Forest Inventory and Analysis Glossary

Glossary type: Standard Terminology

Document purpose:

This glossary includes standard terminology for Forest Inventory and Analysis (FIA).

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A

Adjustment factor

A factor that is used to adjust area due to nonsampled (nonresponse) conditions on partially sampled plots for reasons such as denied access or inaccessible. Adjustment factors are calculated and stored in the FIA databases. There is a separate adjustment factor for each fixed plot size: microplot, subplot, and macroplot. Each time/year the data are stratified differently, the adjustments factors may change.

Annual inventory (also annual sample design)

The current sampling strategy implemented by FIA. A fraction of all forested plots within a State are measured each year. A full annual inventory cycle is complete when all plots have been measured.

Average annual mortality

The average annual volume of trees 5.0 inches d.b.h./d.r.c. and larger that died from natural causes.

Average annual mortality of growing stock

The average cubic-foot volume of sound wood in growing-stock trees that died in one year.

Average annual mortality of sawtimber

The average board-foot volume of sound wood in sawtimber trees that died in one year.

Average annual net growth
Average annual net change in volume of trees 5.0 inches d.b.h./d.r.c. and larger in the absence of cutting (average annual gross growth minus average annual mortality).

Average annual net growth of growing stock
The annual change in cubic-foot volume of sound wood in live sawtimber and poletimber trees, and the total volume of trees entering these classes through ingrowth, less volume losses resulting from natural causes.

Average annual net growth of sawtimber
The annual change in the board-foot volume of live sawtimber trees, and the total volume of trees reaching sawtimber size, less volume losses resulting from natural causes.

Average annual removals from growing stock
The average net growing-stock volume in growing-stock trees removed annually for roundwood forest products, in addition to the volume of logging residues and the volume of other removals.

Average annual removals from sawtimber
The average net board-foot volume of live sawtimber trees removed annually for roundwood forest products, in addition to the volume of logging residues and the volume of other removals.

B

Basal area (BA)
The cross-sectional area of a tree stem/bole (trunk) at the point where diameter is measured, inclusive of bark. BA is calculated for trees 1.0 inch and larger in diameter and is expressed in square feet. For timber species, the calculation is based on diameter at breast height (d.b.h.); for woodland species, it is based on diameter at root collar (d.r.c.). When the basal areas of all trees in a stand are summed, the result is usually expressed as square feet of basal area per acre.

Basic estimate
A single attribute that is used as a numerator with no denominator, which means that it is a stand-alone value that is not divided by another value.

Bioindicator species
A tree, woody shrub, or nonwoody herb species that responds to ambient levels of ozone pollution with distinct visible foliar symptoms that are easy to diagnose.

Biomass
The quantity of wood fiber, for trees 1.0 inch d.b.h./d.r.c. and larger, expressed in terms of green or oven-dry weight. It includes above-ground portions of trees: bole/stem (trunk), bark, and branches. Foliage is excluded. Biomass estimates can be computed for live and/or dead trees.

Board-foot volume
A unit of measure indicating the amount of wood contained in an unfinished board 1.0 foot wide, 1.0 foot long, and 1.0 inch thick. Board-foot volume is computed for the sawlog portion of a sawtimber-size tree; the sawlog portion includes the part of the bole on sawtimber-size tree from a 1-foot stump to a minimum sawlog top of 7.0 inches diameter outside bark (d.o.b.) for softwoods, or 9.0 inches d.o.b. for hardwoods. Net board-foot volume is calculated as the gross board-foot volume in the sawlog portion of a sawtimber-size tree, less deductions for cull. Board-foot cull deductions include rotten/missing material and form defect. Board-foot volume estimates and can be calculated for live and/or dead (standing or down) trees. All FIA work units compute board-foot estimates using the International ¼-inch Rule. Some FIA work units (RMRS and PNWRS) also compute board-foot volume estimates using Scribner Rule.

Bole
Trunk or main stem of a tree.

Bolt
See "Logging residue/products."

Boundary (condition class)
The border between two distinctly different condition classes.

Boundary (population)
The border of a population or subpopulation.

Bulk density
The mass of soil per unit volume. A measure of the ratio of pore space to solid materials in a given soil. Expressed in units of grams per cubic centimeter of oven dry soil.

C

Canopy cover
The percentage of the ground surface area covered by a vertical projection of plant crowns. Tree canopy cover for a sample site includes the combined cover of timber and woodland trees 1.0 inch d.b.h./d.r.c. and larger. Maximum canopy cover for a site is 100 percent; overlapping cover is not double counted.

Census water
Streams, sloughs, estuaries, canals, and other moving bodies of water 200 feet wide and greater, and lakes, reservoirs, ponds, and other permanent bodies of water 4.5 acres in area and greater.

Coarse residue
See "Logging residue/products."

Coarse woody debris
Down pieces of wood leaning more than 45 degrees from vertical with a diameter of at least 3.0 inches and a length of at least 3.0 feet.

Commercial species
Tree species suitable for industrial wood products.

Compacted live crown ratio
The percent of the total length of the tree which supports a full, live crown. For trees that have uneven length crowns, the percent is based on ocularly transferring lower branches to fill holes in the upper portions of the crown, until a full, even crown is created.

Components of change
The different subdivisions of the changes that can occur to attributes based on tree measurements (e.g., volume, biomass) between measurements, such as growth, mortality, and removals.

Condition class
The combination of discrete landscape and forest attributers that identify, define, and stratify the area associated with a plot. Such attributes include reserved status, owner group, forest type, stand-size class, stand origin, and tree density.

Core optional variable
An optional variable that can be collected at the discretion of a FIA work unit. If collected, it must conform to a national protocol, predefined definition, and set of codes. Many variables, regardless of whether or not they are *core* or *core optional*, are only populated for forested conditions and are blank (null) for other conditions (such as nonforest or water).

Core variable
A variable that must be collected by every FIA work unit using a national protocol, predefined definition, and set of codes. Many variables, regardless of whether or not they are *core* or *core optional*, are only populated for forested conditions and are blank (null) for other conditions (such as nonforest or water).

County and municipal
An ownership class of public lands owned by counties or local public agencies, or lands leased by these governmental units for more than 50 years.

Crown
The part of a tree or woody plant bearing live branches or foliage.

Crown cover
See "Canopy cover."

Crown dieback
This is recent mortality of branches with fine twigs, which begins at the terminal portion of a branch and proceeds toward the trunk. Dieback is considered only when it occurs in the upper and outer portions of the tree. When whole branches are dead in the upper crown, without obvious signs of damage such as breaks or animal injury, it is assumed that the branches died from the terminal portion of the branch. Dead branches in the lower portion of the live crown are assumed to have died from competition and shading. Dead branches in the lower live crown are not considered as part of crown dieback, unless there is continuous dieback from the upper and outer crown down to those branches.

Cubic-foot volume (merchantable)

A unit of measure indicating the amount of wood contained in a cube 1 by 1 by 1 foot. Cubic-foot volume is computed for the merchantable portion of timber and woodland species; the merchantable portion for timber species includes that part of a bole from a 1-foot stump to a minimum 4.0-inch top d.o.b., or above the place(s) of diameter measurement for any woodland tree with a single 5.0-inch stem or larger or a cumulative (calculated) d.r.c. of at least 5.0 inches to the 1.5-inch ends of all branches. **Net cubic-foot volume** is calculated as the gross cubic-foot volume in the merchantable portion of a tree, less deductions for cull.

Cull

Portions of a tree that are unusable for industrial wood products because of rot, form, or other defect.

Cull tree

Live trees that are unsuitable for the production of some roundwood products, now or prospectively. Cull trees can include those with decay (rotten cull) or poor form, limbiness, or splits (rough cull). Rough cull is suitable for pulpwood and other fiber products.

Cycle number

A number assigned to a set of plots, measured over a particular period of time from which a State estimate using all possible plots is obtained. A cycle number >1 does not necessarily mean that information for previous cycles resides in the database. A cycle is relevant for periodic and annual inventories.

Cycle length

The period of time required to measure a complete set of panels (synonymous with measurement cycle). See "Panel" for further details.

D

DataMart

An online tool for downloading data from a national FIA database that is accessible to the public.

DATIM

The Design and Analysis Toolkit for Inventory and Monitoring (DATIM) is a suite of software tools used for designing inventory and monitoring programs and analyzing the results of those programs. DATIM has the following modules:

- Analysis Tool for Inventory and Monitoring (ATIM) — This tool enables users to analyze vegetation data to derive estimates of current conditions and trends of forests and surrounding landscapes. ATIM can create statistically defensible analyses and reports, which can be based on the monitoring questions posed in DTIM.
- Design Tool for Inventory and Monitoring (DTIM) — This tool assists managers of national forests and grasslands and other users in determining objectives, questions, and metrics for monitoring plans.

- Spatial Intersection Tool (SIT) — This tool is used to perform spatial intersections between plot-based data and user-selected geospatial layers. The results of those intersections are stored in DATIM for analysis in ATIM.

Decay class (for CWD)

Qualitative assessment of stage of decay (5 classes) of coarse woody debris (CWD) based on visual assessments of color of wood, presence/absence of twigs and branches, texture of rotten portions, and structural integrity.

Diameter at breast height (d.b.h.)

The diameter of a tree bole/stem (trunk) measured at breast height (4.5 feet [1.37 m] above ground), measured outside the bark. The point of diameter measurement may vary for abnormally formed trees.

Diameter at root collar (d.r.c.)

The diameter of a tree stem(s) measured at root collar or at the point nearest the ground line (whichever is higher) that represents the basal area of the tree, measured outside the bark. For multi-stemmed trees, d.r.c. is calculated from an equation that incorporates the individual stem diameter measurements. The point of diameter measurement may vary for woodland trees with stems that are abnormally formed. With the exception of seedlings, woodland stems qualifying for measurement must be at least 1.0 inch in diameter or larger and at least 1.0 foot in length.

Diameter class

A grouping of tree diameters (d.b.h. or d.r.c.) into classes of a specified range. Diameter classes are commonly in 2-inch (5 cm) increments, beginning with 2 inches (5 cm). Each class provides a range of values with the class name being the approximate mid-point. For example, the 6-inch class (15-cm class) includes trees 5.0 through 6.9 inches (12.7 cm through 17.5 cm) in diameter, inclusive.

Diameter outside bark (d.o.b.)

Tree diameter measurement inclusive of the outside perimeter of the tree bark. The d.o.b. measurement may be taken at various points on a tree (e.g., breast height, tree top) or log, and it is sometimes estimated.

Domain

A subgroup of the population for which an estimate is made for some attribute of interest. Domains can be geographic (e.g., a particular county), or they can be defined by the properties of a particular population entity (e.g., live trees at least 5 inches in diameter). Domains frequently cut across strata (when stratified estimation is employed).

- Domain filters — Expressions that control which population entities (such as trees) contribute a non-zero value to an estimate, and which are excluded. For example, the population estimate can be limited to only include the "number of growing-stock trees (at least 5 inches d.b.h.) on forest land."

- Domain partitions — Parameters that can be used to divide estimates into smaller parts, but they do not exclude any records from the estimate. For example, the population estimate can be partitioned by parameters such as tree species codes, forest type groups, or ownership categories.

Down woody material (DWM)
Dead material on the ground in various stages of decay. It includes coarse and fine wood material. Down woody material (DWM) was previous named down woody debris (DWD). The depth of duff layer, litter layer, and overall fuelbed; fuel loading on the microplot; and residue piles are also measured as part of the DWM indicator for FIA.

Duff
A soil layer dominated by organic material derived from the decomposition of plant and animal litter and deposited on either an organic or a mineral surface. This layer is distinguished from the litter layer in that the original organic material has undergone sufficient decomposition that the source of this material (e.g., individual plant parts) can no longer be identified.

E

Effective cation exchange capacity (ECEC)
The sum of cations that a soil can adsorb in its natural pH. Expressed in units of centimoles of positive charge per kilogram of soil.

Estimate
A statistic used to describe the population as a whole, based on sampled plots, and developed by a prescribed estimation process.

Estimation
The process of measuring samples and using them to infer the attributes of a population.

Estimation unit
A distinct subpopulation within a given population of interest that has a known area. For each evaluation, the target population may have one estimation unit or multiple non-overlapping estimation units. The sum of the area of all estimation units equals the area of the population. Estimation units are defined as part of the stratification of a population. Each estimation unit is divided into one or many mutually exclusive strata (such as land cover class).

Estimation units are declared for two main reasons. First, it is a subpopulation for which an independent estimate is desired, such as a particular park within a larger population. Second, estimation units are defined whenever there is a difference in sampling intensity between subpopulations. This constrains the difference in precision due to differing sampling intensities to the appropriate subpopulations. Estimates of the population are made by summing the totals and the variances of the totals for each estimation unit using the assumption that each estimation unit is independent.

EVALID
A unique identifier that represents the population used to produce a type of estimate.

For the traditional FIADB, the EVALID is typically composed of a concatenation of a State code (2 digits), reporting year (last 2 digits), and a numeric code indicating the evaluation type (2 digits). For example, EVALID = 301901 represents the Montana 2019 evaluation for current area and condition-level estimates.

For the urban FIADB, the EVALID is a short and descriptive name given to an evaluation that functions as a unique identifier (e.g., Houston2017All, Houston2017Curr). This name is an alpha-numeric identifier that typically follows a pattern of Population-Reporting year-Evaluation type.

EVALIDator
An online, publicly accessible FIA data retrieval tool that can be used to produce estimates.

Evaluation
The unique combination of a statistical sample, a target population, and a stratification for the purpose of producing estimates of a certain set of population attributes at a given point in time. The particular population attributes targeted by a given evaluation are a function of the statistical sample. Evaluations are a standard convention used by FIA to package data required to produce such estimates. Evaluations are the primary entity users will engage with during population estimation.

Expansion factor
See "Tree expansion factor."

F

Federal land
An ownership class of public lands owned by the U.S. Government.

FIA work unit (regional unit)
Any one of four regionally distributed work units of the national FIA program that are coordinated by a National Office in Washington, DC. The four FIA work units are named by the research station in which they reside and are defined as Northern Research Station (NRS), Pacific Northwest Research Station (PNWRS), Rocky Mountain Research Station (RMRS), and Southern Research Station (SRS). NRS was formed from the merger of North Central Research Station (NCRS) and Northeastern Research Station (NERS); some data items still retain these designations. Each FIA work unit is assigned a specific management area and has its own internal set of customers and partners who collaborate in program implementation.

FIADB
An acronym for the Forest Inventory and Analysis Database. The FIADB is a national FIA database, within which data are made publicly available and also used for producing tables and reports. The data contained within the FIADB are for the traditional FIA inventory. A separate FIA database, the Urban FIADB, is for the urban FIA inventory.

Fiber products
Products derived from wood and bark residues, such as pulp, composition board products, and wood chips for export.

Field plot/field location
A reference to the sample site or plot; an area containing the field location center and all sample points. A plot may sample more than one condition. When multiple conditions are encountered, condition boundaries are delineated (mapped).

The FIA P2 (Phase 2) annual inventory plot design consists of four 24-foot fixed-radius subplots for trees ≥5 inches d.b.h./d.r.c., and four 6.8-foot fixed-radius microplots for seedlings and trees ≥1 and <5 inches d.b.h./d.r.c. Four 58.9-foot fixed-radius macroplots are optional.

The FIA urban inventory plot design consists of one 48-foot fixed-radius subplot for trees ≥5 inches d.b.h./d.r.c., and four 6.8-foot fixed-radius microplots for seedlings and trees ≥1 and <5 inches d.b.h./d.r.c.

Filter

An expression that controls which population entities (such as trees) contribute a non-zero value to an estimate and which are excluded. Filters are frequently applied in support of a particular domain for which the user requires an independent estimate. Filters can take one of two forms. The first form, referred to as a domain indicator function, can exist as part of the calculation expression, which applies the filter logic and decodes some entities as zero and allows others to contribute a non-zero value to a calculation. The second form, referred to as a filter predicate, is a constraint included in the WHERE clause of the SQL statement used to fetch the record set used for estimation. In this case, records not meeting the filter requirements are simply excluded from the record set. For example, a filter can be used to constrain a population estimate to only using trees that were alive at the time of measurement (live tree domain).

Fine materials

Wood residues not suitable for chipping, such as planer shavings and sawdust.

Fine residue

See "Logging residue/products."

Fine woody debris (FWD)

Downed, dead branches, twigs, and small tree or shrub boles <3 inches (7.4 cm) in diameter not attached to a living or standing dead source.

Fixed-radius plot

A circular sample plot of a specified horizontal radius: 1/300 acre = 6.8-foot radius; 1/24 acre = 24.0-foot radius; 1/4 acre = 58.9-foot radius.

Foreign key

A column or group of columns in a relational database table that provides a link between data in two tables. It acts as a cross-reference between tables because it references the primary key of another table, thereby establishing a link between them.

Forest industry land

An ownership class of private lands owned by a company or individual(s) operating a primary wood-processing (wood-using) plants.

Forest land

Land that has at least 10 percent canopy cover of live tally tree species of any size, or land formerly having such tree cover, and not currently developed for a nonforest use. The minimum area for classification as forest land is 1 acre (0.4 ha). Roadside, streamside, and shelterbelt strips of trees must be at least 120 feet (36.6 m) wide to qualify as forest land. Unimproved roads and trails, streams and other bodies of water, or natural clearings in forested areas are classified as forest if less than 120 feet in width or 1 acre in size. Grazed woodlands, reverting

fields, and pastures that are not actively maintained are included if the above qualifications are satisfied.

Forest type
A classification of forest land based upon and named for the tree species that forms the plurality of live-tree stocking. A forest-type classification for a field location indicates the predominant live-tree species cover for the field location; hardwoods and softwoods are first grouped to determine predominant group, and forest type is selected from the predominant group.

Forest type group
A combination of forest types that share closely associated species or site requirements.

Fuzzing
One of the methods used to preserve confidentiality of exact plot locations. Plot coordinates, when published, are randomly moved up to a half-mile from the actual location. Fuzzing is sometimes combined with another method that is referred to as "swapping." See "Swapping."

G

Gross growth
The annual increase in volume of trees 5.0 inches d.b.h. and larger in absence of cutting and mortality. Gross growth includes survivor growth, ingrowth, growth on ingrowth, growth on removals before removal, and growth on mortality prior to death.

Grouping parameter (page, row, column)
A classification parameter for which a population estimate is made for some attribute of interest. Grouping parameters can be used as row, column, and/or page parameters in output tables (e.g., saw timber stands on publicly owned timberland). Grouping parameters may be categorical (e.g., forest type, ownership group) or continuous (e.g., diameter class, where diameters are separated into 2-inch diameter classes).

Growing-stock tree
All live trees of commercial species that meet minimum merchantability standards. In general, these trees have at least one solid 8-foot section, are reasonably free of form defect on the merchantable bole, and at least 34 percent or more of the volume is merchantable. For the California, Oregon, Washington, and Alaska inventories, a 26 percent or more merchantable volume standard is applied, rather than 34 percent or more. Excludes rough or rotten cull trees.

Growing-stock volume
The cubic-foot volume of sound wood in growing-stock trees at least 5.0 inches d.b.h. from a 1.0-foot stump to a minimum 4.0-inch top d.o.b. to the central stem.

H

Hardwood trees
Tree species belonging to the botanical subdivision Angiospermae, class Dicotyledonous, usually broad-leaved and deciduous.

I

Industrial wood
See "Logging residue/products."

Inventory year
The year in which a plot was scheduled to be completed. Inventory year may differ from measurement year.

J

K

L

Land
The area of dry land and land temporarily or partly covered by water, such as marshes, swamps, and river flood plains.

Land cover
The dominant vegetation or other kind of material that covers the land surface. A given land cover may have many land uses.

Land use
The classification of a land condition by use or type.

Litter
The uppermost layer of organic debris on a forest floor; that is, essentially the freshly fallen, or only slightly decomposed material, mainly foliage, but also bark fragments, twigs, flowers, fruits, and so forth. Humus is the organic layer, unrecognizable as to origin, immediately beneath the litter layer from which it is derived. Litter and humus together are often termed duff.

Live cull
A classification that includes live, cull trees. When associated with volume, it is the net volume in live, cull trees that are 5.0 inches d.b.h. and larger.

Log grade
A log classification based on external characteristics as indicators of quality or value.

Logging residue/products
- Bolt — A short piece of pulpwood; a short log.
- Industrial wood — All commercial roundwood products, excluding fuelwood.
- Logging residue — The unused portions of trees cut or destroyed during logging operations and left in the woods.
- Mill or plant residue — Wood material from mills or other primary manufacturing plants that is not used for the mill's or plant's primary products. Mill or plant residue includes bark, slabs, edgings, trimmings, miscuts, sawdust, and shavings. Much of the mill and plant residue is used as fuel and as the raw material for such products as pulp, palletized fuel, fiberwood, mulch, and animal bedding.
- Coarse residue — Wood material suitable for chipping, such as slabs, edgings, and trim.
- Fine residue — Wood material unsuitable for chipping, such as sawdust and shavings.
- Pulpwood — Roundwood, whole-tree chips, or wood residues that are used for the production of wood pulp.
- Roundwood — Logs, bolts, or other round sections cut from trees.

M

Macroplot
A *core optional* variant of the FIA national plot design. This plot design includes four macroplots, each with a radius of 58.9 feet (approximately ¼ acre) that originate at the centers of the 24.0-foot radius subplots. A macroplot breakpoint diameter is the diameter (either d.b.h or d.r.c.) above which trees are measured on the macroplot. Examples of different breakpoint diameters used by western FIA work units are 24 inches or 30 inches (Pacific Northwest), or 21 inches (Rocky Mountain).

Mapped-plot design
A sampling technique that identifies (delineates or maps) and separately classifies distinct "conditions" on the field location sample area. Each condition must meet minimum size requirements. At the most basic level, condition class delineations include forest land, nonforest land, and water. Forest land conditions can be further subdivided into separate condition classes if there are distinct variations in reserved status, owner group, forest type, stand-size class, stand origin, and stand density, given that each distinct area meets minimum size requirements.

Measurement quality objectives (MQOs)
Specific objectives that define the range of precision that is allowable for any given field measurement. These data quality goals are developed from knowledge of measurement processes in forestry and forest ecology. MQOs generally consist of two parts: a compliance standard and a measurement tolerance.

Measurement year
The measurement year of a plot visit. Measurement year may differ from inventory year.

Merchantable
A term referring to a pulpwood or sawlog section that meets pulpwood or sawlog specifications, respectively.

Merchantable portion
For trees measured at d.b.h. and 5.0 inches d.b.h. and larger, the merchantable portion (or "merchantable bole") includes the part of the tree bole from a 1.0-foot stump to a 4.0-inch top (d.o.b.). For trees measured at d.r.c., the merchantable portion includes all qualifying segments above the place(s) of diameter measurement for any tree with a single 5.0-inch stem or larger or a cumulative (calculated) d.r.c. of at least 5.0 inches to the 1.5-inch ends of all branches; sections below the place(s) of diameter measurement are not included. Qualifying segments are stems or branches that are a minimum of 1.0 foot in length and at least 1.0 inch in diameter; portions of stems or branches smaller than 1.0 inch in diameter, such as branch tips, are not included in the merchantable portion of the tree.

Merchantable top
The point on the bole of trees above which merchantable material cannot be produced. Merchantable top is 1.5 inches for woodland species and 4.0 inches for all other species.

Microplot
For the FIA national plot design, a circular, fixed-radius plot with a radius of 6.8 feet (0.003 acre) on which trees 1.0-4.9 inches in diameter (d.b.h./d.r.c.) are measured. The FIA national plot design consists of four subplots. Within each subplot is a nested microplot. See "Subplot."

Mill or plant residue
See "Logging residue/products."

Mortality tree
All standing or down dead trees 5.0 inches d.b.h./d.r.c. and larger that were alive at the previous inventory, or within the previous 5 years for the initial annual measurement.

N

National Forest System (NFS) lands
Public lands administered by the USDA Forest Service, such as national forests, national grasslands, and some national recreation areas.

National Park lands
Public lands administered by the Park Service, U.S. Department of the Interior, such as national parks, national monuments, national historic sites (such as national memorials and national battlefields), and some national recreation areas.

Net annual growth
The average annual net increase in the volume of trees during the period between inventories. Components include the increment in net volume of trees at the beginning of the specific year surviving to its end, plus the net volume of trees reaching the minimum size class during the year, minus the volume of trees that died during the year, and minus the net volume of trees that became cull trees during the year.

Net volume in cubic feet
The gross volume in cubic feet less deductions for rot, roughness, and poor form. Volume is computed for the central stem from a 1-foot stump to a minimum 4.0-inch top diameter outside bark, or to the point where the central stem breaks into limbs.

Noncensus water
Portions of rivers, streams, sloughs, estuaries, and canals that are 30 to 200 feet (9.1 to 61.0 m) wide and at least 1 acre (0.4 ha) in size; and lakes, reservoirs, and ponds 1 to 4.5 acres in size. Portions of rivers and streams not meeting the criteria for census water, but at least 30 feet wide and 1 acre in size, are considered noncensus water. Portions of braided streams not meeting the criteria for census water, but at least 30 feet in width and 1 acre in size, and more than 50 percent water at normal high-water level are also considered noncensus water.

Noncommercial species
Tree species of typically small size, poor form, or inferior quality, which normally do not develop into trees suitable for industrial wood products.

Nonforest land
Land that does not support, or has never supported, forests, and lands formerly forested where tree regeneration is precluded by development for other uses. Includes areas used for crops, improved pasture, residential areas, city parks, improved roads of any width and adjoining rights-of-way, power line clearings of any width, and noncensus water. If intermingled in forest areas, unimproved roads and nonforest strips must be more than 120 feet (36.6 m) wide, and clearings, etc., more than 1 acre (0.4 ha) in size, to qualify as nonforest land.

Nonindustrial private
An ownership class of private lands where the owner does not operate wood-processing (wood-using) plants.

Nonsampled (nonresponse)
A plot or condition is nonsampled when data are not collected on it for reasons such as the following: access was denied by a landowner or manager, the area is hazardous to access, the plot is in the wrong location, or the plot visit was skipped with the intent to visit the plot in another inventory year. The statistical term for "nonsampled" is "nonresponse."

Nonstocked areas
Timberland less than 10 percent stocked with all live trees.

Nonstocked stand
A formerly stocked stand that currently has less than 10 percent stocking but has the potential to again become 10 percent stocked. For example, recently harvested, burned, or windthrow-damaged areas.

Non-tally tree species
Woody plants with a single well-defined, dominant main stem, not supported by other vegetation or structures (not vines), and which are, or are expected to become, greater than 13 feet in height and do not qualify as a tally tree species. See "Tally tree species."

Non-zero plot
A non-zero plot is one that has an element (usually a condition or tree) that meets the description of a particular attribute.

O

Other Federal lands
Public lands administered by Federal agencies other than the USDA Forest Service or the Bureau of Land Management, U.S. Department of the Interior.

Other forest land
Forest land other than timberland and reserved forest land. It includes available and reserved low-productivity forest land, which is incapable of producing 20 cubic feet of growing stock per acre annually under natural conditions because of adverse site conditions such as sterile soil, dry climate, poor drainage, high elevation, steepness, or rockiness.

Other public lands
Public lands administered by agencies other than the USDA Forest Service. Includes lands administered by other Federal, State, county, and local government agencies, including lands leased by these agencies for more than 50 years.

Owner group
A variable that identifies broad categories of ownership. FIA recognizes four owner groups: Forest Service, Other Federal, State and Local Government, and Private.

Ownership
A legal entity having control of a parcel or group of parcels of land. An ownership may be an individual; a combination of persons; a legal entity such as corporation, partnership, club, or trust; or a public agency

Ozone (O3)
A regional, gaseous air pollutant produced primarily through sunlight-driven chemical reactions of nitrogen dioxide (NO2) and hydrocarbons in the atmosphere and causing foliar injury to deciduous trees, conifers, shrubs, and herbaceous species.

Ozone bioindicator site
An open area used for ozone injury evaluations on ozone-sensitive species. The area must meet certain site selection guidelines on size, condition, and plant counts to be used for ozone injury evaluations in FIA.

P

Panel
A sample in which the same elements are scheduled to be measured during the same inventory year. For the traditional FIA inventory, FIA typically divides plots into five panels (NRS and SRS) or ten panels (PNWRS and RMRS) that can be used to independently sample the population.

Partition
A factor by which a large estimate is divided into smaller, mutually exclusive estimates of interest. Partitions are frequently based on a multi-factored population domain, such as tree species. Partitions form the column or row heading in standard tabular output. When estimation is performed, each distinct cell constitutes an independent estimate, and every sampling point has the opportunity to contribute a non-zero value to the estimate. Small or rare domains typically have high sampling errors because they most likely only have a few sampling points. Unlike filters, partitions do not exclude any observation for contributing to an estimate.

Partners
States, USFS regions, etc., which partially, or completely, fund portions of the FIA program.

Periodic survey (periodic inventory or periodic sample design)
A non-continuous inventory system whereby all plots within an estimation unit (typically a State or management unit) are measured over a short time frame (1 to 3 years), and are remeasured only periodically, often with many years between remeasurements. This technique was commonly implemented by FIA in the past. However, it is no longer the national plot design used for the traditional FIA inventory.

Phase
A term used by FIA to represent a particular aspect of the overall inventory.

- Phase 1 (P1) — FIA activities using remotely sensed data. The primary purpose of P1 is to stratify land area in the population of interest to reduce variance and increase the precision of estimates. P1 sample points are assigned to strata based on their classification from remote-sensing imagery. The number of strata and their definitions are left to the discretion of each FIA work unit. The most basic strata classifications would be forest and nonforest. See "Stratum."

- Phase 2 (P2) — FIA activities conducted on the network of sample plots. For the Federal base grid, P2 consists of a set of sample locations distributed across the landscape with approximately one sample location (FIA plot) every 6,000 acres. Forested sample locations are visited by field crews to collect a variety of forest ecosystem data. The primary purpose of P2 is to obtain sample data that enable classification and summarization of area, tree, and other attributes associated with different land uses. In some regions, additional plots are sampled in the field if they are part of a special study,

intensified grid, or other type of sample, such as an "all conditions inventory" (ACI) for nonforest conditions.

- Phase 3 (P3) — FIA activities conducted on a subset of P2 plots where additional attributes related to forest health monitoring were measured. Phase 3 has been discontinued. However, some indicators (e.g., tree crown, understory vegetation) have been incorporated into P2 protocols. Other indicators (e.g., soils) are collected by some FIA work units on a subset of P2 plots. This subset of plots is no longer constrained to the P3 grid system.

Physiographic class

A measure of soil and water conditions that affect tree growth on a site. The physiographic classes are as follows:

- Xeric — Very dry soils where excessive drainage seriously limits both growth and species occurrence. These sites are usually on upland and upper half slopes.
- Xeromesic — Moderately dry soils where excessive drainage limits growth and species occurrence to some extent. These sites are usually on the lower half slopes.
- Mesic — Deep, well-drained soils. Growth and species occurrence are limited only by climate. These include all cove sites and bottomlands along intermittent streams.
- Hydromesic — Moderately wet soils where insufficient drainage or infrequent flooding limits growth and species occurrence to some extent.
- Hydric — Very wet sites where excess water seriously limits both growth and species occurrence.

Plot (plot design)

For the traditional FIA inventory, the national plot design consists of four 24-foot fixed-radius subplots for trees ≥5 inches d.b.h., and four 6.8-foot fixed-radius microplots for seedlings and trees ≥1 and <5 inches d.b.h. Subplot 1 is the center plot, and subplots 2, 3, and 4 are located 120.0 feet, horizontal, at azimuths of 360, 120, and 240, respectively. The microplot center is 12 feet east of the subplot center. Four 58.9-foot fixed-radius macroplots are optional. A plot may sample more than one condition. When multiple conditions are encountered, condition boundaries are delineated (mapped).

Plot grid intensification

A method used to allow for more intensive sampling (i.e., more plots that are closer together) in specific geographic areas. Typically, the same methodology that was used to create the national FIA P2 grid of plots is also used to develop the intensified grid. This adding of extra plots in a systematic fashion can facilitate analysis of FIA data for smaller areas, for example, National Forests as opposed to States.

Plot status

A classification that describes the sampling status of the plot. For the traditional FIA inventory, all plots are assigned one of the following classifications: (1) sampled - at least one accessible forest land condition present on plot, (2) sampled - no accessible forest land condition present on plot, and (3) nonsampled.

Poletimber-size trees
For trees measured at d.b.h., softwoods 5.0 to 8.9 inches d.b.h. and hardwoods 5.0 to 10.9 inches d.b.h. For trees measured at d.r.c., all live trees 5.0 to 8.9 inches d.r.c.

Population
A defined geographic area for which estimates of population attributes are desired.

Post-stratified estimation
Estimation of population attributes using the area, strata means, and strata weights of each estimation unit. Post-stratified estimation is not a sampling method, because plots are assigned to strata after the sample has been selected. The goal of post-stratified estimation is to reduce to variance of estimated forest attributes such as volume, biomass, and number of trees.

Precision
A measure of statistical variability, precision describes how closely grouped a set of estimates are to each other, regardless of how well they represent the target value.

Pre-stratified sampling
A method of sampling wherein the population is first divided into several subpopulations (called strata). These strata can be used to delineate areas of different plot designs, different sample intensities, or separate samples (where a simple random sample is applied within each stratum to obtain a sample). FIA typically does not implement pre-stratified sampling. Also referred to as stratified sampling.

Primary key
A primary key is a special relational database table column (or combination of columns) designated to uniquely identify all table records. A primary key must contain a unique value for each row of data, and it cannot contain null values.

Primary wood-processing (wood-using) plant
An industrial plant that processes roundwood products, such as sawlogs, pulpwood bolts, or veneer logs.

Private lands
All lands not owned or managed by a Federal, State, or other public entity, including lands owned by corporations, trusts, or individuals, as well as Tribal lands.

Productive forest land
Forest land capable of producing 20 cubic feet per acre per year of wood from trees classified as timber species (see "Timber species") and designated as a timber forest type.

Productivity
The potential yield capability of a stand calculated as a function of site index (expressed in terms of cubic-foot growth per acre per year at age of culmination of mean annual increment). Productivity values for forest land provide an indication of biological potential. Timberland stands are classified by the potential net annual growth attainable in fully stocked natural stands. For FIA reporting, productivity class is an attribute that groups stand productivity values into categories of a specified range. Productivity is sometimes referred to as "yield" or "mean annual increment."

Productivity class
A classification of forest land in terms of potential annual cubic-foot volume growth per acre at culmination of mean annual increment in fully stocked natural stands.

Pulpwood
See "Logging residue/products."

Q

Quality assessment (QA)
Evaluation of independent observations to determine whether measurement quality objectives (MQOs) are being met. **Note:** The acronym QA is used to indicate quality assurance and/or quality assessment.

Quality assurance (QA)
The total integrated program for ensuring that the uncertainties inherent in FIA data are known and do not exceed acceptable magnitudes, within a stated level of confidence. Quality assurance encompasses the plans, specifications, and policies affecting the collection, processing, and reporting of data. It is the system of activities designed to provide program managers and project leaders with independent assurance that total system quality control is being effectively implemented. **Note:** The acronym QA is used to indicate quality assurance and/or quality assessment.

Quality control (QC)
The routine application of prescribed field and laboratory procedures (e.g., random check cruising, periodic calibration, instrument maintenance, use of certified standards) to reduce random and systematic errors and ensure that data are generated within known and acceptable performance limits. Quality control also ensures the use of qualified personnel; reliable equipment and supplies; training of personnel; good field and laboratory practices; and strict adherence to standard operating procedures.

R

Ratio estimate
An estimate that is a value divided by another value. Ratio estimates use a basic estimate (see "Basic estimate") and applies a second attribute as a denominator. A common denominator is "area." Ratio estimates help to show relative differences and can be interpreted as "how many per unit."

Regeneration status
A stand descriptor that indicates whether a stand has been naturally or artificially regenerated. Regeneration status is either natural, with no clear evidence of planting or seeding, or artificial, having clear evidence of planting or seeding.

Regional unit
See "FIA work unit."

Regional variables
Attributes that are only collected by a single FIA work unit or that are collected using alternative methods that are defined by the region.

Relational database
A database structured to recognize relations among stored items of information.

Remote sensing
The process of obtaining information about the earth from a distance, typically from data recorded by sensors attached to satellites or high-flying aircraft.

Removals
The net volume of sound (growing-stock) trees removed from the inventory by harvesting or other cultural operations (such as timber-stand improvement), by land clearing, or by changes in land use (such as a wilderness designation).

Reserved land
Land withdrawn from management for production of wood products through statute or administrative designation. Examples include designated Federal wilderness areas, national parks and monuments, and most State parks.

Residues
Bark and woody materials that are generated in primary wood-processing (wood-using) mills when roundwood products are converted to other products. Examples are slabs, edgings, trimmings, miscuts, sawdust, shavings, veneer cores and clippings, and pulp screenings. Includes bark residues and wood residues (both coarse and fine materials) but excludes logging residues.

Resources Planning Act Assessment (RPA)
A report on the conditions and trends of renewable natural resources on the Nation's forests and rangelands. It is legally mandated that FIA produce an RPA report every 10 years. RPA assessments are based on 50-year projections of global population and economic growth, global wood energy consumption, U.S. population and economic growth, land use change, and global climate change.

Rotten cull tree
All live trees with 67 percent or more of the merchantable volume cull, and more than half of this cull is due to rotten or missing cubic-foot volume loss. California, Oregon, Washington, and Alaska inventories use a 75 percent cutoff. For dead trees, this classification indicates that the tree is nonsalvable (not sound).

Rough cull tree
All live trees that do not now, or prospectively, have at least one solid 8-foot section, reasonably free of form defect on the merchantable bole, or have 67 percent or more of the merchantable volume cull; and more than half of this cull is due to sound dead wood cubic-foot loss or severe form defect volume loss. For the California, Oregon, Washington, and Alaska inventories, 75 percent or more cull, rather than 67 percent or more cull, applies. This class also

contains all trees of noncommercial species. It also contains the following species groups: woodland softwoods, woodland hardwoods, and eastern noncommercial hardwoods. For dead trees, this classification indicates that the tree is salvable (sound).

Roundwood

See "Logging residue/products."

S

Salvable dead tree

A downed or standing dead tree considered currently or potentially merchantable by regional standards.

Sample

A subset of a larger population that is taken for measurement to generate population estimates.

Sample design

The framework for the selection of a survey sample from a population of interest. Characteristics of a sample design include the definition of the population and sample unit (in FIA, these are typically a State and a plot, respectively), the sample size, and the sampling strategy (e.g., simple random sample, systematic sample). Sample designs are selected to meet specific precision targets for a given attribute. FIA's sample design is semi-systematic, using a random sample applied to a systematic hexagonal grid, with plots typically measured in 5-10 year measurement cycles.

Sample tree

See "Tally tree species."

Sampling error

A statistical term used to describe the accuracy of the inventory estimates. Expressed on a percentage basis to enable comparisons between the precision of different estimates. Sampling errors are computed by dividing the estimate into the square root of its variance.

Sampling unit

The basic unit of selection and observation. For the traditional FIA inventory, all FIA work units use the center point of a 4-point cluster of subplots as the primary sample unit for point-based, plot-level observations. The collective area of the 4 subplots is the sample unit for inferring population attributes such as area and volume.

Saplings

Live trees 1.0 to 4.9 inches (2.5-12.5 cm) in diameter (d.b.h./d.r.c.).

Sawlog

A log meeting minimum standards of diameter, length, and defect, including logs at least 8 feet long, sound and straight, and with a minimum diameter inside bark of 6 inches for softwoods and 8 inches for hardwoods, or meeting other combinations of size and defect specified by regional standards.

Sawlog portion
The part of the bole of sawtimber-size trees between a 1.0-foot stump and the sawlog top.

Sawlog top
The point on the bole of sawtimber-size trees above which a sawlog cannot be produced. The minimum sawlog top is 7.0 inches d.o.b. (diameter outside of bark) for softwoods, and 9.0 inches d.o.b. for hardwoods.

Sawtimber tree
A live tree of commercial species containing at least a 12-foot sawlog or two noncontiguous sawlogs 8 feet or longer and meeting regional specifications for freedom from defect. Softwoods must be at least 9.0 inches d.b.h. Hardwoods must be at least 11.0 inches d.b.h.

Sawtimber volume
Net volume of the sawlog portion of live sawtimber in board feet, International 1/4-inch Rule (unless specified otherwise), from stump to a minimum 7.0 inches top d.o.b. for softwoods and a minimum 9.0 inches top d.o.b. for hardwoods.

Seedlings
Live trees smaller than 1.0 inch (2.5 cm) d.b.h./d.r.c. that are at least 6 inches (15.2 cm) in height for softwoods and 12-inches (30.5 cm) in height for hardwoods.

Simple random sample
A method of selecting n sample units out of the N units in the population, such that each of the N units has an equal chance of being selected for sampling.

Site index
A measure of forest productivity for a timberland tree/stand. Expressed in terms of the expected height (in feet) of trees on the site at an index age, which is typically 25 or 50 years (or 80 years for some hardwood species, such as quaking aspen and cottonwood). Calculated from height-to-age equations.

Site tree
A tree used to provide an index of site quality. Timber species selected for site index calculations must meet specified criteria with regards to age, diameter, crown class, and damage.

Snag
A standing dead tree. See "Standing dead tree" for tally qualifications.

Softwood trees
Coniferous trees, usually evergreen, having needles or scale-like leaves.

Sound dead
The net volume in salvable dead trees.

Stakeholders
Scientists and peers that actively collaborate with the FIA program and use FIA data.

Stand

A community of trees on a minimum of 1 acre (0.4 ha) that can be distinguished from adjacent communities due to similarities and uniformity in tree and site characteristics, such as age-class distribution, species composition, spatial arrangement, structure, etc.

Stand age

A stand descriptor that indicates the average age of the live dominant and codominant trees in the predominant stand-size class of a condition.

Stand density

A relative measure that quantifies the relationship between trees per acre, stand basal area, average stand diameter, and stocking of a forested stand.

Stand density index (SDI)

A widely used measure developed by Reineke (1933) and is an index that expresses relative stand density based on a comparison of measured stand values with some standard condition; relative stand density is the ratio, proportion, or percent of absolute stand density to a reference level defined by some standard level of competition. For FIA reporting, the SDI for a site is usually presented as a percentage of the maximum SDI for the forest type. Site SDI values are sometimes grouped into SDI classes of a specified percentage range. Maximum SDI values vary by species and region.

Literature cited:

Reineke, L. H. 1933. Perfecting a stand density index for even-aged forest. Journal of Agricultural Research. 46(7): 627-638.

Standard error

The square root of the variance and expressed in the same units as the estimate.

Standing dead tree

To qualify as a standing dead tally tree, the dead tree must be at least 1.0 inch d.b.h., have a bole that has an unbroken actual length of at least 4.5 feet, and lean less than 45 degrees from vertical as measured from the base of the tree to 4.5 feet. Portions of boles on dead trees that are separated greater than 50 percent (either above or below 4.5 feet) are considered severed and are included in down woody material (DWM) if they otherwise meet DWM tally criteria. For woodland species with multiple stems, a tree is considered down if more than two-thirds of the volume is no longer attached or upright; cut and removed volume is not considered. For woodland species with single stems to qualify as a standing dead tally tree, the dead tree must be at least 1.0 inches in diameter, be at least 1.0 foot in unbroken actual length, and lean less than 45 degrees from vertical.

Stand-size class

A classification of forest land based on the predominant diameter size of live trees presently forming the plurality of live-tree stocking. Classes are defined as follows:

- Sawtimber stand (large-tree stand) — A stand at least 10 percent stocked with live trees, in which half or more of the total stocking is from live trees 5.0 inches or larger in diameter, and with sawtimber (large tree) stocking equal to or greater than poletimber (medium tree) stocking.

- Poletimber stand (medium-tree stand) — A stand at least 10 percent stocked with live trees, in which half or more of the total stocking is from live trees 5.0 inches or larger in diameter, and with poletimber (medium tree) stocking exceeding sawtimber (large tree) stocking.
- Sapling/seedling stand — A stand at least 10 percent stocked with live trees, in which half or more of the total stocking is from live trees less than 5.0 inches in diameter.
- Nonstocked stand — A formerly stocked stand that currently has less than 10 percent stocking but has the potential to again become 10 percent stocked. For example, recently harvested, burned, or windthrow-damaged areas.

State land

An ownership class of public lands owned by States or lands leased by States for more than 50 years.

Stocking

An expression of the extent to which growing space is effectively utilized by live trees.

- Tree-level stocking — The density value assigned to a sampled tree (usually in terms of numbers of trees or basal area per acre), expressed as a percent of the total tree density required to fully utilize the growth potential of the land.
- Stand-level stocking — The sum of the stocking values of all trees sampled.

Strategic plan

An official description of the funding, staffing, and programmatic changes to the FIA program needed to achieve the level of service required by the Renewable Resources Research Act of 1978 and subsequent Farm Bills.

Stratification

A statistical tool or sampling strategy depending on the method implemented. As a statistical tool, stratification is the process of dividing members of the population into homogeneous subgroups (strata) to reduce variance among the attributes of interest. See "Post-stratified estimation" and "Pre-stratified sampling" and for further details.

Stratum

A non-overlapping subdivision of the population of a known area. **Strata** are defined within estimation units and are thought to have a predictive relationship with population attributes of interest. For example, if tree density (either numbers of trees or basal area of trees) varies by land cover, then stratifying each estimation unit by non-overlapping land covers of known (or well-estimated) areas will enhance the precision of any estimate of a population attribute that is a function of tree density, such as biomass. Sampling points are assigned to strata within estimation units during the stratification process.

Subplot

For the FIA national plot design, a circular, fixed-radius plot with a radius of 24.0 feet (1/24 acre) on which trees 5.0 inches and greater in diameter (d.b.h./d.r.c.) are measured. The FIA national plot design consists of four subplots. Within each subplot is a nested microplot. See "Microplot."

Subpopulation
A subdivision of a population for which the area and strata weights are known. Subpopulations are not necessarily a subset of one single population. Subpopulations in FIA are generally estimation units, which are defined by each FIA work unit.

Super-county
A group of counties that have been combined to form a single subpopulation. Counties are sometimes combined into super-counties when the sample size for individual counties is too small to produce precise estimates.

Swapping
One of the methods used to preserve the confidentiality of plot locations on private forested land. Published plot coordinates may be switched or "swapped" with the fuzzed coordinates of other, ecologically similar plots. Swapping, when combined with another method that is referred to as "fuzzing," creates a high level of uncertainty regarding plot location, to satisfy legal requirements for confidentiality.

Systematic sample
A method of selecting n sample units out of the N units in the population, where sample units are selected based on a random starting point and a fixed interval between subsequent sample units. Because the starting point is random, this is considered a probabilistic sample.

T

Tally tree species (sample tree)
Tree species listed on the FIA Master Tree Species List (available at web address: https://www.fia.fs.fed.us/library/field-guides-methods-proc/index.php).

Timber products output
All timber products cut from roundwood and byproducts of wood manufacturing plants. Roundwood products include logs, bolts, or other round sections cut from growing-stock trees, cull trees, salvable dead trees, trees on nonforest land, noncommercial species, sapling-size trees, and limbwood. Byproducts from primary manufacturing plants include slabs, edging, trimmings, miscuts, sawdust, shavings, veneer cores and clippings, and screenings of pulpmills that are used as pulpwood chips or other products.

Timber species
Tally tree species traditionally used for industrial wood products. These include all species of conifers, except pinyon and juniper. Diameters for timber species are measured at breast height (d.b.h.).

Timber-stand improvement
A term comprising all intermediate cuttings or treatments, such as thinning, pruning, release cutting, girdling, weeding, or poisoning, made to improve the composition, health, and growth of the remaining trees in the stand.

Timberland
Unreserved forest land capable of producing 20 cubic feet per acre per year of wood from trees classified as timber species (see "Timber species") and designated as a timber forest type.

Tree
A woody perennial plant, typically large, with a single well-defined stem carrying a more or less definite crown; sometimes defined as attaining a minimum diameter of 3 inches (7.6) and a minimum height of 15 ft (4.6 m) at maturity.

Tree density
A relative classification based on the number of stems per unit area, basal area, tree cover, or stocking of all live trees, seedlings, and saplings in the condition that are not overtopped.

Tree expansion factor
A factor used to scale each sample tree on a plot to a per-unit basis (e.g., trees per acre). The expansion factor used is dependent on the plot design. For fixed-plot designs, scaling is straightforward, with the number of trees per acre (TPA) represented by one tree equal to the inverse of the plot area in acres. For the FIA national plot design, TPA expansion factors are as follows:

- Subplot TPA = 6.018046; each tree (5.0 inches and greater in diameter) sampled on all four 24.0-foot radius subplots represents approximately 6 trees per acre.
- Microplot TPA = 74.965282; each sapling (1.0-4.9 inches in diameter) sampled on all four 6.8-foot radius microplots represents approximately 75 trees per acre.
- Macroplot TPA = 0.999188; each tree (5.0 inches and greater in diameter) sampled on all four 58.9-foot radius macroplots represents approximately 1 tree per acre.

Tree-size class
A classification of trees based on diameter at breast height, including sawtimber trees, poletimber trees, saplings, and seedlings.

Tree top
The wood of a tree above the merchantable height (or above the point on the stem 4.0 inches diameter outside bark [d.o.b.]).

U

Unproductive forest land
Forest land not capable of producing 20 cubic feet per acre per year of wood from trees classified as timber species (see "Timber species") and designated as a timber forest type. Also, all forest lands designated as a woodland forest type (see "Woodland species").

Unreserved forest land
Forest land not withdrawn from management for production of wood products through statute or administrative designation.

Urban forest land
Land that would otherwise meet the criteria for timberland but is in an urban-suburban area surrounded by commercial, industrial, or residential development and not likely to be managed for the production of industrial wood products on a continuing basis. Wood removed would be for land clearing, fuelwood, or esthetic purposes. Such forest land may be associated with industrial, commercial, residential subdivision, industrial parks, golf course perimeters, airport buffer strips, and public urban parks that qualify as forest land.

User groups
Organizations that routinely use FIA data and regularly meet with FIA staff to discuss the evolving needs of data users. User groups include Federal agencies, State forestry departments, Native American tribes, academic partners/universities, and forest and timber industry groups.

V

Variable radius plot
A point-based plot design, where the decision to measure each tree (i.e,. whether the tree is "in") is based on the size of the tree relative to a basal area factor (BAF) on a prism angle gauge and its distance from the center point. In variable-radius plot designs, the per-acre expansion factor is determined by the diameter of the tree, the basal area factor (BAF, or prism), and the number of subplots used in the plot design (usually 5, 7, or 10). Variable radius plots were commonly used in FIA's older periodic inventories, in contrast to FIA's fixed-radius plot design currently in use, which measures every tree within a fixed radius, regardless of size or proximity to the center point.

Variance
A statistical measurement of dispersion, identifying how far a set of values is spread out from their average value. Variance indicates the precision (or imprecision) in the estimate. A variance of zero would indicate that all estimated values were identical.

Veneer log
A roundwood product from which veneer is sliced or sawn and that usually meets certain standards of minimum diameter and length and maximum defect.

W

Weight
The weight of wood and bark. Weight can be expressed in terms of oven-dry (approximately 12 percent moisture content) or green weight.

Wilderness area
An area of undeveloped land currently included in the Wilderness System, managed to preserve its natural conditions, and retain its primeval character and influence.

Wood volume

A measure of the solid content of the tree stem used to measure wood quantity.

Woodland species

Tally tree species that are not usually converted into industrial wood products. Common uses of woodland trees are fuelwood, fenceposts, and Christmas trees. Example species include pinyon, juniper, mesquite, locust, mountain-mahogany (Cercocarpus spp.), Rocky Mountain maple, bigtooth maple, desert ironwood, and most oaks. Because most woodland trees are extremely variable in form, diameter is measured at root collar (d.r.c.). Woodland species are identified with a "w" under the "Woodland" column on the FIA Master Tree Species List (available at web address: https://www.fia.fs.fed.us/library/field-guides-methods-proc/index.php).

X

Y

Z