# Glossary

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**Active channel** - Defined by DNR as the stream area occupied by typical flood events (i.e., comparable to the two-year recurring flood). The active channel generally coincides with the ordinary high-water mark.

**Age class** - An interval, commonly 10 years, into which the age range of forest stands is divided for classification.

**Anadromous fish** - Those species of fish that mature in the ocean and migrate to freshwater rivers and streams to spawn; an example is salmon.

**Aquatic zone** - The location of aquatic ecosystems within the riparian ecosystem, as defined in the HCP.

**Blowdown** - Trees felled by high wind.

**Board of Natural Resources** - A Washington State board that establishes policies for the Department of Natural Resources to ensure that the acquisition, management, and disposition of lands and resources within DNR's jurisdiction are based on sound principles. The board is composed of six members: The Commissioner of Public Lands, the Governor, the Superintendent of Public Instruction, the dean of the College of Agriculture at Washington State University, the dean of the College of Forest Resources at the University of Washington, and an elected representative from a county that contains Forest Board land.

**Bog** - A hydrologically isolated, low nutrient wetland that receives its water from precipitation only. Bogs typically have no inflow and rarely have outflows. Bogs have peat soils 16 or more inches in depth (except where over bedrock), and specially adapted vegetation such as sphagnum moss, Labrador tea, bog laurel, sundews, and some sedges. Bogs may have an overstory of spruce, hemlock, cedar, or other tree species, and may be associated with open water.

**Buffer** - A forested strip left during timber harvest to conserve sensitive ecosystems or wildlife habitat. Management activities may be allowed as long as they are consistent with the conservation objectives for the buffer.

**Candidate species** - A federal and state designation for species that are being considered for listing. Federal candidate species, category 1, are species for which there is substantial information to support listing the species as threatened or endangered; listing proposals are either being prepared or are delayed. Federal candidate species, category 2, are species for which information indicates that listing may be appropriate, but conclusive data are not available; additional information is being collected. State candidate species are those that the Washington Department of Fish and Wildlife will review for possible listing as endangered, threatened, or sensitive. Federal candidate species are examined

individually to determine their status in Washington and whether inclusion as a listed species is appropriate or warranted.

**Canopy** - The continuous cover of branches and foliage formed collectively by the crowns of adjacent trees and other woody growth. See also "Understory canopy" and "Overstory canopy."

**Canopy closure** - The degree to which the canopy (forest layers above one's head) blocks sunlight or obscures the sky. See also "Relative density."

**Clearcut** - A harvest method in which all or almost all of the trees are removed in one cutting; an even-aged silvicultural system. Clearcutting establishes a stand without protection from an overstory canopy.

**Climax** - The culminating, highly stable stage in plant succession for a given environment; an ecosystem will stay at the climax stage until disturbance affects the ecosystem and the stages of ecological succession begin again.

**Cluster** - An area that contains habitat capable of supporting three or more breeding pairs of spotted owls with overlapping or nearly overlapping home ranges.

**Coarse woody debris** - See "Large woody debris."

**Code of Federal Regulations (CFR)** - A codification of the general and permanent rules published in the Federal Register by the Executive departments and agencies of the federal government.

**Commercial thinning** - The removal of generally merchantable trees from an even-aged stand, so that the remaining trees can develop faster and with less competition.

**Critical habitat, federal** - Areas designated under the federal Endangered Species Act that have the physical and biological features necessary for the conservation of a listed species and that require special management.

**Critical habitat, state** - Habitats of threatened or endangered species as designated by the Washington Forest Practices Board.

**Debris avalanches** - The very rapid and usually sudden sliding and flowage of loose, unsorted mixtures of soil and weathered bedrock.

**Debris flow** - A moving mass of rock fragments, soil, and mud, more than half the particles being larger than sand size; can travel many miles down steep confined mountain channels; a form of debris torrent.

**Debris torrent** - Debris flow or dam-break flood. Rapid movement of a large quantity of materials, including wood and sediment, down a stream channel. Usually occurs in smaller streams during storms or floods, and scours the stream bed.

**Demographic support** - The reproductive contributions of individuals which enhance population viability.

**Diameter at breast height (dbh)** - The diameter of a tree, measured 4.5 feet above the ground on the uphill side of the tree.

**Direct influence zone** - The area in uplands, bordering the riparian zone, that has a direct influence on aquatic ecosystems. Direct influences include shading, sedimentation, input of organic nutrients, and recruitment of large woody debris.

**Dispersal** - The movement of juvenile, subadult, and adult animals from one sub-population to another. For juvenile spotted owls, dispersal is the process of leaving the natal territory to establish a new territory.

**Dispersal habitat, spotted owls (east-side planning units)** - In DNR's HCP, dispersal habitat has the following characteristics: (1) canopy closure of at least 50 percent; (2) overstory tree density of at least 40 trees per acre that are at least 11 inches dbh; (3) top height of at least 60 feet; (4) retention of four green trees per acre from the largest size class present for recruitment of snags and cavity trees; and, (5) at least 50 percent of DNR-managed lands designated for dispersal function on a quarter township basis will be maintained in these stand conditions.

**Dispersal habitat, spotted owls (west-side planning units)** - Habitat used by juvenile owls or by owls of any age to disperse or move from one area of nesting-roosting-foraging habitat to another. In DNR's HCP, dispersal habitat will be maintained on 50 percent of lands selected for a dispersal habitat role. The 50 percent will be measured on a WAU basis. In the HCP, dispersal habitat has the following minimum characteristics: (1) canopy cover of at least 70 percent; (2) the largest trees in a stand should have a quadratic mean dbh of 11 inches; (3) a top canopy height of at least 85 feet (top height is the average height of the 40 largest diameter trees per acre); and, (4) green tree retention of at least four trees from the largest size class per acre. Type A, Type B, and sub-mature habitat can be counted as dispersal habitat.

**Down woody debris** - See "Large woody debris."

**Draft Environmental Impact Statement (DEIS)** - A public document prepared pursuant to the State or National Environmental Policy Acts (SEPA or NEPA).

**Earthflow** - A mass-movement landform and process characterized by downslope translation of soil and weathered rock over a discrete basal shear surface (landslide) within well defined lateral boundaries.

**Edge** - Where plant communities meet or where successional stages or vegetative conditions with plant communities come together.

**Edge effects** - The drastically modified environmental conditions along the margins, or "edges," of forest patches surrounded by partially or entirely harvested lands.

**Effectiveness monitoring** - Monitoring done to determine whether the HCP conservation strategies result in the anticipated habitat conditions.

**Enabling Act** - The Congressional Enabling Act of 1889, which authorized statehood for Washington. The act provided the state with Federal Grant lands to be held in trust for the support of the state's public institutions and placed limits on the sale, lease and management of these lands.

**Endangered species** - A federal and state designation. A species determined to be in danger of extinction throughout all or a significant portion of its range.

**Endangered Species Act** - The federal Endangered Species Act of 1973, as amended, sets up processes by which plant or animal species can be designated as threatened or endangered. Two federal agencies, the U.S. Fish and Wildlife Service and the National Marine Fisheries Service, administer the act. Once species are listed, the act also provides that these agencies develop recovery plans for these species, including conserving the ecosystems on which listed species depend.

**Environmental impact statement (EIS)** - A document prepared under the National and/or State Environmental Policy Acts to assess the effects that a particular action will have on the environment.

**Evapotranspiration** - The conversion of water, whether open or as soil moisture (both by evaporation) or within plants (by transpiration), into water vapor that is released to the atmosphere.

**Even-aged** - A system of forest management in which stands are produced or maintained with relatively minor differences in age; generally, less than a 10-year difference in age.

**Evolutionarily Significant Units** - A population that is substantially reproductively isolated from other population units of the same species, and represents an important component in the evolutionary legacy of the species.

**Exterior riparian buffer** - A buffer whose purpose is to protect the integrity of the interior-core buffer; part of the OESF riparian strategy. See also "Buffer."

**Extirpation** - The elimination of a species from a particular area.

**Federally listed** - Species formally listed as a threatened or endangered species under the federal Endangered Species Act; designations are made by the U.S. Fish and Wildlife Service or National Marine Fisheries Service.

**Federal Reanalysis Team** - A group of six federal scientists assembled to review existing data and develop a population model to estimate the importance of contributions of varying amounts of habitat from nonfederal lands to the long-term existence of a spotted owl population on the Olympic Peninsula.

**Federal reserves** - Federal lands that have been, or are proposed to be, withdrawn from acreage used for timber yields. These include Congressional Reserves such as national parks, wild and scenic rivers, national recreation areas, national monuments, and wilderness; Late-Successional Reserves, Riparian Reserves, Administratively Withdrawn Areas, Research Natural Areas, Special Recreation Management Areas, etc.

**50-11-40 guideline**- The Interagency Scientific Committee's recommendation that forested federal lands between designated Habitat Conservation Areas be managed such that 50 percent of every quarter township have forest stands in which trees have an average dbh of 11 inches and at least a 40 percent canopy closure.

**Forest ecosystem** - The interrelationships between the various trees and other organisms (both plants and animals) that form a community; and the interrelationships between these organisms and the physical environment in which they exist.

**Forest Ecosystem Management Assessment Team (FEMAT)** - A team organized by the federal government in 1993 to develop a management plan for federal lands within the range of the northern spotted owl.

**Forest Practices Act** - A Washington State statute establishing minimum standards for forest practices and providing for necessary administrative procedures and rules applicable to activities conducted on or pertaining to forests on both state-managed and private lands.

**Forest Practices Board** - A Washington State board created to write forest practices rules which are administered and enforced by the Washington Department of Natural Resources.

**Forest Resource Plan** - DNR's Forest Land Management Division's 1992 final policy plan, containing the current policies of the Board of Natural Resources.

**Forest stand** - See "Stand."

**Fragmentation** - The spatial arrangement of successional stages across the landscape as the result of disturbance; often used to refer specifically to the process of reducing the size and connectivity of late successional or old-growth forests. Fragmentation of existing habitat increases the accessibility of nest sites to predators and isolates portions of the population.

**Geographic information system (GIS)** - A computer system that stores and manipulates spatial data, and can produce a variety of maps and analyses. DNR's GIS is able to (1) assign information and attributes to polygons and lines, which represent relationships on the ground; and, (2) update and retrieve inventory, mapping, and statistical information. DNR uses its GIS as one of several tools for setting landscape-level planning objectives.

**Geomorphic processes** - Landscape-modifying processes such as erosion, mass wasting, and stream flow.

**Green tree retention** - A stand management practice in which live trees are left within harvest units to provide habitat components.

**Habitat complexity** - As defined in the HCP OESF riparian conservation strategy, habitat complexity includes (1) variations in stream flow velocity and depth by structural obstructions to channel flow; (2) physical and biological interactions between a channel and its floodplain; (3) aquatic and riparian structures that provide cover from predators; (4) a variety of stream substrates that include gravel for fish spawning and macroinvertebrate habitat; (5) sufficient storage area within channels and floodplains for sediment and organic matter; and, (6) diversity of riparian vegetation that provides adequate sources of woody debris and nutrients to channels, and that moderates water and air temperatures within the riparian corridor.

**Habitat conservation plan (HCP)** - An implementable program for the long-term protection and benefit of a species in a defined area; required

as part of a Section 10 incidental take permit application under the federal Endangered Species Act.

**Habitat preference** - The choice of habitat(s) that the animal would make if all habitat types were available to it.

**Habitat selection** - The choice of a habitat(s) directly available to the animal.

**Harm** - A form of take under the federal ESA; defined in federal regulations as an act which actually kills or injures wildlife. Such acts may include significant habitat modification or degradation where it actually kills wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering (50 CFR 17.3).

**High quality nesting habitat, spotted owls (five west-side planning units)** - An interim definition developed in DNR's HCP, to be applied as an average condition over a 300-acre nesting habitat patch. High quality nesting habitat consists of (1) at least 31 trees per acre greater than or equal to 21 inches dbh per acre; (2) at least three trees from the above group of 31 trees have broken tops; (3) at least 12 snags per acre greater than 21 inches dbh; (4) a minimum of 70 percent canopy closure; and, (5) a minimum of 5 percent ground cover of large down woody debris.

**Home range** - The area used by a species and to which it exhibits fidelity. There is much geographic variation in spotted owl home range size. The median home range (determined by USFWS radio telemetry data) is a circle 1.8 miles in radius east of the I-5 corridor, or a circle 2.7 miles in radius west of the I-5 corridor. Hanson et al. (1993) determined that the median range radius for owls in the western Washington Cascades is 2.0 miles. Researchers have observed median home ranges of 14,232 acres on the Olympic Peninsula and 6,609 acres in the eastern Cascades. (See Chapter III of the HCP for more discussion.)

**Hydrologic analysis unit (HAU)** - Subdivisions of the Watershed administrative unit (WAU) used in the Washington Forest Practices Board's watershed analysis manual 'Hydrology Module.'

**Hydrologic maturity** - The degree to which hydrologic processes (e.g., interception, evapotranspiration, snow accumulation, snowmelt, infiltration, runoff) and outputs (e.g., water yield and peak disharge) in a particular forest stand approach those expected in a late seral stand under the same climatic and site conditions. In DNR's HCP, a "hydrologically mature forest," with respect to rain-on-snow runoff, is a well-stocked conifer stand at age 25 years or older.

**Identifiable channel** - A river or stream channel with well-defined and measurable channel banks where vegetative ground cover has been disturbed and sediment is exposed.

**Implementation Agreement (IA)** - A part of the application for an incidental take permit, which specifies the terms and conditions, resources, schedule of activities, and expectations for the parties to the agreement.

**Implementation monitoring** - Monitoring done to determine whether the HCP conservation strategies are implemented as written.

**Incidental take** - The taking of a federally listed wildlife (animal) species, if the taking is incidental to, and not the purpose of, carrying out otherwise lawful activities. See also "Take."

**Incidental take permit** - Permit issued by the U.S. Fish and Wildlife Service to either a private entity or a state, that allows incidental take of a threatened or endangered species; permit also requires permitee to carry out specified actions that minimize and mitigate the incidental take, and may contribute to the recovery of the species.

**Interior-core riparian buffer** - Streamside buffer in the HCP OESF riparian strategy; minimizes disturbance of unstable channel banks and adjacent hillslopes, and protects and aids natural restoration of riparian processes and functions. See "Buffer."

**Landscape** - Large regional units of lands that are viewed as a mosaic of communities, or a unit of land with separate plant communities or ecosystems forming ecological units with distinguishable structure, function, geomorphology, and disturbance regimes. In DNR's HCP, a landscape is defined as a large area comprised of various interacting patterns of stand structure and function going through alterations over time.

**Landscape assessment** - In DNR's HCP, any method to field verify the amount of habitat in WAUs on DNR-managed lands.

**Landscape-level planning** - The process of planning across a larger area than stand by stand.

**Landscape planning** - The process of planning for a specified landscape by setting specific objectives for a given area, such as protection of wildlife and timber production.

**Landscape planning unit** - Landscape-level planning units used by DNR's Olympic Region to identify 11 watershed-based units within the Olympic Experimental State Forest.

**Landslide** - Any mass movement process characterized by downslope transport of soil and rock, under gravitational stress, by sliding over a discrete failure surface; or the resultant land form. In forested watersheds, landsliding typically occurs when local changes in the soil pore water pressure increase to a degree that the friction between soil particles is inadequate to bind them together.

**Large saw** - Large sawtimber. DNR's GIS forest classification for large saw is: dominant dbh 20-30 inches; more than 10 dominant trees/acre of this size; co-dominant trees are 14 inches dbh or greater; two or three canopy layers more closed than old growth; small snags present with sparse or no large snags; few large down logs.

**Large woody debris** - Large pieces of wood in stream channels or on the ground - includes logs, pieces of logs, and large chunks of wood; provides streambed stability and/or habitat complexity. Also called coarse woody debris or down woody debris. Large organic debris is large woody debris, but may contain additional non-woody debris, such as animal carcasses.

**Late successional forest** - A mature and/or old-growth forest stand. Also called late seral stage forest. Typical characteristics are moderate to

high canopy closure, a multi-layered, multispecies canopy dominated by large overstory trees, numerous large snags, and abundant large woody debris (such as fallen trees) on the ground. Typically, stands 80-120 years old are entering this stage.

**Layered** - A transitional forest structure, when second-growth is being manipulated to create old growth features; there is greater structural diversity than understory and somewhat less than with classic old growth.

**Leeward** - In this document, the side of a stream opposite that from which the wind blows.

**Listed wildlife species** - Species formally listed as endangered, threatened, or sensitive by a federal (USFWS or NMFS) or state (WDFW) agency.

**Low-harvest area** - As defined for the HCP's west-side planning units, the outermost portion of the riparian buffer, more than 100 feet from the active channel margin.

**Low order streams** - Small streams with very few tributaries; often are headwaters. Type 4 and 5 waters are low order streams.

**Maintenance and Enhancement Phase** - In the HCP OESF strategy, the remainder of the permit period following the restoration of threshold amounts of total spotted owl habitat (40 percent) in all Landscape planning units. This phase follows the Restoration Phase.

**Maintenance of species distribution** - Supporting the continued presence of a species in as much of its historic range as possible.

**Marbled murrelet** - A Pacific seabird that nests in mature or old-growth forests within 50 miles of the marine environments; listed as a threatened species by the U.S. Fish and Wildlife Service and Washington State.

**Marbled murrelet habitat** - For marbled murrelets, potential habitat is coniferous forests within 50 miles of the coast; old growth regardless of stand size; mature forests (80-200 year old stands) with or without an old growth component; young stands with remnant old growth or mature trees greater than 32 inches in diameter; young (70-80 years) coniferous forests that have deformities that result in structures suitable for nesting. Marbled murrelet habitat requires structural features such as large residual trees, large limbs, and nesting platforms.

**Mass wasting** - Dislodgment and downslope transport of soil and rock under the direct application of gravitational stress, i.e., without major action of water, wind, or ice.

**Matrix** - As proposed by FEMAT, the matrix is the area of federal lands where most timber harvest will occur, in the areas outside of the Late-Successional Reserves and Riparian Reserves.

**Mature stand** - The period of life in a forest stand from culmination of mean annual increment to an old-growth stage or to 200 years. This is a time of gradually increasing stand diversity. Hiding cover, thermal cover, and some forage may be present.

**Metapopulation** - Several sub-populations linked together by immigration and emigration. Metapopulation dynamics are influenced by the relationships between source and sink habitats and source and sink sub-populations.

**Minimal-harvest area** - As defined for the HCP's west-side planning units, the part of the riparian buffer outside of the no-harvest area; the next 75 feet from the active channel, and inside the low-harvest area (25-100 feet from the stream).

**Mitigation** - Methods of reducing adverse impacts of a project, by (1) limiting the degree or magnitude of the action and its implementation; (2) rectifying the impact by repairing, rehabilitating, or restoring the affected environment, (3) reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action, or, (4) compensating for the impact by replacing or providing substitute resources or environments.

**Monitor species** - A state designation. Wildlife species native to the state of Washington that: (1) were at one time classified as endangered, threatened, or sensitive; (2) require habitat that has limited availability during some portion of its life cycle; (3) are indicators of environmental quality; (4) require further field investigations to determine population status; (5) have unresolved taxonomy which may bear upon their status classification; (6) may be competing with and impacting other species of concern; or, (7) have significant popular appear.

**National Environmental Policy Act (NEPA)** - NEPA requires all federal agencies to consider and analyze all significant environmental impacts of any action proposed by those agencies; to inform and involve the public in the agency's decision-making process; and to consider the environmental impacts in the agency's decision-making process.

**National Marine Fisheries Service** (NMFS) - The federal agency that is the listing authority for marine mammals and anadromous fish under the Endangered Species Act.

**Natural Area Preserve (NAP)** - In Washington State, a natural area which has been so dedicated under the provisions of state law, or formally committed to protection by a cooperative agreement between a government landholder and the Department of Natural Resources.

**Natural Heritage Program** - A DNR program that identifies, selects and nominates outstanding natural areas in Washington; also, oversees state listing of plants.

**Natural Resources Conservation Area (NRCA)** - Washington State lands designated by the legislature to protect special scenic and/or ecological values.

**Nest patches** - Patches of old forest with a high degree of structural complexity (i.e., forest types known to support nesting spotted owls) that will be retained in an unmanaged state during the research phase of the HCP; part of the west-side NRF management strategy.

**Nesting platform, marbled murrelet** - Any large limb or other structure at least 50 feet above ground and at least 7 inches in diameter. In DNR's HCP, platforms are counted in conifer trees only, and only if located within the live crown.

**Nesting, roosting, and foraging habitat (NRF)** - Habitat with the forest structure, sufficient area, and adequate food source to meet the needs of a nesting pair of spotted owls. The forest structure consists of stands at least 70 years old that include a three-layer canopy of very large diameter trees (200+ years old) from the previous stand, large diameter trees (70+ years old), and small understory trees, along with snags and large down woody debris.

**No-harvest area** - As defined for the HCP's west-side planning units, the 25 feet of the riparian buffer closest to the stream.

**Northern spotted owl** - A medium-size dark brown owl that has round to elliptical white spots on the head, white mottling on the body and abdomen, and white bars on the tail; native to the Pacific coastal region. Federally listed as a threatened species, and listed as endangered by Washington State.

**NRF management areas** - Lands identified in DNR's HCP that will be managed to provide demographic support and contribute to maintaining species distribution for the spotted owl. Also called NRF areas.

**Old-growth forest** - A successional stage after maturity that may or may not include climax old-growth species; the final seral stage. Typically, contains trees older than 200 years. Stands containing Douglas fir older than 160 years, which are past full maturity and starting to deteriorate, may be classified as old growth. DNR's GIS forest classification for old growth is: a dominant dbh of 30 inches or greater; usually more than eight dominant trees/acre; three or more canopy layers with less than complete canopy closure; several snags/acre with a 20 inch dbh or greater; and several down logs per acre with a 24 inch dbh or greater.

**Olympic Experimental State Forest (OESF, the Experimental Forest)** - A DNR planning unit on the Olympic Peninsula, which has unique potential for research and experiments involving forestry, wildlife, and related disciplines; an integral part of DNR's HCP.

**Orographic** - Pertaining to mountains, especially in regard to their location, distribution, and accompanying phenomenon; also, said of the precipitation that results when moisture-laden air encounters a high barrier and is forced to rise over it, such as the precipitation on the windward slopes of a mountain range facing a steady wind from a warm ocean.

**Overstory canopy** - The uppermost forest canopy layer. See also "Canopy" and "Understory canopy."

**Owl circle** - A radius that approximates the median spotted owl home range size. See also "Home range."

**Packing** - An increased density of birds nesting in the habitat that is available.

**Partial cutting** - Removal of selected trees from a forest stand, leaving an uneven-aged stand of well-distributed residual, healthy trees. Also called uneven-aged management.

**Patch** - See "Nest patches."

**Physiographic province** - A region of which all parts are similar in

geologic structure and climate and which consequently had a unified geomorphic history; a region whose pattern of relief features or landforms differs significantly from that of adjacent regions.

**Planning unit** - DNR-managed land units, grouped into three blocks for the purpose of implementing the HCP: the Olympic Experimental State Forest, five west-side planning units, and three east-side planning units. The nine planning units in the HCP area are: Olympic Experimental State Forest, South Coast, North Coast, Columbia, Straits, South Puget, Chelan, Yakima, and Klickitat.

**Pole** - Any considerable length of round timber before saw log size, ready for use without further conversion. DNR's GIS classification for pole is: dominant dbh 10-14 inches; one canopy layer; and, little or no down dead woody debris.

**Population dynamics** - How populations and the environment interact to cause changes in a population over time.

**Population viability analysis** - Using population dynamics to analyze how large a population needs to be and how its habitat needs to be distributed across landscapes to persist over time. See also "Viable population."

**Precommercial thinning** - Cutting trees at an immature age to allow for better growth of the remaining trees; may include removal of excess and/or diseased trees in the 10-35 year class.

**Proposed threatened or endangered species** - Species proposed by the USFWS or NMFS for listing as threatened or endangered under the Endangered Species Act; not a final designation.

**Rain-on-snow zone** - Area, generally defined as an elevation zone, where it is common for snowpacks to be partially or completely melted during rainstorms several times during the winter.

**Recovery plan** - A plan developed by a government agency, that if implemented is expected to result in the recovery of a threatened or endangered species to the extent that the species can be delisted from threatened or endangered status.

**Relative density (RD)** - The basal area of a stand divided by the square root of the quadratic mean dbh of the stand. In the HCP, when canopy closure is used in a habitat definition, RD will be used as a measurement if and when DNR has established a correlation between RD and canopy closure in spotted owl habitats for its lands.

**Reserves** - See "Federal reserves."

**Restoration Phase** - In the HCP OESF strategy, the 40-60 year period during which existing young stands are developing the characteristics of young forest marginal and sub-mature habitat.

**Revised Code of Washington (RCW)** - A revised, consolidated, and codified form and arrangement of all the laws of the state of a general and permanent nature.

**Riparian buffer** - As defined for the HCP's west-side planning units, the

inner buffer of the riparian management zone that serves to protect salmonid habitat. See "Riparian management zone."

**Riparian ecosystem** - In DNR's HCP, the area of direct interaction between terrestrial and aquatic environments.

**Riparian management zone** - Defined in DNR's Forest Resource Plan (1992) Policy No. 20, and refined in DNR's HCP, an area consisting of an inner riparian buffer and an outer wind buffer. The riparian buffer serves to protect salmonid habitat; the wind buffer protects the riparian buffer. This policy expands the level of protection required under the current Forest Practices Act and authorizes DNR to establish riparian protection zones along Type 1 through 4 waters and, when necessary, along Type 5 waters. DNR may remove timber from riparian management zones if adequate protection can be provided to fish and other nontimber resources. These riparian management zones apply to the west-side planning units.

**Riparian zone** - A narrow band of moist soils and distinctive vegetation along the banks of lakes, rivers, and streams; in the HCP, the portion of the riparian ecosystem between the aquatic zone and the direct influence zone (uplands).

**River mile** - A statute mile as measured along the center line of a river. River miles are measured from the mouth of the river, or are discrete measures of distance (i.e., a distance of 2-4 river miles).

**Salmonids** - Fish species belonging to the family Salmonidae, including trout, salmon, char, and whitefish species.

**Sapling** - A young tree no longer a seedling but not yet a pole. DNR's GIS classification for sapling is: approximately 2-5 inches dbh.

**Seed tree harvest** - A harvest method in which all mature timber from an area is harvested in one entry except for a small number of trees left as a seed source for the harvested area.

**Selective harvest** - A general term for partial cutting or salvage cutting in which individual trees are removed.

**Sensitive species** - A state designation. State sensitive species are species native to the state of Washington that are vulnerable or declining and are likely to become endangered or threatened in a significant portion of their ranges within the state without cooperative management or the removal of threats.

**Shelterwood cut** - A harvest method in which a portion of a mature forest stand is removed in two or more cuttings; a portion of the stand is retained as a source of seed and/or protection during the period of regeneration.

**Silviculture** - The theory and practice of controlling the establishment, composition, growth, and quality of forest stands in order to achieve management objectives.

**Sink area** - The area in which local mortality rate exceeds local reproductive rate. Because mortality rates exceed reproduction, these populations would go extinct without immigration from source areas.

**Site center** - The actual nest tree or the primary roost of territorial owls.

**Site index** - A measure of forest productivity expressed as the height of the dominant trees in a stand at an index age.

**Site index curves** - Nonlinear regressions of tree height versus breast height age for different site productivities; used as a means to predict future growth.

**Site potential tree height** - The height a dominant tree may attain, given site conditions where it occurs.

**Slump** - A landslide characterized by a shearing and rotary movement of a generally independent mass of rock or earth along a curved slip surface (concave upward) and about an axis parallel to the slope from which it descends, and by backward tilting of the mass with respect to that slope so that the slump surface often exhibits a reversed slope facing uphill.

**Small saw** - Small sawtimber. DNR's GIS forest classification for small saw is: dominant dbh 14-20 inches; one or two canopy layers; small snags or none present; and, small down dead wood or none present.

**Snag** - Dead tree that is still standing.

**Source area** - The area in which local reproductive success is greater than local mortality (lambda is greater than one at the scale of an owl cluster). Populations in source areas produce an excess of individuals that must emigrate from their natal area to establish new territories.

**Special Emphasis Areas** - Proposed federally designated areas in Washington, as outlined in the draft 4(d) rule under the ESA.

**Spotted owl** - See "Northern spotted owl."

**Spotted owl site status** - See "Status 1 through 5, spotted owl site centers."

**Stand** - A group of trees that possess sufficient uniformity in composition, structure, age, spatial arrangement, or condition to distinguish them from adjacent groups.

**Stand conversion** - The conversion of stands from low-commercial value species to more valuable conifer species; also called stand rehabilitation.

**Stand initiation** - The first stage of forest growth; an open condition and new regeneration. The other three stages are stem exclusion, understory reinitiation, and old growth.

**State Environmental Policy Act (SEPA)** - This law is the basic state charter for protection of the environment. SEPA requires all state agencies to consider and analyze all significant environmental impacts of any action proposed by those agencies; to inform and involve the public in the agency's decision-making process; and to consider the environmental impacts in the agency's decision-making process.

**Status 1 through 5, spotted owl site centers** - Status assigned to spotted owl site centers by the Washington Department of Fish and Wildlife (WAC 222-16-080). The five categories are: Status 1- Pair or

reproductive; Status 2- Two birds, pair status unknown; Status 3- Resident territorial single; Status 4- Status unknown; and, Status 5- Historic status (formerly occupied).

**Stem exclusion** - The second stage of forest growth, with tree competition and mortality. The other three stages are stand initiation, understory reinitiation, and old growth.

**Stream classifications** - See "Water typing system."

**Subalpine** - The area above the upper limit of contiguous closed forest and beneath the upper limit of growth; typically, a mosaic of tree patches and meadows.

**Sub-mature forest** - DNR defines this as a younger forest category that includes mid-seral forest (non-late successional or old growth) that has the structural characteristics necessary to provide roosting and foraging functions.

**Sub-mature habitat (east-side planning units)** - In DNR's HCP, sub-mature habitat has the following characteristics: (1) forest community composed of at least 40 percent Douglas-fir or grand fir component; (2) canopy closure of at least 70 percent; (3) tree density of between 110-260 trees per acre; (4) tree height or vertical density with either (a) dominant and co-dominant trees at least 90 feet tall, and/or (b) two or more canopy layers, numerous intermediate trees, numerous low perches; (5) snags/cavity trees or mistletoe infection with either (a) three or more snags or cavity trees per acre that are equal to or greater than 20 inches dbh, and/or (b) a moderate to high infection of mistletoe; and (6) 5 percent ground cover of dead and down wood averaged over a stand.

**Sub-mature habitat (west-side planning units)** - In DNR's HCP, sub-mature habitat has the following characteristics: (1) forest community dominated by conifers, or in mixed conifer/hardwood forest, the community is composed of at least 30 percent conifers (measured as stems per acre dominant, co-dominant, and intermediate trees); (2) at least 70 percent canopy closure; (3) tree density of between 115-280 trees per acre (all greater than 4 inches dbh); (4) height of dominant and co-dominant trees at least 85 feet tall; (5) at least three snags or cavity trees per acre that are at least 20 inches dbh; and, (6) a minimum of 5 percent ground cover of large down woody debris.

**Sub-population** - A well-defined set of interacting individuals that comprise a proportion of a larger, interbreeding population.

**Suitable habitat block, marbled murrelets** - In DNR's HCP, a suitable habitat block is a contiguous forested area that is at least 5 acres in size, contains an average of at least two potential nesting platforms per acre, and is within 50 miles of marine waters.

**Take** - A prohibited action under federal law, except where authorized. To harass, harm, pursue, hunt, wound, kill, trap, capture, or collect a federally listed threatened or endangered species, or to attempt to do so (ESA, Section 3[19]). Take may include disturbance of the listed species, nest, or habitat, when disturbance is extensive enough to disrupt normal behavioral patterns for the species, although the affected individuals may not actually die. See also "Harm" and "Incidental take."

**Talus** - A homogeneous area of rock rubble, ranging in average size from 1 inch to 6.5 feet, derived from and lying at the base of a cliff or very steep, rocky slope.

**Target conditions** - Achieving ecological recovery and population restoration of a listed species; target conditions are often defined in federally-mandated recovery plans for a given species.

**Taxon** - A category in the biological system of arranging plants and animals in related groups, such as class, family, or phylum.

**Threatened species** - A federal and state designation as defined in the Endangered Species Act for species likely to become an endangered species throughout all or a significant portion of their range within the foreseeable future.

**Threatened and endangered species** - Formal classifications of species. Federal designations are made by the U.S. Fish and Wildlife Service or the National Marine Fisheries Service. State of Washington designations are made by the Washington Fish and Wildlife Commission (RCW 77.08.010). See also "Candidate species," "Endangered species," "Proposed threatened or endangered species," "Sensitive species," and "Threatened species."

**Trust** - In law, a fiduciary relationship in which one person (the trustee) holds the title to property or manages it for the benefit of another (the beneficiary).

**Trust lands** - Those lands held in trust and managed by the Washington Department of Natural Resources for the benefit of the trust beneficiaries.

**Turbidity** - The relative clarity of water, which may be affected by material in suspension in the water.

**Types 1 through 5 streams or waters** - See "Water typing system."

**Underburning** - Prescribed burning of the forest floor or understory for botanical or wildlife habitat objectives, hazard reduction, or silvicultural objectives.

**Understory canopy** - Forest undergrowth; the lowest canopy layer of trees and woody species. See also "Canopy" and "Overstory canopy."

**Understory reinitiation** - The third stage of forest growth, with undergrowth development and some tree regeneration. The other three stages are stand initiation, stem exclusion, and old growth.

**Uneven-aged** - Forests composed of trees that differ markedly in age. This results from partial cutting practices.

**U.S. Fish and Wildlife Service** (USFWS) - The federal agency that is the listing authority for species other than marine mammals and anadromous fish under the Endangered Species Act.

**Unzoned forest** - In DNR's HCP, a forest without areas deferred from timber management.

**Validation monitoring** - Monitoring done to evaluate the cause-and-effect relationships between habitat conditions resulting from the HCP conservation strategies and the animal populations these strategies are intended to benefit.

**Vegetative zones** - Broad areas that have similar types of vegetation. Zones within the HCP area include the Sitka spruce zone, the western hemlock zone, the Pacific silver fir zone, the subalpine fir/mountain hemlock zone, the alpine zone, the grand fir zone, the Douglas-fir zone, and the ponderosa pine zone (based on Franklin and Dyrness 1973).

**Viability analysis** - See "Population viability analysis."

**Viable population** - A population that is of sufficient size and distribution to be able to persist for a long period of time in the face of demographic variations, random events that influence the genetic structure of the population, and fluctuations in environmental conditions, including catastrophic events.

**Washington Administrative Code (WAC)** - All current, permanent rules of each state agency, adopted pursuant to chapter 34.05 RCW.

**Washington Board of Natural Resources** - See "Board of Natural Resources."

**Washington Forest Practices Act** - See "Forest Practices Act."

**Washington Forest Practices Board** - See "Forest Practices Board."

**Washington Fish and Wildlife Commission** - The state commission with statutory authority to list threatened, endangered, and sensitive species.

**Water resource inventory area (WRIA)** - Watershed-based planning unit, defined by the Washington State Department of Ecology. WRIAs are determined by drainages to common water bodies.

**Water typing system** - A simplified explanation of Washington's classifications of water types appears here. For the complete classification system, see WAC 222-16-030.

Type 1: All waters, within their ordinary high-water mark, as inventoried as "shorelines of the state."

Type 2: Segments of natural waters which are not Type 1 and have a high fish, wildlife, or human use. These are segments of natural waters and periodically inundated areas of their associated wetlands.

Type 3: Segments of natural waters which are not Type 1 or 2 and have a moderate to slight fish, wildlife, and human use. These are segments of natural waters and periodically inundated areas of their associated wetlands

Type 4: Segments of natural waters which are not Type 1, 2, or 3, and for the purpose of protecting water quality downstream are classified as Type 4 water upstream until the channel width becomes less than 2 feet in width between the ordinary high-water marks. These may be perennial or intermittent.

Type 5: Natural waters which are not Type 1, 2, 3, or 4; including streams with or without well-defined channels, areas of perennial or intermittent seepage, ponds, natural sinks and drainage ways having short periods of spring or storm runoff.

**Watershed** - The drainage basin contributing water, organic matter, dissolved nutrients, and sediments to a stream or lake.

**Watershed administrative unit (WAU)** - In Washington, the basic hydrologic unit used for watershed analysis. See WAC 222-22-020 for more information.

**Watershed analysis** - A systematic procedure for characterizing watershed and ecological processes to meet specific management objectives; provides a basis for resource management planning. In Washington, the assessment of a watershed administrative unit completed under state law.

**Wetland** - Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions, such as swamps, bogs, fens, and similar areas.

**Wetland typing system** - A simplified explanation of Washington's classifications of wetland types appears here. For the complete classification system, see WAC 222-16-035.

Nonforested Wetland - Any wetland or portion thereof that has, or if the trees were mature would have, a crown closure of less than 30 percent. There are two types of nonforested wetlands: Type A and Type B. A Type A Wetland is (1) greater than 0.5 acre in size; (2) associated with at least 0.5 acre of ponded or standing open water; or, (3) are bogs and fens greater than 0.25 acre. A Type B Wetland classification is all other nonforested wetlands greater than 0.25 acre.

Forested Wetland - Any wetland or portion thereof that has, or if the trees were mature would have, a crown closure of 30 percent or more.

**Wildlife Code of Washington** - Title 77 RCW (Revised Code of Washington).

**Wind buffer** - As defined for the HCP's west-side planning units, the outer buffer of the riparian management zone that maintains the ecological integrity of the riparian buffer by reducing windthrow.

**Windthrow** - Trees blown down by wind; also called blowdown.

**Yarding** - Transporting logs from the point of felling to a collecting point or landing.

**Young forest** - A forest that is 50-80 years old.

**Young forest marginal habitat** - As defined by the Washington Forest Practices Board Spotted Owl Advisory Group, younger forest that provides some of the characteristics spotted owls need for roosting, foraging, and dispersal. This habitat type corresponds to the low to mid-range of the former Type C designation.

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