New Jersey's Forests, 2008: Statistics, Methods, and Quality Assurance

USDA United States Department of Agriculture

Forest Service

Northern Research Station

Forest Inventory Methods

Strategic Model

The Forest Inventory and Analysis program of the Northern Research Station (NRS-FIA) is part of the national enhanced FIA program that focuses on a set of six strategic objectives (McRoberts 2005):

- A standard set of variables with nationally consistent meanings and measurements
- Field inventories of all forested lands
- Nationally consistent estimation
- Adherence to national precision standards
- Consistent reporting and data distribution
- Credibility with users and stakeholders

To ensure that these six strategic objectives are achieved, 10 strategic approaches have been prescribed:

- A national set of prescribed core variables with a national field manual that prescribes measurement procedures and protocols for each variable
- A nationally consistent plot configuration
- A nationally consistent sampling design
- Estimation using standardized formulas for sample-based estimators
- A national database of FIA data with core standards and user-friendly public access
- A national information management system
- A nationally consistent set of tables of estimates of prescribed core variables
- Publication of statewide tables of estimates of prescribed core variables at 5-year intervals
- Documentation of the technical aspects of the FIA program including procedures, protocols, and techniques are documented
- Peer review and publication of the technical documentation for general access

The result of the strategic objectives and approaches is an inventory program with identifiably new features and a nationally consistent plot configuration, a nationally consistent sampling design for all lands, annual measurement of a proportion of plots in each state, nationally consistent estimation techniques and algorithms, and integration of the ground sampling components of the FIA inventory and the detection monitoring by the U.S. Forest Service's Forest Health Monitoring (FHM) program.

Forest Inventory

Historically, the Northern Research Station's Forest Inventory and Analysis (NRS-FIA) program conducted inventories of a State's forests on a periodic basis. In New Jersey, periodic inventories were completed in 1956 (Webster and Stoltenberg 1958), 1971 (Ferguson and Mayer 1974), 1987, and 1999 (Griffith and Widmann 2001). Since the 1999 inventory, several changes in FIA methods have improved the quality of the inventory. The most significant change between inventories has been the shift from periodic to annual inventory. In the past, FIA inventoried each state on a cycle that averaged every 12 years. However, the need for timely and consistent data across large geographical regions along with national legislative mandates resulted in FIA implementing an annual inventory program. Annual inventory was initiated in New Jersey in 2004.

With the NRS-FIA annual inventory system, approximately one-fifth of all field plots are measured each year. The entire inventory is completed within 5 years. After this initial 5-year period, NRS-FIA will report and analyze results using a moving 5-year average. For example, NRS-FIA will be able to generate inventory results for New Jersey for 2005 through 2009 or for 2006 through 2010.

Other significant changes between inventories include implementing new remote-sensing technology, a new field-plot configuration and sample design, and gathering additional remotely sensed and field data. The use of new remote-sensing technology allows NRS-FIA to use classifications of Multi-Resolution Land Characterization (MRLC) data and other remote-sensing

products to stratify the total area of New Jersey and to improve estimates.

New algorithms were used for the 2008 inventory to assign forest type and stand-size class to each condition observed on a plot. These algorithms are being used nationwide by FIA to provide consistency from state to state. As a result, changes in forest type and stand-size class will reflect actual changes in the forest and not changes due to differences between algorithms. The list of recognized forest types, groupings of these forest types for reporting purposes, models used to assign stocking values to individual trees, definition of nonstocked (stands with a stocking value of less than 10 percent for live trees), and names given to the forest types changed with the new algorithms. Consequently, comparisons between the published 2008 results and those published for the 1999 inventory may be invalid. Contact NRS-FIA for additional information on the algorithms used in both inventories.

Plot Configuration

The national FIA plot design consists of four 24-foot-radius subplots configured as a central subplot and three peripheral subplots (Fig. 78). Centers of the peripheral subplots are located at distances of 120 ft from the central subplot at azimuths of 0°, 120°, and 240° from the center of the central subplot. Each tree with diameter at breast height (d.b.h.) 5 inches or greater is measured on these subplots. Each subplot contains a 6.8-foot-radius microplot with center located 12 ft east of the subplot center on which each tree with d.b.h. between 1 and 5 inches is measured. Forest conditions that occur on any of the four subplots are identified and recorded. If the area of the condition is 1 acre or greater, the condition is mapped on the subplot. Factors that differentiate forest conditions include forest type, stand-size class, stand origin, land use, ownership, and density.

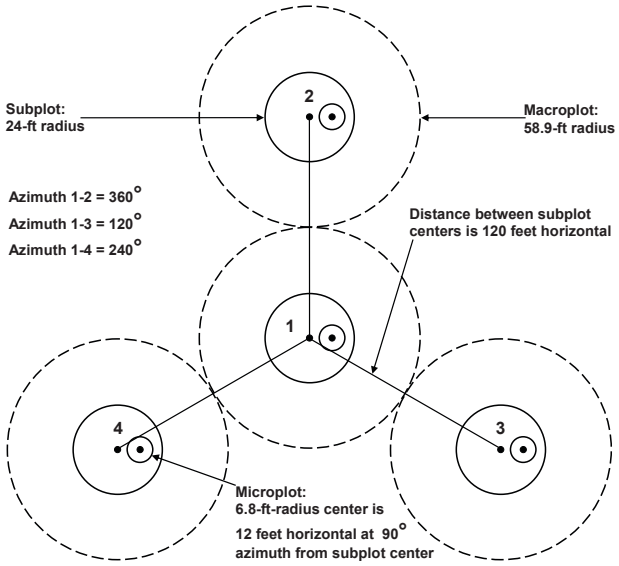

Figure 78.—Current NRS-FIA field-plot design.

Sample Design

Historic sampling errors indicate that a sampling intensity of about one plot per 6,000 acres is required to satisfy national FIA precision guidelines. Therefore, FIA divided the area of the United States into nonoverlapping, 5,937-acre hexagons and established a plot in each hexagon as follows: (1) if an existing FHM plot was located in a hexagon, it was selected; (2) if no FHM plot existed in the hexagon, the existing FIA plot from the previous periodic inventory nearest the hexagon center was selected; and (3) if neither an FHM nor FIA plot was located in the hexagon, a new FIA plot was established at a random location in the hexagon (Brand et al. 2000, McRoberts 1999). This array of field plots is designated the Federal base sample and is considered an equal probability sample; its measurement is funded by the Federal government.

The Federal base sample was systematically divided into five interpenetrating, nonoverlapping panels or subsamples, each of which provides complete, systematic coverage of a state. Each year, the plots in a single panel are measured, and panels are selected on a 5-year, rotating basis (McRoberts 1999). For estimation purposes, the measurement of each panel of plots is considered an independent, equal probability sample of all lands in a state.

Three-phase Inventory

FIA conducts inventories in three phases. Phase 1 (P1) uses remotely sensed data to obtain initial plot land cover observations and to stratify land area in the population of interest to increase the precision of estimates. In Phase 2 (P2), field crews visit the physical locations of permanent field plots to measure traditional inventory variables such as tree species, diameter, and height. In Phase 3 (P3), field crews visit a subset of P2 plots to obtain measurements for an additional suite of variables associated with forest and ecosystem health. The three phases of the enhanced FIA program are discussed in greater detail in the following sections.

Phase 1

Aerial photographs, digital orthoquads (DOQs: digitally scanned aerial photographs), and satellite imagery are used for initial plot measurement via remotely sensed data and stratification. P1 plot measurement consists of observations of conditions at the plot locations using aerial photographs or DOQs. Analysts determine a digitized geographic location for each field plot, and a human interpreter assigns the plot a land cover/use. Lands satisfying FIA's definition of forest land include commercial timberland, some pastured land with trees, forest plantations, unproductive forested land, and reserved, noncommercial forested land. In addition, forest land requires minimum stocking levels, a 1-acre minimum area, and a minimum bole-to-bole width of 120 ft with continuous canopy. Forest land excludes wooded strips, idle farmland with trees, and narrow windbreaks. All plot locations that could possibly contain accessible forest land are selected for further measurement during P2.

The combination of natural variability among plots and budgetary constraints prohibits measurement of a sufficient number of plots to satisfy national precision standards for most inventory variables unless the estimation process is enhanced using ancillary data. Thus, the land area is stratified by using remotely sensed data to facilitate stratified estimation. NRS-FIA uses canopy density classes to derive strata. Canopy density information was obtained from the 2001 National Land Cover Database (NLCD). The NLCD 2001 canopy density layer for the United States was produced through a cooperative project conducted by the MRLC (http://www.mrlc.gov/). The layer characterizes subtle variations of forest canopy density as a percentage estimate of forest canopy cover (0 - 100) within every 30-m pixel over the United States. The method employed to map canopy density for NLCD 2001 is described in detail in Huang et al. (2001).

The current strata categorization was optimized for the entire NRS-FIA region. Using plot location information (center of the center subplot), a percent canopy density value was assigned to each plot. Plots were then aggregated into one of the five strata based on the center of the center subplot. The percent canopy cover stratification scheme consists of five groupings: (1) 0-5 percent, (2) 6-50 percent, (3) 51-65 percent, (4) 66-80 percent, and (5) 81-100 percent. These groupings were based on observed natural clumping of pixel values. If there were not enough plots in each of these classes to create strata, then collapsing rules were used to combine classes until sufficient sample sizes were obtained.

In addition to classifying of every pixel into one of the five canopy strata, every pixel was assigned to an ownership stratum. In New Jersey, ownership layers, derived from the Protected Areas Database (PAD—http://www.protectedlands.net/) and U.S. Census Bureau TIGER data (http://www.census.gov/geo/www/tiger/) were used to classify pixels into three ownership classes: (1) inland census water, (2) public, and (3) private. Every pixel was also assigned to a county based on pixel center location.

Stratified estimation requires two tasks. First, each plot must be assigned to a single stratum. Next, the proportion of each detailed stratum must be calculated (TM land-cover classification, ownership, and county group delineation). The first task is done by assigning each plot to the stratum assigned to the pixel containing the center of the center subplot. The second task is done by calculating the proportion of pixels in each stratum.

The population estimate for a variable is calculated as the sum across all strata of the product of each stratum's observed proportion (from P1) and the variable's estimated mean per unit area for the stratum (from P2).

Phase 2

In P2, field crews record a variety of data for plot locations determined in P1 to include accessible forest land. Before visiting plot locations, field crews consult county land records to determine the ownership of plots and then seek permission from private landowners to measure plots on their lands. Field crews determine the location of the geographic center of the center subplot using geographic positioning system (GPS) receivers. They record subplot-level observations that include land cover, forest type, stand origin, stand age, stand-size class, site productivity class, forest disturbance history, slope, aspect, physiographic class, and ground land use conditions. For each tree, field crews record a variety of observations and measurements including species, live/dead status, lean, diameter, height, crown ratio (percent of tree height represented by crown), crown class (e.g., dominant, co-dominant, suppressed), damage, and decay status. Office staff use statistical models based on field crew measurements to calculate values for additional variables including individual tree volume, per unit area estimates of number of trees, volume, and biomass by subplot, by species groups, and by live/dead status.

Phase 3

The third phase of the enhanced FIA program focuses on forest health. P3 is administered cooperatively by the FIA program, other Forest Service programs, other Federal agencies, State natural resource agencies, and universities, and it is partially integrated with the Forest Health Monitoring (FHM) program. The FHM program consists of four interrelated and complementary activities: detection monitoring, evaluation monitoring, intensive site ecosystem monitoring, and research on monitoring techniques. Detection monitoring consists of systematic aerial and ground surveys designed to collect baseline information on the current condition of forest ecosystems and to detect changes from those baselines over time. Evaluation monitoring studies examine the extent, severity, and probable causes of changes in forest health identified through the detection monitoring surveys. The intensive site ecosystem monitoring program conducts research into regionally specific ecological processes at a network of sites located in representative forested ecosystems. Finally, research on monitoring techniques focuses on developing and refining indicator measurements to improve the efficiency and reliability of data collection and analysis at all levels of the program.

The ground survey portion of the FHM detection monitoring program was integrated into the FIA program as P3 in 1999. The P3 sample consists of a 1:16 subset of the P2 plots with one P3 plot for approximately every 96,000 acres. P3 measurements are obtained by field crews during the growing season and include an extended suite of ecological data: lichen diversity and abundance, soil quality (erosion, compaction, and chemistry), vegetation diversity and structure, and down woody material. The incidence and severity of ozone injury for selected bioindicator species also are monitored as part of an associated sampling scheme. Because each P3 plot is also a P2 plot, the entire suite of P2 measurements is collected on each P3 plot at the same time as the P3 measurements.

P3 variables were selected to address specific criteria outlined by the Montreal Process working group (Montreal Process 1999) for the conservation and sustainable management of temperate and boreal forests and are based on the concept of indicator variables. Observations of an indicator variable represent an index of ecosystem functions that can be monitored over time to assess trends. Indicator variables are used in conjunction with each other, P2 data, data from FHM evaluation monitoring studies, and ancillary data to address ecological issues such as vegetation diversity, fuel loading, regional air quality gradients, and carbon storage. The P2 and P3 data of the enhanced FIA program serve as the Nation's environmental report card and are a primary source of reporting data for the

Montreal Process Criteria and Indicators (for more information see Woodall et al., 2011).

Estimation

Most of the estimates and analysis presented in this report (including all the estimate tables) are based on averages observed on 844 plots located across New Jersey. These plots are located within 75 unique strata (Table A) defined by combinations of the five P1 canopy cover classes: (1) 0-5 percent, (2) 6-50 percent, (3) 51-65 percent, (4) 66-80 percent, and (5) 81-100 percent, a land ownership classification created from the Protected Areas Database, and county groups. Nationally consistent algorithms were used to assign forest type and stand-size class to each condition observed on a plot. For NRS-FIA, panels are measured on an annual basis so that five panel estimates are equivalent to 5-year moving average estimates. Field plot measurements are combined with P1 estimates in the compilation process and table production. Procedures described in Bechtold and Patterson (2005) for stratified estimation with observed stratum areas were used in conjunction with the strata presented in Table A to produce all estimates. Table A shows the total area and number of plots within each stratum.

Integration with Previous Inventories

In 2008, NRS-FIA completed measurement of the fifth panel of inventory plots in New Jersey. The 2008 panel, along with those surveyed in 2004, 2005, 2006, and 2007, completed data collection for the fifth inventory of New Jersey's forests. Previous inventories of New Jersey's forest resources were completed in 1956, 1971, 1987 and 1999 (Webster and Stoltenberg 1958, Ferguson and Mayer 1974, Griffith and Widmann 2001). Data from new inventories are often compared with data from earlier inventories to determine trends in forest resources. However, for the comparisons to be valid, the procedures used in the two inventories must be similar.

To improve the efficiency and reliability of the inventory, several changes in procedures and definitions have been made since the last New Jersey inventory in 1999 (Griffith and Widmann 2001). Although these changes will have little impact on statewide estimates of forest area, timber volume, and tree biomass, they may significantly impact plot classification variables such as forest type and stand-size class. For estimating growth, removals, and mortality, the 1999 inventory (Griffith and Widmann 2001) was processed using estimation/summary routines for the 2008 inventory. Although these changes allow limited comparison of inventory estimates among separate inventories in this report, it is inappropriate to directly compare all portions of the 2004–2008 data with those published for earlier inventories.

For further information about the sample protocols and estimation procedures for the first two phases of the FIA program, please see Bechtold and Patterson (2005). For more information on P3 indicator sampling protocols, please see U.S. For. Serv. (2009).

Quality of the Estimates

The four primary sources of error common to all sample-based estimates are sampling, measurement, prediction, and nonresponse error. For each of these sources of error, a definition within the context of the FIA inventory is provided along with a discussion of methods used to quantify and reduce this error.

Sampling Error

The process of sampling (selecting a random subset of a population and calculating estimates from this subset) causes estimates to contain error they would not have if every member of the population had been observed and included in the estimate. The 2008 FIA inventory of New Jersey is based on a sample of 844 plots located randomly across the State (a total area of 5,000,523 acres), a sampling rate of approximately one plot for every 5,925 acres.

The statistical estimation procedures outlined in the previous section and described in detail in Bechtold and Patterson (2005) provide the estimates of the population totals and means presented in this report. Along with every estimate is an associated sampling error that is typically expressed as a percentage of the estimated value but that can also be expressed in the same units as the estimate or as a confidence interval (the estimated value plus or minus the sampling error). This sampling error is the primary measure of the reliability of an estimate. A sampling error can be interpreted to mean that the chances are two out of three that had a 100-percent inventory been taken using these methods, the results would have been within the limits indicated (i.e., 68-percent confidence interval).

The sampling errors for State-level estimates of the major attributes presented in this report are shown in Table B. Table NJ-65 presents sampling errors for these estimates at the inventory unit and county group levels.

Estimates for classifications smaller than the State totals presented in Table B will have larger sampling errors. For example, Table NJ-65 shows that the sampling error for timberland area in any county is higher than that for total timberland area in the State. To compute an approximate sampling error for an estimate that is smaller than a State total, use the following formula:

$$E = \frac{(SE)\sqrt{(\text{State total estimate})}}{\sqrt{(\text{Smaller estimate})}} \quad (1)$$

where:

E = approximate sampling error for smaller estimate
SE = sampling error for State total estimate

For example, to compute the error on the area of National Park Service forest land in the State, proceed as follows:

The total National Park Service forest land in the State from Table NJ-2 is estimated at 38,500 acres.

The total area of all forest land in the state from Table NJ-2 is 2,002,100 acres.

The State total error for forest land area from Table B is 2.59 percent.

Using formula (1):

$$\textbf{Sampling error} = \frac{(2.59)\sqrt{(2{,}002{,}100)}}{\sqrt{(38{,}500)}} = \textbf{18.68 percent.}$$

This approximation works well for estimates of area, volume, number of trees, and biomass. It is less effective for estimates of growth, removals, or mortality. Individuals seeking more accurate sampling errors should use Forest Inventory Data Online (FIDO), available at http://fiatools.fs.fed.us.

The estimators used by FIA are unbiased under the assumptions that the sample plots are a random sample of the total population and the observed value for any plot is the true value for that plot. Deviations from these basic assumptions are not reflected in the computation of

sampling errors. The following sections on measurement, prediction, and nonresponse error address possible departures from these basic assumptions.

Measurement Error

Errors associated with the methods and instruments used to observe and record the sample attributes are called measurement errors. On FIA plots, attributes such as the diameter and height of a tree are measured with different instruments, and other attributes such as species and crown class are observed without the aid of an instrument. On a typical FIA plot, 30 to 70 trees are observed with 15 to 20 attributes recorded on each tree. In addition, many attributes that describe the plot and conditions on the plot are observed. Errors in any of these observations affect the quality of the estimates. If a measurement is biased (such as tree diameter consistently taken at an incorrect place on the tree), then the estimates that use this observation (such as volume) will reflect this bias. Even if measurements are unbiased, high levels of random error in the measurements will add to the total random error of the estimation process.

To ensure that all FIA observations are made to the highest standards possible, a regular program of quality assurance and quality control is an integral part of all FIA data collection efforts. This program begins with the documentation of protocols and procedures used in the inventory followed by intensive crew training. To assess the quality of the data collected by these trained crews, a random sample of at least 4 percent of all plots are measured independently by a different expert crew. These independent measurements are referred to as blind checks. The purpose of these blind checks is to assess the quality of field measurements. The second measurement on these blind check plots is done by a crew termed the QA crew. In all cases, QA crews have as much or more experience and training in FIA field measurements than standard FIA crews.

The quality of field measurements is assessed nationally through a set of measurement quality objectives (MQOs) that are set for every data item we collect. Each MQO consists of two parts: a tolerance or acceptable level of measurement error, and an objective in terms of the percent of measurements within tolerance. The blind check measurements are used to observe how often individual field crews are meeting these objectives and to assess the overall compliance among all crews. Table C shows the compliance rates for various measurements used to compute the estimates included in this report and in other NRS-FIA reports. The columns labeled New Jersey come from blind check measurements of plots used in this report, and the columns labeled All NRS-FIA States come from all measurements made by FIA crews within the entire 24-state area where the Northern Research Station implemented the FIA program over 2004-2008. Training and supervision of crews is a regional effort and crews often work in more than one state. Regional data quality observations reflect the overall measurement quality of all data collected by FIA in the NRS region.

In addition to the percent compliance to measurement quality objectives, the blind check observations were used to test for relative bias in the field crew measurements. Relative bias is defined here as a tendency for the standard field crew measurements to be higher or lower than those measurements taken by the QA crews. The estimated relative bias and limits of 95 percent confidence intervals (based on parametric bootstrap estimates) for the relative bias are presented in Table D.

The blind check measurements do not provide direct observations of true bias in field measurements (average difference between field measurements and true values) because they are paired observations of two field measurements. The QA crew in these blind checks typically has more training and experience with FIA field measurements than the first crew, but both crews use the same methods and instruments to obtain the measurements. These methods have been selected to be the best available and were selected for use nationwide by FIA; they are commonly used by other similar natural resource inventories. A basic assumption is that the methods, when correctly applied, provide unbiased observations of the attribute they are

designed to measure. Under this assumption, relative bias observations in Table D provide observations of bias due to the difference in experience and training between the field and QA crews. In most cases there is no significant bias.

Prediction Error

Errors associated with using mathematical models (such as volume models) to provide observations of the attributes of interest based on sample attributes are referred to as prediction errors. Area, number of trees, volume, biomass, growth, removals, and mortality are the primary attributes of interest presented in this report. Area and number of trees estimates are based on direct observation and do not involve the use of prediction models; however, FIA estimates of volume, biomass, growth, removals, and mortality use model-based predictions in the estimation process. Models are used to predict volume and biomass estimates of individual tree volumes. Change estimates such as growth, mortality, and removals are based on these model-based predictions of volume from both the current plot measurements and the measurements taken in the previous inventory.

In comparing FIA estimates to other data sources, users need to be aware of the prediction models used in both estimates. If both estimates are based on the same prediction models with matching fitted parameter values, then the prediction bias of one estimate should cancel out that of the other estimate. If the estimates are based on different prediction models, then the user should be aware of the prediction error of both models.

Nonresponse Error

Nonresponse error refers to the error caused by not being able to observe some of the elements in the sample. In FIA, nonresponse occurs when crews are unable to measure a plot (or a portion of a plot) at a selected location. Nonresponse falls into the following three classes:

Denied access – Entire plots or portions of plots where the field crew is unable to obtain permission from the landowner and is therefore unable to measure the trees on the plot.

Hazardous/inaccessible – Entire plots or portions of plots where the conditions present prevent a crew from safely getting to the plot or measuring the trees on the plot.

Other – Plots where the field crew is unable to obtain a valid measurement for a variety of reasons other than those stated above.

Nonresponse has two effects on the sample. First, it reduces the sample size. The reduced sample size is reflected in the sampling errors discussed in that section. Second, nonresponse can bias the estimates if the portion of the population not being sampled differs from the portion being sampled.

In FIA, unlike many survey samples, nonresponse rates are relatively low. In the 2008 New Jersey inventory, a total of 844 sample plots were selected to be observed. Of the total sample plots selected for observation, 785 are in the sample used for the estimation of current resources. There were 55 plots where crews were unable to obtain owner permission to measure the plot, five plots where hazardous conditions prevented the crew from measuring all or part of the plot, and no plots were lost from the sample due to additional problems.

Even though an overall response rate of 92.9 percent is quite high, it can cause considerable bias if not properly accounted for. The major source of nonresponse is denied access to plots. Denied access plots primarily occur on lands in private ownership. Also, the observations needed for plots on nonforest and water land classes do not usually require crews to physically enter the land and permission is not needed to obtain the observation because it can be obtained from aerial photos or other remotely sensed information sources.

The stratified estimation process used by FIA with strata defined by three ownership classes (Inland Census Water, Public, and Private) and five canopy cover classes reduces the possible effects of bias caused by nonresponse. Under the stratified estimation process used by FIA, nonresponses are removed from the sample, and stratum estimates (means, totals, and sampling errors) are obtained from only those plots with valid observations. The net effect in the estimates of means and totals is that the average of the observed plots within the stratum (ownership class-forest cover class) becomes the estimate for all nonresponses within that stratum. The nonresponse rate in one stratum does not affect the estimate in other strata. The response rate within each stratum is presented in Table E for the New Jersey 2008 inventory and for all FIA inventories conducted by the Northern Research Station over the same period.

The nonresponse plots in this inventory were not permanently removed from the FIA system of plots. In future inventories, we will again attempt to measure these plots. At that time we may be able to obtain permission to access these plots, the hazardous conditions may have changed, or other circumstances that caused us to drop plots from a specific inventory cycle will probably be different.

Glossary

Accretion: The estimated net growth on trees that were measured during the previous inventory (divided by the number of growing seasons between surveys to produce average annual accretion). It does not include growth on trees cut during the period nor those trees that died. This component uses the incremental change in volume between two inventories.

Average annual mortality of growing stock: The average annual change in cubic-foot volume of sound wood in growing-stock trees that died over a defined measurement cycle.

Average annual mortality of sawtimber: The average annual change in board-foot volume of sound wood in sawtimber trees that died over a defined measurement cycle.

Average annual net growth of growing stock: The average annual change in cubic-foot volume of sound wood in live growing-stock trees, and the total volume of trees entering diameter classes greater than 5.0 inches d.b.h., through ingrowth, less volume losses resulting from natural causes. Natural causes include mortality except that due to logging damage, timber stand improvement, or conversion to a nonforest land use.

Average annual net growth of sawtimber: The average 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. Natural causes include mortality except that due to logging damage, timber stand improvement, or conversion to a nonforest land use.

Average annual removals from growing stock: The average cubic-foot volume of wood in live growing-stock trees removed annually for roundwood forest products, in addition to the volume in logging residues or mortality due to logging damage (harvest removals). This component of change also includes the volumes of growing-stock trees removed due to land use changes (other removals).

Average annual removals from sawtimber: The average board-foot volume of wood in live sawtimber trees removed annually for roundwood forest products, in addition to the volume of logging residues or mortality due to logging damage (harvest removals). This component of change also includes the volumes of sawtimber trees removed due to land use changes (other removals).

Basal area: The cross-sectional area of a tree stem at breast height, expressed in square feet. 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.

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.

Board foot: A unit of lumber measuring 1-foot long, 1-foot wide, and 1-inch thick, or its equivalent. International ¼-inch rule is used as the U.S. Forest Service standard log rule in the eastern United States.

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

Census water: Lakes reservoirs, ponds, and similar bodies of water 4.5 acres in size or larger; and rivers or canals more than 200 feet wide (U.S. Census definition).

Coarse woody debris (CWD): Dead branches, twigs, and wood splinters 3.0 inches in diameter and larger, measured at the smallest end.

Commercial species: Tree species currently or prospectively suitable for industrial wood products; excludes species of typically small size, poor form, or inferior quality, e.g., hawthorn and sumac.

Compacted live crown ratio: The percent of the total length of the tree that supports a full, live crown. To determine compacted live crown ratio for trees that have uneven length crowns, lower branches are visually transferred to fill holes in the upper portions of the crown, until a full, even crown is created.

Condition: A delineation of a land area based upon land use, forest type, stand size, regeneration status, reserved status, tree density, and owner class.

Corporate: An ownership class of private lands owned by corporations.

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

Cropland: Land under cultivation within the last 24 months, including cropland harvested, crop failures, cultivated summer fallow, idle cropland used only for pasture, orchards, active Christmas tree plantations indicated by annual shearing, nurseries, and land in soil improvement crops, but excluding land cultivated in developing improved pasture.

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

Crown dieback: 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 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.

Cull decrement: The net volume of rough and rotten cull trees in the previous inventory that are classified as growing-stock trees in the current inventory (divided by the number of growing seasons between inventories to compute average annual cull decrement).

Cull increment: The net volume of growing-stock trees in the previous inventory that are classified as rough and rotten cull trees in the current inventory (divided by the number of growing seasons between inventories to compute average annual cull increment).

Cull tree: A live tree, 5.0 inches in d.b.h. or larger, that is unmerchantable for saw logs now or prospectively because of rot, roughness, or species. (See definitions for rotten and rough trees.)

Diameter-at-breast-height (d.b.h.): The diameter outside bark of a standing tree measured at 4.5 feet above the ground.

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

Diameter class: A classification of trees based on diameter outside bark measured at breast height (4-1/2 feet above ground). D.b.h. is the common abbreviation for "diameter at breast height." With 2-inch diameter classes, the 6-inch class, for example, includes trees 5.0 through 6.9 inches d.b.h.

Dry ton: A unit of measure of dry weight equivalent to 2,000 pounds or 907.1848 Kg.

Dry weight: The weight of wood and bark as it would be if it had been oven dried; usually expressed in pounds or tons.

Down woody material (DWM): Woody pieces of trees and shrubs that have been uprooted (no longer supporting growth) or severed from their root system, not self-supporting, and lying on the ground.

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.

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.

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

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

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

Fine woody debris (FWD): Dead branches, twigs, and wood splinters 0.1 to 2.9 inches in diameter.

Forest industry: An ownership class of private lands owned by companies or individuals operating wood-using plants.

Forest land: Land at least 10 percent stocked by forest trees of any size, including land that formerly had such tree cover and that will be naturally or artificially regenerated. Forest land includes transition zones, such as areas between heavily forested and nonforested lands that are at least 10 percent stocked with forest trees and forest areas adjacent to urban and builtup lands. Also included are pinyon-juniper and chaparral areas in the West and afforested areas. The minimum area for classification of forest land is 1 acre. Roadside, streamside, and shelterbelt strips of trees must have a crown width of at least 120 feet to qualify as forest land. Unimproved roads and trails, streams, and clearings in forest areas are classified as forest if less than 120 feet wide.

Forest type: A classification of forest land based on the species presently forming a plurality of the live-tree stocking.

Forest-type group: A combination of forest types that share closely associated species or site requirements and are generally combined for brevity of reporting.

Major eastern forest-type groups:

White-red-jack pine: Forests in which eastern white pine, red pine, or jack pine, singly or in combination, comprise a plurality of the stocking. Common associates include hemlock, aspen, birch, and maple.

Oak-pine: Forests in which hardwoods (usually upland oaks) comprise a plurality of the stocking, but in which pine or eastern redcedar comprises 25-50 percent of the stocking. Common associates include gum, hickory, and yellow-poplar.

Oak-hickory: Forests in which upland oaks or hickory, singly or in combination, comprise a plurality of the stocking except where pines comprise 25-50 percent, in which case the stand is classified as oak-pine. Common associates include yellow-poplar, elm, maple, and black walnut.

Oak-gum-cypress: Bottomland forests in which tupelo, blackgum, sweetgum, oaks, or southern cypress, singly or in combination, comprise a plurality of the stocking except where pines comprise 25-50 percent, in which case the stand is classified as oak-pine. Common associates include cottonwood, willow, ash, elm, hackberry, and maple.

Elm-ash-cottonwood: Forests in which elm, ash, or cottonwood, singly or in combination, comprise a plurality of the stocking. Common associates include willow, sycamore, beech, and maple.

Maple-beech-birch: Forests in which maple, beech, or yellow birch, singly or in combination, comprise a plurality of the stocking. Common associates include hemlock, elm, basswood, and white pine.

Aspen-birch: Forests in which aspen, balsam poplar, paper birch, or gray birch, singly or in combination, comprise a plurality of the stocking. Common associates include maple and balsam fir.

Gross growth: The sum of accretion and ingrowth.

Growing stock: A classification of timber inventory that includes live trees of commercial species meeting specified standards of quality or vigor. Cull trees are excluded. When associated with volume, this includes only trees 5.0 inches d.b.h. and larger.

Growing-stock volume: Net or gross volume in cubic feet of growing-stock trees 5.0 inches and larger d.b.h. measured from the 1-foot stump to a minimum 4.0-inch top diameter outside bark on the central stem, or to the point where the central stem splits into limbs. Net volume equals gross volume minus deduction for cull defects.

Hardwood: A dicotyledonous tree, usually broad-leaved and deciduous.

Soft hardwoods: A category of hardwood species with wood generally of low specific gravity (less than 0.5). Notable examples include red maple, paper birch, quaking aspen, and American elm.

Hard hardwoods: A category of hardwood species with wood generally of high specific gravity (greater than 0.5). Notable examples include sugar maple, yellow birch, black walnut, and oaks.

Industrial wood: All commercial roundwood products except fuelwood.

Ingrowth: The estimated net volume of trees that became 5.0 inches and larger d.b.h. during the period between inventories (divided by the number of growing seasons between surveys to produce average annual ingrowth). Also, the estimated net volume of trees 5.0 inches and larger d.b.h. that are growing on land that was reclassified from noncommercial forest land or nonforest land to timberland.

Introduction: The intentional or unintentional escape, release, dissemination, or placement of a species into an ecosystem as a result of human activity. "Introduced" is not synonymous and should not be confused with the term "invasive" (USDA definition).

Invasive species: Those species whose introduction does, or is likely to, cause economic or environmental harm or harm to human health. For the purpose of this policy only, a plant species is considered "invasive" only when it occurs on the Federal or State-specific noxious weed list or a list developed by the State-specific Department of Agriculture with their partners and approved by the State Technical Committee which prohibits or cautions its use due to invasive qualities (USDA definition).

Land area: The area of dry land and land temporarily or partly covered by water, such as marshes, swamps, and river flood plains; streams, sloughs, estuaries, and canals less than 200 feet wide; and lakes, reservoirs, and ponds less than 4.5 acres in area.

Land use: A classification of land that indicates the primary use at the time of the inventory. Major categories are forest land and nonforest land.

Litter: Undecomposed or only partially decomposed organic material that can be readily identified (e.g., plant leaves, twigs).

Live aboveground biomass: The aboveground volume of live trees (including bark but excluding foliage) reported in dry tons (dry weight). Biomass has four components:

Bole: Biomass of a tree from 1 foot above the ground to a 4-inch top outside bark or to a point where the central stem breaks into limbs.

Tops and limbs: Total biomass of a tree from a 1-foot stump minus the bole.

Saplings: Total aboveground biomass of a tree from 1.0 to 4.9 inches in d.b.h.

Stump: Biomass of a tree 5 inches d.b.h. and larger from the ground to a height of 1 foot.

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.

Logging residues: The unused portions of growing-stock and nongrowing-stock trees cut or killed by logging and left in the woods.

Merchantable: Refers to a pulpwood or saw log section that meets pulpwood or saw log specifications, respectively.

National Forest: An ownership class of Federal lands, designated by Executive order or statute as National Forests or purchase units, and other lands under the administration of the Forest Service including experimental areas.

Net cubic-foot volume: 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.

Net board-foot volume: The gross volume in board feet less the deductions for rot, roughness, and poor form. Volume is computed from the 1-foot stump to a minimum 7.0-inch diameter outside bark for softwoods and a minimum 9.0-inch outside bark for hardwoods on the central stem. This estimate includes all softwoods 9.0 inches d.b.h. and larger, and all hardwoods 11.0 inches d.b.h. and larger.

Noncensus water: Streams/rivers 120 to 200 feet wide and bodies of water 1 to 4.5 acres in size, where the U.S. Bureau of the Census (1990) classifies such water as land.

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 has never supported forests and lands formerly forested where use of timber management is precluded by development for other uses. (Note: Includes area used for crops, improved pasture, residential areas, city parks, improved roads of any width and adjoining clearings, powerline clearings of any width, and 1- to 4.5-acre areas of water classified by the U.S. Bureau of the Census as land. If intermingled in forest areas, unimproved roads and nonforest strips must be more than 120 feet wide, and clearings, etc., must be more than 1 acre in area to qualify as nonforest land.)

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

Nonnative species: Within a particular ecosystem, any species; including its seeds, eggs, spores, or other biological material capable of propagating that species; that is not native to that ecosystem (USDA definition).

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

Ownership unit: A classification of ownership encompassing all types of legal entities having an ownership interest in land, regardless of the number of people involved. A unit may be an individual; a combination of persons; a legal entity such as a corporation, partnership, club, or trust; or a public agency. An ownership unit has control of a parcel or group of parcels of land.

Owner class: A classification of land into categories of ownership.

Forest industry – Land owned by private companies which operate primary wood-using mills.

Nonindustrial private – Land owned by other corporate, individuals or trusts (NGOs) and whom do not operate primary wood-using mills.

Other corporate –Land owned by Timber investment or real estate companies.

Public – Land owned by federal, state, county, or municipal government.

Ozone: A regional, gaseous air pollutant produced primarily through sunlight-driven chemical reactions of nitrogen dioxide 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.

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

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.

Poletimber trees: Live trees at least 5.0 inches in d.b.h. but smaller than sawtimber trees.

Primary wood-using mill: A mill that converts roundwood products into other wood products. Common examples are sawmills that convert saw logs into lumber and pulpmills that convert pulpwood into paper.

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: Roundwood, whole-tree chips, or wood residues used for the production of wood pulp.

Reserved forest land: Forest land withdrawn from timber utilization through statute, administrative regulation, or designation without regard to productive status. Examples include national forest wilderness areas, national parks, and national monuments.

Residues: Bark and woody materials that are generated in primary 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.

Rotten tree: A live tree of commercial species that does not contain a saw log now or prospectively primarily because of rot (that is, when rot accounts for more than 50 percent of the total cull volume).

Rough tree: (a) A live tree of commercial species that does not contain a saw log now or prospectively primarily because of roughness (that is, when sound cull due to such factors as poor form, splits, or cracks accounts for more than 50 percent of the total cull volume); or (b) a live tree of noncommercial species.

Roundwood products: Logs, bolts, and other round timber generated from harvesting trees for industrial or consumer use. Roundwood products include sawlogs, veneer, cooperage logs, bolts, pulpwood logs, fuelwood, pilings, poles posts, ties, mine timbers, and various other round or split products.

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

Saplings: Live trees 1.0 inch through 4.9 inches d.b.h.

Saw log: 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.

Sawtimber tree: A live tree of commercial species containing at least a 12-foot saw log or two noncontiguous saw logs 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 diameter outside bark (d.o.b.).

Sawtimber volume: Net or gross volume in board-foot (International ¼-inch rule) or cubic-foot of the sawlog portion of live sawtimber trees measured from the 1-foot stump to a minimum 7.0-inches top diameter outside bark (for softwoods) or 9.0 inches top diameter outside bark (for hardwoods), on the central stem, or to the point where the central stem splits into smaller limbs. Net volume equals gross volume minus deduction for rough and rotten cull.

Seedling: Live tree smaller than 1.0 inch d.b.h. / d.r.c. and at least 6.0 inches in height for softwoods and 12.0 inches in height for hardwoods.

Site index: An expression of forest site quality based on the height of a free-growing dominant or codominant tree of a representative species in the forest type at age 50.

Snag: A standing dead tree. In the current inventory, a snag must be 5.0 inches d.b.h./d.r.c. and 4.5 feet tall, and have a lean angle less than 45 degrees from vertical. A snag may be either self-supported by its roots or supported by another tree or snag.

Softwood: A coniferous tree, usually evergreen, having needles or scale-like leaves.

Sound dead: The net volume in salvable dead trees.

Species group: A combination of tree species that share closely associated understory plants or site requirements are combined into species groups.

Stand: A group of trees on a minimum of 1 acre of forest land that is stocked by forest trees of any size.

Standing dead tree: A standing dead tree must be at least 5 inches d.b.h. and larger; is at least 4.5 feet in height; and has a lean of less than 45 degrees from the vertical. A snag should be self-supported or supported by another tree.

Stand-size class: A classification of forest land based on the size class of live trees in the area. The classes include

Nonstocked: Forest land stocked with less than 10 percent of full stocking with live trees. Examples are recently cutover areas or recently reverted agricultural fields.

Sapling-seedling: Forest land stocked with at least 10 percent of full stocking with live trees with half or more of such stocking in seedlings or saplings or both.

Poletimber: Forest land stocked with at least 10 percent of full stocking with live trees with half or more of such stocking in poletimber or sawtimber trees or both, and in which the stocking of poletimber exceeds that of sawtimber.

Sawtimber: Forest land stocked with at least 10 percent of full stocking with live trees with half or more of such stocking in poletimber or sawtimber trees or both, and in which the stocking of sawtimber is at least equal to that of poletimber.

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

Stocking: The degree of occupancy of land by trees, measured by basal area or number of trees by size and spacing, or both, compared to a stocking standard; that is, the basal area or number of trees, or both, required to fully utilize the growth potential of the land.

Stocking class: At the tree level, stocking is the density expressed as a percent of total tree density required to fully utilize the growth potential of the land. At the stand level it is expressed as the sum of the stocking values of all trees sampled. The classes include:

Overstocked: Forest stand with stocking ≥100 percent.

Fully stocked: Forest stand that contains 60-99 percent of full stocking.

Moderately stocked: Forest stand that contains 35-59 percent of full stocking.

Poorly stocked: Forest stand that contains only 10-34 percent of full stocking.

Nonstocked: Forest stand with less than 10 percent of full stocking.

Timberland: Forest land that is producing or is capable of producing crops of industrial wood and not withdrawn from timber utilization by statute or administrative regulation. (Note: Areas qualifying as timberland are capable of producing in excess of 20 cubic feet per acre per year of industrial wood in natural stands. Currently inaccessible and inoperable areas are included.)

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.

Tree: A woody plant usually having one or more erect perennial stems, a stem diameter at breast height of at least 3 inches, a more or less definitely formed crown of foliage, and a height of at least 15 feet at maturity.

Tree class: A classification of tree quality or condition of the tree for saw log production. Tree class for sawtimber-size trees are based on current conditions. Tree class for poletimber-size trees is based on the prospected determination or forecast of the potential tree quality when the tree reaches sawtimber size.

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

Tops: 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.) or to the point where the central stem breaks into limbs). It includes the usable material in the uppermost stem.

Total live tree biomass: The total mass of live trees and associated saplings expressed in pounds or tons (dry weight) per unit area. The total tree and sapling biomass (excluding foliage) has five components:

Bole: Biomass of a tree from 1 foot above the ground to a 4-inch top outside bark or to a point where the central stem splits into smaller limbs. This includes perturbing twigs from the central stem.

Tops and limbs: Total biomass of a tree from the 12-inch stump minus the bole. This does not include any twigs perturbing from the central stem below the 4-inch top.

Sapling trees: Total biomass of a tree from 1 to 4.9 inches diameter measured at the root collar d.b.h. or d.r.c.

Stump: Total biomass of a tree 5 inches d.b.h. and larger from the ground to a height of 1 foot.

Belowground: Total biomass of the belowground portion of the stump and the coarse roots of all trees and saplings.

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.

Unreserved forest land: Forest land not withdrawn from harvest by statute or administrative regulation. Includes forest lands that are not capable of producing in excess of 20 cubic feet per acre per year of industrial wood in natural stands.

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.

Weight: The weight of wood and bark, oven-dry basis (approximately 12 percent moisture content).

Appendix A. Tree Species in New Jersey

Tree species measured on field plots in New Jersey's 2008 inventory.

Common name	Scientific name
Atlantic white-cedar	*Chamaecyparis thyoides*
Eastern redcedar	*Juniperus virginiana*
Norway spruce	*Picea abies*
Shortleaf pine	*Pinus echinata*
Red pine	*Pinus resinosa*
Pitch pine	*Pinus rigida*
Pond pine	*Pinus serotina*
Eastern white pine	*Pinus strobus*
Scotch pine	*Pinus sylvestris*
Loblolly pine	*Pinus taeda*
Virginia pine	*Pinus virginiana*
Eastern hemlock	*Tsuga canadensis*
Boxelder	*Acer negundo*
Striped maple	*Acer pensylvanicum*
Red maple	*Acer rubrum*
Silver maple	*Acer saccharinum*
Sugar maple	*Acer saccharum*
Norway maple	*Acer platanoides*
Ailanthus	*Ailanthus altissima*
European alder	*Alnus glutinosa*
Serviceberry spp.	*Amelanchier* spp.
Common serviceberry	*Amelanchier arborea*
Yellow birch	*Betula alleghaniensis*
Sweet birch	*Betula lenta*
River birch	*Betula nigra*
Paper birch	*Betula papyrifera*
Gray birch	*Betula populifolia*
American hornbeam, musclewood	*Carpinus caroliniana*
Bitternut hickory	*Carya cordiformis*
Pignut hickory	*Carya glabra*
Shagbark hickory	*Carya ovata*
Mockernut hickory	*Carya alba*
Sand hickory	*Carya pallida*
American chestnut	*Castanea dentata*
Northern catalpa	*Catalpa speciosa*
Hackberry	*Celtis occidentalis*
Flowering dogwood	*Cornus florida*
Common persimmon	*Diospyros virginiana*
American beech	*Fagus grandifolia*
White ash	*Fraxinus americana*
Black ash	*Fraxinus nigra*
Green ash	*Fraxinus pennsylvanica*
American holly	*Ilex opaca*
Butternut	*Juglans cinerea*
Black walnut	*Juglans nigra*

(Appendix A continued on next page)

(Appendix A continued)

Common name	Scientific name
Sweetgum	*Liquidambar styraciflua*
Yellow-poplar	*Liriodendron tulipifera*
Osage-orange	*Maclura pomifera*
Sweetbay	*Magnolia virginiana*
Apple spp.	*Malus* spp.
Mulberry spp.	*Morus* spp.
Blackgum	*Nyssa sylvatica*
Eastern hophornbeam	*Ostrya virginiana*
American sycamore	*Platanus occidentalis*
Eastern cottonwood	*Populus deltoides*
Bigtooth aspen	*Populus grandidentata*
Quaking aspen	*Populus tremuloides*
Pin cherry	*Prunus pensylvanica*
Black cherry	*Prunus serotina*
Chokecherry	*Prunus virginiana*
Sweet cherry, domesticated	*Prunus avium*
White oak	*Quercus alba*
Swamp white oak	*Quercus bicolor*
Scarlet oak	*Quercus coccinea*
Southern red oak	*Quercus falcata*
Scrub oak	*Quercus ilicifolia*
Bur oak	*Quercus macrocarpa*
Blackjack oak	*Quercus marilandica*
Swamp chestnut oak	*Quercus michauxii*
Pin oak	*Quercus palustris*
Willow oak	*Quercus phellos*
Chestnut oak	*Quercus prinus*
Northern red oak	*Quercus rubra*
Shumard oak	*Quercus shumardii*
Post oak	*Quercus stellata*
Black oak	*Quercus velutina*
Black locust	*Robinia pseudoacacia*
Black willow	*Salix nigra*
Sassafras	*Sassafras albidum*
American basswood	*Tilia americana*
Elm spp.	*Ulmus* spp.
American elm	*Ulmus americana*
Slippery elm	*Ulmus rubra*

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Table NJ-10.—Number of live trees (at least 1 inch d.b.h/d.r.c.) in thousand trees, on forest land by species group and diameter class, New Jersey, 2008

Table NJ-11.—Number of growing-stock trees (at least 1 inch d.b.h/d.r.c.) in thousand trees, on timberland by species group and diameter class, New Jersey, 2008

Volume

Table NJ-12.—Net volume of live trees (at least 5 inches d.b.h./d.r.c.), in million cubic feet, by owner class and forest-land status, New Jersey, 2008

Table NJ-13.—Net volume of live trees (at least 5 inches d.b.h./d.r.c.), in million cubic feet, on forest land by forest-type group and stand-size class, New Jersey, 2008

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County-Level

Table NJ-54.—Area of forest land, in thousand acres, by inventory unit, county, and forest-land status, New Jersey, 2008

Table NJ-55.—Area of forest land, in thousand acres, by inventory unit, county, ownership group, and forest-land status, New Jersey, 2008

Table NJ-57.—Area of timberland, in thousand acres, by inventory unit, county, and stand-size class, New Jersey, 2008

Table NJ-58.—Area of timberland, in thousand acres, by inventory unit, county, and stocking class, New Jersey, 2008

Table NJ-59.—Net volume of growing-stock trees (at least 5 inches d.b.h.), in million cubic feet, and sawtimber trees, in million board feet (International ¼-inch rule) trees on timberland by inventory unit, county, and major species group, New Jersey, 2008

Table NJ-59a.—Net volume of growing-stock trees (at least 5 inches d.b.h.), in million cubic feet, and sawtimber trees, in million board feet (Doyle rule) on timberland by inventory unit, county, and major species group, New Jersey, 2008

Table NJ-60.—Average annual net growth of growing-stock trees (at least 5 inches d.b.h.), in million cubic feet, and sawtimber trees, in million board feet (International ¼-inch rule) on timberland by inventory unit, county, and major species group, New Jersey, 2008

Table NJ-60a.—Average annual net growth of growing-stock trees (at least 5 inches d.b.h.), in million cubic feet, and sawtimber, in million board feet (Doyle rule) on timberland by inventory unit, county, and major species group, New Jersey, 2008

Table NJ-61.—Average annual removals of growing-stock trees (at least 5 inches d.b.h.) in million board feet, and sawtimber trees, in million board feet (International ¼-inch rule) on timberland by inventory unit, county, and major species group, New Jersey, 1999 to 2008

Table NJ-61a.—Average annual removals of growing-stock trees (at least 5 inches d.b.h.) in million board feet, and sawtimber trees, in million board feet (Doyle rule) on timberland by inventory unit, county, and major species group, New Jersey, 1999 to 2008

Table NJ-65.—Sampling errors, in percent, for area, volume, average annual net growth, average annual removals, and average annual mortality on timberland by inventory unit and county, New Jersey, 2008

*All tables contain forest attribute estimates for New Jersey for measurements taken from 2004 to 2008, except where indicated.

**Gaps in enumeration of tables are placeholders for future tables such as forest health indicator population estimates (e.g., downed woody material).

Table A.—Area and number of plots in each stratum used for stratification and estimation in New Jersey, 2008

Unit code	Estimation unit description	Canopy cover stratum	Acres	Selected	Office selected	Field selected	Field sampled	Field sampled forested	Total plots sampled for change	Field sampled plots for change	Not measured
1	Inland Census Water Cnty. Grp. 11, 902	Canopy cover 0 - 81	21,000	4	4	0	0	0	0	0	0
1	Inland Census Water Cnty. Grp. 19, 41, 27, 37,...	Canopy cover 0 - 81	33,000	4	3	1	1	1	0	0	0
1	Inland Census Water Cnty. Grp. 25, 5	Canopy cover 0 - 81	19,000	4	1	3	3	0	0	0	0
1	Inland Census Water Cnty. Grp. 29	Canopy cover 0 - 81	77,000	15	14	1	1	0	0	0	0
1	Inland Census Water Cnty. Grp. 33	Canopy cover 0 - 81	22,000	5	4	1	1	0	0	0	0
1	Inland Census Water Cnty. Grp. 901	Canopy cover 0 - 81	29,000	7	5	2	2	1	0	0	0
1	Inland Census Water Cnty. Grp. 904	Canopy cover 0 - 81	51,000	12	9	3	3	1	0	0	0
1	Private Cnty. Grp. 11	Canopy cover 0 - 5	133,000	16	5	11	11	3	0	0	0
1	Private Cnty. Grp. 11	Canopy cover 6 - 51	33,000	8	0	8	8	5	0	0	0
1	Private Cnty. Grp. 11	Canopy cover 66 - 80	32,000	9	0	9	8	7	0	0	1
1	Private Cnty. Grp. 11	Canopy cover 81 - 100	41,000	5	0	5	5	5	0	0	0
1	Private Cnty. Grp. 19	Canopy cover 0 - 5	133,000	23	4	19	19	6	0	0	0
1	Private Cnty. Grp. 19	Canopy cover 6 - 66	47,000	8	1	7	4	4	0	0	3
1	Private Cnty. Grp. 19	Canopy cover 81 - 100	68,000	11	0	11	10	9	0	0	1
1	Private Cnty. Grp. 25	Canopy cover 0 - 5	112,000	18	6	12	11	0	0	0	1
1	Private Cnty. Grp. 25	Canopy cover 51 - 81	90,000	11	0	11	11	8	0	0	0
1	Private Cnty. Grp. 25	Canopy cover 6 - 50	57,000	15	3	12	12	2	0	0	0
1	Private Cnty. Grp. 27	Canopy cover 0 - 5	48,000	6	2	4	4	0	0	0	0
1	Private Cnty. Grp. 27	Canopy cover 6 - 66	75,000	9	4	5	5	1	0	0	0
1	Private Cnty. Grp. 27	Canopy cover 81 - 100	100,000	22	1	21	19	17	0	0	2
1	Private Cnty. Grp. 29	Canopy cover 0 - 5	87,000	14	4	10	10	3	0	0	0
1	Private Cnty. Grp. 29	Canopy cover 51 - 66	49,000	4	0	4	4	4	0	0	0
1	Private Cnty. Grp. 29	Canopy cover 6 - 50	51,000	6	3	3	3	1	0	0	0
1	Private Cnty. Grp. 29	Canopy cover 81 - 100	61,000	17	0	17	15	15	0	0	2
1	Private Cnty. Grp. 33	Canopy cover 0 - 5	121,000	22	9	13	10	3	0	0	3
1	Private Cnty. Grp. 33	Canopy cover 51 - 81	52,000	6	0	6	6	6	0	0	0
1	Private Cnty. Grp. 33	Canopy cover 6 - 50	15,000	5	1	4	4	2	0	0	0
1	Private Cnty. Grp. 37	Canopy cover 0 - 66	111,000	14	8	6	5	2	0	0	1
1	Private Cnty. Grp. 37	Canopy cover 81 - 100	106,000	22	0	22	15	15	0	0	7
1	Private Cnty. Grp. 41	Canopy cover 0 - 5	83,000	16	5	11	10	3	0	0	1
1	Private Cnty. Grp. 41	Canopy cover 6 - 66	28,000	5	0	5	5	4	0	0	0
1	Private Cnty. Grp. 41	Canopy cover 81 - 100	75,000	14	0	14	12	11	0	0	2
1	Private Cnty. Grp. 5	Canopy cover 0 - 5	138,000	22	5	17	15	2	0	0	2
1	Private Cnty. Grp. 5	Canopy cover 6 - 51	73,000	8	2	6	5	2	0	0	1
1	Private Cnty. Grp. 5	Canopy cover 66 - 80	38,000	8	0	8	8	7	0	0	0

(Table A continued on next page)

(Table A continued)

Unit code	Estimation unit description	Canopy cover stratum	Acres	Selected	Office selected	Field selected	Field sampled	Field sampled forested	Total plots sampled for change	Field sampled plots for change	Not measured
1	Private Cnty. Grp. 5	Canopy cover 81 - 100	76,000	18	1	17	12	11	0	0	5
1	Private Cnty. Grp. 901	Canopy cover 0 - 5	120,000	22	7	15	15	0	0	0	0
1	Private Cnty. Grp. 901	Canopy cover 51 - 66	63,000	9	2	7	7	0	0	0	0
1	Private Cnty. Grp. 901	Canopy cover 6 - 50	116,000	17	6	11	11	0	0	0	0
1	Private Cnty. Grp. 901	Canopy cover 81 - 100	63,000	12	4	8	8	4	0	0	0
1	Private Cnty. Grp. 902	Canopy cover 0 - 5	158,000	26	10	16	15	2	0	0	1
1	Private Cnty. Grp. 902	Canopy cover 51 - 65	16,000	7	0	7	6	2	0	0	1
1	Private Cnty. Grp. 902	Canopy cover 6 - 50	58,000	8	1	7	7	2	0	0	0
1	Private Cnty. Grp. 902	Canopy cover 66 - 80	28,000	5	1	4	3	2	0	0	1
1	Private Cnty. Grp. 902	Canopy cover 81 - 100	52,000	10	0	10	8	7	0	0	2
1	Private Cnty. Grp. 903	Canopy cover 0 - 5	232,000	41	10	31	30	8	0	0	1
1	Private Cnty. Grp. 903	Canopy cover 51 - 66	67,000	7	1	6	3	3	0	0	3
1	Private Cnty. Grp. 903	Canopy cover 6 - 50	99,000	13	4	9	9	0	0	0	0
1	Private Cnty. Grp. 903	Canopy cover 81 - 100	83,000	23	0	23	17	16	0	0	6
1	Private Cnty. Grp. 904	Canopy cover 0 - 5	134,000	18	9	9	9	1	0	0	0
1	Private Cnty. Grp. 904	Canopy cover 51 - 65	23,000	5	0	5	5	4	0	0	0
1	Private Cnty. Grp. 904	Canopy cover 6 - 50	40,000	7	3	4	3	2	0	0	1
1	Private Cnty. Grp. 904	Canopy cover 66 - 80	63,000	12	0	12	12	10	0	0	0
1	Private Cnty. Grp. 904	Canopy cover 81 - 100	94,000	16	0	16	14	14	0	0	2
1	Public Cnty. Grp. 11	Canopy cover 0 - 66	43,000	6	0	6	6	4	0	0	0
1	Public Cnty. Grp. 11	Canopy cover 81 - 100	32,000	6	0	6	5	5	0	0	1
1	Public Cnty. Grp. 19	Canopy cover 0 - 81	27,000	5	0	5	5	3	0	0	0
1	Public Cnty. Grp. 25	Canopy cover 0 - 81	43,000	7	0	7	7	6	0	0	0
1	Public Cnty. Grp. 27	Canopy cover 0 - 81	77,000	11	0	11	11	11	0	0	0
1	Public Cnty. Grp. 29	Canopy cover 0 - 51	76,000	10	1	9	8	7	0	0	1
1	Public Cnty. Grp. 29	Canopy cover 66 - 80	27,000	7	0	7	7	7	0	0	0
1	Public Cnty. Grp. 29	Canopy cover 81 - 100	56,000	8	0	8	7	7	0	0	1
1	Public Cnty. Grp. 33, 902	Canopy cover 0 - 81	64,000	9	3	6	5	5	0	0	1
1	Public Cnty. Grp. 37	Canopy cover 0 - 66	22,000	5	1	4	4	2	0	0	0
1	Public Cnty. Grp. 37	Canopy cover 81 - 100	96,000	16	1	15	15	15	0	0	0
1	Public Cnty. Grp. 41	Canopy cover 0 - 81	43,000	7	0	7	7	5	0	0	0
1	Public Cnty. Grp. 5	Canopy cover 0 - 6	66,000	7	1	6	5	5	0	0	1
1	Public Cnty. Grp. 5	Canopy cover 51 - 66	54,000	8	0	8	8	8	0	0	0
1	Public Cnty. Grp. 5	Canopy cover 81 - 100	70,000	13	0	13	13	13	0	0	0
1	Public Cnty. Grp. 901	Canopy cover 0 - 66	22,000	5	1	4	4	2	0	0	0

(Table A continued on next page)

(Table A continued)

Unit code	Estimation unit description	Canopy cover stratum	Acres	Selected	Office selected	Field selected	Field sampled	Field sampled forested	Total plots sampled for change	Field sampled plots for change	Not measured
1	Public Cnty. Grp. 901	Canopy cover 81 - 100	60,000	12	0	12	12	12	0	0	0
1	Public Cnty. Grp. 903	Canopy cover 0 - 81	56,000	9	1	8	7	5	0	0	1
1	Public Cnty. Grp. 904	Canopy cover 0 - 5	70,000	11	2	9	9	2	0	0	0
1	Public Cnty. Grp. 904	Canopy cover 6 - 66	47,000	4	0	4	4	4	0	0	0
1	Public Cnty. Grp. 904	Canopy cover 81 - 100	50,000	7	0	7	7	7	0	0	0

Estimation unit description: Description of the sub-population undergoing post-stratification. County groups are defined by one or more contiguous counties used for population estimation.

Canopy cover stratum: A stratum within each estimation unit defined by partitioning the full range of percent canopy (0 - 100%) into 5 strata.

Selected: The number of plots selected when the sample was drawn.

Office selected: The number of plots determined to have no chance of being forested during a prefield interpretation procedure. These plots are withheld from field sampling and considered remotely sampled.

Field selected: The number of plots determined to have some chance of being forested, or that were forested or non-sampled on a previous visit.

Field sampled: The number of field selected plots that were successfully sampled in the field.

Field sampled forested: The number of field selected plots that were successfully sampled in the field and found to intersect forest land.

Total plots sampled for change: The number of plots included in the sample that were successfully sampled in the previous cycle.

Field sampled plots for change: The number of plots included in the sample that were successfully sampled in the previous cycle and that were sent to the field for sampling.

Not measured: The number of plots that were selected as part of the sample, but were completely non-sampled.

Table B.—State-level estimates of major forest resource attributes and their sampling errors, New Jersey, 2008

Item	State total	Sampling error
Growing stock on timberland	*million cubic feet*	*percent*
Volume	3,474.0	4.60
Average annual net growth	94.6	9.62
Average annual removals	28.8	29.54
Average annual mortality	23.4	18.10
Sawtimber on timberland	*million board feet*[a]	
Volume	11,303.0	6.03
Average annual net growth	403.2	10.25
Average annual removals	99.2	34.62
Average annual mortality	64.4	27.83
Area	*thousand acres*	
Forest land	2,002.1	2.59
Timberland	1,861.3	2.92
Biomass (aboveground live trees and saplings)	*million dry tons*	
Forest land	109.0	3.47
Timberland	101.5	3.83

[a]International ¼-inch rule.
All results for forest land except where indicated.

Table C.—Compliance to measurement quality objectives (MQO) tolerances of variables based on blind check plots, New Jersey, 2008

Variable	Tolerance	Objective (%)	New Jersey		All NRS States	
			% of data within tolerance	Observations	% of data within tolerance	Observations
Plot Level						
National Variables						
Distance to Road	No Tolerance	90.0	69.2	13	83.3	1,903
Water on Plot	No Tolerance	90.0	100.0	13	87.1	1,903
Regional Variables						
Elevation	±50 feet	99.0	100.0	11	86.5	1,809
Latitude - decimal degrees	±0.0001 degree	99.0	100.0	12	92.4	1,811
Longitude - decimal degrees	±0.0001 degree	99.0	100.0	12	90.3	1,811
Latitude - distance	±140 feet		100.0	12	99.3	1,811
Longitude - distance	±140 feet		100.0	12	98.4	1,811
Number of plots				13		1,970
Condition Level						
National Variables						
Condition Status	No Tolerance	99.0	100.0	32	99.2	4,052
Reserve Status	No Tolerance	99.0	96.9	32	99.6	4,052
Owner Group	No Tolerance	99.0	100.0	14	98.4	2,158
Forest Type (Type)	No Tolerance	95.0	71.4	14	84.7	2,158
Forest Type (Group)	No Tolerance	99.0	85.7	14	91.3	2,158
Stand Size	No Tolerance	99.0	100.0	14	88.8	2,158
Regeneration Status	No Tolerance	99.0	100.0	14	98.1	2,158
Tree Density	No Tolerance	99.0	100.0	14	97.4	2,158
Owner Class	No Tolerance	99.0	100.0	14	95.2	2,158
Owner Status	No Tolerance	99.0	100.0	14	96.7	2,158
Regeneration Species	No Tolerance	99.0	100.0	14	98.2	2,158
Stand Age	±10 percent	95.0	100.0	14	78.5	2,158
Disturbance 1	No Tolerance	99.0	85.7	14	87.8	2,141
Disturbance Year 1	±1 year	99.0	.	.	44.8	29
Disturbance 2	No Tolerance	99.0	100.0	2	88.8	277
Disturbance Year 2	±1 year	99.0	.	.	.	.
Disturbance 3	No Tolerance	99.0	.	.	96.8	31

(Table C continued on next page)

(Table C Continued)

Variable	Tolerance	Objective (%)	New Jersey		All NRS States	
			% of data within tolerance	Observations	% of data within tolerance	Observations
Disturbance Year 3	±1 year	99.0	.	.	.	.
Treatment 1	No Tolerance	99.0	100.0	14	96.5	2,141
Treatment Year 1	±1 year	99.0	.	.	94.2	138
Treatment 2	No Tolerance	99.0	.	.	84.8	210
Treatment Year 2	±1 year	99.0	.	.	100.0	13
Treatment 3	No Tolerance	99.0	.	.	97.7	44
Treatment Year 3	±1 year	99.0	.	.	100.0	1
Physiographic Class	No Tolerance	80.0	100.0	14	80.4	2,158
Present Nonforest Use	No Tolerance	99.0	90.6	32	92.1	4,052
Regional Variables						
NC Land Use	No Tolerance	99.0	100.0	32	93.8	4,052
Number of conditions				32		4,052
Boundary Level						
National Variables						
Boundary Change	No Tolerance	99.0	100.0	3	79.5	606
Constrasting Condition	No Tolerance	99.0	100.0	3	92.7	606
Left Azimuth	±10 degrees	90.0	100.0	3	83.0	606
Corner Mapped	No Tolerance	90.0	100.0	3	96.5	606
Corner Azimuth	±10 degrees	90.0	.	.	92.5	40
Corner Distance	±1 foot	90.0	.	.	87.5	40
Right Azimuth	±10 degrees	90.0	100.0	3	84.2	606
Number of boundaries				3		606
Subplot Level						
National Variables						
Subplot Center Condition	No Tolerance	99.0	100.0	52	97.4	7,488
Microplot Center Condition	No Tolerance	99.0	100.0	52	97.2	7,488
Slope	±10 percent	90.0	100.0	48	98.1	7,067
Aspect	±10 degrees	90.0	93.8	48	89.4	6,659
Snow/Water Depth	±0.5 foot		84.6	52	69.1	7,488
Number of subplots				52		7,488

(Table C continued on next page)

(Table C Continued)

Variable	Tolerance	Objective (%)	New Jersey		All NRS States	
			% of data within tolerance	Observations	% of data within tolerance	Observations
Tree Level						
National Variables						
DBH	±0.1 inch per 20 inches	95.0	96.1	203	93.7	31,293
DRC	±0.1 inch per 20 inches	95.0	.	.	91.7	24
Azimuth	±10 degrees	90.0	98.1	213	99.1	32,900
Horizontal Distance	±0.2 foot per 1.0 foot	90.0	95.3	213	98.5	32,900
Species	No Tolerance	95.0	93.0	213	97.5	32,900
Tree Genus	No Tolerance	99.0	99.5	212	99.5	32,855
Tree Status	No Tolerance	95.0	98.6	213	98.9	32,900
Rotten/Missing Cull	±10 percent	90.0	96.9	163	98.6	21,153
Total Length	±10 percent	90.0	77.5	160	81.1	20,703
Actual Length	±10 percent	90.0	50.0	16	76.0	2,375
Compacted Crown Ratio	±10 percent	80.0	79.8	193	84.2	26,967
Uncompacted Crown Ratio (P3)	±10 percent	90.0	.	.	80.9	1,027
Crown Class	No Tolerance	85.0	81.3	193	82.1	26,967
Decay Class	±1 class	90.0	95.5	22	94.5	4,191
Cause of Death	No Tolerance	80.0	95.5	22	86.2	4,191
Condition	No Tolerance	99.0	100.0	213	97.7	32,900
Mortality Year	±1 year	70.0	.	.	95.5	1,372
Crown Position	No Tolerance		.	.	86.9	834
Crown Light Exposure	±1 class	85.0	.	.	91.3	1,027
Sapling Crown Vigor Class	No Tolerance	85.0	.	.	77.7	193
Crown Density	±10 percent	90.0	.	.	79.7	834
Crown Dieback	±10 percent	90.0	.	.	97.2	834
Transparency	±10 percent	90.0	.	.	91.7	834
Regional Variables						
NC Tree Class	No Tolerance	90.0	88.7	203	91.1	29,985
NC Damage Agent 1	No Tolerance	90.0	80.3	193	90.9	26,967
NC Damage Agent 2	No Tolerance	90.0	86.3	51	86.1	4,920
Missouri Damage Code	No Tolerance		.	.	.	.
Utilization	No Tolerance	99.0	.	.	100.0	1,003

(Table C continued on next page)

(Table C Continued)

Variable	Tolerance	Objective (%)	New Jersey		All NRS States	
			% of data within tolerance	Observations	% of data within tolerance	Observations
NC Tree Grade	No Tolerance	90.0	.	.	68.5	2,747
DBH-Live & Trees with Decay Code 1 or 2	±0.1 inch per 20 inches	95.0	96.0	198	93.8	28,413
DBH-Trees with Decay Codes 3, 4 or 5	±1 inch per 20 inches	95.0	100.0	5	99.2	1,300
Total Length-trees 40 feet and greater	±10 percent	90.0	83.8	105	82.5	16,832
Total Length-trees less than 40 feet	±10 percent	90.0	65.5	55	74.8	3,871
Total Length-trees less than 5 inches DBH	±10 percent	90.0	33.3	3	64.3	277
Number of trees				213		32,900
Seedling Level						
National Variables						
Species	No Tolerance	85.0	100.0	16	91.3	5,997
Genus	No Tolerance	90.0	100.0	16	96.8	5,997
Seedling Count	±20 percent	90.0	56.3	16	68.1	5,997
Seedling Count (coded)	No Tolerance	90.0	68.8	16	73.0	5,997
Number of microplots				14		2,644
Site Tree Level						
National Variables						
Condition List	No Tolerance	99.0	100.0	9	92.9	3,124
Diameter	±0.1 inch per 20 inches	95.0	100.0	9	91.8	3,083
Species	No Tolerance	95.0	88.9	9	98.1	3,124
Genus	No Tolerance	99.0	100.0	9	99.8	3,124
Azimuth	±10 degrees	90.0	100.0	9	98.5	3,083
Distance	±5 feet	90.0	100.0	9	99.3	3,083
Total Length	±10 percent	90.0	88.9	9	92.9	3,083
Diameter Age	±5 years	95.0	88.9	9	92.3	3,083
Regional Variables						
Site Index Method	No Tolerance	99.0	100.0	9	99.9	3,124
Field Site Index	No Tolerance	99.0	100.0	9	99.8	3,124
Number of site trees				9		3,124

Table D.—Observed relative bias values (Average [Field crew – QA crew]) for measurement variables, blind check plots, New Jersey, 2008

Variable	Unit of measure	New Jersey				All NRS States			
			95% CI limits				95% CI limits		
		Relative bias	Lower	Upper	Number of observations	Relative bias	Lower	Upper	Number of observations
Plot Level									
National Variables									
Distance to Road	code	-0.31	-0.62	-0.08	13	-0.04	-0.07	-0.01	1,903
Water on Plot	code	0.00	0.00	0.00	13	0.12	0.05	0.20	1,903
Regional Variables									
Elevation	foot	9.64	3.36	17.73	11	60.26	1.35	196.53	1,809
Latitude - decimal degrees	degree	0.00	0.00	0.00	12	0.00	0.00	0.00	1,811
Longitude - decimal degrees	degree	0.00	0.00	0.00	12	0.00	0.00	0.00	1,811
Latitude - distance	foot	-3.21	-7.76	0.38	12	-77.01	-225.30	-1.00	1,811
Longitude - distance	foot	0.67	-4.67	6.63	12	54.04	4.26	152.43	1,811
Number of plots					13				1,970
Condition Level									
National Variables									
Condition Status	code	0.00	0.00	0.00	32	-0.01	-0.01	0.00	4,052
Reserve Status	code	-0.03	-0.13	0.00	32	0.00	0.00	0.00	4,052
Owner Group	code	0.00	0.00	0.00	14	0.23	0.08	0.39	2,158
Forest Type (Type)	code	-13.36	-34.00	0.64	14	10.10	6.40	14.51	2,158
Forest Type (Group)	code	-14.29	-35.71	0.00	14	10.29	6.51	14.69	2,158
Stand Size	code	0.00	0.00	0.00	14	0.00	-0.01	0.02	2,158
Regeneration Status	code	0.00	0.00	0.00	14	0.00	0.00	0.01	2,158
Tree Density	code	0.00	0.00	0.00	14	0.00	0.00	0.01	2,158
Owner Class	code	0.00	0.00	0.00	14	0.22	0.06	0.40	2,158
Owner Status	code	0.00	0.00	0.00	14	0.02	0.02	0.03	2,158
Regeneration Species	code	0.00	0.00	0.00	14	0.17	-1.65	1.87	2,158
Stand Age	year	0.29	0.00	0.86	14	-0.53	-1.62	0.12	2,158
Disturbance 1	code	4.43	0.00	11.07	14	1.37	0.90	1.87	2,141
Disturbance Year 1	year					3,584.07	1,791.83	4,962.72	29
Disturbance 2	code	0.00	0.00	0.00	2	-2.27	-3.80	-0.90	277
Disturbance Year 2	year								

(Table D continued on next page)

(Table D Continued)

Variable	Unit of measure	New Jersey				All NRS States			
		Relative bias	95% CI limits		Number of observations	Relative bias	95% CI limits		Number of observations
			Lower	Upper			Lower	Upper	
Disturbance 3	code					-2.58	-9.03	0.00	31
Disturbance Year 3	year								
Treatment 1	code	0.00	0.00	0.00	14	0.12	-0.02	0.25	2,141
Treatment Year 1	year					0.06	-0.08	0.18	138
Treatment 2	code					2.05	0.19	4.19	210
Treatment Year 2	year					0.23	0.04	0.46	13
Treatment 3	code					0.23	0.00	0.68	44
Treatment Year 3	year					0.00	0.00	0.00	1
Physiographic Class	code	0.00	0.00	0.00	14	0.13	-0.01	0.27	2,158
Present Nonforest Use	code	-0.09	-0.20	-0.03	32	0.16	0.04	0.28	4,052
Regional Variables									
NC Land Use	code	0.00	0.00	0.00	32	-0.11	-0.23	0.00	4,052
Number of conditions					32				4,052
Boundary Level									
National Variables									
Boundary Change	code	0.00	0.00	0.00	3	0.14	0.09	0.20	606
Constrasting Condition	cond	0.00	0.00	0.00	3	0.01	-0.01	0.03	606
Left Azimuth	degree	-2.33	-4.00	0.00	3	1.05	-2.34	4.54	606
Corner Mapped	code	0.00	0.00	0.00	3	0.00	-0.02	0.01	606
Corner Azimuth	degree					-9.20	-26.91	0.23	40
Corner Distance	foot					-0.18	-1.14	0.55	40
Right Azimuth	degree	0.33	0.00	1.00	3	-1.36	-4.28	1.96	606
Number of boundaries					3				606

(Table D continued on next page)

(Table D Continued)

Variable	Unit of measure	New Jersey				All NRS States			
		Relative bias	95% CI limits		Number of observations	Relative bias	95% CI limits		Number of observations
			Lower	Upper			Lower	Upper	
Subplot Level									
National Variables									
Subplot Center Condition	code	0.00	0.00	0.00	52	0.00	0.00	0.01	7,488
Microplot Center Condition	code	0.00	0.00	0.00	52	0.00	0.00	0.01	7,488
Slope	percent	-0.04	-0.44	0.46	48	0.06	-0.08	0.17	7,067
Aspect	degree	-7.38	-22.02	0.72	48	0.42	-0.62	1.47	6,659
Snow/Water Depth	foot	-0.19	-0.31	-0.08	52	-0.11	-0.22	0.01	7,488
Number of subplots					52				7,488
Tree Level									
National Variables									
DBH	inch	-0.05	-0.17	0.01	203	-0.07	-0.08	-0.06	31,293
DRC	inch					-0.04	-0.16	0.04	24
Azimuth	degree	-0.34	-1.54	1.21	213	0.10	0.02	0.17	32,900
Horizontal Distance	foot	0.11	0.00	0.25	213	0.00	-0.01	0.01	32,900
Species	code	-4.69	-11.05	-0.90	213	0.11	-0.22	0.39	32,900
Tree Genus	code	-3.19	-9.57	0.00	212	0.09	-0.17	0.37	32,855
Tree Status	code	0.00	-0.01	0.02	213	0.00	0.00	0.00	32,900
Rotten/Missing Cull	percent	-0.25	-0.74	0.18	163	-0.06	-0.10	-0.01	21,153
Total Length	foot	-1.57	-3.03	-0.21	160	0.16	-0.07	0.38	20,703
Actual Length	foot	-13.85	-34.37	-0.07	16	-2.55	-3.87	-1.26	2,375
Compacted Crown Ratio	percent	-0.72	-2.47	0.75	193	-0.13	-0.25	-0.01	26,967
Uncompacted Crown Ratio (P3)	percent					-0.15	-1.01	0.61	1,027
Crown Class	code	-0.12	-0.21	-0.04	193	-0.04	-0.04	-0.03	26,967
Decay Class	code	0.18	0.00	0.41	22	0.01	-0.02	0.03	4,191
Cause of Death	code	-3.18	-9.55	0.00	22	2.38	1.89	2.80	4,191
Condition	code	0.00	0.00	0.00	213	-0.01	-0.01	-0.01	32,900
Mortality Year	year					0.08	0.04	0.12	1,372
Crown Position	code					-0.09	-0.11	-0.06	834
Crown Light Exposure	code					0.02	-0.04	0.06	1,027

(Table D continued on next page)

(Table D Continued)

Variable	Unit of measure	New Jersey				All NRS States			
		Relative bias	95% CI limits		Number of observations	Relative bias	95% CI limits		Number of observations
			Lower	Upper			Lower	Upper	
Sapling Crown Vigor Class	code					-0.10	-0.18	-0.02	193
Crown Density	percent					0.91	0.30	1.68	834
Crown Dieback	percent					-0.57	-0.97	-0.11	834
Transparency	percent					-1.09	-1.65	-0.52	834
Regional Variables									
NC Tree Class	code	-0.02	-0.09	0.04	203	-0.09	-0.12	-0.05	29,985
NC Damage Agent 1	code	12.07	-1.26	24.27	193	4.42	3.24	5.68	26,967
NC Damage Agent 2	code	18.04	-22.16	69.41	51	11.34	7.57	15.56	4,920
Missouri Damage Code	code								
Utilization	code					0.00	0.00	0.00	1,003
NC Tree Grade	code					3.49	-1.67	7.90	2,747
DBH-Live & Trees with Decay Code 1 or 2	inch	-0.05	-0.17	0.01	198	-0.06	-0.08	-0.06	28,413
DBH-Trees with Decay Codes 3, 4 or 5	inch	0.00	-0.14	0.10	5	-0.03	-0.06	-0.02	1,300
Total Length-trees 40 feet and greater	foot	-0.84	-2.36	0.68	105	0.71	0.58	0.86	16,832
Total Length-trees less than 40 feet	foot	-2.97	-5.92	0.01	55	-2.22	-3.32	-1.12	3,871
Total Length-trees less than 5 inches DBH	foot	-12.55	-28.57	0.00	3	2.44	0.65	4.14	277
Number of trees					213				32,900
Seedling Level									
National Variables									
Species	code	0.00	0.00	0.00	16	0.00	-0.01	0.01	5,997
Genus	code	0.00	0.00	0.00	16	0.00	-0.01	0.00	5,997
Seedling Count	number	-14.58	-37.80	13.54	16	-15.25		-10.65	5,997
Seedling Count (coded)	number	0.25	-0.28	1.06	16	-0.01	-0.03	0.02	5,997
Number of microplots					14				2,644

(Table D continued on next page)

(Table D Continued)

Variable	Unit of measure	New Jersey				All NRS States			
		Relative bias	95% CI limits		Number of observations	Relative bias	95% CI limits		Number of observations
			Lower	Upper			Lower	Upper	
Site Tree Level									
National Variables									
Condition List	code	0.00	0.00	0.00	9	-8.08	-17.06	-2.80	3,124
Diameter	inch	0.00	0.00	0.00	9	-0.01	-0.01	0.00	3,083
Species	code	-3.00	-9.00	0.00	9	-0.15	-0.32	-0.03	3,124
Genus	code	0.00	0.00	0.00	9	-0.15	-0.30	-0.03	3,124
Azimuth	degree	-0.22	-0.67	0.00	9	0.14	-0.24	0.59	3,083
Distance	foot	-0.08	-0.23	0.00	9	0.00	-0.05	0.04	3,083
Total Length	foot	1.48	0.00	3.92	9	-0.14	-0.42	0.10	3,083
Diameter Age	year	-0.67	-2.67	0.56	9	0.09	-0.04	0.23	3,083
Regional Variables									
Site Index Method	code	0.00	0.00	0.00	9	0.00	0.00	0.00	3,124
Field Site Index	feet	0.00	0.00	0.00	9	0.07	0.01	0.14	3,124
Number of site trees					9				3,124

Table E.—FIA nonresponse by strata for selected inventories, New Jersey, 2008

Owner and strata (um)	Number of plots selected	Sampled	Denied access	Hazardous	Other	Response Rate (%)
	number of plots					
Inland Census Water						
1, 2, 3, 4, 5	51	50.8	0	0.3	0	99.5
Private:						
1	244	234.3	9.5	0.3	0	96
2	71	69.8	1.3	0	0	98.2
3	12	10.5	1.5	0	0	87.5
4	34	30.5	3.5	0	0	89.7
5	170	140.8	29	0.3	0	82.8
2, 3	16	14.8	1.3	0	0	92.2
3, 4	20	17	3	0	0	85
2, 3, 4	22	19	3	0	0	86.4
3, 4, 5	17	17	0	0	0	100
1, 2, 3, 4	14	13	0	1	0	92.9
Public:						
1	11	11.0	0.0	0.0	0.0	100.0
4	7	7.0	0.0	0.0	0.0	100.0
5	62	60.0	1.0	1.0	0.0	96.8
1, 2	7	6.0	0.0	1.0	0.0	85.7
3, 4	8	8.0	0.0	0.0	0.0	100.0
1, 2, 3	10	9.0	0.0	1.0	0.0	90.0
2, 3, 4	4	4.0	0.0	0.0	0.0	100.0
1, 2, 3, 4	16	16.0	0.0	0.0	0.0	100.0
1, 2, 3, 4, 5	48	46.0	2.0	0.0	0.0	95.8
Total	844	785	55	5	0	92.9

Strata codes:

1: Canopy cover 0 - 5

2: Canopy cover 6 - 50

3: Canopy cover 51 - 65

4: Canopy cover 66 - 80

5: Canopy cover 81 - 100

Table NJ-1.—Percentage of area by land status, New Jersey, 2008

Land status	Percentage of area
Accessible forest land	
Unreserved forest land	
Timberland	33.6
Unproductive	0.5
Total unreserved forest land	34.1
Reserved forest land	
Productive	2.1
Unproductive	- -
Total reserved forest land	2.1
All accessible forest land	36.2
Nonforest and other land	
Nonforest land	51.8
Water	
Census	4.7
Non-Census	0.7
All nonforest and other land	57.3
Nonsampled land	
Access denied	5.8
Hazardous conditions	0.7
Other	- -
All land	100.0
Total area (thousands of acres)	5,001

All table cells without observations in the inventory sample are indicated by --. Table value of 0.0 indicates the percentage rounds to less than 0.1 percent. Columns and rows may not add to their totals due to rounding.

Table NJ-2.—Area of forest land, in thousand acres, by owner class and forest-land status, New Jersey, 2008

Owner class	Unreserved forests			Reserved forests			All forest land
	Timberland	Unproductive	Total	Productive	Unproductive	Total	
Other Federal							
National Park Service	- -	- -	- -	38.5	- -	38.5	38.5
Fish and Wildlife Service	24.7	- -	24.7	3.6	- -	3.6	28.3
Department of Defense or Energy	50.2	- -	50.2	- -	- -	- -	50.2
Other Federal	- -	5.4	5.4	- -	- -	- -	5.4
State and local government							
State	592.7	13.1	605.7	6.0	- -	6.0	611.7
Local (county, municipal, etc.)	181.6	- -	181.6	65.1	- -	65.1	246.7
Private							
Undifferentiated private	1,012.2	9.2	1,021.3	- -	- -	- -	1,021.3
All owners	1,861.3	27.6	1,888.9	113.2	- -	113.2	2,002.1

All table cells without observations in the inventory sample are indicated by --. Table value of 0.0 indicates the acres round to less than 0.1 thousand acres. Columns and rows may not add to their totals due to rounding.

Table NJ-3.—Area of forest land, in thousand acres, by forest-type group and productivity class, New Jersey, 2008

Forest-type group	Site-productivity class (cubic feet/acre/year)							All classes
	0-19	20-49	50-84	85-119	120-164	165-224	225+	
White / red / jack pine group	- -	- -	5.3	- -	- -	- -	- -	5.3
Loblolly / shortleaf pine group	20.7	439.3	9.2	- -	1.0	- -	- -	470.2
Other eastern softwoods group	- -	29.2	- -	- -	- -	- -	- -	29.2
Exotic softwoods group	- -	1.3	- -	- -	- -	- -	- -	1.3
Oak / pine group	- -	143.4	17.4	2.1	- -	- -	- -	162.8
Oak / hickory group	- -	615.6	179.1	96.4	5.9	- -	- -	897.0
Oak / gum / cypress group	- -	158.3	37.7	- -	- -	- -	- -	196.0
Elm / ash / cottonwood group	6.9	56.2	11.3	4.5	- -	- -	- -	78.9
Maple / beech / birch group	- -	42.2	44.4	22.0	- -	- -	- -	108.7
Aspen / birch group	- -	- -	4.3	- -	- -	- -	- -	4.3
Other hardwoods group	- -	6.3	6.3	7.0	- -	- -	- -	19.5
Exotic hardwoods group	- -	5.8	- -	- -	- -	- -	- -	5.8
Nonstocked	- -	14.7	5.8	2.6	- -	- -	- -	23.0
All forest-type groups	27.6	1,512.4	320.6	134.6	6.9	- -	- -	2,002.1

All table cells without observations in the inventory sample are indicated by --. Table value of 0.0 indicates the acres round to less than 0.1 thousand acres. Columns and rows may not add to their totals due to rounding.

Table NJ-4.—Area of forest land, in thousand acres, by forest-type group, ownership group, and land status, New Jersey, 2008

Forest-type group	Forest Service		Other Federal		State and local government		Undifferentiated private		All forest land
	Timber-land	Other forest land	Timber-land	Other forest land	Timber-land	Other forest land	Timber-land	Other forest land	
White / red / jack pine group	--	--	--	--	--	--	5.3	--	5.3
Loblolly / shortleaf pine group	--	--	24.1	5.4	272.7	15.0	145.8	7.4	470.2
Other eastern softwoods group	--	--	--	--	5.2	5.5	18.5	--	29.2
Exotic softwoods group	--	--	--	--	1.3	--	--	--	1.3
Oak / pine group	--	--	--	6.0	44.4	--	112.5	--	162.8
Oak / hickory group	--	--	29.6	30.5	324.9	33.0	479.0	--	897.0
Oak / gum / cypress group	--	--	20.4	--	92.7	--	82.9	--	196.0
Elm / ash / cottonwood group	--	--	0.8	0.4	7.3	24.7	43.8	1.8	78.9
Maple / beech / birch group	--	--	--	3.2	11.4	6.0	88.2	--	108.7
Aspen / birch group	--	--	--	--	--	--	4.3	--	4.3
Other hardwoods group	--	--	--	--	8.5	--	11.1	--	19.5
Exotic hardwoods group	--	--	--	--	5.8	--	--	--	5.8
Nonstocked	--	--	--	2.0	--	--	21.0	--	23.0
All forest-type groups	--	--	74.9	47.5	774.2	84.1	1,012.2	9.2	2,002.1

All table cells without observations in the inventory sample are indicated by --. Table value of 0.0 indicates the acres round to less than 0.1 thousand acres. Columns and rows may not add to their totals due to rounding.

Table NJ-5.—Area of forest land, in thousand acres, by forest-type group and stand-size class, New Jersey, 2008

Forest-type group	Stand-size class					All size classes
	Large diameter	Medium diameter	Small diameter	Chaparral	Nonstocked	
White / red / jack pine group	5.3	--	--	--	--	5.3
Loblolly / shortleaf pine group	246.1	209.3	14.8	--	--	470.2
Other eastern softwoods group	--	5.5	23.7	--	--	29.2
Exotic softwoods group	--	--	1.3	--	--	1.3
Oak / pine group	69.7	63.7	29.4	--	--	162.8
Oak / hickory group	617.3	204.5	75.2	--	--	897.0
Oak / gum / cypress group	114.2	64.7	17.1	--	--	196.0
Elm / ash / cottonwood group	47.7	12.6	18.6	--	--	78.9
Maple / beech / birch group	91.5	13.1	4.1	--	--	108.7
Aspen / birch group	4.3	--	--	--	--	4.3
Other hardwoods group	18.0	1.5	--	--	--	19.5
Exotic hardwoods group	5.8	--	--	--	--	5.8
Nonstocked	--	--	--	--	23.0	23.0
All forest-type groups	1,220.0	574.8	184.2	--	23.0	2,002.1

All table cells without observations in the inventory sample are indicated by --. Table value of 0.0 indicates the acres round to less than 0.1 thousand acres. Columns and rows may not add to their totals due to rounding.

Table NJ-6.—Area of forest land, in thousand acres, by forest-type group and stand-age class, New Jersey, 2008

Forest-type group	Non stocked	Stand-age class (years)											All classes
		1-20	21-40	41-60	61-80	81-100	101-120	121-140	141-160	161-180	181-200	201+	
White / red / jack pine group	--	--	--	--	5.3	--	--	--	--	--	--	--	5.3
Loblolly / shortleaf pine group	--	3.7	35.7	188.3	158.5	49.3	33.4	1.3	--	--	--	--	470.2
Other eastern softwoods group	--	5.2	18.5	5.5	--	--	--	--	--	--	--	--	29.2
Exotic softwoods group	--	--	1.3	--	--	--	--	--	--	--	--	--	1.3
Oak / pine group	--	12.3	4.7	55.1	56.1	33.2	--	1.3	--	--	--	--	162.8
Oak / hickory group	--	44.6	53.0	184.4	300.0	176.2	104.4	34.4	--	--	--	--	897.0
Oak / gum / cypress group	--	12.1	1.9	39.1	95.5	31.7	12.8	2.8	--	--	--	--	196.0
Elm / ash / cottonwood group	--	16.7	2.5	19.6	35.8	4.4	--	--	--	--	--	--	78.9
Maple / beech / birch group	--	4.1	7.3	32.4	21.5	30.0	--	13.5	--	--	--	--	108.7
Aspen / birch group	--	--	--	--	4.3	--	--	--	--	--	--	--	4.3
Other hardwoods group	--	--	1.5	--	4.8	13.3	--	--	--	--	--	--	19.5
Exotic hardwoods group	--	--	5.8	--	--	--	--	--	--	--	--	--	5.8
Nonstocked	23.0	--	--	--	--	--	--	--	--	--	--	--	23.0
All forest-type groups	23.0	98.7	132.1	524.4	681.8	338.1	150.6	53.3	--	--	--	--	2,002.1

All table cells without observations in the inventory sample are indicated by –. Table value of 0.0 indicates the acres round to less than 0.1 thousand acres. Columns and rows may not add to their totals due to rounding.

Table NJ-7.—Area of forest land, in thousand acres, by forest-type group and stand origin, New Jersey, 2008

Forest-type group	Stand origin		All forest land
	Natural stands	Artificial regeneration	
White / red / jack pine group	- -	5.3	5.3
Loblolly / shortleaf pine group	460.6	9.6	470.2
Other eastern softwoods group	29.2	- -	29.2
Exotic softwoods group	- -	1.3	1.3
Oak / pine group	162.8	- -	162.8
Oak / hickory group	891.9	5.1	897.0
Oak / gum / cypress group	196.0	- -	196.0
Elm / ash / cottonwood group	78.9	- -	78.9
Maple / beech / birch group	108.7	- -	108.7
Aspen / birch group	4.3	- -	4.3
Other hardwoods group	19.5	- -	19.5
Exotic hardwoods group	5.8	- -	5.8
Nonstocked	23.0	- -	23.0
All forest-type groups	1,980.8	21.3	2,002.1

All table cells without observations in the inventory sample are indicated by --. Table value of 0.0 indicates the acres round to less than 0.1 thousand acres. Columns and rows may not add to their totals due to rounding.

Table NJ-8.—Area of forest land, in thousand acres, by forest-type group and disturbance class, New Jersey, 2008

Forest-type group	Disturbance class									All forest land
	None	Insects	Disease	Weather	Fire	Domestic animals	Wild animals	Human	Other	
White / red / jack pine group	5.3	- -	- -	- -	- -	- -	- -	- -	- -	5.3
Loblolly / shortleaf pine group	428.7	19.0	- -	- -	22.6	- -	- -	- -	- -	470.2
Other eastern softwoods group	27.5	- -	- -	- -	- -	- -	- -	- -	1.7	29.2
Exotic softwoods group	1.3	- -	- -	- -	- -	- -	- -	- -	- -	1.3
Oak / pine group	134.1	- -	- -	- -	18.1	- -	- -	- -	10.6	162.8
Oak / hickory group	832.0	12.4	- -	2.9	- -	- -	12.1	- -	37.6	897.0
Oak / gum / cypress group	176.9	- -	- -	19.1	- -	- -	- -	- -	- -	196.0
Elm / ash / cottonwood group	77.0	- -	- -	1.8	- -	- -	- -	- -	0.1	78.9
Maple / beech / birch group	108.7	- -	- -	- -	- -	- -	- -	- -	- -	108.7
Aspen / birch group	- -	- -	- -	- -	- -	- -	- -	- -	4.3	4.3
Other hardwoods group	19.5	- -	- -	- -	- -	- -	- -	- -	- -	19.5
Exotic hardwoods group	5.8	- -	- -	- -	- -	- -	- -	- -	- -	5.8
Nonstocked	12.5	2.0	- -	7.3	- -	1.1	- -	- -	- -	23.0
All forest-type groups	1,829.3	33.4	- -	31.1	40.7	1.1	12.1	- -	54.3	2,002.1

All table cells without observations in the inventory sample are indicated by --. Table value of 0.0 indicates the acres round to less than 0.1 thousand acres. Columns and rows may not add to their totals due to rounding.

Table NJ-9.—Area of timberland, in thousand acres, by forest-type group and stand-size class, New Jersey, 2008

Forest-type group	Stand-size class					All size classes
	Large diameter	Medium diameter	Small diameter	Chaparral	Nonstocked	
White / red / jack pine group	5.3	- -	- -	- -	- -	5.3
Loblolly / shortleaf pine group	232.3	195.4	14.8	- -	- -	442.5
Other eastern softwoods group	- -	- -	23.7	- -	- -	23.7
Exotic softwoods group	- -	- -	1.3	- -	- -	1.3
Oak / pine group	63.7	63.7	29.4	- -	- -	156.9
Oak / hickory group	568.9	197.4	67.2	- -	- -	833.5
Oak / gum / cypress group	114.2	64.7	17.1	- -	- -	196.0
Elm / ash / cottonwood group	36.9	8.8	6.3	- -	- -	52.0
Maple / beech / birch group	85.5	13.1	0.9	- -	- -	99.5
Aspen / birch group	4.3	- -	- -	- -	- -	4.3
Other hardwoods group	18.0	1.5	- -	- -	- -	19.5
Exotic hardwoods group	5.8	- -	- -	- -	- -	5.8
Nonstocked	- -	- -	- -	- -	21.0	21.0
All forest-type groups	1,135.0	544.6	160.7	- -	21.0	1,861.3

All table cells without observations in the inventory sample are indicated by --. Table value of 0.0 indicates the acres round to less than 0.1 thousand acres. Columns and rows may not add to their totals due to rounding.

Table NJ-10.—Number of live trees (at least 1 inch d.b.h/d.r.c.) in thousand trees, on forest land by species group and diameter class, New Jersey, 2008

Species group	Diameter class (inches)															All classes
	1.0-2.9	3.0-4.9	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-24.9	25.0-28.9	29.0-32.9	33.0-36.9	37.0+	
Softwood species groups																
Eastern softwood species groups																
Loblolly and shortleaf pines	1,605	535	321	288	421	581	388	--	25	--	--	--	--	--	--	4,163
Other yellow pines	74,383	43,629	36,063	22,079	13,562	7,616	4,041	2,025	632	88	79	--	--	--	--	204,197
Eastern white and red pines	623	--	438	513	740	543	259	209	--	118	72	36	36	--	--	3,587
Eastern hemlock	--	821	667	597	420	413	66	30	41	30	--	36	--	--	--	3,120
Other eastern softwoods	52,662	17,966	8,426	6,084	4,075	3,345	1,536	739	227	--	--	--	--	--	--	95,061
All softwoods	129,273	62,951	45,914	29,561	19,217	12,499	6,291	3,002	925	236	151	72	36	--	--	310,128
Hardwood species groups																
Eastern hardwood species groups																
Select white oaks	12,768	13,031	11,973	5,089	3,091	1,694	1,592	702	519	413	180	118	--	52	81	51,302
Select red oaks	3,537	4,239	2,743	1,313	1,208	916	776	1,039	693	666	617	167	73	--	--	17,987
Other white oaks	11,328	4,866	3,213	2,197	1,346	1,265	1,200	981	611	216	79	91	49	--	--	27,445
Other red oaks	17,299	11,541	7,468	5,439	4,494	2,493	1,687	906	634	627	342	191	49	--	--	53,170
Hickory	9,440	2,993	2,162	1,393	474	721	537	406	114	42	31	42	35	--	--	18,389
Yellow birch	1,364	2,539	473	458	235	116	42	42	--	--	--	--	--	--	--	5,269
Hard maple	11,078	7,327	2,184	2,214	1,250	343	465	254	23	--	83	42	--	--	--	25,265
Soft maple	72,439	28,577	14,066	11,478	7,233	5,299	3,240	1,974	734	485	305	84	66	--	--	145,982
Beech	5,984	1,644	903	592	369	139	200	101	205	97	69	35	--	--	--	10,338
Sweetgum	14,391	3,628	2,897	1,722	1,656	1,347	1,074	926	504	216	216	59	52	39	--	28,728
Tupelo and blackgum	25,534	17,615	6,349	3,165	1,886	1,042	793	430	79	72	35	--	--	--	--	57,001
Ash	9,813	3,496	2,464	2,077	1,811	1,652	1,357	887	720	173	61	194	30	--	--	24,736
Cottonwood and aspen	--	--	250	402	207	46	114	42	103	31	60	--	--	--	--	1,255
Basswood	--	--	84	105	33	--	71	38	42	--	--	--	--	--	--	373
Yellow-poplar	10,414	1,860	1,222	564	216	499	329	482	367	189	333	310	270	--	49	17,105
Black walnut	706	--	421	369	144	199	321	155	119	42	--	--	--	--	--	2,477
Other eastern soft hardwoods	30,848	14,605	6,160	3,008	2,526	908	458	73	173	178	119	42	30	--	--	59,128
Other eastern hard hardwoods	34,792	17,525	7,379	3,045	2,765	1,841	652	498	151	31	72	42	--	--	--	68,792
Eastern noncommercial hardwoods	51,769	9,451	2,517	785	376	92	--	41	--	--	--	--	--	--	--	65,030
All hardwoods	323,502	144,938	74,928	45,416	31,321	20,611	14,909	9,977	5,792	3,478	2,602	1,418	655	91	130	679,769
All species groups	452,775	207,889	120,843	74,977	50,538	33,111	21,199	12,979	6,717	3,714	2,753	1,490	691	91	130	989,897

All table cells without observations in the inventory sample are indicated by --. Table value of 0 indicates the number of trees rounds to less than 1 thousand trees. Columns and rows may not add to their totals due to rounding.

Table NJ-11.—Number of growing-stock trees (at least 1 inch d.b.h/d.r.c.) in thousand trees, on timberland by species group and diameter class, New Jersey, 2008

Species group	Diameter class (inches)													All classes
	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-24.9	25.0-28.9	29.0-32.9	33.0-36.9	37.0+	
Softwood species groups														
Eastern softwood species groups														
Loblolly and shortleaf pines	278	288	421	581	388	--	25	--	--	--	--	--	--	1,980
Other yellow pines	30,257	19,608	11,678	6,973	3,685	1,684	632	88	79	--	--	--	--	74,683
Eastern white and red pines	402	477	716	475	259	209	--	58	--	--	--	--	--	2,595
Eastern hemlock	307	453	312	234	66	30	41	30	--	--	--	--	--	1,472
Other eastern softwoods	6,946	5,343	3,710	3,218	1,488	673	210	--	--	--	--	--	--	21,588
All softwoods	38,190	26,169	16,836	11,480	5,887	2,595	907	176	79	--	--	--	--	102,319
Hardwood species groups														
Eastern hardwood species groups														
Select white oaks	9,980	4,788	2,924	1,603	1,483	672	519	324	102	82	--	52	28	22,558
Select red oaks	2,329	1,194	1,143	880	738	942	609	594	617	167	73	--	--	9,286
Other white oaks	2,698	2,003	1,232	1,181	1,163	939	569	137	79	49	49	--	--	10,101
Other red oaks	6,550	4,957	4,393	2,180	1,422	906	634	627	342	191	49	--	--	22,252
Hickory	2,013	1,393	474	685	424	295	72	42	31	42	35	--	--	5,507
Yellow birch	387	458	199	116	42	42	--	--	--	--	--	--	--	1,244
Hard maple	1,943	1,999	1,250	343	423	254	23	--	83	42	--	--	--	6,360
Soft maple	10,847	8,941	6,014	4,026	2,558	1,471	410	397	269	48	66	--	--	35,046
Beech	668	520	328	98	200	101	205	97	30	--	--	--	--	2,248
Sweetgum	2,506	1,692	1,490	1,157	1,015	867	445	68	157	59	52	39	--	9,548
Tupelo and blackgum	5,256	2,983	1,692	1,042	741	400	79	72	35	--	--	--	--	12,301
Ash	2,034	1,824	1,484	1,277	1,173	815	678	173	61	161	30	--	--	9,709
Cottonwood and aspen	250	359	207	46	114	42	103	31	60	--	--	--	--	1,213
Basswood	84	42	--	--	71	38	42	--	--	--	--	--	--	277
Yellow-poplar	1,151	534	216	351	329	452	302	189	333	245	270	--	49	4,422
Black walnut	349	263	108	93	321	58	83	42	--	--	--	--	--	1,318
Other eastern soft hardwoods	3,475	2,043	2,121	662	206	31	137	142	119	--	30	--	--	8,965
Other eastern hard hardwoods	5,848	2,681	2,124	1,593	532	498	151	31	--	42	--	--	--	13,500
All hardwoods	58,368	38,675	27,399	17,333	12,958	8,823	5,061	2,967	2,318	1,128	655	91	78	175,854
All species groups	96,558	64,844	44,235	28,813	18,844	11,418	5,968	3,143	2,398	1,128	655	91	78	278,173

All table cells without observations in the inventory sample are indicated by --. Table value of 0 indicates the number of trees rounds to less than 1 thousand trees. Columns and rows may not add to their totals due to rounding.

Table NJ-12.—Net volume of live trees (at least 5 inches d.b.h./d.r.c.), in million cubic feet, by owner class and forest-land status, New Jersey, 2008

Owner class	Unreserved forests			Reserved forests			All forest land
	Timberland	Unproductive	Total	Productive	Unproductive	Total	
Other Federal							
National Park Service	--	--	--	115.5	--	115.5	115.5
Fish and Wildlife Service	33.2	--	33.2	--	--	--	33.2
Department of Defense or Energy	70.4	--	70.4	--	--	--	70.4
Other Federal	--	6.8	6.8	--	--	--	6.8
State and local government							
State	1,020.8	6.4	1,027.2	12.8	--	12.8	1,040.0
Local (county, municipal, etc.)	442.5	--	442.5	125.6	--	125.6	568.1
Private							
Undifferentiated private	2,081.2	4.3	2,085.5	--	--	--	2,085.5
All owners	3,648.1	17.4	3,665.5	253.9	--	253.9	3,919.4

All table cells without observations in the inventory sample are indicated by --. Table value of 0.0 indicates the volume rounds to less than 0.1 million cubic feet. Columns and rows may not add to their totals due to rounding.

Table NJ-13.—Net volume of live trees (at least 5 inches d.b.h./d.r.c.), in million cubic feet, on forest land by forest-type group and stand-size class, New Jersey, 2008

Forest-type group	Stand-size class					All size classes
	Large diameter	Medium diameter	Small diameter	Chaparral	Nonstocked	
White / red / jack pine group	19.2	- -	- -	- -	- -	19.2
Loblolly / shortleaf pine group	404.5	216.5	8.2	- -	- -	629.2
Other eastern softwoods group	- -	5.4	4.5	- -	- -	10.0
Exotic softwoods group	- -	- -	0.6	- -	- -	0.6
Oak / pine group	156.6	85.5	9.6	- -	- -	251.6
Oak / hickory group	1,820.0	308.4	21.6	- -	- -	2,150.0
Oak / gum / cypress group	306.2	109.8	1.8	- -	- -	417.8
Elm / ash / cottonwood group	106.3	22.7	1.3	- -	- -	130.3
Maple / beech / birch group	235.4	21.0	- -	- -	- -	256.4
Aspen / birch group	9.2	- -	- -	- -	- -	9.2
Other hardwoods group	38.1	2.7	- -	- -	- -	40.8
Exotic hardwoods group	2.1	- -	- -	- -	- -	2.1
Nonstocked	- -	- -	- -	- -	2.2	2.2
All forest-type groups	3,097.6	771.9	47.6	- -	2.2	3,919.4

All table cells without observations in the inventory sample are indicated by --. Table value of 0.0 indicates the volume rounds to less than 0.1 million cubic feet. Columns and rows may not add to their totals due to rounding.

Table NJ-14.—Net volume of live trees (at least 5 inches d.b.h./d.r.c.), in million cubic feet, on forest land by species group and ownership group, New Jersey, 2008

Species group	Ownership group				All owners
	Forest Service	Other Federal	State and local government	Undifferentiated private	
Softwood species groups					
Eastern softwood species groups					
Loblolly and shortleaf pines	--	--	23.7	2.5	26.2
Other yellow pines	--	31.4	357.8	262.3	651.5
Eastern white and red pines	--	18.6	13.1	27.3	59.0
Eastern hemlock	--	7.3	13.4	2.2	23.0
Other eastern softwoods	--	3.5	120.0	63.5	187.0
All softwoods	--	60.7	528.1	357.9	946.8
Hardwood species groups					
Eastern hardwood species groups					
Select white oaks	--	12.5	123.4	151.0	286.9
Select red oaks	--	8.9	125.1	124.4	258.5
Other white oaks	--	22.4	74.5	81.6	178.5
Other red oaks	--	11.1	140.1	192.9	344.1
Hickory	--	4.1	26.3	64.9	95.3
Yellow birch	--	--	9.8	1.7	11.5
Hard maple	--	0.7	23.6	53.6	77.9
Soft maple	--	58.7	193.9	279.1	531.8
Beech	--	0.4	14.1	34.0	48.6
Sweetgum	--	3.0	61.9	135.2	200.1
Tupelo and blackgum	--	9.2	48.1	58.9	116.2
Ash	--	5.8	51.5	173.8	231.1
Cottonwood and aspen	--	--	10.8	14.1	24.9
Basswood	--	--	1.9	5.3	7.1
Yellow-poplar	--	--	80.9	165.2	246.1
Black walnut	--	--	8.3	19.2	27.5
Other eastern soft hardwoods	--	3.7	16.7	102.1	122.5
Other eastern hard hardwoods	--	24.4	65.0	63.2	152.6
Eastern noncommercial hardwoods	--	0.1	4.0	7.4	11.4
All hardwoods	--	165.0	1,080.0	1,727.6	2,972.6
All species groups	--	225.8	1,608.1	2,085.5	3,919.4

All table cells without observations in the inventory sample are indicated by --. Table value of 0.0 indicates the volume rounds to less than 0.1 million cubic feet. Columns and rows may not add to their totals due to rounding.

Table NJ-15.—Net volume of live trees (at least 5 inches d.b.h./d.r.c.), in million cubic feet, on forest land by species group and diameter class, New Jersey, 2008

Species group	Diameter class (inches)													All classes
	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-24.9	25.0-28.9	29.0-32.9	33.0-36.9	37.0+	
Softwood species groups														
Eastern softwood species groups														
Loblolly and shortleaf pines	1	2	4	9	9	--	1	--	--	--	--	--	--	26
Other yellow pines	86	123	133	119	91	62	27	4	5	--	--	--	--	651
Eastern white and red pines	1	4	9	10	7	7	--	6	6	4	6	--	--	59
Eastern hemlock	2	3	4	6	1	1	2	2	--	3	--	--	--	23
Other eastern softwoods	17	31	36	47	30	19	8	--	--	--	--	--	--	187
All softwoods	107	162	186	191	139	89	37	12	11	7	6	--	--	947
Hardwood species groups														
Eastern hardwood species groups														
Select white oaks	26	29	32	29	41	24	23	25	15	14	--	11	17	287
Select red oaks	7	8	15	18	20	38	33	40	51	17	12	--	--	258
Other white oaks	7	12	14	22	30	32	27	12	6	8	8	--	--	179
Other red oaks	18	32	50	43	43	33	29	38	30	21	7	--	--	344
Hickory	6	10	6	16	17	17	7	3	3	6	6	--	--	95
Yellow birch	1	3	2	2	1	2	--	--	--	--	--	--	--	12
Hard maple	6	14	15	6	13	10	1	--	7	5	--	--	--	78
Soft maple	31	67	81	96	83	68	33	29	25	10	10	--	--	532
Beech	2	4	4	3	6	4	11	6	5	4	--	--	--	49
Sweetgum	7	11	20	25	29	35	24	13	16	7	7	7	--	200
Tupelo and blackgum	14	19	20	18	20	15	4	4	3	--	--	--	--	116
Ash	7	15	24	33	39	34	37	11	5	20	5	--	--	231
Cottonwood and aspen	1	3	3	1	3	2	5	2	5	--	--	--	--	25
Basswood	0	1	0	--	2	2	2	--	--	--	--	--	--	7
Yellow-poplar	3	4	3	10	11	22	22	16	36	48	56	--	16	246
Black walnut	1	2	1	3	8	4	5	3	--	--	--	--	--	27
Other eastern soft hardwoods	13	17	26	16	11	2	8	10	10	3	5	--	--	123
Other eastern hard hardwoods	16	18	31	34	17	18	7	2	5	4	--	--	--	153
Eastern noncommercial hardwoods	4	3	2	1	--	1	--	--	--	--	--	--	--	11
All hardwoods	168	271	350	372	396	364	279	214	223	167	116	18	33	2,973
All species groups	275	433	537	564	535	453	317	225	234	174	122	18	33	3,919

All table cells without observations in the inventory sample are indicated by --. Table value of 0 indicates the volume rounds to less than 1 million cubic feet. Columns and rows may not add to their totals due to rounding.

Table NJ-16.—Net volume of live trees (at least 5 inches d.b.h./d.r.c.), in million cubic feet, on forest land by forest-type group and stand origin, New Jersey, 2008

Forest-type group	Stand origin		All forest land
	Natural stands	Artificial regeneration	
White / red / jack pine group	- -	19.2	19.2
Loblolly / shortleaf pine group	602.1	27.0	629.2
Other eastern softwoods group	10.0	- -	10.0
Exotic softwoods group	- -	0.6	0.6
Oak / pine group	251.6	- -	251.6
Oak / hickory group	2,136.5	13.5	2,150.0
Oak / gum / cypress group	417.8	- -	417.8
Elm / ash / cottonwood group	130.3	- -	130.3
Maple / beech / birch group	256.4	- -	256.4
Aspen / birch group	9.2	- -	9.2
Other hardwoods group	40.8	- -	40.8
Exotic hardwoods group	2.1	- -	2.1
Nonstocked	2.2	- -	2.2
All forest-type groups	3,859.0	60.4	3,919.4

All table cells without observations in the inventory sample are indicated by --. Table value of 0.0 indicates the volume rounds to less than 0.1 million cubic feet. Columns and rows may not add to their totals due to rounding.

Table NJ-17.—Net volume of growing-stock trees (at least 5 inches d.b.h./d.r.c.), in million cubic feet, on timberland by species group and diameter class, New Jersey, 2008

Species group	Diameter class (inches)													All classes
	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-24.9	25.0-28.9	29.0-32.9	33.0-36.9	37.0+	
Softwood species groups														
Eastern softwood species groups														
Loblolly and shortleaf pines	1	2	4	9	9	--	1	--	--	--	--	--	--	26
Other yellow pines	76	113	119	111	84	52	27	4	5	--	--	--	--	591
Eastern white and red pines	1	3	9	9	7	7	--	3	--	--	--	--	--	39
Eastern hemlock	1	2	3	3	1	1	2	2	--	--	--	--	--	15
Other eastern softwoods	14	28	34	46	29	18	7	--	--	--	--	--	--	175
All softwoods	93	148	169	178	130	78	37	9	5	--	--	--	--	847
Hardwood species groups														
Eastern hardwood species groups														
Select white oaks	23	28	31	27	38	23	23	20	8	10	--	11	7	251
Select red oaks	6	8	14	17	20	35	29	35	51	17	12	--	--	244
Other white oaks	7	12	12	20	30	31	25	8	6	5	8	--	--	163
Other red oaks	17	30	49	39	37	33	29	38	30	21	7	--	--	330
Hickory	5	10	6	15	14	13	4	3	3	6	6	--	--	85
Yellow birch	1	3	2	2	1	2	--	--	--	--	--	--	--	11
Hard maple	5	12	15	6	12	10	1	--	7	5	--	--	--	75
Soft maple	26	55	70	77	69	54	21	23	21	5	10	--	--	431
Beech	1	3	4	2	6	4	11	6	3	--	--	--	--	41
Sweetgum	6	11	18	21	27	33	21	4	11	7	7	7	--	174
Tupelo and blackgum	12	18	19	18	19	14	4	4	3	--	--	--	--	111
Ash	6	13	20	27	34	32	35	11	5	19	5	--	--	207
Cottonwood and aspen	1	3	3	1	3	2	5	2	5	--	--	--	--	25
Basswood	0	0	--	--	2	2	2	--	--	--	--	--	--	7
Yellow-poplar	3	4	3	7	11	21	19	16	36	38	56	--	16	229
Black walnut	1	1	1	2	8	2	4	3	--	--	--	--	--	22
Other eastern soft hardwoods	9	13	24	12	6	1	6	8	10	--	5	--	--	95
Other eastern hard hardwoods	13	16	24	29	14	18	7	2	--	4	--	--	--	129
All hardwoods	142	240	316	323	352	330	247	184	200	137	116	18	23	2,627
All species groups	234	388	485	501	483	407	283	192	206	137	116	18	23	3,474

All table cells without observations in the inventory sample are indicated by --. Table value of 0 indicates the volume rounds to less than 1 million cubic feet. Columns and rows may not add to their totals due to rounding.

Table NJ-18.—Net volume of growing-stock trees (at least 5 inches d.b.h./d.r.c.), in million cubic feet, on timberland by species group and ownership group, New Jersey, 2008

Species group	Ownership group				
	Forest Service	Other Federal	State and local government	Undifferentiated private	All owners
Softwood species groups					
Eastern softwood species groups					
Loblolly and shortleaf pines	--	--	23.7	2.5	26.2
Other yellow pines	--	23.1	319.6	248.7	591.5
Eastern white and red pines	--	--	13.1	26.2	39.4
Eastern hemlock	--	0.4	12.5	2.2	15.1
Other eastern softwoods	--	3.0	110.8	61.1	174.9
All softwoods	--	26.6	479.6	340.8	847.1
Hardwood species groups					
Eastern hardwood species groups					
Select white oaks	--	2.2	112.3	136.4	250.9
Select red oaks	--	1.1	119.2	123.7	244.0
Other white oaks	--	9.4	72.5	81.2	163.0
Other red oaks	--	5.7	132.8	191.1	329.6
Hickory	--	--	20.7	64.2	84.9
Yellow birch	--	--	9.4	1.6	11.1
Hard maple	--	--	21.5	53.2	74.7
Soft maple	--	27.4	155.4	247.8	430.6
Beech	--	--	10.1	30.7	40.8
Sweetgum	--	3.0	35.5	135.1	173.6
Tupelo and blackgum	--	9.1	44.8	57.0	110.9
Ash	--	0.9	40.2	166.0	207.0
Cottonwood and aspen	--	--	10.8	13.8	24.6
Basswood	--	--	1.5	5.1	6.6
Yellow-poplar	--	--	65.7	163.5	229.2
Black walnut	--	--	4.3	17.4	21.7
Other eastern soft hardwoods	--	3.1	7.1	84.8	94.9
Other eastern hard hardwoods	--	7.6	61.5	60.2	129.3
All hardwoods	--	69.4	925.1	1,632.9	2,627.4
All species groups	--	96.0	1,404.8	1,973.7	3,474.5

All table cells without observations in the inventory sample are indicated by --. Table value of 0.0 indicates the volume rounds to less than 0.1 million cubic feet. Columns and rows may not add to their totals due to rounding.

Table NJ-19.—Net volume of sawtimber trees, in million board feet (International ¼-inch rule), on timberland by species group and diameter class, New Jersey, 2008

Species group	Diameter class (inches)											All classes
	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-24.9	25.0-28.9	29.0-32.9	33.0-36.9	37.0+	
Softwood species groups												
Eastern softwood species groups												
Loblolly and shortleaf pines	14	36	40	--	4	--	--	--	--	--	--	95
Other yellow pines	375	430	360	234	120	21	27	--	--	--	--	1,566
Eastern white and red pines	30	36	30	35	--	15	--	--	--	--	--	146
Eastern hemlock	9	12	6	3	8	7	--	--	--	--	--	44
Other eastern softwoods	83	148	103	68	28	--	--	--	--	--	--	429
All softwoods	510	662	538	340	160	43	27	--	--	--	--	2,280
Hardwood species groups												
Eastern hardwood species groups												
Select white oaks	--	97	163	107	114	107	45	62	--	68	49	812
Select red oaks	--	59	81	156	139	177	274	96	75	--	--	1,057
Other white oaks	--	71	115	129	114	36	29	25	46	--	--	566
Other red oaks	--	132	150	147	140	190	163	117	43	--	--	1,081
Hickory	--	51	57	61	21	14	14	35	38	--	--	292
Yellow birch	--	7	6	8	--	--	--	--	--	--	--	21
Hard maple	--	23	49	49	6	--	41	30	--	--	--	197
Soft maple	--	250	272	239	99	117	110	30	56	--	--	1,173
Beech	--	7	28	17	57	32	15	--	--	--	--	157
Sweetgum	--	71	110	150	101	19	59	39	44	47	--	639
Tupelo and blackgum	--	58	76	64	17	23	16	--	--	--	--	254
Ash	--	91	143	147	170	59	29	109	31	--	--	779
Cottonwood and aspen	--	4	14	7	26	10	30	--	--	--	--	90
Basswood	--	--	9	8	10	--	--	--	--	--	--	28
Yellow-poplar	--	25	47	98	94	83	200	224	354	--	110	1,236
Black walnut	--	5	36	11	18	13	--	--	--	--	--	83
Other eastern soft hardwoods	--	41	27	4	31	43	58	--	34	--	--	237
Other eastern hard hardwoods	--	106	61	85	36	10	--	24	--	--	--	321
All hardwoods	--	1,098	1,445	1,488	1,194	932	1,082	791	718	115	160	9,023
All species groups	510	1,759	1,983	1,828	1,354	975	1,109	791	718	115	160	11,303

All table cells without observations in the inventory sample are indicated by --. Table value of 0 indicates the volume rounds to less than 1 million board feet. Columns and rows may not add to their totals due to rounding.

Table NJ-19a.—Net volume of sawtimber trees, in million board feet (Doyle rule) on timberland by species group and diameter class, New Jersey, 2008

Species group	Diameter class (inches)											All classes
	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-24.9	25.0-28.9	29.0-32.9	33.0-36.9	37.0+	
Softwood species groups												
Eastern softwood species groups												
Loblolly and shortleaf pines	5	17	24	--	3	--	--	--	--	--	--	50
Other yellow pines	130	206	216	162	92	18	23	--	--	--	--	845
Eastern white and red pines	10	17	18	24	--	13	--	--	--	--	--	83
Eastern hemlock	3	5	3	2	6	6	--	--	--	--	--	26
Other eastern softwoods	29	71	62	47	22	--	--	--	--	--	--	229
All softwoods	176	316	322	235	123	37	23	--	--	--	--	1,233
Hardwood species groups												
Eastern hardwood species groups												
Select white oaks	--	40	84	63	75	77	37	57	--	77	56	566
Select red oaks	--	24	42	92	92	127	222	84	85	--	--	767
Other white oaks	--	30	59	76	75	26	24	22	52	--	--	363
Other red oaks	--	55	77	86	92	136	134	104	48	--	--	732
Hickory	--	21	29	36	14	10	11	33	43	--	--	198
Yellow birch	--	3	3	5	--	--	--	--	--	--	--	11
Hard maple	--	10	25	29	4	--	33	28	--	--	--	128
Soft maple	--	104	139	141	65	84	88	28	63	--	--	712
Beech	--	3	14	10	38	23	12	--	--	--	--	100
Sweetgum	--	30	56	88	66	14	47	35	50	53	--	439
Tupelo and blackgum	--	24	39	38	11	16	13	--	--	--	--	142
Ash	--	38	73	87	112	42	24	95	35	--	--	506
Cottonwood and aspen	--	2	7	4	17	7	24	--	--	--	--	61
Basswood	--	--	5	5	7	--	--	--	--	--	--	16
Yellow-poplar	--	10	24	58	61	60	161	204	401	--	125	1,106
Black walnut	--	2	18	6	12	10	--	--	--	--	--	48
Other eastern soft hardwoods	--	17	14	2	20	31	47	--	38	--	--	170
Other eastern hard hardwoods	--	44	31	50	23	7	--	21	--	--	--	177
All hardwoods	--	458	739	875	785	669	877	711	815	130	181	6,241
All species groups	176	774	1,062	1,110	907	706	900	711	815	130	181	7,474

All table cells without observations in the inventory sample are indicated by --. Table value of 0 indicates the volume rounds to less than 1 million board feet. Columns and rows may not add to their totals due to rounding.

Table NJ-20.—Net volume of sawtimber trees, in million cubic feet, on timberland by species group and ownership group, New Jersey, 2008

Species group	Ownership group				All owners
	Forest Service	Other Federal	State and local government	Undifferentiated private	
Softwood species groups					
Eastern softwood species groups					
Loblolly and shortleaf pines	--	--	18.9	2.2	21.0
Other yellow pines	--	11.2	190.6	151.3	353.0
Eastern white and red pines	--	--	9.8	20.9	30.8
Eastern hemlock	--	0.3	8.7	1.7	10.7
Other eastern softwoods	--	1.5	81.8	33.0	116.3
All softwoods	--	13.0	309.7	209.0	531.8
Hardwood species groups					
Eastern hardwood species groups					
Select white oaks	--	1.9	67.7	69.2	138.8
Select red oaks	--	--	86.8	93.9	180.7
Other white oaks	--	5.2	45.1	58.3	108.6
Other red oaks	--	3.7	79.7	109.2	192.6
Hickory	--	--	11.0	40.3	51.4
Yellow birch	--	--	3.5	0.5	4.0
Hard maple	--	--	8.2	26.4	34.6
Soft maple	--	19.3	72.1	134.2	225.7
Beech	--	--	5.8	20.8	26.6
Sweetgum	--	1.7	22.1	90.5	114.3
Tupelo and blackgum	--	6.5	19.5	23.7	49.7
Ash	--	--	23.5	114.2	137.6
Cottonwood and aspen	--	--	7.6	7.7	15.3
Basswood	--	--	0.8	4.2	5.0
Yellow-poplar	--	--	52.8	132.7	185.5
Black walnut	--	--	2.9	12.2	15.1
Other eastern soft hardwoods	--	--	0.3	40.3	40.6
Other eastern hard hardwoods	--	3.2	25.6	31.3	60.1
All hardwoods	--	41.6	535.2	1,009.5	1,586.3
All species groups	--	54.6	844.9	1,218.6	2,118.1

All table cells without observations in the inventory sample are indicated by --. Table value of 0.0 indicates the volume rounds to less than 0.1 million cubic feet. Columns and rows may not add to their totals due to rounding.

Table NJ-24.—Average annual net growth of growing-stock trees (at least 5 inches d.b.h./d.r.c.), in million cubic feet, on timberland by species group and ownership group, New Jersey, 1999 to 2008

Species group	Ownership group				All owners
	Forest Service	Other Federal	State and local government	Undifferentiated private	
Softwood species groups					
Eastern softwood species groups					
Loblolly and shortleaf pines	--	--	0.5	0.1	0.6
Other yellow pines	--	1.2	8.2	12.3	21.8
Eastern white and red pines	--	--	0.6	0.1	0.7
Eastern hemlock	--	--	0.0	--	0.0
Other eastern softwoods	--	--	1.2	0.2	1.4
All softwoods	--	1.2	10.5	12.8	24.5
Hardwood species groups					
Eastern hardwood species groups					
Select white oaks	--	--	2.6	4.4	7.0
Select red oaks	--	--	3.0	2.7	6.0
Other white oaks	--	0.0	2.2	1.6	3.9
Other red oaks	--	0.2	4.8	7.4	12.8
Hickory	--	--	1.0	1.6	2.6
Yellow birch	--	--	0.2	-0.2	0.0
Hard maple	--	--	0.7	1.2	2.0
Soft maple	--	0.2	5.4	5.6	11.5
Beech	--	--	0.2	1.3	1.5
Sweetgum	--	0.2	0.9	2.7	3.8
Tupelo and blackgum	--	0.2	2.2	0.9	3.3
Ash	--	0.1	0.8	-0.8	0.1
Cottonwood and aspen	--	--	0.5	0.4	1.0
Basswood	--	--	0.0	0.1	0.1
Yellow-poplar	--	--	3.0	6.0	8.9
Black walnut	--	--	0.2	0.6	0.7
Other eastern soft hardwoods	--	0.3	0.3	1.5	2.1
Other eastern hard hardwoods	--	0.0	1.4	1.1	2.6
All hardwoods	--	1.3	29.4	38.0	70.1
All species groups	--	2.5	39.9	50.8	94.6

All table cells without observations in the inventory sample are indicated by --. Table value of 0.0 indicates the volume rounds to less than 0.1 million cubic feet. Columns and rows may not add to their totals due to rounding.

Table NJ-28.—Average annual mortality of growing-stock trees (at least 5 inches d.b.h./d.r.c.), in million cubic feet, on timberland by species group and ownership group, New Jersey, 1999 to 2008

Species group	Ownership group				All owners
	Forest Service	Other Federal	State and local government	Undifferentiated private	
Softwood species groups					
Eastern softwood species groups					
Other yellow pines	--	--	0.6	1.1	1.7
Eastern hemlock	--	--	0.2	--	0.2
Other eastern softwoods	--	--	1.0	1.4	2.3
All softwoods	--	--	1.7	2.5	4.2
Hardwood species groups					
Eastern hardwood species groups					
Select white oaks	--	--	--	0.3	0.3
Select red oaks	--	--	0.1	1.2	1.3
Other white oaks	--	--	0.1	0.4	0.5
Other red oaks	--	--	0.7	3.2	3.9
Hickory	--	--	--	0.1	0.1
Yellow birch	--	--	--	0.3	0.3
Hard maple	--	--	--	0.1	0.1
Soft maple	--	0.1	0.2	2.5	2.9
Beech	--	--	--	0.0	0.0
Sweetgum	--	--	0.0	1.3	1.4
Tupelo and blackgum	--	--	--	0.2	0.2
Ash	--	--	0.0	5.1	5.1
Cottonwood and aspen	--	--	0.3	0.2	0.5
Yellow-poplar	--	--	--	0.3	0.3
Black walnut	--	--	--	0.0	0.0
Other eastern soft hardwoods	--	0.0	0.3	1.3	1.6
Other eastern hard hardwoods	--	--	0.0	0.6	0.6
All hardwoods	--	0.1	1.8	17.2	19.2
All species groups	--	0.1	3.5	19.7	23.4

All table cells without observations in the inventory sample are indicated by --. Table value of 0.0 indicates the volume rounds to less than 0.1 million cubic feet. Columns and rows may not add to their totals due to rounding.

Table NJ-30.—Average annual removals of growing-stock trees (at least 5 inches d.b.h./d.r.c.), in million cubic feet, on timberland by species group and ownership group, 1999to 2008

Species group	Ownership group				All owners
	Forest Service	Other Federal	State and local government	Undifferentiated private	
Softwood species groups					
Eastern softwood species groups					
Loblolly and shortleaf pines	--	--	--	--	0.0
Other yellow pines	--	--	--	--	1.4
Other eastern softwoods	--	--	1.1	--	1.2
All softwoods	--	--	1.1	--	2.7
Hardwood species groups					
Eastern hardwood species groups					
Select white oaks	--	--	--	--	0.3
Select red oaks	--	--	0.1	--	2.5
Other white oaks	--	--	--	--	1.6
Other red oaks	--	--	0.2	2.3	5.7
Hickory	--	--	--	--	1.3
Hard maple	--	--	0.0	--	0.8
Soft maple	--	--	1.5	--	4.4
Sweetgum	--	--	--	0.0	0.2
Tupelo and blackgum	--	--	--	--	0.1
Ash	--	--	0.2	0.1	0.4
Yellow-poplar	--	--	--	4.8	4.8
Black walnut	--	--	0.5	0.1	0.9
Other eastern soft hardwoods	--	--	0.1	0.2	1.3
Other eastern hard hardwoods	--	--	--	0.9	1.9
All hardwoods	--	--	2.6	8.5	26.2
All species groups	--	--	3.7	8.5	28.8

All table cells without observations in the inventory sample are indicated by --. Table value of 0.0 indicates the volume rounds to less than 0.1 million cubic feet. Columns and rows may not add to their totals due to rounding.

Table NJ-31.—Aboveground dry weight of live trees (at least 1 inch d.b.h/d.r.c.) in thousand dry short tons, by owner class and forest-land status, New Jersey, 2008

Owner class	Unreserved forests			Reserved forests			All forest land
	Timberland	Unproductive	Total	Productive	Unproductive	Total	
Other Federal							
National Park Service	- -	- -	- -	3,130	- -	3,130	3,130
Fish and Wildlife Service	881	- -	881	30	- -	30	911
Department of Defense or Energy	2,008	- -	2,008	- -	- -	- -	2,008
Other Federal	- -	145	145	- -	- -	- -	145
State and local government							
State	27,776	175	27,951	374	- -	374	28,325
Local (county, municipal, etc.)	12,591	- -	12,591	3,584	- -	3,584	16,174
Private							
Undifferentiated private	58,227	125	58,352	- -	- -	- -	58,352
All owners	101,483	446	101,929	7,118	- -	7,118	109,047

All table cells without observations in the inventory sample are indicated by --. Table value of 0 indicates the aboveground tree biomass rounds to less than 1 thousand dry tons. Columns and rows may not add to their totals due to rounding.

Table NJ-32.—Aboveground dry weight of live trees (at least 1 inch d.b.h/d.r.c.) in thousand dry short tons, on forest land by species group and diameter class, New Jersey, 2008

Species group	Diameter class (inches)															
	1.0-2.9	3.0-4.9	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-22.9	23.0-24.9	25.0-26.9	27.0-28.9	29.0+	All classes
Softwood species groups																
Eastern softwood species groups																
Loblolly and shortleaf pines	4	7	14	34	93	198	196	--	21	--	--	--	--	--	--	567
Other yellow pines	339	1,048	1,838	2,585	2,794	2,499	1,921	1,303	552	93	111	--	--	--	--	15,082
Eastern white and red pines	0	--	18	63	161	176	114	123	--	111	43	55	67	--	96	1,027
Eastern hemlock	--	11	28	56	70	110	27	15	33	32	--	--	54	--	--	434
Other eastern softwoods	135	246	294	481	531	672	424	276	110	--	--	--	--	--	--	3,170
All softwoods	479	1,313	2,193	3,219	3,648	3,655	2,681	1,717	716	235	153	55	121	--	96	20,280
Hardwood species groups																
Eastern hardwood species groups																
Select white oaks	83	376	916	949	1,035	917	1,296	771	753	808	166	307	241	226	951	9,796
Select red oaks	20	120	231	268	465	556	629	1,179	1,025	1,246	741	885	542	--	378	8,286
Other white oaks	57	157	248	409	437	684	954	1,011	849	381	65	124	276	--	247	5,901
Other red oaks	90	384	644	1,055	1,631	1,395	1,382	1,045	912	1,187	222	728	534	121	214	11,542
Hickory	37	83	205	341	216	527	549	581	224	93	87	--	--	199	189	3,333
Yellow birch	4	84	35	83	69	57	37	48	--	--	--	--	--	--	--	418
Hard maple	73	250	176	419	449	189	395	302	28	--	104	94	--	151	--	2,629
Soft maple	339	759	838	1,758	2,071	2,417	2,100	1,732	853	733	356	259	147	88	228	14,677
Beech	13	31	53	105	126	73	176	104	314	175	169	--	--	132	--	1,472
Sweetgum	39	66	173	267	466	584	673	816	562	300	214	178	72	87	346	4,845
Tupelo and blackgum	104	413	369	461	479	423	467	343	84	105	--	71	--	--	--	3,320
Ash	39	80	215	439	694	934	1,112	971	1,059	322	67	82	568	--	140	6,722
Cottonwood and aspen	--	--	17	63	55	20	68	30	107	37	50	58	--	--	--	504
Basswood	--	--	4	13	4	--	35	29	36	--	--	--	--	--	--	120
Yellow-poplar	37	35	60	84	59	202	229	456	447	318	378	348	591	358	1,417	5,019
Black walnut	7	--	24	52	34	71	213	115	140	66	--	--	--	--	--	722
Other eastern soft hardwoods	145	283	357	419	642	378	282	65	188	274	91	160	83	--	123	3,489
Other eastern hard hardwoods	206	447	496	548	934	1,019	534	541	221	59	165	--	129	--	--	5,301
Eastern noncommercial hardwoods	138	176	123	98	75	32	--	29	--	--	--	--	--	--	--	671
All hardwoods	1,431	3,744	5,186	7,832	9,942	10,479	11,129	10,169	7,800	6,105	2,875	3,293	3,186	1,363	4,234	88,767
All species groups	1,910	5,057	7,379	11,050	13,590	14,134	13,811	11,885	8,516	6,340	3,029	3,348	3,307	1,363	4,330	109,047

All table cells without observations in the inventory sample are indicated by --. Table value of 0 indicates the aboveground tree biomass rounds to less than 1 thousand dry tons. Columns and rows may not add to their totals due to rounding.

Table NJ-54.—Area of forest land, in thousand acres, by inventory unit, county, and forest-land status, New Jersey, 2008

Inventory unit and county	Unreserved forests			Reserved forests			All forest land
	Timberland	Unproductive	Total	Productive	Unproductive	Total	
State							
Burlington	259.6	11.2	270.8	10.9	- -	10.9	281.7
Cumberland	153.6	- -	153.6	- -	- -	- -	153.6
Hunterdon	97.3	- -	97.3	5.5	- -	5.5	102.8
Monmouth	93.3	- -	93.3	- -	- -	- -	93.3
Morris	122.0	- -	122.0	17.0	- -	17.0	139.0
Ocean	227.2	8.0	235.2	3.5	- -	3.5	238.7
Salem	66.2	- -	66.2	- -	- -	- -	66.2
Sussex	176.0	- -	176.0	31.3	- -	31.3	207.4
Warren	100.8	- -	100.8	6.2	- -	6.2	107.0
Bergen/Essex/Hudson/Passaic/Union	79.0	2.3	81.3	- -	- -	- -	81.3
Camden/Gloucester	80.5	- -	80.5	23.2	- -	23.2	103.7
Mercer/Middlesex/Somerset	133.8	- -	133.8	12.4	- -	12.4	146.2
Atlantic/Cape May	272.0	6.1	278.1	3.2	- -	3.2	281.3
Total	1,861.3	27.6	1,888.9	113.2	- -	113.2	2,002.1
All counties	1,861.3	27.6	1,888.9	113.2	- -	113.2	2,002.1

All table cells without observations in the inventory sample are indicated by --. Table value of 0.0 indicates the acres round to less than 0.1 thousand acres. Columns and rows may not add to their totals due to rounding.

Bergen/Essex/Hudson/Passaic/Union = Bergen, Essex, Hudson, Passaic, and Union Counties

Mercer/Middlesex/Somerset = Mercer, Middlesex, and Somerset Counties

Table NJ-55.—Area of forest land, in thousand acres, by inventory unit, county, ownership group, and forest-land status, New Jersey, 2008

Inventory unit and county	Forest Service		Other Federal		State and local government		Undifferentiated private		All forest land
	Timber-land	Other forest land	Timber-land	Other forest land	Timber-land	Other forest land	Timber-land	Other forest land	
State									
Burlington	- -	- -	14.5	5.4	149.8	10.9	95.2	5.9	281.7
Cumberland	- -	- -	- -	- -	49.5	- -	104.0	- -	153.6
Hunterdon	- -	- -	- -	- -	11.0	5.5	86.3	- -	102.8
Monmouth	- -	- -	12.1	- -	39.9	- -	41.2	- -	93.3
Morris	- -	- -	8.7	7.0	50.1	10.0	63.2	- -	139.0
Ocean	- -	- -	27.9	0.4	124.9	11.1	74.4	- -	238.7
Salem	- -	- -	- -	- -	12.7	- -	53.5	- -	66.2
Sussex	- -	- -	4.3	25.4	74.0	6.0	97.7	- -	207.4
Warren	- -	- -	- -	6.2	18.5	- -	82.3	- -	107.0
Bergen/Essex/Hudson/Passaic/Union	- -	- -	- -	- -	56.2	2.3	22.8	- -	81.3
Camden/Gloucester	- -	- -	- -	- -	31.7	23.2	48.7	- -	103.7
Mercer/Middlesex/Somerset	- -	- -	- -	- -	34.6	12.4	99.3	- -	146.2
Atlantic/Cape May	- -	- -	7.2	3.2	121.3	2.8	143.5	3.3	281.3
Total	- -	- -	74.9	47.5	774.2	84.1	1,012.2	9.2	2,002.1
All counties	- -	- -	74.9	47.5	774.2	84.1	1,012.2	9.2	2,002.1

All table cells without observations in the inventory sample are indicated by --. Table value of 0.0 indicates the acres round to less than 0.1 thousand acres. Columns and rows may not add to their totals due to rounding.

Bergen/Essex/Hudson/Passaic/Union = Bergen, Essex, Hudson, Passaic, and Union Counties

Mercer/Middlesex/Somerset = Mercer, Middlesex, and Somerset Counties

Table NJ-57.—Area of timberland, in thousand acres, by inventory unit, county, and stand-size class, New Jersey, 2008

Inventory unit and county	Stand-size class					All size classes
	Large diameter	Medium diameter	Small diameter	Chaparral	Nonstocked	
State						
Burlington	119.5	110.7	27.8	- -	1.5	259.6
Cumberland	114.6	27.7	11.4	- -	- -	153.6
Hunterdon	75.8	3.1	11.1	- -	7.2	97.3
Monmouth	52.7	30.6	8.0	- -	2.1	93.3
Morris	120.1	- -	1.9	- -	- -	122.0
Ocean	82.9	103.8	40.5	- -	- -	227.2
Salem	42.4	19.7	3.0	- -	1.1	66.2
Sussex	134.8	32.2	9.1	- -	- -	176.0
Warren	84.0	12.6	1.4	- -	2.9	100.8
Bergen/Essex/Hudson/Passaic/Union	61.1	15.6	2.2	- -	- -	79.0
Camden/Gloucester	55.5	25.0	- -	- -	- -	80.5
Mercer/Middlesex/Somerset	78.4	15.1	37.6	- -	2.7	133.8
Atlantic/Cape May	113.3	148.6	6.7	- -	3.3	272.0
Total	1,135.0	544.6	160.7	- -	21.0	1,861.3
All counties	1,135.0	544.6	160.7	- -	21.0	1,861.3

All table cells without observations in the inventory sample are indicated by --. Table value of 0.0 indicates the acres round to less than 0.1 thousand acres. Columns and rows may not add to their totals due to rounding.
Bergen/Essex/Hudson/Passaic/Union = Bergen, Essex, Hudson, Passaic, and Union Counties
Mercer/Middlesex/Somerset = Mercer, Middlesex, and Somerset Counties

Table NJ-58.—Area of timberland, in thousand acres, by inventory unit, county, and stocking class, New Jersey, 2008

Inventory unit and county	Stocking class of growing-stock trees					
	Nonstocked	Poorly stocked	Moderately stocked	Fully stocked	Over-stocked	All classes
State						
Burlington	1.5	31.5	132.1	85.5	9.0	259.6
Cumberland	1.4	35.4	88.4	27.4	1.0	153.6
Hunterdon	7.2	25.8	10.2	53.3	0.7	97.3
Monmouth	4.1	7.1	47.1	30.8	4.1	93.3
Morris	- -	15.5	49.2	52.1	5.1	122.0
Ocean	0.8	55.0	90.8	66.3	14.3	227.2
Salem	1.1	6.9	32.9	23.7	1.6	66.2
Sussex	- -	16.0	52.9	100.1	7.0	176.0
Warren	3.1	16.2	52.1	28.0	1.4	100.8
Bergen/Essex/Hudson/Passaic/Union	- -	7.6	31.7	37.0	2.6	79.0
Camden/Gloucester	1.4	17.9	28.4	32.8	- -	80.5
Mercer/Middlesex/Somerset	10.0	21.1	43.4	57.9	1.4	133.8
Atlantic/Cape May	3.3	49.8	149.8	59.0	10.1	272.0
Total	34.1	305.8	808.9	653.9	58.5	1,861.3
All counties	34.1	305.8	808.9	653.9	58.5	1,861.3

All table cells without observations in the inventory sample are indicated by --. Table value of 0.0 indicates the acres round to less than 0.1 thousand acres. Columns and rows may not add to their totals due to rounding.
Bergen/Essex/Hudson/Passaic/Union = Bergen, Essex, Hudson, Passaic, and Union Counties
Mercer/Middlesex/Somerset = Mercer, Middlesex, and Somerset Counties

Table NJ-59.—Net volume of growing-stock trees (at least 5 inches d.b.h.), in million cubic feet, and sawtimber trees, in million board feet (International ¼-inch rule) trees on timberland by inventory unit, county, and major species group, New Jersey, 2008

Inventory unit and county	Growing stock					Sawtimber				
	Major species group					Major species group				
	Pine	Other softwoods	Soft hardwoods	Hard hardwoods	All species	Pine	Other softwoods	Soft hardwoods	Hard hardwoods	All species
	(In million cubic feet)					(In million board feet)				
State										
Burlington	180.2	55.5	97.9	70.9	404.3	429.3	129.8	293.9	179.6	1,032.6
Cumberland	75.6	22.5	87.4	63.3	248.7	268.8	68.1	237.1	128.9	702.9
Hunterdon	5.4	4.1	74.5	135.0	219.0	24.6	9.2	321.4	502.3	857.5
Monmouth	28.3	- -	95.6	64.1	188.0	94.9	- -	323.4	255.4	673.7
Morris	- -	1.8	88.4	241.3	331.5	- -	2.7	375.4	969.2	1,347.3
Ocean	143.4	36.7	33.0	35.7	248.9	345.5	84.5	69.6	62.5	562.1
Salem	4.7	1.2	84.5	73.8	164.2	14.7	1.3	366.3	291.4	673.7
Sussex	2.9	6.4	64.7	337.6	411.5	9.5	15.5	178.4	1,214.4	1,417.9
Warren	- -	3.8	69.5	157.1	230.4	- -	2.8	290.1	584.3	877.2
Bergen/Essex/Hudson/Passaic/Union	19.1	7.2	48.1	117.9	192.3	63.6	19.7	184.6	414.2	682.0
Camden/Gloucester	47.8	16.6	60.8	33.8	159.1	134.7	51.6	192.8	94.4	473.5
Mercer/Middlesex/Somerset	0.6	4.1	137.4	122.3	264.4	2.1	4.6	462.0	535.0	1,003.7
Atlantic/Cape May	149.0	30.3	129.6	103.4	412.3	419.4	82.8	361.4	135.0	998.7
Total	657.0	190.1	1,071.2	1,556.2	3,474.5	1,807.1	472.7	3,656.2	5,366.6	11,302.6
All counties	657.0	190.1	1,071.2	1,556.2	3,474.5	1,807.1	472.7	3,656.2	5,366.6	11,302.6

All table cells without observations in the inventory sample are indicated by --. Table value of 0.0 indicates the volume rounds to less than 0.1 million cubic or board feet. Columns and rows may not add to their totals due to rounding.
Bergen/Essex/Hudson/Passaic/Union = Bergen, Essex, Hudson, Passaic, and Union Counties
Mercer/Middlesex/Somerset = Mercer, Middlesex, and Somerset Counties

Table NJ-59a.—Net volume of growing-stock trees (at least 5 inches d.b.h.), in million cubic feet, and sawtimber trees, in million board feet (Doyle rule) on timberland by inventory unit, county, and major species group, New Jersey, 2008

Inventory unit and county	Growing stock					Sawtimber				
	Major species group					Major species group				
	Pine	Other softwoods	Soft hardwoods	Hard hardwoods	All species	Pine	Other softwoods	Soft hardwoods	Hard hardwoods	All species
	(In million cubic feet)					(In million board feet)				
State										
Burlington	180.2	55.5	97.9	70.9	404.3	211.6	68.9	192.4	135.0	607.9
Cumberland	75.6	22.5	87.4	63.3	248.7	166.1	35.7	135.6	66.6	404.0
Hunterdon	5.4	4.1	74.5	135.0	219.0	18.2	6.6	271.8	322.0	618.6
Monmouth	28.3	- -	95.6	64.1	188.0	55.0	- -	244.3	227.6	526.9
Morris	- -	1.8	88.4	241.3	331.5	- -	1.2	302.6	646.4	950.1
Ocean	143.4	36.7	33.0	35.7	248.9	184.2	40.8	45.4	35.8	306.2
Salem	4.7	1.2	84.5	73.8	164.2	6.4	0.4	301.7	229.5	538.0
Sussex	2.9	6.4	64.7	337.6	411.5	5.5	7.2	106.2	773.4	892.2
Warren	- -	3.8	69.5	157.1	230.4	- -	1.1	212.9	355.9	569.9
Bergen/Essex/Hudson/Passaic/Uni	19.1	7.2	48.1	117.9	192.3	29.0	12.7	161.3	265.9	469.0
Camden/Gloucester	47.8	16.6	60.8	33.8	159.1	74.4	31.7	118.8	55.5	280.4
Mercer/Middlesex/Somerset	0.6	4.1	137.4	122.3	264.4	1.0	3.0	321.8	408.8	734.7
Atlantic/Cape May	149.0	30.3	129.6	103.4	412.3	226.1	45.8	230.3	73.9	576.1
Total	657.0	190.1	1,071.2	1,556.2	3,474.5	977.7	255.2	2,645.2	3,596.1	7,474.1
All counties	657.0	190.1	1,071.2	1,556.2	3,474.5	977.7	255.2	2,645.2	3,596.1	7,474.1

All table cells without observations in the inventory sample are indicated by --. Table value of 0.0 indicates the volume rounds to less than 0.1 million cubic or board feet. Columns and rows may not add to their totals due to rounding.

Bergen/Essex/Hudson/Passaic/Union = Bergen, Essex, Hudson, Passaic, and Union Counties
Mercer/Middlesex/Somerset = Mercer, Middlesex, and Somerset Counties

Table NJ-60.—Average annual net growth of growing-stock trees (at least 5 inches d.b.h.), in million cubic feet, and sawtimber trees, in million board feet (International ¼-inch rule) on timberland by inventory unit, county, and major species group, New Jersey, 2008

Inventory unit and county	Growing stock					Sawtimber				
	Major species group					Major species group				
	Pine	Other softwoods	Soft hardwoods	Hard hardwoods	All species	Pine	Other softwoods	Soft hardwoods	Hard hardwoods	All species
	(In million cubic feet)					(In million board feet)				
State										
Burlington	6.1	0.4	1.2	3.4	11.1	21.2	3.5	5.9	15.2	45.8
Cumberland	4.3	0.5	1.4	2.7	8.9	17.2	3.4	1.8	12.2	34.7
Hunterdon	- -	0.1	2.0	3.6	5.7	- -	0.0	14.4	20.2	34.6
Monmouth	1.0	- -	3.9	1.7	6.6	4.4	- -	14.2	6.1	24.7
Morris	- -	- -	1.4	4.2	5.6	- -	- -	7.4	23.7	31.1
Ocean	5.5	-0.3	1.4	1.6	8.2	18.5	1.4	6.2	3.0	29.2
Salem	0.2	0.0	0.8	0.7	1.7	1.2	- -	4.5	3.2	8.8
Sussex	- -	-0.1	2.0	6.0	7.9	- -	-0.4	8.6	29.2	37.4
Warren	- -	0.1	2.3	2.7	5.1	- -	0.4	13.2	15.3	28.9
Bergen/Essex/Hudson/Passaic/Union	0.0	0.1	1.8	5.2	7.1	- -	0.3	8.1	19.1	27.5
Camden/Gloucester	1.0	0.1	7.1	2.9	11.1	2.9	- -	27.6	11.3	41.8
Mercer/Middlesex/Somerset	- -	0.1	4.1	1.5	5.7	- -	- -	23.4	6.5	29.9
Atlantic/Cape May	5.1	0.2	1.6	2.9	9.7	18.3	0.9	4.0	5.6	28.7
Total	23.1	1.4	30.9	39.2	94.6	83.7	9.5	139.2	170.7	403.2
All counties	23.1	1.4	30.9	39.2	94.6	83.7	9.5	139.2	170.7	403.2

All table cells without observations in the inventory sample are indicated by --. Table value of 0.0 indicates the volume rounds to less than 0.1 million cubic or board feet. Columns and rows may not add to their totals due to rounding.

Bergen/Essex/Hudson/Passaic/Union = Bergen, Essex, Hudson, Passaic, and Union Counties

Mercer/Middlesex/Somerset = Mercer, Middlesex, and Somerset Counties

Table NJ-60a.—Average annual net growth of growing-stock trees (at least 5 inches d.b.h.), in million cubic feet, and sawtimber, in million board feet (Doyle rule) on timberland by inventory unit, county, and major species group, New Jersey, 2008

Inventory unit and county	Growing stock					Sawtimber				
	Major species group					Major species group				
	Pine	Other softwoods	Soft hardwoods	Hard hardwoods	All species	Pine	Other softwoods	Soft hardwoods	Hard hardwoods	All species
	(In million cubic feet)					(In million board feet)				
State										
Burlington	6.1	0.4	1.2	3.4	11.1	9.6	2.0	5.7	11.4	28.6
Cumberland	4.3	0.5	1.4	2.7	8.9	10.4	1.7	1.2	5.9	19.1
Hunterdon	- -	0.1	2.0	3.6	5.7	- -	0.0	12.5	14.8	27.4
Monmouth	1.0	- -	3.9	1.7	6.6	2.4	- -	10.7	5.3	18.4
Morris	- -	- -	1.4	4.2	5.6	- -	- -	5.2	21.3	26.5
Ocean	5.5	-0.3	1.4	1.6	8.2	8.7	0.6	3.0	1.5	13.8
Salem	0.2	0.0	0.8	0.7	1.7	0.4	- -	1.4	2.6	4.4
Sussex	- -	-0.1	2.0	6.0	7.9	- -	-0.3	5.2	20.3	25.2
Warren	- -	0.1	2.3	2.7	5.1	- -	0.2	8.4	9.4	18.0
Bergen/Essex/Hudson/Passaic/Uni	0.0	0.1	1.8	5.2	7.1	- -	0.2	6.4	12.3	18.9
Camden/Gloucester	1.0	0.1	7.1	2.9	11.1	1.4	- -	16.7	6.3	24.4
Mercer/Middlesex/Somerset	- -	0.1	4.1	1.5	5.7	- -	- -	16.7	6.3	23.0
Atlantic/Cape May	5.1	0.2	1.6	2.9	9.7	9.0	0.6	1.9	2.4	13.9
Total	23.1	1.4	30.9	39.2	94.6	41.9	4.9	94.8	119.8	261.5
All counties	23.1	1.4	30.9	39.2	94.6	41.9	4.9	94.8	119.8	261.5

All table cells without observations in the inventory sample are indicated by --. Table value of 0.0 indicates the volume rounds to less than 0.1 million cubic or board feet. Columns and rows may not add to their totals due to rounding.

Bergen/Essex/Hudson/Passaic/Union = Bergen, Essex, Hudson, Passaic, and Union Counties

Mercer/Middlesex/Somerset = Mercer, Middlesex, and Somerset Counties

Table NJ-61.—Average annual removals of growing-stock trees (at least 5 inches d.b.h.) in million board feet, and sawtimber trees, in million board feet (International ¼-inch rule) on timberland by inventory unit, county, and major species group, New Jersey, 1999 to 2008

Inventory unit and county	Growing stock					Sawtimber				
	Major species group					Major species group				
	Pine	Other softwoods	Soft hardwoods	Hard hardwoods	All species	Pine	Other softwoods	Soft hardwoods	Hard hardwoods	All species
	(In million cubic feet)					(In million board feet)				
State										
Burlington	0.1	0.0	0.5	1.5	2.0	--	--	--	7.5	7.5
Hunterdon	--	0.8	--	0.8	1.6	--	0.2	--	0.7	1.0
Monmouth	--	--	--	0.4	0.4	--	--	--	1.1	1.1
Morris	--	--	0.0	1.9	1.9	--	--	--	7.6	7.6
Salem	0.5	--	2.6	0.3	3.4	2.2	--	12.7	--	14.9
Sussex	--	0.3	0.1	0.8	1.2	--	0.2	--	2.8	3.1
Warren	--	--	2.3	0.7	2.9	--	--	13.1	3.4	16.6
Bergen/Essex/Hudson/Passaic/Uni	--	--	3.0	3.1	6.0	--	--	12.1	11.1	23.2
Camden/Gloucester	--	--	1.4	0.3	1.8	--	--	4.0	1.1	5.1
Mercer/Middlesex/Somerset	--	--	0.9	4.6	5.5	--	--	--	12.8	12.8
Atlantic/Cape May	0.9	--	--	1.1	2.0	2.0	--	--	4.4	6.4
Total	1.5	1.2	10.9	15.3	28.8	4.2	0.5	41.9	52.7	99.2
All counties	1.5	1.2	10.9	15.3	28.8	4.2	0.5	41.9	52.7	99.2

All table cells without observations in the inventory sample are indicated by --. Table value of 0.0 indicates the volume rounds to less than 0.1 million cubic or board feet. Columns and rows may not add to their totals due to rounding.
Bergen/Essex/Hudson/Passaic/Union = Bergen, Essex, Hudson, Passaic, and Union Counties
Mercer/Middlesex/Somerset = Mercer, Middlesex, and Somerset Counties

Table NJ-61a.—Average annual removals of growing-stock trees (at least 5 inches d.b.h.) in million board feet, and sawtimber trees, in million board feet (Doyle rule) on timberland by inventory unit, county, and major species group, New Jersey, 1999 to 2008

Inventory unit and county	Growing stock					Sawtimber				
	Major species group					Major species group				
	Pine	Other softwoods	Soft hardwoods	Hard hardwoods	All species	Pine	Other softwoods	Soft hardwoods	Hard hardwoods	All species
	(In million cubic feet)					(In million board feet)				
State										
Burlington	0.1	0.0	0.5	1.5	2.0	--	--	--	--	--
Hunterdon	--	0.8	--	0.8	1.6	--	0.1	--	0.4	0.5
Monmouth	--	--	--	0.4	0.4	--	--	--	--	--
Morris	--	--	0.0	1.9	1.9	--	--	--	--	--
Salem	0.5	--	2.6	0.3	3.4	--	--	--	--	--
Sussex	--	0.3	0.1	0.8	1.2	--	0.1	--	1.5	1.6
Warren	--	--	2.3	0.7	2.9	--	--	--	--	--
Bergen/Essex/Hudson/Passaic/Uni	--	--	3.0	3.1	6.0	--	--	3.8	6.6	10.4
Camden/Gloucester	--	--	1.4	0.3	1.8	--	--	2.6	--	2.6
Mercer/Middlesex/Somerset	--	--	0.9	4.6	5.5	--	--	--	--	--
Atlantic/Cape May	0.9	--	--	1.1	2.0	--	--	--	--	--
Total	1.5	1.2	10.9	15.3	28.8	--	0.2	6.4	8.5	15.1
All counties	1.5	1.2	10.9	15.3	28.8	--	0.2	6.4	8.5	15.1

All table cells without observations in the inventory sample are indicated by --. Table value of 0.0 indicates the volume rounds to less than 0.1 million cubic or board feet. Columns and rows may not add to their totals due to rounding.

Bergen/Essex/Hudson/Passaic/Union = Bergen, Essex, Hudson, Passaic, and Union Counties

Mercer/Middlesex/Somerset = Mercer, Middlesex, and Somerset Counties

Table NJ-65.—Sampling errors, in percent, for area, volume, average annual net growth, average annual removals, and average annual mortality on timberland by inventory unit and county, New Jersey, 2008

Inventory unit and county	Forest area	Timberland area	Growing stock				Sawtimber			
			Volume	Average annual net growth	Average annual removals	Average annual mortality	Volume	Average annual net growth	Average annual removals	Average annual mortality
State										
Burlington	6.01	6.46	12.89	25.86	68.55	61.70	16.39	24.60	100.00	76.61
Cumberland	9.75	9.75	13.08	41.03	- -	49.82	15.43	35.97	- -	70.43
Hunterdon	14.42	15.23	28.07	43.72	83.11	54.10	32.44	45.42	100.00	63.69
Monmouth	15.38	15.38	24.90	46.97	100.00	58.77	34.34	53.32	100.00	- -
Morris	8.59	11.88	16.80	90.82	100.00	65.98	18.67	82.01	100.00	76.24
Ocean	6.53	7.88	16.02	24.81	- -	83.40	19.40	25.81	- -	- -
Salem	18.04	18.04	22.12	62.75	83.51	80.99	23.38	65.99	91.88	80.88
Sussex	6.21	9.56	10.33	30.70	97.56	63.58	12.38	32.85	95.64	79.46
Warren	11.17	12.01	13.80	33.34	100.00	44.34	15.31	36.12	100.00	68.71
Bergen/Essex/Hudson/Passaic/Union	11.61	12.45	22.14	40.56	82.91	73.99	29.54	39.92	84.47	100.00
Camden/Gloucester	18.35	23.11	28.72	39.97	91.73	44.95	35.20	45.03	89.44	70.08
Mercer/Middlesex/Somerset	11.88	13.17	19.83	38.91	77.35	51.35	24.72	42.08	96.38	64.10
Atlantic/Cape May	5.42	5.37	9.10	24.58	76.68	48.90	16.05	24.72	79.69	62.52
Total	2.59	2.92	4.60	9.62	29.54	18.10	6.03	10.25	34.62	27.83
All counties	2.59	2.92	4.60	9.62	29.54	18.10	6.03	10.25	34.62	27.83

Sampling errors that exceed 100% are reported as 100%.
Bergen/Essex/Hudson/Passaic/Union = Bergen, Essex, Hudson, Passaic, and Union Counties
Mercer/Middlesex/Somerset = Mercer, Middlesex, and Somerset Counties

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