Glossary

This glossary is adapted from the *Synthesis of Science to Inform Land Management Within the Northwest Forest Plan (NWFP) Area* (Science Synthesis 2018) to ensure consistency of language between the Science Synthesis, the *Bioregional Assessment of Northwest Forests* (BioA), and this report and to help readers understand various terms used in the documents.

Sources include the Forest Service Handbook (FSH), the Code of Federal Regulations (CFR), executive orders, the Federal Register (FR), and various scientific publications. The authors have added working definitions of terms used in the Science Synthesis and its source materials, especially when formal definitions may be lacking or when they differ across sources.

active management—Direct interventions to achieve desired outcomes, which may include harvesting and planting of vegetation and the intentional use of fire, among other activities.

adaptive management—A structured, cyclical process for planning and decision-making in the face of uncertainty and changing conditions with feedback from monitoring, which includes using the planning process to actively test assumptions, track relevant conditions over time, and measure management effectiveness (FSH 1909.12.5). Additionally, adaptive management includes iterative decision-making, through which results are evaluated and actions are adjusted based on what has been learned.

adaptive management area (AMA)—A portion of the federal land area within the NWFP area that was specifically allocated for scientific monitoring and research to explore new forestry methods and other activities related to meeting the goals and objectives of the plan. Ten AMAs were established in the NWFP area, covering about 1.5 million ac (600 000 ha), or 6 percent of the planning area (Stankey et al. 2003).

ancestral lands (of American Indian tribes)—Lands that historically were inhabited by the ancestors of American Indian tribes.

annual species review—A procedure established under the NWFP in which panels of managers and biologists evaluate new scientific and monitoring information on species to potentially support the recommendation of changes in their conservation status.

Aquatic Conservation Strategy (ACS)—A regional strategy that uses an ecosystem approach to manage and protect riparian and aquatic habitats across the broad landscapes of lands in the NWFP area.

biodiversity—In general, the variety of life forms and their processes and ecological functions, at all levels of biological organization from genes to populations, species, assemblages, communities, and ecosystems.

climate adaptation—Management actions to reduce vulnerabilities to climate change and related disturbances.

climate change—Changes in average weather conditions (including temperature, precipitation, and risk of certain types of severe weather events) that persist over multiple decades or longer, and that result from both natural factors and human activities such as increased emissions of greenhouse gases (U.S. Global Change Research Program 2017).

climate change refugia—Areas that remain relatively buffered from contemporary climate change across time and enable persistence of valued physical, ecological, and sociocultural resources.

collaboration or collaborative process—A structured manner in which a collection of people with diverse interests share knowledge, ideas, and resources, while working together in an inclusive and cooperative manner toward a common purpose (FSH 1909.12.05).

commercial thin—An intermediate harvest with the objective of reducing stand density primarily to improve growth, enhance forest health, and other resources objectives. Treatment can recover potential mortality, while producing merchantable material. Thinning includes the following: chemical (killing of unwanted trees by herbicide application); crown (removal of trees from dominant and co-dominant strata); free (no consideration to crown position); low (removal of trees from lower crown classes); mechanical or row (removal of trees either in row, strips by using a fixed spacing interval); selection (removal of the crown class to favor those in the lower crown classes) (Forest Service Activity Tracking System, app. B).

community (plant and animal)—A naturally occurring assemblage of plant and animal species living within a defined area or habitat (36 CFR 219.19).

community resilience—The capacity of a community to return to its initial function and structure when initially altered under disturbance.

community resistance—The capacity of a community to withstand a disturbance without changing its function and structure.

compatible—Capable of existing together in harmony.

composition—The biological elements within the various levels of biological organization, from genes and species to communities and ecosystems (FSM 2020).

consistent—Marked by harmony, regularity, or steady continuity: free from variation or contradiction.

congressionally reserved land—Land use allocations that have been designated by United States Congress. These include wilderness areas, wild and scenic rivers and some national monuments.

connectivity (of habitats)—Environmental conditions that exist at several spatial and temporal scales that provide landscape linkages that permit (1) the exchange of flow, sediments, and nutrients; (2) genetic interchange of genes among individuals between populations; and (3) the long-distance range shifts of species, such as in response to climate change (36 CFR 219.19).

desired conditions—A description of specific social, economic, or ecological characteristics toward which management of the land and resources should be directed.

disturbance regime—A description of the characteristic types of disturbance on a given landscape; the frequency, severity, and size distribution of these characteristic disturbance types and their interactions (36 CFR 219.19).

disturbance restoration need—The area departed from the natural range of variability where a disruption is needed to move existing conditions closer to natural range of variation. These disruption processes include fire, wind, and insects and disease. Disturbance can also be achieved through management tools of thinning and/or prescribed burning (Haugo et al. 2015, DeMeo et al. 2018).

disturbance—Any relatively discrete event in time that disrupts ecosystem, watershed, community, or species population structure or function, and that changes resources, substrate availability, or the physical environment (36 CFR 219.19).

dynamic reserves—A conservation approach in which protected areas are relocated following changes in environmental conditions, especially owing to disturbance.

early-seral vegetation—Forest conditions in the early stages of succession following an event that removes the forest canopy (for example, timber harvest, wildfire, windstorm), on sites that are capable of developing a closed canopy (Swanson et al. 2014). A non-forest or “pre-forest” condition occurs first, followed by an “early-seral forest” as young shade-intolerant trees form a closed canopy.

complex early-seral forest—A forest comprised of early-seral vegetation that differs from more simplified early-seral forest in a few key ways. Complex early-seral forest is often naturally occurring. It has high species diversity and is made up of survivors and legacies, including organic structures including live and dead trees that provide habitat for surviving and colonizing organisms. Traditional forestry practices like clear-cutting, salvage logging, and tree planting can reduce species richness and key ecological processes associated with complex early-seral habitat (Swanson et al. 2011).

Eastside Screens—Interim management direction establishing riparian, ecosystem, and wildlife standards for timber sales on National Forest System lands in eastern Oregon and Washington under the regional forester’s amendment 2.
https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprd3794796.pdf

ecocultural resources—Valued elements of the biophysical environment, including plants, fungi, wildlife, water, and places, and the social and cultural relationships of people with those elements.

ecological conditions—The biological and physical environment that can affect the diversity of plant and animal communities, the persistence of native species, invasibility, and productive capacity of ecological systems. Ecological conditions include habitat and other influences on species and the environment. Examples of ecological conditions include the abundance and distribution of aquatic and terrestrial habitats, connectivity, roads and other structural developments, human uses, and occurrence of other species (36 CFR 219.19).

ecological forestry—An ecosystem management approach designed to achieve multiple objectives that may include conservation goals and sustainable forest management, and which emphasizes disturbance-based management and retention of “legacy” elements such as old trees and dead wood (Franklin et al. 2007).

ecological integrity—The quality or condition of an ecosystem when its dominant ecological characteristics (for example, composition, structure, function, connectivity, and species composition and diversity) occur within the natural range of variation and can withstand and recover from most perturbations imposed by natural environmental dynamics or human influence (36 CFR 219.19).

ecological sustainability—The capability of ecosystems to maintain ecological integrity (36 CFR 219.19).

economic sustainability—The capability of society to produce and consume or otherwise benefit from goods and services, including contributions to jobs and market and nonmarket benefits (36 CFR 219.19).

ecoregion—A geographic area containing distinctive ecological assemblages, topographic and climatic gradients, and historical land uses.

ecosystem—A spatially explicit, relatively homogeneous unit of the Earth that includes all interacting organisms and elements of the abiotic environment within its boundaries (36 CFR 219.19).

ecosystem diversity—The variety and relative extent of ecosystems (36 CFR 219.19).

ecosystem integrity—See “ecological integrity.”

ecosystem services—Benefits that people obtain from ecosystems (see also “provisioning services,” “regulating services,” “supporting services,” and “cultural services”).

endangered species—Any species or subspecies that the secretary of the interior or the secretary of commerce has deemed in danger of extinction throughout all or a significant portion of its range (16 U.S.C. Section 1532).

environmental justice populations—Groups of people who have low incomes or who identify themselves as African American, Asian or Pacific Islander, American Indian or Alaskan Native, or of Hispanic origin.

environmental justice—an executive order designation requiring that federal land managers identify any disproportionately high and adverse human health and environmental effects of agency programs, policies, and actions on minority and low-income populations. (Grinspoon et al. 2014). An environmental justice population is a group of people that meets the criteria for low-income or minority status under Executive Order 12898. An environmental justice population may be low income and/or minority.

environmental suitability—environmental suitability is the conditions (here predicted by fire season precipitation, maximum temperature, slope and elevation) where large wildfires have manifested in the past and therefore could reasonably be predicted to occur in the future.

federally recognized American Indian tribe—An American Indian tribe or Alaska Native Corporation, band, nation, pueblo, village, or community that the secretary of the interior acknowledges to exist as an Indian tribe under the Federally Recognized Indian Tribe List Act of 1994, 25 U.S.C. 479a (36 CFR 219.19).

fire-diverse ecosystems (mixed severity) (fire ecology group)—Fire can be important to ecosystem function, but it is not the primary driver of successional dynamics, including structure and composition. Fires were historically moderately frequent, ranging primarily between mixed and high severity in a variety of patch sizes.

fire exclusion—Curtailment of wildland fire because of deliberate suppression of ignitions, as well as unintentional effects of human activities such as intensive grazing that removes grasses and other fuels that carry fire (Keane et al. 2002).

Fire infrequent ecosystems (fire ecology group)—Fire is not necessarily a part of most ecosystem functions, although when fires do occur, they can be highly impactful. Fires were historically rare or infrequent, of mixed to high severity, in large patches, and were a rare disturbance within these systems.

fire regime—A characterization of long-term patterns of fire in a given ecosystem over a specified and relatively long period of time, based on multiple attributes, including frequency, severity, extent, spatial complexity, and seasonality of fire occurrence.

fire refugia—Landscape elements that remain unburned or minimally affected by fire, thereby supporting postfire ecosystem function, biodiversity, and resilience to disturbances.

fire severity—The magnitude of the effects of fire on ecosystem components, in this document specifically effects of fire on vegetation.

fire suitability—The environmental conditions as measured by fire season precipitation, maximum temperature, slope and elevation that, based on past fire occurrence and size, would potentially host a similar fire in the future. In the Bioregional Assessment we discuss suitability for large wildfires.

fire suppression—The human act of extinguishing wildfires (Keane et al. 2002).

forest assessment—a report available to the public that must be completed for the development of a new plan or for a plan revision. An assessment is the identification and evaluation of existing information to support land management planning. Assessments are not decision-making documents but provide current information on select topics relevant to the plan area, in the context of the broader landscape. (36 CFR 219.19).

frequent-fire-dependent ecosystems (fire ecology group)—Fire is essential to overall ecosystem functions. Before Euro-American settlement, fires were quite frequent, of low or mixed severity, and were the primary driver of disturbance. Fire in these systems drives structural and successional dynamics, favoring fire-dependent and fire-adapted species.

fuels (wildland)—Combustible material in wildland areas, including live and dead plant biomass such as trees, shrub, grass, leaves, litter, snags, and logs.

fuels management—Manipulation of wildland fuels through mechanical, chemical, biological, or manual means, or by fire, in support of land management objectives to control or mitigate the effects of future wildland fire.

function (ecological)—Ecological processes, such as energy flow; nutrient cycling and retention; soil development and retention; predation and herbivory; and natural disturbances such as wind, fire, and floods that sustain composition and structure (FSM 2020). See also “key ecological function.”

goals (in land management plans)—Broad statements of intent, other than desired conditions, which do not include expected completion dates (36 CFR part 219.7(e)(2)).

habitat—An area with the environmental conditions and resources that are necessary for occupancy by a species and for individuals of that species to survive and reproduce.

invasive species—An alien species (or subspecies) whose deliberate, accidental, or self-introduction is likely to cause economic or environmental harm or harm to human health (Executive Order 13112).

key watersheds—Watersheds that are expected to serve as refugia for aquatic organisms, particularly in the short term, for at-risk fish populations that have the greatest potential for restoration, or to provide sources of high-quality water.

land management direction—guides and directs management through a combination of aspirations and projections (desired conditions and objectives) and constraints (standards and guidelines). Land management direction also specifies what activities are acceptable or suitable on what parts of a national forest.

land management plan (U.S. Forest Service)—A document or set of documents that provides management direction for an administrative unit of the National Forest System (FSH 1909.12.5).

land use allocation—A process of allocating different activities or uses to specific units of area within a geospatial context, to maximize a spectrum of social, economic, and ecological benefits.

landscape—A defined area irrespective of ownership or other artificial boundaries, such as a spatial mosaic of terrestrial and aquatic ecosystems, landforms, and plant communities, repeated in similar form throughout such a defined area (36 CFR 219.19).

late-successional forest—Forests that have developed after long periods of time (typically at least 100 to 200 years) following major disturbances, and that contain a major component of shade-tolerant tree species that can regenerate beneath a canopy and eventually grow into the canopy in which small canopy gaps occur. Note that FEMAT (1993) and the NWFP also applied this term to older (at least 80 years) forest types, including both old-growth and mature forests, regardless of the shade tolerance of the dominant tree species (for example, 90-year-old forests dominated by Douglas-fir were termed late successional).

late-successional reserve (LSR) —Lands reserved for the protection and restoration of late-successional and old-growth forest ecosystems and habitat for associated species.

managing wildfire for resource objectives—Managing wildfires to promote multiple objectives such as reducing fire danger or restoring forest health and ecological processes rather than attempting full suppression. The terms “managed wildfire” or “resource objective wildfire” have also been used to describe such events (Long et al. 2017). However, fire managers note that many unplanned ignitions are managed using a combination of tactics, including direct suppression, indirect containment, monitoring of fire spread, and even accelerating fire spread, across their perimeters and over their full duration. Therefore, terms that separate “managed” wildfires from fully “suppressed” wildfires do not convey that complexity. (See “Use of wildland fire,” which also includes prescribed burning).

matrix—Federal and other lands outside of specifically designated reserve areas, particularly the late-successional reserves under the NWFP, that are managed for timber production and other objectives.

minority population—A readily identifiable group of people living in geographic proximity with a population that is at least 50 percent minority; or, an identifiable group that has a meaningfully greater minority population than the adjacent geographic areas, or may also be a geographically dispersed/transient set of individuals such as migrant workers or Americans Indians (CEQ 1997).

mitigation (climate change)—Efforts to reduce anthropogenic alteration of climate, in particular by increasing carbon sequestration.

monitoring—A systematic process of collecting information to track implementation (implementation monitoring), to evaluate effects of actions or changes in conditions or relationships (effectiveness monitoring), or to test underlying assumptions (validation monitoring) (see 36 CFR 219.19).

native species—A species historically or currently present in a particular ecosystem as a result of natural migratory or evolutionary processes and not as a result of an accidental or deliberate introduction or invasion into that ecosystem (see 36 CFR 219.19).

natural range of variation—The variation of ecological characteristics and processes over specified scales of time and space that are appropriate for a given management application (FSH 1909.12.5).

nontimber forest products (also known as "special forest products")—Various products from forests that do not include logs from trees but do include bark, berries, boughs, bryophytes, bulbs, burls, Christmas trees, cones, ferns, firewood, forbs, fungi (including mushrooms), grasses, mosses, nuts, pine straw, roots, sedges, seeds, transplants, tree sap, wildflowers, fence material, mine props, posts and poles, shingle and shake bolts, and rails (36 CFR part 223 Subpart G).

old-growth forest—A forest distinguished by old trees (older than 200 years) and related structural attributes that often (but not always) include large trees, high biomass of dead wood (for instance, snags, down coarse wood), multiple canopy layers, distinctive species composition and functions, and vertical and horizontal diversity in the tree canopy. In dry, fire-frequent forests, old-growth is characterized by large, old fire-resistant trees and relatively open stands without canopy layering.

passive management—A management approach in which natural processes are allowed to occur without human intervention to reach desired outcomes.

patch—A relatively small area with similar environmental conditions, such as vegetative structure and composition. Sometimes used interchangeably with vegetation or forest stand.

prescribed fire—A wildland fire originating from a planned ignition to meet specific objectives identified in a written and approved prescribed fire plan for which U.S. Environmental Policy Act requirements (where applicable) have been met before ignition (synonymous with controlled burn).

probable sale quantity (PSQ)—An estimate of the average amount of timber likely to be awarded for sale for a given area (such as the NWFP area) during a specified period.

recreation opportunity—An opportunity to participate in a specific recreation activity in a particular recreation setting to enjoy desired recreation experiences and other benefits that accrue. Recreation opportunities include nonmotorized, motorized, developed, and dispersed recreation on land, water, and in the air (36 CFR 219.19).

reference conditions—Vegetation or forest metrics that represent resilient conditions. For the Bioregional Assessment, either natural range of variation, historic range of variation, or conditions that incorporate future environmental change. Historic range of variation is often based on pre-European settlement conditions.

refugia—An area that remains less altered by climatic and environmental change (including disturbances such as wind and fire) affecting surrounding regions and that therefore forms a haven for plants and wildlife.

reserve—An area of land designated and managed for a special purpose, often to conserve or protect ecosystems, species, or other natural and cultural resources from particular human activities that are detrimental to achieving the goals of the area.

resilience—The ability of an ecosystem and its component parts to absorb, or recover from the effects of disturbances through preservation, restoration, or improvement of its essential structures and functions and redundancy of ecological patterns across the landscape.

restoration need—The difference between existing conditions and natural range of variation. In terms of forest structure, this is the area departed from the natural range of variation. It can need treatment (thinning and/or prescribed fire) to change or maintain structure, or in need of succession to develop into older structural conditions. See disturbance and succession restoration need (Haugo et al. 2015, DeMeo et al. 2018).

riparian areas—Three-dimensional ecotones (the transition zone between two adjoining communities) of interaction that include terrestrial and aquatic ecosystems that extend down into the groundwater, up above the canopy, outward across the floodplain, up the near slopes that drain to the water, laterally into the terrestrial ecosystem, and along the water course at variable widths (36 CFR 219.19).

riparian reserves—Reserves established along streams and rivers to protect riparian ecological functions and processes necessary to create and maintain habitat for aquatic and riparian-dependent organisms over time and ensure connectivity within and between watersheds. The Aquatic Conservation Strategy in the NWFP record of decision included standards and guidelines that delineated riparian reserves.

risk—A combination of the probability that a negative outcome will occur and the severity of the subsequent negative consequences (36 CFR 219.19).

salvage cut—An intermediate harvest removing trees which are dead or dying because of injurious agents other than competition, to recover economic value that would otherwise be lost (Forest Service Activity Tracking System app. B).

sanitation cut—An intermediate harvest removing trees to improve stand health by stopping or reducing the actual or anticipated spread of insects and disease (Forest Service Activity Tracking System app. B).

scale—In ecological terms, the extent and resolution in spatial and temporal terms of a phenomenon or analysis, which differs from the definition in cartography regarding the ratio of map distance to Earth surface distance (Jenerette and Wu 2000).

science synthesis—A narrative review of scientific information from a defined pool of sources that compiles and integrates and interprets findings and describes uncertainty, including the boundaries of what is known and what is not known.

sensitive species—Plant or animal species that receive special conservation attention because of threats to their populations or habitats, but which do not have special status as listed or candidates for listing under the Endangered Species Act.

Sierra Nevada Framework-plan amendment that amended land management plans of national forests and grasslands in the Sierra Nevada Mountains, including the Lassen and Modoc National Forests.
https://www.sierraforestlegacy.org/FC_LawsPolicyRegulations/KFSP_SierraNevadaFramework.php

special forest products—See "nontimber forest products."

species of conservation concern—A species, other than federally recognized as a threatened, endangered, proposed, or candidate species, which is known to occur in the NWFP area and for which the regional forester has determined that the best available scientific information indicates substantial concern about the species' capability to persist over the long term in the Plan area (36 CFR 219.9(c)).

stand—A descriptor of a land management unit consisting of a contiguous group of trees sufficiently uniform in age-class distribution, composition, and structure, and growing on a site of sufficiently uniform quality, to be a distinguishable unit.

stand clear-cut—An even-aged regeneration or harvest method that removes all trees in the stand producing a fully exposed microclimate for the development of a new age class in one entry (Forest Service Activity Tracking System app. B).

standard—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.

single-tree selection cut—An uneven-aged regeneration method where individual trees of all size classes are removed more or less uniformly throughout the stand creating or maintaining a multiage structure to promote growth of remaining trees and to provide space for regeneration. Multiple entries of this activity ultimately results in an uneven-aged stand of 3 or more age classes (Forest Service Activity Tracking System app. B).

strategic surveys—One type of field survey, specified under the NWFP, designed to fill key information gaps on species distributions and ecologies by which to determine if species should be included under the plan's survey and manage species list.

stressors—Factors that may directly or indirectly degrade or impair ecosystem composition, structure, or ecological process in a manner that may impair its ecological integrity, such as an invasive species, loss of connectivity, or the disruption of a natural disturbance regime (36 CFR 219.19).

structure (ecosystem)—The organization and physical arrangement of biological elements such as snags and down woody debris, vertical and horizontal distribution of vegetation, stream habitat complexity, landscape pattern, and connectivity (FSM 2020).

succession restoration need—The area departed from the natural range of variation where natural ecological processes are needed to move existing conditions closer to natural range of variation. Succession processes inherently require time and include plant growth, decomposition, and regeneration (Haugo et al. 2015, DeMeo et al. 2018).

Survey and Manage Program—A formal part of the NWFP that established protocols for conducting various types of species surveys, identified old-forest-associated species warranting additional consideration for monitoring and protection (see “survey and manage species”), and instituted an annual species review procedure that evaluated new scientific and monitoring information on species for potentially recommending changes in their conservation status, including potential removal from the survey and manage species list.

survey and manage species—A list of species, compiled under the Survey and Manage Program of the NWFP, that were deemed to warrant particular attention for monitoring and protection beyond the guidelines for establishing late-successional forest reserves.

sustainability—The capability to meet the needs of the present generation without compromising the ability of future generations to meet their needs (36 CFR 219.19).

sustainable recreation—The set of recreation settings and opportunities in the National Forest System that is ecologically, economically, and socially sustainable for present and future generations (36 CFR 219.19).

threatened species—Any species that the secretary of the interior or the secretary of commerce has determined is likely to become an endangered species within the fore- seeable future throughout all or a significant portion of its range. Threatened species are listed at 50 CFR sections 17.11, 17.12, and 223.102.

timber harvest—The removal of trees for wood fiber use and other multiple-use purposes (36 CFR 219.19).

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 (36 CFR 219.19).

uncertainty—Amount or degree of confidence as a result of imperfect or incomplete information.

use of wildland fire—Management of either wildfire or prescribed fire to meet resource objectives specified in land or resource management plans (see “managing wildfire for resource objectives” and “prescribed fire”).

watershed—A region or land area drained by a single stream, river, or drainage network; a drainage basin (36 CFR 219.19).

watershed analysis—An analytical process that characterizes watersheds and identifies potential actions for addressing problems and concerns, along with possible management options. It assembles information necessary to determine the ecological characteristics and behavior of the watershed and to develop options to guide management in the watershed, including adjusting riparian reserve boundaries.

watershed condition—The state of a watershed based on physical and biogeochemical characteristics and processes (36 CFR 219.19).

watershed restoration—Restoration activities that focus on restoring the key ecological processes required to create and maintain favorable environmental conditions for aquatic and riparian-dependent organisms.

well-being—The condition of an individual or group in social, economic, psychological, spiritual, or medical terms.

wilderness—Any area of land designated by Congress as part of the National Wilderness Preservation System that was established by the Wilderness Act of 1964 (16 U.S.C. 1131–1136) (36 CFR 219.19).

wildlife—Undomesticated animal species, including amphibians, reptiles, birds, mammals, fish, and invertebrates that live wild in an area without being introduced by humans.

wildfire—Unplanned ignition of a wildland fire (such as a fire caused by lightning, volcanoes, unauthorized and accidental human-caused fires), and escaped prescribed fires.

wildland-urban interface (WUI)—The line, area, or zone where structures and other human development meet or intermingle with undeveloped wildland or vegetation fuels.

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Appendix

Fire Ecology Group Classification Crosswalk Tables

The tables below display fire ecology group and subgroup classification crosswalks from vegetation zone and subzone, to biophysical setting (BpS) and fire regime group (FRG).

Table 15. Fire ecology group classification: frequent-fire dependent (driven by fire subgroup), by vegetation zone and subzone

Vegzone Name	Subzone Name	BpS	BpS Name	FRG
Douglas-Fir	Bigcone Douglas-Fir	0410270	Mediterranean California Dry-Mesic Mixed Conifer Forest and Woodland	I
Tanoak	Douglas-Fir-Tanoak Moist	0710430	Mediterranean California Mixed Evergreen Forest – Interior	I
Tanoak	Douglas-Fir-Tanoak Wet	0210430	Mediterranean California Mixed Evergreen Forest – Coastal	I
Douglas-Fir	Dry Douglas-Fir	0710450	Northern Rocky Mountain Dry-Mesic Montane Mixed Conifer Forest	I
Ponderosa Pine	Dry Ponderosa Pine	0710531	Northern Rocky Mountain Ponderosa Pine Woodland and Savanna - Mesic	I
California Red Fir-Shasta Red Fir	Dry Red Fir	0610321	Mediterranean California Red Fir Forest - Cascades	I
White Fir-Grand Fir	Dry White Fir-Grand Fir	0910450	Northern Rocky Mountain Dry-Mesic Montane Mixed Conifer Forest	I
Foothill Pine-Coulter Pine	Foothill Pine-Oak	0311140	California Lower Montane Blue Oak-Foothill Pine Woodland and Savanna	I
Jeffrey Pine	Jeffrey Pine	0610310	California Montane Jeffrey Pine(Ponderosa Pine) Woodland	I
Jeffrey Pine	Jeffrey Pine	0710210	Klamath-Siskiyou Lower Montane Serpentine Mixed Conifer Woodland	I
Jeffrey Pine	Knobcone Pine	0710220	Klamath-Siskiyou Upper Montane Serpentine Mixed Conifer Woodland	I
Douglas-Fir	Moist Douglas-Fir	0710270	Mediterranean California Dry-Mesic Mixed Conifer Forest and Woodland	I
Ponderosa Pine	Moist Ponderosa Pine	0710531	Northern Rocky Mountain Ponderosa Pine Woodland and Savanna - Mesic	I
Port Orford Cedar	Moist Port Orford Cedar	0210210	Klamath-Siskiyou Lower Montane Serpentine Mixed Conifer Woodland	I
White Fir-Grand Fir	Moist White Fir - Grand Fir	0710280	Mediterranean California Mesic Mixed Conifer Forest and Woodland	I
Hardwoods	Oak Woodlands	0310290	Mediterranean California Mixed Oak Woodland	I
Hardwoods	Oak Woodlands	0210080	North Pacific Oak Woodland	I
Hardwoods	Other Hardwoods	0311130	California Coastal Live Oak Woodland and Savanna	I

Vegzone Name	Subzone Name	BpS	BpS Name	FRG
Ponderosa Pine	PP-White Oak	0710600	East Cascades Oak-Ponderosa Pine Forest and Woodland	I
Ponderosa Pine	PP-White Oak	0710300	Mediterranean California Lower Montane Black Oak-Conifer Forest and Woodland	I
Grasslands-Meadows	Upland grass	811420	Columbia Basin Palouse Prairie	I
Port Orford Cedar	Wet Port Orford Cedar	0210210	Klamath-Siskiyou Lower Montane Serpentine Mixed Conifer Woodland	I

Table 16. Fire ecology group classification: frequent-fire dependent (regenerated by fire subgroup), by vegetation zone and subzone

Vegzone Name	Subzone Name	BpS	BpS Name	FRG
Pinyon-Juniper-Cypress	Cypress Woodlands	0311770	California Coastal Closed-Cone Conifer Forest and Woodland	I
Shrublands	Montane Shrub	911060	Northern Rocky Mountain Montane-Foothill Deciduous Shrubland	II
Shrublands	Upland Shrub	611260	Inter-Mountain Basins Montane Sagebrush Steppe	II

Table 17. Fire ecology group classification: frequent-fire dependent (tolerant of fire subgroup), by vegetation zone and subzone

Vegzone Name	Subzone Name	BpS	BpS Name	FRG
Giant Sequoia	Giant Sequoia Moist	0710280	Mediterranean California Mesic Mixed Conifer Forest and Woodland	I
Redwood	Redwood Moist	0410150	California Coastal Redwood Forest	I
Redwood	Redwood Wetlands	0310150	California Coastal Redwood Forest	I

Table 18. Fire ecology group classification: fire diverse (mixed severity), by vegetation zone and subzone

Vegzone Name	Subzone Name	BpS	BpS Name	FRG
Mountain Hemlock	Dry Mountain Hemlock	0710550	Rocky Mountain Subalpine Dry-Mesic Spruce-Fir Forest and Woodland	III
Pinyon-Juniper-Cypress	Juniper Woodlands	0710170	Columbia Plateau Western Juniper Woodland and Savanna	III
California Red Fir-Shasta Red Fir	Moist Red Fir	0610322	Mediterranean California Red Fir Forest - Southern Sierra	III
California Red Fir-Shasta Red Fir	Moist Red Fir	0610322	Red Fir	III
Silver Fir	Moist Silver Fir	0711740	North Pacific Dry-Mesic Silver Fir-Western Hemlock-Douglas-fir Forest	III
Western Hemlock	Moist Western Hemlock	0710370	North Pacific Maritime Dry-Mesic Douglas-fir-Western Hemlock Forest	III

Vegzone Name	Subzone Name	BpS	BpS Name	FRG
Western Red Cedar	Moist Western Red Cedar	1010471	Northern Rocky Mountain Mesic Montane Mixed Conifer Forest	III
Ponderosa Pine	Ponderosa Pine-Lodgepole Pine	0710532	Northern Rocky Mountain Ponderosa Pine Woodland and Savanna - Xeric	III
Hardwoods	Riparian Hardwood Forest	0911590	Rocky Mountain Montane Riparian Systems	III
Hardwoods	Riparian Hardwood Forest	0511520	California Montane Riparian Systems	III
Hardwoods	Riparian Shrub	0711582	North Pacific Montane Riparian Woodland and Shrubland - Dry	III
Hardwoods	Riparian Shrub	0611520	California Montane Riparian Systems	III
Parklands	Sierra Lodgepole Pine Parklands	0610582	Sierra Nevada Subalpine Lodgepole Pine Forest and Woodland - Dry	III
Parklands	Subalpine Fir Parklands	1010460	Northern Rocky Mountain Subalpine Woodland and Parkland	III
Parklands	Subalpine Larch Parklands	1010460	Northern Rocky Mountain Subalpine Woodland and Parkland	III
Douglas-Fir	Wet Douglas-Fir	0110350	North Pacific Dry Douglas-fir Forest and Woodland	III
Western Hemlock	Wet Western Hemlock	0710370	North Pacific Maritime Dry-Mesic Douglas-fir-Western Hemlock Forest	III
Western Red Cedar	Wet Western Red Cedar	0110180	East Cascades Mesic Montane Mixed-Conifer Forest and Woodland	III
White Fir - Grand Fir	Wet White Fir - Grand Fir	0910470	Northern Rocky Mountain Mesic Montane Mixed Conifer Forest	III
Parklands	WhiteBark Pine Parklands	1010460	Northern Rocky Mountain Subalpine Woodland and Parkland	III
Ponderosa Pine	Xeric Pine	0710532	Northern Rocky Mountain Ponderosa Pine Woodland and Savanna - Xeric	III

Table 19. Fire ecology group classification: fire infrequent (fire prone – regeneration subgroup), by vegetation zone and subzone

Vegzone Name	Subzone Name	BpS	BpS Name	FRG
White Fir - Grand Fir	Cold Dry White Fir - Grand Fir	0410580	Sierra Nevada Subalpine Lodgepole Pine Forest and Woodland	III
Lodgepole Pine	Dry Lodgepole Pine	0711670	Rocky Mountain Poor-Site Lodgepole Pine Forest	IV
Subalpine Fir - Engelmann Spruce	Dry Subalpine Fir	1010550	Rocky Mountain Subalpine Dry-Mesic Spruce-Fir Forest and Woodland	IV
Lodgepole Pine	Moist Lodgepole Pine	0110500	Rocky Mountain Lodgepole Pine Forest	IV
Subalpine Fir - Engelmann Spruce	Moist Subalpine Fir	0710560	Rocky Mountain Subalpine Mesic-Wet Spruce-Fir Forest and Woodland	III

Table 20. Fire ecology group classification: fire infrequent (limited fire subgroup), by vegetation zone and subzone

Vegzone Name	Subzone Name	BpS	BpS Name	FRG
Parklands	Bristlecone-Foxtail Pine	0610200	Inter-Mountain Basins Subalpine Limber-Bristlecone Pine Woodland	III
Pinyon-Juniper-Cypress	Juniper Steppe	0911150	Inter-Mountain Basins Juniper Savanna	III
Parklands	Limber Pine	0610200	Inter-Mountain Basins Subalpine Limber-Bristlecone Pine Woodland	III
Parklands	Mountain Hemlock Parklands	0110380	North Pacific Maritime Mesic Subalpine Parkland	V
Parklands	Mountain Hemlock Parklands	0610330	Mediterranean California Subalpine Woodland	V
Mountain Hemlock	Mountain Hemlock Wetlands	0710411	North Pacific Mountain Hemlock Forest - Wet	V
Pinyon-Juniper-Cypress	Pinyon Woodlands	0610190	Great Basin Pinyon-Juniper Woodland	III
Hardwoods	Riparian Hardwood Forest	0211560	North Pacific Lowland Riparian Forest and Shrubland	V
Shrublands	Salt Desert Shrub	911530	Inter-Mountain Basins Greasewood Flat	V
Grasslands - Meadows	Scabland grass	910650	Columbia Plateau Scabland Shrubland	V
Shrublands	Scabland Shrub	910650	Columbia Plateau Scabland Shrubland	V
Silver Fir	Silver Fir Parklands	0710420	North Pacific Mesic Western Hemlock-Silver Fir Forest	V
Sitka Spruce	Sitka Spruce Wetlands	0210360	North Pacific Hypermaritime Sitka Spruce Forest	V
Parklands	Subalpine Grassland-Forbland	711710	North Pacific Alpine and Subalpine Dry Grassland	IV
Parklands	Subalpine Grassland-Forbland	610670	Mediterranean California Alpine Fell-Field	V
Parklands	Subalpine Grassland-Forbland	911430	Rocky Mountain Alpine Fell-Field	V
Parklands	Subalpine Shrub	110680	North Pacific Dry and Mesic Alpine Dwarf-Shrubland or Fell-field or Meadow	V
Parklands	Subalpine Shrub	910700	Rocky Mountain Alpine Dwarf-Shrubland	V
Parklands	Subalpine Shrub	610710	Sierra Nevada Alpine Dwarf-Shrubland	V

Vegzone Name	Subzone Name	BpS	BpS Name	FRG
Western Hemlock	Western Hemlock Wetlands	0710390	North Pacific Maritime Mesic-Wet Douglas-fir-Western Hemlock Forest	V
Parklands	Western White Pine	0310330	Mediterranean California Subalpine Woodland	V
Silver Fir	Wet Silver Fir	0710420	North Pacific Mesic Western Hemlock-Silver Fir Forest	V
Sitka Spruce	Wet Sitka Spruce	0210360	North Pacific Hypermaritime Sitka Spruce Forest	V

Table 21. Fire ecology group classification: fire infrequent, by vegetation zone and subzone

Vegzone Name	Subzone Name	BpS	BpS Name	FRG
Foothill Pine - Coulter Pine	Coulter Pine-Oak	0411770	California Coastal Closed-Cone Conifer Forest and Woodland	IV
Lodgepole Pine	Lodgepole Pine Wetlands	0711570	North Pacific Swamp Systems	IV
Mountain Hemlock	Moist Mountain Hemlock	0710412	North Pacific Mountain Hemlock Forest - Xeric	V
Hardwoods	Riparian Shrub	0911540	Inter-Mountain Basins Montane Riparian Systems	IV
Western Red Cedar	Western Red Cedar Wetlands	1010472	Northern Rocky Mountain Mesic Montane Mixed Conifer Forest - Cedar Groves	V
Mountain Hemlock	Wet Mountain Hemlock	0710412	North Pacific Mountain Hemlock Forest - Xeric	V
Subalpine Fir-Engelmann Spruce	Wet Subalpine Fir	0710412	North Pacific Mountain Hemlock Forest - Xeric	V
Foothill Pine - Coulter Pine	Coulter Pine-Oak	0411770	California Coastal Closed-Cone Conifer Forest and Woodland	IV
Lodgepole Pine	Lodgepole Pine Wetlands	0711570	North Pacific Swamp Systems	IV
Mountain Hemlock	Moist Mountain Hemlock	0710412	North Pacific Mountain Hemlock Forest - Xeric	V
Hardwoods	Riparian Shrub	0911540	Inter-Mountain Basins Montane Riparian Systems	IV
Western Red Cedar	Western Red Cedar Wetlands	1010472	Northern Rocky Mountain Mesic Montane Mixed Conifer Forest - Cedar Groves	V
Mountain Hemlock	Wet Mountain Hemlock	0710412	North Pacific Mountain Hemlock Forest - Xeric	V
Subalpine Fir-Engelmann Spruce	Wet Subalpine Fir	0710412	North Pacific Mountain Hemlock Forest - Xeric	V

Table 22. Fire ecology group classification: other, by vegetation zone and subzone

Vegzone Name	Subzone Name	BpS	BpS Name	FRG
Developed	Developed	na	No data	na
Rock	Rock	na	Barren-Rock/Sand/Clay	na

na = not applicable.

Ecological Departure by Fire Ecology Group Classification: Northwest Forests

The tables below display ecological departure by fire ecology group for national forests in the Bioregional Assessment of Northwest Forests (BioA).

Table 23. Deschutes National Forest ecological departure by fire ecology group

Fire Ecology Group	Low (acres)	Moderate (acres)	High (acres)	Grand Total (acres)
Frequent-fire dependent	123,772	447,748	16,176	587,695
Fire diverse (mixed severity)	19,737	783,113	7,983	810,833
Fire infrequent	21,969	204,354	10,976	237,299
Deschutes National Forest total	165,478	1,435,215	35,135	1,635,827

Table 24. Fremont-Winema National Forest ecological departure by fire ecology group

Fire Ecology Group	Low (acres)	Moderate (acres)	High (acres)	Grand Total (acres)
Frequent-fire dependent	74,700	948,883	7,547	1,031,129
Fire diverse (mixed severity)	23,841	719,284	4,299	747,425
Fire infrequent	21,319	221,942	45,988	289,249
Fremont-Winema National Forest total	119,860	1,890,109	57,833	2,067,802

Table 25. Gifford Pinchot National Forest ecological departure by fire ecology group

Fire Ecology Group	Low (acres)	Moderate (acres)	High (acres)	Grand Total (acres)
Frequent-fire dependent	1,708	8,547	7,327	17,582
Fire diverse (mixed severity)	714,185	91,481	1,472	807,138
Fire infrequent	80,456	342,224	1,403	424,083
Gifford Pinchot National Forest total	796,349	442,252	10,202	1,248,803

Table 26. Klamath National Forest ecological departure by fire ecology group

Fire Ecology Group	Low (acres)	Moderate (acres)	High (acres)	Grand Total (acres)
Frequent-fire dependent	120,278	767,376	398,518	1,286,172
Fire diverse (mixed severity)	77,527	127,974	14,587	220,088
Fire infrequent	11,886	27,666	2,942	42,494
Klamath National Forest total	209,691	923,016	416,047	1,548,754

Table 27. Lassen National Forest ecological departure by fire ecology group

Fire Ecology Group	Low (acres)	Moderate (acres)	High (acres)	Grand Total (acres)
Frequent-fire dependent	201,525	856,449	174,373	1,232,348
Fire diverse (mixed severity)	2,326	29,916	23,957	56,199
Fire infrequent	2,652	31,346	15,986	49,984
Lassen National Forest total	206,504	917,711	214,317	1,338,531

Table 28. Mendocino National Forest ecological departure by fire ecology group

Fire Ecology Group	Low (acres)	Moderate (acres)	High (acres)	Grand Total (acres)
Frequent-fire dependent	79,532	362,475	375,850	817,856
Fire diverse (mixed severity)	9,977	35,266	6,584	51,827
Fire infrequent	696	1,445	295	2,437
Mendocino National Forest total	90,205	399,186	382,729	872,120

Table 29. Modoc National Forest ecological departure by fire ecology group

Fire Ecology Group	Low (acres)	Moderate (acres)	High (acres)	Grand Total (acres)
Frequent-fire dependent	89,702	672,956	23,568	786,226
Fire diverse (mixed severity)	37,949	241,226	989	280,165
Fire infrequent	3,831	46,461	3,077	53,369
Modoc National Forest total	131,482	960,644	27,634	1,119,760

Table 30. Mt. Baker-Snoqualmie National Forest ecological departure by fire ecology group

Fire Ecology Group	Low (acres)	Moderate (acres)	High (acres)	Grand Total (acres)
Frequent-fire dependent	300	625	342	1,267
Fire diverse (mixed severity)	281,508	92,561	1,295	375,364
Fire infrequent	518,356	749,189	7,454	1,274,998
Mt. Baker-Snoqualmie National Forest total	800,163	842,375	9,091	1,651,629

Table 31. Mt. Hood National Forest ecological departure by fire ecology group

Fire Ecology Group	Low (acres)	Moderate (acres)	High (acres)	Grand Total (acres)
Frequent-fire dependent	10,620	83,537	9,576	103,733
Fire diverse (mixed severity)	566,059	18,656	638	585,353
Fire infrequent	136,887	142,320	1,659	280,867
Mt. Hood National Forest total	713,566	244,513	11,874	969,953

Table 32. Ochoco National Forest ecological departure by fire ecology group

Fire Ecology Group	Low (acres)	Moderate (acres)	High (acres)	Grand Total (acres)
Frequent-fire dependent	52,408	424,183	3,162	479,753
Fire diverse (mixed severity)	52,632	167,225	21,549	241,406
Fire infrequent	4,259	26,095	170	30,525
Ochoco National Forest total	109,299	617,503	24,881	751,683

Table 33. Okanogan-Wenatchee National Forest ecological departure by fire ecology group

Fire Ecology Group	Low (acres)	Moderate (acres)	High (acres)	Grand Total (acres)
Frequent-fire dependent	74,156	523,571	514,563	1,112,291
Fire diverse (mixed severity)	553,289	193,720	46,796	793,804
Fire infrequent	444,098	462,108	25,864	932,070

Fire Ecology Group	Low (acres)	Moderate (acres)	High (acres)	Grand Total (acres)
Okanogan-Wenatchee National Forest total	1,071,542	1,179,399	587,224	2,838,165

Table 34. Olympic National Forest ecological departure by fire ecology group

Fire Ecology Group	Low (acres)	Moderate (acres)	High (acres)	Grand Total (acres)
Frequent-fire dependent	94	70	181	345
Fire diverse (mixed severity)	227,968	76,735	291	304,995
Fire infrequent	161,066	190,448	857	352,371
Olympic National Forest total	389,128	267,254	1,329	657,711

Table 35. Rogue River-Siskiyou National Forest ecological departure by fire ecology group

Fire Ecology Group	Low (acres)	Moderate (acres)	High (acres)	Grand Total (acres)
Frequent-fire dependent	89,616	815,509	265,231	1,170,356
Fire diverse (mixed severity)	310,995	235,684	14,337	561,015
Fire infrequent	6,702	72,049	7,550	86,301
Rogue River-Siskiyou National Forest total	407,314	1,123,241	287,118	1,817,673

Table 36. Shasta-Trinity National Forest ecological departure by fire ecology group

Fire Ecology Group	Low (acres)	Moderate (acres)	High (acres)	Grand Total (acres)
Frequent-fire dependent	159,759	1,150,427	863,871	2,174,056
Fire diverse (mixed severity)	60,582	138,568	21,844	220,994
Fire infrequent	7,041	47,173	5,405	59,619
Shasta-Trinity National Forest total	227,382	1,336,168	891,120	2,454,669

Table 37. Siuslaw National Forest ecological departure by fire ecology group

Fire Ecology Group	Low (acres)	Moderate (acres)	High (acres)	Grand Total (acres)
Frequent-fire dependent	116	215	198	529
Fire diverse (mixed severity)	103,995	5,763	22	109,779
Fire infrequent	317,371	177,198	95	494,664
Siuslaw National Forest total	421,482	183,175	315	604,972

Table 38. Six Rivers National Forest ecological departure by fire ecology group

Fire Ecology Group	Low (acres)	Moderate (acres)	High (acres)	Grand Total (acres)
Frequent-fire dependent	19,298	716,665	307,520	1,043,483
Fire diverse (mixed severity)	62,108	85,758	8,717	156,583
Fire infrequent	7,939	4,809	661	13,410
Six Rivers National Forest total	89,345	807,232	316,898	1,213,476

Table 39. Umpqua National Forest ecological departure by fire ecology group

Fire Ecology Group	Low (acres)	Moderate (acres)	High (acres)	Grand Total (acres)
Frequent-fire dependent	14,062	79,472	13,795	107,329
Fire diverse (mixed severity)	628,475	140,956	4,851	774,281
Fire infrequent	6,137	63,580	10,698	80,415
Umpqua National Forest total	648,674	284,007	29,344	962,025

Table 40. Willamette National Forest ecological departure by fire ecology group

Fire Ecology Group	Low (acres)	Moderate (acres)	High (acres)	Grand Total (acres)
Frequent-fire dependent	6,699	9,800	4,127	20,626
Fire diverse (mixed severity)	1,101,932	111,218	576	1,213,726
Fire infrequent	91,675	279,190	314	371,180
Willamette National Forest total	1,200,306	400,209	5,017	1,605,532