) location and identification of cultural resources during the planning phase of a project, (2) a determination of “significance” for potentially affected resources, and (3) provisions for mitigation of any significant sites that may be affected.

National Environmental Policy Act (NEPA) of 1969 (42 U.S.C. 4321-4346) – This act establishes the national policy for the protection and enhancements of the environment. NEPA establishes that part of the function of the Federal government is to “preserve important historic, cultural, and natural aspects of our natural heritage.”

The Archaeological and Historic Preservation Act (AHPA) of 1974 (16 U.S.C. 469) – This act requires Federal agencies to collect, protect, and preserve historic and archaeological data that result from agency undertakings and actions. This act also applies to agencies' actions that fund or license projects and the effects these projects have on heritage resources.

Federal Land Policy and Management Act (FLPMA) of 1976 (43 U.S.C. 1701 § 102(8)) –

This act requires that “public lands be managed in a manner that will protect the quality of scientific, scenic, historical, ecological, environmental, air and atmospheric, water resource and archeological values; that, where appropriate will preserve and protect certain public lands in their natural condition ...” This law applies to cultural and paleontological resources.

American Indian Religious Freedom Act of 1978 (AIRFA) – This act protects American Indian rights to exercise traditional religions including access to sites and freedom to worship through ceremonial and traditional rites.

Archaeological Resources Protection Act (ARPA) of 1979 (16 U.S.C. 470) – This act imposes civil penalties for the unauthorized excavation, removal, damage, alteration, or defacement of archaeological resources.

Native American Graves Protection and Repatriation Act (NAGPRA) of 1990 (25 U.S.C. 3001) – American Indian burials and sacred items are protected by this act. If human remains or objects of cultural patrimony are discovered, this law requires consultation with the Indian tribe most closely related to the individual. The tribe then determines the appropriate treatment of the remains. This may include repatriation or scientific study and curation at a university.

Executive Order 11593: Protection and Enhancement of the Cultural Environment (1971) – This order directs Federal agencies to inventory cultural resources under their jurisdiction and nominate all federally owned properties that meet the criteria to the National Register of Historic Places.

Executive Order 13007: Indian Sacred Sites (1997) – This order directs Federal agencies to accommodate access to and ceremonial use of American Indian sacred sites by tribal religious practitioners, to avoid adversely affecting the physical integrity of such sacred sites, and, where appropriate, to maintain the confidentiality of sacred sites.

Executive Order 13175: Consultation and Coordination with Indian Tribal Governments (2000) – This order directs Federal agencies to establish regular and meaningful consultation and collaboration with Tribal officials in the development of Federal policies that have Tribal implications.

Executive Order 13287: Preserve America (2003) – This order establishes Federal policy to provide leadership in preserving America’s heritage by actively advancing the protection, enhancement, and contemporary use of the historic properties owned by the Federal government. The order also requires agencies to review and report their policies and procedures for compliance with the National Historic Preservation Act § 110 and 111 and improve Federal stewardship of historic properties.

Regulations and policies have been passed in support of these laws including the following:

- 16 U.S.C.G 432-433 – Uniform Rules and Regulations.
- 36 CFR 261.9 (g), (h) – Code of Federal Regulations: Property
- 36 CFR part 800 – Protection of Historic Properties
- 36 CFR part 60 – National Register of Historic Places
- 36 CFR part 296 – Protection of Archaeological Resources Uniform Regulations

- 43 CFR part 10, Subpart B – Native American Graves Protection and Repatriation Regulations
- Forest Service Manual 2360 – Recreation, Wilderness, and Resource Management

Programmatic Agreement among the United States Department of Agriculture, Forest Service, Pacific Northwest Region (Region 6), the Advisory Council on Historic Preservation, and the Oregon State Historical Preservation Officer Regarding Cultural Resource Management in the State of Oregon by the USDA Forest Service.

Recreation and Access

Term Permit Act of March 4, 1915 (P.L. 63-293, Ch. 144, 38 Stat. 1101, as amended; 16 U.S.C. 497): This act provides direction to the National Forest System lands to authorize occupancy for a wide variety of uses through permits not exceeding 30 years.

Rehabilitation Act of September 26, 1973 (P.L. 93-112, Title V, 87 Stat. 390, as amended; 29 U.S.C. 791, 793-794, 794a, 794b): This act requires that programs and activities conducted by Federal agencies and by entities that receive funding from, or operate under a permit from Federal agencies. This act requires these entities to provide an equal opportunity for individuals with disabilities to participate in an integrated setting, as independently as possible. The only exception to the requirement is when the program would be fundamentally altered if changes were made solely for the purpose of accessibility.

Multiple-Use Sustained-Yield Act of June 12, 1960 (P.L.86-517, 74 Stat.215): This act provides direction to the National Forest System lands to provide access and recreation opportunities. The act states, “The policy of Congress is that national forests are established and administered for outdoor recreation....”

Land and Water Conservation Fund Act of 1965 (P.L. 88-578, 78 Stat. 897 as amended; 16 U.S.C. 4601-4(note); 4601-4 thru 6a, 4601-7 thru 4601-10, 4601-10a-d, 4601-11): “The purposes of this act are to assist in preserving, developing, and assuring accessibility to all citizens of the United States of America...such quality and quantity of outdoor recreation resources...providing funds for: 1. States for acquisition, planning, and development of recreation facilities and; 2. Federal acquisition and development of certain lands and other areas.”

Highway Safety Act of September 9, 1966 (P.L. 89-564, 80 Stat. 731, as amended): This act authorizes state and local governments and participating Federal agencies to identify and survey accident locations; to design, construct, and maintain roads in accordance with safety standards; to apply sound traffic control principles and standards; and to promote pedestrian safety.

Architectural Barriers Act of August 12, 1968 (P.L. 90-480, 82 Stat. 718 51 U.S.C. 4151-4154, 4154a, 4155-4157): This act establishes additional requirements to ensure that buildings, facilities, rail passenger cars, and vehicles are accessible to individuals with disabilities. It covers architecture and design, transportation, and communication elements of recreational site planning and development.

National Trails System Act of October 2, 1968 (P.L. 90-543, 82 Stat.919, as amended): This act establishes the National Trails System and authorizes planning, right-of-way acquisition, and construction of trails established by Congress or the Secretary of Agriculture.

Federal Land Policy and Management Act of October 21, 1976 (P.L. 94-579, 90 Stat. 2742, as amended): This act declares (per Sec. 102) that “...the public lands be managed in a manner that...will provide for outdoor recreation and human occupancy and use.”

Surface Transportation Assistance Act of 1978 (P.L. 95-599, as amended). Supersedes the Forest Highway Act of 1958: Authorizes appropriations for forest highways and public lands highways. Establishes criteria for forest highways; defines forest roads, forest development roads and forest development trails (referred to as “system roads” and “system trails” in Forest Service regulations and directives); and limits the size of projects performed by Forest Service employees on forest roads. Establishes the Federal Lands Highway Program.

Federal Lands Recreation Enhancement Act of December 8, 2004 (P.L. 108-447, as amended): This act gives the Secretaries of Agriculture and Interior the authority to establish, modify, charge, and collect recreation fees at Federal recreational lands where a certain level of amenities have been developed.

Ski Fees, Omnibus Parks and Public Lands Management Act of November 12, 1996 (P.L. 104-333, div. I, Title VII, Sec. 701, 110 Stat. 4182; 16 U.S.C. 497c): Section 701 of this act:

- Establishes a system to calculate fees for ski area permits issued under the National Forest Ski Area Permit Act of 1986 (16 U.S.C. 497b);
- Provides for holders of ski area permits issued under other authorities to elect this permit fee system (FSH 2709.11, sec. 38.03a);
- Includes provisions concerning compliance with NEPA when issuing permits for existing ski areas (FSM 2721.61f and FSH 2709.11, sec. 41.61b); and
- Withdraws leasable and locatable minerals, subject to valid existing rights (FSH 2709.11, sec. 41.61c).

Ski Area Recreational Opportunity Enhancement Act of November 7, 2011 (H.R. 765 ENR)
The purpose of this act is to amend the National Forest Ski Area Permit Act of 1986 (16 U.S.C. 497b):

- (1) to enable snow-sports (other than nordic and alpine skiing) to be permitted on National Forest System land subject to ski area permits issued by the Secretary of Agriculture under section 3 of the National Forest Ski Area Permit Act of 1986 (16 U.S.C. 497b); and
- (2) to clarify the authority of the Secretary of Agriculture to permit appropriate additional seasonal or year-round recreational activities and facilities on National Forest System land subject to ski area permits issued by the Secretary of Agriculture under section 3 of the National Forest Ski Area Permit Act of 1986 (16 U.S.C. 497b)

Executive Order 12862: Setting Customer Service Standards requires information about quantity and quality of recreation visits for national forest plans.

Regulations and policies have been passed in support of these laws and require the following:

- Forest Service Handbook (FSH) 1909.15-Environmental Policy and Procedures Handbook
- Forest Service Manual (FSM) 2300-Recreation, Wilderness, and Related Resource Management
- Forest Service Handbook (FSH) 2709.11-Special Uses Handbook

- Forest Service Manual (FSM) 7300-Buildings and Other Structures
- Forest Service Manual (FSM) 7700-Travel Management

Special Areas

The acts listed below, along with other land use laws, executive orders, and policies guide management of both designated and potential Wild and Scenic Rivers on National Forest Service lands. Other direction pertinent to Wild and Scenic River management of National Forest Service lands can be found in Forest Service Manual (FSM 2354) ‘River Management’.

Organic Administration Act of June 4, 1897 (30 Stat. 11, as amended; 16 U.S.C. § 473 et seq.): This act provides the Secretary of Agriculture the authority to regulate the occupancy and use of National Forest System lands.

Multiple-Use Sustained-Yield Act of June 12, 1960 (P.L. 86-517, 74 Stat.215): This act provides direction to the National Forest System lands to provide access and recreation opportunities. The act states, “The policy of Congress is that national forests are established and administered for outdoor recreation...”

Wild and Scenic Rivers Act of October 2, 1968 (P.L. 90-542, Stat. 906, as amended; 16 U.S.C. § 1271(note), 1271-1287): This act established a policy for preserving selected rivers or sections thereof in a free-flowing condition. The intent was to protect water quality of such rivers and to fulfill other vital national conservation measures that would balance the development of water, power, and other resources for the benefit and enjoyment of present and future generations.

Federal Land Policy and Management Act of October 21, 1976 (P.L. 94-579, 90 Stat. 2742, as amended): This act declares (per Sec. 102) that “...the public lands be managed in a manner that...will provide for outdoor recreation and human occupancy and use.”

National Forest Management Act (NFMA) of October 22, 1976 (P.L. 94-588, 90 Stat. 2949; 16 U.S.C. § 1600 et seq.): The act requires the Forest Service to establish a comprehensive system of land and resource planning, including the development and maintenance of a comprehensive and detailed inventory of lands and resources. The act also specifies the use of a systematic interdisciplinary approach to achieve integrated consideration of the physical sciences into planning for the management and use of National Forest System lands and resources.

Omnibus Oregon Wild and Scenic Rivers Act of 1988 (P.L. 100-577, 102 Stat. 2782; 16 U.S.C. § 1271(note), 1271-1276): This act amends the Wild and Scenic Rivers Act of 1968 by adding 40 rivers totaling 1,500 river miles in the State of Oregon to the National Wild and Scenic River system.

Policies and regulations that guide agency management of eligible, suitable, and designated Wild and Scenic Rivers include the following:

- Forest Service Manual (FSM) 2354 River Management
- 36 CFR 297 — Wild and Scenic Rivers

Appendix E: Wild and Scenic Rivers

Introduction

This report documents the wild and scenic river eligibility evaluation for the Blue Mountains forests plan revision. The direction to conduct an eligibility evaluation comes from the Wild and Scenic Rivers Act of 1968 (Act). To manage the river for its potential inclusion into the National System, the land management plan (LMP) should provide direction using other authorities to protect its free-flowing character, water quality, outstandingly remarkable values, and preliminary or recommended classification. The identification of a river for study through the land management planning process does not trigger the protections under the Act.

Rivers are added to the National System by act of Congress or by the Secretary of the Interior. Secretarial designation requires that a river be a part of a state river protection system and the state governor to make application to the Secretary.

Background

Congress enacted the Wild and Scenic Rivers Act (WSRA) in 1968 to preserve select river's free-flowing condition, water quality and outstandingly remarkable values. The most important provision of the WSRA is protecting rivers from the harmful effects of water resources projects. To protect free-flowing character the Federal Energy Regulatory Commission (which licenses nonfederal hydropower projects) is not allowed to license construction of dams, water conduits, reservoirs, powerhouses, transmission lines, or other project works on or directly affecting wild and scenic rivers (WSR). Other federal agencies may not assist by loan, grant, license or otherwise any water resources project that would have a direct and adverse effect on the values for which a river was designated.

The WSRA also directs that each river in the National Wild and Scenic Rivers System (National System) be administered in a manner to protect and enhance a river's outstanding natural and cultural values. It allows existing uses of a river to continue and future uses to be considered, so long as existing or proposed use does not conflict with protecting river values. The WSRA also authorizes managing agencies to build partnerships among landowners, river users, tribal nations, and all levels of government.

Beyond the immediate protection afforded to the eight rivers in the enabling legislation, the WSRA established a process for building a legacy of protected rivers. Rivers may be identified for study by an act of Congress under Section 5(a) or through federal agency-initiated study under Section 5(d)(1). Section 5(d)(1) directs federal agencies to consider the potential of wild, scenic and recreational rivers in their planning processes and its application has resulted in numerous individual river designations and state and area-specific legislation.

Both Sections 5(a) and 5(d)(1) studies require determinations to be made regarding a river's eligibility, classification and suitability. Eligibility and classification represent an inventory of existing conditions. Eligibility is an evaluation of whether a river is free-flowing and possesses one or more outstandingly remarkable values (ORVs). If found eligible, a river is evaluated to determine its current level of development (water resources projects, shoreline development, and

accessibility) and a recommendation is made that it be placed into one or more of three classes—wild, scenic or recreational.

The final procedural step, suitability, provides the basis for determining whether to recommend a river as part of the National System. A suitability analysis provides information to answer the following questions:

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

Rivers authorized for study by Congress are protected under the Wild and Scenic Rivers Act; specifically, Sections 7(b)—prevents the harmful effects of water resources projects; 8(b)—withdraws public lands from disposition under public land laws; 9(b)—withdraws locatable minerals from appropriation under mining laws; and 12(a)—directs actions of other federal agencies to protect river values. These protections last through the study process, including a three-year period following transmittal of the final study report by the President to Congress. The integrity of the identified classification must also be maintained during the protection period.

Past Planning Efforts: Wallowa-Whitman National Forest

As result of an agreement between American Rivers and Oregon Rivers Council, the Forest performed evaluations of eleven rivers on the forest. These rivers were studied for their potential eligibility and suitability as wild, scenic and recreational rivers. The results have been documented in two final legislative environmental impact statements (FLEIS). The FLEIS document the analysis of eligibility and suitability of the rivers for inclusion within the National Wild and Scenic River System. Based on the analysis contained in the two FLEIS, three rivers would be further recommended for inclusion in the national system. These recommendations have yet to be forwarded to Congress for action.

Past Planning Efforts: Malheur National Forest

In 1994 an appeal decision was reached with American Rivers and the Oregon Rivers Council of the existing forest plan. As part of the appeal resolution the Forest was required to further document the potential eligibility of 10 rivers. The Forest was also required to review rivers for eligibility that had been identified in the Pacific Northwest Rivers Study (FSH 1090.12, chapter 8, Section 8.11, no. 4) and to protect eligible segments of the John Day River, Murderer’s Creek, and Little Malheur River, pending analysis of suitability. Forest staff completed this analysis in 1995.

Past Planning Efforts: Umatilla National Forest

Similar to the Wallowa-Whitman National Forest, through agreement between American Rivers and Oregon Rivers Council, 14 rivers of the Umatilla National Forest, including the Tucannon River, were studied for eligibility. Six of the rivers were found to be eligible. If a river was eligible, classification determinations were completed for those rivers and documented in a resource report that was prepared as a “Working Paper” by the Forest. This paper has not been

made available for public review; however, the Forest has provided interim protection and management since that time for the six eligible rivers.

Existing Designated Rivers

Across the Blue Mountains National Forests, there are 11 rivers designated by Congress as Wild and Scenic Rivers. Of those 11 rivers, 201 miles are classified as wild, 95 miles as scenic, and 104 miles are classified as recreational rivers. Two of these rivers are located in Oregon and Idaho and were included in the national system through passage of the Hells Canyon National Recreation Area Act of December 31, 1975, to be managed in accordance with the provisions of the (amended) Wild and Scenic Rivers Act. In 1988, 40 rivers in Oregon were added to the Wild and Scenic River System with the passage of the Omnibus Oregon Wild and Scenic Rivers Act. The Act specified that a comprehensive management plan be prepared for each river included in the Act.

Management areas for each wild and scenic river have been developed for the proposed LMP of the Blue Mountains forests. Those rivers designated by Congress which are part of the National Wild and Scenic River System are allocated to Management Category (MC) 2a – Designated and Eligible WSR. The designated rivers of the Malheur, Umatilla, and Wallowa-Whitman National Forests are shown in table E-1 (next page). Eligible rivers are shown in table E-3.

Identification of Potentially Eligible Rivers

In accordance with the Wild and Scenic River Act at 5(d) (1) and Forest Service Manual policy (FSM 1924.03) a systematic inventory was completed on the Malheur, Umatilla and Wallowa-Whitman NF. Each Forest examined their rivers and streams for eligibility. To be eligible for designation, the river or stream must be perennial, free-flowing and possess one or more outstandingly remarkable values. Thus, the eligibility analysis consisted of an examination of the hydrology, including any human-made alterations, and an inventory of its natural, cultural, and recreational resources.

Free-flowing Rivers

A Forest wide inventory of hundreds of perennial streams and rivers on the Blue Mountains National Forests resulted in the identification of candidate rivers and streams. An eligibility assessment of these candidates was conducted to identify any potential outstandingly remarkable values, as directed by the Forest Service Manual, and to determine the rivers free-flowing characteristics. Based on this assessment 21 rivers and streams (9 on the Umatilla, 11 on the Wallowa-Whitman and 1 on the Malheur National Forests) are eligible for inclusion in the National System.

Outstandingly Remarkable Values

In order to be assessed as outstandingly remarkable, a river-related value must be a unique, rare or exemplary feature that is significant to the Blue Mountains region. Dictionary definitions of the words “unique” and “rare” indicate that such a value would be one that is a “conspicuous example from among a number of similar values that are themselves uncommon or extraordinary.”

The values, which must be directly river-related, include:

- are located in the river or on its immediate shore lands (generally within 1/4 mile on either side of the river);
- contribute substantially to the functioning of the river ecosystem; and/or
- owe their location or existence to the presence of the river.

Table E-1. Miles of and outstandingly remarkable values for designated wild and scenic rivers on each national forest

River Name	Wild	Scenic	Recreational	Outstandingly Remarkable Values
MAL				
Malheur River	6	6	0	Scenery, geology, wildlife habitat, history
North Fork Malheur River	0	25.5	0	Scenery, geology, wildlife, fisheries
Totals	6	31.5	0	
UMA				
Wenaha River	18.7	2.7	0.2	Recreation, scenery, wildlife, fisheries
Grande Ronde River*	17.4	0	1.5	Recreation, fisheries, wildlife
North Fork John Day River*	24.3	10.5	8.9	Scenic, recreation, fisheries, wildlife, cultural
Totals	60.4	13.2	10.6	
WAW				
Eagle Creek	4	6	17	Fish, recreation, scenery, cultural resources, geology/paleontology
Grande Ronde River*	17.4	0	1.5	Recreation, fisheries, wildlife
Joseph Creek	8.6	0	0	Scenic, recreation, geology, fish, water quality, wildlife, cultural resources
Imnaha River	15	0	0	Scenic, recreation, fisheries, wildlife, historic, botanical, cultural resources
Lostine River	5	11	0	Scenic, recreation, fisheries, wildlife, botanical
Minam River	39	0	0	Scenic, recreation, geology, fisheries, wildlife
North Fork John Day River*	3.5	0	6.9	Scenic, recreation, fisheries, wildlife, cultural
North Powder River	0	6	0	Recreation, scenery
Totals	104.3	23	25.4	

* The Grande Ronde and North Fork John Day rivers are listed above for both the Umatilla and Wallowa-Whitman National Forests as administration is shared. Mileage for the North Fork John Day River is divided within the table to reflect the mileage within and administered by each national forest. The Grande Ronde River is part of the administrative boundary between the Umatilla and Wallowa-Whitman National Forests, and the mileage is displayed equally for each of the national forests.

Determining that a river area contains outstandingly remarkable values was a professional judgment that was made by the interdisciplinary team of Forest-level resource specialists, and was based on existing objective, comparative, scientific information.

The following eligibility criteria were used during the Blue Mountains forest plan revision process to evaluate outstanding and remarkable values. A brief question about the value was included to foster comparison and establish common criteria used by the Forests.

Scenery

- Is there a high degree of landscape diversity?
- Has the landscape been modified?
- Is the scenic value unique to the region?

Recreation

- Are the recreation opportunities unique enough to attract visitors from outside the geographic region and would visitors be willing to travel long distances to do so?
- Are interpretive opportunities exceptional?
- Are there opportunities for national or regional competitive events?

Wildlife

- Does the stream contain nationally or regionally important populations of wildlife species?
- Are there known populations of unique or federal- or state-listed wildlife species?
- Are there known populations of candidate, threatened, endangered, and sensitive species?
- Is the diversity of species unique to the region?
- Does the stream corridor provide exceptionally high quality of unique habitat or a critical link in habitat conditions for wildlife of national or regional significance or federal- or state-listed or candidate, threatened, endangered, and sensitive species?
- Is the diversity of habitat unique to the region?

Fisheries

- Is the stream a nationally or regionally important producer of resident and/or anadromous fish species?
- Does the stream contain wild stocks and/or federal- or state-listed threatened, endangered, or sensitive species?
- Is the diversity of species or habitat unique to the region?
- Does the stream provide or have the potential to provide exceptionally high quality habitat for indigenous fish species?

Heritage Resources

- Does the stream corridor contain known occupation sites used by Native Americans that are unusual, have exceptional human interest value, have national or regional importance for interpreting pre-history, been used for sacred purposes, or listed or eligible for listing on the National Register of Historic Places?
- Does the stream corridor contain known site(s) or feature(s) associated with a significant event, important person, or cultural activity from the past that was rare or unusual? Of

particular importance are sites or features that are listed in, or eligible for inclusion in the National Register of Historic Places.

Geologic/Hydrologic

- Does the stream contain an example(s) of rare or unusual geologic or hydrologic features?

Botany/Ecologic

- Does the stream corridor contain nationally or regionally important populations of indigenous plant species that are rare or unique or significant populations of federal- or state-listed or candidate threatened, endangered, or sensitive species?
- Is the diversity of plant communities unique?

Water Quality

- Does the stream have exceptionally pure, clear, and/or clean water when compared to other similar streams in the basin?
- Is this tributary recognized as providing exceptionally high quality water critical for fish, wildlife, recreation, or community uses?

Classification

Once a river or stream was determined eligible, a second determination or “classification” was prepared. This classification identified the level of human alteration and water quality of the river within ¼ mile of the bed and bank. The social and physical setting of the river in its current state determined the classification. Classification does not need to be consistent for the entire eligible stretch of river. An eligible river can have multiple segments each classified differently. The WSRA requires that eligible rivers be classified as one of the following:

- Wild river areas - Those rivers or sections of river that are free of impoundments and generally inaccessible except by trail, with watersheds or shorelines essentially primitive and waters unpolluted. These represent vestiges of primitive America.
- Scenic river areas - Those rivers or sections of rivers that are free of impoundments, with shorelines or watersheds still largely primitive and shorelines largely undeveloped, but accessible in places by roads.
- Recreational river areas - Those rivers or sections of rivers that are readily accessible by road or railroad, that may have some development along their shorelines, and that may have undergone some impoundment or diversion in the past.

The appropriate classification was assessed from the perspective of each attribute/topic defined in table E-2. This framework was established by the 1982 guidelines developed jointly by the Secretaries of Agriculture and Interior. Individual determinations were considered as a whole to determine classification as a wild, scenic, or recreational river.

Table E-2. Classification attributes for wild, scenic and recreational river status

Attribute	Wild	Scenic	Recreational
Water Resource Development	Free of impoundment.	Free of impoundment.	Some existing impoundment or diversion.
			The existence of low dams, diversions, or other modifications of the waterway is acceptable, provided the waterway remains generally natural and riverine in appearance.
Shoreline Development	Essentially primitive. Little or no evidence of human activity.	Largely primitive and undeveloped. No substantial evidence of human activity.	Some development. Substantial evidence of human activity.
	The presence of a few inconspicuous structures, particularly those of historic or cultural value, is acceptable.	The presence of small communities or dispersed dwellings or farm structures is acceptable.	The presence of extensive residential development and a few commercial structures is acceptable.
	A limited amount of domestic livestock grazing or hay production is acceptable.	The presence of grazing, hay production, or row crops is acceptable.	Lands may have been developed for the full range of agricultural and forestry uses.
	Little or no evidence of past timber harvest. No ongoing timber harvest.	Evidence of past or ongoing timber harvest is acceptable, provided the forest appears natural from the riverbank.	May show evidence of past and ongoing timber harvest.
Accessibility	Generally inaccessible except by trail.	Accessible in places by road.	Readily accessible by road or railroad.
	No roads, railroads or other provision for vehicular travel within the river area. A few existing roads leading to the boundary of the area are acceptable.	Roads may occasionally reach or bridge the river. The existence of short stretches of conspicuous or longer stretches of inconspicuous roads or railroads is acceptable.	The existence of parallel roads or railroads on one or both banks as well as bridge crossings and other river access points is acceptable.
Water Quality	Meets or exceeds criteria or federally approved state standards for aesthetics, for propagation of fish and wildlife normally adapted to the habitat of the river, and for primary contact recreation (swimming) except where exceeded by natural conditions.	No criteria are prescribed by the Wild and Scenic Rivers Act. The Federal Water Pollution Control Act Amendments of 1972 have made it a national goal that all waters of the United States are made fishable and swimmable. Therefore, rivers will not be precluded from scenic or recreational classification because of poor water quality at the time of their study, provided a water quality improvement plan exists or is being developed in compliance with applicable federal and state laws.	No criteria are prescribed by the Wild and Scenic Rivers Act. The Federal Water Pollution Control Act Amendments of 1972 have made it a national goal that all waters of the United States are made fishable and swimmable. Therefore, rivers will not be precluded from scenic or recreational classification because of poor water quality at the time of their study, provided a water quality improvement plan exists or is being developed in compliance with applicable federal and state laws.

Summary Evaluation Form

The following is an example of the summary evaluation form used by each Forest to evaluate the rivers and streams in the Blue Mountain Planning area. A report has been completed for each eligible river and is contained within the plan revision files at the Wallowa-Whitman Forest Headquarters

STUDY AREA SUMMARY – Provide locational information and include a map.

Name of River: xxxx

Location: Describe the entire length studied; e.g., from its headwaters to confluence with xx. Additionally, describe each segment:

Segment x – Define termini (including legal description, as necessary). Indicate river miles.

River Mileage: Indicate the entire miles of river studied and portion determined eligible.

Studied: xx miles

Eligible: xx miles

ELIGIBILITY – Include determination of river’s free-flow and whether it possesses one or more outstandingly remarkable values

Determination of Free-flow: Describe the assessment of the river’s free-flow, by segment, if necessary.

Determination of Outstandingly Remarkable Values: Utilize established guidelines to evaluate specific river resource values and determine which are outstandingly remarkable. Include the criteria, the description of the particular resource value and a finding.

Summary of Outstandingly Remarkable Values: Summarize the individual resource findings by listing the values identified as outstandingly remarkable with a brief rationale.

CLASSIFICATION – Details the inventoried classification. Describe the basis for the classification of each river segment; i.e., the level of development.

Eligibility Summary

As part of the forest plan revision process, the three Forests reviewed their full documentation regarding eligibility and suitability of all perennial streams and rivers located within the planning area. Table F-3 summarizes the potential wild, scenic, or recreational river, their classification, and outstandingly remarkable values for rivers located on each Forest.

The Umatilla National Forest found that some of the study rivers previously identified as eligible were not now found to meet the minimum criteria. Clear Creek is not free-flowing. North Fork Umatilla River, South Fork Umatilla River, Shimmiehorn Creek, South Fork Cable Creek, North Fork Meacham Creek, and South Fork Walla-Walla River are free-flowing but do not have outstandingly remarkable values as defined by the criteria outlined in the Wild and Scenic Rivers Act.

All previously identified study rivers on the Wallowa-Whitman met the established Wild and Scenic Rivers Act criteria, however new candidate rivers were not identified.

The Malheur National Forest revisited the 1995 river resource evaluation to determine if unforeseen or uncontrollable changes had occurred within the watersheds, thus affecting the eligibility of the streams for wild, scenic, or recreational river designation. All streams on the Forest were affected in some way by either uncontrolled wildland fire or by the listing of federally designated anadromous fish species. Fire changed the conditions of many watersheds drastically; impacting habitat, scenery, and water quality to a level which affected the significance of the resource with the exception of one stream. Also the federal listing of anadromous fish species as threatened or endangered was determined to be so regionally broad that the mere presence of a species was no longer regionally significant. The populations and habitat were now recognized under wild, scenic, or recreational river direction at a lesser level of significance when compared within the Columbia/Snake River systems, and thus this singular characteristic did not now exceed the threshold of regional significance that is required for outstandingly remarkable value status. After the 2005 review, the Malheur National Forest determined that one stream located on the Forest met the minimal criteria for designation.

Suitability

The final phase of study addresses the suitability of a river for inclusion in the National Wild and Scenic Rivers System. The Wallowa-Whitman National Forest prepared suitability studies for eleven rivers determined eligible on that national forest. The eleven rivers studied are all or portions of the Big Sheep Creek, Dutch Flat- Van Patton Creek, East Eagle Creek, Five Points Creek, Killamacue/ Rock Creek, Granite Creek, North Fork Catherine Creek, Sheep Creek, Swamp Creek, Upper Grande Ronde River and the Snake River. Of these three were found to be suitable and recommended to congress for inclusion within the Wild and Scenic Rivers System. These recommendations have yet to be forwarded to Congress for action.

A description of the alternatives, including river classification and miles recommended, can be found in The Dutch Flat Creek, Killamacue Creek, and Rock Creek Wild and Scenic River Study Report and EIS (1996) and the Wild and Scenic River Study Report and Final Legislative Environmental Impact Statement for Eight Rivers Administered by the Wallowa-Whitman National Forest (1996).

The suitability study phase will be initiated at a later date for the 10 eligible rivers on the Umatilla and Malheur National Forests. However, the forest plan will provide management direction to protect the free-flowing character, potential classification, and outstandingly remarkable values of eligible rivers until a suitability study is completed and final recommendation to Congress regarding river designation is made.

Each of the 47 candidate rivers evaluated has a Summary Information Document that provides a synopsis of the pertinent information related to eligibility, classification and/or suitability (as applicable). All summary information documents are available in the project record.

Table E-3. Eligible wild and scenic river summary with classification recommendation

Description of Segment Potential	Potential Classification (miles)	Summary of Outstandingly Remarkable Values
Lake Creek		
	Wild – 3.3	<p>SCENERY Starting at High Lake the creek is considered a scenic and popular destination in the Strawberry Mountain Wilderness featuring unique rock escarpments and meadows, creating contrast in landform, vegetation, color, climate, and sound. The scenery within view of Lake Creek is an outstandingly remarkable value.</p> <p>GEOLOGY The creek flows over large slabs of bed rock with several high mountain meadows, with high concentrations of springs feeding the creek. It is unique geologically: the drops are dramatic with waterfalls and slot canyons all through the rock portions. Based on these factors, the geology is an outstandingly remarkable value.</p> <p>VEGETATION/BOTANICAL High meadow systems have created unique features with spruce bogs present along the creek, further influencing the creek and meadow systems. The vegetation/botanical resources of Lake Creek is an outstandingly remarkable value.</p>
Bear Creek		
From the headwaters to confluence with Tucannon River	Wild – 3	FISHERIES - Bear Creek contains native Chinook, bull trout and steelhead, which are federally-listed as threatened under ESA. Bull trout populations in the Tucannon River are considered isolated and unique. Habitat is limited but pristine. The assessment finds the fisheries habitat and populations to be outstandingly remarkable values.
Butte Creek		
From headwaters to confluence with the mainstem Wenaha River	Wild – 8	<p>SCENERY - The Wenaha River and surrounding Wenaha -Tucannon Wilderness, including Butte Creek, is recognized nationally for its scenic qualities. The mosaic of vegetation and stark ruggedness of the landscape contribute to an exceptional scenic quality. Scenery qualifies as an outstandingly remarkable value.</p> <p>FISHERIES - Butte Creek contains native Chinook, which have been identified as unique and bull trout and steelhead, which are listed as threatened under the ESA. Bull trout populations are considered one of the healthiest in the Grande Ronde subbasin. The habitat is pristine. The assessment finds the fisheries habitat and populations to be outstandingly remarkable values.</p>

Description of Segment Potential	Potential Classification (miles)	Summary of Outstandingly Remarkable Values
Desolation Creek		
The mainstem of Desolation Creek from the confluence of the north and south forks to the confluence with the North Fork John Day River	Recreational – 21.5	<p>RECREATION - Combined amenities of a large big game population, good roaded access to trailhead locations, adjacency to large, remote backcountry areas and desirable campsites within the river corridor make this a desirable destination. Conditions of the river-related setting make recreation an outstandingly remarkable value.</p> <p>BOTANICAL/ECOLOGICAL - Regionally unique and rare plant species have been identified in Desolation Meadow. The stream corridor displays a broad range of botanic diversity due to its size and broad change in elevation. The ecological diversity is exceptional and exhibits outstandingly remarkable values for botany and plant ecology.</p>
Granite Creek		
From the confluence with Clear Creek to the confluence with North Fork John Day River	Recreational – 7.9	FISHERIES - Granite Creek supports bull trout, steelhead, Chinook Salmon, and redband trout and is one of the few high quality spawning habitats for Chinook Salmon. The fisheries resources are important to the health of the ecosystem and to bolster the populations of Chinook salmon within the John Day Basin. This stream is one of the few high quality spawning habitats for Chinook Salmon. The assessment finds the fisheries habitat and populations to be outstandingly remarkable values.
Lookingglass Creek		
From the unnamed tributary in section 3 near Bald Mountain lookout to the forest boundary	Wild – 7	<p>FISHERIES - Lookingglass Creek contains wild stocks of three federally-listed species, provides exceptionally high quality habitat for indigenous fish species, and is designated critical habitat for bull trout, the fisheries resource in Lookingglass. The assessment finds the fisheries habitat and populations to be outstandingly remarkable values.</p> <p>HYDROLOGIC - The impact that the springs near Summer Creek have on the water quantity and quality is rare in the Blue Mountains. The temperature and condition of the water that enters the stream course from this source provides the foundation for fisheries resources in the creek. Lookingglass Springs is visually impressive with the flow of the springs gushing from the bank and streambed growing forty-fold over a distance of a couple of hundred yards. The hydrology of Lookingglass is an outstandingly remarkable value.</p>

Description of Segment Potential	Potential Classification (miles)	Summary of Outstandingly Remarkable Values
North Fork Desolation Creek		
Headwaters to confluence with Main Desolation Creek	Scenic – 7	BOTANICAL/ECOLOGICAL - Regionally unique and rare plant species have been identified in the meadows along the stream corridor which displays a broad range of botanic diversity due to its size and broad change in elevation. The ecological diversity is exceptional and exhibits outstandingly remarkable values for botany and plant ecology.
North Fork Wenaha and South Fork Wenaha River		
North Fork Wenaha from headwaters to confluence with mainstem Wenaha River, and South Fork Wenaha from headwaters to confluence with mainstem Wenaha River	Wild – 18	SCENERY - The Wenaha River and surrounding Wenaha -Tucannon Wilderness is recognized nationally for its scenic qualities. The mosaic of vegetation and stark ruggedness of the landscape contribute to an exceptional scenic quality. Scenery qualifies as an outstandingly remarkable value.
		FISHERIES – The Wenaha River system contains native Chinook, bull trout, and steelhead which are listed as threatened under ESA. Bull trout populations are considered as one of the healthiest in the Grande Ronde subbasin. The habitat is pristine. The assessment finds the fisheries habitat and populations to be outstandingly remarkable values.
		BOTANICAL/ECOLOGICAL - The large elevational range, little disturbance to bank vegetation, and presence of old growth habitat are special attributes. High likelihood of sensitive or threatened species located within the corridor. The area contains outstandingly remarkable value botanic resources.
Sheep Creek (Washington)		
Upstream from the confluence with Tucannon River	Recreation – 0.5	SCENERY - Sheep Creek Falls is a scenic location that specifically attracts visitors to this area and has been long noted for its unusual vegetation. Flora accompanied by rock walls of overhanging moss and spring water creates an aesthetic environment and scenery within the corridor is special and unique. Scenery qualifies as an outstandingly remarkable value.
		FISHERIES - Sheep Creek contains native Chinook, bull trout, and steelhead, which are federally-listed as threatened under the ESA. Bull trout populations in Tucannon River are considered isolated and unique. Habitat is limited but pristine. The assessment finds the fisheries habitat and populations to be outstandingly remarkable values.

Description of Segment Potential	Potential Classification (miles)	Summary of Outstandingly Remarkable Values
		<p>BOTANICAL/ECOLOGICAL - The plant communities are unusually diverse and represent some uncommon species. The Sheep Creek Falls refugia is a botanical Special Interest Area and is a recreation attraction. The area contains outstandingly remarkable value botanic resources.</p>
South Fork Desolation Creek		
<p>Headwaters to confluence with main Desolation Creek</p>	<p>Scenic – 9</p>	<p>FISHERIES - Isolated fish populations in the upper portion have significance as a genetic resource and the lower portion provides spawning habitat for steelhead, Chinook, redband trout, and Columbia River bull trout. The diversity of habitat is unique to the region. The populations and habitat comprise an outstandingly remarkable value fisheries.</p>
		<p>BOTANICAL/ECOLOGICAL - Regionally unique and rare plant species have been identified in the high elevation meadows along the stream corridor. The stream corridor displays a broad range of botanic diversity due to the fire-dependent ecosystems. The ecological diversity is exceptional and exhibits outstandingly remarkable values for botany and plant ecology.</p>
Tucannon River		
<p>From headwaters to the Tucannon Guard Station</p>	<p>Wild – 9.1, Scenic – 4.6, Recreation – 8.6</p>	<p>RECREATION - Because of this river setting, most use originates outside the local area. The river-related environment is the focal attraction, particularly attractive to visitors seeking sightseeing, camping, fishing, wildlife viewing, photography, hiking, and other outdoor activities in a natural appearing landscape. Camp Wooten instills a lifelong allegiance to the corridor for many youth. Potential interpretive opportunities are varied and could reach a wide audience. Conditions of the river-related setting make recreation an outstandingly remarkable value.</p>
		<p>FISHERIES - Each drainage has some distinct genetic traits. Endangered and sensitive listed fish are present and the complex habitat is exemplary. The populations along with the habitat comprise an outstandingly remarkable value for fisheries.</p>
		<p>CULTURAL/HISTORIC - The Tucannon River corridor has a long history of settlement, resource use, and recreation and some historic evidence exists. Early maps show homesteads, a sawmill, schoolhouse, trail system, roads, telephone lines, camps, and a ranger station. Interpretation may enhance the value of recognized heritage resources. The presence of old structures, along with the likelihood of other historic finds, make the historic resource an outstandingly remarkable value.</p>

Description of Segment Potential	Potential Classification (miles)	Summary of Outstandingly Remarkable Values
		<p>BOTANY/ECOLOGY - The general condition, health, and stability of the riparian vegetation is among the highest in the Blue Mountains. The plant community is unusually diverse representing some uncommon species. Sheep Creek Falls is the basis for a Botanical Special Interest Area. The complex riparian habitat is critical for survival of endangered and sensitive fish species. The area contains outstandingly remarkable value botanic resources.</p>
Big Sheep Creek		
<p>From the headwaters (and including) the North Fork, Middle Fork and South Fork to the Imnaha WSR boundary.</p>	<p>Wild – 9.5 Recreation – 38.5</p>	<p>RECREATION - The quality, variety, and year-round recreation opportunities available along middle and upper Big Sheep Creek make it a popular area with local and regional visitors. The stream corridor is an excellent area for viewing wildlife. Conditions of the river-related setting make recreation an outstandingly remarkable value upstream from Carrol Creek.</p> <p>FISHERIES – Populations of Chinook salmon; steelhead; native rainbow trout; and established bull trout are present. Big Sheep Creek supports populations of fish species that are regionally and nationally important, and has a great potential for high-quality fisheries habitat for indigenous stocks. The populations along with the habitat comprise an outstandingly remarkable value fisheries value.</p> <p>CULTURAL/PREHISTORIC – There are known sites that are either named to the National Register of Historic Places or are eligible and the stream corridor contains a unique concentration of prehistoric sites. The presence of old structures and historical human interest make the historic resource an outstandingly remarkable value.</p>
Dutch Flat/ Van Patton Creek		
<p>From the Headwaters of Dutch Flat Creek to the forest boundary including Van Patton Creek from Van Patton Lake to its confluence with Dutch Flat Creek.</p>	<p>Wild – 9.1</p>	<p>SCENERY - Plant diversity, mountain meadows, and mountain vistas of rugged Elkhorn Ridge provide year long, high-quality scenic values in the stream corridor. Natural patterns created by topography and natural processes such as lightning fires, avalanches, and rock slides, dominate the landscape character. The scenic diversity in landform, color, and vegetation qualifies as an outstandingly remarkable value.</p> <p>RECREATION - The Dutch Flat Creek system offers a diversity of remote, semi-primitive recreation opportunities including hunting, fishing, hiking, mountain biking, sightseeing and horseback riding. The variety and remoteness of opportunities in the corridor provide an outstandingly remarkable value for recreation.</p> <p>GEOLOGIC - Excellent examples of glacial plucking, striation, and polish, and exfoliation features that in some locations rival features preserved in Yosemite National Park. Dutch Flat Creek and Van Patton Creek are determined to contain outstandingly remarkable value for geologic features.</p>

Description of Segment Potential	Potential Classification (miles)	Summary of Outstandingly Remarkable Values
		<p>HYDROLOGY - The high gradient reaches below Dutch Flat Lake are characterized by steep riffles and water cascading over boulders. Dutch Flat Creek provides excellent examples of several distinct types of distinctive stream channels not represented by other established northeastern Oregon Wild and Scenic Rivers. The hydrology of Dutch Flat Creek was considered to be outstandingly remarkable value from its confluence with Van Patton Creek to its headwaters.</p> <p>BOTANICAL/ECOLOGICAL – Sensitive plants species occur in the upper reaches of Dutch Flat Creek including <i>Allium madidum</i> and <i>Lycopodium annotinum</i>. The ecological diversity is exceptional and exhibits outstandingly remarkable value for botany and plant ecology in the upper reaches of Dutch Flat Creek.</p>
East Eagle Creek		
Headwaters in the Eagle Cap Wilderness to the confluence of Eagle and East Eagle Creeks.	Scenic – 2.0 Wild – 9.0 Recreation – 4.5	<p>SCENERY - Attractions that combine to create East Eagle Creek's scenic beauty are the glaciated landscape; the steep, forested canyon with numerous waterfalls, rapids, and deep pools; and the views of Granite Cliff and Krag Peak. Vegetation diversity includes lush meadows; subalpine fir and spruce; larch, fir, and ponderosa pine forests; and grassy openings. East Eagle Creek has been a focus of human interest since the turn of the century, however visual impacts remain relatively minor and the drainage presents an overall natural landscape. The scenic diversity in landform, water, color, and vegetation qualifies as an outstandingly remarkable value.</p> <p>RECREATION - The quality and diversity of dispersed recreation opportunities available along the East Eagle Creek make it a popular area almost year-round. There are exceptional opportunities to develop interpretive sites or tours to explain the area's unique natural and cultural history. Interpretation of the area's gold mining history could be developed to complement the other nearby historic sites such as the Oregon Trail Interpretive Center, potentially attracting visitors from outside the geographic region. Conditions of the river-related setting make recreation an outstandingly remarkable value.</p> <p>FISHERIES - East Eagle Creek is known for its excellent trout fishing and supports significant fishing activity throughout the season. The importance of the existing good-to-high-quality habitat which supports native trout, possibly including bull trout is notable. The populations along with the habitat comprise an outstandingly remarkable value for fisheries.</p> <p>HYDROLOGIC – East Eagle Creek's excellent water quality and near-natural hydrologic regime are important factors. The water quality is determined to be an outstandingly remarkable value.</p>

Description of Segment Potential	Potential Classification (miles)	Summary of Outstandingly Remarkable Values
		<p>GEOLOGIC - The variety of rare and exemplary geologic features in the corridor, particularly in the middle and lower reaches of East Eagle Creek merit the recognition. The quality, variety, and importance of the geology qualify as an outstandingly remarkable value.</p> <p>CULTURAL/HISTORIC - The settlement of northeast Oregon is tied to the discovery of gold and East Eagle Creek still has much evidence of this history. Outstanding opportunities exist to interpret a number of features located in fairly close proximity within the corridor. The presence of old structures and historical human interest make the historic resource an outstandingly remarkable value.</p>
Five Points Creek		
<p>Headwaters north of the confluence with the Middle Fork of Five Points Creek to the NF boundary about ¼-mile southwest of Blacksmith Canyon.</p>	<p>Wild – 12</p>	<p>SCENERY - The combination of distinctive landscape elements, lack of cultural modifications, and the primitive and undisturbed nature of the view shed are notable. Scenery qualifies as an outstandingly remarkable value.</p> <p>FISHERIES - The presence of summer steelhead and native rainbow trout populations and the existing “high quality” of fisheries habitat (specifically water quality, low temperatures, low turbidity) for indigenous stocks and for spring/summer Chinook salmon in the Grande Ronde River. The populations along with the habitat comprise an outstandingly remarkable value for fisheries.</p> <p>WILDLIFE – The existing habitat is significant and the presence of wildlife species of interest, including the bald eagle and a significant population of elk are notable. The quality, variety, and importance of existing wildlife habitat, comprise an outstandingly remarkable value for wildlife.</p>
Granite Creek (Idaho)		
<p>Headwaters in the Seven Devils Mountains to the Snake WSR boundary.</p>	<p>Wild – 12.5</p>	<p>SCENERY - The variety in the landscape in Granite Creek is dramatic and memorable. Transcending from glaciated landscape to steep forested canyon to dry bunchgrass canyon and then to green riparian vegetation. The contrast between the lush green meadows, subalpine forests of the upper portion and the grass-covered slopes with prickly pear and greenbush in the lower portion is notable. The entire drainage, for its whole length from rim to rim, is essentially undeveloped, presenting a vestige of primitive America. The scenic diversity in landform, water, color, and vegetation qualifies as an outstandingly remarkable value.</p>

Description of Segment Potential	Potential Classification (miles)	Summary of Outstandingly Remarkable Values
		<p>FISHERIES - The presence of spring Chinook, steelhead, and native rainbow trout along with the possibility of native cutthroat and bull trout populations are notable. In addition, Granite Creek supports populations of fish species that are regionally and nationally important, and has high quality fisheries habitat for indigenous stocks. The populations along with the habitat comprise an outstandingly remarkable value for fisheries.</p> <p>WILDLIFE - The diversity of habitat, inaccessibility, and quality of the habitat as well as the present and potential use of the area by threatened and endangered species including peregrine falcon, wolf, and grizzly bear. The quality, variety, and importance of existing wildlife habitat, comprise outstandingly remarkable value for wildlife.</p> <p>BOTANICAL/ECOLOGICAL - Unique to Granite Creek is the diversity of plant species and the number of plant communities found in the corridor, which encompass at least four major habitat types. And the habitat for six potential threatened and endangered plant species exists. – A portion of a Research Natural Area is also located in the corridor. The ecological diversity is exceptional and exhibits outstandingly remarkable values for botany and plant ecology.</p>
Killamacue/ Rock Creek		
<p>Killamacue Creek from its headwaters to the diversion ditch near the confluence with Rock Creek, and Rock Creek from below the outlet of Rock Creek Dam to the NF boundary including North Fork and South Fork Rock Creek.</p>	<p>Wild – 11.9 Scenic – 7.0</p>	<p>SCENERY - High-quality scenic values include plant diversity, mountain meadows, and mountain vistas of the Elkhorns, a rocky and rugged range with aspen groves scattered among granite outcroppings. Other outstanding scenery associated with rock forms, timber stands and open alpine and subalpine vistas exhibit an overall natural and undeveloped character. Scenery in these drainages qualifies as an outstandingly remarkable value.</p> <p>RECREATION - The Rock Creek corridor offers a unique opportunity in northeast Oregon to access a relatively primitive setting by four-wheel drive vehicle. The amount of semi-primitive roads in an area this large makes it unique to the region and important for semi-primitive motorized travel recreational opportunities with easy access from Interstate 84 and the Baker Valley. The Killamacue and Rock Creek system offer a diversity of semiprimitive recreation opportunities in a remote relatively primitive setting with low use. The variety and remoteness of recreation opportunities in the corridor provide an outstandingly remarkable value for recreation.</p>

Description of Segment Potential	Potential Classification (miles)	Summary of Outstandingly Remarkable Values
		<p>GEOLOGIC - The upper drainages of the North Fork of Rock Creek and of Killamacue Creek contain exposures of a rare rock type called lamprophyre. Study of these rocks will provide outstanding and critical contributions to understanding the tectonic history of northeast Oregon. Killamacue Creek drainage contains a narrow glacial hanging valley and the polished outcrops and rounded glacial forms are easily visible, easy to access, and major in scope. The quality, variety, and importance of the geology qualify as an outstandingly remarkable value.</p> <p>BOTANICAL/ECOLOGICAL - Killamacue Creek has nine different wetland types along the relatively short study reach and the number and diversity of wetland types is unique in such a small area. Because the plants, meadows, riparian areas, and plant associations are common in northeast Oregon, Rock Creek does not contain ecological/botanical outstandingly remarkable value values, although some sensitive plant species are present. Killamacue Creek exhibits outstandingly remarkable values for ecological and botanical values.</p>
North Fork Catherine Creek		
<p>From its headwaters in the Eagle Cap Wilderness to the National Forest boundary near its confluence with South Fork Catherine Creek.</p>	<p>Wild- 10.5 (from headwaters to Catherine Creek Campground) Recreation – 2.5 (from Catherine creek campground to NF boundary)</p>	<p>SCENERY - The North Fork Catherine Creek drainage possesses scenic features notable in the geographic region. Some of the attributes that contribute to the scenic value of the area include the diversity of landforms from the glaciated headwaters to the dissected basalt uplands found lower in the corridor, the free-flowing river, and the diversity of vegetation. The scenery of the area qualifies as an outstandingly remarkable value.</p> <p>RECREATION - The quality and diversity of recreational opportunities available in the North Fork Catherine Creek corridor makes it a popular area with local residents and draws a substantial number of visitors from outside the region. Conditions of the river-related setting make recreation an outstandingly remarkable value.</p> <p>FISHERIES - The presence of stable habitat supporting four salmonid species, including three federally listed species, is highly significant regionally. Critical spring/summer Chinook salmon spawning habitat is found in this portion of the river. The populations along with the habitat comprise an outstandingly remarkable value for fisheries.</p>

Description of Segment Potential	Potential Classification (miles)	Summary of Outstandingly Remarkable Values
		<p>WILDLIFE - The presence of high-quality wildlife habitat; the number of kinds of habitat; the presence of unique habitat; the juxtapositions of habitats; the contiguous nature of riparian corridors; all contribute to an ecosystem component unmatched in diversity. The diversity of vegetation, number of natural edges utilized by big-game and nongame species, and presence of old-growth mixed conifer stands in the corridor, provide important habitat for a variety of wildlife species. The diversity of habitat found in the corridor supports a finding of outstandingly remarkable value.</p>
Sheep Creek (Idaho)		
<p>Headwaters in the Seven Devils Mountains to the Snake WSR boundary.</p>	<p>Wild – 15.6</p>	<p>SCENERY - The corridor possesses a great deal of diversity in landform, water, color, and vegetation. Scenic attributes include glaciated landscapes, numerous waterfalls, steep forested canyons, and dominant views of the Seven Devils as well as an abrupt change to grass-covered slopes with associated prickly pear cactus zone. The beauty of Sheep Creek can be viewed from the trails within the drainage as well as from the Heavens Gate Scenic Overlook. The scenic diversity in landform, watercolor, and vegetation qualifies as an outstandingly remarkable value.</p> <p>BOTANICAL/ECOLOGICAL - Unique to Sheep Creek is the diversity of plant species and the number of plant communities found in the corridor encompassing at least four major habitat types. In addition, habitat for six potential threatened and endangered plant species. The ecological diversity is exceptional and exhibits outstandingly remarkable value for botany and plant ecology.</p> <p>FISHERIES - Sheep Creek supports populations of fish species that are regionally and nationally important including Chinook Salmon and steelhead, and high-quality fisheries habitat for indigenous stocks such as native rainbow and bull trout. The populations along with the habitat comprise an outstandingly remarkable value for fisheries.</p> <p>WILDLIFE – The area’s inaccessibility as well as the diversity and quality of the habitat and potential use of the area by threatened and endangered species such as peregrine falcon, wolf, and grizzly bear provide excellent wildlife values in the Sheep Creek corridor. The quality, variety, and importance of existing wildlife habitat, comprise an outstandingly remarkable value for wildlife.</p> <p>CULTURAL/PREHISTORIC - The Sheep Creek corridor contains a unique concentration of prehistoric sites including a large village and other known significant sites. Known cultural resources present in the corridor and potential future discoveries, make the cultural and historic resource an outstandingly remarkable value.</p>

Description of Segment Potential	Potential Classification (miles)	Summary of Outstandingly Remarkable Values
Snake River		
North end of designated waterway to forest boundary near Cache Creek	4.29 miles	<p>SCENERY - The river corridor is recognized nationally for its scenic qualities. Great contrasts in landform, vegetation, color, climate and sound are found. The scenery within view of the Snake River is an outstandingly remarkable value.</p>
		<p>RECREATION - The wide range of available recreation activities, the unique backcountry river setting, and the diversity of users combine to make recreation an outstandingly remarkable value value.</p>
		<p>GEOLOGIC - The geological research potential of the river corridor and adjacent canyon is significant. The canyon has been the source of numerous research projects. Based on these factors, the geology is an outstandingly remarkable value.</p>
		<p>WILDLIFE - The number and diversity of wildlife species that inhabit the corridor establishes its importance as wildlife habitat. The area incorporates significant migration, wintering, and year-round habitat for numerous wildlife species and provides opportunities for human interactions. Wildlife and wildlife habitat are outstandingly remarkable values of the river corridor.</p>
		<p>FISHERIES - The diverse fish stocks are important internationally, nationally, and regionally for their sport fishing, commercial, historic values, and contribution to river ecology. The anadromous fisheries are important as producers for high seas commercial fish harvest. Nationally and regionally, the river is known for its abundant, unique, and diverse sport fishery. The Snake River supports stocks of anadromous fish as well as resident species of native fish. Federally listed threatened, endangered, and sensitive species occur throughout the segment. Fisheries is an outstandingly remarkable value of the Snake River.</p>
		<p>CULTURAL/HISTORIC and PREHISTORIC - The river corridor contains one of the richest accumulations of riverine archaeological resources in western North America. Historic site types include the remnants of subsistence homesteads, mining sites, shipwrecks, and steamboat landings. Prehistoric site types include pithouse village sites, rock shelters, and rock art sites. The research potential of the river corridor is unlimited and has been the basis for numerous professional publications. The historic and prehistoric cultural resources within the Snake River corridor represent an outstandingly remarkable value.</p>
		<p>VEGETATION/BOTANICAL - Few locations in the Pacific Northwest, or western North America, equal the Snake River canyon in the concentration and number of rare or endemic plant species. The vegetation/botanical resource of the Snake River corridor is an outstandingly remarkable value.</p>

Description of Segment Potential	Potential Classification (miles)	Summary of Outstandingly Remarkable Values
		<p>ECOLOGICAL - The special river environment that reflects the values inherent in the scenic, geologic, fisheries and wildlife resources indicate the uniqueness and importance of the river corridor. Unusual and specific relationships in the flora and fauna of the river corridor make ecological aspects of the Snake River an outstandingly remarkable value.</p>
Swamp Creek		
<p>From the National Forest boundary to the WSR boundary.</p>	<p>Wild – 8.5 Recreation – 9.5</p>	<p>FISHERIES - In addition, Swamp Creek supports a wild summer steelhead population that is regionally important, and has potential for high-quality fisheries habitat for indigenous stocks including native rainbow trout populations. The populations along with the habitat comprise an outstandingly remarkable value for fisheries</p> <p>WILDLIFE - The inaccessibility, diversity, and significance of the wildlife populations in Swamp Creek along with the presence of bald eagles and the large stretch of riparian habitat make the area important. The quality, variety, and importance of existing wildlife habitat, comprise outstandingly remarkable value for wildlife.</p> <p>CULTURAL/HISTORIC - The Swamp Creek stream corridor plays a vital role in Nez Perce tribal history. Most important is the proximity to the gathering place for Chief Joseph and his band at the confluence of the Grande Ronde River and Joseph Creek. In addition, the old homesteads and evidence of railroad logging add to the interpretive potential of the area. Important cultural resources along with the presence of old structures and historical human interest make the cultural and historic resource an outstandingly remarkable value.</p>
Upper Grand Ronde River		
<p>Headwaters to the National Forest boundary near the mouth of Fly Creek</p>	<p>Wild – 11 Recreation – 19</p>	<p>RECREATION - The quality and variety of recreation opportunities available along the Upper Grande Ronde River make it a popular area with local and regional visitors. The river corridor is an excellent area for viewing wildlife and is one of the most heavily used areas in the state during the fall big game hunting seasons. Conditions of the river-related setting make recreation an outstandingly remarkable value.</p> <p>FISHERIES – This river provides critical spring and summer spawning habitat for Chinook salmon, steelhead, and bull trout species. The fish populations along with the habitat comprise an outstandingly remarkable value for fisheries.</p> <p>WILDLIFE - The presence of suitable habitat for bald eagles and their use of the river corridor; high quality and quantity of wildlife habitat; the presence of unique habitat; the juxtapositions of habitats and contiguous nature of riparian corridors, all contribute to an uncommon ecosystem. The quality, variety, and importance of existing wildlife habitat, comprise an outstandingly remarkable value for wildlife.</p>

Description of Segment Potential	Potential Classification (miles)	Summary of Outstandingly Remarkable Values
		<p>CULTURAL/HISTORIC - There are several features of historical human interest in the corridor. The splash dam in Vey Meadows is a relatively unique feature for northeast Oregon as well as the Camp Carson historic mining district which is potentially eligible for the National Register of Historic Places. Interpretive opportunities are excellent. The presence of old structures and historical human interest make the historic resource an outstandingly remarkable value.</p>

Appendix F: Wilderness Evaluation

Introduction

When revising a land management plan, the national forests are required by the National Forest Management Act (NFMA) to evaluate potential wilderness areas and to determine whether these areas should be recommended to Congress for wilderness designation. This document describes the process used to evaluate the wilderness potential of 76 areas within the Blue Mountains forests plan revision area.

The forest plan revision team determined suitability of potential wilderness areas for Wilderness designation by evaluating capability, availability and need. There were 76 potential wilderness areas identified within the Blue Mountains national forests, and each was evaluated for these attributes. The Wilderness Need Evaluation (March 25, 2010) was completed for the entire Blue Mountains forests plan revision area and many of these areas were determined to have capacity and availability for wilderness designation; however, a need was not identified to be present. While an area may not ‘need’ to be formally designated to protect resources, there may be other reasons for proposing designation. Political and social factors also play a part in deciding whether to propose areas for inclusion in the wilderness system; these factors are not addressed in this evaluation.

The following documents are available in the project record and provide more detailed information on the wilderness evaluation:

- Wilderness Area Need Evaluation (March 2010)
- Malheur National Forest Review of Areas with Wilderness Potential (March 2010)
- Umatilla National Forest Review of Areas with Wilderness Potential (March 2010)
- Wallowa-Whitman National Forest Review of Areas with Wilderness Potential (March 2010)

Potential Wilderness Areas

The analysis first examined the current inventoried roadless areas (areas identified in Appendix C --Inventoried Roadless Areas, of each forest’s 1990 Land and Resource Management Plan Final EIS) to determine if these areas met the criteria for potential wilderness areas. Some areas in the inventory did not meet the criteria for wilderness designation. In addition, the remaining forest system lands in the three forests were examined to see if there are other areas with wilderness potential. Several areas were found that met the wilderness criteria stipulated in FSH 1909.12 71.1 – Inventory Criteria. Both these efforts followed direction outlined in the implementing regulations for the NFMA (36 CFR 219.18) and Forest Service Handbook (FSH 1909.12, Chapter 70) which states: “Areas qualify for placement on the potential wilderness inventory if they meet the statutory definition of wilderness. Include areas that meet either criteria 1 and 3, or criteria 2 and 3 below.

1. Areas contain 5,000 acres or more.
2. Areas contain less than 5,000 acres, but can meet one or more of the following criteria:

- ◆ Areas can be preserved due to physical terrain and natural conditions;
 - ◆ Areas are self-contained ecosystems, such as an island, that can be effectively managed as a separate unit of the National Wilderness Preservation System; and
 - ◆ Areas are contiguous to existing wilderness, primitive areas, administration-endorsed wilderness, or potential wilderness in other Federal ownership, regardless of their size.
3. Areas do not contain forest roads (36 CFR 212.1) or other permanently authorized roads, except as permitted in areas east of the 100th meridian (sec. 71.12).”

All areas meeting the criteria for wilderness designation were considered potential wilderness areas and evaluated as possible recommendations for designation as wilderness.

Through this process, 76 potential wilderness areas were identified within the Blue Mountains national forests. These areas cover 705,310 acres or 13 percent of the National Forest System lands. Refer to individual forests Review of Areas with Wilderness Potential for a complete list of each of the 76 areas by national forest.

Suitability Analysis

Three tests—capability, availability, and need—were used to determine suitability as described in Forest Service Handbook 1909.12, chapter 70. In addition to the inherent wilderness qualities an area might possess, the area must provide opportunities and experiences that are dependent on and enhanced by a wilderness environment. The area and boundaries must allow the area to be managed as wilderness.

- Capability is the degree to which the area contains the basic characteristics that make it suitable for wilderness recommendation without regard to its availability for or need as wilderness. All areas that are determined to be capable are evaluated for availability. (FSH 1909.12 Chapter 70 subpart 72.1)
- Availability of the area for wilderness designation is conditioned by the value of and need for wilderness resource compared to the value of and need for other resources. (FSH 1909.12 Chapter 70, subpart 72.2)
- Need for wilderness designation is determined through an analysis of the degree to which an area contributes to the National Wilderness Preservation System based on several factors on both a regional and a local basis. (FSH 1909.12 Chapter 70 subpart 72.3)

Capability and Availability Evaluation

Determining the capability of an area to provide a wilderness experience considers elements, activities, or features that describe the basic characteristics of wilderness. Criteria were established to consider existing as well as future conditions within and adjacent to the inventoried roadless area. The criteria are shown in table F-1.

Table F-1. Area capability assessment criteria

High	Moderate	Low
Environmental Elements		
Opportunity for Solitude		
<ul style="list-style-type: none"> • Feeling of being alone or remote from civilization. • The possibility of meeting another party is remote. • Recreation use is light. 	<ul style="list-style-type: none"> • Feeling of being alone is possible but signs of civilization are likely. • The possibility of meeting or not meeting another party is about equal. • Recreation use is moderate. 	<ul style="list-style-type: none"> • Little opportunity of feeling alone. • It would be rare NOT to meet another party. • Recreation use is high.
Natural Integrity of the Area		
<ul style="list-style-type: none"> • Free of human disturbance, or appears to be natural. • Area visible (outside of the area) human disturbances do not dominate the view. • Only minor improvements such as a trail. • Noxious weeds not evident 	<ul style="list-style-type: none"> • Mostly free of human disturbance, Natural Disturbance evident but does not dominate the area. • Area visible (outside of the area) has signs of human activities such as roads or structures. • Several minor improvements. • Noxious weeds evident in isolated spots 	<ul style="list-style-type: none"> • Signs of human disturbances, natural disturbance dominates the landscape, such as a stand replacing wildfire. • Area visible in surrounding foreground shows obvious human activity such as clearcuts or a town. • Major improvements such as a powerline, dam or road. • Noxious weeds common or scattered throughout the area
Provides Challenge and Adventure		
<ul style="list-style-type: none"> • Terrain generally rugged. • Requires above average physical ability, knowledge, or skill to recreate safely in the area. 	<ul style="list-style-type: none"> • Terrain typical for general forest area. • Requires similar physical ability, knowledge, or skill as the general forested area. 	<ul style="list-style-type: none"> • Terrain more gentle and rolling. • Area easily accessible; requires average physical ability, limited knowledge and skill as compared to the abilities required in the general forested area.
Primitive Outdoor Recreation Opportunities		
Hiking Opportunities		
<ul style="list-style-type: none"> • Two or more trails, class 3 or higher, routinely maintained. • Terrain is gentle and vegetation open to allow easy cross-country travel. 	<ul style="list-style-type: none"> • At least one trail, class 2 or higher, routinely maintained. • Terrain that is moderate or vegetation brushy that impedes cross-country travel. 	<ul style="list-style-type: none"> • No system trails that are maintained. • Terrain is steep or vegetation too dense that cross-country travel is difficult.
Backpacking Opportunities		
<ul style="list-style-type: none"> • Two or more trails, class 3 or higher, routinely maintained. • Area has several dispersed campsites that are routinely used. 	<ul style="list-style-type: none"> • At least one trail, class 2 or higher, routinely maintained. • Area has at least one dispersed campsite that is occasionally used. 	<ul style="list-style-type: none"> • No system trails that are maintained. • Area does not have dispersed campsites, but progressive camping may occur.

High	Moderate	Low
Horseback Riding/Saddle Stock		
<ul style="list-style-type: none"> • At least one trail, class 3 or higher, designed for saddle stock and routinely maintained. • Trailhead with stock facilities, such as unloading ramp. 	<ul style="list-style-type: none"> • At least one trail, class 2 or higher, suitable for saddle stock and routinely maintained. • Trailhead has room to turn around stock truck or stock trailer. 	<ul style="list-style-type: none"> • No system trails that are maintained. • Trailhead does not support use of stock.
Hunting		
<ul style="list-style-type: none"> • Good populations of the big game animals or fair population of permitted animals such as bighorn sheep or mountain goats. • Terrain is gentle and vegetation open to allow easy hunting access off trails and ridges. 	<ul style="list-style-type: none"> • Fair populations of game animals. • Terrain is moderately steep or vegetation brushy that limits hunting on much of the area. 	<ul style="list-style-type: none"> • Has scattered small herds of big game animals. • Terrain is steep or vegetation too dense that hunting is limited to trails or ridges.
Fishing		
<ul style="list-style-type: none"> • Good populations of native game fish. • Stream bottoms are generally gentle with minor brush allowing access to water. 	<ul style="list-style-type: none"> • Fair populations of native game fish. • Stream channel has enough brush to limit access; channel bottom or side slopes not overly steep. 	<ul style="list-style-type: none"> • Low populations of native game fish. • Stream channel steep, or steep rocky side slopes, or brush along channel makes access difficult.
Cross-country Skiing/Snowshoeing		
<ul style="list-style-type: none"> • Terrain is gentle and vegetation open to allow easy cross-country travel. • Area is easily accessible in winter by motorized wheeled vehicles. 	<ul style="list-style-type: none"> • Terrain is moderate or vegetation brushy that impedes cross-country travel. • Snow keeps wheeled vehicles several miles from area but access is possible by snowmobile. 	<ul style="list-style-type: none"> • Terrain is steep, or vegetation too dense that cross-country travel is difficult. • Area difficult or rarely accessed by snowmobile
Special Features		
Unique Fish, Wildlife, Plants and/or Plant Associations		
<ul style="list-style-type: none"> • Diverse community of native mammals, birds and fish. • There is a known high variety of threatened, endangered and sensitive species within the area. • Overall habitat integrity rating of high. • Provides critical linkage between wildlife areas or habitats. 	<ul style="list-style-type: none"> • Moderate variety of native mammals, birds and fish. • There is a known moderate variety of threatened, endangered and sensitive species within the area. • Overall habitat integrity rating of moderate. • Provides linkage between wildlife areas or habitats. 	<ul style="list-style-type: none"> • Community of native mammals, birds and fish is not diverse. • There is a known low variety of threatened, endangered and sensitive species within the area. • Overall habitat integrity rating of low. • Does not provide linkage between wildlife areas or habitats.
Potential or Existing Research Natural Area		
<ul style="list-style-type: none"> • Area contains an established special area such as a research natural area. 	<ul style="list-style-type: none"> • Area contains a candidate or eligible research natural area. 	<ul style="list-style-type: none"> • Area does not contain potential or eligible area for research natural area.

High	Moderate	Low
Scenic Features		
<ul style="list-style-type: none"> Area has peaks or rocky formations considered spectacular from the rest of the Forest and/or special vegetative features that are considered very scenic. 	<ul style="list-style-type: none"> Area has a peak or formation that stands out from surrounding terrain and/or vegetative features considered scenic. 	<ul style="list-style-type: none"> Terrain is typical of the forest or surrounding area and the vegetation is common to the surrounding area.
Significant Cultural Resources		
<ul style="list-style-type: none"> IRA contains several historic or prehistoric areas or sites such as those eligible as National Register Historic Sites. Identified values are unique to the Blue Mountain area. 	<ul style="list-style-type: none"> IRA contains at least one historic or prehistoric area or site such as those eligible as National Register Historic Sites. Identified values are common in Northwestern U.S., but are uncommon in the Blue Mountain area. 	<ul style="list-style-type: none"> IRA contains no historic or prehistoric areas or sites such as those eligible as National Register Historic Sites. Identified values are common to the northwest U.S. and to the Blue Mountain area.
Manageable Boundaries		
Recognizable Boundaries or conform to terrain		
<ul style="list-style-type: none"> Vast majority of boundary follows features that can be identified on the ground such as dominant ridge, creek, road or trail. Boundary can be easily adjusted to follow locatable and identifiable features without significantly modifying the area boundaries. 	<ul style="list-style-type: none"> More than half of the boundary follows a feature that can be easily found on the ground. Boundary can be adjusted to follow locatable and identifiable features but will modify the general size and shape of the IRA. Boundary may be identified with minimal signing. 	<ul style="list-style-type: none"> Boundary generally lies across the hillside and can rarely be located without equipment, such as GPS unit. Boundary cannot be adjusted to follow locatable and identifiable features, or requires extensive signing.
Boundary isolates area from influence by outside activities		
<ul style="list-style-type: none"> Area accessed by trail or closed and revegetated road; adjacent area has natural setting. No active disturbance near boundary. Natural processes take place undisturbed and unmanipulated. 	<ul style="list-style-type: none"> May be accessed by narrow or two track open road that is lightly traveled; minimal human presence is evident. May have disturbance near boundary, but it is short term such as a logging operation. Minimal disturbance of natural processes. 	<ul style="list-style-type: none"> Boundary adjacent to heavily used road or along area showing high human presence, such as private lands with structures or cultivated land. Boundary adjacent to long-term disturbance like farmland or mining operations. Natural processes cannot occur without human intervention.
Boundaries are Manageable		
<ul style="list-style-type: none"> Boundary total on National Forest and not adjacent to private lands. No inholdings. 	<ul style="list-style-type: none"> Boundary follows property line forming irregular shape. Few small inholdings may be present. 	<ul style="list-style-type: none"> Boundary crosses private property so there are inholdings along the boundary. Several small or large inholdings.

High	Moderate	Low
Boundaries are a barrier to prohibited uses		
<ul style="list-style-type: none"> • Topographic features provide a natural barrier, such as major stream of steep hillside. • Human improvement is significant to physically provide a barrier, such as a road cut slope. 	<ul style="list-style-type: none"> • Topography generally makes it difficult to participate in prohibited uses. • Human improvement places user on notice of prohibited use, such as a sign. 	<ul style="list-style-type: none"> • Topography not a deterrent to prohibited uses. • Human improvement not a deterrent; may provide a point of access of prohibited uses.

Using these criteria, the capability of each area was rated by the forest plan interdisciplinary revision team as high, moderate/high, moderate, moderate/low, or low. Moderate/high and moderate/low ratings were only used when an inventoried roadless area did not clearly fit into one or the other category or was considered in transition between two established ratings. Tables F-2, F-3, and F-4 summarize the results for each potential wilderness area by forest.

Table F-2. Capability results for the Malheur National Forest

Malheur Areas	Capability Rating	Availability Rating
Aldrich Mountain	Moderate	Available
Baldy Mountain	Moderate	Available
Cedar Grove	Low	Available
Dixie Butte	Moderate/Low	Not Available
Dry Cabin	Moderate/High	Available
Flag Creek	N/A	N/A
Fox Creek	N/A	N/A
Glacier Mountain	Moderate	Available
Greenhorn Mountain	Moderate/Low	Not Available
Jumpoff Joe	Moderate	Available
Malheur River	Moderate	Available
McClellan Mountain	Moderate	Available
Myrtle Silvies	Low	Not Available
Nipple Butte	Low	Available
North Fork Malheur River	N/A	N/A
Pine Creek	Low	Available
Shaketable	Moderate	Available
Silver Creek	N/A	N/A
Strawberry Mountain Additions	Moderate	Available
Utley Butte	Low	Available

Table F-3. Capability results for the Umatilla National Forest

Umatilla Areas	Capability Rating	Availability Rating
Asotin Creek	Moderate	Available
Grande Ronde	Moderate	Available
Greenhorn Mountain	Moderate/Low	Not Available
Hellhole	High	Not Available
Horseshoe Ridge	Moderate/Low	Available
Jaussaud Corral	Low	Not Available
Jumpoff Joe	Moderate	Available
Lookingglass	Moderate	Not Available
Meadow Creek	Low	Not Available
Mill Creek Watershed	Moderate	Not Available
North Fork John Day Additions	Unknown	Unknown
North Fork Umatilla Additions	Moderate	Not Available
North Mount Emily	Low	Available
Owsley	Moderate	Not Available
Potamus	Moderate	Available
Skookum	Low	Available
South Fork - Tower	Low	Not Available
Spangler	Moderate	Not Available
Squaw (Little Fly)	Low	Not Available
Texas Butte	Moderate	Not Available
Tiger Creek	Moderate	Available
Upper Tucannon	Moderate	Available
W - T Three	High	Available
Walla Walla River	Moderate	Available
Wenatchee Creek	High	Available
Willow Springs	Moderate	Available

Table F-4. Capability results for the Wallowa-Whitman National Forest

Wallowa-Whitman Areas	Capability Rating	Availability Rating
Beaver Creek	Moderate	Not Available
Big Canyon Id	Moderate	Available
Boulder Park	Moderate	Available
Buckhorn	Moderate	Available
Castle Ridge	Moderate	Not Available
Cook Ridge	Moderate	Available
Deadhorse	Low	Available
Dunns Bluff	Low	Available
Grande Ronde	Moderate	Available
Greenhorn Mountain	Moderate/Low	Not Available
Hellhole	High	Not Available
Homestead	Low	Available
Huckleberry	Moderate	Available
Hurricane Creek	Low	Available
Imnaha Face	Moderate	Available
Joseph Canyon	Moderate	Available
Klopton-Corral Creek	Moderate	Available
Lake Fork	Moderate	Not Available
Lick Creek	Moderate	Not Available
Little Creek	High	Not Available
Little Eagle Meadows	Moderate	Available
Little Sheep	Low	Not Available
Lord Flat Somers Point	Moderate	Available
Marble Point	Moderate	Not Available
Monument Rock	Low	Available
Mountain Sheep	Moderate	Not Available
Mt. Emily	Low	Not Available
North Mount Emily	Low	Available
Reservoir	Low	Not Available
Sheep Divide	Low	Available
Snake River	Moderate	Available
Squaw	Low	Not Available
Tope Creek	Low	Available
South Fork/Tower	Low	Not Available
Twin Mountain	Moderate	Not Available
Upper Catherine Creek	Moderate	Not Available
Upper Grande Ronde	Moderate	Available
Wildhorse	Moderate	Available

Need Evaluation

A Wilderness Needs Assessment was completed in 2010 by the forest plan interdisciplinary team. This evaluation determined the need to include these areas as part of the overall National Wilderness Preservation System. This assessment covered the Blue Mountains national forests planning area as whole, not individual potential wilderness areas. The need for additional wilderness in the Blue Mountains was assessed using the following factors from the Forest Service Handbook (FSH 1902.12, Chapter 70 Subpart 72.31):

8. The location, size, and type of other wilderness areas in the general vicinity and their distance from the proposed area. Considering accessibility of areas to population centers and user groups. Public demand for wilderness may increase with proximity to growing population centers.
9. Present visitor pressure on other wilderness areas, the trends in use, changing patterns of use, population expansion factors, and trends and changes in transportation.
10. The extent to which nonwilderness lands on the national forests or other federal lands are likely to provide opportunities for unconfined outdoor recreation experiences.
11. The need to provide a refuge for those species that have demonstrated an inability to survive in less than primitive surroundings or the need for a protected area for other unique scientific values or phenomena.
12. Within social and biological limits, management may increase the capacity of established wildernesses to support human use without unacceptable depreciation of the wilderness resource.
13. An area's ability to provide for preservation of identifiable landform types and ecosystems. Consideration of this factor may include utilization of Edwin A. Hammond's subdivision of landform types and the Bailey-Kuchler ecosystem classification. This approach is helpful from the standpoint of round out the National Wilderness Preservation System and may be further subdivided to suit local, subregional, and regional needs.

The evaluation provides decision makers with information on the resources and uses of each area, and a regional context for making wilderness designation proposals. Proposing wilderness through the Wilderness Evaluations and the completed revised Forest Plan is not the only route for making wilderness proposals. A wilderness recommendation may also be made based on needs brought forward through public comment. Therefore, the decision to propose a wilderness recommendation is not entirely based on need, but may be made based on various land management strategies and factors which include maintaining biological and natural function and diversity within and on the natural landscape. The following is a summary of the findings from the need evaluation.

Factor 1 – Location, Size, Type of Wilderness; Demographics; and Accessibility

Designated wilderness areas in the Blue Mountains are more remote and less accessible to major population centers than other wilderness areas in the general vicinity. While the current designated wilderness areas offer opportunities for solitude, the time and expense needed to visit the Blue Mountains limits the number of out-of-area visitors that utilize current wilderness. Only a small percentage of the use in current wilderness occurs by other than local residents. Given the expected population growth in the general vicinity over the next 15 years, this is not expected to change.

Factor 2 – Use, Visitors, and Changing Patterns of Use

Currently, use of the Blue Mountains wilderness areas account for only a small part (8 percent) of the overall use on the Blue Mountains and even a smaller proportion (4 percent) of the use of national forest lands in the general vicinity. Use trend data suggests that aging populations and shifts in the type of activities younger people are interested in will result in a 2 to 8 percent increase in demand for activities over the next 15 years. This increase will primarily be in day uses from non-wilderness areas. Current wilderness areas in the Blue Mountains reach capacity only in specific areas during brief, high use periods.

Factor 3 - Opportunities for Unconfined Outdoor Recreation Experiences

The Blue Mountains provide high potential opportunities for unconfined recreation experiences and solitude, regionally and locally. The social demand for these unconfined experiences is related to general dispersed settings, not specifically wilderness areas that provide both motorized and nonmotorized activities.

Factor 4 – Refuge for Species or Protected Areas

The draft revised land management plan will identify a variety of plan components (existing designated wilderness, management areas, desired conditions, objectives, guidelines, and monitoring). The arrangement of these areas on the landscape and the objectives and guidelines through which they are managed will set the stage for the Malheur, Umatilla and Wallowa-Whitman National Forests contribution to the diversity of native plant, animal, and fish species. Based on this conclusion, no recommendations for additional designated wilderness are needed to provide refuge for native species.

Factor 5 – Capacity of Established Wildernesses to Support Human Use

Although social desires exist for more wilderness areas across the Blue Mountains, there is not a social need to designate additional wilderness because the current wilderness areas are not exceeding capacity, except in site-specific locations on limited occasions. Alternative sites exist within and adjacent to these areas and within other wilderness areas in the Blue Mountains to accommodate visitor responses to these instances. Based on current uses, trends, primary market zones, demographic changes, crowding levels, visitor pressures, projected uses, existing opportunities for unconfined recreation, and social values. Wilderness use is unlikely to exceed the capacity of the existing wilderness areas and is not likely to result in a need for more wilderness in the next 15 years.

Factor 6 – Ability to Provide for Preservation of Landform Types and Ecosystems

Desired conditions, objectives for treatments, and guidelines for management in the draft revised land management plan insure that natural process will predominate and that ecosystems will be preserved across the landscape. While there are opportunities to increase representation of under-represented vegetation types in the wilderness system, given the management direction outlined in the draft revised land management plan, wilderness designation is not needed for “preservation of landform types and ecosystems.”

Appendix G: Suitable Acres within Range Allotments for Each Alternative

The following tables display the total acres suitable for cattle or sheep grazing in each allotment. Suitability and capability for grazing within allotments is determined by factors that include canopy closure, steepness of slopes, plant production level, and soil condition (land type associations).

Suitability by alternative varies with proximity to bighorn sheep, proximity to federally listed and species at risk plants, riparian

management areas, research natural areas, botanical areas, grazing after wild fire, sage grouse habitat, wild and scenic river corridors, and proximity of grazing to federally listed fish.

Acres listed in the following tables were generated using geographic information systems data for comparison purposes between alternatives. The Forest Service cannot assure the reliability or suitability of this information for another purpose.

Table G- 1. Suitable acres for cattle grazing in active cattle allotments for each alternative on the Malheur National Forest

Allotment	Alt. A	Alt. B	Alt. C	Alt D	Alt. E	Alt F	Total Acres Within the Allotment
Aldrich	8,237	8,858	1,315	8,237	8,237	8,237	20,351
Alkali	24,844	24,815	20,464	24,844	24,844	24,844	26,397
Allison	19,671	19,775	15,997	19,671	19,671	19,671	21,077
Antelope (Silvies)	26,131	26,238	22,500	26,131	26,131	26,131	28,194
Antelope (Upper Malheur)	4,297	4,299	3,777	4,297	4,297	4,297	4,519
Balance Creek	122	124	0	122	122	122	150
Bear Creek	1,271	1,274	0	1,271	1,271	1,271	1,477
Beech Creek	1,290	1,273	60	1,290	1,290	1,290	1,632
Big Sagehen	20,327	20,177	17,686	20,327	20,327	20,327	21,373
Blue Creek	15,953	15,849	13,278	15,953	15,953	15,953	17,422
Blue Mountain	0	18,748	0	18,746	0	0	22,670
Bluebucket	17,611	18,218	5,190	17,611	17,611	17,611	23,500
Bridge Creek	7,247	7,231	6,300	7,247	7,247	7,247	7,621
Buck Mountain	40,236	40,215	33,224	40,236	40,236	40,236	41,478

Allotment	Alt. A	Alt. B	Alt. C	Alt D	Alt. E	Alt F	Total Acres Within the Allotment
Calamity	18,691	18,660	15,306	18,691	18,691	18,691	22,412
Camp Creek (Silvies)	12,192	12,164	10,239	12,192	12,192	12,192	13,684
Central Malheur	9,125	9,484	579	9,125	9,125	9,125	10,727
County Road	127	129	127	127	127	127	135
Crooked Creek	4,931	4,924	4,212	4,931	4,931	4,931	5,076
Dark Canyon	26,272	26,318	9,687	26,272	26,272	26,272	31,733
Deadhorse	8,246	8,038	912	8,246	8,246	8,246	15,507
Deardorff	5,686	5,639	0	5,686	5,686	5,686	10,984
Deer Creek	1,806	1,797	38	1,806	1,806	1,806	2,177
Devine	23,602	23,594	18,835	23,602	23,602	23,602	25,010
Dixie	9,661	9,538	1	9,661	9,661	9,661	16,824
Dollar Basin	14,133	14,101	205	14,133	14,133	14,133	16,395
Donaldson	6,034	6,010	911	6,034	6,034	6,034	7,809
Fawn Spring	5,775	5,781	0	5,775	5,775	5,775	6,289
Ferg	81	82	81	81	81	81	108
Fields Peak	18,198	18,104	46	18,198	18,198	18,198	30,451
Flag Prairie	24,101	24,820	11,535	24,101	24,101	24,101	28,746
Flagtail	13,768	13,742	11,008	13,768	13,768	13,768	14,890
Fox	18,007	17,912	1,456	18,007	18,007	18,007	26,125
Frenchy	484	486	355	484	484	484	500
Green Butte	42,851	44,200	34,201	42,851	42,851	42,851	45,155
Hanscomb	7,385	7,320	3,392	7,385	7,385	7,385	9,233
Highway	705	705	40	705	705	705	784
Hot Springs	1,343	1,332	2	1,343	1,343	1,343	2,283
House Creek	2,824	2,819	2,507	2,824	2,824	2,824	3,252
Hughet Valley	1,820	1,798	1,412	1,820	1,820	1,820	1,877
Hunter Cabin	13,117	13,120	6,004	13,117	13,117	13,117	15,599

Allotment	Alt. A	Alt. B	Alt. C	Alt D	Alt. E	Alt F	Total Acres Within the Allotment
Indian Creek	951	1,206	344	951	951	951	1,285
Izee	15,369	15,262	12,264	15,369	15,369	15,369	18,434
Jack Creek	9,376	9,345	7,407	9,376	9,376	9,376	9,802
Joaquin	19	17	0	19	19	19	35
Justice	422	422	20	422	422	422	499
Keeney Meadows	220	219	0	220	220	220	295
Koehler	90	88	47	90	90	90	115
Lewis Creek	365	361	198	365	365	365	392
Little Mowich	286	289	274	286	286	286	317
Logan Valley	3,706	3,685	0	3,706	3,706	3,706	3,762
Lonesome	29,560	29,532	24,888	29,560	29,560	29,560	31,875
Long Creek	35,272	35,228	0	35,272	35,272	35,272	49,472
Lower Middle Fork	37,754	37,995	0	37,754	37,754	37,754	57,426
Lower Nicoll	3,928	3,928	3,142	3,928	3,928	3,928	3,966
Mcclellan	412	366	0	412	412	412	2,808
Mccoy Creek	978	956	0	978	978	978	980
Mt. Vernon/John Day	34,196	33,753	7,839	34,196	34,196	34,196	45,941
Muddy	5,927	5,899	4,940	5,927	5,927	5,927	6,552
Murderers Creek	52,575	52,948	1,241	52,575	52,575	52,575	73,518
Myrtle	24,416	24,311	20,700	24,416	24,416	24,416	29,313
North Fork	23,280	25,315	14,843	23,280	23,280	23,280	31,036
Ott	26,234	26,265	14,725	26,234	26,234	26,234	29,868
Pearson	59	60	43	59	59	59	65
Pine Creek	35,053	35,697	29,260	35,053	35,053	35,053	39,663
Poison	57	57	14	57	57	57	74
Rail Creek	9,341	9,276	334	9,341	9,341	9,341	17,022
Rainbow	24,569	24,552	19,681	24,569	24,569	24,569	26,277

Allotment	Alt. A	Alt. B	Alt. C	Alt D	Alt. E	Alt F	Total Acres Within the Allotment
Reynolds Creek	11,680	10,778	0	11,680	11,680	11,680	21,608
Rosebud	4,462	4,420	3,622	4,462	4,462	4,462	6,370
Roundtop	10,653	10,644	0	10,653	10,653	10,653	13,212
Sawmill	20,848	20,834	16,849	20,848	20,848	20,848	21,461
Sawtooth	14,971	15,000	11,682	14,971	14,971	14,971	16,682
Scatfield	626	612	585	626	626	626	684
Scotty Creek	32,027	32,026	26,511	32,027	32,027	32,027	35,482
Seneca	7,184	7,127	3,457	7,184	7,184	7,184	10,027
Silver Creek	30,038	32,026	24,084	30,038	30,038	30,038	34,727
Silvies	7,748	7,732	6,900	7,748	7,748	7,748	8,621
Slide Creek	19,249	19,463	1,226	19,249	19,249	19,249	24,595
Smoky	8,040	8,014	6,492	8,040	8,040	8,040	9,043
Snow Mountain	10,701	10,709	8,449	10,701	10,701	10,701	12,362
Snowshoe	5,385	5,334	3,891	5,385	5,385	5,385	6,383
Spring Creek*	44,890	45,157	7,065	44,890	44,890	44,890	57,748
Star Glade	1,036	1,033	0	1,036	1,036	1,036	1,117
Story-Fry	487	485	434	487	487	487	540
Summit Prairie	22,328	22,249	15,784	22,328	22,328	22,328	25,327
Upper Middle Fork	35,299	36,668	2	35,299	35,299	35,299	54,285
Van	5,168	5,533	4,450	5,168	5,168	5,168	6,669
War Canyon	509	511	344	509	509	509	534
West Malheur	17,897	18,787	15,827	17,897	17,897	17,897	22,908
West Myrtle	8,152	8,151	6,831	8,152	8,152	8,152	8,540
Williams Pasture	234	231	0	234	234	234	294
Wolf Mountain	24,225	24,637	20,559	24,225	24,225	24,225	31,607
York	503	501	0	503	503	503	519

*Spring creek allotment runs both sheep and cattle on an annual basis

Table G-3. Suitable acres for sheep grazing within active sheep allotments for each alternative on the Malheur National Forest

Allotment	Alt. A	Alt. B	Alt. C	Alt D	Alt. E	Alt F	Total Acres Within the Allotment
Donnelly	54,716	54,490	54,490	54,490	54,490	54,490	56,054
Spring Creek*	47,080	46,856	0	46,856	46,856	46,856	57,748

*Spring creek allotment runs both sheep and cattle on an annual basis

Table G-4. Suitable acres for cattle grazing in active cattle allotments for each alternative on the Umatilla National Forest

Allotment	Alt. A	Alt. B	Alt. C	Alt D	Alt. E	Alt F	Total Acres Within the Allotment
Asotin	6,836	10,510	3,059	6,836	6,836	6,836	39,022
Brock	130	379	25	130	130	130	964
Central Desolation	6,956	7,069	2,236	6,956	6,956	6,956	13,934
Coalmine	608	608	271	608	608	608	1,097
Collins Butte	7,356	7,875	1,650	7,356	7,356	7,356	16,916
Cooper Creek	894	894	678	894	894	894	1,284
Ditch Creek	16,467	16,559	1,258	16,467	16,467	16,467	37,150
Eden	11,130	15,807	0	11,130	11,130	11,130	34,113
F.G. Whitney	26,908	26,908	2,866	26,908	26,908	26,908	49,932
Hardman	12,211	12,462	0	12,211	12,211	12,211	20,913
Hidaway	16,543	16,566	0	16,543	16,543	16,543	37,142
Hutchison	167	167	83	167	167	167	208
Indian Creek	34,989	29,446	2,896	34,989	34,989	34,989	76,163
Jim Creek	0	17	0	0	0	0	106
Klondike	11,648	11,831	104	11,648	11,648	11,648	24,624
Little Wall	23,488	24,384	858	23,488	23,488	23,488	37,169
Lucky Strike	7,046	7,006	1,117	7,046	7,046	7,046	16,973
Matlock	5,751	5,882	288	5,751	5,751	5,751	10,697
Mcdonald Spring	48	48	24	48	48	48	48

Allotment	Alt. A	Alt. B	Alt. C	Alt D	Alt. E	Alt F	Total Acres Within the Allotment
Monument	10,107	10,120	1,084	10,107	10,107	10,107	18,568
Peola	13,726	15,978	3,108	13,726	13,726	13,726	43,736
Pomeroy	0	3,281	0	0	0	0	20,580
Stonehill	0	0	0	228	0	0	255
Swale Creek	14,176	14,792	809	14,176	14,176	14,176	27,051
Tamarack	7,896	8,228	438	7,896	7,896	7,896	19,397
Texas Bar	28,124	28,655	2,555	28,124	28,124	28,124	41,889
Thompson Flat	4,119	4,201	21	4,119	4,119	4,119	6,535
Wenatchee	1,933	2,203	992	1,933	1,933	1,933	6,252
Western Desolation	8,591	8,591	3,077	8,591	8,591	8,591	13,459
Winlock	2,940	4,116	432	2,940	2,940	2,940	5,166
Yellowjacket	3,330	3,380	431	3,330	3,330	3,330	7,577

Table G-5. Suitable acres for sheep grazing within active sheep allotments for each alternative on the Umatilla National Forest

Allotment	Alt. A	Alt. B	Alt. C	Alt D	Alt. E	Alt F	Total Acres Within the Allotment
Butcher Creek	2,902	2,902	2,902	2,902	2,902	2,902	10,890
Central Desolation	11,292	11,292	1,652	11,292	11,292	11,292	13,934
North End	37,535	5,455	24	19,308	19,308	19,308	126,923
Spring Mountain	8,499	8,499	8,399	8,499	8,499	8,499	35,509

Table G-6. Suitable acres for cattle grazing in active cattle allotments for each alternative on the Wallowa-Whitman National Forest

Allotment	Alt. A	Alt. B	Alt. C	Alt D	Alt. E	Alt F	Total Acres Within the Allotment
Al-Cunningham	321	475	0	321	321	321	1,296
Alder Springs	13,446	13,446	8,167	13,446	13,446	13,446	21,712
Auburn	8,434	8,392	6,925	8,434	8,434	8,434	15,076
Balm Creek	262	259	139	262	262	262	1,643
Bear Gulch	509	2,234	0	509	509	509	8,964
Big Creek	21,738	21,239	8,915	21,738	21,738	21,738	44,744
Big Sheep	760	2,826	0	760	760	760	18,780
Black Mountain	2,894	2,894	2,261	2,894	2,894	2,894	4,694
Blue Canyon	6,379	6,379	4,127	6,379	6,379	6,379	8,463
Boulder Creek	2,240	4,399	1,069	2,240	2,240	2,240	11,532
Bourne	3,939	4,546	321	3,939	3,939	3,939	15,995
Bridgeport	3,022	3,081	2,410	3,022	3,022	3,022	4,438
Buck Creek	11,709	12,321	0	11,709	11,709	11,709	19,544
Bullrun	12,370	12,370	10,372	12,370	12,370	12,370	30,116
Camp Creek	0	0	0	10,732	0	0	23,076
Carrol Creek	55	116	0	55	55	55	1,100
Catherine Creek	5,632	5,844	1,952	5,632	5,632	5,632	20,944
Chalk Creek	43	50	0	43	43	43	276
Chesnimnus	10,848	10,909	9	10,848	10,848	10,848	30,057
China Creek	3,253	3,253	2,760	3,253	3,253	3,253	7,367
Clark Mountain	156	156	58	156	156	156	319
Cold Springs	247	247	0	247	247	247	555
Cougar Creek	8,498	8,609	0	8,498	8,498	8,498	18,331
Cree	121	121	99	121	121	121	188
Crow Creek	557	557	0	557	557	557	1,206

Allotment	Alt. A	Alt. B	Alt. C	Alt D	Alt. E	Alt F	Total Acres Within the Allotment
Dark-Ensign	14,241		2,467	14,241	14,241	14,241	25,825
Davis Creek	3,393	3,393	0	3,393	3,393	3,393	5,640
Day Ridge	346	468	98	346	346	346	2,626
Dean-Huck	10,292	10,292	7,334	10,292	10,292	10,292	15,955
Denney Creek	295	295	172	295	295	295	760
Divide	7,939	8,602	0	7,939	7,939	7,939	14,745
Dobbins	140	140	0	140	140	140	282
Dodson-Haas	4	11	0	4	4	4	19
Doe Creek	6,036	6,162	0	6,036	6,036	6,036	14,940
Eagle Valley	15,489	15,717	10,333	15,489	15,489	15,489	32,589
East Pine Valley	15,319	15,485	3,029	15,319	15,319	15,319	33,085
Elk Mountain	206	206	0	206	206	206	207
Elmwood	121	121	90	121	121	121	162
Fine	581	581	0	581	581	581	1,513
Five Points	7,084	7,523	1	7,084	7,084	7,084	20,263
Frazier Mountain	1,629	1,629	550	1,629	1,629	1,629	2,617
Fruit Springs	190	190	106	190	190	190	253
Ghostbull	396	673	289	396	396	396	2,311
Gilkison	953	953	434	953	953	953	1,796
Goose Creek	15,262	15,274	9,854	15,262	15,262	15,262	27,323
Grouseline	217	514	0	217	217	217	2,742
Hale	249	249	197	249	249	249	458
Haney Gulch	0	0	0	207	0	0	893
Hawley Gulch	2,273	2,273	1,207	2,273	2,273	2,273	2,584
Hooker Flat	60	60	46	60	60	60	76
Hootin Rock	118	155	68	118	118	118	353

Allotment	Alt. A	Alt. B	Alt. C	Alt D	Alt. E	Alt F	Total Acres Within the Allotment
Hunting Camp	2,816	2,960	0	2,816	2,816	2,816	10,236
Indian Creek	2,650	0	124	2,650	2,650	2,650	7,496
Ironside	9,323	9,465	8,100	9,323	9,323	9,323	16,985
Joseph Creek	55	120	0	55	55	55	1,003
Little Bald Mountain	483	483	383	483	483	483	836
Lobo	9,374	9,374	30	9,374	9,374	9,374	15,655
Lockhart	4,921	4,989	3,943	4,921	4,921	4,921	10,108
Log Creek	0	0	0	499	0	0	1,055
Marr Flat	10,571	11,426	0	10,571	10,571	10,571	42,932
Middle Point	234	240	4	234	234	234	1,396
Mill Creek	0	0	0	2,964	0	0	8,585
Mink	78	91	0	78	78	78	268
North Burnt River	9,186	9,186	6,982	9,186	9,186	9,186	18,906
North Fork Burnt River	37	37	37	37	37	37	46
North Powwatka	356	560	0	356	356	356	4,506
Pole Creek	3,669	3,790	0	3,669	3,669	3,669	11,213
Powell Gulch	246	246	189	246	246	246	365
Schleur	56	73	0	56	56	56	712
Sheep Ranch	22,600	22,600	0	22,600	22,600	22,600	32,335
Snow Creek	7,376	8,216	5,997	7,376	7,376	7,376	15,994
South Burnt River	12,818		11,249	12,818	12,818	12,818	32,566
South Powwatka	5,658	5,868	99	5,658	5,658	5,658	10,993
Special #2	42	84	0	42	42	42	108
Spring Creek	0	53	0	0	0	0	20,951
Starkey	14,338	14,361	0	14,338	14,338	14,338	30,381
Stovepipe	11,155	11,155	2,812	11,155	11,155	11,155	21,142

Allotment	Alt. A	Alt. B	Alt. C	Alt D	Alt. E	Alt F	Total Acres Within the Allotment
Swamp Creek	10,644	13,143	0	10,644	10,644	10,644	33,458
Table Mountain	3,621	4,448	0	3,621	3,621	3,621	14,604
Teepee Elk	1,368	1,368	0	1,368	1,368	1,368	4,385
Tie Creek	96	0	0	96	96	96	311
Tin Trough	3,180	3,299	0	3,180	3,180	3,180	4,454
Tope Creek	2,203	2,317	0	2,203	2,203	2,203	7,372
Trouble Gulch	72	136	41	72	72	72	1,139
Upper Clover Creek	16	16	0	16	16	16	16
Vigne	705	705	0	705	705	705	1,285
Warm Springs	9	9	0	9	9	9	297
West Burnt River	7,107	7,107	5,681	7,107	7,107	7,107	13,315
West Minam	6,129	4,418	0	6,129	6,129	6,129	13,682
West Pine Valley	14,432	14,742	926	14,432	14,432	14,432	34,939
Whipple Gulch	3,163	3,162	2,598	3,163	3,163	3,163	5,028
Whitehorse	6,600	6,600	0	6,600	6,600	6,600	13,798
Whitney	220	220	169	220	220	220	478

Table G-7. Suitable acres for sheep grazing within active sheep allotments for each alternative on the Wallowa-Whitman National Forest

Allotment	Alt. A	Alt. B	Alt. C	Alt D	Alt. E	Alt F	Total Acres Within the Allotment
McCarty	9,837	9,837	9,814	9,837	9,837	9,837	17,923
Mud Creek	3,710	0	0	3,437	3,437	3,437	8,090
Spring Creek	11,864	11,864	11,864	11,864	11,864	11,864	20,951

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