

## **Glossary**

\* Indicates items that were pulled from the Draft 7 FSC-US Forest Management Standard  
Prepared for Public Consultation

(<http://www.fscus.org/images/documents/standards/revision%20process%2009/Draft%207%20FSC-US%20Forest%20Management%20Standard.pdf>)

\*\* Indicates items that were pulled from the USDA Forest Service Draft National Report on Sustainable Forests

\*\*\* Indicates items that were pulled from “Glossary” by Sally Dahir (see Appendix and References folder on drive)

**Abiotic** \*\*: Pertaining to the nonliving parts of an ecosystem, such as soil particles, bedrock, air and water.

**Age class** \*: Intervals into which the age range of a tree crop is divided; also the trees falling into such an interval.

**Air pollutants** \*\*: Gases, particles, or aerosols generated from management or combustion activities (industry, transportation, agriculture, management, etc.) that are released into the atmosphere, transported, and deposited in human and natural ecosystems. Air pollutants may be absorbed by forest ecosystems without effects (sink) or exceed the absorption capacity and have a deleterious effect on processes or components.

**Average annual mortality of growing stock** \*\*\*: The average cubic foot volume of sound wood in growing-stock trees that died in one year. This statistic is an average for the years between inventories.

**Average annual net growth** \*\*\*: The annual change in cubic foot volume of sound wood in live trees through growth less volume losses resulting from natural causes. This statistic is an average for the years between inventories.

**Average annual removals** \*\*\*: The average net growing stock volume in growing stock trees removed annually for roundwood forest products. This statistic is an average for the years between inventories.

**Average weighted stumpage prices** \*\*\*: The weighted average is calculated by adding up the total value (volume multiplied by unit value) for each timber species and product combination of each timber sale in a given calendar year and then dividing by the total volume. The timber sale data analyzed was from both private land and public land timber sales conducted throughout the state. Chapter NR 46 of the Wisconsin Administrative Code

**Best Management Practices (BMPs)** \*: A practice or combination of practices considered by a state (or authorized tribe) to be the most effective means (including technological, economic and institutional considerations) of preventing or reducing environmental or social impacts, including for water, roads, runoff, etc. BMPs are generally identified by states or tribal entities and, in the case of water quality, approved by the US Environmental Protection Agency.

**Biological diversity (also Biodiversity)** \*: The variability among living organisms from all sources including interalia, terrestrial, marine, and other aquatic ecosystems and the ecological

complexes of which they are a part, including diversity within species, between species and of ecosystems (Convention on Biological Diversity, 1992).

**Biomass (woody)\*\***: The mass of the woody parts (wood, bark, branches, twigs, stumps, and roots) of trees (alive and dead) and shrubs and bushes, measured to a specified minimum diameter (d.b.h.). Includes above-stump woody biomass, and stumps and roots. Excludes foliage.

**Biotic\*\***: Pertaining to living organisms and their ecological and physiological relations.

**Broadcast burn**: controlled applications of fire to fuels, under specified environmental conditions that allows the fire to be confined to a predetermined area, and produces the fire behavior and fire characteristics required to attain planned fire treatment and resource management objectives. (<http://www.fs.fed.us/r2/arnf/fire/prescribedfire/broadcastburning.shtml>)

**Broadleaf\*\***: A dicotyledonous tree, usually broad-leaved and deciduous.

**Buffer/buffer zone\***: A strip of vegetation that is left or managed to reduce the impact of a treatment or action of one area on another.

**Carbon absorption\*\***: The incorporation of the element carbon from the atmosphere into plant tissue.

**Carbon budget\*\***: The inventory of the element carbon in carbon pools and the balance of exchange between the pools in the area of study.

**Carbon cycle\*\***: The sequence of transformations whereby carbon dioxide is fixed as carbon or carbon compounds in living organisms by photosynthesis or chemosynthesis, liberated by respiration and/or death and decomposition of the fixing organism, used by heterotrophic species, and ultimately returned to its original state to be used again.

**Carbon flux\*\***: The transfer (net flow) of carbon from one carbon pool (stock) to another. For example, for the atmosphere, common fluxes include carbon removed by plant growth and dissolved into the ocean and carbon added by mineralization, plant respiration, fossil-fuel burning and volcanic activity.

**Carbon pool (or stock)\*\***: The absolute quantity of carbon held within a pool at a specific time. Examples of carbon pools are aboveground forest biomass, soil, wood products, and the atmosphere.

**Carbon emission\*\***: The emission of the element carbon from organic matter into the atmosphere.

**Catastrophic natural disturbances\***: The natural events that occur infrequently (i.e. on a time scale of decades or centuries), and that significantly alter the forest at the landscape level.

**Chain of custody (CoC)\*\***: The channel through which products are distributed from their origin in the forest to their end-use.

**Climate change\*\***: The actual or theoretical changes in global climate systems occurring in response to physical or chemical feedback, resulting from human or naturally induced changes in planetary terrestrial, atmospheric, and aquatic ecosystems.

**Coarse woody debris\***: Dead trees left standing or fallen and the remains of branches on the ground in forests.

**Conifer** (synonym: softwood, evergreen, or needle leaf species)\*\* : A coniferous tree, usually evergreen, having needles or scale-like leaves.

**Conversion\*** : The modifications to the structure and dynamics of a forest as a result of management activities, resulting in a significant reduction in the complexity of the forest system; or the transformation of a forest into a permanently non-forested area; or the transformation of a natural forest into a plantation.

**Cost of materials:** This term refers to direct charges actually paid or payable for items consumed or put into production during the year, including freight charges and other direct charges incurred by the establishment in acquiring these materials. It includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.

Included in this item are:

1. Cost of parts, components, containers, etc. Includes all raw materials, semi-finished goods, parts, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year.
2. Cost of products bought and sold in the same condition.
3. Cost of fuels consumed for heat and power. Includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.
4. Cost of purchased electricity. The cost of purchased electric energy represents the amount actually used during the year for heat and power. In addition, information is collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.
5. Cost of contract work. This term applies to work done by others on materials furnished by the manufacturing establishment. The actual cost of the material is to be reported on the cost of materials, parts, and containers line of this item. The term “Contract Work” refers to the fee a company pays to another company to perform a service.

**Development Stage (development)\*** : The series of stand development stages characteristic of the forest community type and natural disturbance regime as measured by tree size and vertical stand structure. Stand development stages range from early regeneration through old growth.

**Direct employment\*\*** :The number of jobs created by public and private firms in the process of producing a good or service. In the process of producing the good or service, however, the primary firm also generates secondary economic activity in other sectors of the economy. The jobs created by this secondary economic activity are referred to as indirect employment.

**Downed woody debris\*** : Wood from fallen trees or branches that lie on the forest floor, where it provides important microhabitats and performs the various functions of nutrient cycling. Downed woody debris is commonly categorized as large and/or coarse or fine woody debris.

**Ecosystem (also Ecological System)\*** : A group of plant community types that tend to co-occur within landscapes with similar ecological processes, substrates, and/or environmental gradients. A given terrestrial ecological system will typically manifest itself in a landscape at intermediate geographic scales of 10s to 1,000s of hectares and persist for 50 or more years. Therefore, these units are intended to encompass common successional pathways for a given landscape setting.

Note: “plant community types” refers to associations or alliances. (source: NatureServe, 2008, [http://www.natureserve.org/explorer/classeco.htm#terr\\_ecological](http://www.natureserve.org/explorer/classeco.htm#terr_ecological)).

**Ecosystem diversity**<sup>\*\*</sup> : Describes the variety of different ecosystems found in a region. A categorization of the combination of animals, plants, and microorganisms, and the physical environment with which they are associated is the basis for recognizing ecosystems.

**Ecological processes**<sup>\*\*</sup> : Processes fundamental to the functioning of a healthy and sustainable ecosystem, usually involving the transfer of energy and substances from one medium or trophic level to another.

**Ecosystem services**<sup>\*</sup> : Functions performed by natural ecosystems that benefit human society, such as hydrological services (water supply, filtration, flood control), protection of the soil, breakdown of pollutants, recycling of wastes, habitat for economically important wild species (such as fisheries), and climate regulation.

**Endangered species**<sup>\*</sup> : A species officially designated by the U.S. Fish and Wildlife Service, the National Marine Fisheries Service, or a state wildlife program as having its continued existence threatened over all or a significant portion of its range.

**Erosion**<sup>\*</sup> : The displacement of soil from one place to another by any means; including water, wind, gravity, logging, and road building.

**Even-aged silviculture**<sup>\*</sup> : Silvicultural system in which stands are produced or maintained with a single age class of trees in which the range of tree ages is usually  $\pm 20\%$  of the rotation. Examples of even aged silviculture include clearcut, seed-tree and shelterwood systems. See also two-aged management.

**Exotic species (exotic plant species)**<sup>\*</sup> : An introduced species not native or endemic to the area in question. For the purpose of this Standard, exotic plant species are those not native to the forest community type that would naturally be found there.

**Forest available for timber production**<sup>\*\*</sup> : Forest land that is producing or is capable of producing industrial wood and is not withdrawn from timber utilization by statute, administrative regulation, or formal conservation reserve purposes. Includes forest with conditions suitable for timber production even if so situated as to not be immediately accessible for logging.

**Forest ecosystem**<sup>\*\*</sup> : A dynamic complex of plant, animal, and micro-organism communities, and their abiotic environment interacting as a functional unit, where the presence of trees is essential. Humans, with their cultural, economic, and environmental needs are an integral part of many forest ecosystems.

**Forest goods**<sup>\*\*</sup> : Things from the forest that are useful and beneficial, and that have intrinsic value or economic utility. Includes all flora and fauna, mineral, and water resources occurring or originating in the forest.

**Forest land**<sup>\*\*</sup> : Land with at least 10 percent tree crown cover (or equivalent stocking) and more than 0.5 hectare (1 acre) in area, including land that formerly had such tree cover and that will be naturally or artificially regenerated. The trees should generally be able to reach a minimum height of 5 meters (16.5 feet) at maturity in situ. May consist either of closed forest formations in which trees of various stories and undergrowth cover a high proportion of the ground; or of open forest formations with a continuous vegetation cover in which tree crown cover exceeds the minimum percent. Young natural stands and all plantations established for forestry purposes,

which have yet to reach the minimum crown density or tree height, are included under forest, as are areas normally forming part of the forest area that is temporarily unstocked as a result of human intervention or natural causes, but which are expected to revert to forest.

**Forest-associated species\*\*** : A species with a measureable dependence on a forest ecosystem(s) for any aspect of its life history (including indirect dependence e.g. consuming forest-based or derived resources).

**Forest management plan (or equivalent)\*\*** :A written scheme of forest management, aiming at defined management goals, which is periodically revised. These include:

*forest management plans*

Information (in the form of text, maps, tables, and graphs) collected during (periodic) forest inventories at operational forest units level (stands, compartments), and operations planned for individual stands or compartments to reach the management goals.

*equivalents*

Information collected on forest area, at forest management or aggregated forest management unit level (forest blocks, farms, enterprises, watersheds, municipalities, or wider units), and strategies/management activities planned to reach the management or development goals.

**Forest type\*\*\*** : classification of forest land based on the species forming a plurality of live tree stocking. The associated species for each forest type are based on net volume of growing stock and all live biomass by species group.

**Fragmentation\*\*** : Describes one aspect of habitat capacity. Refers generally to the reduction in size of forest patches with coincident decreases in forest connectivity and increases in patch isolation and amount of forest edge. The fragmentation of a forest into small pieces may disrupt ecological processes and reduce the availability of habitat.

**GAP Status\*** : USGS Wisconsin GAP Analysis Program. *GAP Land Protection Status:*

Gap 1. An area having permanent protection from conversion of natural land cover and a mandated management plan in operation to maintain a natural state within which disturbance events (of natural type, frequency, intensity, and legacy) are allowed to proceed without interference, or are mimicked through management. Examples: National Parks, State Natural Areas, National Forest areas withdrawn from timber production, Wild Rivers, Nature Conservancy owned lands, National Wildlife Refuges away from the Mississippi River.

Gap 2. An area having permanent protection from conversion of natural land cover and a mandated management plan in operation to maintain a primarily natural state, but which may receive uses or management practices that degrade the quality of existing natural communities, including suppression of natural disturbance. Examples: State Parks, State Trails, National Wildlife Refuges and associated easements along the Mississippi River, National Park Service Scenic Easements, US Army Corps of Engineers Wildlife Management Areas, State-managed Fisheries Areas, State-managed Wildlife Management Areas, and Nature Conservancy conservation easements,

Gap 3. An area having permanent protection from conversion of natural land cover for the majority of the area, but subject to extractive uses of either a broad, low-intensity type (e.g., logging) or localized, intense type (e.g., mining). It also confers protection to federally listed endangered and threatened species throughout the area. Examples: National Forests, State Forests, County Forests, military reservations, state and federal right-of-way and scenic easements, US Army Corps of Engineers recreation areas, National Wildlife Refuge recreation areas, DNR tree nurseries, state and federal fish hatcheries,

Gap 4. There are no known public or private institutional mandates or legally recognized easements or deed restrictions held by the managing entity to prevent conversion of natural habitat types to anthropogenic habitat types. The area generally allows conversion to unnatural land cover throughout. Examples: Native American Lands, state-owned tower sites, ranger stations, right-of-way easements on private property, US Army Corps of Engineers easements, National Wildlife Refuge operations areas, DNR headquarters, statewide non-point easement program lands, and state-owned gift lands.

**Genetic diversity\*\***: Describes the variation of genetic characteristics found within a species and among different species.

**Goods and services\*\***: The various outputs and benefits, including on-site uses, produced from forest and rangeland resources.

**Gross domestic product (GDP)\*\***: A measure of country output composed of the market value of the goods and services produced by labor and property located in the country. Because the labor and property are located in the country, the suppliers (that is workers and, for property, the owners) may be either country residents or residents of the rest of the world. Gross product, or gross product originating (GPO), by industry is the contribution of each private industry and of government to the nation's output, or gross domestic product (GDP). An industry's GPO, often referred to as its "value added," is equal to its gross output (sales or receipts and other operating income, commodity taxes, and inventory change) minus its intermediate inputs (consumption of goods and services purchased from other industries or imported). The industrial origin of value added is determined by the International Standard Industrial Classification (ISIC), rev. 2.

**Gross growth\*\*\***: Net growth plus volume losses due to mortality.

**Growing stock tree\*\*\***: A live tree of commercial species that meets specified standards of size, quality, and merchantability. Excludes rough, rotten, and dead trees.

**Growing stock volume\*\*\***: Net volume in cubic feet of growing stock trees 5.0 inches d.b.h. and over, from 1 foot above the ground to a minimum 4.0-inch top diameter outside bark of the central stem or to the point where the central stem breaks into limbs.

**Habitat\***: Those parts of the environment (aquatic, terrestrial, and atmospheric) often typified by a dominant plant form or physical characteristic, on which an organism depends, directly or indirectly, in order to carry out its life processes. (2) The specific environmental conditions in which organisms thrive in the wild.

**High Conservation Value Forests (HCVF)\***: High Conservation Value Forests possess one or more of the following attributes:

1. Forest areas containing globally, regionally or nationally significant concentrations of biodiversity values (e.g., endemism, endangered species, refugia).
2. Forest areas containing globally, regionally or nationally significant large landscape level forests, contained within, or containing the management unit, where viable populations of most if not all naturally occurring species exist in natural patterns of distribution and abundance.
3. Forest areas that are in or contain rare, threatened or endangered ecosystems.
4. Forest areas that provide basic services of nature in critical situations (e.g., watershed protection, erosion control)
5. Forest areas fundamental to meeting basic needs of local communities (e.g., subsistence, health).
6. Forest areas critical to local communities' traditional cultural identity (areas of cultural, ecological, economic or religious significance identified in cooperation with such local communities). (Note: this is the FSC definition of HCVF)

**Historic conditions** \* : Ecological conditions and processes existing prior to substantial modern human disturbance of the site, based on best available science.

**Indirect employment** \*\*: The result of two types of economic transaction. First, jobs are created in secondary firms that provide materials, supplies, goods, and services to the primary firm. Second, employees of primary firms spend their wages and salaries in the local economy, which generates activities in the local retail and service sectors.

**Invasive species** \* : A species capable of rapid reproduction and spatial expansion, which may displace more specialized native species and/or is difficult to eradicate. Invasive species are of particular ecological concern if they are exotic to the area in question.

**IUCN classification system** \*\*: The World Conservation Union (formerly the International Union of Conservation Networks) protected area classifications (IUCN categories) are:

**Category I:** an area of land and/or sea possessing some outstanding or representative ecosystems, geological or physiological features and/or species, available primarily for scientific research and/or environmental monitoring or a large area of unmodified or slightly modified land, and/or sea, retaining its natural character and influence, without permanent or significant habitation, which is protected and managed so as to preserve its natural condition.

**Category II:** a natural area of land and/or sea, designated to (a) protect the ecological integrity of one or more ecosystems for present and future generations, (b) exclude exploitation or occupation inimical to the purposes of designation of the area, and (c) provide a foundation for spiritual, educational, recreational, and visitor opportunities, all of which must be environmentally and culturally comparable.

**Category III:** an area of land and/or sea containing one or more specific natural or natural/cultural features which are of outstanding or unique value because of their inherent rarity, representative or esthetic qualities, or cultural significance.

**Category IV:** an area of land and/or sea subject to active intervention for management purposes so as to ensure the maintenance of habitats and/or to meet the requirements of specific species.

**Category V:** an area of land with coast and sea as appropriate, where the interaction of people and nature over time has produced an area of distinct character with significant aesthetic, ecological, and/or cultural value, and often with high biological diversity. Safeguarding the integrity of this traditional interaction is vital to the protection, maintenance, and evolution of such an area.

**Category VI:** an area of land and/or sea containing predominantly unmodified natural systems, managed to ensure longterm protection and maintenance of biological diversity, while providing at the same time a sustainable flow of natural products and services to meet community needs.

**Merchantable\*\*:** Trees of a size, quality, and condition suitable for marketing under given economic conditions, even if so situated as to not be immediately accessible for utilization.

**Monitoring\*\*:** The periodic and systematic measurement and assessment of change of an indicator.

**Late successional\*:** Forest in old-growth or mature seral stages.

**Native species\*:** Species that naturally occur within the forest community type; endemic to the area.

**Natural disturbance regime\*:** Disturbance processes such as wind, fire, insects, and pathogens that are characteristic of the forest ecosystem, site, and region. Disturbance regimes are typically characterized by the range of extent, intensity, and return interval of a similar event expected for a given site.

**Natural Forest\*:** Natural forests include old growth and primary forests as well as managed forests where most of the principal characteristics and key elements of native ecosystems such as complexity, structure, wildlife and biological diversity are present.

**Non-consumptive forest use\*\*:** Forest uses that do not lead to the physical extraction of products from the forests. They might include recreation, photography, birdwatching, education, and contemplation or meditation.

**Non-market valuation\*\*:** Valuation of goods and services not allocated through traditional markets.

**Non-merchantable\*\*:** A species that has no known commercial uses for wood products. Merchantability is usually judged according to the suitability of a species for pulp, paper, lumber, or specialty wood products. Both native and exotic tree species can be considered merchantable tree species.

**Non-timber forest products (NTFP)\*:** All forest products except timber, including other materials obtained from trees such as resins and leaves, as well as any other plant and animal products.

**Parcelization:** Parcelization is the subdivision of a single forest ownership into two or more ownerships. Land that is parcelized is more susceptible to fragmentation and can be a barrier to conservation of biodiversity.

**Persistent toxic substance\*\*** : A relatively non-degrading pollutant that after discharge becomes a long-term component of soils, aquatic systems, and other materials. Upon exposure, ingestion, inhalation, or assimilation into any organism, the substance can cause death or disease, mutations, deformities, or malfunctions in such organisms or their offspring.

**Population\*\*** :

1. The number of organisms of the same species inhabiting the same area that potentially interbreed and share a common gene pool.
2. The total number of organisms over a large cluster of areas, such as a physiographic region or a nation.

**Productive capacity\*\*** :A classification of forest land in terms of potential annual cubic-measured volume growth of trees per unit area at culmination of mean annual increment in fully stocked forest stands.

**Protected area\*\*** : A geographically defined area that is designated or regulated and managed to achieve specific conservation objectives. Specific objectives include:

1. Strict nature reserves/wilderness areas
2. National parks
3. Natural monuments
4. Habitat/species management areas
5. Protected landscape/seascape
6. Managed resource areas

**Public forest\*** : Forestland held in government ownership in trust for the citizens of a city, county, state, or nation.

**Rare, threatened and endangered species (RTE)\*** : see DNR definition on Bureau of ER website: <http://dnr.wi.gov/org/land/er/wlist/>

**Regeneration Harvest\*** : Any removal of trees intended to assist regeneration already present or to make regeneration possible.

**Relative density\*\*\*** : by species is calculated by counting the total number of trees in the polygon and dividing by the number of trees of each species.

**Relative dominance\*\*\*** : by species is calculated by totalling the basal area of all trees in the polygon and dividing by the basal area of each species.

**Relative importance\*\*\*** : value is the average of relative dominance and relative density.

**Roundwood products\*\*\*** : Logs, bolts, or other round sections (including chips from roundwood) cut from trees for industrial or consumer uses. (Note: includes saw logs, veneer logs, and bolts; cooperage logs and bolts; pulpwood; fuelwood; pilings; poles; posts; hewn ties; mine timbers; and various other round, spilt, or hewn products.)

**Representative species\*\*** : Species with habitat dependencies typical of a group of similar species, which are likely to respond to changes in availability of those habitats or resources. Examples include species dependent on mature forests, air quality sensitive species, wetland-

dependent species, hollow tree-dependent species, and thermoregulation-dependent species. Selected species are relatively easy to identify and monitor.

**Resilience\*\*** : The capacity of a system, community or society potentially exposed to hazards to adapt, by resisting or changing in order to reach and maintain an acceptable level of functioning and structure.

**Restore (Restoration)\*** : The process of modifying a habitat or ecosystem to introduce or reintroduce composition, structures, and functions that are native to the site.

**Riparian zone\*** : A zone of interaction between aquatic and terrestrial ecosystems along streams, lakes, wetlands, and other water bodies. Riparian areas both influence water bodies and are influenced by them, and include both plant and wildlife habitats that are influenced by the proximity to aquatic ecosystems.

**Rutting**: The creation of depressions made by tires and treads of mechanical equipment such as trucks, skidders, tractors, all-terrain vehicles (ATV), and other equipment. Rutting may occur in the general harvest area and on facilities such as roads and skid trails. Ruts may result from harvest operations or other uses such recreational ATV use.

**Sedimentation\*\*** : The deposition of eroded soil materials suspended in the water of creeks, lakes, or when water velocity falls below a point at which suspended particles can be carried.

**Silviculture (Silvicultural)\*** : The art of producing and tending a forest by manipulating its establishment, composition and growth to best fulfill the objectives of the owner. This may, or may not, include timber production.

**Snag\*** : A standing dead tree.

**Soil degradation\*\*** : Negative process often accelerated by human activities (improper soil use and cultivation practices, building areas) that leads to deterioration of soil properties and functions or destruction of soil as a whole, e.g. compaction, erosion, salinisation, acidification.

**Species\*** : The main category of taxonomic classification into which genera are subdivided, comprising a group of similar interbreeding individuals sharing a common morphology, physiology, and reproductive process.

**Species at risk\*\*** : Federally listed endangered, threatened, candidate, and proposed species and other species for which loss of viability, including reduction in distribution or abundance, is a concern.

**Species diversity\*\*** : Describes the number and variety of species (flora and fauna) in a given area.

**Species richness**: to be added

**Species evenness**: to be added

**Stand\*** : Plant communities, particularly of trees, sufficiently uniform in composition, constitution, age, spatial arrangement, or condition to be distinguished from adjacent communities; also, may delineate a silvicultural or management entity.

**Stocking\*\*\*** : The degree of occupancy of land by live trees, measured by basal area and/or the number of trees in a stand by size or age and spacing, compared to the basal area and/or number of trees required to fully utilize the growth potential of the land;

**Stream flow\*\*** : The quantity of water in a watershed based on precipitation quantity and the ability of the watershed to store and slowly release water. Typically characterized by seasonal periods of high or low water flow. Changes in high or low flow patterns are indicative of changes in precipitation patterns and/or changes in the integrity of watersheds that affect its ability to absorb and regulate water flow patterns.

**Stream timing\*\*** : The seasonal patterns of high and low water flows based on precipitation patterns. Changes in timing of stream flows are indicative of changes in precipitation patterns or watershed integrity.

**Structural diversity\*** : The diversity in a plant community that results from the variety of physical forms of the plants within the community (such as the layering of vegetation into groundcover, shrub layer, as well as understory, mid-story, and overstory trees).

**Subsistence\*\*** : The harvesting or growing of products directly for personal or family livelihood. Subsistence needs generally include foodstuffs, fuel wood, clothing, and shelter. Subsistence goods can be considered any goods that are substitutes for a market good.

**Succession\*** : Progressive changes in species composition and forest community structures caused by natural processes (non-human) over time.

**Sustainable forest management\*\*** : The stewardship and use of forests and forest lands in such a way, and at a rate, that maintains their biodiversity, productivity, regeneration capacity, and vitality, and their potential to fulfill, now and in the future, relevant ecological, economic, and social functions at local, national, and global levels, and that does not cause damage to other ecosystems.

**Threatened species\*\*** : Plant or animal species likely to become endangered throughout all or a significant portion of their range within the foreseeable future.

**Timber Mart North\*\*\*** : Reported prices resulting from a survey of timber buyers, sellers, and their agents. Survey participants are asked to report on typical prices in the region during the specified period, to eliminate the variation that can result simply because of a limited number of observations. Published semi-annually by George Banzhaf & Company

**Total Value of Shipments:** Includes the received or receivable net selling values, “Free on Board” (FOB) plant (exclusive of freight and taxes), of all products shipped, both primary and secondary, as well as all miscellaneous receipts, such as receipts for contract work performed for others, installation and repair, sales of scrap, and sales of products bought and sold without further processing. Included are all items made by or for the establishments from material owned by it, whether sold, transferred to other plants of the same company, or shipped on consignment. The net selling value of products made in one plant on a contract basis from materials owned by another is reported by the plant providing the materials.

In the case of multiunit companies, the manufacturer is requested to report the value of products transferred to other establishments of the same company at full economic or commercial value, including not only the direct cost of production but also a reasonable proportion of “all other costs” (including company overhead) and profit.

In addition to the value for North American Industry Classification System (NAICS) defined products, aggregates of the following categories of miscellaneous receipts are reported as part of a total establishment's value of product shipments:

1. reported contract work — receipts for work or services that a plant performed for others on their materials;
2. value of resales — sales of products bought and sold without further manufacture, processing, or assembly; and
3. other miscellaneous receipts — includes repair work, installation, sales of scrap, etc.

Industry primary product value of shipments represents one of three components of value of shipments. These components are:

1. primary product value of shipments;
2. secondary product value of shipments; and
3. total miscellaneous receipts.

Primary product shipments is used in the calculations of industry specialization ratio and industry coverage ratio.

#### *Duplication in cost of materials and value of shipments*

The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication, since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to the paper manufacturing group of industries.

Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the annual survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry. Before 1962, cost of materials and value of shipments were not published for some industries that included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

#### *Specialization and coverage ratio*

An establishment is classified in a particular industry, if its shipments of primary products of that industry exceed in value its shipments of the products of any other single industry.

An establishment's shipments include those products assigned to an industry (primary products), those considered primary to other industries (secondary products), and receipts for miscellaneous activities (merchandising, contract work, resales, etc.).

Specialization and coverage ratio have been developed to measure the relationship of primary product shipments to the data on shipments for a particular industry.

Specialization ratio represents the ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for the establishments classified in the industry.

Coverage ratio represents the ratio of primary products shipped by the establishments classified in the industry to the total shipments of such products that are shipped by all manufacturing establishments wherever classified.

**Two-aged silviculture** \* : A silvicultural system in which stands are produced or maintained with two age classes of trees in which the range of each age class is usually  $\pm 20\%$  of the rotation. Examples of two aged management include irregular shelterwood systems, shelterwood with reserves, deferment cutting, and variable retention harvests. See also even-aged management.

**Use rights (also: rights of use)** \* : Rights for the use of forest resources that can be defined by local custom, mutual agreements, or prescribed by other entities holding access rights. These rights may restrict the use of particular resources to specific levels of consumption or particular harvesting techniques.

**Value added**: This measure of manufacturing activity is derived by subtracting the cost of materials, supplies, containers, fuel, purchased electricity, and contract work from the value of shipments (products manufactured plus receipts for services rendered). The result of this calculation is adjusted by the addition of value added by merchandising operations (i.e., the difference between the sales value and the cost of merchandise sold without further manufacture, processing, or assembly) plus the net change in finished goods and work-in-process between the beginning- and end-of-year inventories.

For those industries where value of production is collected instead of value of shipments, value added is adjusted only for the change in work-in-process inventories between the beginning and end of year. For those industries where value of work done is collected, the value added does not include an adjustment for the change in finished goods or work-in-process inventories.

“Value added” avoids the duplication in the figure for value of shipments that results from the use of products of some establishments as materials by others. Value added is considered to be the best value measure available for comparing the relative economic importance of manufacturing among industries and geographic areas.

**Water quality** \* : Timing and volume of water flow and the purity of water determined by a series of standard physio-chemical parameters (e.g. turbidity, temperature, bacterial count, pH, and dissolved oxygen), or by biological parameters (e.g. community composition and functionality), as well as the incidence of disease.

**Weighted average stumpage prices** \*\*\* : calculated as the total value (volume multiplied by unit value) for each timber species and product combination of each timber sale in a given calendar year divided by the total volume. The timber sale data analyzed was from both private land and public land timber sales conducted throughout the state.

**Wetland** \* : Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence

of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs and similar areas (US EPA).

**Wood consumption\*\*** : The amount of roundwood provided from domestic sources and other countries needed to make wood and paper products for domestic consumption.

**Wood products\*\*** : Logs, bolts, and other round timber generated from harvesting trees for industrial or consumer use. Includes wood chips generated from round timber for industrial use.

**Wood supply\*\*** : The amount of roundwood provided from domestic sources to meet domestic consumption needs.

**Woody debris\*** : All woody material, from whatever source, that is dead and lying on the forest floor.

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