

Glossary of Useful Terms **for Vegetation Management and Restoration**



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A workshop on
**SHORELINE MANAGEMENT
 AND STABILIZATION
 USING VEGETATION**



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 Vegetation Management and Restoration**

Accelerated Erosion:	Erosion that is greater than the erosion experienced at the site in the recent past.						
Aeration, Soil:	The exchange of air in soil with air from the atmosphere. The air in a well-aerated soil is similar to that in the atmosphere; the air in a poorly aerated soil is considerably higher in carbon dioxide and lower in oxygen.						
Aggregate, Soil:	Many fine particles held in a single mass or cluster. Natural soil aggregates, such as granules, blocks, or prisms, are called peds. Clods are aggregates produced by tillage or logging.						
Alluvial Terrace:	A stream terrace made up of unconsolidated alluvium (including gravel), formed through renewed downcutting of the flood plain or valley floor by a rejuvenated stream or through the later covering of a terrace with alluvium.						
Alluvium:	Material deposited by running water, including the sediments laid down in riverbeds, flood plains, lakes, and estuaries.						
Angle of Repose:	The maximum angle of slope at which loose, cohesionless material will come to rest on a pile of similar material.						
Aquatic Ecosystem:	Any body of water, such as a stream, lake or estuary, and all organisms and nonliving components within it, functioning as a natural system.						
Aquifer:	An underground geological formation or group of formations containing water. Aquifers are sources of groundwater for wells and springs.						
Aspect:	The direction that a slope faces with respect to the sun.						
Association, Soil:	A group of soils or miscellaneous areas geographically associated in a characteristic repeating pattern and defined and delineated as a single map unit.						
Autecology:	Ecological study of a single organism or a single species and its environment.						
Available Water Capacity (Available Moisture Capacity):	The capacity of soils to hold water available for use by most plants. It is commonly defined as the difference between the amount of soil water at field moisture capacity and the amount at wilting point. It is commonly expressed as inches of water per inch of soil. The capacity, in inches, in a 60-inch profile or to a limiting layer is expressed as: <div style="text-align: center;"> <table border="0"> <tr> <td>Low</td> <td>Less than 3.75</td> </tr> <tr> <td>Moderate</td> <td>3.75 to 7.5</td> </tr> <tr> <td>High</td> <td>More than 7.5</td> </tr> </table> </div>	Low	Less than 3.75	Moderate	3.75 to 7.5	High	More than 7.5
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Back Slope:	The geomorphic component that forms the steepest inclined surface and principal element of many hillsides. Back slopes in profile are commonly steep, are linear, and may or may not include cliff segments.
Balled-in-Burlap (B in B, B and B):	Type of nursery stock in which the plant is dug with soil surrounding the roots, then wrapped with protective material.
Bare Root:	Type of nursery stock in which the plant is sold without soil around the roots.
Basal Till:	Compact glacial till deposited beneath the ice.
Basin:	See <i>Drainage Area</i> .
Beach:	The zone of unconsolidated material that extends landward from the low water line to the place where there is marked change in material, or to the line of permanent vegetation (usually the effective limit of storm waves). The seaward limit of a beach is the extreme low water line. A beach includes foreshore and backshore.
Bedrock:	The solid rock that underlies the soil and other unconsolidated material or that is exposed at the surface.
Bench:	A horizontal surface or step in a slope.
Best Management Practice:	Methods, measures, or practices that prevent or reduce water pollution. Best management practices may include treatment requirements, operating procedures, schedules of activities, prohibition of practices, maintenance procedures, or other management practices which control runoff, spillage, leaks, sludge or waste disposal, or drainage from various sites and operations.
Bioengineering:	In soil applications, refers to the use of live plants and plant parts to reinforce soil, serve as water drains, act as erosion prevention barriers, and promote dewatering of water laden soils.
Biogeography:	A field of science shared by geography and biology that studies the dispersal and distribution of plants and animals.
Biological Diversity:	The number of species of plants, animals, and microorganisms in a prescribed geographic area, in an area of land or water. Also called biodiversity.
Biostructural Techniques:	The integration of engineering structures, biotechnical methods, and ecological restoration practices to reduce erosion, stabilize slopes, and restore endemic plant communities on disturbed or degraded sites.
Biotechnical:	In slope stability engineering, refers to the use of both live plant materials and inert structures to stabilize and reinforce slopes.
Blowdown:	See <i>Windthrow</i> .
Bluff Crest:	Upper edge or margin of a shoreline bluff.
Bluff Face:	The sloping portion of a high bank.
Bluff Retreat:	The rate at which a bluff or shoreline is eroding as a result of surface erosion and/or mass soil movements. Used by some regulatory agencies to guide setback requirements.
Bluff Toe:	The base of a bluff where it meet the beach.
Bluff:	An unvegetated high bank composed largely of unconsolidated deposits with a near-vertical face overlooking a body of water.

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Branch Whorls:	The circular growth of branches around the same point on the trunk of a conifer.
Broad-Leaved:	Having flat leaves rather than needles as conifers do.
Brush Mattress:	A mattress-like covering that is placed on top of the soil. The covering material is living woody plant cuttings that are capable of rooting.
Brushlayer:	Live branch cuttings laid in crisscross fashion on benches between successive lifts of soil.
Buffer:	A protective strip of vegetated land.
Buttress Root:	A large woody root located at the base of the trunk (the root collar).
Buttressing:	Lateral restraint provided by earth or rock masses and embedded structural columns, such as piles and well-rooted tree trunks.
Canopy Cover:	Vegetation projecting over a stream, or shoreline including crown cover (generally more than 3 feet above the water surface) and overhang (less than 3 feet above the water surface).
Canopy:	A layer of foliage in a forest stand. This most often refers to the uppermost layer of foliage, but it can be used to describe lower layers in a multistoried stand. Leaves, branches and vegetation that are above ground and/or water that provide shade and cover for fish and wildlife.
Capillary Water:	Molecular water held around and between particles in the soil; the principal type of water utilized by plants.
Channelization:	Human engineering of river channels to enlarge, straighten, embank, or protect existing channels, create new channels, or protect adjacent structures.
Clay:	As a soil component, the mineral soil particles less than 0.002 millimeter, in diameter. As a soil textural class, soil material that is 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt.
Clear-Cut:	A timber harvest method that removes all the trees in an area in one operation.
Clearing:	The removal of vegetation and topsoil, including stumps and plant roots.
Cliff:	A high, very steep to perpendicular or overhanging face of rock rising above the shore.
Climax Plant Community:	A relatively stable plant assemblage which is interdependent, and has evolved through successional stages to a state in which a dominant plant population is suited to its environment.
Coarse Fragments:	Mineral or rock particles larger than 2 millimeters in diameter.
Coarse Sediment:	Sediment with particle sizes greater than 2.0mm, including gravel, cobbles, and boulders. (Compare <i>Fine Sediment</i> .)
Coarse Textured Soil:	Sand or loamy sand.
Coastal Zone:	The sea-land fringe area bordering the shoreline where coastal waters and adjacent lands exert a measurable influence on each other.
Cobble (or cobblestone):	A rounded or partly rounded fragment of rock 3 to 10 inches (7.6 to 25 centimeters) in diameter.
Cohesion:	The internal resistance of individual soil particles to separate from one another.

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Coir:	A woven mat consisting of coconut fibers. Generally used for various soil erosion control practices such as surface slope protection and the construction of geogrids.
Colluvial Slope:	Any slope upon which the process of mass-wasting is now or has been active, resulting in an incorporation of fractured chips or rock fragments into the soil matrix. This process usually is classified as soil creep. More rapid forms of mass movement do occur, such as earth flows, rockslides, avalanches, and falls, on steeper slopes.
Colluvium:	Soil material, rock fragments, or both, moved by creep, slide, or local wash and deposited at the base of steep slopes.
Compaction:	The process by which a soil mass loses pore space and achieves a higher bulk density in response to increased load or compressive stress.
Competence:	(1) In hydrology the ability of a current of water or wind to transport particles, emphasizing the particle size rather than the amount, measured as the diameter of the largest particle transported. (2) In structural geology a sediment or rock layer, rigid and strong enough to transmit the thrust of flooding by lateral compression and capable of sustaining the weight of overlying strata or man-made structures without losing its structural integrity when arched or exposed to loading.
Complex Slope:	Irregular or variable slope. Planning or constructing terraces, diversions, and other water-control measures on a complex slope is difficult.
Conifer:	A cone-bearing tree with needles rather than leaves (e.g., pines, firs, hemlocks).
Conservation Easement:	Legal agreement that restricts landowners to uses that are compatible with conservation and environmental values. Easements are generally governed by state laws; thus states administer easements in various ways.
Consistency, Soil:	The feel of the soil and the ease with which a lump can be crushed by the fingers. Terms commonly used to describe consistency are: <i>Loose</i> – Noncoherent when dry or moist; does not hold together in a mass. <i>Friable</i> – When moist, crushes easily under gentle pressure between thumb and forefinger and can be pressed together into a lump. <i>Firm</i> – When moist, crushes under moderate pressure between thumb and forefinger, but resistance is distinctly noticeable. <i>Plastic</i> – Readily deformed by moderate pressure but can be pressed into a lump; will form a “wire” when rolled between thumb and forefinger. <i>Sticky</i> – Adheres to other material and tends to stretch somewhat and pull apart rather than to pull free from other material. <i>Hard</i> – When dry, moderately resistant to pressure; can be broken with difficulty between thumb and forefinger. <i>Soft</i> – When dry, breaks into powder or individual grains under very slight pressure. <i>Cemented</i> – Hard; little affected by moistening.

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Creep, Soil:	Slow, continual downslope movement of mineral, rock, and soil particles under the influence of gravity.
Crest:	Upper edge or margin of a shoreline bluff.
Crib Structure:	A hollow structure constructed of mutually perpendicular, interlocking beams or elements.
Critical Habitat:	Under the Endangered Species Act, critical habitat is defined as (1) the specific areas within the geographic area occupied by a federally listed species on which are found physical and biological features essential to the conservation of the species, and that may require special management considerations or protections; and (2) specific areas outside the geographic area occupied by a listed species, when it is determined that such areas are essential for the conservation of the species.
Crown:	The upper part of a tree or shrub, including the living branches and their foliage.
Crown Class:	A relative classification of tree crown or canopy height. <i>Dominant Trees</i> are those with canopies above the level of surrounding tree crowns. <i>Codominant Trees</i> are those with crowns forming the general level of the forest canopy. <i>Intermediate Trees</i> are those with crowns below the general level of the forest canopy. <i>Suppressed Trees</i> are those much shorter and less vigorous than other trees of the same species, age, and shade tolerance.
Cut Face:	The open, steep face of an excavated slope.
Cut Slope:	The uphill slope left after earth-moving equipment has excavated or cut into the hillside to make a roadbed.
Dead Stakes:	Stakes, varying in length, made from lumber used to hold fascines and brush mattresses in place. Also used to anchor fabric in the construction of geogrids.
Debris Avalanche:	A form of landslide where a water-saturated upper soil layer and the vegetation growing on it slides over an underlying less permeable subsoil creating a relatively shallow, narrow slide scar, usually two to three feet deep and 15 to 30 feet wide.
Debris Torrent:	Deluge of water charged with soil, rock, and organic debris down a steep stream channel or gully.
Deciduous:	Trees and plants that shed their leaves at the end of the growing season.
Degradation:	Erosional removal of materials from one place to another. Degradation lowers the elevation of streambeds and flood plains.
Disturbance:	Physical disruption of the environment by humans, animals or other causes.
Drainage (Soil):	The rapidity and extent of the removal of water from the soil by surface runoff and by down-draw flow through the soil. Also, the natural and artificial means for improving their removal by a system of surface and subsurface conduits.
Drainage Area (also catchment area; watershed; basin):	Total land area draining to any point in a stream, as measured on a map, aerial photo, or other horizontal, two-dimensional projection.

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Drainage Basin:	The area that contributes runoff to a stream, river, or lake. Also called a <i>Watershed</i> .
Drainage Divide:	The border of a drainage basin or watershed where runoff separates between adjacent areas.
Dripline:	An imaginary line around a tree or shrub at a distance from the trunk equivalent to the canopy spread. Root systems often extend well beyond this imaginary line.
Duff:	A term used to identify a generally firm organic layer on the surface of mineral soils. It consists of fallen plant material that is in the process of decomposition and includes everything from the litter on the surface to underlying pure humus.
Earthflow:	A rapid mass movement of a flowing assemblage of saturated soil, vegetation, and associated debris.
Ecosystem:	A system defined by the interaction of a community of organisms with their physical environment. Ecosystems can be considered at many different scales.
Ecotone:	The transition zone between two habitats such as adjacent zones of different vegetation or between land and water.
Ectomycorrhizae:	Fungal hyphae that grow between the cortical cells of short lateral roots and form a sheath or mantle around the root invaded. Contrast with endomycorrhizae.
Edge Habitats:	Narrow zones on the margins of fields or along the border between different environments where the transition itself constitutes a distinct habitat. See also <i>Ecotone</i> .
Embeddedness:	Degree to which large particles (boulders, rubble, gravel) are surrounded or covered by fine sediment, usually measured in classes according to percent coverage.
Endemic Species:	Species limited to a small range in a particular geographic location.
Endomycorrhizae:	Fungal hyphae that primarily invade individual root cells within the cortex and do not form a mantle around the roots. Contrast with ectomycorrhizae.
Enhancement:	Emphasis on improving the value of particular aspects of water and related land resources.
Environmental Assessment (EA):	A systematic analysis of site-specific activities used to determine whether such activities have a significant effect on the quality of the human environment and whether a formal environmental impact statement is required; and to aid an agency's compliance with the National Environmental Policy Act when no environmental impact statement is necessary.
Environmental Impact:	The positive or negative effect of any action upon a given area or resource.
Environmental Impact Statement:	A formal document to be filed with the Environmental Protection Agency that considers significant environmental impacts expected from implementation of a major federal action.

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Erosion:	The wearing away of the land surface by water, wind, ice, or other geologic agents and by such processes as gravitational creep. <i>Erosion</i> (geologic) – Erosion caused by geologic processes acting over long geologic periods and resulting in the wearing away of mountains and the building up of such landscape features as flood plains and coastal plains. Synonym: natural erosion. <i>Erosion</i> (accelerated) – Erosion much more rapid than geologic erosion, mainly as a result of the activities of man or other animals or of a catastrophe in nature, for example, fire that exposes the surface.
Escarpment:	A relatively continuous and steep slope or cliff breaking the general continuity of more gently sloping land surfaces and produced by erosion or faulting. Synonym: Scarp.
Estuary:	A coastal body of water that is semi-enclosed, openly connected with the ocean, and mixes with freshwater drainage from land.
Eutrophic:	Having waters rich in mineral and organic nutrients that promote a proliferation of plant life, especially algae, that reduces the dissolved oxygen content and often causes the death of other organisms.
Evaporation:	The process whereby moisture is turned to water vapor and removed from a surface. Rate increases as humidity decreases.
Evapotranspiration:	The combined processes of evaporation and transpiration. It is the sum of water used by vegetation and water lost by evaporation.
Evergreen:	A plant that retains its needles or leaves for more than one growing season.
Exotic Plant:	A plant that has been introduced into a region where it is not normally found.
Extreme High Water (EHW):	The average height of the highest tidal waters reached during the year over a 19-year period.
Face Planting:	Planting live cuttings and other vegetation in the frontal openings of retaining structures.
Fascine:	Sausage-like bundles of living woody plant cuttings that are tied together. These fabricated structures are capable of rooting. Also called contour wattles, wattles.
Feeder Bluff:	An eroding shoreline bluff which supplies material to accreting shorelines.
Fertility, Soil:	The quality that enables a soil to provide plant nutrients, in adequate amounts and in proper balance, for the growth of specified plants when light, moisture, temperature, tilth, and other growth factors are favorable.
Fibrous Root System:	The fine profusely-branched, small-diameter roots which provide a plant with water and nutrients for growth. Most prevalent in the upper soil horizons.
Field Moisture Capacity:	The moisture content of a soil, expressed as a percentage of the oven-dry weight, after the gravitational, or free, water has drained away; the field moisture content 2 or 3 days after a soaking rain; also called <i>normal field capacity</i> , <i>normal moisture capacity</i> , or <i>capillary capacity</i> .

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Filter:	Layer of fabric, sand, gravel, or graded rock placed between the bank revetment or channel lining and soil for one or more of three purposes: to prevent the soil from moving through the revetment; to prevent the revetment from sinking into the soil; and to permit natural seepage from the streambank, thus preventing buildup of excessive groundwater pressure. Also called filter layer or filter blanket.
Fine Sediment (also fines):	Sediment with particle sizes of 2.0mm and less, including sand, silt, and clay. (Compare <i>Course Sediment</i> .)
Fine Textured Soil:	Sandy clay, silty clay, and clay.
Fines:	See <i>Fine Sediment</i> .
Flow:	A mass movement involving rapid flowage of wet soil, rock, and displaced vegetation as a viscous mass down a slope or a channel; including mudflow, debris flow, and earthflow.
Forb:	Generally, any herb that is not a grass.
Forest Canopy:	The cover of branches and foliage formed collectively by the crowns of adjacent trees and other woody growth.
Formation – (Geologic):	The ordinary unit of geologic mapping recognized by field criteria consisting of a larger, persistent, and mappable strata of predominantly one kind of rock or sediment type.
Frost Pocket:	The result of cold air flowing down a slope and accumulating in the lowest areas, displacing the warmer air upward.
Gabion:	A galvanized wire basket with a hinged top, intended to be filled with stones and used to stabilize banks or channel beds, to control erosion, and to prevent bed material from shifting. Generally not recommended for placement on marine shorelines .
Geographic Information System (GIS):	A computer-based system that collects, stores, statistically analyzes, and displays geographic data, environmental features and their attributes. GIS references data by geographic location.
Geomorphic	Of or relating to the form of the landscape and other natural features of the earth's surface.
Geotechnical:	Refers to the application of civil engineering technology to some aspect of the earth.
Geotechnical Structures:	Along coastal slopes, refers to slope protection designs such as retaining wall, revetments, and designed slope recontouring.
Geotextile Fabric:	Synthetic material composed of a woven blanket of fibers.
Glacial Drift (Geology):	Pulverized and other rock material transported by glacial ice and then deposited. Also the sorted and unsorted material deposited by streams flowing from glaciers.
Glacial Outwash (Geology):	Gravel, sand, and silt, commonly stratified, deposited by glacial meltwater.
Glacial Till (Geology):	Unsorted, non-stratified glacial drift consisting of clay, silt, sand, and boulders transported and deposited by glacial ice.
Glaciofluvial Deposits (Geology):	Material moved by glaciers and subsequently sorted and deposited by streams flowing from the melting ice.
Gradient (topographic slope):	Average change in vertical elevation per unit of horizontal distance, usually measured as meters of drop per kilometer of map distance.

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Grading:	The alteration, by mechanical equipment, of local topographic features.
Gravel:	Substrate particles between 2 and 64mm in diameter.
Gravelly Soil Material:	Material that is 15 to 50 percent, by volume, rounded or angular rock fragments, not prominently flattened, as much as 3 inches (7.6 centimeters) in diameter.
Groundwater Table:	The level below which the soil is saturated, that is, the pore spaces between the individual soil particles are filled with water. Above the groundwater table and below the ground surface, water in the soil does not fill all pore spaces.
Groundwater:	Water within the pores between soil particles. Usually a permanent ground water table is evident. This is a source of water for wells and springs. If water percolating through the soil encounters barriers such as clay or hardpan before reaching the permanent groundwater table, a perched water table may form.
Gully Erosion:	See <i>Gullying</i> .
Gully:	Large intermittent drainage channel developed from the erosion forces of drainages occurring from surface water runoff.
Gullying (also Gully Erosion):	Formation or extension of gullies by surface runoff water.
Habitat Diversity:	The number of different types of habitat within a given area.
Habitat Fragmentation:	The breaking up of habitat into discrete islands through modification or conversion of habitat by management activities.
Habitat:	The living and non-living environment where a population (e.g., human, animal, plant, microorganism) lives. Habitat includes all things an organism needs to survive – food, water, space, and protection from predators.
Hardiness (Hardy):	The ability of a plant to survive low temperatures or other stresses.
Hardpan:	A hardened or cemented soil horizon, or layer. The soil material is sandy, loamy, or clayey and is cemented by iron oxide, silica, calcium carbonate, or other substance. (Also called till).
Hardscape:	The pavement, irrigation system, and other structural elements of a landscape.
Headwall:	Steep slope at the head of a valley.
Herbaceous:	Non-woody plants such as ferns, nettles, and foxglove.
Holocene Age:	Most recent geological epoch, comprising the 10,000 or so years since the last major continental glaciation.

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Horizon, Soil:	<p>A layer of soil, approximately parallel to the surface, having distinct characteristics produced by soil-forming processes. In the identification of soil horizons, an uppercase letter represents the major horizons. Numbers or lowercase letters that follow represent subdivisions of the major horizons.</p> <p>The major horizons of mineral soil are as follows:</p> <p><i>O horizon</i> – An organic layer of fresh and decaying plant residue.</p> <p><i>A horizon</i> – The mineral horizon at or near the surface in which an accumulation of humified organic matter is mixed with the mineral material. Also, a plowed surface horizon, most of which was originally part of a <i>B horizon</i>.</p> <p><i>B horizon</i> – The mineral horizon below an <i>A horizon</i>. The <i>B horizon</i> is in part a layer of transition from the overlying <i>A</i> to the underlying <i>C horizon</i>. The <i>B horizon</i> also has distinctive characteristics such as (1) accumulation of clay, humus, or a combination of these; (2) prismatic or blocky structure; (3) redder or browner colors than those in the <i>A horizon</i>; or (4) a combination of these.</p> <p><i>E horizon</i> – The mineral horizon in which the main feature is loss of silicate clay, iron, aluminum, or some combination of these.</p> <p><i>C horizon</i> – The mineral horizon or layer, excluding bedrock, that is little affected by soil-forming processes and does not have the properties typical of the overlying soil material.</p> <p><i>R layer</i> – Consolidated rock beneath the soil. The rock commonly underlies a <i>C horizon</i>, but it can be directly below an <i>A</i> or a <i>B horizon</i>.</p>
Humus:	The well-decomposed, more or less stable part of the organic matter in mineral soils.
Hydrology:	Refers to the properties, distribution, discharge, recharge, and movement of surface and sub-surface water.
Hydroseeding:	Hydraulic spraying of seed, fertilizer, and mulch onto steep slopes.
Impermeable:	Unable to permit water or roots to move through freely.
Impervious Soil:	A soil through which water, air, or roots penetrate slowly or not at all. No soil is absolutely impervious to air and water all the time.
Impervious Surface:	A surface through which water, air, or roots penetrate slowly or very little (e.g., concrete, compacted soil).
Infiltration:	The movement of water or solutions into or through a rock or soil through its interstices or fractures; the flow of rain water into soil material.
Interdependent plant assemblage:	A group of plants that by growing together protect each other from disturbance by wind, erosion, or other natural processes. Shallow rooted trees will often remain windfirm because they form a wide, spreading root mat.
Interstices:	Openings or spaces in rock or soil that are not occupied by solid material.
Invasive Species:	With respect to a particular ecosystem, any animal or plant that is not native to that ecosystem whose introduction does or is likely to cause economic or environmental harm, or harm to human health.

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Irrigation:	The controlled application of water to arable lands to supply water requirements not satisfied by rainfall.
Island Biogeography:	The study of biodiversity in relationship to the size of a prescribed area of habitat, such as an island, and distance from similar habitats.
Jackstrawed:	A group of trees that has lost firm rooting through wind, land movement, or excessively wet soils and appears chaotic or no longer oriented toward the light.
Joint Planting:	The insertion of live branch cuttings between openings or interstices of rocks, blocks, or other inert armor units and into the natural ground.
Landslide:	The rapid downhill movement of a mass of soil and loose rock, generally when wet or saturated. The speed and distance of movement, as well as the amount of soil and rock material, vary greatly.
Large Woody Debris (LWD):	Any large piece of woody material that intrudes or is embedded in the shoreline. Any material floating or deposited by tidal or storm action on a beach or shore form. Also called <i>Large Organic Debris</i> (LOD).
Lensing:	Thinning-out of a stratum in one or more directions.
Light Textured Soil:	Sand and loamy sand.
Lignin:	Amorphous, cellulose-like, organic substance that binds cellulose fibers in wood and certain herbs and adds strength and stiffness to cell walls.
Limiting Factor:	Environmental factor that limits the growth or activities of an organism or that restricts the size of a population or its geographical range.
Live Branch Cuttings:	Living, freshly cut branches of woody shrub and tree species that propagate from cuttings embedded in the soil.
Live Cribwall:	A hollow, structural wall formed out of mutually perpendicular and interlocking members, usually timber, in which live cuttings are inserted through the front face of the wall into the crib fill and/or natural soil behind the wall.
Live Crown Ratio (LCR):	The size of the canopy of coniferous trees relative to its overall height.
Live Fascines:	Bound, elongated sausage-like bundles of live cut branches that are placed in shallow trenches, partly covered with soil, and staked in place to arrest erosion and shallow mass wasting. Also called wattles.
Live Stake:	Cuttings from living branches that are tamped or inserted into the earth. The stakes eventually root and leaf out.
Loam:	Soil material that is 7 to 27 percent clay particles, 28 to 50 percent silt particles, and less than 52 percent sand particles.
Macroclimate:	Climate that extends over a relatively large area defined by fairly uniform environmental conditions; determined largely by air masses modified by latitude, elevation, large bodies of water, mountains, and season of the year. Contrast with microclimate and mesoclimate.
Macrofauna:	Animals large enough to be seen with a naked eye
Macroinvertebrates:	Invertebrates large enough to be seen with the naked eye (e.g., most aquatic insets, snails, and amphipods).
Macrophytes:	Plants large enough to be seen with the naked eye.
Macropore:	Pore too large to hold water by capillary action.

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Management Indicator Species:	A species whose habitat requirements most reflect those of the species community in the habitat of concern, usually used to indicate habitat quality and to predict future conditions.
Mass Movement:	The movement of large, relatively intact masses of earth and/or rock along a well defined shearing surface as a result of gravity and seepage.
Mass Wasting:	See <i>Mass Movement</i> .
Medium Textured Soil:	Very fine sandy loam, loam, silt loam, or silt.
Mesic:	Moderately wet, such as in locations near springs or with moderate rainfall, as opposed to hydric (wet) or xeric (dry).
Mesoclimate:	The weather of a neighborhood or a city as modified by local influences of terrain, bodies of water, cloud cover, wind, and land cover. Contrast with microclimate and macroclimate.
Microclimate:	The environmental (weather) conditions around or within an individual plant or planting; modified by immediate area influences of sun, wind, exposure, reflected and re-radiated heat, and aspect. Contrast with mesoclimate and macroclimate.
Microfauna:	Animals too small to be seen with the naked eye.
Microhabitat:	Specific combination of habitat elements in the place occupied by an organism for a specific purpose.
Mineral Soil:	Soil that is mainly mineral material and low in organic material. Its bulk density is more than that of organic soil.
Moderately Coarse Textured Soil:	Coarse sandy loam, sandy loam, and fine sandy loam.
Moderately Fine Textured Soil:	Clay loam, sandy clay loam, and silty clay loam.
Moraine (Geology):	An accumulation of earth, stones, and other debris deposited by a glacier. Some types are terminal, lateral, medial, and ground.
Morphology, Soil:	The physical makeup of the soil, including the texture, structure, porosity, consistency, color, and other physical, mineral, and biological properties of the various horizons, and the thickness and arrangement of those horizons in the soil profile.
Mulch:	Any material, such as straw, sawdust, leaves, plastic film, and loose soil, that is spread on the surface of the soil to protect the soil and plant roots from the effects of raindrops, soil crusting, freezing, and evaporation.
Mycorrhizae:	Symbiotic association between a fungus and (usually) the root of a higher plant.
Native Species:	An animal or plant that originated in a particular place or region.
Natural Landscape Elements:	The natural watercourses, topography, hydrology and vegetation which comprise a particular site.
Non-Native Plant:	See <i>Exotic Plant</i> .
Nonpoint-Source Pollution:	Pollution from sources that cannot be defined as discrete points, such as areas of timber harvesting, surface mining, and construction. (Compare <i>Point-Source Pollution</i> .)
Observed Rooting Depth:	Depth to which roots have been observed to penetrate.

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Old-Growth Forest:	Forest stand dominated by trees reaching natural senescence; the last stage in forest succession.
Opportunistic Species:	Species such as weedy plants and various animals with a capacity to flourish where natural landscapes have been disturbed or eradicated.
Ordinary High Water Mark (OHWM):	The mark along a streambank or shoreline where the waters are common and usual. This mark is generally recognized by the difference in the character of the vegetation above and below the mark or the absence of vegetation below the mark.
Organic Debris:	Debris consisting of plant or animal material.
Organic Matter:	Plant and animal residue in the soil in various stages of decomposition.
Overhead Cover:	Material (organic or inorganic) that provides protection to fish or other aquatic animals from above. Generally includes material overhanging the stream or shoreline. See also <i>canopy</i> and <i>canopy cover</i> .
Overland Flow:	The flow of rainwater or snowmelt over the land surface toward a waterbody. After an overland flow enters a stream, it is called runoff.
Overstory:	The portion of a plant community that forms the upper-most crown cover or canopy.
Pan:	A compact, dense layer in a soil that impedes the movement of water and the growth of roots. For example, <i>hardpan</i> , <i>fragipan</i> , <i>claypan</i> , <i>plowpan</i> , and <i>traffic pan</i> .
Parent Material:	The unconsolidated mineral material in which soil forms.
Percent Slope:	The direct ratio (multiplied by 100) between the vertical and the horizontal distance for a given slope; e.g., a 3-foot rise in a 10-foot horizontal distance would be a 30 percent slope.
Perched Water Table:	Water accumulation above a slowly permeable or impermeable subsoil layer. See <i>water table</i> .
Perched Water:	Groundwater that accumulates over an impervious soil layer from rainfall or other sources that finds release on bluff faces. Perched water is released on bluff faces as seeps or springs.
Percolation:	The downward movement of water through the soil.
Permeability:	A measure of the rate at which a substrate can pass water, the rate depending on substrate composition and compaction; the apparent velocity per unit of hydraulic gradient, expressed in cm/h.
Pesticide:	Chemical used to kill, control, or manage plant or animal pests; includes herbicides, fungicides, insecticides, rodenticides, and piscicides.
pH:	The negative logarithm of the hydrogen ion. A measure of the acidity or alkalinity of a soil. pH of 7.0 is neutral, acidic soil has pH less than 7.0, and alkaline soil is greater than 7.0.
Photodecomposition:	Chemical breakdown of a molecule by means of radiant energy.
Photodegradation:	Rapid degradation in water exposed to sunlight.
Photoperiod:	Recurring cycle of light and dark periods. The natural photoperiod is approximately 24 h, and the ratio of light to dark hours slowly changes over the course of a year.
Photosynthesis:	The transformation, in the presence of chlorophyll and light, of carbon dioxide (from air) and water (primarily from soil) into a simple carbohydrate and oxygen.
Phototropic:	Growth toward light source or stimulant. (Red alder is phototropic).

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Phytotoxicity:	Toxicity to plants.
Pioneer Species:	Plants that colonize disturbed sites after land clearing, logging, fire, or landslides. They are normally replaced over time by other species. Alder, willow, and fireweed are common examples.
Plant Community:	An inter-related and inter-dependent assemblage of vegetation having structural and species diversity (e.g., Western red cedar, Western hemlock, salal, Oregon grape, Evergreen huckleberry, Sword fern, mosses, and lichens).
Point-Source Pollution:	Pollution emanating from a confined, discrete source such as a pipe, ditch, tunnel, well, or floating craft. (Compare <i>Nonpoint-Source Pollution</i> .)
Poorly Sorted:	Unconsolidated deposits that consist of particles of many sizes mixed together in an unsystematic manner so that no one size fraction predominates.
Pore-Water Pressure:	Stress transmitted by water that fills the voids between particles of a soil or rock mass; that part of the total normal stress in a saturated soil caused by the presences of interstitial water.
Precipitation:	The discharge of water, in liquid or solid state, out of the atmosphere, generally upon a land or water surface. Precipitation includes rainfall, snow, hail, and sleet.
Profile, Soil:	A vertical section of the soil extending through all its horizons and into the parent material.
Pruning:	Systematic removal of branches of a plant, usually a woody perennial.
Radiation Frost:	Situation in which air temperatures near the ground drop below 0°C (32° F) as surfaces lose heat; associated with clear skies and calm air.
Reduction Cut (Drop-Crotch Cut, Lateral Cut):	Reduces the length of a branch or stem back to a lateral branch large enough to assume the terminal role. Syn. thin to a lateral.
Reforestation:	The natural or artificial restocking of an area with forest trees.
Regeneration:	1) The process by which an area is restocked with plants. 2) Young trees, either naturally seeded or planted.
Relief:	The elevations or inequalities of a land surface, considered collectively.
Restoration:	The renewing or repairing of a natural system so that its functions and qualities are comparable to its original, unaltered state.
Revetment:	A facing of stone, wood or any other materials placed on a bank as protection against wave action or currents.
Rill Erosion:	See <i>Rilling</i> .
Rill:	One of the first and smallest channels formed by surface erosion; also, a very small brook or trickling stream of water.
Rilling (also Rill Erosion):	Development of numerous minute, closely spaced channels resulting from the uneven erosion of soil by running water.
Riparian Area:	The area between a body of water and adjacent upland areas that is identified by distinctive soil and vegetative characteristics.
Riparian Buffer:	Trees and shrubs growing parallel to a stream or shoreline that reduce the intrusion into the top bank area by humans, animals, and machinery. This vegetation also retards surface runoff down the bank slope and provides a root system which binds soil particles together.

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Riparian Habitat:	The aquatic and terrestrial habitat adjacent to streams, lakes, estuaries, or marine shorelines.
Riparian Vegetation:	Vegetation growing along the banks of streams and rivers or other bodies of water tolerant to or more dependent on water than plants further upslope.
Riprap:	Layer of large, durable materials, usually rocks, used to protect a stream bank, marine shoreline or lake shore from erosion; may also refer to the materials used.
Root Ball:	Refers to the root system of a container or balled-in-burlap nursery stock.
Root Collar:	Area at the base of the tree where the roots and stem merge. Syn. root crown.
Root Hairs:	A hairlike tubular outgrowth from near the tip of a rootlet, performing the work of absorption.
Root Zone:	The part of the soil that can be penetrated by plant roots.
Root:	The part of a plant containing the woody and nonwoody tissues that absorb water, gases, and nutrients from the soil and atmosphere, as well as support the crown. (See <i>fibrous, structural roots</i>)
Root-Shoot Ratio:	The relative proportion of root mass to crown mass on a weight basis.
Rootwad:	Root mass of a tree.
Rubble:	See <i>Cobble</i> .
Runoff:	The precipitation discharged into stream channels from an area. The water that flows off the surface of the land without sinking into the soil is called surface runoff. Water that enters the soil before reaching surface streams is called groundwater runoff or seepage flow from groundwater.
Salt Marsh:	Saltwater wetlands that occur along many coasts.
Sand:	Substrate particles 0.062-2mm in diameter.
Saturated:	A condition in which the interstices of a material are filled with a liquid, usually water.
Second-Growth Stand (also Second-Growth; Second-Growth Forest):	Forest stand that has come up naturally after some drastic interference such as logging, fire, or insect attack.
Sediment Yield Rate:	The amount of sediment exported from watersheds and delivered to streams, reservoirs, and the ocean.
Sediment:	Fragments of rock, soil, and organic material transported and deposited in beds by wind, water, or other natural phenomena. The term can refer to any size of particles but is often used to indicate only fragments smaller than 6mm.
Sedimentation:	Deposition of material suspended in water or air, usually when the velocity of the transporting medium drops below the level at which the material can be supported.
Seepage:	Groundwater emerging on the face of a slope.
Seeps:	See <i>Perched Water</i> .
Selective Cutting:	The logging practice of harvesting only trees of certain species and sizes, leaving others in place.

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Shade Intolerant Species:	Plants which are incapable of germinating and/or growing in conditions of less than full sun. (Shorepine, Red alder, Oregon white oak).
Shade Tolerant Species:	Plants which are capable of germinating and/or growing in less than full sun exposure, such as in the shade of other species. (e.g., Pacific yew, western hemlock, swordfern).
Shallow Mass Movement:	Near-surface sliding or movement of earth and/or rock masses usually along planar failure surfaces parallel to the slope face.
Shear Strength:	A measure of the ability of a soil to resist forces that tend to separate it from its position on a slope and cause it to move.
Sheet Erosion:	Initial surface erosion by water running off as sheets, as distinct from channelized erosion in rills and gullies.
Shoreline:	The intersection of a specified plane of water with the beach; it migrates with changes of the tide.
Shrub:	Woody plant smaller in height than a tree, often formed by a number of vertical or semi-upright branches arising close to the ground.
Site Index:	A designation of the quality of a forest site based on the height of the dominant stand at an arbitrarily chosen age. For example, if the average height attained by dominant and codominant trees in a fully stocked stand at the age of 50 years is 75 feet, the site index is 75.
Silt:	Substrate particles smaller than sand and larger than clay.
Silvics:	The study of life history and general characteristics of forest trees and stands in relation to environment factors.
Sinker Roots:	Roots that grow vertically from horizontal roots, adding stability to the tree and increasing the volume of deeper soil exploited by the roots.
Slash:	Woody residue left on the ground after trees are felled, or accumulated there as a result of a storm, fire, or silvicultural treatment.
Slide:	A mass movement resulting from failure of soil or rock along a rational or planar surface.
Slope Stability:	The resistance of a natural or artificial slope or other inclined surface to failure by landsliding (mass movement).
Slope:	The inclination of the land surface from the horizontal. Percentage of slope is the vertical distance divided by the horizontal distance, multiplied by 100. Slope is also measured in degrees (90 degrees being vertical) or as a ratio. A 100% slope would be 45 degrees or 1:1.
Sloughing:	The downward slipping of a mass of soil, moving as a unit usually with backward rotation, down a bank into the channel. Also called sloughing off or slumping.
Slump:	Sudden downward movement of a block of soil by backward rotation along a broadly concave failure surface.
Snag:	Any standing dead, partially dead, or defective (cull) tree at least 10 inches in diameter at breast height and at least 6 feet tall.
Soil Arching:	A phenomena that transfers lateral soil pressure to adjacent rigid members (trees, piles, etc.) anchored in an unmoving soil or rock zone.
Soil Bioengineering:	Use of live, woody vegetative cuttings to repair slope failures and increase slope stability. The cuttings serve as primary structural components, drains, and barriers to earth movement.

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Soil Compaction:	Reduction of the total pore space in a soil. Results in a soil that retains less water and resists root penetration. Soils with high clay content are more easily compacted than sandy soils.
Soil Creep:	A process of slow, downslope movement over a long period of time.
Soil Depth:	Refers to depth of the soil profile. Classes of soil depth are <i>shallow</i> , 10 to 20 inches; <i>moderately deep</i> , 20 to 40 inches; <i>deep</i> , 40 to 60 inches; and <i>very deep</i> , more than 60 inches.
Soil Mass Movement (also Mass Movement; Mass Wasting):	Downslope transport of soil and rocks due to gravitational stress and/or hydrological influences.
Soil Profile:	The sequence of horizons, or layer-like zones, in a soil. (See <i>Horizon, Soil</i>)
Soil:	In engineering work a soil is an earthen material, excluding hard bedrock, composed of 1) loosely bound mineral and organic particles, 2) water, and 3) gases. In agriculture, a soil is the loose surface material capable of supporting plant growth, and having properties resulting from the integrated effect of climate and living matter on the decomposition of bedrock and superficial deposits.
Species:	A group of plants that resemble each other closely and that interbreed freely.
Species-Specific:	Applying only to particular species; said of effects that vary depending on the species in question.
Specifications (Planting):	A detailed description of particulars, such as size of plants, quantity and quality of materials, contractor performance, terms, quality control and equipment.
Stem:	The main trunk of a tree or other plant.
Storm Flow (also Freshet):	Rapid temporary rise in stream discharge caused by heavy rains or rapid melting of snow or ice.
Strata:	A layer of soil or rock.
Stratigraphic Section:	Any sequence of rock or soil units found in a given region (the oldest at the bottom and the youngest at the top).
Stratigraphy:	The sequence or order of rock or soil layers in a geologic formation.
Stress:	Unfavorable deviation from normal. The action on a body of any system of balanced forces whereby strain or deformation results. In arboriculture, the adverse alteration of tree health by abiotic or biotic factors.
Structural Roots:	The larger, deeper growing roots which anchor the plant and resist toppling of large trees by abiotic components of the environment such as wind, soil erosion, and shallow mass-soil movement.

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Structure, Soil:	The arrangement of primary soil particles into compound particles or aggregates. The principal forms of soil structure are – <i>platy</i> (laminated), <i>prismatic</i> (vertical axis of aggregates longer than horizontal), <i>columnar</i> (prisms with rounded tops), <i>blocky</i> (angular or subangular), and <i>granular</i> . <i>Structureless</i> soils are either <i>single grained</i> (each grain by itself, as in dune sand) or <i>massive</i> (the particles adhering without any regular cleavage, as in many hardpans).
Succession Theory:	A widely held concept of vegetation change in which one community of plants and related organisms succeeds another, finally giving rise to a climax community. See also <i>Climax Plant Community</i> .
Succession:	The process of replacing one plant community with another over time (e.g., alder to Douglas-fir to Western hemlock).
Successional Species:	The plant species that comprise a plant community in a given successional stage (for example, early successional species are alder, willow and Bitter cherry).
Surface Runoff:	That portion of precipitation that moves over the ground toward a lower elevation and does not infiltrate the soil.
Surface Storage:	Precipitation retained temporarily in depressions of the ground surface, neither infiltrating nor running off until after a rainfall period.
Surface Water:	Rain, snowmelt, lawn sprinkling, or other additions to the soil surface. Also refers to lakes and streams (in contrast to groundwater).
Sustainable Development:	Economic development designed to reduce environmental impacts and maintain the resource base over the long term.
Tablelands:	The tops of bluff areas usually developed for homesites.
Taproot:	The primary descending root of a seedling, usually lost as the tree enlarges in size.
Tensile Strength:	Resistance to rupture or failure due to tensile forces or pulling.
Thinning:	Tree removal in a forest stand that reduces tree density and numbers in a given area. Most discussions of thinning stress increased growth and yield of timber.
Tidal Flats:	Saltwater wetlands that are characterized by mud or sand and daily tidal fluctuations.
Tide:	A large wave caused by bulges in the sea in response to the lunar and solar gravitational forces.
Till:	Poorly sorted and generally unstratified sediments, deposited directly by and underneath a glacier. Usually very hard and compact, with good bearing capacity and low permeability.
Toe of Slope:	See <i>Bluff Toe</i> .
Topography:	The physical features of a surface area including relative elevations and the position of natural and human-made features.
Topping:	Pruning technique to reduce height by heading of large branches. Generally considered poor practice.
Topsoil:	The uppermost layer of the soil, characterized by a high organic content; the organic-rich layer of active soil.

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Transect:	A predetermined line along which vegetation occurrence or other characteristics such as canopy density are counted for monitoring purposes.
Transpiration:	Passage of water vapor and other gases from a living body through membranes or pores; usually used to mean loss of water from leaves and other plant surfaces.
Transplant Shock:	Reduction in growth and vigor that may occur following relocation of a plant from one site to another.
Tree Failure:	A tree or portion of a tree that collapses as the result of some structural weakness such as root rot, dead branches, mechanical wounds, or other causes.
Unconsolidated Materials:	Geologic materials such as sand, gravels, and mixed sediments whose particles are loose and uncemented.
Undercutting:	The removal of soil material at the base of a steep slope or cliff by the erosive action of waves, running or seeping water, or windblown sand.
Undermined Roots:	Roots that are not firmly anchored due to soil removal or loss, beneath and/or around them. Can affect both live and dead trees or stumps.
Understory:	Trees or other plants which tolerate reduced-light conditions and normally grow beneath the forest canopy.
Universal Soil Loss Equation:	A formula for estimating the soil loss from runoff on land; based on rainfall energy, soil, vegetative cover, slope, and management practices.
Upland (Geology):	Land at a higher elevation, in general, than the alluvial plain or stream terrace; land above the lowlands along streams, lakes, or marine shorelands.
Urban Sprawl:	The spread of urban land uses far beyond the traditional limits of cities.
Urbanization:	The term used to describe the process of urban development, including suburban residential and commercial development.
Vascular:	Tissues that function in transport of water, mineral elements, carbohydrates, and other materials (i.e., the cambium, phloem, and xylem).
Vegetated Geogrid:	Soil wrapped with a geotextile fabric and with live woody plant cuttings placed in between each soil/geotextile wrap.
Vegetated Structures:	A retaining structure in which living plant materials, cuttings, or transplants have been integrated into the structure.
Vegetative Cuttings:	Live, cut stems and branches of plants that will root when embedded or inserted in the ground.
Vegetative Measures:	The use of live cuttings, seeding, sodding, and transplanting in order to establish vegetation for erosion control and slope protection work.
Water Quality Standard:	A law or regulation that consists of the beneficial use or uses of a waterbody, the numeric and narrative water quality criteria that are necessary to protect the use or uses of that particular waterbody, and an anti-degradation statement.
Water Quality:	A term used to describe the chemical, physical, and biological characteristics of water, usually in respect to its suitability for a particular purpose.

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Water Table:	The level at which soil and/or rock is saturated with water. Can be seasonal. Water table can be altered by changes in hydrology.
Watershed Approach:	A coordinating framework for environmental management involving diverse stakeholders and utilizing sound science to focus resources on high priority issues within hydrologically defined areas.
Watershed Management:	The analysis, protection, development, operation or maintenance of land, vegetation and water resources of a drainage basin for the conservation of all its resources for the benefit of its residents.
Watershed Restoration:	The manipulation of physical, chemical, or biological characteristics of watersheds with the goal of returning natural or historic functions. Also, the return of a watershed to a close approximation of its condition prior to disturbance.
Watershed:	The land area that drains into a single body of water such as a stream, river, lake, or wetland. Large watersheds may be composed of several smaller nested watersheds. Also known as a catchment or basin.
Wattling:	Bundled stems used in establishing vegetation on, or revegetating, hillsides. Also called live fascines
Weathering:	All physical and chemical changes produced in rocks or other deposits at or near the earth's surface by atmospheric agents. These changes result in disintegration and decomposition of the material.
Wet-Mantle Peak Flow:	Highest flow or discharge that results when the soil is almost or completely saturated.
Whip:	Type of nursery stock, usually a small seedling or graft with few or no lateral branches.
Wildlife Tree:	A live tree retained to become future snag habitat.
Windfall:	Trees or parts of trees felled by high winds.
Windthrow:	Type of tree failure associated with up-lifting of the entire root plate, often occurring in high wind.

Glossary of Useful Terms for Vegetation Management and Restoration

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