Glossary

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

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 synthesis and its source materials, especially when formal definitions might 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 and others 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 Northwest Forest Plan 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.

bull trout core areas—Areas where bull trout populations have been delineated for conservation purposes.

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 green- house 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 socio-cultural resources.

collaboration or collaborative process—A structured way 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 Appendix 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.

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

congressionally reserved land—Lands reserved by the U.S. Congress such as wilderness areas, wild and scenic rivers, and national parks and monuments.

connectivity (of habitats)—Environmental conditions that exist at several spatial and temporal scales that provide landscape linkages that permit (a) the exchange of flow, sediments, and nutrients; (b) genetic interchange of genes among individuals between populations; and (c) 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 (NRV) where a disruption is needed to move existing conditions closer to NRV. 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 and others 2015, DeMeo and others 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 (e.g., timber harvest, wildfire, windstorm), on sites that are capable of developing a closed canopy (Swanson and others 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. First complex early seral forest is often naturally occurring. It has high species diversity and is made up of survivors and legacies including organic structures like live and dead trees that provide habitat for surviving and colonizing organisms. Traditional forestry practices like clearcutting, salvage logging, and tree planting can reduce species richness and key ecological processes associated with complex early seral habitat (Swanson and others 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 regional forester's amendment 2. Consistency with Eastside Screens and National Forest Managment Act. https://www.fs.usda.gov/nfs/11558/www/nepa/52637_FSPLT2_116557.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 and others 2007).

ecological integrity—The quality or condition of an ecosystem when its dominant ecological characteristics (e.g., 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.

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 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 and others 2014). An environmental justice population is a group of people that meets the criteria for low-income or minority status under E.O. 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 Indian Tribe—An 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 and others 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 an ecosystem across 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 BioA we discuss suitability for large wildfires.

fire suppression—The human act of extinguishing wild- fires (Keane and others 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, that 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.

High-intrinsic potential assessment—An assessment conducted to determine a streams capacity to provide high-quality habitat for a given fish species.

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 (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 (e.g., 90 year-old forests dominated by Douglas-fir were termed late-successional).

late-successional reserve—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 (NRV)—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 (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, fire- wood, 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 (>200 years) and related structural attributes that often (but not always) include large trees, high biomass of dead wood (i.e., 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 with- out 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 National Environmental Policy Act requirements (where applicable) have been met prior to ignition (synonymous with controlled burn).

probable sale quantity—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 non- motorized, 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 BioA, 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.

regeneration harvest—A cutting procedure by which a stand is established or renewed and a new age class is created. Each method of regeneration harvest consists of the removal of the old stand, the establishment of a new one, and any treatments that are applied to create and maintain conditions favorable to the start and early growth of reproduction.

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 Variability (NRV). In terms of forest structure, this is the area departed from the natural range of variation. It can be in need of 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 and others 2015, DeMeo and others 2018).

riparian areas—Three-dimensional ecotones (the transition zone between two adjoining communities) of inter- action 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 out- come 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 Appendix 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 Appendix 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 forests 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, that 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 Appendix 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 Appendix 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 Variability (NRV) where natural ecological processes are needed to move existing conditions closer to NRV. Succession processes inherently require time and include plant growth, decomposition, and regeneration (Haugo and others 2015, DeMeo and others 2018).

survey and manage standards and guidelines—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 standards and guidelines 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 foreseeable 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).

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.

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).

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.