GLOSSARY

Below is a glossary of terms appearing in the text of this handbook. Those terms drawn from specific sources have been cited with a code in parentheses following the definition. Such citations are listed under "Sources" at the end of the Glossary (e.g., DGT stands for "Dictionary of Geological Terms"). Those terms with no citations have had a definition prepared for use in this handbook. Words not listed in the glossary can be found in standard sources.

Access road: Any road used to gain access to an area for the purpose of carrying out some form of management. These roads may be a temporary or permanent part of the transportation system.

Active flood plain: See Bankful stage.

Activity: Work processes conducted to produce, enhance, or maintain outputs or to achieve management and environmental quality objectives.

Acute toxicity: Brief and severe physical and/or psychological disturbances resulting from a single dose or exposure to a toxic or poisonous substance.

Advected energy [fluxes]: The process of energy transport by the atmosphere or water bodies from one location to another due to circulation of these bodies.

Aeration potential: (See Oxygen saturation level.)

Aerial drift: The movement of pesticide droplets or particles by wind and air currents from the target area to an area not intended to be treated. (PAST)

Aerial skidding: The process of hauling logs by sliding them off the ground along a cable. (SAF)

Aggradation: The raising of the surface of streambeds, floodplains, and the bottoms of other water bodies by the accretion of material eroded and transported from other areas. It is the opposite of degradation.

Aggraded stream: A stream that has built up its grade or slope by deposition of sediment. (DGT)

Ammonification: The biochemical process whereby ammoniacal nitrogen is released from nitrogen-containing organic compounds. (SSSA)

Ammonifying microorganisms: Microorganisms that are responsible for ammonification of nitrogen-containing organic material. (See Ammonification.)

Angle of internal friction (coefficient of friction): The angle at which the driving forces in a soil mass due to gravity are equal and opposite to the resisting forces due to friction; a measure of soil strength due to interlocking of individual soil particles.

Angular canopy density (ACD): A measure of the canopy density along the path of incoming solar radiation. It is measured using a gridded mirror tilted at an angle so that a person looking down on the mirror views the surrounding vegetative canopy in the same perspective as the incoming solar radiation. The number of grids covered by the canopy can be measured and converted to a percent canopy cover.

Animal skidding: The use of animals such as mules or horses to slide loads along the ground.

Antecedent moisture: The degree of wetness of a soil at the beginning of a runoff or storm period, expressed as an index or as the total volume of water stored in the soil. (WPG)

Antecedent rainfall: The rainfall or precipitation occurring during some period prior to the event of interest. This expression is intended to express watershed wetness. (VTC)

Aquatic environment: An environment in which all conditions, circumstances, and influences surrounding and affecting the development of an organism or groups of organisms pertain to water. (WPG)

Area-inches: A measure of volume. One inch of depth over the entire surface of a delineated piece of land.

Armor: (1) To apply rock, mulch, or vegetation to damaged areas to serve as protective covering. (2) To use rock, concrete, asphalt, gravel, riprap, gabions, or equivalent for protection of a ditch, channel, or low water crossing. (3) Any natural-occurring quality, characteristic, situation or thing that serves as a protective covering.

Aspect: The compass direction that the slope of the land faces toward (e.g., north, northwest, south), (WPG)

Balanced road construction: Cut-and-fill road design; material cut on the uphill side of a road is placed in fills on the downhill side.

Balloon logging: A system which employs balloons to transport timber from the stump to a collection point.

Bankful discharge: Discharge at a river cross section which just fills the channel to the tops of the bank, marking the condition of incipiant flooding.

Bankful stage: Water surface elevation of the active floodplain.

Bankful width: The width of the effective area of flow across a stream channel when flowing at bankful discharge.

Bare soil: Mineral soil without vegetative ground cover, rock, or litter on the soil surface.

Basal area: The area of the cross-section of a tree stem near its base, generally at breast height and inclusive of bark. Stand basal area is generally expressed as the total basal area per unit area. (SAF)

Baseline condition: Hydrologic state of a watershed where complete hydrologic utilization is achieved. (See Complete hydrologic utilization)

Bedding: A silvicultural process where soil is placed in long ridges approximately 6 inches high and 6 feet at the base to elevate tree roots above a high water table or to concentrate soil nutrients where they can be readily utilized.

Bedding planes: Planar or nearly planar surfaces that visibly separate each successive layer of stratified rock.

Bedload: Material moving on or near the stream bed by rolling, sliding and sometimes making brief excursions into the flow a few diameters above the bed. It is not synonymous with discharge of bed material.

Bedrock sink: Term used to denote when bottom bedrock is functioning as a heat sink within a flowing stream. (See Energy sink)

Bench: A working level or step in a cut which is made in several layers. A small terrace or comparatively level platform breaking the continuity of a slope. (DGT)

Best Management Practices (BMP): A practice or combination of practices that are determined (by a state or designated area-wide planning agency) through problem assessment, examination of alternative practices, and appropriate public participation to be the most effective, practicable (including technological, economic, and institutional considerations) means of preventing or reducing the amount of pollution generated by non-point sources to a level compatible with water quality goals.

Biochemical oxygen demand (BOD): The amount of dissolved oxygen, generally expressed in parts per million, required by organisms for the aerobic biochemical decomposition of organic matter present in water. (WWU)

BMP: (See Best Management Practices.)

BOD: (See Biochemical oxygen demand.)

Braided stream: A stream flowing in several dividing and reuniting channels resembling the strands of a braid, the cause of the division being the obstruction by sediment deposited by the stream.

Broadcast burn: Allowing a controlled fire to burn over a designated area within well-defined boundaries for reduction of fuel hazard, as a silvicultural treatment or both. (SAF)

Bucking: To cut tree length logs into shorter lengths.

Buffer strip: (See Waterside area.)

Cable logging: Cable systems are designed to yard logs from the felling site by a machine equipped with multiple winches. Cable logging is highly efficient for logging steep rough ground on which

tractors cannot operate. Cable systems could be classified as either high lead, skyline, or balloon. (CEAP)

Cable yarding: Operation of hauling logs to a collection point using a cable system. (See cable logging.)

Caloric deficit: The energy (calories) needed to bring a snowpack temperature up to an isothermal temperature of 0° C.

Canopy: The more or less continuous cover of branches and foliage formed collectively by the crowns of adjacent trees and other woody growth. (SAF)

Carbamate: A synthetic organic pesticide which contains carbon, hydrogen, nitrogen, and sulfur, and belongs to a group of chemicals which are salts or esters of carbonic acid. Carbamates may be fungicides, herbicides, or insecticides. Examples: aldicarb, carbaryl, carbofuran, and methomyl.

Cation exchange: The exchange of cations held by soil particles with other cations that are in the water solution surrounding the soil particles.

Cation exchange capacity (CEC): The sum total of exchangeable cations that a soil can absorb. Expressed in milliequivalents per 100 grams of soil or per gram of soil (or of other exchangers such as clay). (SCS, SSSA)

Channel bars: An alluvial deposit or bank of sand, gravel, or other material at the mouth of a stream or at any point in the stream itself which causes an obstruction to flow. (NIA)

Channel gradient change: A change in channel slope which can alter energy relationships that can, in turn, cause streambank and channel erosion or aggradation.

Channel interception: That portion of precipitation that falls directly into the channel or into open water channel extensions.

Channel stability: The relationship of sediment supply and stream energy available in a channel system. As changes occur in either supply or energy, the channel stability is affected and the channel tends to adjust its boundaries to accommodate the change, i.e., when the supply exceeds the carrying capacity (aggradation occurs) or the energy exceeds supply (degradation occurs).

Channel stability rating: A numerical rating of channel stability using Pfankuch's (1972) procedures which account for hydraulic forces, resistance of channel to flow forces, and the capacity of the stream to adjust and recover from changes in flow and/or sediment load.

Chemical-biological balance: Biological balance relating to the relationship of the earth's chemicals to plant and animal life (biogeochemical). (WPG)

Chip and spread: Converting wood to chips and scattering the resultant material. (SAF)

Chlorinated hydrocarbon: A synthetic organic pesticide that contains chlorine, carbon, and hydrogen; they are generally very persistent (compared to carbamates or organophosphates). Examples: DDT, endrin, lindane. Same as Organochlorine.

Chronic toxicity: Physical and/or psychological disturbances resulting from repeated doses or exposure of a poisonous or toxic substance over a period of time.

Claypan: A dense, compact layer in the subsoil having a much higher clay content than the overlying material, from which it is separated by a sharply defined boundary. (SSSA)

Clay stone: An indurated clay having the texture and composition, but lacking the fire lamination or platyness of shale.

Clearcutting: The harvesting in one cut of all trees on an area for the purpose of creating a new, even-aged stand. The area harvested may be a patch, stand, or strip large enough to be mapped or recorded as a separate age class.

Cohesion: The bonding of soil particles by thin water films, generally resulting in an increase in shear strength up to some minimum moisture content.

Cohesive soils: Soils that have relatively high shear strength when moist.

Colluvial debris (colluvium): A general term applied to loose and incoherent deposits, usually at the foot of a slope or cliff and brought there chiefly by gravity. Talus and cliff debris are included in such deposits. (DGT)

Compaction: The packing together of soil particles by instantaneous forces exerted at the soil surface resulting in an increase in soil density through a decrease in pore space.

Complete hydrologic utilization: Exists when the vegetation onsite is capable of utilizing water and energy at the maximum rate for the species and site.

Condition: Refers to a hydrologic state of a watershed, i.e., baseline, existing or proposed.

Cover density: An index which references the capability of the stand or cover to integrate and utilize the energy input to transpire water. It varies according to crown closure, vertical foliage distribution, species, season, and stocking.

Creep: (See Soil creep.)

Cribbing: A structure which can be made of metal, treated timber, or precast reinforced concrete, generally not watertight, used to contain unstable earth masses either above or below a road surface.

Critical temperature threshold: The temperature at which physiological effects on fish begin to be produced. The temperature threshold is an indicator of other water constituents such as dissolved oxygen.

Crop tree: Any tree forming or destined to form a part of the forest crop. Usually a tree selected in a young stand or plantation to be carried through to maturity. (SAF)

Cross drainage: A means, generally a culvert, of moving water from the uphill side of a road to the downhill side.

Crown closure: The percent of vegetation crown compared to open area as determined from an aerial photograph.

Cut-and-fill: Fill — the material added to reach the formation level. Cut — the excavation formed when the material is removed.

Cut banks: The concave wall of a meandering stream that is maintained as a steep or overhanging cliff by the impinging of water at its base. (See also Cut slope.) (DGT)

Cut slope: On sloping land, exposed banks above a road created by excavation during road construction.

Cutting block: Cutting area or felling area. An area on which trees have been, are being, or are to be cut. (SAF)

Cutting plan: Part of the silvicultural plan that describes the method of cutting (clearcut, seedtree, etc.).

Debris avalanche: Rapid, shallow mass movement on a hillslope involving soil, rock, and organic matter; less fluid in behavior than debris flow.

Debris dam: A dam in a channel resulting from the collection of tree limbs, logs, and other obstructions.

Debris flow: Rapid, shallow mass movement on a hillslope involving soil, rock, and organic matter; more fluid behavior than debris avalanche.

Debris in channel: Those obstructions in a stream channel as a result of silvicultural activities or natural events.

Debris jam: See Debris dam.

Debris slide: The slow-to-rapid downward movement of predominantly unconsolidated and incoherent earth and debris in which the mass does not show backward rotation but slides or rolls forward, forming an irregular hummocky deposit which may resemble morainal topography. (DGT)

Debris torrent: Rapid, turbulent movement of soil, alluvium, and organic matter down a stream channel.

Defoliant: A herbicide which causes the leaves of a plant to drop off.

Degradation: The general lowering of the surface of the land or stream by erosive processes, by the removal of material through erosion and transportation by flowing water. (DGT)

Denitrification: The biochemical reduction of nitrate and/or nitrite to molecular nitrogen or an oxide of nitrogen. Under some conditions, it results in a loss of nitrogen from the forest ecosystem.

Deposition: The mechanical or chemical processes through which sediments accumulate in a resting place.

Desiccant: A material used to draw moisture from or dry up a plant, plant part, or insect. Desiccants are used primarily for pre-harvest drying of

actively growing plant tissues when seed or other plant parts are developed but only partially mature; or for drying of plants which normally do not shed their leaves, such as rice, corn, small grains, and cereals.

Detection limit: The level at which, with current technology, a water quality component can be detected with certainty.

Directional felling: Cutting trees so that they will fall in a predetermined direction for purposes such as increased logging efficiency, minimizing stand damage, and reduction in pollution impacts.

Ditch check: A small dam or structure in a road ditch to slow water velocity.

Ditch drain: Means of moving concentrated water from an inside road ditch to an outside area.

Drag(s): A frame, usually iron, for roughly leveling a relatively loose or soft surface. (SAF)

Dry fall: Deposition of solid particles from the atmosphere during nonprecipitation events.

Dry ravel: Downslope movement of sediment particles or small rock on steeper slopes without flowing water.

Duff: The matted, partly decomposed organic surface layer of forested soils. (SOIL)

Earthflow: Slow (rates of centimeters to meters per year), deep-seated (failure plain commonly 5-15 meters below surface) mass movement. (AGI)

Effective stream width: Length of shadow required to reach from one bank to the other; thereby effectively shading the stream.

Effective weight: Dry weight of soil minus the effect of buoyancy in the zone of saturation. (AGI)

Electrochemical exchange: Chemical action employing a current of electricity (lightning) to cause or to sustain a chemical reaction. (DMM)

Endline: To winch in without the use of block or pulleys to change the direction of pull.

Energy aspect: Refers to a combination of elevation and three aspect classes — (1) north, (2) south, and (3) east and west — used in determining energy inputs for generating snowmelt and evapotranspiration estimates.

Energy balance: An accounting of all energy inputs and outputs within some defined system.

Energy sink: A place where energy can be stored or absorbed for use at some other time or place.

Enrichment ratio: The concentration of nitrogen or phosphorus in the eroded material divided by its concentration in the soil proper. (PNE)

Erosion—The wearing away of the land surface by running water, wind, ice, or other geological agents, including such processes as gravitational creep. Detachment and movement of soil or rock by water, wind, ice, or gravity. (SSSA)

The following terms are used to describe different types of water erosion:

Accelerated erosion—Erosion much more rapid than normal, natural, geological erosion, primarily as a result of the influence of the activities of man or, in some cases, of animals. (SSSA)

Channel erosion: Erosion in which material is removed by water flowing in well-defined channels: erosion caused by channel flow.

Gully erosion: The erosion process whereby water accumulates in narrow channels and, over short periods, removes the soil from from this narrow area to considerable depths ranging from 1 or 2 feet to as much as 75 to 100 feet. (SSSA)

Rill erosion: An erosion process in which numerous small channels of only a few inches in depth are formed; occurs mainly on recently cultivated soils. (SSSA)

Sheet erosion. The removal of a fairly uniform layer of soil from the land surface by runoff water. (SSSA)

Splash erosion: The spattering of small soil particles caused by the impact of raindrops on very wet soils. (SSSA)

Erosion hazard: The possibility of soil loss due to erosion processes.

Erosion response unit: A delineated homogenous area that will respond uniformly to forces which cause surface erosion.

ET: (See Evapotranspiration.)

Evapotranspiration (ET): The loss of water from a given area by both evaporation from soil and open water surfaces, and by transpiration from plants.

Excess water: Increases in available water resulting from evapotranspiration reduction from canopy removal. Excess water can also be caused by reduced infiltration rates into bare or compacted soil.

Exchange surface: Surface of soil particles that exhibit enhanced chemical activity, exchanging absorbed ions with ions present in the soil water.

Exfiltration: Water flowing from soil mantle back onto the soil surface from saturated soils due to bedrock constrictions, concentration in draws, excessive precipitation, etc.

Existing condition: The current hydrologic state of the watershed. It may be thought of as, but is not necessarily the same as a fully forested watershed with the trees capable of maximum evapotranspiration (ET) for the energy and water available.

Factor of safety: A measure of the stability of a soil or rock mass, ratio of material strength retarding motion to applied stress tending to cause motion.

Fault: Surface or zone of rock fracture along which there has been displacement. (AGI)

Felling: The act of cutting down a standing tree. (SAF)

Fertilization: The act of applying fertilizer.

Fertilizer: Any organic or inorganic material of natural or synthetic origin which is added to a soil to supply one or more elements essential to the growth of plants. (SSSA)

Field capacity index: The moisture content in the soil at one-tenth bar of soil-water pressure.

Fill slope: Man-made slope below a roadbed resulting from road construction where additional material is added to build up all or part of the road surface.

Filter strip: (See Waterside areas.)

Fireline: A term for any cleared strip used in fire control. More specifically, that portion of a control line from which flammable materials have been removed by scraping or digging down to the mineral soil. (SAF)

Flow duration curve: A graphical presentation of the percent of time streamflow equals or exceeds various levels of flow.

Fly logs: Logs carried completely off the ground during yarding.

Foliar drip: Loss of nitrogen from trees and understory to litter and organic layer on forest floor.

Ford: An unbridged stream crossing.

Forest cover density: An index representing the efficiency of a three-dimensional canopy system to respond to energy input.

Fracture: Any break in rock, whether or not displacement is involved.

Fragipan: A natural soil horizon with higher bulk density than the overlying horizons, seemingly cemented when dry but having a moderate to weak brittleness when wet. The layer is low in organic matter, mottled, slowly or very slowly permeable to water, and may show occasional or frequent bleached cracks which define polygons.

Free water: The water (liquid state) being held within a snowpack. This free water is generally considered to be less than 6 percent by volume for free-draining snow.

Free water surface: The surface of water bodies (i.e., streams, lakes, ponds, etc.).

Frictional resistance: Mechanical resistance to the relative motion of contiguous bodies or of a body and a medium.

Fuel break: A wide strip with a low amount of fuel in a brush or wooded area to serve as a line of fire defense and usually covered with grass to provide soil cover. (WPG)

Fuel management: The management and manipulation of fuels (vegetation) so as to lower fire hazard.

Fuel management plan: Part of the silvicultural plan that describes the type of fuel management to be used.

Full bench road: (See Full bench section.)

Full bench section: To construct a roadbed entirely on natural ground. Generally used on cross slopes 55 percent or greater.

Fungicide: An agent, such as a spray or dust, used for destroying fungi. (RHD)

Gabion: A specially designed basket or corrosion resistant wire boxes used to hold rock and other coarse aggregate. These wire boxes may be locked together to form sea walls, revetments, deflectors, and other structures. (WWU)

Glacio-lacustrine clays: Fine clay-size particles deposited in glacial lakes. Usually clay size but not clay minerals.

Gravitational stress: Acceleration of a mass due to gravity.

Ground cover: Any material (i.e., rock, litter, vegetation) which is attached to or lying on the soil surface.

Ground-lead cable yarding systems: A method of powered cable logging in which a main line is led out to the logs through a lead block fastened close to the ground level. Generally operated by a double-drum power unit carrying the main and haul-back lines. (SAF)

Gunite: (See Shotcrete.)

Hand pulpwooding: The procedure of driving trucks through the woods to felling sites and hand-loading wood cut primarily for manufacturing into wood pulp.

Hardpan: A hardened or cemented soil horizon or layer. The soil material may be cemented by iron oxide, silica, calcium carbonate, or other substances. The hardness does not change appreciably with changes in soil moisture content.

Harvesting: (See Timber harvesting.)

Hazard index: Indicates the intensity of analysis that may be necessary to adequately evaluate soil mass movement potential.

Headwall scarp: Steep (generally 50°) slope at the upslope end of a mass movement landform produced by the downslope movement of material away from the face. (AGI)

Heat flux: The quantity of heat transported during a given time period through a unit area that is perpendicular to the flow direction.

Heat sink: (See Energy sink.)

Helicopter logging: A system for hauling timber from stump to a collection point that employs a helicopter as the means of transportation. (CEAP)

Herbicide: A substance used to inhibit or destroy plant growth. If its effectiveness is restricted to a specific plant or type of plant, it is known as a selective herbicide. If its effectiveness covers a broad range of plants, it is considered to be a non-selective herbicide. (WPG)

Heterotrophic bacteria: Bacteria requiring complex organic compounds of nitrogen and carbon for metabolic synthesis.

High-lead logging: A method for transporting logs from the stumps to a collecting point by using a power cable, passing through a block fastened high off the ground, to lift the front end of the logs clear of the ground while dragging them. (CEAP, SAF)

High-lead yarding: The initial hauling to a collecting point in a high-lead logging system. (See High-lead logging.)

Hummocky topography: Irregular landscape of benches and depressions, indicative of mass movement activity.

Humus layer: The well-decomposed, more or less stable, part of the organic matter in mineral soil. (SOIL)

Hydrographic area: A small sub watershed of a first order watershed.

Hydrologic province: A subunit of a hydrologic region. Provinces are divided based on major climatic and hydrologic differences. (See Hydrologic regions.)

Hydrologic regimes: The climatic, lithologic, topographic, vegetation factors, and the temporal distribution of seasonally variable factors which determine the extent of stability between a stream and its drainage basin.

Hydrologic regions: Regions that have been delineated based upon major climatic and hydrologic differences.

Hydrologic utilization: The use of soil-water for biological growth and maintenance. Complete hydrologic utilization is equivalent to potential evapotranspiration.

Hydrolyzation: A chemical decomposition in which a compound undergoes a reaction with water resulting in new compounds or ions.

Ignition pattern: Distribution of many individual fires over an area simultaneously or in quick succession. (KPD)

Impacted areas: Uncut and cut areas of the watershed which are affected by a silvicultural prescription.

Immobilization: The chemical or physical binding of ions and compounds such that they are not chemically active or capable of going into solution.

Impaired drainage: Where subsurface water movement is obstructed by a relatively impermeable material, as at the failure plane of an earthflow. (AGI)

Incident heat load: The source of heat influx that causes water temperature to increase.

Incipient drainage depression: Linear depression orientated downslope that may carry surface runoff only during infrequent storms, commonly the site of debris avalanche-debris flow.

Incremental precipitation: The amount of precipitation falling over some specified interval of time.

Infiltration rate: A soil characteristic determining or describing the maximum rate at which water can enter the soil under specified conditions, including the presence of an excess of water. (SSSA)

Inorganic phosphorus: Phosphorus compounds that do not include carbon. Ionic forms are readily soluble in water.

Insecticide: A pesticide used to control insects.

Inside road ditch: A channel located adjacent to a road at the foot of the cut bank designed to concentrate water and reduce erosion on the road.

Insloped road: A road sloped (at 1 to 2 percent) toward the cut bank to facilitate the drainage of water off of the road surface.

Insoluble component: That portion of the nutrients entering a stream as relatively insoluble compounds or ions via surface flow either adsorbed to soil particles or as suspended solids.

Integral arch: An arch attached to the skidding machine to provide lift to the loading end of the log, and to improve the ease of backing up on rough steep terrain.

Interception loss: That portion of precipitation that is caught and retained on vegetation, litter layer or structures and subsequently evaporated without reaching the ground. (GOM)

Intracycle: A cycle (i.e., nutrient cycle) within the ecosystem. The forest nutrient cycle is generally segmented into three compartments: inputs, intracycle, and outputs.

Intracycle process: Biochemical processes taking place within an intracycle. (See Intracycle.)

Intragravel water: Water within the pore spaces of stream bottom gravel material.

Isothermal snowpack: A snowpack that has the same temperature throughout its vertical profile.

Jackpot burn: (See Spot burn.)

"Jack-strawed" trees: Patch of trees tipped in different directions, commonly indicative of mass movement activity. (AGI)

Jammer: A light weight 2-drum winch with a wooden spar, generally mounted on a vehicle which is used for both skidding and loading. (SAF)

Joint: Surface of actual or potential fracture or parting in a rock, without displacement.

Landslide: Sudden downslope movement of earth and rock.

Land system inventory: A seven level land inventory system which uses selected differentiating characteristics of soils, natural vegetation, and geology for identifying and delineating component parts of a landscape. The maps and associated legends produced at a given inventory level provide data for use at selected levels of land management.

Latent heat exchange: Energy given off or absorbed in a process (evaporation/condensation).

Leaf area index: Ratio of leaf surface area to projected ground surface area.

Leave strip: (See Waterside area.)

Limiting nutrient: An essential nutrient which is not available to timber in adequate amounts to insure normal growth (i.e., nitrogen, phosphorus, and potassium).

Linear depression: Incipient drainage depression.

Litter interception: That component of precipitation that is intercepted by the litter layer and eventually evaporated back to the atmosphere.

Litter layer: The surface layer of the forest floor consisting of freshly fallen leaves, needles, twigs, stems, bark, and fruits. (SAF)

Logging plan: Part of the silvicultural plan that includes a planimetric map which depicts the type of logging system, landings, and road plan to be used.

Log landing: Any place where round timber is assembled for further transport, commonly with a change of transport method. (SAF)

Lop and scatter: To chop branches, tops, and small trees after felling and then spread the resulting materials more or less evenly over the ground without burning. (SAF)

Lopping: Cutting off one or more branches of a tree, whether standing, felled, or fallen. (SAF)

Machine pile (and burn): Slash which is put in piles by machinery to subsequently be burned.

Manning's equation: An empirical formula used to calculate the velocity of flow based on channel roughness, the hydraulic radius, and the slope of the energy gradient line.

Mass failure: (See Mass wasting.)

Mass movement: Unit movement of a portion of the land surface as in creep, landslide, or slip.

Mass wasting: A general term for a variety of processes by which large masses of earth materials are moved by gravity either slowly or quickly from one place to another.

Masticate: Chewing or grinding wood into small pieces.

Mechanized logging operations: The use of self-propelled ground equipment to fall and bunch and/or limb and buck or top a tree.

Melt threshold temperature: An index temperature relating to when the snowpack will begin to melt.

Microrelief: Small-scale, local differences in topography that are only a few feet in diameter and have elevational differences of a few inches to 6 feet. (SSSA)

Mineral soil: A soil consisting predominantly of, and having its properties determined predominantly by, mineral matter. Usually contains less than 20 percent organic matter, but may contain an organic surface layer up to 30 cm thick. (SSSA)

Mineralization: The release of mineral matter from organic matter as a result of microbial decomposition.

Mitigative controls: The physical, chemical, or vegetative measures applied to ameliorate existing problems.

Modified Soil Loss Equation (MSLE): The Universal Soil Loss Equation (USLE) as it has been revised for application to forest conditions.

Mohr-Coulomb Theory of earth failure: States that failure in a material occurs if the shear stress on any plane equals the shear strength of the material. (AGI)

Montmorillonite: (See Smectite.)

Mudflow: Rapidly flowing mass of predominantly fine-grained earth materials possessing a high degree of fluidity during movement.

Mulch: (1) Any material such as straw, sawdust, leaves, etc., that is spread upon the surface of the soil to protect the soil and plant roots from effects of raindrops, soil crusting, freezing, evaporation, etc. (SSSA) (2) Any loose covering on the surface on the soil, whether natural, — like litter, or deliberately applied like straw, grass, or foliage, or artificial material such as cellophane. Used to conserve moisture, check weed growth, and protect from climate. (SAF)

Natural event: Event that takes place according to the laws of nature — inherent — not induced or changed by man's activities.

Nitrification: Biological oxidation of ammonium to nitrate or a biologically induced increase in the oxidation state of nitrogen.

Nitrogen fixation: Biological conversion of elemental nitrogen (N_2) to organic combinations or to forms utilizable in biological processes. (SSSA)

Nitrosomonas: A soil bacteria that obtains energy for growth by oxidizing ammonia to nitrites.

Non-cohesive soil: Soil with a relatively low shear strength.

Non-point sources: For silviculture, sources from which the pollutants discharged are: (1) induced by natural processes, including precipitation, seepage, percolation, and runoff; (2) not traceable to any discrete or identifiable facility; and (3) are better controlled through the utilization of Best Management Practices, including process and planning techniques. (EPA) Non-point sources as used in this document includes natural pollution sources not directly or indireclty caused by man.

Normalized hydrograph: Representative hydrograph expressed as the percentage of annual flow which can or will occur during any 6-day interval.

Nutrient availability: The state in which nutrients must be to be available to plants.

Onsite: The specific area on which an event, occurrence, or activity has taken or will take place.

Onsite chemical balance changes: Silvicultural activity can result in release of chemicals which, in turn, may leach or wash into streams, thereby affecting nutrient and Biochemical Oxygen Demand (BOD) levels in water.

Open water: (See Free water surface.)

Organic phosphate: Phosphorus compounds that include carbon. They are not generally found as water soluble ions.

Organophosphate: A synthetic organic pesticide which contains carbon, hydrogen, and phosphorous. It acts by inhibiting a blood chemical called "Cholinesterase." As a rule, organophosphates are less persistent than the chlorinated hydrocarbon family. Examples: malathion and parathion.

Outslope construction: Used in construction to spread both the material and the potential flow of water out over a very large front with a subsequent low energy per unit for transport.

Overland flow (sheet flow): Runoff water which flows over the ground surface as a thin layer and does not infiltrate prior to reaching a stream, as opposed to the channelized (concentrated) runoff which occurs in rills and gullies. (WPG)

Overload stream: An aggraded stream, one with an excess of sediment supply as evidenced in a braided stream.

Overstory: That portion of trees in a forest forming the uppermost canopy layer.

Oxygen saturation levels: The maximum amount of oxygen that theoretically can be dissolved within water for the given temperature and elevation.

Patch cut: A modification of clearcutting. A 40- to 200-acre area cut as single settings, separated for a long as practicable, preferably until the regeneration is adequately shading the forest floor. (SAF)

Permeability class: An arbitrary classification of soil permeability into classes (i.e., very slow, slow, slow to moderate, moderate, etc.) Used in determining the soil erodibility factor (K) of the Modified Soil Loss Equation.

Pesticide: A chemical substance, compound, or other agent used to control, destroy, or prevent damage by a pest.

Phreatophyte: A plant that habitually obtains its water supply from the zone of saturation, either directly or through the capillary fringe. (DMM)

Piezometric surface: An imaginary surface representing the static head of groundwater and defined by the level to which water will rise in a well.

Piping (soil piping): Subsurface erosion that causes the formation of tunnel-like cavities.

"Pistol-butted" trees: Trees with a "J" shaped base with the stem displaced downslope, due to mass movement, snow creep, and other processes.

Planar failures: Shallow soil mass movement with a nearly flat plane of failure.

Plant growth regulator: A substance or organism that increases, decreases, or in some way changes the normal growth or reproduction of a plant.

Plow layer: A surface soil layer that has been mixed by human activities to an extent that the original properties of the soil have been modified.

Point bars: Sediment deposited on the inside of a growing meander loop. (DGT)

Pollution: The manmade or man-induced alteration of the chemical, physical, biological and

radiological integrity of water. (Section 502, Pl 95-217 clean Water Act)

Pool areas: A body of water or portion of a stream that is deep and quiet relative to the main current. (NIA)

Pore space: The volume of the various pores in a soil. The space not occupied by solid particles.

Pore water pressure: The stress transmitted through the fluid that fills the voids between particles of a soil or rock mass.

Prescribed fire (prescribed burn): Skillful application of fire to natural fuels under conditions of weather, fuel moisture, soil moisture, etc., that will allow confinement of the fire to a predetermined area and at the same time will produce the intensity of heat and rate of spread to accomplish certain planned benefits. (KPD)

Prescribed underburning: Skillful application of fire used to reduce fuels under stands following logging to reduce fuels created by some cultural treatments; to kill unwanted trees and shrubs and/or reduce fuels from leaf and needle fall; and to control certain tree diseases. It is successful only with fire-resistant tree species and low to moderate fuel loadings.

Preventive controls: Those controls that apply to the pre-implementation, planning phase of a silvicultural activity.

Probit: a statistical unit of measurement of probability based on deviations from the means of a normal frequency distribution.

Proctor curves: Curves resulting from the standard Proctor compaction test showing the variation of optimum soil-water content related to maximum density. (EM)

Proposed condition: The hydrologic state of a watershed following a proposed silvicultural activity. It is synonymous with the "post-silvicultural" activity condition.

Procedural controls: Those controls that are concerned with administrative actions of a silvicultural activity.

Raindrop splash erosion: (See Erosion.)

Reaeration: The replenishment of deficit oxygen concentration in water.

Reflectivity: The fraction of radiation that is reflected back to the sky by the snowpack. A term used in energy budget modeling.

Release: Freeing a tree, or group of trees, from more immediate competition by cutting, or otherwise eliminating, growth that is overtopping or closely surrounding them. (SAF).

Residual soil: Soil developed in situ from underlying parent material.

Resource impacts: Change to the resource that alters natural processes.

Restricted drainage: Where subsurface water movement is obstructed by a relatively impermeable material, as at the failure plane of an earthflow.

Retaining structure: Structure which retains or restrains an oversteepened slope.

Rheological flow: A more or less viscous liquid flow of solid material.

Riffle: A shallow rapids in an open stream where the water surface is broken into waves by obstructions wholly or partly submerged. (NIA)

Ripping: (See Soil ripping.)

Riprap: A foundation or sustaining wall of stones put together without order on an embankment slope or water course to prevent erosion.

Rodenticide: A pesticide used to control rodents.

Rolling chopper: A cylindrical roller or water-filled drum equipped with several full-length cutting blades. Its purpose is to crush and cut brush and slash into small lengths.

Rolling dip: (1) To conform a road to the landscape by following the natural grade changes. (2) Used when constructing a road on nearly level terrain to provide for drainage by making small changes in grade.

Rotational failure: Mass movement with concave failure plane.

Sag pond: Poorly drained depression formed by rotational mass movement.

Salvage cut: The harvesting of trees that are dead, dying, or deteriorating (e.g., because overmature or materially damaged by fire, wind, insects, or

other injurious agents) before the timber becomes worthless.

Saturated hydraulic conductivity: A measure of the rate of water traversing a unit area of soil in unit time per unit hydraulic gradient with the soil in a saturated condition.

Scalping: Paring off low and surface vegetation together with most of its roots to expose a vegetation-free soil surface, generally preparatory to sowing or planting. (CEAP)

Scarification: Loosening the topsoil or breaking up the forest floor to expose mineral soil.

Scour: Removal of loose material by running water, from the wetted portion of a stream channel.

Sediment: (1) Particles derived from rocks or biological materials that have been transported by a fluid. (2) Solid material (sludges) suspended in or settled from water.

Sediment delivery index: An estimated fraction of the total potential soil loss from a disturbed site that may be moved over land and deposited in a stream channel.

Sediment delivery ratio: The volume of sediment material actually delivered to a point in a watershed divided by the total amount of material available for delivery.

Sediment discharge (yield): The average quantity of sediment, mass or volume, but usually mass, passing a section in a unit time. The term may be qualified as, for example, suspended-sediment discharge, bedload discharge, or total sediment discharge.

Sediment rating curve: A graphical representation of the existing relationship between sediment concentration in mg/l and stream discharge in cfs.

Sediment supply: The amount of inorganic sediment made available in the channel for transport as either suspended or bedload sediment. Sources of sediment include contributions from surface erosion and soil mass movement, and that derived from the channel itself.

Sediment transport: Term used to discuss the movement of sediment within a stream channel system.

Sediment trap: Usually a small depression to capture sediment coming from on-going construction. A temporary measure to trap sediment.

Suspended sediment: In the process by which running water transports material, smaller particles are lifted far from the bottom and are sustained for long periods before being distributed through the whole body of the current. This constitutes the suspended load or that component called suspended sediment. (DGT)

Seed tree cutting: Removing trees in a mature stand so as to effect permanent openings of their canopies. This provides conditions for securing regeneration from the seed of trees retained for that purpose.

Selection cutting: A method of logging which removes trees from all size classes in an uneven-aged stand to maintain proper stocking as increments of trees move from younger to older classes.

Serpentine: A mineral of the serpentine group, such as antigorite and chrysotile. These minerals are prone to mass erosion. (DGT)

Shale: Fine-grained indurated detrital sedimentary rock formed by consolidation of clay, silt, or mud, and characterized by finely stratified structure.

Shear strength: The internal resistance of a body to shear stress.

Shear stress: That component of stress which acts tangential to a plane through any given point on a body.

Sheet flow: Surface runoff which flows over the ground in a thin layer as contrasted with runoff that is concentrated in rills and gullies.

Shelterwood cutting: A method of harvest cutting involving two or three separate cuttings. The last cutting removes the shelterwood after adequate regeneration, encouraged by prior cuttings, has become established.

Shotcrete (also known as gunite): A mixture of cement, sand, or crushed slag and water sprayed over exposed soil on hillslopes to protect against surface erosion.

Siltstone: Indurated silt having the texture and composition, but lacking the fine lamination of shale.

Silviculture: The science and art of cultivating forest crops, based on a knowledge of silvics, which is the study of the life history and general characteristics of forest trees and stands with particular reference to locality factors, as a basis for the practice of silviculture (SAF).

Silvicultural activity: Activity associated with the care and cultivation of forest trees. It includes harvesting, regeneration systems, access systems, and various cultural practices (site preparation and timber stand improvement) that are appropriate to various management objectives.

Silvicultural plan: A plan outlining a proposed silvicultural activity, which should include methods of cutting, felling, yarding, fuel management, site preparation, miscellaneous cultural activities, and road and access system plans.

Silvicultural state: The status of the vegetation complex on units of land to which a silvicultural prescription has been applied. A silvicultural system or treatment actually applied to a unit or a description of the vegetative cover on all or a part of the unit. The state may be described as clear cut, thinned, forested, open, etc.

Silvicultural prescription: The management alternatives applied to a watershed or watershed subunit. The delineation of a watershed into a single unit or series of subunits to which the prescription is to be applied, is based on uniformity of soil depth, vegetation, precipitation, aspect, and other unique site factors. A uniform practice over the entire unit or several practices resulting in more than one silvicultural state per silvicultural prescription; i.e., the prescription may consist of patch cutting, thinning, and leaving part of the area uncut. The silvicultural prescription includes for each unit that part of the silvicultural plan that affects the evapotranspiration status of the vegetation.

Simulation: A technique for analyzing complex inter-relationships among variables based upon known or assumed influence of one variable on another. Often referred to as modeling, simulation provides a means of estimating and comparing the effects that a change in one or more of the variables will have on the other variables.

Site preparation: Preparing a site for the regeneration or planting of trees.

Site preparation plan: Part of the silvicultural plan that describes site preparation techniques to be used.

Site productivity: The present capability of a site for producing a specified plant or sequence of plants under a defined set of management practices.

Skidding (timber transport): A term for hauling loads by sliding from stump to roadside. The timber may slide more or less wholly along the ground (ground skidding) with its forward end supported (high lead skidding) or wholly off the ground — sliding along a cable — during its main transit (aerial skidding). (SAF)

Skid road (skid trail): Any path, more or less prepared, over which logs are dragged. (SAF)

Skyline cable system: A cable logging system which employs a heavy cable stretched between two supports upon which traverses a carriage to support at least the leading end of the log. (SAF)

Skyline logging: A method for transporting logs from stumps to collecting points that uses a heavy cable stretched between high points (such as in tall trees braced with guy lines) to function as an overhead track for a load carrying carriage. Logs are lifted up by cables or other similar devices, and powered cables are used to move the load back and forth along the main cable. (CEAP)

Slope configuration change: Alteration of the land slope, such as occurs in roadbuilding when cuts and fills are constructed.

Slope gradient: The amount of inclination from horizontal of a piece of land. Gradient is expressed in degrees or percent (tangent of the slope angle which is the amount of rise divided by the horizontal distance).

Slump: A slip resulting from the downward and backward rotation of a soil block or group of blocks with small lateral displacement. Closely

related to earthflow in terms of their occurrence and genetic process. (DGT)

Smectite clay: Group of expanding lattice clay minerals. (AGI).

Snowpack ripening: The process of coarse crystal formation with an increase of the liquid phase within the snowpack. (VTC)

Snow redistribution: The change in the distribution of snow attributable to land management activities (i.e., increasing deposition in openings within forested areas).

Snow retention coefficient: A coefficient used in assessing snowpack redistribution associated with timber harvesting. The coefficient is the ratio of expected accumulation divided by the baseline or pre-harvest accumulation.

Soil creep: Slow, gradual, more or less continuous permanent deformation of soil under gravitational body stress.

Soil mass movement: Movement of soil material en masse under gravitational body stress.

Soil resource inventory: Term used by U.S. Forest Service for the systematic examination of soils in the field and laboratory, including descriptions, classifications, and mapping of soils and management interpretations according to their productivity and behavior under use. (See Soil survey.)

Soil ripping: Act of breaking up hard gravel, soft rock, tearing out stumps and boulders.

Soil survey: The systematic examination, description, classification, and mapping of soils in an area. Soil surveys are classified according to the kind and intensity of field examination. (SSSA)

Soil texture: The relative proportions of the various soil separates [sand, silt, and clay] in a soil as described by the classes of soil texture. (SCS, SSSA)

Solar ephemeris: A table showing the positions of the sun on a number of dates in a regular sequence. (RHD)

Solar loading: The flux of solar energy reaching the forest floor or water body of interest.

Soluble component: That portion of the nutrients that enters a stream as soluble ions via surface or subsurface flow.

Spot burn (jackpot): A method of burning where scattered concentrations of slash or other fuels are reduced by burning in place under fuel moisture and weather conditions which maintain low flame lengths and fire intensities.

Stability threshold: The maximum change that a stream reach can withstand and still maintain it's morphological characteristics due to either sediment supply and/or stream energy changes where channel adjustments will be initiated to accommodate these changes over time.

Stage felling: To fell timber and remove it in stages so as to reduce breakage, normally small timber first.

Stations (engineering): A unit of measure equivalent to 100 horizontal linear feet.

Stiff diagram: A method of plotting several variables using vectors on a graph, so that the combined effects of the variables are shown as an irregular polygon with a particular area.

Stream aeration: The process of air being mixed with and re-entering the stream water. This process can be observed visually as white or foaming water.

Stream channel encroachment: Encroachment occurs when bankful discharge width of a stream is reduced due to direct alterations such as bridges, roadfills, culverts, organic debris, etc.

Stream equilibrium: The balance of the availability of sediment supply based on the erosional rates of adjacent slopes, the stream system, and the energy available to transport this erosional debris in such a manner that the morphological characteristics of the stream channel are maintained.

Stream gradient: (See Water surface slope.)

Stream order: A method of numbering streams as part of a drainage basin network. The smallest unbranched mapped tributary is called first order, the stream receiving the tributary is called second order, and so on.

Stream power: Numerical expression of stream energy utilized in determining bedload transport rate which is the product of water surface slope, stream discharge, and a unit force factor of 62.4 lbs/ft^3-width of stream.

Stream productivity: The amount of living matter actually produced within the stream under investigation.

Stream shading changes: Changes that occur when trees and/or understory vegetation that contribute to the shading of water in streams are removed.

Streamside areas: (See Waterside area.)

Streamside management zone: (See Waterside area.)

Strip cutting: Removal of the crop in strips in one or more operations, generally for encouraging regeneration. (SAF)

Stripping: Clearing or removing ground cover.

Structure index: An index of soil structure (granular, blockly, massive, etc.) used in determining the erodibility (K) factor of the Universal or Modified Soil Loss Equation.

Subsurface flow: That part of the runoff that percolates through the soil mantle primarily under the influence of gravity before emerging as streamflow.

Surface erosion: (See Erosion).

Swelling clays: Expanding lattice clays which increase in volume when water moves into the crystal structure and decrease in volume when water is removed.

Swing operation: Moving logs to a landing from a distant deck to which they have been yarded. (CLS)

Symbiosis: The living together of two different organisms with a resulting mutual benefit. A common example includes the association of rhizomes with legumes. The resulting nitrogen fixation is sometimes called symbiotic nitrogen fixation. (See Nitrogen fixation).

Temporary road: A timber access road which is closed to traffic between timber needs. When closed the road is barriered, scarified, and reseeded to grass and forbs.

Tension cracks: Fissures in the earth formed by differential displacement between two blocks of earth caused by tensional stresses.

Terracing: Use of terraces (raised levels with sloped front or sides) in site preparation.

Thermal pollution: Disruption of the aquatic environment or other beneficial use due to heating of a stream or other water body.

Throughfall: The part of rainfall that reaches the ground directly through the vegetative canopy, as drip from leaves, twigs, and stems. (VTC)

Timber harvesting: A general term for the removal of physically mature trees in contrast to cuttings that remove immature trees. (SAF)

Timber stand improvement: A loose term comprising all intermediate cuttings made to improve the composition, constitution, condition, and increment of a timber stand. (SAF)

Topographic shading: Shading of streams, water bodies, or other areas of interest by topographic features positioned between the sun and area of interest, thereby eliminating direct solar radiation.

Toxicity: Quality, relative degree, or specific degree of being toxic or poisonous to an organism; the ability of a substance or chemical to produce injury. (RHD)

Tractor logging: Any system of logging in which a tractor furnished the motive power, whether by direct hauling or by skidding. (SAF)

Tractor skidding: Hauling logs by sliding using a tractor as the motive power. (SAF)

Translational movement: Downslope movement of a mass of soil and/or rock on a surface roughly parallel to the general ground surface.

Translocation of chemicals: The movement of a chemical within a plant or animal after it has entered by some path.

Transmissivity of solar radiation: Ability of solar radiation to pass through the forest canopy to the forest floor, snow pack surface or water surface.

Transport capability: In general terms, the integration of several variables which influence the ability of the stream to transport the sediment made available. The variables include velocity, gradient, bed roughness, existing sediment load, and particle size of material being transported.

Transportation plan: A plan that coordinates the transportation system for relatively large areas delineated by very limiting topographic features, economic centers, and legislative constraints. It

provides the interface for the logging road system and the public road system.

Transportation system: The transportation network including all existing and planned roads, skid trails, bridges, airfields, and other transport facilities wholly or partly within or adjacent to the watershed area for silvicultural activities. (WPG)

Trash rack: A screen of parallel bars or mesh placed across a stream or turbine intake to intercept floating debris. (DMM)

Treated seed: Seeds that are chemically treated with a pesticide or fertilizer.

Understory: The woody species growing under a more or less continuous cover of branches and foliage formed collectively by the upper portions of adjacent woody growth. (WPG)

Uneven-aged stands: Stands with trees that differ markedly in age.

Unimpacted areas: Those unharvested zones of a watershed which are unaffected by a silvicultural prescription.

Universal Soil Loss Equation: An equation used for evaluating potential soil loss in specific situations. A = RKLSPC wherein A = average annual soil loss in tons/acre/year, R = rainfall factor, K = soil erodibility factor, L = length of slope, S = slope gradient, P = conservation practice factor, and C = cropping and management factor. (WPG)

Variable source area: The portion of the watershed that actively contributes to runoff. These areas are dynamic and vary with antecedent soil moisture, storm size and duration.

Vegetative change: Changes which include the removal of vegetative ground cover, canopy cover, or a change in vegetative type.

Vegetative cover: The vegetation that is effective in protecting the ground surface. May be composed of overstory and understory vegetation.

Vegetative ground cover: The effective vegetation and organic matter that is protecting the soil; this cover includes litter.

Vegetative shading: Shading of streams, water bodies, or other areas of interest by vegetation positioned between the sun and area of interest thereby reducing the direct solar radiation striking a surface.

Volatilization: The evaporation or changing of a substance from liquid to vapor. (SOIL)

Volcanic flow rock: Extrusive igneous rock — generally the result of a lava flow.

Volcaniclastic: Fragmental rock of volcanic origin; may be a lava flow breccis, ash flow breccia, air fall ash, mud flow (lahar) breccia, or other material.

Washload: That portion of the suspended load which is 0.062 mm or smaller (silts and clays).

Washoff: The flushing of chemicals deposited as dryfall or introduced chemicals from the foliage during precipitation events.

Water balance: A measure of continuity of flow of water. It is an accounting of all the inputs and outputs of the hydrologic system. (VTC)

Water bar: A ridge or mound made across a road or cleared strip to divert water to one side. (CEAP)

Water concentration: The condition that results when water is intercepted and allowed to converge instead of infiltrating into the soil or spreading naturally.

Water quality objective: A quantified statement that defines the quality of the water resource for a specific stream or stream segment. It is related to the uses of the water resources and may be in terms of existing water quality standards or other quantifiable conditions relating to water quality such as degree of channel aggradation or degradation.

Water quality standard: Quantitative or qualitative criteria for chemical, physical, and biological characteristics that are established for the purpose of providing water that is suitable for specific uses.

Water resource goal: A broad but concise statement of the desired state or condition for the water resource.

Water surface slope: The slope or gradient of the stream energy grade line. For open channels, it is measured as the slope of the water surface and is frequently considered parallel to the stream bed.

Waterside area: Land area of varying size and shape immediately adjacent to stream courses or to water bodies on which the type and/or intensity of land use is tempered to meet defined water resource goals. Terms such as streamside management zone, aquatic habitat zone, water influence zone, floodplain, buffer strip, and leave or filter strip are often used when referring to management direction for waterside areas.

Water yield: The runoff from a watershed, including ground water outflow. Water yield is the precipitation less the evapotranspiration losses and change in storage.

Water yield increases: Increases in water yield resulting from reduction in other components of the hydrologic balance — primarily evapotranspiration.

Weak link: A reference to the channel reach that is the most unstable either from an increase in streamflow and/or increase in sediment supply. Many such weak links are in a disequilibrium condition.

Winching: To hoist or pull with as if with a winch.

Windbreak: A planting of trees, shrubs, or other vegetation, usually perpendicular or nearly so to the principal wind direction, to protect soil, crops, homesteads, roads, etc., against the effects of winds such as wind erosion and the drifting of soil and snow. (SSSA)

Yarding: The operation of the initial hauling of timber from stump to a collecting point. Pulling logs from the tree stump to the skidway, landing, or (in rare cases) the mill.

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16. ABSTRACT

This handbook provides an analysis methodology that can be used to describe and evaluate changes to the water resource resulting from non-point silvicultural activities. It covers only the pollutant generation and transport processes and does not consider the economic, social, and political aspects of pollution control.

This state-of-the-art approach for analysis and prediction of pollution from non point silvicultural activities is a rational estimation procedure that is most useful in making comparative analyses of management alternatives. These comparisons are used in selecting preventive and mitigative controls and require site-specific data for the analysis.

This handbook also provides quantitative techniques for estimating potential changes in streamflow, surface erosion, soil mass movement, total potential sediment discharge, and temperature. Qualitative discussions of the impacts of silvicultural activities on dissolved oxygen, organic matter, nutrients, and introduced chemicals are included.

A control section provides a list of control practices that have been used effectively and a methodology for selecting mixtures of these controls for the prevention and mitigation of water resource impacts. Such mixtures are the technical basis for formulating Best Management Practices.

17. KEY WORDS AND DOCUMENT ANALYSIS

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