



Forest Service

Northeastern
Research Station

Resource Bulletin NE-149



Forest Statistics for Rhode Island: 1985 and 1998

Carol L. Alerich

Abstract

A statistical report on the fourth forest inventory of Rhode Island conducted in 1998 by the Forest Inventory and Analysis Unit of the Northeastern Research Station. Statistics for forest area, numbers of trees, wildlife habitat, tree biomass, timber volume, growth, and change are displayed at the state and, where appropriate, the county level. The current inventory indicates that there are approximately 500 million cubic feet of growing-stock volume on 340,000 acres of timberland in Rhode Island.

Acknowledgment

The Forest Inventory and Analysis Unit thanks the landowners of Rhode Island and the Rhode Island Department of Environmental Management for their cooperation and assistance during this inventory.

Manuscript received for publication 30 August 2000

Foreword

The fourth inventory of Rhode Island was directed by John R. Peters, Project Leader of the Forest Inventory and Analysis Unit. David J. Alerich supervised the data-collection phase of the inventory. He was assisted by Robert E. Ilgenfritz, Brian M. LaPoint, Richard A. McCullough, Jason W. Morrison, Lucretia B. Stewart, and Kathryn M. Tillman. The members of the data-collection field staff in Rhode Island were:

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Thomas S. Frieswyk supervised information-management activities. Carol L. Alerich applied FINSYS (Forest Inventory SYstem), a generalized data-processing system, ORACLE SQLPlus, and SAS to process and analyze the information provided by the field crews, and produced summary tables of estimates and errors for the state and counties. Kathryn M. Tillman produced the summary information of the quality control data for this report. Richard L. Goren and Michael J. Kazimer performed data entry services. Vickie M. Sharon was responsible for administrative and secretarial services. She was assisted by Karen Y. Chenery.

Thomas A. DuPree and Catherine A. Sparks of the Rhode Island Department of Environmental Management and Dr. Alan A. Lucier of the National Council of the Paper Industry for Air and Stream Improvement, Inc. (NCASI) assisted in reviewing this document for accuracy.

Published by:
USDA FOREST SERVICE
11 CAMPUS BLVD SUITE 200
NEWTOWN SQUARE PA 19073-3294

November 2000

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USDA FOREST SERVICE
PUBLICATIONS DISTRIBUTION
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Highlights

Forest-Land Area

The 393,000 acres of forest land in Rhode Island cover 59 percent of the state's total land area (669,000 acres). Forest land decreased by 4.6 percent, while nonforest land showed a 7.4-percent increase. This increase in nonforest land occurred primarily in nonagricultural land classes.

Unit	1985	1998	Percent change
Forest land	411.8	393.0	-4.6
Nonforest land	257.0	275.8	+7.3
State total	668.8	668.8	

Figure 2. Area (in thousand acres) of land area and percent change, Rhode Island, 1985 and 1998 (Source: Table 1).

Timberland, the largest component of forest land, totals 340,000 acres and makes up 86 percent of the forest land and 51 percent of the total land area. This is a decrease from 1985, when timberland acres were 380,000 acres, or 92 percent of the forest land, and 57 percent of the total area.

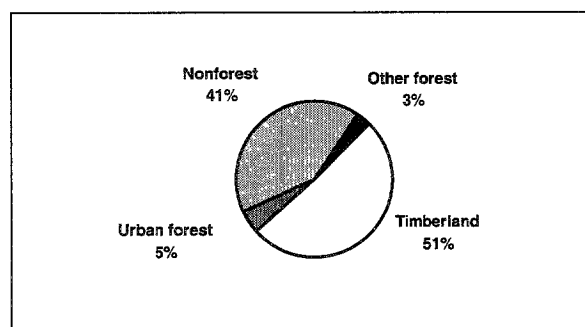


Figure 1. Area by land class, Rhode Island, 1998 (Source: Table 1).

Timberland

When forest type is calculated using stocking that is based on relative stand density (a new standard procedure that was nationally developed and accepted by all FIA projects—see **Comparison Between Inventories** section), the oak/hickory type group dominates in the forests of Rhode Island. This type group makes up 63 percent (213,000 acres) of the timberland area. Northern hardwoods forests, which are characterized by sugar maple, beech, yellow birch, and black cherry, cover 13 percent

(44,000 acres); the elm/ash/red maple type group contributes 9 percent (29,000 acres); and the white/red pine type group contributes 7 percent (25,000 acres). Other type groups combined contribute fewer than 28,000 acres.

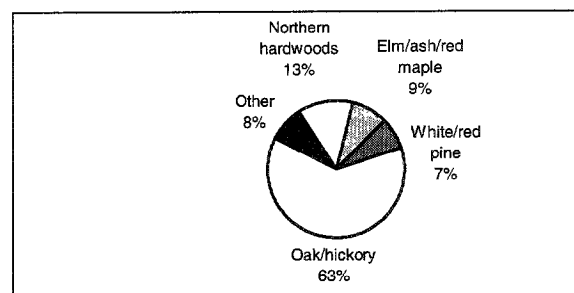


Figure 3. Timberland by forest-type group (based on relative density), Rhode Island, 1998 (Source: Table 4).

When basal area is the basis for calculating stocking from which forest type is derived (the procedure used in 1985), the oak/hickory type is again the predominant forest type with 63 percent, or 209,000 acres, of the timberland area. White/red pine forests are found on 11 percent (37,000 acres); and northern hardwoods and oak/pine types are each found on 8 percent of the timberland acreage. Other type groups contribute fewer than 33,000 acres.

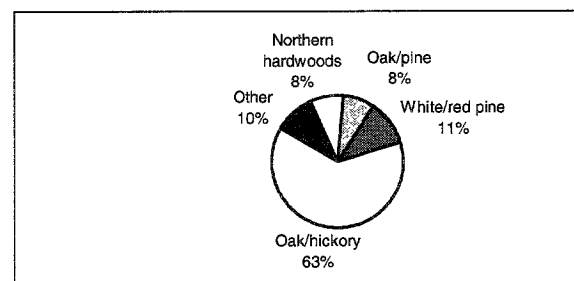


Figure 4. Timberland by forest-type group (based on basal area), Rhode Island, 1998 (Source: Table 6).

When stand density is used to calculate stocking and to determine stand size, sawtimber stands (stands in which the stocking of live sawtimber trees makes up the majority) are found on just over half of the timberland, or 172,000 acres. Poletimber stands cover 43 percent (146,000 acres), and sapling and seedling stands account for 6 percent (21,000 acres). In 1985, poletimber stands accounted for 63 percent, or 238,000 acres, of the timberland. Sawtimber stands covered a third of the timberland acres, or 118,000 acres, and sapling and seedling stands accounted for 20,000 acres, or 5 percent. Poletimber stands showed a 39-percent

drop while sawtimber stands increased by 46 percent.

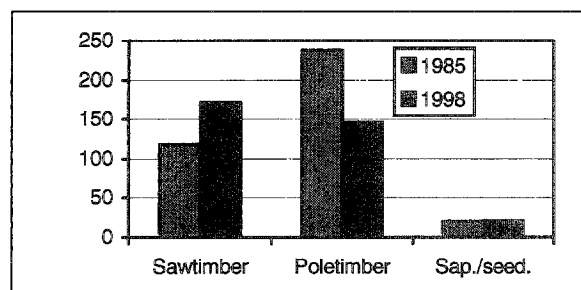


Figure 5. Area of timberland (in thousand acres) by stand-size class (based on relative density), Rhode Island, 1985 and 1998 (Source: Tables 3 and 4).

When stand size is classified using basal area to calculate stocking, sawtimber stands are found on 54 percent of the timberland, or 178,000 acres. Poletimber stands cover 40 percent (134,000 acres), and sapling and seedling stands, 6 percent (19,000 acres). In 1985, poletimber stands covered 193,000 acres (51 percent), sawtimber stands, 164,000 acres (43 percent), and sapling and seedling stands accounted for 24,000 acres, or 6 percent. Poletimber stands showed a 31-percent drop while sawtimber stands increased by 9 percent.

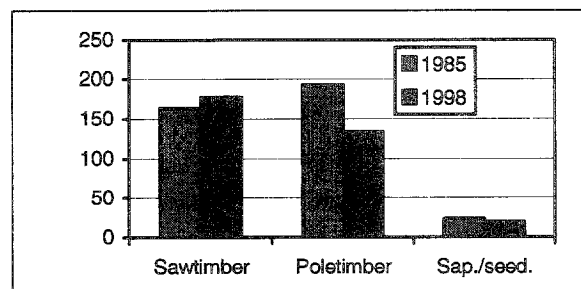


Figure 6. Area of timberland (in thousand acres) by stand-size class (based on basal area), Rhode Island, 1985 and 1998 (Source: Tables 5 and 6).

Numbers of Trees

There are 177 million live trees 1.0 inch or larger in diameter at breast height (d.b.h.) on Rhode Island's timberland, or 522 trees per acre. Of these, 58 million (172 trees per acre) are at least 5.0 inches in d.b.h. Red maple is the most common tree species in Rhode Island, accounting for 38 percent of all saplings and 25 percent of the live trees 5.0 inches and larger in d.b.h. White pine is the second most common tree species, with 14 percent of the saplings and 11 percent of the live trees at least 5.0 inches in

diameter. Other red oaks (scarlet and black oaks) round out the top three overall, with 6 percent of the saplings and 24 percent of the live trees 5.0 inches and larger in d.b.h.

Growing-stock trees make up 86 percent of live trees 5.0 inches and larger in d.b.h. Other red oaks are the most common of the trees in this category, with 25 percent of the growing-stock trees. Red maple makes up 23 percent of the total. White pine is third, with 12 percent of all growing-stock trees.

Although there has been a slight decrease in the total number of growing-stock trees since 1985, since the timberland acreage is down, the number of growing-stock trees per acre is basically unchanged, from 143 to 148 trees per acre.

In growing-stock trees 5.0 to 10.9 inches in d.b.h., there has been a decrease of 14 percent versus an increase of 20 percent in trees that are 11.0 inches and larger in diameter.

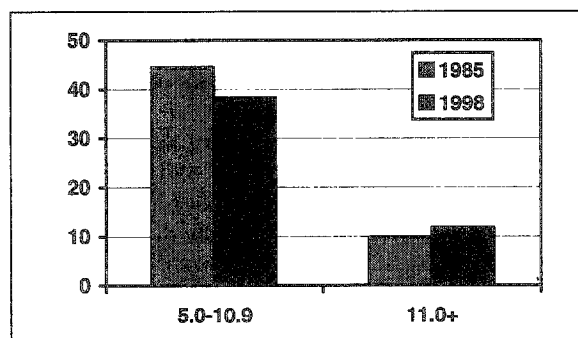


Figure 7. Number of growing-stock trees (in million trees) on timberland by diameter group, Rhode Island, 1985 and 1998 (Source: Tables 22 and 23).

Growing-Stock Volume

The volume of growing-stock trees in Rhode Island is 494 million cubic feet, or 1,454 cubic feet per acre. This is an 11-percent increase since 1985 when the volume totaled 445 million cubic feet, or 1,170 cubic feet per acre. Other red oaks, specifically scarlet and black oaks, are the leading species in growing-stock volume, with 112 million cubic feet, or 23 percent of the total. Red maple growing-stock trees contribute 20 percent of the total volume, or 97 million cubic feet. White pine ranks third with 18 percent of the total (90 million cubic feet). Since 1985, white pine displaced northern red oak as

the third-ranked species in growing-stock volume.

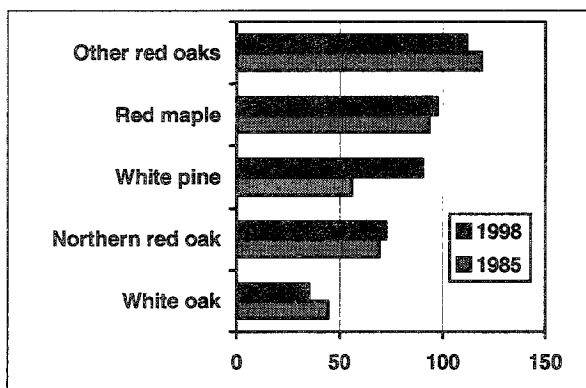


Figure 8. Net volume of growing-stock trees (in million cubic feet) on timberland, top five species, Rhode Island, 1985 and 1998 (Source: Tables 33 and 34).

Sawtimber Volume

With an average of 3,875 board feet per acre, there are 1.3 billion board feet of sawtimber volume in Rhode Island. In 1985, the volume was 1.0 billion board feet, or 2,676 board feet per acre; sawtimber volume has increased by 29 percent since the last inventory. Although the top three species are the same as the top growing-stock volume species, they have a different ranking. White pine is the top species with 366 million board feet, or 28 percent of the total, and a 69-percent increase over its volume in 1985. Other red oaks have 18 percent (233 million board feet) of the total sawtimber volume. Rounding out the top three sawtimber volume species is red maple with 15 percent.

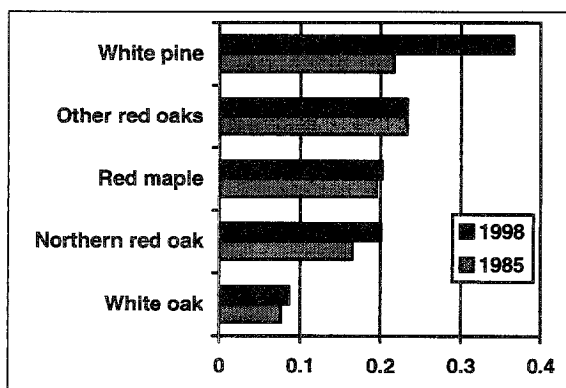


Figure 9. Net volume of sawtimber trees (in billion board feet) on timberland, top five species, Rhode Island, 1985 and 1998 (Source: Tables 36 and 37).

Growth and Removals

Since the last inventory, the average annual net growth of growing stock on timberland is 8 million cubic feet, or 23 cubic feet per acre per year. This represents 1.6 percent of the current inventory. Average annual removals of growing stock total 5.5 million cubic feet, or 16 cubic feet per acre per year. Net change is positive over the period since the last inventory, with an average annual net change of 2.5 million cubic feet.

Rates of growth to removals of growing-stock volume vary with tree species. White pine is growing 9.1 times faster than it is being removed, either by harvest or by land-use change, while other red oaks, the species with the highest amount of total growing-stock removals, has a growth to removals ratio of 0.8. White oak, one of the top five species in growing-stock volume, showed no significant annual change.

Average annual net growth of sawtimber on timberland is 26 million board feet, or 76 board feet per acre per year. The rate of growth to removals of sawtimber volume is 2.4. Annual removals are 10.6 million board feet per year, or 31.2 board feet per acre annually. Removals combined with growth yielded a positive annual change in board-foot volume of 15.3 million board feet.

White pine showed an annual increase of 9.3 million board feet, a growth-to-removals ratio of 16.6. The oak species showed no significant increase in sawtimber volume. A negative growth-to-removals ratio indicates that mortality and cull increment exceeded gross growth, which is composed of ingrowth and accretion.

Species	Growing stock	Species	Saw-timber
Oth. red oaks	.8	White pine	16.6
Red maple	1.5	Oth. red	1.4
White pine	9.1	Red maple	5.8
N. red oak	2.0	N. red oak	1.9
White oak	-0.3	White oak	-1.1

Figure 10. Growth-to-removals ratios of growing-stock and sawtimber volume on timberland, top five species, Rhode Island, 1984-1997 (Source: Tables 40 and 41).

Introduction

Under the authority of the McSweeney-McNary Forest Research Act of 1928 and subsequent acts, including the Renewable Resources Planning Act of 1974 and the Renewable Resources Research Act of 1978, the USDA Forest Service conducts periodic inventories of all states to provide up-to-date information on the forest resources of the Nation. The initial inventory of Rhode Island's forest resources was conducted in 1952, the second was completed in 1972, and the third was carried out in 1984. This report presents forest-resource data from the fourth inventory, which was conducted in 1998. This inventory was a cooperative effort of the Northeastern Research Station; the Rhode Island Department of Environmental Management, Division of Forest Environment; and the landowners of Rhode Island.

The Forest Inventory and Analysis (FIA) Unit of the Northeastern Research Station conducted the inventory on all lands, developed the resource tables, and prepared this report.

The sampling procedure used during the current inventory included the use of aerial photography, the remeasurement of a sample of ground plots established in earlier inventories, and the establishment of new ground plots. For Rhode Island, this procedure required the photointerpretation and classification of 2,382 new photo points and 181 previously sampled ground plot locations into land-use and cubic-foot volume classes. Then, 150 ground plots from the previous inventory were remeasured and 28 new ground plots were established. Of the total 178 plots, 103 were forested at plot center. The data collected were summarized using the FINSYS computer system developed at the Northeastern Research Station.

The forest area, numbers of trees, wildlife habitat, biomass, timber volume, growth, and change statistics in this report summarize the information collected by the field crews. Other information or additional summaries may be developed. For information, contact the **Forest Inventory and Analysis Unit, USDA Forest Service, 11 Campus Boulevard, Suite 200, Newtown Square, PA 19073 (Telephone: 610-557-4075; Fax: 610-557-4200; Web site: www.fs.fed.us/ne/fia).**

The three eastern Research Stations have agreed to include a set of 25 core tables in each of their state resource bulletins. The format of any of these tables will be identical for all 37 states in the Stations' territories. Rather than being grouped as a set, these core tables have been interspersed throughout this publication according to their level of data or content. The index in this report includes both a list of tables in this publication and the corresponding core-table number.

Reliability of the Estimates

The data in this report were based on a carefully designed sample of forest conditions throughout Rhode Island. However, because the field crews did not measure every tree or every acre in the state, the data are estimates. The reliability of the estimating procedure can be judged by two important statistical measures: accuracy and precision. Statistically, accuracy refers to the success of estimating the true value; precision refers to the clustering of sample values about their own averages or to the variation among repeated samples. We are interested primarily in the accuracy of the inventory but in most cases we can only measure its precision.

Although accuracy cannot be measured exactly, it can be checked. Preliminary tables are sent to other agencies and to outside experts familiar with the forest conditions in the State of Rhode Island. If questions arise, the data are reviewed and reanalyzed to resolve differences. Great care is taken to minimize sources of procedural error through careful training of both field and office personnel, frequent inspection of field and office work, and application of the most reliable inventory methods.

Because of the care exercised in the inventory process, estimates of precision afford a reasonable measure of the inventory's adequacy. The precision of each estimate is described by its sampling error. Sampling errors are given with several tables in this report. The others are available upon request.

Here is an example of how the sampling error is used to indicate reliability. The estimate of timberland for Rhode Island is 339,700 acres.

The associated sampling error is 3.9 percent, or 13,200 acres. This means that if there are no errors in the procedure, we are 68 percent confident that the true number of acres is between 326,500 and 352,900 acres, or $339,700 \pm 13,200$ (one standard deviation). Similarly, we are 95 percent confident that the true number of acres is within $\pm 26,500$ acres (two standard deviations). County estimates are less precise. In Rhode Island, for example, while the sampling error for timberland at the state level is 3.9 percent, the sampling error for Kent County is 10.2 percent. In general, as the size of the sample decreases, the sampling error, expressed as a percentage of the estimate, increases. A high amount of variance within a county increases the sampling error.

For many of the tables in this report, both the last column and last row are labeled "SE." These figures are the sampling errors of the column and row totals. The last sampling error given (SE) is for the table total. To calculate the approximate sampling error (SE_{ij}) for a table cell (ij), use the following formula (**this formula is reliable only for estimating sampling errors of individual cells in AREA tables**):

$$SE_{ij} = 1/P_{ij}((P_{ij}(1 - P_{ij}))/n)^{1/2}$$

where:

n = total number of sample plots of a population

P_{ij} = A_{ij} / A

A_{ij} = cell estimate

A = total land area of a population

ij = row(i) and column(j)

Any estimate with a sampling error of 50 percent or more is not significantly different from zero, and estimates with errors of 25 to 50 percent are suspect. Therefore, any estimates with errors exceeding 25 percent should be used with caution.

Comparison Between Inventories

To evaluate the condition of the forest resource, it is useful to compare the current estimates with those from the previous inventory. However, as a result of ongoing efforts to improve the efficiency of the inventory, we have made several changes in procedures and definitions since 1985. Because these changes make inappropriate the direct comparison of some of the current estimates with those published by Dickson and McAfee (1988), users should use caution when comparing the data in this report with those in the 1985 report. In this report, several tables containing 1985 data are provided to allow comparisons. The changes in methods and definitions follow.

Forest Inventory uses Bureau of Census estimates of total land area in a state or county as the basis for estimating land area by various classes. For the 1985 report (1988), 1980 Bureau of Census data were used; in 1998, 1990 data were available. Between 1980 and 1990, the Bureau of Census changed its estimating procedures: it now can identify as inland water streams that are more than 200 feet wide and bodies of water 4.5 acres and larger in area. Previously, the minimum width for streams was 660 feet and the minimum area for bodies of water was 40 acres. This procedure results in a reduction in total land area. For comparison of land area between inventories, 1985 estimates of land area by class were recalculated using 1990 total land-area values from the Bureau of Census.

Stocking is a quantitative expression of live-tree stand density that can be expressed in absolute terms, such as basal area per acre, volume per acre, or number of trees per acre; or in relative terms, such as a percentage of a previously defined standard.¹ For the 1985 inventory statistics, the stocking value of a tree was calculated using the basal area of the tree as a percent of 75 square feet per acre, which is the basal-area standard for full use of the site.²

¹ Arner, Stanford L. and others. **National algorithms for determining stocking class, stand size class, and forest type for Forest Inventory and Analysis plots.** In preparation.

² U.S. Department of Agriculture, Forest Service. 1967. **Forest survey handbook.** For. Serv. Handb. 4809.11. On file at Northeastern Research Station, Forest Inventory and Analysis, Newtown Square, PA.

Basal-area stocking may well describe current timber volume, but it is inadequate to describe stand composition in a multiresource inventory in that it neither adequately measures present site utilization nor describes small-diameter stands. For the statistics in this publication, stocking is calculated using relative density, which represents site occupancy based on normal yield tables. Basal area is diameter-dependent only; whereas relative density reflects species composition, stage of development, and the social position of the trees present. A relative measure of stand density is a useful tool for interpreting findings of extensive inventories, such as those performed by FIA, in which a wide variety of stands are sampled. A procedure using relative density to calculate stocking was developed and accepted as a standard to be used by all FIA projects in the country.

Stand size is a classification (sapling/seedling, poletimber, sawtimber, or nonstocked) of forest land based on the size of the trees that dominate an area, and forest type is a classification of forest land based on the species found in the area. Both stand size and forest type are calculated based on stocking of all live trees, and, therefore, are affected by the change in the procedure to calculate stocking. To allow comparisons, this report includes several 1985 area tables showing estimates of area of timberland by stand-size class and forest type and forest-type group that are calculated based on relative density. There also are tables that show estimates of timberland area by forest type and stand size for both 1985 and 1998, where stocking is based on the basal area of all live trees.

For the 1985 estimate as previously published, the sample was stratified within plot type (new plot and remeasure). This resulted in some erroneous calculations of variance, sampling error, and estimates. For this report, the 1985 sample was restratified across all plot types for the recalculation of estimates of area, numbers of trees, and volume.

Eighty-two percent of the plots that were visited during the 1985 inventory, either as remeasurement or as new plots, were remeasured in 1997-98. The estimates of average annual net growth and change are

derived from this set of data. These estimates afford an opportunity to look at change in overall volume from occasion to occasion with the same sample of plots. The estimates showing 1985 information are from the plots that were selected at that occasion to produce an estimate of the current area and volume. Estimates of area and volume at the 1985 occasion have been recalculated with these data using current procedures so that comparisons can be made with the current information. Although the data set from which estimates of growth and change are derived contains a portion of the plots from which the 1985 recalculated estimates were calculated, they are different data sets designed to produce different types of estimates. Inconsistencies in trends for certain species may result when the annual change tables are compared with the total change between the 1985 and 1998 tables.

To improve data consistency at the national level, a standard plot design is being used by all Forest Inventory projects in the country. The new plot design, a cluster of four 24-foot-radius points covering a 1/6-acre area, was established at all selected plot locations, both new and previously measured. Field crews recorded different conditions on the plots if certain attributes (land use, forest type, stand origin, stand size, tree density, and/or owner) differed than those at plot center. They "mapped" these conditions by recording information that described the boundaries of the conditions. This mapping procedure is designed to reduce bias in the estimates. In previous inventories, a ground plot was established wholly within the land class (forest or nonforest) that the plot was chosen to represent. The condition (e.g., privately owned northern hardwoods sawtimber timberland) that was found at plot center was used to classify the entire plot.

On all selected remeasured plot locations, a subsample of the trees that were recorded in the past were reconciled, and growth and removals estimates were calculated using these data. Condition mapping was ignored for calculations of estimates of change since this procedure was not used at the previous occasion.

Definitions of Terms

Acceptable tree. (a) Live sawtimber trees that do not qualify as preferred trees but are not cull trees. (b) Live poletimber trees that prospectively will not qualify as preferred trees, but are not now or prospectively cull trees.

Accretion. The estimated net growth on growing-stock 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 the growth on trees that were cut during the period, nor those trees that died.

Apical meristem. The point on a tree where stem elongation and growth occur.

Azimuth. The horizontal direction as sighted from subplot center to the center of the base of the tree. Recorded to the nearest degree on all trees 1.0+ inches d.b.h.

Basal-area class. A classification of forest land based on basal area (cross-sectional area of a tree stem at breast height in square feet per acre) of all live trees of all sizes.

Board foot. A unit of lumber measurement 1 foot long, 1 foot wide, and 1 inch thick, or its equivalent. International 1/4 inch rule is used as the USDA Forest Service standard log rule in the eastern United States.

Board-foot cull. The volume within the sawlog length of the tree that cannot be used as lumber because of rot, sweep, crook, excessive limbs, and other defects.

Board-foot soundness. The amount of board-foot cull that is sound, expressed as a percentage.

Board-foot stand-volume class. A classification of forest land based on net board-foot volume of sawtimber trees per acre.

Bog/Marsh/Swamp. Land that has less than 10.0 percent stocking with live trees and which characteristically supports low, generally herbaceous or shrubby vegetation, and which is intermittently covered with water during all seasons; includes tidal areas that are covered with brackish water during high tides.

Bole length. The length of a tree stem from a 1 foot stump to a 1) four-inch top diameter outside bark (d.o.b.); 2) where the central stem terminates by branching before reaching four inches d.o.b.; 3) point of a break on broken-off trees. Recorded to the nearest whole foot on all live and sound dead poletimber and sawtimber trees.

Christmas tree plantation. Forest land sufficiently productive to qualify as timberland but is exclusively used for Christmas tree production.

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

Condition. A classification of a land area based on land use, forest type, stand origin, and stand size (see definitions).

Corporate-owned lands. Lands owned by private corporations, partnerships, trusts, or clubs other than forest industry or farmers.

County and municipal lands. Lands owned by counties and local public agencies or municipalities or leased to them for 50 years or more.

Cropland. Land that currently supports agricultural crops including silage and feed grains, bare farm fields resulting from cultivation or harvest, and maintained orchards.

Crown class. An indicator of the status of the tree in relation to other trees in the stand.

Crown ratio. The percentage of the total tree height that supports a full, live crown.

Cubic-foot cull. The volume within the bole length of the tree that is not suitable for products because of rot, decay, large limbs, forks, sweep, crook, embedded wire, and other defects.

Cubic-foot soundness. The amount of cubic-foot cull that is sound, expressed as a percentage.

Cubic-foot stand-volume class. A classification of forest land based on net cubic-foot volume of either all live trees per acre or growing-stock trees per acre.

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

Cull tree. A rough tree or a rotten tree.

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

Damage, general. An agent that is serious enough to cause the reduction of tree class, significantly deter growth of the tree, or prevent it from producing marketable products within the next ten years.

Damage, special. An indication of the presence, to any extent, of an agent.

Diameter at breast height (d.b.h.). The diameter outside bark of a standing tree measured at 4-1/2 feet above the ground.

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

Dry ton stand-volume class. A classification of forest land based on net dry weight of the aboveground components of all live trees per unit area; usually expressed in dry tons per acre.

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

Farmer-owned lands. Lands owned by farm operators, whether part of the farmstead or not; excludes land leased by farm operators from nonfarm owners.

Federal lands. Lands (other than National Forests) administered by Federal agencies.

Forest industry lands. Lands owned by companies or individuals that operate primary wood-using plants.

Forest land. Land that is at least 10 percent stocked with trees of any size, or that formerly had such tree cover and is not currently developed for

a nonforest use. The minimum area for classification of forest land is one acre. The components that make up forest land are timberland and all noncommercial forest land (see definitions).

Forest type. A classification of forest land based on the species that form a plurality of live-tree stocking.

Forest-type group. A classification of forest land based on the species forming a plurality of live-tree stocking. A combination of forest types that share closely associated species or site requirements are combined into the following major forest-type groups (the descriptions apply to this report):

a. White/red pine. Forests in which eastern white pine, red pine, or eastern hemlock, singly or in combination, make up the plurality of the stocking; common associates include red maple, oak, sugar maple, and aspen.

b. Spruce/fir. Forests in which red, white, black, or Norway spruces, balsam fir, northern white-cedar, tamarack, or planted larch, singly or in combination, make up a plurality of the stocking; common associates include white pine, red maple, yellow birch, and aspens.

c. Hard pine (also called loblolly/shortleaf pine). Forests in which eastern redcedar or pitch pine, singly or in combination, make up a plurality of the stocking; common associates include white pine, paper birch, sugar maple, and basswood.

d. Oak/pine. Forests in which hardwoods (usually hickory or upland oaks) make up a plurality of the stocking and in which pines or eastern redcedar contribute 25 to 50 percent of the stocking.

e. Oak/hickory. Forests in which upland oaks, hickory, yellow-poplar, black locust, sweetgum, or red maple (when associated with central hardwoods), singly or in combination, make up a plurality of the stocking and in which pines or eastern redcedar make up less than 25 percent of the stocking; common associates include white ash, sugar maple, and hemlock.

f. Oak/gum/cypress. Bottomland forests in which tupelo, blackgum, sweetgum, oaks, or southern cypress, singly or in combination, make up a plurality of the stocking and in which pines make up less than 25 percent of the stocking; common associates include cottonwood, willow, ash, elm, hackberry, and maple.

g. Elm/ash/red maple (also called elm/ash/cottonwood). Forests in which elm, willow, cottonwood, or red maple (when growing on wet sites), singly or in combination, make up a plurality of the stocking; common associates include white ash, sugar maple, aspens, and oaks.

h. Northern hardwoods (also called maple/beech/birch). Forests in which sugar maple, beech, yellow birch, black cherry, or red maple (when associated with northern hardwoods), singly or in combination, make up a plurality of the stocking; common associates include white ash, eastern hemlock, basswood, aspens, and red oak.

i. Aspen/birch. Forests in which aspen, paper birch, or gray birch, singly or in combination, make up a plurality of the stocking; common associates include red maple, white pine, red oaks, and white ash.

Gross growth. The sum of accretion and ingrowth.

Growing-stock trees. Live trees of commercial species classified as sawtimber, poletimber, saplings, or seedlings; that is, all live trees of commercial species except rough and rotten trees.

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

Hard hardwoods. Hardwood species with an average specific gravity of greater than 0.50.

Hardwoods. Dicotyledonous trees, usually broad-leaved and deciduous.

Harvested cropland. All lands from which crops were harvested or hay was cut; all land in

orchards, citrus groves, vineyards, and nursery and greenhouse products.

Horizontal distance. The measure of length on a horizontal plane from subplot center to the center of the base of the tree. Recorded to the nearest .1 foot on all trees 1.0+ inches d.b.h.

Idle farmland. Former cropland or pasture that has not been tended for within the last 2 years and has less than 10 percent stocking with live trees (established seedlings or larger trees), regardless of species.

Improved/maintained pasture. Land that is currently used and maintained for grazing (not including grazed cropland).

Individual-owned lands. Lands owned by private individuals that do not own a farm, wood-processing plant, or corporation.

Industrial and commercial lands. Supply yards, parking lots, factories, etc.

Ingrowth. The estimated net volume of growing-stock trees that became 5.0 inches d.b.h. or larger 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 growing-stock trees 5.0 inches d.b.h. and larger that are growing on land that was reclassified from noncommercial forest land or nonforest land to timberland.

International 1/4-inch rule. A log rule or formula for estimating the board-foot volume of logs. The mathematical formula is:

$$(0.22D^2 - 0.71D)(0.904762)$$

for 4-foot sections, where D=diameter inside bark at the small end of the log section. This rule is used as the USDA Forest Service standard log rule in the Eastern United States.

Land area. (a) Bureau of Census: 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. (b) Forest Inventory and Analysis: same as (a) except that the minimum width of streams, etc. is 120 feet, and the minimum size of lakes, etc. is 1 acre.

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

Merchantability class. An indicator of the relative amounts of sound and unsound cull in a tree. Based on board-foot cull for sawtimber-sized trees and on cubic-foot cull for poletimber-sized trees.

Merchantable stem. The main stem of the tree between a 1-foot stump height and a 4-inch top diameter (outside the bark), including the wood and bark.

Mining and waste land. Surface mining, gravel pits, dumps.

Mortality. The estimated net volume of growing-stock trees at the previous inventory that died from natural causes before the current inventory (divided by the number of growing seasons between surveys to produce average annual mortality).

Multi-family house. House or building sheltering multiple families and immediately adjacent managed land.

National Forest lands. Federal lands legally designated as National Forests or purchase units and other lands administered as part of the National Forest System by the USDA Forest Service.

Net change. The difference between the current and previous inventory estimates of growing-stock volume (divided by the number of growing seasons between surveys to produce average annual net change). Components of net change are ingrowth plus accretion, minus mortality, minus cull increment, plus cull decrement, minus removals.

Net dry weight. The dry weight of woody material less the weight of all unsound (rotten) material.

Net growth. The change, resulting from natural causes, in growing-stock volume during the period between surveys (divided by the number of growing seasons to produce average annual net growth). Components of net growth are ingrowth plus accretion, minus mortality, minus cull increment, plus cull decrement.

Noncensus water. Streams/rivers between 120 feet and 200 feet in width, and bodies of water

between 1 and 4.5 acres in size. The Bureau of the Census classifies such water as land.

Noncommercial forest land. Reserved productive forest land, Christmas tree plantations, other forest land, and other reserved forest land (see definitions).

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

Nonforest land. Land that has never supported forests, or land formerly forested but now in nonforest use such as cropland, pasture, idle farmland, other farmland, single- and multi-family housing, bogs/marshes/swamps, rights-of-way, industrial or commercial sites, or noncensus water.

Nonsalvable dead tree. A dead tree with most or all of its bark missing that is at least 5.0 inches d.b.h. and is at least 4.5 feet tall.

Nonstocked area. A stand-size class of forest land that is less than 10 percent stocked with live trees of any size.

Other cropland. Includes cropland used for cover crops and soil improvement (legumes).

Other farmland. All nonforest land on a farm excluding cropland, pasture, and idle farmland; includes farm lanes, stock pens, and farmsteads.

Other forest land. Forest land that is incapable of producing 20 cubic feet per acre per year of industrial wood under natural conditions, because of adverse site conditions (formerly known as unproductive forest land).

Other reserved forest land. Forest land that is incapable of producing 20 cubic feet per acre per year of industrial wood under natural conditions, because of adverse site conditions, and is protected through statute or administrative designation.

Ownership class. A classification of forest land based on ownership and nature of business or control of decisionmaking for the land. It encompasses all types of legal entities having ownership interest in the land, whether public or private.

Pasture. Includes any pasture land other than cropland and woodland pasture. It can include lands that have had lime fertilizer or seed applied, or that had been improved by irrigation, drainage, or control of weeds and brush.

Poletimber stand. A stand-size class of forest land that is at least 10 percent stocked 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.

Poletimber tree. A live tree of commercial species meeting regional specifications of soundness and form and at least 5.0 inches in d.b.h., but smaller than a sawtimber tree.

Preferred tree. A high-quality tree, from a lumber viewpoint, that would be favored in cultural operations. General characteristics include grade 1 butt log (if sawtimber size), good form, good vigor, and freedom from serious damage.

Recreation site. Parks, campgrounds, playing fields, tracks, etc.

Relative stand density. A stocking classification procedure that reflects species, stage of development, and the characteristics of the trees present in a stand.

Removals. The net growing-stock volume harvested or killed in logging, cultural operations (such as timber stand improvement) or land clearing, and the net growing-stock volume neither harvested nor killed but growing on land that was reclassified from timberland to noncommercial forest land or nonforest land during the period between surveys. This volume is divided by the number of growing seasons to produce average annual removals.

Reserved productive forest land. Forest land sufficiently productive to qualify as timberland but withdrawn from timber utilization through statute or administrative designation.

Rights-of-way. Highways, pipelines, powerlines, canals.

Rotten tree. A live tree of commercial species that does not contain at least one 12-foot sawlog or two noncontiguous sawlogs, each 8 feet or longer, now or prospectively, and does not meet regional specifications for freedom from defect primarily because of rot; that is, more than 50 percent of the cull volume in the tree is rotten.

Rough tree. (a) The same as a rotten tree except that a rough tree does not meet regional specifications for freedom from defect primarily because of roughness or poor form; also (b) a live tree of noncommercial species.

Salvable dead tree. A tree at least 5.0 inches d.b.h. that has died recently and still has intact bark; may be standing, fallen, windthrown, knocked down, or broken off.

Sampling error. A measure of the reliability of an estimate, expressed as a percentage of the estimate. The sampling errors given in this report correspond to one standard error and are calculated as the square root of the variance, divided by the estimate, and multiplied by 100. Indicated in statistical tables as "SE".

Sapling. All live trees 1.0 through 4.9 inches d.b.h.

Sapling/seedling stand. A stand-size class of forest land that is at least 10 percent stocked with live trees with half or more of such stocking in saplings or seedlings or both.

Sawlog. A log meeting regional standards of diameter, length, and freedom from defect, including a minimum 8-foot length and a minimum top diameter inside bark of 6 inches for softwoods and 8 inches for hardwoods. (See specifications under Tree-Grade Classification.)

Sawlog length (portion). The length of a tree stem from a 1 foot stump to a 1) point above which no physical log, whether or not merchantable, can be produced because of excessive limbs, forks or crooks; 2) minimum sawlog top; 3) point of a break on broken-off trees. Recorded to the nearest whole foot on all live and sound dead sawtimber trees.

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

Sawtimber stand. A stand-size class of forest land that is at least 10 percent stocked 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.

Sawtimber tree. A live tree of commercial species at least 9.0 inches d.b.h. for softwoods or 11.0 inches for hardwoods, containing at least one 12-foot sawlog or two noncontiguous 8-foot sawlogs, and meeting regional specifications for freedom from defect.

Sawtimber volume. Net volume in board feet, by the International 1/4-inch rule, of sawlogs in sawtimber trees. Net volume equals gross volume less deductions for rot, sweep, and other defects that affect use for lumber.

SE. See Sampling error.

Seedling. A live tree less than 1.0 inch d.b.h. and at least 1 foot tall.

Single-family house. House sheltering one family and immediately adjacent managed land.

Snag. Standing dead tree with most or all of its bark missing that is at least 5.0 inches d.b.h. and at least 4.5 feet tall (does not include salvable dead).

Soft hardwoods. Hardwood species with an average specific gravity of 0.50 or less.

Softwoods. Coniferous trees, usually evergreen and having needles or scalelike leaves.

Sound cull. Defects that are due to form: sweep, crook, limbs, and forks.

Species. A class of individuals having common attributes and designated by a common name.

Stand. A group of forest trees growing on forest land.

Stand origin. An indication of how the measured stand originated: 100 percent natural, 100 percent artificial, or a combination of both.

Stand-size class. A classification of forest land based on the size class (that is, seedlings, saplings, poletimber, or sawtimber) of the stocking of all live trees in the area.

Standard cord. A unit of measure for stacked bolts of wood, encompassing 128 cubic feet of wood, bark, and air space. Fuelwood cord estimates can be derived from cubic-foot estimates of growing stock by applying an average factor of 80 cubic feet of solid wood per cord. For pulpwood, a conversion of 85 cubic feet of solid

wood per cord is used because pulpwood is more uniform.

State lands. Lands owned by the state or leased to the state for 50 years or more.

Stocking. The degree of occupancy of land by trees relative to the growth potential utilized by a site. It is expressed as a percent of the "normal" value presented in yield tables and stocking guides. Two categories of stocking are used in this report: all live trees and growing-stock trees. The relationships between the classes and the percentage of the stocking standard are: nonstocked (0 to 9); poorly stocked (10 to 34); moderately stocked (35 to 59); fully stocked (60 to 100); and overstocked (greater than 100).

Strip mine. Area devoid of vegetation due to current or recent general excavation.

Stump. The main stem of a tree from ground level to 1 foot above ground level, including the wood and bark.

Timberland. Forest land producing or capable of producing crops of industrial wood (more than 20 cubic feet per acre per year) and not withdrawn from timber utilization (formerly known as commercial forest land).

Timber products. Roundwood (round timber) products and manufacturing plant by-products harvested from growing-stock trees on timberland; from other sources, such as cull trees, salvable dead trees, limbs, tops, and saplings; and from trees on noncommercial forest and nonforest lands.

Timber removals. The growing-stock or sawtimber volume of trees removed from the inventory for roundwood products, plus logging residues, volume destroyed during land clearing, and volume of standing trees on land that was reclassified from timberland to noncommercial forest land.

Top. The wood and bark of a tree above the merchantable height (or above the point on the stem 4.0 inches in diameter outside bark); generally includes the uppermost stem, branches, and twigs of the tree, but not the foliage.

Total length. The length from a 1 foot stump to the apical meristem, to the nearest whole foot on all live and dead poletimber and sawtimber trees.

Tract/multiple family housing. Multiple individual residential units or attached units (e.g., apartment buildings and condominiums) and immediately adjacent managed land.

Transportation right-of-way. Land associated with highways and railroads.

Tree class. A classification of the quality or condition of trees for sawlog production. Tree class for sawtimber trees is based on their current condition. Tree class for poletimber trees is a prospective determination--a forecast of their potential quality when they reach sawtimber size (11.0 inches d.b.h. for hardwoods, 9.0 inches d.b.h. for softwoods).

Tree condition. A classification for all live and dead trees 5.0+ inches d.b.h. that indicates the status of the top of the tree, whether broken or intact.

Tree grade. A classification of sawtimber quality based on guidelines for tree grades for hardwoods, white pine, and southern pine. (Note: Red pine was graded using the guidelines for southern pine. All specifications are shown under Tree-Grade Classification.)

Tree history. A classification for all trees 5.0+ inches d.b.h., either currently or previously, that indicates the status of the tree (accretion, ingrowth, mortality, removals).

Trees. Woody plants that have well-developed stems and that usually are more than 12 feet tall at maturity.

Unproductive forest land. See Other forest land.

Upper-stem portion. That part of the main stem or fork of a sawtimber tree above the sawlog top to a diameter of 4.0 inches outside bark, or to the point where the main stem or fork breaks into limbs.

Urban forest land. Forest land sufficiently productive to qualify as timberland that is completely surrounded by or nearly surrounded by urban development (not parks), whether commercial, industrial, or residential.

Utility right-of-way. Land associated with pipeline or electric transmission lines; identified only if vegetative cover differs from adjacent land use.

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Species Groups of Rhode Island (as encountered on field plots)

Species Group	Scientific Name	Common Name
Spruce/fir	<i>Abies sp.</i>	fir
	<i>Picea sp.</i>	spruce
Red pine	<i>Pinus resinosa</i>	red pine
Pitch pine	<i>Pinus rigida</i>	pitch pine
White pine	<i>Pinus strobus</i>	eastern white pine
Hemlock	<i>Tsuga canadensis</i>	eastern hemlock
Other softwoods	<i>Chamaecyparis thyoides</i>	Atlantic white-cedar
	<i>Juniperus virginiana</i>	eastern redcedar
	<i>Larix laricina</i>	tamarack (native)
	<i>Pinus sylvestris</i>	Scotch pine
Red maple	<i>Acer rubrum</i>	red maple
Sugar maple	<i>Acer saccharum</i>	sugar maple
Yellow birch	<i>Betula alleghaniensis</i>	yellow birch
Sweet birch	<i>Betula lenta</i>	sweet birch
Paper birch	<i>Betula papyrifera</i>	paper birch
Hickory	<i>Carya sp.</i>	hickory
	<i>Carya cordiformis</i>	bitternut hickory
	<i>Carya glabra</i>	pignut hickory
	<i>Carya ovata</i>	shagbark hickory
Beech	<i>Fagus grandifolia</i>	American beech
White ash	<i>Fraxinus americana</i>	white ash
Aspen	<i>Populus deltoides</i>	eastern cottonwood
	<i>Populus grandidentata</i>	bigtooth aspen
	<i>Populus tremuloides</i>	quaking aspen
Black cherry	<i>Prunus serotina</i>	black cherry
White oak	<i>Quercus alba</i>	white oak
Northern red oak	<i>Quercus rubra</i>	northern red oak
Other red oaks	<i>Quercus coccinea</i>	scarlet oak
	<i>Quercus velutina</i>	black oak

Species Groups of Rhode Island (continued)

Species Group	Scientific Name	Common Name
Elm	<i>Ulmus americana</i>	American elm
	<i>Ulmus rubra</i>	slippery elm
Other hardwoods	<i>Acer sp.</i>	maple
	<i>Acer negundo</i>	boxelder
	<i>Acer pensylvanicum</i>	striped maple
	<i>Ailanthus altissima</i>	ailanthus
	<i>Amelanchier sp.</i>	serviceberry
	<i>Betula populifolia</i>	gray birch
	<i>Carpinus caroliniana</i>	American hornbeam
	<i>Castanea dentata</i>	American chestnut
	<i>Celtis occidentalis</i>	hackberry
	<i>Cornus florida</i>	flowering dogwood
	<i>Fraxinus nigra</i>	black ash
	<i>Fraxinus pennsylvanica</i>	green ash
	<i>Ilex opaca</i>	American holly
	<i>Juglans nigra</i>	black walnut
	<i>Liriodendron tulipifera</i>	yellow-poplar
	<i>Malus sp.</i>	apple
	<i>Nyssa sylvatica</i>	blackgum
	<i>Ostrya virginiana</i>	eastern hophornbeam
	<i>Prunus virginiana</i>	chokecherry
	<i>Quercus bicolor</i>	swamp white oak
	<i>Quercus ilicifolia</i>	bear oak, scrub oak
	<i>Quercus prinus</i>	chestnut oak
	<i>Robinia pseudoacacia</i>	black locust
	<i>Salix sp.</i>	willow
	<i>Sassafras albidum</i>	sassafras
		unknown or not listed tree

Tree Species of Rhode Island (as encountered on field plots)

Scientific Name ***	Common Name(s)	Occurrence**	SE
Softwoods			
<i>Abies</i> sp. Mill.	fir		100
<i>Juniperus virginiana</i> L.	eastern redcedar		100
<i>Larix laricina</i> (Du Roi) K. Koch	tamarack (native)		95
<i>Picea</i> sp. A. Dietr.	spruce		100
<i>Pinus resinosa</i> Ait.	red pine		100
<i>Pinus rigida</i> Mill.	pitch pine	c	49
<i>Pinus strobus</i> L.	eastern white pine	vc	16
<i>Pinus sylvestris</i> L.	Scotch pine		100
<i>Tsuga canadensis</i> (L.) Carr.	eastern hemlock	r	45
Hardwoods			
<i>Acer</i> sp. L. *	maple		100
<i>Acer rubrum</i> L.	red maple	vc	11
<i>Acer saccharum</i> Marsh.	sugar maple	r	38
<i>Amelanchier</i> sp. Medic. *	serviceberry		83
<i>Betula alleghaniensis</i> Britton	yellow birch	c	29
<i>Betula lenta</i> L.	sweet birch	c	31
<i>Betula papyrifera</i> Marsh.	paper birch		100
<i>Betula populifolia</i> Marsh. *	gray birch	r	36
<i>Carpinus caroliniana</i> Walt. *	American hornbeam		100
<i>Carya</i> sp. Nutt.	hickory		100
<i>Carya cordiformis</i> (Wangenh.) K. Koch	bitternut hickory		100
<i>Carya glabra</i> (Mill.) Sweet	pignut hickory	c	31
<i>Carya ovata</i> (Mill.) K. Koch	shagbark hickory	r	43
<i>Cornus florida</i> L. *	flowering dogwood		100
<i>Fagus grandifolia</i> Ehrh.	American beech		54
<i>Fraxinus americana</i> L.	white ash	c	27
<i>Fraxinus nigra</i> Marsh.	black ash		79
<i>Fraxinus pennsylvanica</i> Marsh.	green ash		100
<i>Juglans nigra</i> L.	black walnut		100
<i>Liriodendron tulipifera</i> L.	yellow-poplar		63
<i>Malus</i> sp. Mill. *	apple		71
<i>Nyssa sylvatica</i> Marsh.	blackgum	c	23
<i>Ostrya virginiana</i> (Mill.) K. Koch *	eastern hophornbeam		100
<i>Populus deltoides</i> Bartr. ex Marsh.	eastern cottonwood		71
<i>Populus grandidentata</i> Michx.	bigtooth aspen	c	45
<i>Prunus serotina</i> Ehrh.	black cherry	c	41

Tree Species of Rhode Island (continued)

Scientific Name ***	Common Name(s)	Occurrence**	SE
<i>Quercus alba</i> L.	white oak	vc	14
<i>Quercus bicolor</i> Willd.	swamp white oak		57
<i>Quercus coccinea</i> Muenchh.	scarlet oak	vc	17
<i>Quercus prinus</i> L.	chestnut oak		64
<i>Quercus rubra</i> L.	northern red oak	vc	14
<i>Quercus velutina</i> Lam.	black oak	vc	15
<i>Robinia pseudoacacia</i> L.	black locust		100
<i>Salix</i> sp. L. *	willow		71
<i>Sassafras albidum</i> (Nutt.) Nees *	sassafras	r	32
<i>Ulmus americana</i> L.	American elm		75
<i>Ulmus rubra</i> Muhl.	slippery elm		100
*	unknown or not listed tree		100

*** Names according to: Little, Elbert L., Jr. 1979. Checklist of United States Trees (native and naturalized). Agric. Handb. 541. Washington, DC: U.S Department of Agriculture. 375 p.

** Occurrence is based on the proportion of the species among all live trees 5.0 inches d.b.h. or larger encountered on forest survey field plots: vr = very rare (<0.05%), r = rare (0.05 to 0.49%), c = common (0.5 to 4.9%), and vc = very common (>5.0%). Occurrence estimates for species that have more than 50% error are not reported.

* Noncommercial species.

Tree-Grade Classification

HARDWOOD TREE GRADES

GRADING FACTOR	TREE GRADE 1	TREE GRADE 2	TREE GRADE 3
Length of grading zone (feet)	Butt 16	Butt 16	Butt 16
Length of grading section ^a (feet)	Best 12	Best 12	Best 12
Minimum DBH (inches)	16 ^b	13	11
Minimum Diameter inside bark at top of grading section (inches)	13 ^b 16 20	11 ^c 12	8
Clear cuttings on 3rd best face ^d			
minimum length (feet)	7 5 3	3 3	2
number on face (maximum)	2	2 3	unlimited
yield in face length (minimum)	5/6	4/6	3/6
Cull deduction, including crook and sweep but excluding shake, maximum within grading section (%)	9	9 ^e	50

- ^a Whenever a 14- or 16-foot section of the butt 16-foot log is better than the best 12-foot section, the grade of the longer section will become the grade of the tree. This longer section, when used, is the basis for determining the grading factors, such as diameter and cull deduction.
- ^b In basswood and ash, diameter inside bark at the top of the grading section may be 12 inches and DBH may be 15 inches.
- ^c Grade 2 trees can be 10 inches diameter inside bark at the top of the grading section if otherwise meeting surface requirements for small grade 1's.
- ^d A clear cutting is a portion of a face free of defects, extending the width of the face. A face is one-fourth of the surface of the grading section as divided lengthwise.
- ^e Fifteen percent crook and sweep, or 40 percent total cull deduction are permitted in grade 2 if size and surface of grading section qualify as grade 1. If rot shortens the required clear cuttings to the extent of dropping the butt log to grade 2, do not drop the tree's grade to 3 unless the cull deduction for rot is greater than 40 percent.

Tree-Grade Classification (continued)

TIE AND TIMBER GRADE

GRADE FACTORS	SPECIFICATIONS
Position in tree	Butts and uppers
Scaling Diameter (inches)	8 inches d.i.b. and larger
Length, without trim (feet)	12 feet and larger
Clear cuttings	no requirements: not graded on cutting basis
Maximum sweep allowance	One-fourth d.i.b. of small end for half logs, and one-half d.i.b. for logs sixteen feet long
Sound surface defects permitted Single knots	Any number, if none has an average collar ^a diameter that is more than one third of the log diameter at the point of occurrence
Sound surface defects permitted Whorled knots	Any number, provided the sum of the collar diameters does not exceed one third the log diameter at the point of occurrence
Sound surface defects permitted Knots	Any number not exceeding knot specifications, if they do not extend more than 3 inches into the contained tie or timber
Unsound surface defects permitted ^b	Any number and size if they do not extend into contained tie or timber. If they extend into the contained tie or timber, they shall not exceed size, number, and depth of limits for sound defects.

^a Knot collar is the average of the vertical and horizontal diameters of the limb, or knot swelling, as measured flush with the surface of the log.

^b Interior defects are not visible in standing trees. They are considered in grading cut logs. No interior defects are permitted except one shake not more than one-third the width of the contained tie or timber, and one split not more than 5 inches long.

Tree-Grade Classification (continued)

EASTERN WHITE PINE TREE GRADE SPECIFICATIONS

GRADING FACTOR	TREE GRADE 1	TREE GRADE 2	TREE GRADE 3	TREE GRADE 4
(1) Minimum DBH (inches)	9	9	9	9
(2) Maximum weevil injury in butt 16 ft section (number)	None	None	2 injuries	No limit
(3) Minimum face requirements on butt 16 ft section	Two full length or four 50% length good faces ¹ (In addition, knots on balance of faces shall not exceed size limitations for grade 2 sections)	NO GOOD FACES REQUIRED. Maximum diameter of knots on three best faces: SOUND RED KNOTS not to exceed 1/6 of scaling dia. or 3 inch maximum ² DEAD OR BLACK KNOTS , including overgrown knots, not to exceed 1/12 scaling dia. and 1-1/2 inch max.	NO GOOD FACES REQUIRED. Maximum diameter of knots on three best faces: SOUND RED KNOTS not to exceed 1/3 of scaling diameter or 5 inch maximum ² DEAD OR BLACK KNOTS , including overgrown knots, not to exceed 1/6 scaling dia. and 2-1/2 inch max.	Includes all trees not qualifying for grade 3 or better and judged to have at least 1/3 of their gross volume in sound wood suitable for manufacture into standard lumber
(4) Maximum sweep or crook in butt 16 ft section (percent)	20	30	40	No limit
(5) Maximum total scaling deduction in butt 16 ft. section (percent)	50	50	50	No limit

After the tentative grade of the section is established from face examination, the section will be reduced one grade whenever the following defects are evident:

CONKS, PUNK KNOTS, AND PINE BORER DAMAGE ON THE SURFACE OF THE SECTION³
Degrade one grade if present on one face. Degrade two grades if present on two faces. Degrade three grades if present on three or four faces.

(7) If the final grade of the grading section is 1, 2, or 3, examine the tree for weevil injuries in the merchantable stem *above* 16 ft. If the total apparent weevil injuries exceed three, degrade the tree one grade below the section grade³. Otherwise the tree grade equals the final section grade.

¹ Trees under 16 inches DBH require four full length good faces.

² Scaling diameter is estimated at the top of the 16-foot grading section.

³ No tree will be designated below Grade 4 unless net tree scale is less than one-third of gross tree scale.

Tree-Grade Classification (continued)

SOUTHERN PINE TREE GRADES

Grade 1 - trees with 3 or 4 clear faces on the 16-foot grading section.

Grade 2 - trees with 1 or 2 clear faces on the 16-foot grading section.

Grade 3 - trees with no clear faces on the 16-foot grading section.

After the tentative grade is established, the tree will be reduced one grade for each of the following:

(1) **Sweep.** Degrade any tentative Grade 1 or 2 tree one grade if sweep in the lower 12 feet of the grading section amounts to 3 or more inches and equals or exceeds one-fourth the diameter at breast height.

(2) **Heart rot.** Degrade any tentative Grade 1 or 2 tree one grade if conks, punk knots, or other evidence of advanced heart rot is found anywhere on the tree stem.

NOTE: No tree can be degraded below Grade 3, provided the total scaling deductions for sweep and/or rot do not exceed two-thirds the gross scale of the tree. Trees with total scaling deductions in excess of two-thirds are classified as cull.

A face is one-fourth the circumference of the 16-foot grading section and extends the full length of the grading section. Clear faces are those free from knots measuring more than 1/2 inch in diameter, overgrown knots of any size, and holes more than 1/4 inch in diameter. Faces may be rotated, if necessary, to obtain the maximum number of clear faces on the grading section.

One-log trees are graded by using the Southern Pine Log Grades. This is recommended because the entire merchantable volume of the tree is contained in the graded section. The log grading system gives a more accurate prediction of the lumber grade-yields for such trees than would the tree grading system.

SPRUCE, FIR, CEDAR, TAMARACK, AND HEMLOCK LOGS

Minimum Merchantability Specifications for Grade One Logs				
D.I.B. ¹	LENGTH ²	TOTAL DEDUCTION	SWEEP PERMITTED	OTHER REQUIREMENTS
6" - 12"	12' - 16' in 2 foot multiples	50 %	25 %	Sound knots not over 2" in diameter permitted. Shake permitted up to 20 % of gross scale if not combined with other serious defect.
13"+	12' - 16' in 2 foot multiples	50 %	25 %	Sound knots not over 3" in diameter permitted. Shake permitted up to 20 % of gross scale if not combined with other serious defect.

¹ ...at small end of log.

² ...without trim.

TREE GRADE 5 (ALL SPECIES)

Any tree which does not make tree grade 1,2, or 3 (or 4) but is still a merchantable tree.

Field Plot Data Quality Standards

A quality assurance (QA) program is performed to ensure that a final product will meet the desired level of accuracy and precision. Quality control (QC) procedures are specific actions within the quality assurance program that are designed to maintain data quality within an acceptable range. There are three basic aspects of any QA program: error prevention, assessment and appraisal, and correction. Error prevention is achieved by developing standardized methods, establishing measurement quality objectives and data quality standards, and applying calibration techniques and training. Assessment and appraisal is accomplished by performing audits, debriefings and field personnel feedback, data validation and verification, and a remeasurement program for QC data collection. The purpose of correction, the last aspect of the quality assurance program, is to use all of the information from the prevention and assessment and appraisal components to make improvements, where needed, in the measurement system.

Our periodic resource inventories are designed to satisfy specified precision objectives. Much of our resource information comes from a statistically sound but very small sample of actual ground conditions that were selected to satisfy the precision objectives. While there is no guarantee that the data are completely error-free, it is obvious that field errors must be kept to a minimum. Establishing and adhering to a quality assurance (QA) program can accomplish this objective. By setting standards and monitoring fieldwork, we can detect and correct, prevent, or eliminate the repetition of most errors.

After the initial training period, periodic inspections are made of every crew's fieldwork by field supervisors. The number of errors detected will partially determine frequency of inspections. All instances of error are analyzed and discussed with the crew concerned. Supervisors monitor progress and goals, and minimum acceptable performance levels are adjusted

as conditions warrant. In addition, a percentage of all plots are subjected to a second measurement as part of the quality control program.

Tolerance levels are set depending on the type of data item. When an item is obtained by measurements that can be repeated with uniform results by several individuals, close tolerance limits that define acceptable data are set. Some items require subjective evaluation; the breadth of the tolerance limits depends on the degree of subjectivity. When an item requires a mutually exclusive answer, crews are expected to complete the item as best they can, based on their training, instructions received, and evidence on the plot, with zero tolerance for error.

Quality Control Remeasurement Program

The following procedures were followed to obtain the QC tree data results.

Sample Size

- * Four percent random sample of all plots in state is selected.

Data Collection

- * Crew 1 visits a plot.
- * The plot is identified as QC by field supervisor.
- * Crew 2 visits the same plot.

Compilation

- * Trees from both data sets (Crew 1 and 2) are extracted from forested subplots.
- * Trees are matched between sets based on the following criteria:
 - 1) Tree numbers for all remeasure trees.
 - 2) Distance, azimuth, and species for all new or ingrowth trees.

Comparison

- * Tolerance limits from state field instructions are used to compare the tree data between Crew 1 and Crew 2.
- * Four tree data item classes are grouped prior to applying tolerance.
 - 1) Six condition classes are reduced to three: live, dead, or snag.
 - 2) Six tree grades are reduced to four: merchantable, tie & timber, cull, and dead.
 - 3) Six tree classes are reduced to five: preferred and acceptable, rough, rotten, dead, and snag.

- 4) Three merchantability classes are reduced to two: sound and unsound.

- * Values are either within tolerance (1x) or exceed tolerance (2x, 3x, or 4x).

Results

Tree data items are presented as:

- * Percentage of data within tolerance limits, and
- * Number of times data exceeded tolerance limits.

Southern New England QA Tree Data Results from 124 Subplots*

Tree data item	Tolerance	Percentage of data within tolerance				Number of times data exceeded tolerance				Records
		@1x	@2x	@3x	@4x	@1x	@2x	@3x	@4x	
Species	No tolerance	95%				81				1,566
Trees (missed)	No tolerance	98%				(33)				1,566
Horizontal distance	± .2 feet	77%	90%	94%		360	150	99		1,566
Azimuth	± 2 degrees	73%	91%	96%		425	135	64		1,566
Tree history	No tolerance	93%				48				731
Diameter	± .1 inch	93%	95%	96%		92	60	50		1,268
Ecotype	No tolerance	95%				59				1,108
Condition	No tolerance**	95%				62				1,268
Tree grade	No tolerance**	83%				48				284
Saw length	± 4 feet	46%	68%	85%	93%	152	92	43	19	284
Bole length	± 4 feet	56%	81%	91%	96%	420	181	87	34	962
Total length	± 10 feet	85%	98%	98%		158	23	18		1,063
Board foot cull	± 10%	76%	89%	93%	95%	69	32	19	15	284
Board foot soundness	± 1 class	93%	94%	95%	96%	21	17	14	12	284
Cubic foot cull	± 10%	86%	95%	98%	99%	139	49	19	10	962
Cubic foot soundness	± 1 class	90%	91%	92%	93%	98	83	74	67	962
Crown ratio	± 1 class	87%	97%			124	29			962
Crown class	No tolerance	68%				304				962
General damage	Variable tolerance	96%				36				962
Special damage	Variable tolerance	92%				146				1,924
Tree class	No tolerance**	89%				137				1,268
Merchantability class	No tolerance**	93%				82				1,159

* Because of the small number of samples, Connecticut, Massachusetts, and Rhode Island data cannot be reported individually. 34 plots visited with forest land

** Item codes have been grouped for comparison

Metric Equivalents

1 acre = 4,046.86 square meters
 1 acre = 0.404686 hectares
 1,000 acres = 404.686 hectares
 1,000,000 acres = 404,686 hectares
 1 board foot = 0.00348 cubic meters
 1 board foot = 3,480 cubic centimeters
 1,000 board feet = 3.48 cubic meters
 1,000,000 board feet = 3,480 cubic meters
 1 cubic foot = 0.028317 cubic meters
 1,000 cubic feet = 28.317 cubic meters
 1,000,000 cubic feet = 28,317 cubic meters
 1 cord (wood, bark, and air space) = 3.6246 cubic meters
 1 cord (solid wood, pulpwood) = 2.4069 cubic meters
 1 cord (solid wood, other than pulpwood) = 2.2654 cubic meters
 1,000 cords (pulpwood) = 2,406.9 cubic meters
 1,000 cords (other products) = 2,265.4 cubic meters
 1 inch = 2.54 centimeters or 0.0254 meters
 1 foot = 30.48 centimeters or 0.3048 meters
 1 mile = 1.609 kilometers
 1 square foot = 929.03 square centimeters
 1 square foot = 0.0929 square meters
 1 square foot per acre basal area = 0.229568 square meters per hectare
 1 cubic foot per acre = 0.0699 cubic meters per hectare
 1 ton = 907.1848 kilograms
 1,000 tons = 907.1848 metric tons
 Breast height = 1.4 meters above ground level

Although 1,000 board feet are theoretically equivalent to 2.36 cubic meters, this is true only when a board foot is actually a piece of wood with a volume 1/12 of a cubic foot. The International 1/4-inch log rule is used by the USDA Forest Service in the East to estimate the product potential in board feet. The reliability of the estimate obtained by conversion will vary with the size of the log measure. The conversion given here, 3.48 cubic meters, is based on the cubic volume of a log 16 feet long and 15 inches in diameter inside bark (d.i.b.) at the small end. This conversion could be used for average comparisons when accuracy of 10 percent is acceptable. Because the board foot unit is not a true measure of wood volume and because products other than dimension lumber are becoming important, this unit may eventually be phased out and replaced by the cubic meter.

Index to Tables

The following tables are divided into two sections: (1) State, and (2) County. Tables showing 1985 information are listed here with asterisks(**). The tables within the document are also marked with asterisks(**) in the title. Forest type, stand-size class, and stocking class tables are based on stocking that is based on relative density, unless otherwise noted.

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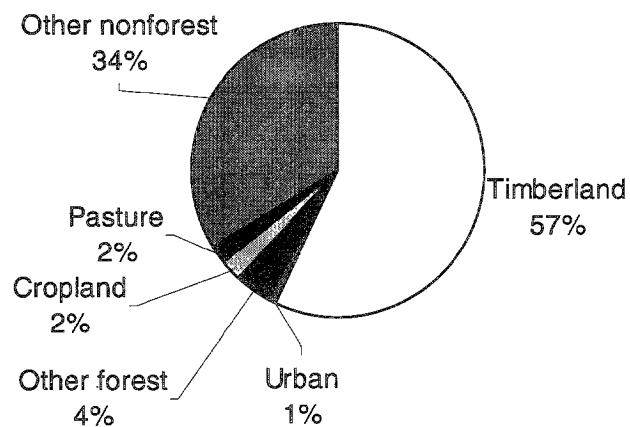
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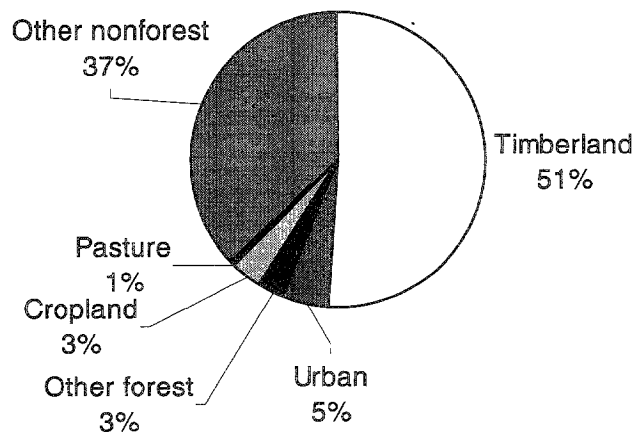
STATE TABLES



Area by land class, Rhode Island, 1985 and 1998



1985



1998

Table 1.--Land area by land class, Rhode Island, 1985 and 1998^a(In thousands of acres)^b

Land class	1985	Percent of total	SE	1998	Percent of total	SE
Timberland	380.1	56.8	4.1	339.7	50.8	3.9
Noncommercial forest land:						
Reserved productive	10.7	1.6	56.7	9.6	1.4	57.8
Urban forest land	6.9	1.0	70.7	33.1	4.9	27.1
Other forest land ^c	14.2	2.1	48.6	10.6	1.6	52.6
Christmas tree plantation	.0	.0	.0	.0	.0	.0
Reserved other forest land	.0	.0	.0	.0	.0	.0
Total noncommercial forest land	31.7	4.7	32.1	53.3	8.0	20.6
Total forest land	411.8	61.6	3.0	393.0	58.8	2.4
Nonforest land:						
Cropland	16.4	2.5	50.5	22.6	3.4	33.3
Pasture	13.1	2.0	58.0	5.0	.7	76.7
Other	227.4	34.0	6.8	248.2	37.1	5.0
Total nonforest land	257.0	38.4	4.9	275.8	41.2	3.4
Total land area ^d	668.8	100.0	.0	668.8	100.0	.0

^a In this and other tables, a zero indicates that the data are negligible or the condition was not encountered in the sample. A dash indicates that the condition is not possible under current Forest Service definitions.

^b Rows and columns in all tables may not sum due to rounding.

^c "Other forest land" formerly known as unproductive forest land.

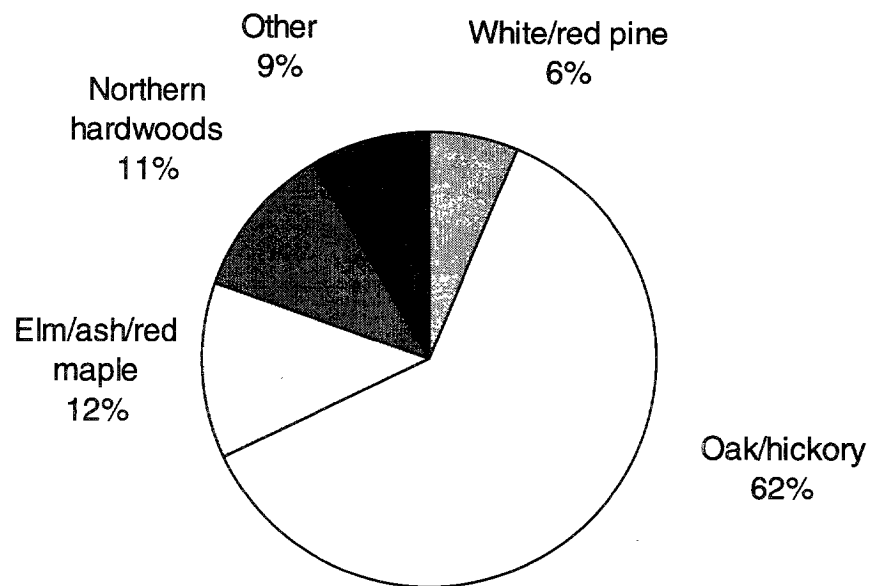
^d Source: 1990 United States Department of Commerce, Bureau of Census.

Table 2.--Area of all forest land by land class and forest-type group, Rhode Island, 1998

(In thousands of acres)

Land class	Forest-type group									All groups	SE
	White/ red pine	Spruce/ fir	Hard pine	Oak/ pine	Oak/ hickory	Oak/gum/ cypress	Elm/ash/ red maple	Northern hardwoods	Aspen/ birch		
Timberland	25.3	3.7	1.0	20.3	212.9	.0	29.5	44.1	2.9	339.7	3.9
Noncommercial forest land:											
Reserved productive	.0	.0	.0	.0	9.6	.0	.0	.0	.0	9.6	57.8
Urban forest land	.0	.0	.0	2.7	18.7	.0	8.4	.0	3.2	33.1	27.1
Other forest land	.0	.0	.0	.0	.0	.0	10.6	.0	.0	10.6	52.6
Total noncommercial	.0	.0	.0	2.7	28.4	.0	19.0	.0	3.2	53.3	20.6
Total forest land	25.3	3.7	1.0	23.0	241.3	.0	48.5	44.1	6.1	393.0	2.4

Area of forest land by forest-type group*, Rhode Island, 1998



* stocking based on relative density

Table 3.--**Area of timberland by forest type, forest-type group, and stand-size class, Rhode Island, 1985

(In thousands of acres)

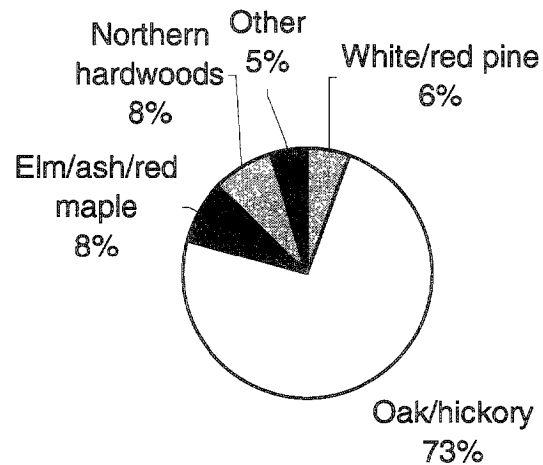
Forest type	Stand-size class				All classes	SE
	Saw-timber	Pole-timber	Sapling and seedling	Non-stocked		
White pine	14.0	3.5	.0	3.5	21.1	40.1
White/red pine group	14.0	3.5	.0	3.5	21.1	40.1
Eastern redcedar	3.9	.0	.0	.0	3.9	100.0
Pitch pine	.0	3.5	.0	.0	3.5	100.0
Hard pine group	3.9	3.5	.0	.0	7.4	70.7
Wh. pine/no. red oak/wh. ash	.0	3.3	.0	.0	3.3	100.0
Other oak/pine	.0	7.1	.0	.0	7.1	68.9
Oak/pine group	.0	10.5	.0	.0	10.5	56.7
Post, black, or bear oak	3.5	23.5	.0	.0	27.0	34.0
Chestnut oak	.0	3.5	.0	.0	3.5	100.0
White oak/red oak/hickory	17.1	20.4	3.3	.0	40.8	27.4
White oak	3.5	14.2	.0	.0	17.8	43.8
Northern red oak	6.6	20.4	.0	.0	27.1	34.1
Scarlet oak	7.1	28.0	.0	.0	35.1	30.5
Red maple/central hardwoods	.0	27.7	.0	.0	27.7	34.3
Mixed central hardwoods	48.6	41.5	10.5	.0	100.5	16.5
Oak/hickory group	86.5	179.2	13.8	.0	279.5	7.0
Black ash/Amer. elm/red maple	.0	6.9	.0	.0	6.9	70.7
Red maple(lowland)	6.9	10.4	.0	.0	17.3	44.4
Red maple(upland)	3.5	3.3	.0	.0	6.9	70.7
Elm/ash/red maple group	10.4	20.6	.0	.0	31.0	32.5
Red maple/northern hardwoods	3.6	17.1	6.6	.0	27.3	34.5
Mixed northern hardwoods	.0	3.3	.0	.0	3.3	100.0
Northern hardwoods group	3.6	20.4	6.6	.0	30.6	32.3
All forest types	118.3	237.8	20.4	3.5	380.1	4.1
SE	15.0	8.4	39.7	100.0	4.1	

Table 4.--Area of timberland by forest type, forest-type group, and stand-size class, Rhode Island, 1998

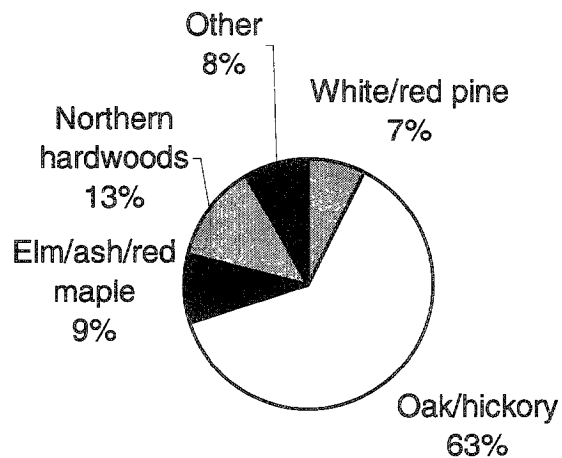
(In thousands of acres)

Forest type	Stand-size class				All classes	SE
	Saw-timber	Pole-timber	Sapling and seedling	Non-stocked		
White pine	24.4	.0	.0	.0	24.4	31.1
White pine/hemlock	.0	.9	.0	.0	.9	100.0
White/red pine group	24.4	.9	.0	.0	25.3	30.1
Tamarack	3.7	.0	.0	.0	3.7	100.0
Spruce/fir group	3.7	.0	.0	.0	3.7	100.0
Pitch pine	1.0	.0	.0	.0	1.0	100.0
Hard pine group	1.0	.0	.0	.0	1.0	100.0
Wh. pine/no. red oak/wh. ash	10.9	.0	.0	.0	10.9	52.4
Other oak/pine	3.5	5.0	.9	.0	9.4	58.1
Oak/pine group	14.4	5.0	.9	.0	20.3	37.5
Post, black, or bear oak	9.7	6.1	.0	.0	15.8	46.1
Chestnut oak	.0	7.6	.0	.0	7.6	70.7
White oak/red oak/hickory	.7	3.5	.0	.0	4.2	84.4
White oak	1.9	1.9	.0	.0	3.7	68.1
Northern red oak	12.3	2.6	.0	.0	14.9	43.6
Y. poplar/wh. oak/no. red oak	.0	3.8	.0	.0	3.8	100.0
Scarlet oak	9.9	24.1	2.3	.0	36.3	28.2
Sassafras/persimmon	.0	.0	3.1	.0	3.1	100.0
Red maple/central hardwoods	12.1	10.4	.0	.0	22.5	36.7
Mixed central hardwoods	54.6	46.4	.0	.0	101.0	15.6
Oak/hickory group	101.2	106.3	5.3	.0	212.9	8.4
Black ash/Amer. elm/red maple	4.9	3.8	.0	.0	8.6	56.0
Red maple(lowland)	5.3	3.8	.9	.0	9.9	43.8
Red maple(upland)	3.9	4.8	2.3	.0	10.9	54.7
Elm/ash/red maple group	14.0	12.3	3.2	.0	29.5	28.7
Sugar maple/beech/yellow birch	3.7	7.5	3.8	.0	15.1	50.0
Black cherry	.0	.0	1.4	.0	1.4	100.0
Red maple/northern hardwoods	10.0	13.9	.0	.0	23.9	35.4
Mixed northern hardwoods	.0	.0	3.8	.0	3.8	100.0
Northern hardwoods group	13.7	21.4	9.0	.0	44.1	25.9
Aspen	.0	.0	2.9	.0	2.9	100.0
Aspen/birch group	.0	.0	2.9	.0	2.9	100.0
All forest types	172.4	145.9	21.3	.0	339.7	3.9
SE	10.2	11.9	35.0	.0	3.9	

Area of timberland by forest-type group*, Rhode Island, 1985 and 1998



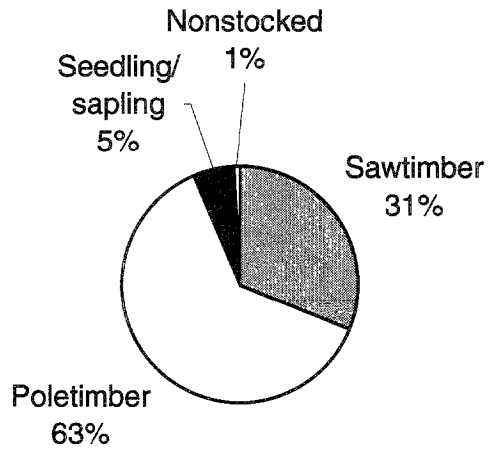
1985



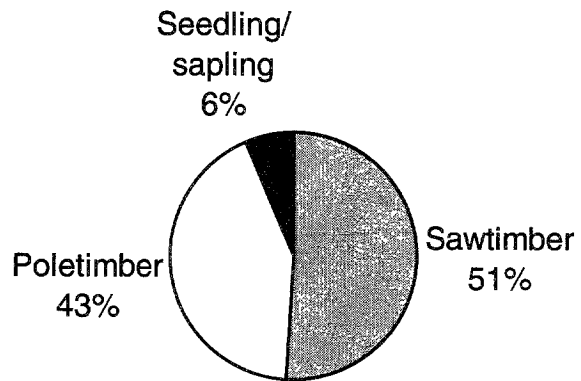
1998

* stocking based on relative density

Area of timberland by stand-size class*, Rhode Island, 1985 and 1998



1985



1998

* stocking based on relative density

Table 5.--**Area of timberland by forest type, forest-type group, and stand-size class (stocking based on basal area), Rhode Island, 1985

(In thousands of acres)

Forest type	Stand-size class				All classes	SE
	Saw-timber	Pole-timber	Sapling and seedling	Non-stocked		
White pine	17.5	3.5	.0	.0	21.1	40.1
White/red pine group	17.5	3.5	.0	.0	21.1	40.1
Eastern redcedar	3.9	.0	.0	.0	3.9	100.0
Pitch pine	.0	7.1	.0	.0	7.1	70.7
Hard pine group	3.9	7.1	.0	.0	11.0	57.8
Wh. pine/no. red oak/wh. ash	10.0	10.2	.0	.0	20.2	39.6
Other oak/pine	3.5	3.6	.0	.0	7.1	70.7
Oak/pine group	13.5	13.8	.0	.0	27.3	34.5
Post, black, or bear oak	6.9	20.2	3.3	.0	30.3	31.8
Chestnut oak	.0	3.5	.0	.0	3.5	100.0
White oak/red oak/hickory	3.3	13.8	3.3	.0	20.4	40.1
White oak	3.5	14.2	3.3	.0	21.1	40.1
Northern red oak	13.8	23.5	.0	.0	37.3	28.6
Scarlet oak	10.6	21.1	.0	.0	31.7	32.1
Red maple/central hardwoods	7.1	13.7	.0	.0	20.8	40.0
Mixed central hardwoods	48.6	44.8	6.9	.0	100.3	16.5
Oak/hickory group	93.8	154.8	16.9	.0	265.5	7.4
Black ash/Amer. elm/red maple	14.0	3.3	3.3	.0	20.6	40.1
Red maple(lowland)	10.4	3.5	.0	.0	14.0	49.8
Red maple(upland)	3.5	3.3	.0	.0	6.9	70.7
Elm/ash/red maple group	27.9	10.2	3.3	.0	41.5	27.8
Red maple/northern hardwoods	6.9	3.5	.0	.0	10.4	57.8
Northern hardwoods group	6.9	3.5	.0	.0	10.4	57.8
Gray birch	.0	.0	3.3	.0	3.3	100.0
Aspen/birch group	.0	.0	3.3	.0	3.3	100.0
All forest types	163.6	193.0	23.5	.0	380.1	4.1
SE	11.9	10.2	36.3	.0	4.1	

Table 6.--Area of timberland by forest type, forest-type group, and stand-size class (stocking based on basal area), Rhode Island, 1998

(In thousands of acres)

Forest type	Stand-size class				All classes	SE
	Saw-timber	Pole-timber	Sapling and seedling	Non-stocked		
White pine	29.8	3.2	.0	.0	33.0	28.0
White pine/hemlock	3.8	.0	.0	.0	3.8	100.0
White/red pine group	33.6	3.2	.0	.0	36.8	27.1
Tamarack	3.7	.0	.0	.0	3.7	100.0
Spruce/fir group	3.7	.0	.0	.0	3.7	100.0
Pitch pine	3.5	.0	.0	.0	3.5	100.0
Hard pine group	3.5	.0	.0	.0	3.5	100.0
Wh. pine/no. red oak/wh. ash	18.2	3.5	.0	.0	21.7	38.9
Other oak/pine	.0	3.7	.0	.0	3.7	100.0
Oak/pine group	18.2	7.2	.0	.0	25.5	36.3
Post, black, or bear oak	8.0	3.7	.0	.0	11.7	57.8
Chestnut oak	.0	3.7	.0	.0	3.7	100.0
White oak/red oak/hickory	.0	10.4	.0	.0	10.4	57.8
White oak	3.7	.0	.0	.0	3.7	100.0
Northern red oak	15.3	3.5	.0	.0	18.8	42.9
Y. poplar/wh. oak/no. red oak	.0	3.8	.0	.0	3.8	100.0
Scarlet oak	7.5	18.3	.0	.0	25.8	36.5
Sassafras/persimmon	.0	.0	4.1	.0	4.1	100.0
Red maple/central hardwoods	11.2	11.5	4.1	.0	26.8	36.6
Mixed central hardwoods	35.8	60.8	3.5	.0	100.2	17.1
Oak/hickory group	81.4	115.7	11.7	.0	208.8	9.5
Black ash/Amer. elm/red maple	3.7	.0	.0	.0	3.7	100.0
Red maple(lowland)	6.9	.0	.0	.0	6.9	70.9
Red maple(upland)	7.6	3.7	.0	.0	11.3	57.7
Elm/ash/red maple group	18.3	3.7	.0	.0	22.0	40.4
Sugar maple/beech/yellow birch	3.8	.0	3.8	.0	7.6	70.7
Red maple/northern hardwoods	11.5	3.8	.0	.0	15.3	48.7
Mixed northern hardwoods	.0	.0	3.8	.0	3.8	100.0
Northern hardwoods group	15.2	3.8	7.7	.0	26.7	34.5
Gray birch	3.7	.0	.0	.0	3.7	100.0
Aspen/birch group	3.7	.0	.0	.0	3.7	100.0
All forest types	177.6	133.7	19.3	.0	330.7	4.5
SE	10.2	13.6	43.0	.0	4.5	

Table 7.--Area of timberland by forest-type group and ownership class, Rhode Island, 1998

(In thousands of acres)

Forest-type group	Owner class				All classes	SE
	National Forest	Other public	Forest industry	Other private		
White/red pine	.0	10.9	.0	14.4	25.3	30.1
Spruce/fir	.0	3.7	.0	.0	3.7	100.0
Hard pine	.0	.0	.0	1.0	1.0	100.0
Oak/pine	.0	7.3	.0	12.9	20.3	37.5
Oak/hickory	.0	54.8	.0	158.1	212.9	8.4
Elm/ash/red maple	.0	4.2	.0	25.3	29.5	28.7
Northern hardwoods	.0	.0	.0	44.1	44.1	25.9
Aspen/birch	.0	.0	.0	2.9	2.9	100.0
All groups	.0	80.8	.0	258.9	339.7	3.9
SE	.0	18.4	.0	6.8	3.9	

Table 8.--Area of timberland by stand-size class and ownership class, Rhode Island, 1998

(In thousands of acres)

Stand-size class	Owner class				All classes	SE
	National Forest	Other public	Forest industry	Other private		
Sawtimber	.0	46.5	.0	126.0	172.4	10.2
Poletimber	.0	32.0	.0	113.9	145.9	11.9
Sapling and seedling	.0	2.3	.0	19.0	21.3	35.0
All classes	.0	80.8	.0	258.9	339.7	3.9
SE	.0	18.4	.0	6.8	3.9	

Table 9.--Area of timberland by board-foot stand-volume class and ownership class,
Rhode Island, 1998

(In thousands of acres)

Stand-volume class	Owner class				All classes	SE
	National Forest	Other public	Forest industry	Other private		
0 - 1,999	.0	30.9	.0	103.8	134.8	12.9
2,000 - 3,999	.0	12.7	.0	76.7	89.4	17.2
4,000 - 5,999	.0	12.7	.0	30.1	42.8	26.4
6,000 - 7,999	.0	3.2	.0	18.8	22.0	35.9
8,000 - 9,999	.0	13.9	.0	14.8	28.7	32.4
10,000+	.0	7.4	.0	14.6	21.9	34.2
All classes	.0	80.8	.0	258.9	339.7	3.9
SE	.0	18.4	.0	6.8	3.9	

Table 10.--Area of timberland by stocking class of growing-stock trees and
ownership class, Rhode Island, 1998

(In thousands of acres)

Stocking class	Owner class				All classes	SE
	National Forest	Other public	Forest industry	Other private		
Poorly stocked	.0	11.5	.0	56.8	68.3	19.7
Moderately stocked	.0	33.9	.0	119.9	153.8	11.7
Fully stocked	.0	35.4	.0	81.2	116.6	13.6
Overstocked	.0	.0	.0	1.0	1.0	100.0
All classes	.0	80.8	.0	258.9	339.7	3.9
SE	.0	18.4	.0	6.8	3.9	

Table 11.--Area of timberland by forest-type group and cubic-foot stand-volume class of growing-stock trees, Rhode Island, 1998

(In thousands of acres)

Forest-type group	Stand-volume class (cubic feet per acre)						All classes	SE
	0-499	500-999	1000-1499	1500-1999	2000-2499	2500+		
White/red pine	.0	.0	4.4	9.9	3.7	7.3	25.3	30.1
Spruce/fir	.0	.0	.0	.0	.0	3.7	3.7	100.0
Hard pine	.0	.0	.0	1.0	.0	.0	1.0	100.0
Oak/pine	3.1	4.1	3.5	2.6	3.2	3.7	20.3	37.5
Oak/hickory	6.9	66.0	63.2	22.5	35.0	19.4	212.9	8.4
Elm/ash/red maple	12.0	7.1	6.7	1.9	.9	.9	29.5	28.7
Northern hardwoods	11.8	7.5	8.1	6.7	6.1	3.9	44.1	25.9
Aspen/birch	2.9	.0	.0	.0	.0	.0	2.9	100.0
All groups	36.8	84.7	85.9	44.6	48.8	38.8	339.7	3.9
SE	26.6	17.5	17.9	25.5	24.2	23.7	3.9	

Table 12.--Area of timberland by forest-type group and board-foot stand-volume class, Rhode Island, 1998

(In thousands of acres)

Forest-type group	Stand-volume class (board feet per acre)						All classes	SE
	0-1,999	2,000-3,999	4,000-5,999	6,000-7,999	8,000-9,999	10,000+		
White/red pine	.0	3.5	7.2	3.7	3.7	7.3	25.3	30.1
Spruce/fir	.0	.0	.0	.0	.0	3.7	3.7	100.0
Hard pine	.0	.0	.0	1.0	.0	.0	1.0	100.0
Oak/pine	7.3	.0	3.5	2.6	3.2	3.7	20.3	37.5
Oak/hickory	86.9	66.5	26.5	8.6	17.1	7.3	212.9	8.4
Elm/ash/red maple	22.4	3.4	2.8	.0	.9	.0	29.5	28.7
Northern hardwoods	15.3	15.9	2.9	6.1	3.9	.0	44.1	25.9
Aspen/birch	2.9	.0	.0	.0	.0	.0	2.9	100.0
All groups	134.8	89.4	42.8	22.0	28.7	21.9	339.7	3.9
SE	12.9	17.2	26.4	35.9	32.4	34.2	3.9	

Table 13.--**Area of timberland by forest-type group and stocking class of all live trees, Rhode Island, 1985

(In thousands of acres)

Forest-type group	Stocking class					All classes	SE
	Nonstocked	Poorly stocked	Moderately stocked	Fully stocked	Over-stocked		
White/red pine	3.5	.0	3.3	14.2	.0	21.1	40.1
Loblolly/shortleaf	.0	.0	7.4	.0	.0	7.4	70.7
Oak/pine	.0	3.6	3.6	3.3	.0	10.5	56.7
Oak/hickory	.0	6.9	108.0	154.4	10.2	279.5	7.0
Elm/ash/red maple	.0	3.3	14.0	13.8	.0	31.0	32.5
Northern hardwoods	.0	.0	10.2	20.4	.0	30.6	32.3
All groups	3.5	13.8	146.5	206.1	10.2	380.1	4.1
SE	100.0	49.8	12.8	9.4	57.4	4.1	

Table 14.--Area of timberland by forest-type group and stocking class of all live trees, Rhode Island, 1998

(In thousands of acres)

Forest-type group	Stocking class					All classes	SE
	Nonstocked	Poorly stocked	Moderately stocked	Fully stocked	Over-stocked		
White/red pine	.0	.0	7.5	17.8	.0	25.3	30.1
Spruce/fir	.0	.0	.0	3.7	.0	3.7	100.0
Hard pine	.0	.0	.0	1.0	.0	1.0	100.0
Oak/pine	.0	.0	.0	20.3	.0	20.3	37.5
Oak/hickory	.0	4.8	74.3	125.3	8.5	212.9	8.4
Elm/ash/red maple	.0	8.6	9.7	9.4	1.8	29.5	28.7
Northern hardwoods	.0	.0	20.5	18.4	5.2	44.1	25.9
Aspen/birch	.0	2.9	.0	.0	.0	2.9	100.0
All groups	.0	16.2	112.1	195.8	15.5	339.7	3.9
SE	.0	43.2	14.2	9.2	38.7	3.9	

Table 15.--**Area of timberland by forest-type group and stocking class of growing-stock trees, Rhode Island, 1985

(In thousands of acres)

Forest-type group	Stocking class					All classes	SE
	Nonstocked	Poorly stocked	Moderately stocked	Fully stocked	Over-stocked		
White/red pine	3.5	3.3	.0	14.2	.0	21.1	40.1
Loblolly/shortleaf	.0	7.4	.0	.0	.0	7.4	70.7
Oak/pine	.0	3.6	3.6	3.3	.0	10.5	56.7
Oak/hickory	3.5	24.4	124.9	120.0	6.6	279.5	7.0
Elm/ash/red maple	.0	10.2	10.6	10.2	.0	31.0	32.5
Northern hardwoods	.0	3.5	13.5	13.5	.0	30.6	32.3
All groups	7.1	52.4	152.6	161.3	6.6	380.1	4.1
SE	70.1	24.6	12.4	11.4	70.0	4.1	

Table 16.--Area of timberland by forest-type group and stocking class of growing-stock trees, Rhode Island, 1998

(In thousands of acres)

Forest-type group	Stocking class					All classes	SE
	Nonstocked	Poorly stocked	Moderately stocked	Fully stocked	Over-stocked		
White/red pine	.0	.0	20.3	5.0	.0	25.3	30.1
Spruce/fir	.0	.0	.0	3.7	.0	3.7	100.0
Loblolly/shortleaf	.0	.0	.0	1.0	.0	1.0	100.0
Oak/pine	.0	.0	4.1	16.1	.0	20.3	37.5
Oak/hickory	.0	9.1	95.4	105.0	3.4	212.9	8.4
Elm/ash/red maple	.0	11.3	12.1	5.3	.9	29.5	28.7
Northern hardwoods	.0	6.6	18.6	19.0	.0	44.1	25.9
Aspen/birch	.0	2.9	.0	.0	.0	2.9	100.0
All groups	.0	29.9	150.5	155.1	4.3	339.7	3.9
SE	.0	30.8	12.1	11.1	64.7	3.9	

Table 17.--Area of timberland by stand-size class, forest-type group, and basal-area class (all live trees), Rhode Island, 1998

(In thousands of acres)

Forest-type group	Basal area class (square feet per acre)							All classes	SE
	0- 49	50- 99	100- 149	150- 199	200- 249	250- 299	300+		
Sawtimber:									
White/red pine	.0	2.9	16.5	4.7	.0	.0	.3	24.4	31.1
Spruce/fir	.0	.0	.0	3.7	.0	.0	.0	3.7	100.0
Hard pine	.0	.0	.0	1.0	.0	.0	.0	1.0	100.0
Oak/pine	1.4	.0	9.3	3.7	.0	.0	.0	14.4	44.7
Oak/hickory	.0	55.6	33.5	12.1	.0	.0	.0	101.2	16.0
Elm/ash/red maple	.0	7.6	6.2	.2	.0	.0	.0	14.0	45.8
Northern hardwoods	.0	.0	10.5	3.2	.0	.0	.0	13.7	48.9
All type groups	1.4	66.1	76.0	28.6	.0	.0	.3	172.4	10.2
Poletimber:									
White/red pine	.0	.0	.9	.0	.0	.0	.0	.9	100.0
Oak/pine	.0	4.1	.9	.0	.0	.0	.0	5.0	84.5
Oak/hickory	3.8	72.7	29.2	.0	.6	.0	.0	106.3	15.1
Elm/ash/red maple	.0	10.4	.9	1.0	.0	.0	.0	12.3	43.4
Northern hardwoods	.0	17.6	3.7	.0	.0	.0	.0	21.4	38.7
All type groups	3.8	104.9	35.6	1.0	.6	.0	.0	145.9	11.9
Seedling/sapling:									
Oak/pine	.9	.0	.0	.0	.0	.0	.0	.9	100.0
Oak/hickory	5.3	.0	.0	.0	.0	.0	.0	5.3	68.2
Elm/ash/red maple	.0	2.3	.9	.0	.0	.0	.0	3.2	77.5
Northern hardwoods	.0	7.7	1.4	.0	.0	.0	.0	9.0	59.0
Aspen/birch	2.9	.0	.0	.0	.0	.0	.0	2.9	100.0
All type groups	9.1	9.9	2.3	.0	.0	.0	.0	21.3	35.0
All classes	14.3	181.0	113.9	29.5	.6	.0	.3	339.7	3.9
SE	39.5	9.8	14.2	28.9	100.0	.0	100.0	3.9	

Table 18.--Number of live trees (1.0+ inches d.b.h.) on all forest land by species and diameter group, Rhode Island, 1998

(In thousands of trees)

Species	Diameter class (inches at breast height)					All classes	SE
	1.0-4.9	5.0-8.9	9.0-14.9	15.0-20.9	21.0+		
Fir species	0	67	89	0	0	155	100.0
Atlantic white-cedar	287	0	0	0	0	287	100.0
Eastern redcedar	572	0	74	49	0	695	60.8
Tamarack (native)	0	44	288	177	0	510	95.2
Spruce species	0	67	0	0	0	67	100.0
Red pine	0	47	70	0	0	117	100.0
Pitch pine	311	707	496	25	0	1,539	55.9
White pine	17,690	3,647	2,204	943	153	24,636	24.0
Scotch pine	0	0	22	0	0	22	100.0
Eastern hemlock	1,665	156	67	21	22	1,931	91.8
All softwoods	20,524	4,735	3,309	1,215	175	29,959	20.8
Maple species	0	25	0	0	0	25	100.0
Red maple	48,454	11,937	5,569	790	175	66,925	13.7
Sugar maple	2,734	90	45	23	23	2,915	51.1
Serviceberry	560	69	47	0	0	677	87.2
Yellow birch	8,317	1,236	366	42	0	9,961	36.1
Sweet birch	7,288	1,304	467	46	0	9,105	49.7
Paper birch	0	23	0	0	0	23	100.0
Gray birch	2,580	246	0	0	0	2,826	46.2
American hornbeam	0	23	0	0	0	23	100.0
Hickory species	0	21	0	0	0	21	100.0
Bitternut hickory	291	0	21	0	0	312	93.5
Pignut hickory	1,142	405	134	44	0	1,725	37.0
Shagbark hickory	0	165	0	0	0	165	43.2
American chestnut	1,641	0	0	0	0	1,641	40.0
Flowering dogwood	2,269	47	0	0	0	2,315	46.3
Beech	1,715	343	128	96	0	2,283	66.4
White ash	568	687	217	87	44	1,604	30.4
Black ash	0	90	0	0	0	90	79.1
Green ash	0	45	0	0	0	45	100.0
American holly	280	0	0	0	0	280	100.0
Black walnut	0	25	0	0	0	25	100.0
Tulip-poplar	0	0	89	45	0	134	62.8
Apple species	0	45	0	0	0	45	70.7
Blackgum	3,113	933	388	46	23	4,502	35.5
Eastern hophornbeam	1,121	25	0	0	0	1,146	77.5
Eastern cottonwood	0	0	22	25	0	47	70.8
Bigtooth aspen	287	229	279	0	0	795	44.5
Black cherry	2,953	566	184	0	0	3,703	45.9
Choke cherry	277	0	0	0	0	277	100.0
White oak	6,132	3,373	1,664	241	41	11,451	19.9

Table 18.-continued

(In thousands of trees)							
Species	Diameter class (inches at breast height)					All classes	SE
	1.0- 4.9	5.0- 8.9	9.0- 14.9	15.0- 20.9	21.0+		
Swamp white oak	280	23	90	23	45	460	72.6
Scarlet oak	3,184	6,130	3,377	259	23	12,972	16.2
Bear oak	311	0	0	0	0	311	100.0
Chestnut oak	861	836	274	0	0	1,971	63.5
Northern red oak	4,226	3,220	2,402	583	167	10,598	14.0
Black oak	3,862	3,245	2,183	370	23	9,683	19.3
Black locust	0	44	0	0	0	44	100.0
Willow species	546	44	0	0	0	590	96.3
Sassafras	2,555	251	47	22	0	2,875	33.2
American elm	519	68	0	0	0	587	63.3
Slippery elm	0	0	22	0	0	22	100.0
Unknown	0	0	45	0	0	45	100.0
All hardwoods	108,066	35,812	18,062	2,741	563	165,245	7.7
All species	128,590	40,547	21,371	3,956	739	195,203	6.9
SE	10.5	5.7	5.6	10.5	19.4	6.9	

Table 19.--Number of live trees (1.0+ inches d.b.h.) on timberland by species and diameter class, Rhode Island, 1998

(In thousands of trees)

Species	Diameter class (inches at breast height)							
	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
Spruce/fir	0	0	67	67	89	0	0	0
Red pine	0	0	23	23	70	0	0	0
Pitch pine	0	311	311	397	248	137	86	25
White pine	13,384	3,588	2,005	1,273	873	691	563	395
Eastern hemlock	1,665	0	134	22	45	0	0	21
Other softwoods	287	280	0	44	89	133	89	89
Total softwoods	15,336	4,179	2,539	1,826	1,413	961	738	529
Red maple	35,615	10,017	5,776	3,671	2,485	1,274	699	427
Sugar maple	1,603	824	68	23	22	23	0	23
Yellow birch	5,639	2,677	895	316	216	58	68	42
Sweet birch	5,643	1,368	953	217	248	130	89	0
Hickory	883	549	297	201	109	46	0	25
Beech	1,715	0	256	87	42	42	44	58
White ash	568	0	394	271	151	66	0	46
Aspen	287	0	46	159	133	23	22	25
Black cherry	1,709	1,243	337	112	93	91	0	0
White oak	4,987	854	1,630	1,448	664	455	361	65
Northern red oak	2,024	1,088	1,443	1,510	1,045	637	564	328
Other red oaks	4,295	2,511	4,268	3,797	2,832	1,441	974	398
Elm	519	0	46	22	22	0	0	0
Other commercial hardwoods	2,518	1,191	1,045	769	273	321	134	68
Noncommercial hardwoods	7,639	1,647	524	137	69	46	0	0
Total hardwoods	75,645	23,971	17,979	12,741	8,405	4,651	2,957	1,504
All species	90,981	28,150	20,518	14,567	9,819	5,612	3,695	2,033
SE	13.3	13.8	7.7	7.3	7.6	9.1	9.1	12.6

Table 19.-continued

(In thousands of trees)

Species	Diameter class (inches at breast height)				Total 5.0+	All classes	SE
	17.0- 18.9	19.0- 20.9	21.0- 28.9	29.0+			
Spruce/fir	0	0	0	0	222	222	100.0
Red pine	0	0	0	0	117	117	100.0
Pitch pine	0	0	0	0	1,203	1,514	56.9
White pine	331	174	131	22	6,457	23,430	25.1
Eastern hemlock	0	0	0	0	223	1,887	93.9
Other softwoods	67	22	0	0	532	1,099	57.1
Total softwoods	397	196	131	22	8,753	28,269	21.9
Red maple	130	89	111	42	14,704	60,336	15.2
Sugar maple	0	0	23	0	181	2,609	55.9
Yellow birch	0	0	0	0	1,595	9,912	36.3
Sweet birch	23	0	0	0	1,661	8,672	52.0
Hickory	19	0	0	0	697	2,130	32.7
Beech	19	19	0	0	568	2,283	66.4
White ash	0	41	44	0	1,014	1,582	30.8
Aspen	0	0	0	0	407	694	46.5
Black cherry	0	0	0	0	633	3,586	47.3
White oak	131	45	19	0	4,818	10,659	21.2
Northern red oak	112	46	69	23	5,778	8,890	15.1
Other red oaks	161	23	46	0	13,940	20,746	14.0
Elm	0	0	0	0	90	609	61.1
Other commercial hardwoods	23	0	23	0	2,656	6,364	30.0
Noncommercial hardwoods	22	0	0	0	798	10,083	21.1
Total hardwoods	641	263	335	65	49,541	149,157	8.8
All species	1,038	459	466	87	58,295	177,425	7.9
SE	14.8	23.8	25.1	50.1	5.2	7.9	

Table 20.--Number of all live trees on timberland by diameter class, tree class,
and species group, Rhode Island, 1998

(In thousands of trees)

Diameter class	Growing stock		Cull		All classes	SE
	Soft- woods	Hard- woods	Soft- woods	Hard- woods		
Seedlings	117,470	525,449	-	78,836	721,755	10.9
1.0 - 2.9	15,336	68,007	-	7,639	90,981	13.3
3.0 - 4.9	4,179	22,324	-	1,647	28,150	13.8
Total saplings	19,515	90,331	-	9,285	119,131	11.5
5.0 - 6.9	2,336	14,555	203	3,423	20,518	7.7
7.0 - 8.9	1,647	11,120	179	1,621	14,567	7.3
9.0 - 10.9	-	7,671	-	734	8,405	8.7
Total poletimber	3,984	33,347	382	5,778	43,491	6.2
9.0 - 10.9	1,051	-	363	-	1,413	20.9
11.0 - 12.9	894	3,949	67	702	5,612	9.1
13.0 - 14.9	671	2,666	67	291	3,695	9.1
Total small sawtimber	2,616	6,615	496	993	10,720	8.0
15.0 - 16.9	529	1,320	0	183	2,033	12.6
17.0 - 18.9	397	600	0	41	1,038	14.8
19.0 - 20.9	196	174	0	89	459	23.8
21.0 - 28.9	131	244	0	91	466	25.1
29.0 and larger	22	46	0	19	87	50.1
Total large sawtimber	1,276	2,383	0	424	4,083	10.9
All classes	144,861	658,124	878	95,318	899,181	9.2
SE	25.2	10.1	37.2	20.4	9.2	

Table 21.--Number of trees (5.0+ inches d.b.h.) on timberland by species and tree class, Rhode Island, 1998

(In thousands of trees)

Species	Tree class								All classes	SE
	Preferred	Acceptable	All growing stock	Rough cull	Rotten cull	All live	Salvable dead	Nonsalvable dead		
Spruce/fir	0	199	199	22	0	222	0	0	222	100.0
Red pine	0	117	117	0	0	117	23	67	207	75.1
Pitch pine	0	1,060	1,060	143	0	1,203	75	44	1,323	48.7
White pine	109	5,725	5,834	604	19	6,457	133	560	7,151	17.1
Eastern hemlock	0	155	155	68	0	223	0	0	223	52.9
Other softwoods	0	510	510	22	0	532	44	22	599	84.1
Total softwoods	109	7,767	7,876	859	19	8,753	276	693	9,723	16.1
Red maple	23	11,626	11,649	2,585	470	14,704	134	679	15,517	11.5
Sugar maple	0	135	135	46	0	181	0	0	181	37.9
Yellow birch	0	1,167	1,167	383	45	1,595	0	86	1,681	29.5
Sweet birch	19	1,484	1,503	138	19	1,661	46	155	1,862	31.5
Hickory	0	674	674	23	0	697	0	0	697	30.7
Beech	38	529	568	0	0	568	0	0	568	54.3
White ash	0	798	798	196	19	1,014	69	45	1,128	25.5
Aspen	0	385	385	22	0	407	0	65	472	43.2
Black cherry	0	361	361	250	22	633	23	67	724	43.4
White oak	61	4,152	4,213	560	45	4,818	43	702	5,564	13.7
Northern red oak	375	5,295	5,670	40	68	5,778	66	376	6,220	14.7
Other red oaks	182	12,567	12,749	885	306	13,940	89	1,240	15,270	12.9
Elm	0	90	90	0	0	90	0	0	90	61.7
Other commercial hardwoods	112	2,269	2,381	229	45	2,656	45	182	2,883	26.9
Noncommercial hardwoods	-	-	-	730	68	798	65	93	955	21.9
Total hardwoods	811	41,534	42,345	6,088	1,108	49,541	582	3,690	53,813	5.6
All species	920	49,301	50,220	6,947	1,128	58,295	857	4,383	63,535	5.0
SE	23.7	5.3	5.3	10.0	15.2	5.2	18.8	11.9	5.0	

Table 22.--**Number of growing-stock trees (5.0+ inches d.b.h.) on timberland by species and diameter class, Rhode Island, 1985

(In thousands of trees)

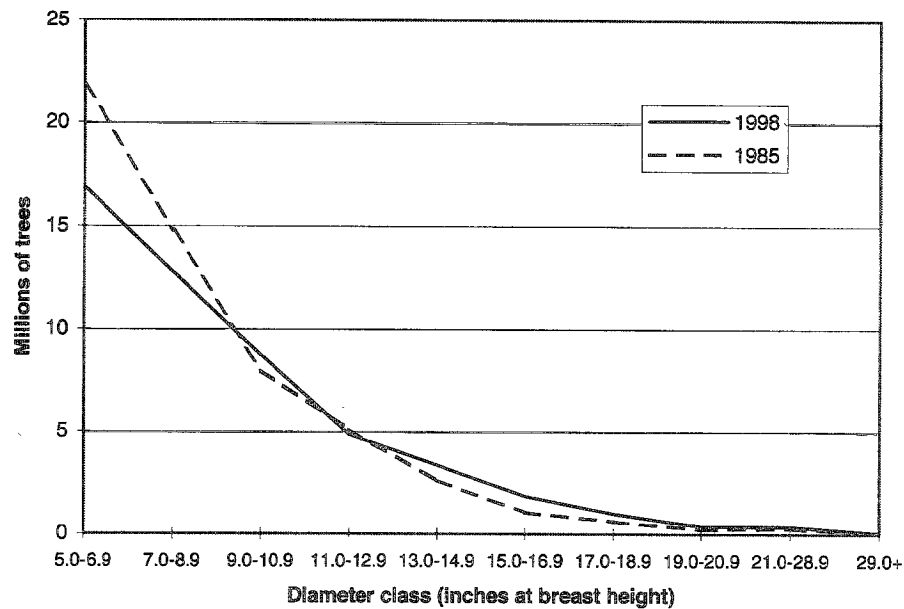
Species	Diameter class (inches at breast height)										All classes	SE
	5.0- 6.9	7.0- 8.9	9.0- 10.9	11.0- 12.9	13.0- 14.9	15.0- 16.9	17.0- 18.9	19.0- 20.9	21.0- 28.9	29.0+		
Red pine	32	179	79	73	25	0	0	0	0	0	388	95.8
Pitch pine	415	308	87	99	13	22	0	0	0	0	945	50.3
White pine	1,754	843	680	653	309	143	139	62	76	0	4,659	21.9
Eastern hemlock	33	0	0	0	0	0	0	0	0	0	33	100.0
Other softwoods	31	169	77	58	39	11	0	0	0	0	386	69.7
Total softwoods	2,265	1,499	923	883	386	176	139	62	76	0	6,411	20.1
Red maple	4,351	3,519	1,680	1,060	437	187	173	17	49	18	11,491	14.1
Sugar maple	68	0	0	30	0	0	0	0	0	0	98	61.9
Yellow birch	465	271	241	65	18	18	0	0	0	0	1,076	31.6
Sweet birch	516	117	86	63	18	12	0	0	0	0	812	32.2
Paper birch	0	27	0	0	0	0	0	0	0	0	27	100.0
Hickory	572	372	162	66	17	11	0	0	0	0	1,201	31.3
Beech	207	58	100	57	12	35	31	0	0	0	500	68.5
White ash	517	230	200	148	135	21	29	24	0	0	1,305	32.7
Aspen	0	85	67	99	13	0	0	0	0	0	264	47.6
Black cherry	68	30	25	0	0	0	0	0	0	0	123	62.4
White oak	3,620	1,966	955	279	346	67	63	27	15	0	7,339	13.8
Northern red oak	3,334	2,147	893	683	465	233	71	53	83	4	7,967	14.1
Other red oaks	5,050	4,346	2,433	1,568	760	270	80	17	42	5	14,571	12.6
Elm	31	0	22	12	0	0	0	0	0	0	65	83.0
Other hardwoods	741	107	157	79	0	18	27	0	0	0	1,129	66.8
Total hardwoods	19,541	13,276	7,022	4,209	2,221	872	475	138	190	27	47,971	6.1
All species	21,806	14,775	7,945	5,093	2,607	1,048	614	200	266	27	54,381	5.6
SE	8.3	7.8	8.1	9.9	11.3	15.7	21.4	30.7	25.7	70.5	5.6	

Table 23.--Number of growing-stock trees (5.0+ inches d.b.h.) on timberland by species and diameter class, Rhode Island, 1998

(In thousands of trees)

Species	Diameter class (inches at breast height)										All classes	SE
	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- 28.9	29.0+		
Spruce/fir	67	67	67	0	0	0	0	0	0	0	199	100.0
Red pine	23	23	70	0	0	0	0	0	0	0	117	100.0
Pitch pine	290	347	176	137	86	25	0	0	0	0	1,060	51.0
White pine	1,845	1,144	672	624	497	395	331	174	131	22	5,834	16.9
Eastern hemlock	112	22	0	0	0	21	0	0	0	0	155	61.3
Other softwoods	0	44	67	133	89	89	67	22	0	0	510	95.2
Total softwoods	2,336	1,647	1,051	894	671	529	397	196	131	22	7,876	16.0
Red maple	4,449	2,979	2,166	984	543	289	111	64	43	23	11,649	12.2
Sugar maple	44	23	22	23	0	23	0	0	0	0	135	39.6
Yellow birch	672	271	125	58	23	19	0	0	0	0	1,167	32.9
Sweet birch	907	129	225	130	89	0	23	0	0	0	1,503	31.9
Hickory	297	178	109	46	0	25	19	0	0	0	674	31.7
Beech	256	87	42	42	44	58	19	19	0	0	568	54.3
White ash	261	229	129	66	0	46	0	22	44	0	798	30.6
Aspen	46	137	133	23	22	25	0	0	0	0	385	45.5
Black cherry	157	67	68	68	0	0	0	0	0	0	361	54.4
White oak	1,351	1,310	617	362	336	65	131	23	19	0	4,213	15.1
Northern red oak	1,403	1,443	1,045	637	564	328	112	46	69	23	5,670	14.9
Other red oaks	3,779	3,522	2,695	1,238	933	375	161	0	46	0	12,749	13.6
Elm	46	22	22	0	0	0	0	0	0	0	90	61.7
Other hardwoods	886	723	273	273	112	68	23	0	23	0	2,381	27.3
Total hardwoods	14,555	11,120	7,671	3,949	2,666	1,320	600	174	244	46	42,345	5.9
All species	16,892	12,767	8,722	4,843	3,337	1,850	997	369	375	68	50,220	5.3
SE	8.2	7.7	7.8	9.8	10.2	13.2	15.0	26.3	26.5	57.7	5.3	

Number of growing-stock trees on timberland, Rhode Island, 1985 and 1998



Number of growing-stock trees on timberland, top 5 species, Rhode Island, 1985 and 1998

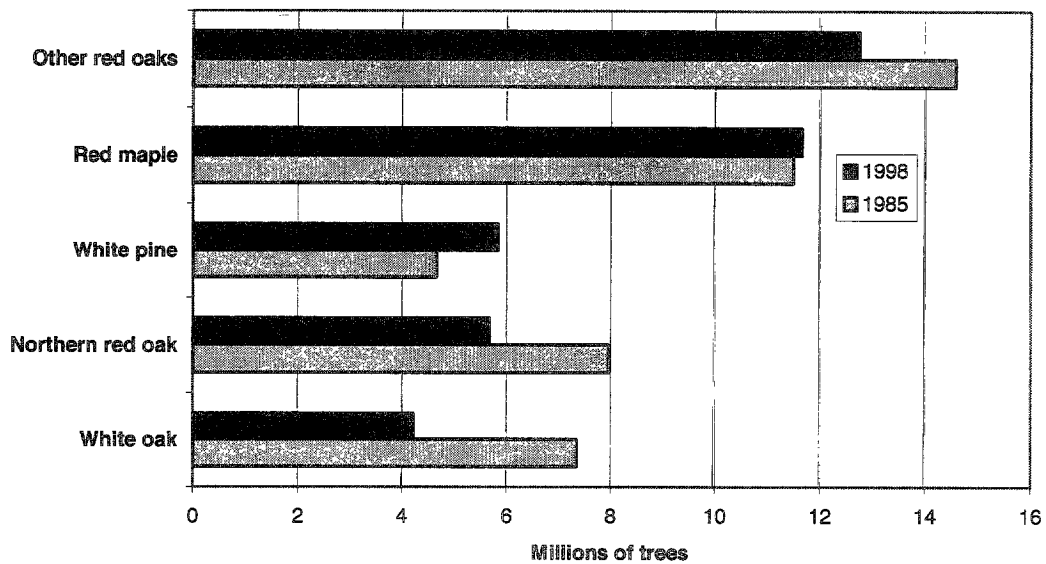


Table 24.--Number of seedlings and saplings on timberland by species and stand-size class, Rhode Island, 1998

(In millions of stems)

Species	Stand-size class				All classes	SE
	Saw-timber	Pole-timber	Sapling and seedling	Non-stocked		
Atlantic white cedar	0	0	0	0	0	100.0
Eastern redcedar	0	5	2	0	7	74.3
Pitch pine	0	1	0	0	1	100.0
Eastern white pine	95	28	3	0	126	27.2
Eastern hemlock	2	0	0	0	2	100.0
Striped maple	0	1	0	0	1	100.0
Red maple	70	71	10	0	151	17.9
Sugar maple	3	2	0	0	5	51.4
Serviceberry	1	1	0	0	2	70.7
Yellow birch	20	17	3	0	40	32.2
Sweet birch	12	11	20	0	43	38.3
Gray birch	1	3	0	0	4	45.9
American hornbeam	10	2	0	0	12	86.0
Bitternut hickory	3	0	0	0	3	91.4
Pignut hickory	4	2	0	0	6	43.6
American chestnut	8	7	4	0	19	35.8
Flowering dogwood	1	4	1	0	5	65.1
American beech	7	0	0	0	7	57.4
White ash	1	3	0	0	4	43.9
American holly	0	0	0	0	0	100.0
Yellow-poplar	0	1	0	0	1	100.0
Black tupelo	12	1	0	0	13	38.5
Eastern hophornbeam	2	0	0	0	2	87.6
Bigtooth aspen	4	0	2	0	6	67.8
Quaking aspen	1	2	0	0	3	75.2
Black cherry	56	22	4	0	81	23.3
Chokecherry	0	0	0	0	0	100.0
White oak	60	51	2	0	112	19.3
Scarlet oak	7	14	1	0	21	34.4
Scrub, bear oak	1	5	0	0	6	65.4
Chestnut oak	12	10	0	0	22	48.1
Northern red oak	21	15	3	0	40	22.6
Black oak	31	21	0	0	52	28.2
Sassafras	10	23	3	0	36	32.3
American elm	1	2	0	0	2	76.6
All species	457	326	58	0	841	9.7
SE	18.0	17.5	40.4	.0	9.7	

Table 25.--Number of standing dead trees (5.0+ inches d.b.h.) on timberland by species, condition class, and diameter class, Rhode Island, 1998

(In thousands of trees)

Species	Intact trees				Broken trees				All classes
	5.0-10.9	11.0-14.9	15+	Total intact	5.0-10.9	11.0-14.9	15+	Total broken	
Red pine	0	44	0	44	45	0	0	45	90
Pitch pine	47	0	0	47	72	0	0	72	119
White pine	159	0	23	183	265	44	201	511	693
Other softwoods	67	0	0	67	0	0	0	0	67
Total softwoods	273	44	23	341	383	44	201	628	969
Red maple	183	0	0	183	450	89	90	629	813
Yellow birch	0	0	0	0	86	0	0	86	86
Sweet birch	134	0	0	134	68	0	0	68	201
White ash	70	0	0	70	44	0	0	44	114
Aspen	0	0	0	0	65	0	0	65	65
Black cherry	44	0	0	44	46	0	0	46	90
White oak	345	22	0	368	264	91	23	378	746
Northern red oak	248	42	0	289	153	0	0	153	442
Other red oaks	567	113	42	722	452	65	91	608	1,330
Other commercial hardwoods	113	23	0	137	91	0	0	91	227
Noncommercial hardwoods	23	0	0	23	113	0	0	113	135
Total hardwoods	1,728	199	42	1,969	1,831	246	203	2,280	4,250
All species	2,001	244	65	2,310	2,214	290	404	2,909	5,219

Table 26.--Net volume of all trees on timberland by class of timber and species group, Rhode Island, 1998

(In millions of cubic feet)

Class of timber	Species group				All groups	SE
	Pines	Other softwoods	Soft hardwoods	Hard hardwoods		
Sawtimber trees:						
Sawlog portion	76.8	10.5	52.7	115.3	255.3	9.2
Upper stem	8.3	1.2	12.9	28.2	50.5	8.1
Total sawtimber trees	85.1	11.7	65.6	143.5	305.9	8.9
Poletimber trees	13.7	1.1	60.6	112.6	187.9	6.8
Total growing-stock trees	98.7	12.8	126.2	256.1	493.8	6.3
Rough trees:						
Sawtimber size	3.6	.4	10.3	5.1	19.4	20.7
Poletimber size	1.1	.0	8.8	6.2	16.2	12.2
Total rough trees	4.7	.5	19.1	11.3	35.6	13.2
Rotten trees:						
Sawtimber size	.1	.0	3.3	1.5	5.0	27.0
Poletimber size	.0	.0	.1	.2	.3	55.9
Total rotten trees	.1	.0	3.3	1.7	5.2	25.5
Salvable dead ^a trees:						
Sawtimber size	.4	.0	.0	.0	.4	99.3
Poletimber size	.1	.1	.3	.4	.9	28.0
Total salvable dead trees	.5	.1	.3	.4	1.3	34.8
All classes	104.1	13.3	148.9	269.6	535.9	6.0
SE	20.5	78.9	12.6	8.5	6.0	

^a Includes noncommercial species.

Table 27.--Net volume of all live, growing-stock, and sawtimber trees on timberland
by species group and ownership class, Rhode Island, 1998

(In millions of cubic feet)

Species group	Owner class				All classes
	National Forest	Other public	Forest industry	Other private	
<u>All live</u>					
(In millions of cubic feet)					
Softwoods	.0	57.1	.0	59.7	116.8
Hardwoods	.0	91.1	.0	326.7	417.8
Total all live	.0	148.2	.0	386.4	534.6
<u>Growing stock</u>					
(In millions of cubic feet)					
Softwoods	.0	53.0	.0	58.5	111.5
Hardwoods	.0	84.4	.0	297.9	382.3
Total growing stock	.0	137.4	.0	356.4	493.8
<u>Sawtimber</u>					
(In millions of board feet)					
Softwoods	.0	207.1	.0	233.9	441.0
Hardwoods	.0	197.0	.0	678.0	875.1
Total sawtimber	.0	404.1	.0	912.0	1,316.1

^a For all board-foot volume tables, International 1/4-inch rule is used.

Table 28.--Net volume of growing-stock trees on timberland by forest-type group
and stand-size class, Rhode Island, 1998

(In millions of cubic feet)

Forest-type group	Stand-size class				All classes	SE
	Saw- timber	Pole- timber	Sapling and seedling	Non- stocked		
White/red pine	61.2	1.2	.0	.0	62.3	34.5
Spruce/fir	11.4	.0	.0	.0	11.4	100.0
Hard pine	2.0	.0	.0	.0	2.0	100.0
Oak/pine	29.0	2.9	.0	.0	31.9	46.9
Oak/hickory	180.7	124.6	.0	.0	305.2	9.9
Elm/ash/red maple	12.3	13.5	1.5	.0	27.2	31.0
Northern hardwoods	25.6	25.9	2.1	.0	53.6	31.4
Aspen/birch	.0	.0	.1	.0	.1	100.0
All groups	322.1	168.1	3.7	.0	493.8	6.3
SE	11.0	13.6	47.4	.0	6.3	

Table 29.--**Net volume of growing-stock trees on timberland by species and forest-type group, Rhode Island, 1985

(In millions of cubic feet)

Species	Forest-type group									All groups	SE
	White/ red pine	Spruce/ fir	Hard pine	Oak/ pine	Oak/ hickory	Oak/gum/ cypress	Elm/ash/ red maple	Northern hardwoods	Aspen/ birch		
Red pine	3.5	.0	.0	.0	.0	.0	.0	.2	.0	3.7	93.7
Pitch pine	.2	.0	1.6	2.9	1.4	.0	.0	.0	.0	6.1	46.0
White pine	33.8	.0	.0	2.7	12.2	.0	.0	7.4	.0	56.2	31.3
Eastern hemlock	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1	100.0
Other softwoods	.4	.0	3.0	.0	.0	.0	.0	.5	.0	3.8	79.0
Total softwoods	37.9	.0	4.6	5.6	13.7	.0	.0	8.1	.0	69.9	27.5
Red maple	.5	.0	.0	1.0	40.3	.0	32.2	19.1	.0	93.2	16.9
Sugar maple	.0	.0	.0	.0	.6	.0	.0	.0	.0	.6	62.7
Yellow birch	.0	.0	.0	.0	2.6	.0	.7	4.1	.0	7.5	28.2
Sweet birch	.0	.0	.0	.0	3.2	.0	1.2	.3	.0	4.7	34.6
Paper birch	.0	.0	.0	.0	.0	.0	.0	.2	.0	.2	100.0
Hickory	.0	.0	.0	.0	7.2	.0	.0	.1	.0	7.3	36.2
Beech	.1	.0	.0	.0	5.2	.0	.0	.0	.0	5.3	74.3
White ash	.0	.0	.0	.0	5.5	.0	5.8	2.1	.0	13.4	42.3
Aspen	.0	.0	.0	.4	2.6	.0	.2	.0	.0	3.1	50.4
Black cherry	.0	.0	.0	.0	.3	.0	.0	.2	.0	.4	60.1
White oak	1.2	.0	.4	.7	41.1	.0	.0	.8	.0	44.2	13.4
Northern red oak	.5	.0	.0	1.7	61.3	.0	2.3	3.3	.0	69.2	13.4
Other red oaks	1.7	.0	.0	1.6	115.0	.0	.0	.6	.0	118.8	12.2
Elm	.0	.0	.0	.0	.0	.0	.3	.2	.0	.5	71.4
Other hardwoods	.0	.0	.0	.0	5.6	.0	.7	.0	.0	6.3	41.1
Total hardwoods	4.0	.0	.4	5.3	290.6	.0	43.5	30.9	.0	374.8	6.6
All species	41.9	.0	5.0	10.9	304.3	.0	43.5	39.0	.0	444.7	6.5
SE	46.8	.0	71.8	60.9	8.4	.0	37.6	38.1	.0	6.5	

Table 30.--Net volume of growing-stock trees on timberland by species and forest-type group, Rhode Island, 1998

(In millions of cubic feet)

Species	Forest-type group									All groups	SE
	White/ red pine	Spruce/ fir	Hard pine	Oak/ pine	Oak/ hickory	Oak/gum/ cypress	Elm/ash/ red maple	Northern hardwoods	Aspen/ birch		
Spruce/fir	1.1	.0	.0	.0	.0	.0	.0	.0	.0	1.1	100.0
Red pine	.0	.0	.0	.0	1.1	.0	.0	.0	.0	1.1	100.0
Pitch pine	.6	.0	1.7	4.3	1.1	.0	.0	.0	.0	7.8	51.2
White pine	52.9	.0	.3	12.5	14.5	.0	.0	9.6	.0	89.8	22.9
Eastern hemlock	.1	.0	.0	.0	.9	.0	.0	.0	.0	.9	61.8
Other softwoods	.3	10.5	.0	.0	.0	.0	.0	.0	.0	10.8	97.2
Total softwoods	54.9	10.5	2.0	16.8	17.7	.0	.0	9.6	.0	111.5	18.8
Red maple	3.2	.0	.0	2.6	45.3	.0	20.2	25.7	.1	97.2	14.4
Sugar maple	.0	.0	.0	.0	1.4	.0	.0	.4	.0	1.8	55.7
Yellow birch	.0	.0	.0	.0	2.9	.0	.0	3.2	.0	6.1	39.5
Sweet birch	.0	.7	.0	.2	7.2	.0	.0	1.5	.0	9.7	40.9
Hickory	.0	.0	.0	.1	5.2	.0	.0	.2	.0	5.5	35.8
Beech	.2	.0	.0	.2	6.3	.0	.0	.7	.0	7.5	70.5
White ash	.0	.0	.0	.1	5.7	.0	2.7	1.6	.0	10.0	42.3
Aspen	.2	.0	.0	.0	2.1	.0	.1	2.1	.0	4.5	43.8
Black cherry	.4	.1	.0	.0	1.0	.0	.0	.8	.0	2.3	48.1
White oak	1.0	.0	.0	2.4	28.9	.0	.2	2.6	.0	35.1	16.1
Northern red oak	.2	.0	.0	5.3	64.8	.0	.3	1.6	.0	72.3	17.8
Other red oaks	1.5	.0	.0	4.1	104.0	.0	1.1	1.1	.0	111.7	12.0
Elm	.0	.0	.0	.0	.1	.0	.3	.0	.0	.3	65.9
Other hardwoods	.5	.0	.0	.1	12.8	.0	2.3	2.6	.0	18.3	23.5
Total hardwoods	7.4	.9	.0	15.1	287.6	.0	27.2	44.0	.1	382.3	6.8
All species	62.3	11.4	2.0	31.9	305.2	.0	27.2	53.6	.1	493.8	6.3
SE	34.5	100.0	100.0	46.9	9.9	.0	31.0	31.4	100.0	6.3	

Table 31.--**Net volume of growing-stock trees on timberland by species and stand-size class, Rhode Island, 1985

(In millions of cubic feet)

Species	Stand-size class				All classes	SE
	Saw-timber	Pole-timber	Sapling and seedling	Non-stocked		
Red pine	3.5	.0	.2	.0	3.7	93.7
Pitch pine	.2	5.8	.1	.0	6.1	46.0
White pine	34.8	19.6	1.4	.4	56.2	31.3
Eastern hemlock	.0	.1	.0	.0	.1	100.0
Other softwoods	3.0	.3	.2	.4	3.8	79.0
Total softwoods	41.5	25.8	1.9	.8	69.9	27.5
Red maple	29.3	63.8	.1	.0	93.2	16.9
Sugar maple	.3	.3	.0	.0	.6	62.7
Yellow birch	1.9	5.6	.0	.0	7.5	28.2
Sweet birch	2.0	2.7	.0	.0	4.7	34.6
Paper birch	.0	.2	.0	.0	.2	100.0
Hickory	3.5	3.7	.1	.0	7.3	36.2
Beech	5.0	.3	.0	.0	5.3	74.3
White ash	2.6	10.8	.0	.0	13.4	42.3
Aspen	1.2	1.9	.0	.0	3.1	50.4
Black cherry	.2	.3	.0	.0	.4	60.1
White oak	16.9	26.6	.8	.0	44.2	13.4
Northern red oak	28.3	40.9	.0	.0	69.2	13.4
Other red oaks	43.8	73.5	1.5	.0	118.8	12.2
Elm	.0	.5	.0	.0	.5	71.4
Other hardwoods	2.8	3.4	.0	.0	6.3	41.1
Total hardwoods	137.9	234.4	2.5	.0	374.8	6.6
All species	179.4	260.1	4.4	.8	444.7	6.5
SE	17.0	9.7	50.2	100.0	6.5	

Table 32.--Net volume of growing-stock trees on timberland by species and stand-size class, Rhode Island, 1998

(In millions of cubic feet)

Species	Stand-size class				All classes	SE
	Saw-timber	Pole-timber	Sapling and seedling	Non-stocked		
Spruce/fir	1.1	.0	.0	.0	1.1	100.0
Red pine	1.1	.0	.0	.0	1.1	100.0
Pitch pine	5.6	2.2	.0	.0	7.8	51.2
White pine	81.5	8.2	.1	.0	89.8	22.9
Eastern hemlock	.8	.1	.0	.0	.9	61.8
Other softwoods	10.8	.0	.0	.0	10.8	97.2
Total softwoods	101.0	10.5	.1	.0	111.5	18.8
Red maple	55.5	40.7	1.0	.0	97.2	14.4
Sugar maple	1.8	.0	.0	.0	1.8	55.7
Yellow birch	4.6	1.4	.0	.0	6.1	39.5
Sweet birch	7.3	1.5	.9	.0	9.7	40.9
Hickory	4.2	1.3	.1	.0	5.5	35.8
Beech	6.8	.4	.3	.0	7.5	70.5
White ash	7.7	2.3	.0	.0	10.0	42.3
Aspen	1.4	2.9	.2	.0	4.5	43.8
Black cherry	.5	1.8	.0	.0	2.3	48.1
White oak	21.7	13.1	.3	.0	35.1	16.1
Northern red oak	48.5	23.7	.1	.0	72.3	17.8
Other red oaks	53.6	57.4	.7	.0	111.7	12.0
Elm	.1	.2	.0	.0	.3	65.9
Other hardwoods	7.4	11.0	.0	.0	18.3	23.5
Total hardwoods	221.1	157.6	3.6	.0	382.3	6.8
All species	322.1	168.1	3.7	.0	493.8	6.3
SE	11.0	13.6	47.4	.0	6.3	

Table 33.--**Net volume of growing-stock trees on timberland by species and diameter class, Rhode Island, 1985

(In millions of cubic feet)

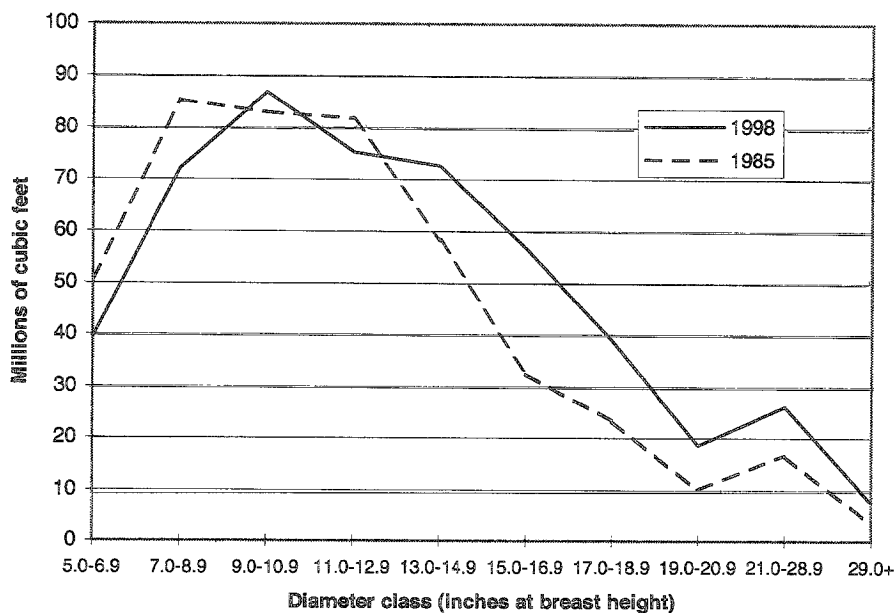
Species	Diameter class (inches at breast height)										All classes	SE
	5.0- 6.9	7.0- 8.9	9.0- 10.9	11.0- 12.9	13.0- 14.9	15.0- 16.9	17.0- 18.9	19.0- 20.9	21.0- 28.9	29.0+		
Red pine	.1	1.1	.8	1.1	.6	.0	.0	.0	.0	.0	3.7	93.7
Pitch pine	.9	1.7	.9	1.6	.2	.8	.0	.0	.0	.0	6.1	46.0
White pine	4.2	5.4	7.7	10.9	8.2	4.7	6.0	3.6	5.4	.0	56.2	31.3
Eastern hemlock	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.1	100.0
Other softwoods	.1	.9	.8	.9	.9	.3	.0	.0	.0	.0	3.8	79.0
Total softwoods	5.3	9.1	10.2	14.5	9.9	5.8	6.0	3.6	5.4	.0	69.9	27.5
Red maple	10.2	20.3	18.1	17.7	9.9	5.5	6.7	.7	2.0	2.2	93.2	16.9
Sugar maple	.1	.0	.0	.5	.0	.0	.0	.0	.0	.0	.6	62.7
Yellow birch	1.1	1.8	2.8	1.0	.3	.5	.0	.0	.0	.0	7.5	28.2
Sweet birch	1.3	.7	1.0	1.1	.4	.3	.0	.0	.0	.0	4.7	34.6
Paper birch	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0	.2	100.0
Hickory	1.1	2.3	1.9	1.2	.4	.3	.0	.0	.0	.0	7.3	36.2
Beech	.5	.2	1.1	.9	.3	1.3	1.0	.0	.0	.0	5.3	74.3
White ash	1.4	1.5	2.2	2.3	3.2	.6	1.1	1.1	.0	.0	13.4	42.3
Aspen	.0	.5	.8	1.5	.3	.0	.0	.0	.0	.0	3.1	50.4
Black cherry	.1	.1	.2	.0	.0	.0	.0	.0	.0	.0	.4	60.1
White oak	8.2	9.8	8.6	4.1	7.1	2.2	2.2	1.2	.7	.0	44.2	13.4
Northern red oak	7.7	13.0	9.2	10.7	10.0	7.0	2.7	2.6	5.7	.5	69.2	13.4
Other red oaks	11.7	25.5	25.3	24.5	16.4	8.3	2.7	.9	2.9	.6	118.8	12.2
Elm	.1	.0	.3	.2	.0	.0	.0	.0	.0	.0	.5	71.4
Other hardwoods	1.6	.4	1.4	1.3	.0	.6	.9	.0	.0	.0	6.3	41.1
Total hardwoods	45.2	76.3	72.7	67.2	48.2	26.6	17.4	6.5	11.3	3.4	374.8	6.6
All species	50.5	85.3	82.9	81.7	58.2	32.4	23.4	10.1	16.7	3.4	444.7	6.5
SE	8.2	7.9	8.2	10.1	11.3	16.1	21.7	31.5	27.2	70.7	6.5	

Table 34.--Net volume of growing-stock trees on timberland by species and diameter class, Rhode Island, 1998

(In millions of cubic feet)

Species	Diameter class (inches at breast height)										All classes	SE
	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- 28.9	29.0+		
Spruce/fir	.1	.4	.6	.0	.0	.0	.0	.0	.0	.0	1.1	100.0
Red pine	.1	.2	.8	.0	.0	.0	.0	.0	.0	.0	1.1	100.0
Pitch pine	.6	1.8	1.6	1.9	1.5	.5	.0	.0	.0	.0	7.8	51.2
White pine	4.4	6.5	6.6	9.8	12.1	12.8	15.0	9.6	11.0	1.8	89.8	22.9
Eastern hemlock	.3	.1	.0	.0	.0	.5	.0	.0	.0	.0	.9	61.8
Other softwoods	.0	.2	.7	2.1	1.9	2.8	2.4	.7	.0	.0	10.8	97.2
Total softwoods	5.5	9.2	10.4	13.8	15.5	16.6	17.4	10.3	11.0	1.8	111.5	18.8
Red maple	10.3	16.9	22.3	15.6	11.6	8.6	4.2	2.7	2.4	2.5	97.2	14.4
Sugar maple	.1	.2	.3	.4	.0	.9	.0	.0	.0	.0	1.8	55.7
Yellow birch	1.5	1.6	1.3	.9	.3	.5	.0	.0	.0	.0	6.1	39.5
Sweet birch	2.2	.8	2.3	2.0	1.5	.0	.8	.0	.0	.0	9.7	40.9
Hickory	.6	1.2	1.3	.7	.0	.9	.8	.0	.0	.0	5.5	35.8
Beech	.7	.5	.4	.7	1.1	2.4	.7	1.0	.0	.0	7.5	70.5
White ash	.7	1.2	1.3	1.0	.0	1.3	.0	1.2	3.3	.0	10.0	42.3
Aspen	.2	1.0	1.5	.4	.5	.9	.0	.0	.0	.0	4.5	43.8
Black cherry	.3	.2	.5	1.2	.0	.0	.0	.0	.0	.0	2.3	48.1
White oak	3.1	6.6	5.1	5.0	7.0	1.8	4.6	1.0	1.0	.0	35.1	16.1
Northern red oak	3.5	8.9	11.0	10.6	13.0	10.6	4.3	2.3	4.7	3.2	72.3	17.8
Other red oaks	8.8	19.9	26.7	18.7	19.5	9.6	5.5	.0	3.0	.0	111.7	12.0
Elm	.1	.1	.2	.0	.0	.0	.0	.0	.0	.0	.3	65.9
Other hardwoods	2.0	3.8	2.2	4.2	2.7	2.5	.5	.0	.6	.0	18.3	23.5
Total hardwoods	33.9	62.8	76.4	61.5	57.1	40.0	21.5	8.2	15.0	5.7	382.3	6.8
All species	39.4	72.1	86.8	75.3	72.6	56.6	38.9	18.5	26.1	7.5	493.8	6.3
SE	7.9	7.5	8.4	10.0	10.5	13.8	15.3	27.6	29.3	59.4	6.3	

Net volume of growing-stock trees on timberland, Rhode Island, 1985 and 1998



Net volume of growing-stock trees on timberland, top 5 species, Rhode Island, 1985 and 1998

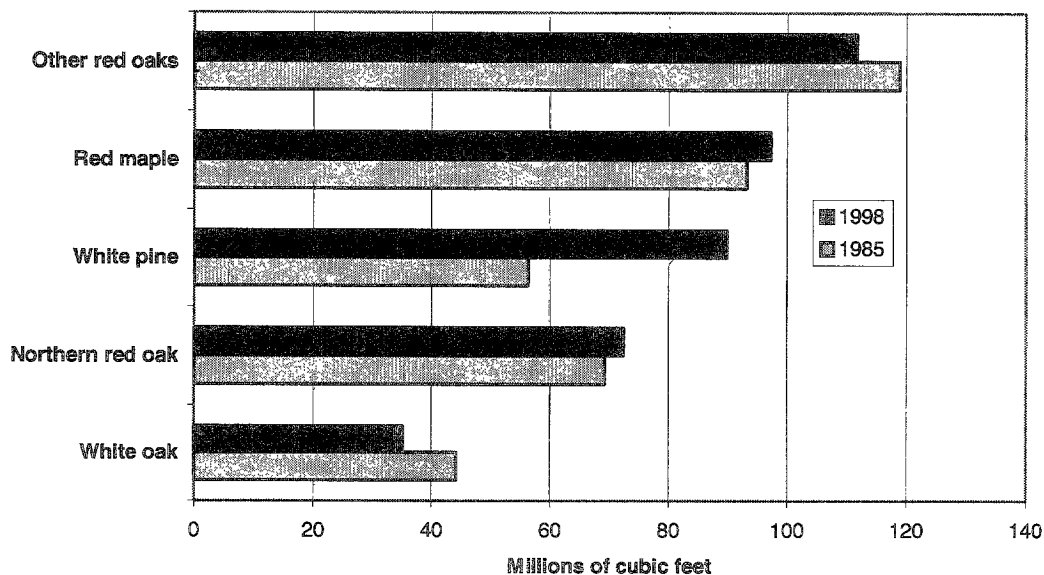


Table 35.--Net volume of growing stock in the sawlog portion of sawtimber trees on timberland by species and diameter class, Rhode Island, 1998

(In millions of cubic feet)

Species	Diameter class (inches at breast height)								All classes	SE
	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- 28.9	29.0+		
Spruce/fir	.5	.0	.0	.0	.0	.0	.0	.0	.5	100.0
Red pine	.7	.0	.0	.0	.0	.0	.0	.0	.7	100.0
Pitch pine	1.3	1.6	1.3	.5	.0	.0	.0	.0	4.8	57.4
White pine	5.6	8.5	10.8	11.7	13.8	9.0	10.3	1.7	71.4	25.3
Eastern hemlock	.0	.0	.0	.5	.0	.0	.0	.0	.5	100.0
Other softwoods	.6	1.8	1.7	2.5	2.3	.6	.0	.0	9.5	97.3
Total softwoods	8.7	12.0	13.8	15.1	16.1	9.6	10.3	1.7	87.3	21.0
Red maple	-	11.5	9.4	7.2	3.6	2.3	2.1	2.1	38.2	21.2
Sugar maple	-	.3	.0	.7	.0	.0	.0	.0	1.1	76.2
Yellow birch	-	.7	.2	.4	.0	.0	.0	.0	1.3	60.1
Sweet birch	-	1.5	1.2	.0	.7	.0	.0	.0	3.4	71.6
Hickory	-	.6	.0	.7	.7	.0	.0	.0	1.9	54.8
Beech	-	.5	.9	2.0	.6	.8	.0	.0	4.8	77.9
White ash	-	.7	.0	1.1	.0	1.0	2.8	.0	5.7	57.3
Aspen	-	.3	.4	.8	.0	.0	.0	.0	1.5	62.7
Black cherry	-	.9	.0	.0	.0	.0	.0	.0	.9	73.7
White oak	-	3.7	5.7	1.5	3.9	.8	.8	.0	16.4	23.0
Northern red oak	-	7.8	10.5	8.9	3.7	2.0	4.0	2.8	39.7	22.3
Other red oaks	-	13.7	15.8	8.1	4.7	.0	2.6	.0	44.9	16.6
Other hardwoods	-	3.1	2.1	2.1	.5	.0	.5	.0	8.2	30.5
Total hardwoods	-	45.3	46.3	33.6	18.2	7.0	12.8	4.9	168.0	10.2
All species	8.7	57.3	60.1	48.7	34.3	16.6	23.1	6.5	255.3	9.2
SE	20.9	10.0	10.5	13.9	15.5	27.9	29.7	58.9	9.2	

Table 36.---**Net volume of sawtimber trees on timberland by species and diameter class, Rhode Island, 1985

(In millions of board feet)

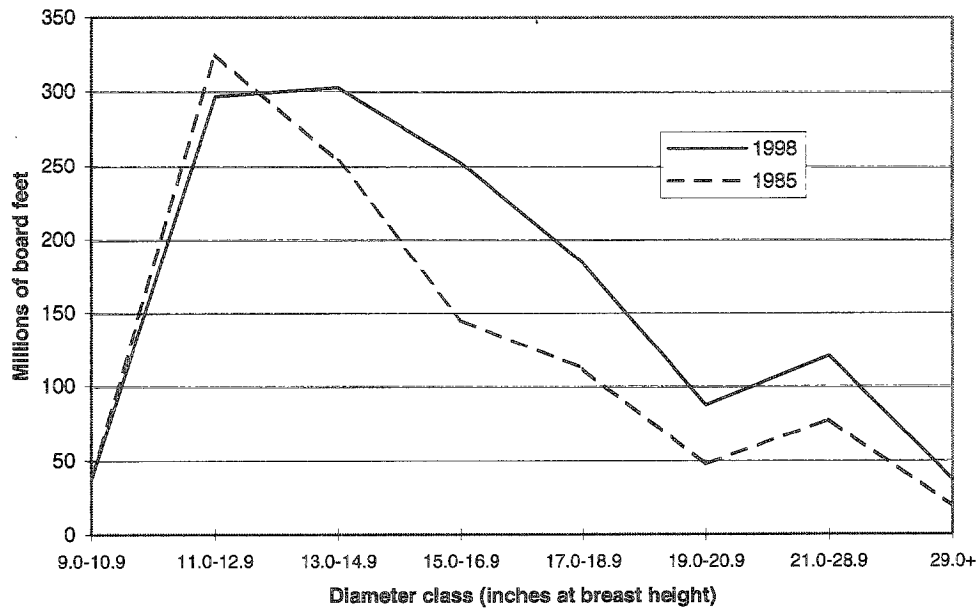
Species	Diameter class (inches at breast height)								All classes	SE
	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29.0+		
Red pine	2.9	4.7	3.1	.0	.0	.0	.0	.0	10.7	91.0
Pitch pine	3.4	6.5	.9	3.8	.0	.0	.0	.0	14.6	43.1
White pine	28.4	46.8	38.8	23.6	31.7	19.5	28.0	.0	216.8	37.2
Other softwoods	2.6	3.1	3.6	1.3	.0	.0	.0	.0	10.5	88.9
Total softwoods	37.3	61.1	46.5	28.6	31.7	19.5	28.0	.0	252.6	33.4
Red maple	-	71.2	43.0	23.7	29.5	2.8	8.5	16.7	195.4	26.1
Sugar maple	-	2.0	.0	.0	.0	.0	.0	.0	2.0	70.7
Yellow birch	-	3.4	1.4	1.3	.0	.0	.0	.0	6.1	52.0
Sweet birch	-	4.0	1.7	1.0	.0	.0	.0	.0	6.7	54.8
Hickory	-	4.6	2.1	1.0	.0	.0	.0	.0	7.8	46.0
Beech	-	3.5	1.3	7.2	5.4	.0	.0	.0	17.4	87.6
White ash	-	9.1	12.1	3.0	4.9	4.9	.0	.0	34.0	53.3
Aspen	-	6.4	1.0	.0	.0	.0	.0	.0	7.4	62.3
White oak	-	16.3	31.4	8.5	11.3	5.8	3.3	.0	76.5	24.5
Northern red oak	-	42.0	43.1	30.7	12.3	11.1	25.1	1.3	165.6	17.6
Other red oaks	-	95.6	69.6	37.6	12.6	3.6	12.6	1.5	233.1	18.0
Elm	-	.9	.0	.0	.0	.0	.0	.0	.9	100.0
Other hardwoods	-	5.1	.0	2.4	4.1	.0	.0	.0	11.6	50.1
Total hardwoods	-	264.3	206.6	116.4	80.0	28.1	49.5	19.5	764.3	11.0
All species	37.3	325.4	253.1	145.0	111.7	47.5	77.4	19.5	1,016.9	11.0
SE	23.5	10.3	11.5	16.5	22.3	32.6	28.6	86.2	11.0	

Table 37.--Net volume of sawtimber trees on timberland by species and diameter class, Rhode Island, 1998

(In millions of board feet)

Species	Diameter class (inches at breast height)								All classes	SE
	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29.0+		
Spruce/fir	2.4	.0	.0	.0	.0	.0	.0	.0	2.4	100.0
Red pine	3.1	.0	.0	.0	.0	.0	.0	.0	3.1	100.0
Pitch pine	5.5	6.8	5.9	2.1	.0	.0	.0	.0	20.2	56.7
White pine	23.3	40.2	53.5	60.9	72.5	47.9	55.3	12.0	365.7	25.7
Eastern hemlock	.0	.0	.0	2.6	.0	.0	.0	.0	2.6	100.0
Other softwoods	2.7	8.7	8.2	13.1	10.9	3.5	.0	.0	47.0	97.9
Total softwoods	36.9	55.7	67.6	78.7	83.4	51.4	55.3	12.0	441.0	21.5
Red maple	-	64.1	48.2	36.4	17.8	10.9	10.1	15.1	202.7	21.0
Sugar maple	-	1.7	.0	2.3	.0	.0	.0	.0	4.0	71.3
Yellow birch	-	3.4	1.5	1.5	.0	.0	.0	.0	6.4	61.0
Sweet birch	-	7.7	7.3	.0	4.4	.0	.0	.0	19.4	73.9
Hickory	-	2.8	.0	2.9	3.2	.0	.0	.0	9.0	54.0
Beech	-	2.9	4.7	11.9	3.4	6.5	.0	.0	29.3	80.9
White ash	-	3.4	.0	5.7	.0	5.1	11.9	.0	26.1	54.7
Aspen	-	1.5	1.8	3.9	.0	.0	.0	.0	7.2	63.4
Black cherry	-	4.9	.0	.0	.0	.0	.0	.0	4.9	74.7
White oak	-	20.1	28.2	7.3	22.5	3.9	5.0	.0	87.0	23.8
Northern red oak	-	38.8	53.3	46.6	21.2	9.4	22.1	9.7	201.1	22.6
Other red oaks	-	73.0	78.8	42.7	25.1	.0	13.6	.0	233.3	17.4
Other hardwoods	-	16.4	11.5	12.1	2.4	.0	2.4	.0	44.8	31.3
Total hardwoods	-	240.8	235.3	173.2	100.0	35.7	65.2	24.8	875.1	10.1
All species	36.9	296.5	302.9	251.9	183.4	87.1	120.4	36.8	1,316.1	9.3
SE	21.1	10.2	10.7	14.4	15.5	27.8	29.5	58.6	9.3	

Net volume of sawtimber trees on timberland, Rhode Island, 1985 and 1998



Net volume of sawtimber trees on timberland, top 5 species, Rhode Island, 1985 and 1998

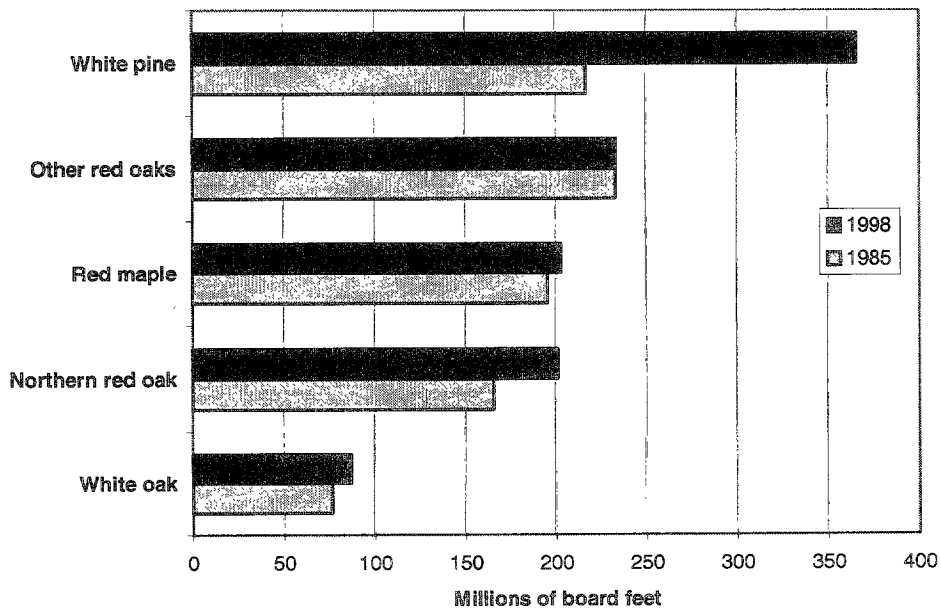


Table 38.--Net volume of sawtimber trees on timberland by species, size class, and tree grade, Rhode Island, 1998

(In millions of board feet)

Species	>15" Diameter at breast height						All size classes					
	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	All grades	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	All grades
Spruce/fir	.0	-	-	-	.0	.0	.7	-	-	-	1.6	2.4
Red pine	.0	.0	.0	-	.0	.0	.0	.0	3.1	-	.0	3.1
Pitch pine	.0	2.1	.0	-	.0	2.1	.9	4.5	14.8	-	.0	20.2
White pine	.0	47.5	109.0	84.2	7.9	248.6	8.2	62.4	164.3	118.1	12.7	365.7
Eastern hemlock	.0	-	-	-	2.6	2.6	.0	-	-	-	2.6	2.6
Other softwoods	27.4	.0	.0	.0	-	27.4	41.3	.0	.0	-	5.7	47.0
Total softwoods	27.4	49.6	109.0	84.2	10.5	280.8	51.1	66.9	182.1	118.1	22.7	441.0
Red maple	4.2	41.6	26.8	10.6	7.1	90.3	4.2	53.1	115.1	17.8	12.4	202.7
Sugar maple	.0	2.3	.0	.0	.0	2.3	.0	2.3	1.7	.0	.0	4.0
Yellow birch	.0	.0	1.5	.0	.0	1.5	.0	.0	4.9	.0	1.5	6.4
Sweet birch	.0	4.4	.0	.0	.0	4.4	.0	7.0	11.8	.0	.6	19.4
Hickory	.0	6.2	.0	.0	.0	6.2	.0	6.2	2.8	.0	.0	9.0
Beech	10.9	7.8	3.0	.0	.0	21.7	10.9	7.8	9.2	1.4	.0	29.3
White ash	8.5	2.3	5.8	.0	6.1	22.7	8.5	2.3	9.2	.0	6.1	26.1
Aspen	.0	.0	3.9	.0	.0	3.9	.0	.0	7.2	.0	.0	7.2
Black cherry	.0	.0	.0	.0	.0	.0	.0	.0	1.2	.0	3.7	4.9
White oak	20.0	3.4	15.3	.0	.0	38.7	20.0	21.4	40.2	5.3	.0	87.0
Northern red oak	45.3	30.8	13.7	.0	19.1	109.0	45.3	72.9	61.2	.0	21.6	201.1
Other red oaks	12.7	33.5	28.6	.0	6.6	81.4	12.7	67.7	125.3	15.3	12.3	233.3
Other hardwoods	5.8	3.8	4.9	2.4	.0	17.0	5.8	15.3	21.3	2.4	.0	44.8
Total hardwoods	107.5	136.0	103.5	13.1	38.9	398.9	107.5	256.0	411.2	42.2	58.2	875.1
All species	135.0	185.6	212.5	97.2	49.4	679.7	158.7	322.9	593.3	160.3	80.9	1,316.1

Net volume of 15+ inches d.b.h. sawtimber trees on timberland, top 5 species by tree grade, Rhode Island, 1998

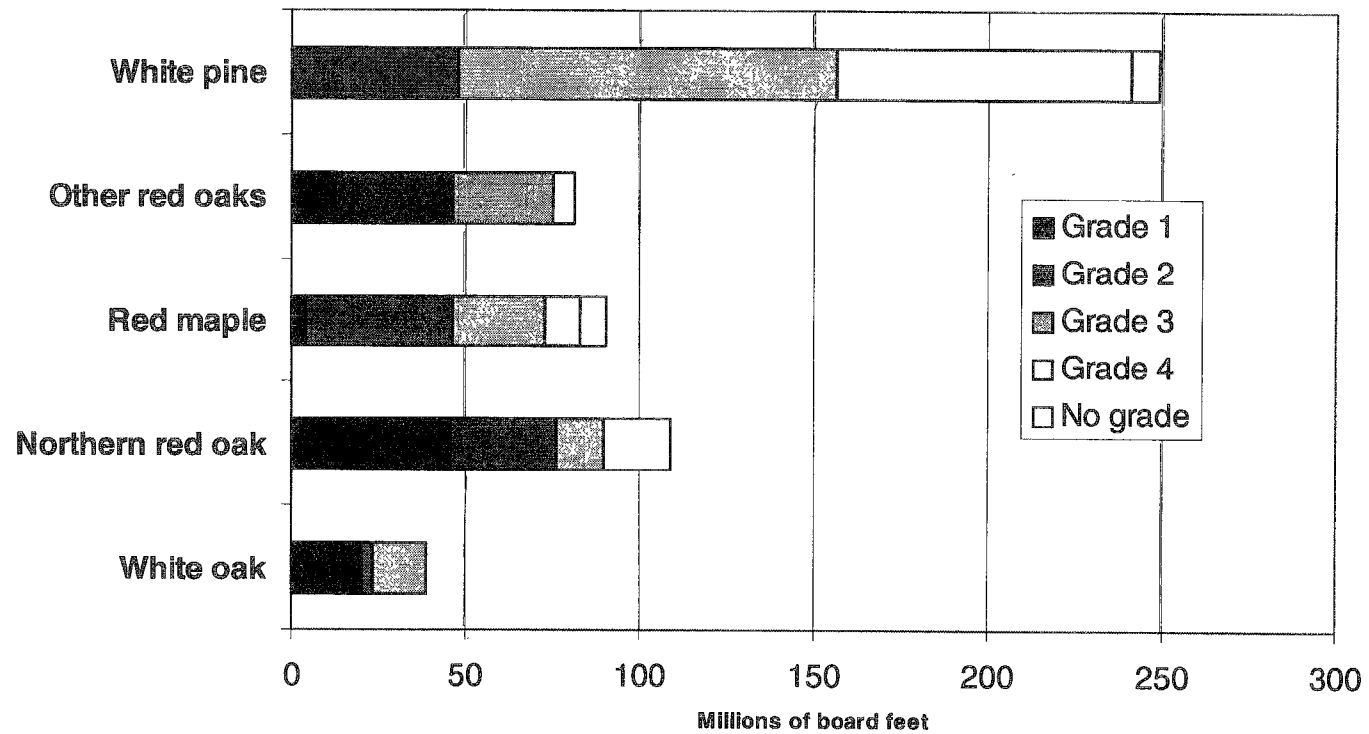


Table 39.--Average annual net change of growing-stock trees on timberland by species and component of change, Rhode Island, 1984-97

(In thousands of cubic feet)

Species	Component of change										Net change
	Ingrowth	Accretion	Gross growth	Mortality	Cull decrement	Cull increment	Net growth	Harvest removals	Land use removals	Total removals	
Spruce/fir	46	0	46	0	0	0	46	0	0	0	46
Pitch pine	110	32	142	-32	0	0	110	-49	-172	-221	-111
White pine	977	2,017	2,994	-307	52	-176	2,563	0	-281	-281	2,282
Eastern hemlock	65	20	86	0	0	0	86	0	0	0	86
Other softwoods	44	69	114	0	0	0	114	0	-241	-241	-127
Total softwoods	1,243	2,139	3,382	-339	52	-176	2,918	-49	-694	-743	2,175
Red maple	1,143	1,109	2,253	-496	439	-785	1,411	-46	-921	-967	444
Sugar maple	0	55	55	0	0	0	55	0	0	0	55
Yellow birch	22	47	70	-110	31	-196	-205	0	0	0	-205
Sweet birch	237	0	237	0	0	-20	218	-15	0	-15	203
Hickory	87	74	161	0	0	-28	133	0	-40	-40	93
Beech	91	117	208	0	0	0	208	0	0	0	208
White ash	22	76	98	-24	38	-49	63	-49	0	-49	14
Aspen	0	35	35	-77	0	0	-42	0	-138	-138	-180
Black cherry	30	0	30	0	48	0	77	0	-16	-16	62
White oak	214	332	546	-539	105	-298	-186	-92	-503	-595	-781
Northern red oak	569	1,655	2,223	-374	44	-71	1,822	-302	-592	-894	928
Other red oaks	1,002	1,654	2,656	-888	108	-350	1,526	-391	-1,609	-2,001	-475
Other hardwoods	94	-18	76	0	0	-109	-33	0	0	0	-33
Total hardwoods	3,511	5,136	8,648	-2,508	813	-1,905	5,047	-895	-3,819	-4,715	332
All species	4,755	7,275	12,030	-2,848	865	-2,082	7,965	-945	-4,513	-5,458	2,507

Table 40.--Average annual net growth and average annual
removals of growing-stock volume on
timberland by species, Rhode Island, 1984-97

(In thousands of cubic feet)

Species	Growth	Removals
Spruce/fir	46	0
Pitch pine	110	221
White pine	2,563	281
Eastern hemlock	86	0
Other softwoods	114	241
Total softwoods	2,918	743
Red maple	1,411	967
Sugar maple	55	0
Yellow birch	-205	0
Sweet birch	218	15
Hickory	133	40
Beech	208	0
White ash	63	49
Aspen	-42	138
Black cherry	77	16
White oak	-186	595
Northern red oak	1,822	894
Other red oaks	1,526	2,001
Other hardwoods	-33	0
Total hardwoods	5,047	4,715
All species	7,965	5,458

Average annual net growth and average annual removals of growing-stock volume on timberland by species, Rhode Island, 1984-97

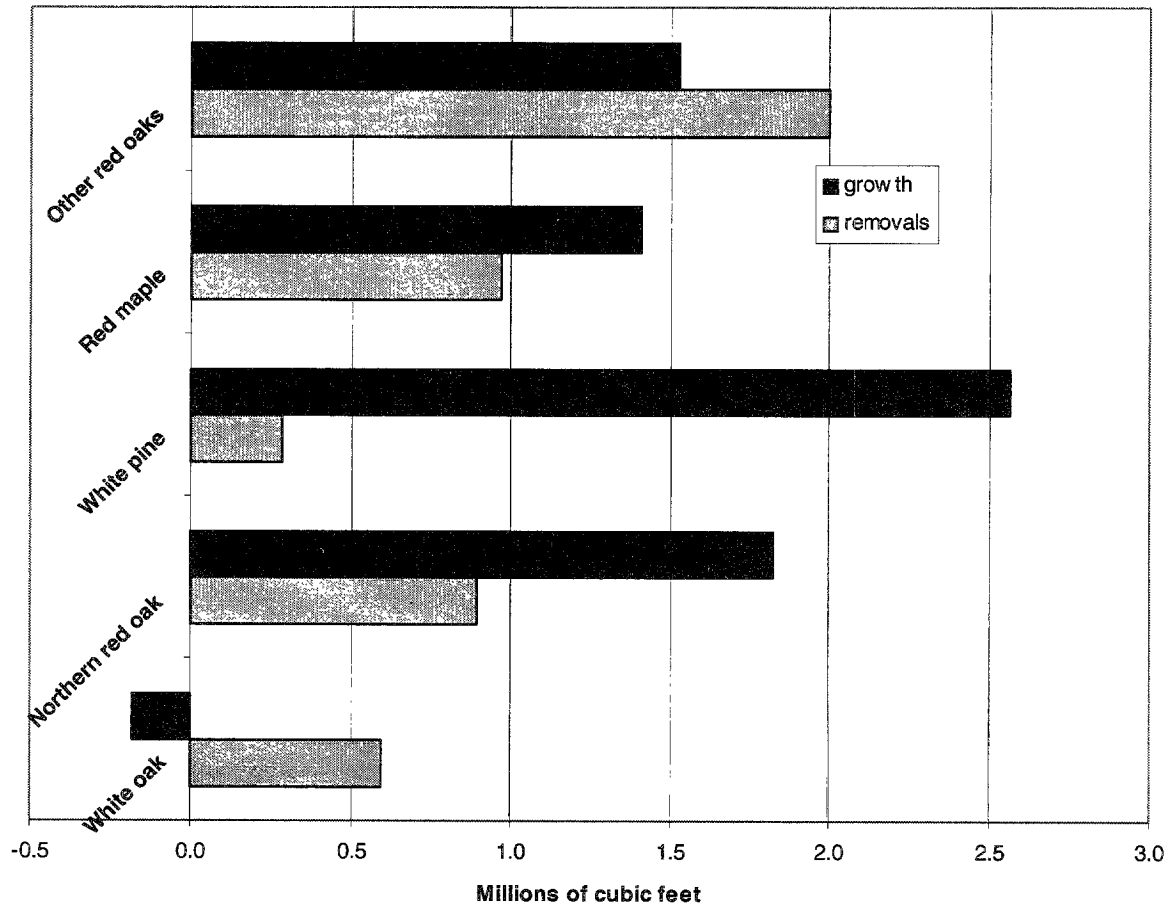


Table 41.--Average annual net growth and average annual
removals of sawtimber volume on timberland by
species, Rhode Island, 1984-97

(In thousands of board feet)

Species	Growth	Removals
Spruce/fir	158	0
Pitch pine	293	621
White pine	9,914	598
Other softwoods	465	714
Total softwoods	10,831	1,934
Red maple	4,011	690
Sugar maple	14	0
Yellow birch	198	0
Sweet birch	95	0
Hickory	289	196
Beech	141	0
White ash	336	0
Aspen	-188	285
Black cherry	227	0
White oak	-926	827
Northern red oak	5,181	2,759
Other red oaks	5,328	3,913
Other hardwoods	324	0
Total hardwoods	15,031	8,670
All species	25,862	10,604

Average annual net growth and average annual removals of sawtimber volume on timberland by species, Rhode Island, 1984-97

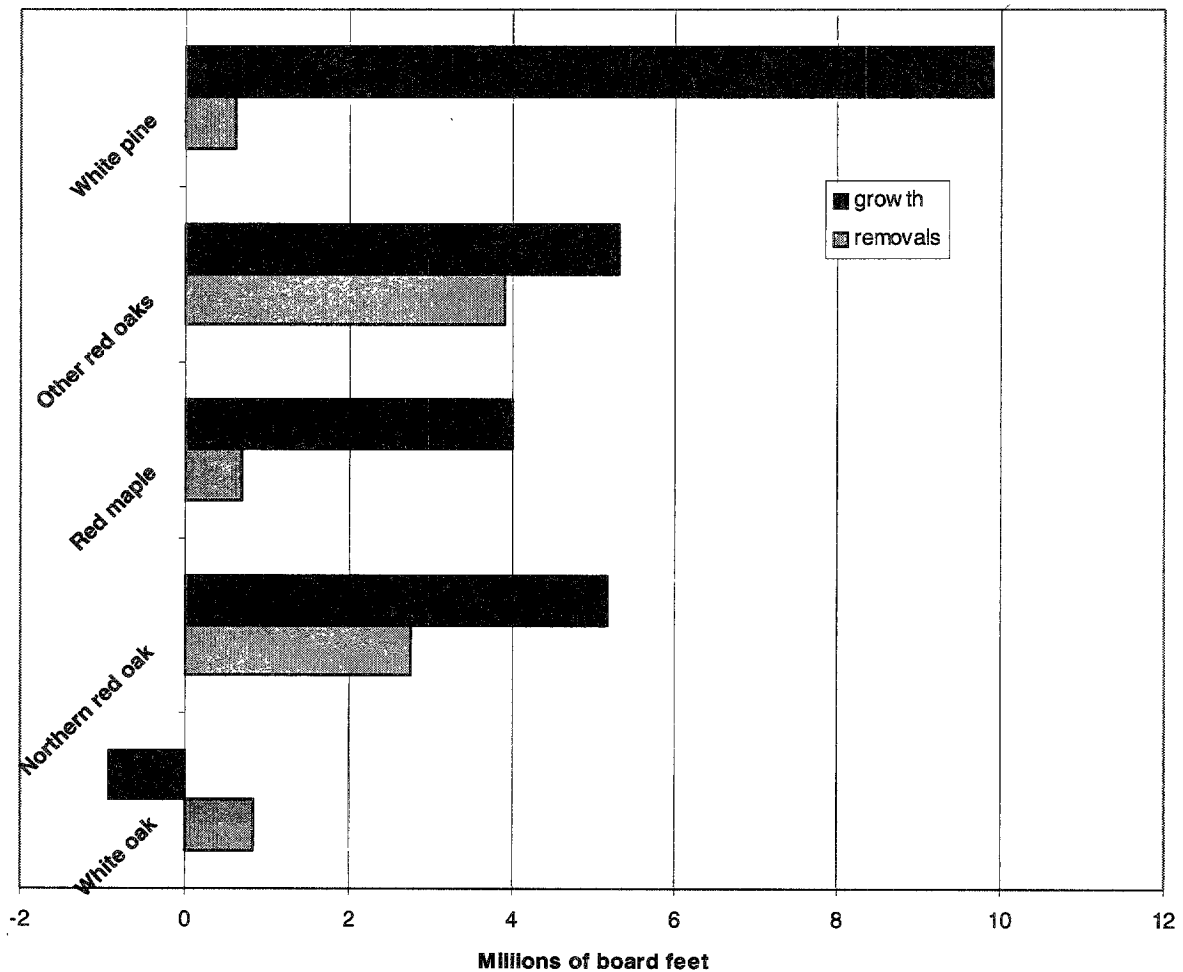


Table 42.--Average annual mortality of growing-stock and sawtimber
volume on timberland by species, Rhode Island, 1984-97

(In thousands of cubic feet/board feet)

Species	Mortality	
	Growing-stock	Sawtimber
Pitch pine	32	121
White pine	307	1,384
Total softwoods	339	1,505
Red maple	496	1,150
Yellow birch	110	112
White ash	24	0
Aspen	77	326
White oak	539	1,900
Northern red oak	374	811
Other red oaks	888	2,135
Total hardwoods	2,508	6,435
All species	2,848	7,940

Table 43.--Average annual net growth and average annual removals of growing-stock volume on timberland by ownership class and species group, Rhode Island, 1984-97

(In thousands of cubic feet)

Ownership class	Net Growth			Removals		
	Softwoods	Hardwoods	All groups	Softwoods	Hardwoods	All groups
Other public	1,937	1,058	2,995	0	0	0
Other private	981	3,988	4,969	743	4,715	5,458
All classes	2,918	5,047	7,965	743	4,715	5,458

Table 44.--Average annual net growth and average annual removals of sawtimber volume on timberland by ownership class and species group, Rhode Island, 1984-97

(In thousands of board feet)

Ownership class	Net Growth			Removals		
	Softwoods	Hardwoods	All groups	Softwoods	Hardwoods	All groups
Other public	7,260	1,895	9,155	0	0	0
Other private	3,571	13,136	16,707	1,934	8,670	10,604
All classes	10,831	15,031	25,862	1,934	8,670	10,604

Table 45.--Change in area of timberland between inventories by
forest-type group, Rhode Island, 1985 and 1998

(In thousands of acres)

Forest-type group	1985	1998	Change	Percent change
White/red pine	21.1	25.3	4.2	19.9
Oak/hickory	279.5	212.9	-66.6	23.8
Elm/ash/red maple	31.0	29.5	-1.5	-4.8
Northern hardwoods	30.6	44.1	13.5	44.1
Other types	17.9	27.9	10.0	55.9
All types	380.1	339.7	-40.4	-10.6

Table 46.--Change in area of timberland between inventories by
stand-size class, Rhode Island, 1985 and 1998

(In thousands of acres)

Stand-size class	1985	1998	Change	Percent change
Sawtimber	118.3	172.4	54.1	45.7
Poletimber	237.8	145.9	-91.9	-38.6
Sapling and seedling	20.4	21.3	.9	4.4
Nonstocked	3.5	.0	-3.5	-100.0
All classes	380.1	339.7	-40.4	-10.6

Table 47.--Change in volume on timberland between inventories,
Rhode Island, 1985 and 1998

Species group	1985	1998	Change	Percent change
Growing stock (Millions of cubic feet)				
Softwoods	69.9	111.5	41.6	59.5
Hardwoods	374.8	382.3	7.5	2.0
All groups	444.7	493.8	49.1	11.0
Sawtimber (Millions of board feet)				
Softwoods	252.6	441.0	188.4	74.6
Hardwoods	764.3	875.1	110.8	14.5
All groups	1,016.9	1,316.1	299.2	29.4

COUNTY TABLES

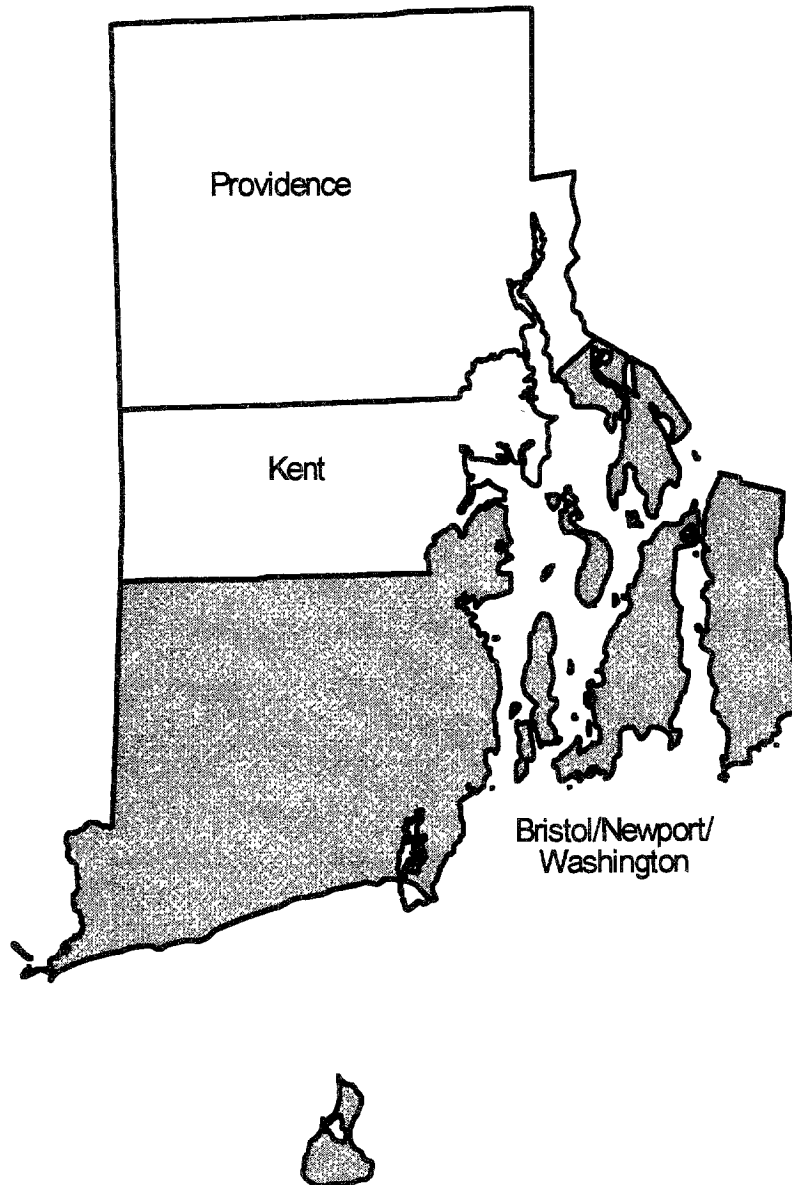


Table 48.--Land area by county and land class, Rhode Island, 1998

(In thousands of acres)

County	Land class							Nonforest land	All classes
	Timberland	Reserved productive	Urban forest	Other forest	Christmas trees	Reserved other forest	Total forest land		
Kent	57.2	5.6	.8	.0	.0	.0	63.6	45.2	108.8
Providence	146.1	.0	13.2	.0	.0	.0	159.4	105.1	264.5
Bristol/Newport/Washington	136.3	4.1	19.1	10.6	.0	.0	170.0	125.4	295.4
All counties	339.7	9.6	33.1	10.6	.0	.0	393.0	275.8	668.8

Table 49.--Area of all forest land by county and forest-type group, Rhode Island, 1998

(In thousands of acres)

County	Forest-type group									Total	SE
	White/ red pine	Spruce/ fir	Hard pine	Oak/ pine	Oak/ hickory	Oak/gum/ cypress	Elm/ash/ red maple	Northern hardwoods	Aspen/ birch		
Kent	.3	.0	.0	14.3	40.5	.0	.9	7.6	.0	63.6	6.8
Providence	7.0	.0	.0	3.9	110.2	.0	7.5	27.7	2.9	159.4	2.8
Bristol/Newport/Washington	17.9	3.7	1.0	4.7	90.5	.0	40.1	8.9	3.2	170.0	4.1
All counties	25.3	3.7	1.0	23.0	241.3	.0	48.5	44.1	6.1	393.0	2.4
SE	30.1	100.0	100.0	33.6	7.3	.0	20.6	25.9	70.8	2.4	

Percent of forest land by county, Rhode Island, 1998

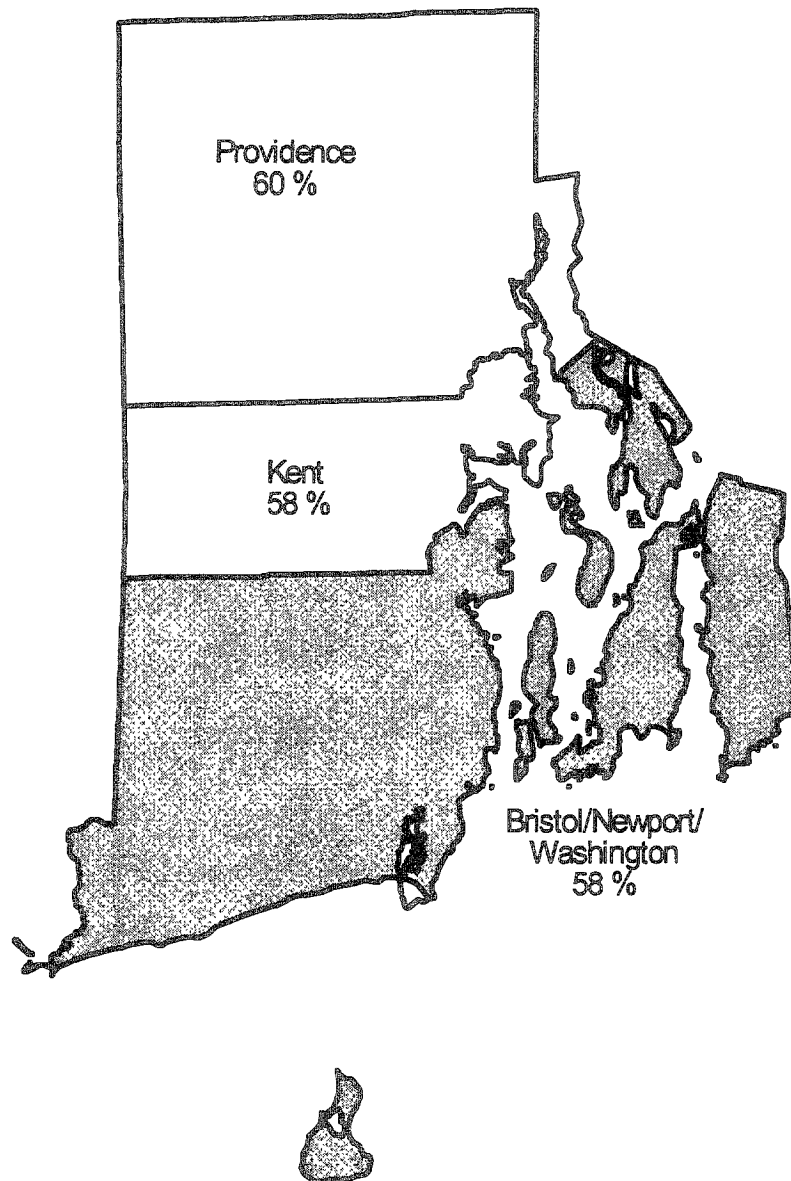


Table 50.--Area of all forest land by county and stand-size class, Rhode Island, 1998

(In thousands of acres)

County	Stand-size class				All classes	SE
	Saw- timber	Pole- timber	Sapling and seedling	Non- stocked		
Kent	27.1	34.7	1.7	.0	63.6	6.8
Providence	73.1	75.7	10.6	.0	159.4	2.8
Bristol/Newport/Washington	98.8	56.7	14.5	.0	170.0	4.1
All counties	199.0	167.2	26.8	.0	393.0	2.4
SE	9.0	10.7	31.9	.0	2.4	

Table 51.--Area of timberland by county and ownership class, Rhode Island, 1998

(In thousands of acres)

County	Ownership class								All ownerships	SE
	National Forest	Misc. federal	State	County and municipal	Forest industry	Farmer	Corporate	Individual		
Kent	.0	.0	13.7	.0	.0	.0	3.5	40.0	57.2	10.2
Providence	.0	.0	18.5	7.6	.0	.0	25.1	94.8	146.1	4.2
Bristol/Newport/Washington	.0	3.5	35.2	2.3	.0	2.1	48.8	44.5	136.3	7.6
All counties	.0	3.5	67.4	9.9	.0	2.1	77.4	179.3	339.7	3.9
SE	.0	100.0	20.9	59.1	.0	100.0	19.9	9.7	3.9	

Table 52.--Area of timberland by county and forest-type group, Rhode Island, 1998

(In thousands of acres)

County	Forest-type group									Total	SE
	White/ red pine	Spruce/ fir	Hard pine	Oak/ pine	Oak/ hickory	Oak/gum/ cypress	Elm/ash/ red maple	Northern hardwoods	Aspen/ birch		
Kent	.3	.0	.0	14.3	34.1	.0	.9	7.6	.0	57.2	10.2
Providence	7.0	.0	.0	2.2	99.6	.0	6.6	27.7	2.9	146.1	4.2
Bristol/Newport/Washington	17.9	3.7	1.0	3.7	79.1	.0	22.0	8.9	.0	136.3	7.6
All counties	25.3	3.7	1.0	20.3	212.9	.0	29.5	44.1	2.9	339.7	3.9
SE	30.1	100.0	100.0	37.5	8.4	.0	28.7	25.9	100.0	3.9	

Table 53.--Area of timberland by county and stand-size class, Rhode Island, 1998

(In thousands of acres)

County	Stand-size class				All classes	SE
	Saw-timber	Pole-timber	Sapling and seedling	Non-stocked		
Kent	27.1	28.4	1.7	.0	57.2	10.2
Providence	63.2	72.3	10.6	.0	146.1	4.2
Bristol/Newport/Washington	82.1	45.2	9.0	.0	136.3	7.6
All counties	172.4	145.9	21.3	.0	339.7	3.9
SE	10.2	11.9	35.0	.0	3.9	

Table 54.--Area of timberland by county and cubic-foot stand-volume class of growing-stock trees, Rhode Island, 1998

(In thousands of acres)

County	Stand-volume class (cubic feet per acre)						All classes	SE
	0-499	500-999	1000-1499	1500-1999	2000-2499	2500+		
Kent	1.7	17.3	16.3	2.6	18.9	.3	57.2	10.2
Providence	15.6	26.4	38.3	23.7	15.6	26.5	146.1	4.2
Bristol/Newport/Washington	19.4	41.0	31.3	18.3	14.3	12.0	136.3	7.6
All counties	36.8	84.7	85.9	44.6	48.8	38.8	339.7	3.9
SE	26.6	17.5	17.9	25.5	24.2	23.7	3.9	

Table 55.--Area of timberland by county and stocking class of growing-stock trees, Rhode Island, 1998

(In thousands of acres)

County	Stocking class					All classes	SE
	Nonstocked	Poorly stocked	Moderately stocked	Fully stocked	Over-stocked		
Kent	.0	4.3	19.4	32.6	.9	57.2	10.2
Providence	.0	5.7	66.7	72.8	1.0	146.1	4.2
Bristol/Newport/Washington	.0	19.8	64.4	49.7	2.4	136.3	7.6
All counties	.0	29.9	150.5	155.1	4.3	339.7	3.9
SE	.0	30.8	12.1	11.1	64.7	3.9	

Table 56.--Area of timberland by county and site-productivity class, Rhode Island, 1998

(In thousands of acres)

County	Productivity class(cuft/a/yr)				All classes	SE
	Very good (120+)	Good (85-119)	Fair (50-84)	Poor (20-49)		
Kent	.0	3.5	20.1	33.6	57.2	10.2
Providence	.0	12.1	44.7	89.3	146.1	4.2
Bristol/Newport/Washington	3.7	14.8	38.6	79.2	136.3	7.6
All counties	3.7	30.4	103.5	202.1	339.7	3.9
SE	100.0	31.9	16.0	9.3	3.9	

Table 57.--Biomass of all trees and shrubs on all forest land by county and component, Rhode Island, 1998

(In thousands of dry tons)

County	Component								All trees, shrubs	SE
	Preferred/ acceptable	Cull	Total timber	Saplings	Seedlings	Total live trees	Shrubs	Salvable dead trees		
Kent	3,903	448	4,351	346	42	4,740	37	7	4,783	9.9
Providence	10,302	843	11,145	714	95	11,955	59	41	12,055	7.0
Bristol/Newport/Washington	8,910	2,067	10,977	560	48	11,585	76	40	11,700	7.0
All counties	23,115	3,358	26,473	1,621	186	28,280	172	87	28,539	4.5
SE	5.1	11.4	4.8	10.1	10.2	4.5	14.4	20.5	4.5	

Table 58.--Biomass of growing stock on timberland by county and component, Rhode Island, 1998

(In thousands of dry tons)

County	Growing stock			Total growing stock	SE
	Poletimber	Sawlog	Upper stem		
Kent	1,001	1,171	257	2,429	13.1
Providence	2,580	3,162	696	6,439	9.4
Bristol/Newport/Washington	1,831	2,714	536	5,081	9.4
All counties	5,412	7,047	1,489	13,949	6.0
SE	6.7	8.9	8.5	6.0	

Table 59.--Biomass of all timber on timberland by county, class of timber, and component, Rhode Island, 1998

(In thousands of dry tons)

County	Growing stock trees				Cull trees	Total timber	SE
	Growing stock	Branches	Foliage	Stump and roots			
Kent	2,429	312	112	740	429	4,022	13.3
Providence	6,439	800	262	1,941	815	10,257	9.0
Bristol/Newport/Washington	5,081	673	257	1,557	1,227	8,795	8.3
All counties	13,949	1,784	631	4,238	2,471	23,074	5.6
SE	6.0	5.8	6.6	5.8	12.2	5.6	

Table 60.--Biomass of all trees and shrubs on timberland by county and class of material, Rhode Island, 1998

(In thousands of dry tons)

County	Non-timber					Total trees and shrubs	SE
	Timber	Salvable dead trees	Saplings	Seedlings	Shrubs		
Kent	4,022	7	315	39	23	4,406	13.0
Providence	10,257	41	670	92	58	11,118	8.1
Bristol/Newport/Washington	8,795	30	479	44	61	9,410	8.1
All counties	23,074	77	1,465	175	143	24,934	5.3
SE	5.6	21.9	11.3	10.9	14.6	5.3	

Table 61.--Net volume of growing-stock trees on timberland by county and forest-type group, Rhode Island, 1998

(In millions of cubic feet)

County	Forest-type group									Total	SE
	White/ red pine	Spruce/ fir	Hard pine	Oak/ pine	Oak/ hickory	Oak/gum/ cypress	Elm/ash/ red maple	Northern hardwoods	Aspen/ birch		
Kent	2.3	.0	.0	20.1	48.9	.0	.4	12.3	.0	83.9	13.1
Providence	16.8	.0	.0	.9	161.9	.0	11.4	34.8	.1	225.9	9.5
Bristol/Newport/Washington	43.3	11.4	2.0	10.9	94.4	.0	15.4	6.6	.0	184.0	10.5
All counties	62.3	11.4	2.0	31.9	305.2	.0	27.2	53.6	.1	493.8	6.3
SE	34.5	100.0	100.0	46.9	9.9	.0	31.0	31.4	100.0	6.3	

Table 62.--Net volume of growing-stock trees on timberland by county and stand-size class, Rhode Island, 1998

(In millions of cubic feet)

County	Stand-size class				All classes	SE
	Saw-timber	Pole-timber	Sapling and seedling	Non-stocked		
Kent	48.9	34.7	.4	.0	83.9	13.1
Providence	135.9	88.0	2.0	.0	225.9	9.5
Bristol/Newport/Washington	137.3	45.4	1.3	.0	184.0	10.5
All counties	322.1	168.1	3.7	.0	493.8	6.3
SE	11.0	13.6	47.4	.0	6.3	

Table 63.--Net volume of growing-stock and sawtimber trees on timberland by county and species group, Rhode Island, 1998

(In millions of cubic feet)

County	Growing stock and sawtimber									
	Pine	Other softwoods	Soft hardwoods	Hard hardwoods	Total	Pine	Other softwoods	Soft hardwoods	Hard hardwoods	Total
Kent	17.3	.5	17.2	48.8	83.9	57.1	2.6	42.6	111.3	213.6
Providence	32.9	.4	65.4	127.2	225.9	129.3	.0	137.1	280.5	546.8
Bristol/Newport/Washington	48.5	11.9	43.5	80.1	184.0	202.6	49.4	97.0	206.6	555.6
All counties	98.7	12.8	126.2	256.1	493.8	389.0	52.0	276.7	598.4	1,316.1

Table 64.--Net volume of sawtimber trees on timberland by county and forest-type group, Rhode Island, 1998

(In millions of board feet)

County	Forest-type group									Total	SE
	White/ red pine	Spruce/ fir	Hard pine	Oak/ pine	Oak/ hickory	Oak/gum/ cypress	Elm/ash/ red maple	Northern hardwoods	Aspen/ birch		
Kent	11.5	.0	.0	59.9	114.1	.0	.0	28.1	.0	213.6	19.2
Providence	67.3	.0	.0	.8	365.6	.0	19.8	93.3	.0	546.8	14.1
Bristol/Newport/Washington	164.1	47.5	6.5	50.9	238.0	.0	33.0	15.6	.0	555.6	15.6
All counties	243.0	47.5	6.5	111.6	717.7	.0	52.8	137.0	.0	1,316.1	9.3
SE	38.2	100.0	100.0	54.2	13.3	.0	34.3	35.6	.0	9.3	

Table 65.--Net volume of sawtimber trees on timberland by county and stand-size class, Rhode Island, 1998

(In millions of board feet)

County	Stand-size class				All classes	SE
	Saw-timber	Pole-timber	Sapling and seedling	Non-stocked		
Kent	163.0	50.6	.0	.0	213.6	19.2
Providence	437.0	109.9	.0	.0	546.8	14.1
Bristol/Newport/Washington	484.8	69.2	1.7	.0	555.6	15.6
All counties	1,084.8	229.7	1.7	.0	1,316.1	9.3
SE	12.1	16.7	100.0	.0	9.3	

Table 66.--Average annual net growth of growing-stock and sawtimber volume on timberland by county and species group,
Rhode Island, 1984-97

(In thousands of cubic feet/board feet)

County	Growing Stock			Sawtimber		
	Softwoods	Hardwoods	All groups	Softwoods	Hardwoods	All groups
Kent	567	1,081	1,648	1,756	1,988	3,744
Providence	649	3,514	4,163	2,240	10,787	13,027
Bristol/Newport/Washington	1,702	451	2,153	6,835	2,256	9,091
All counties	2,918	5,047	7,965	10,831	15,031	25,862

Table 67.--Average annual removals of growing-stock and sawtimber volume on timberland by county and species group,
Rhode Island, 1984-97

(In thousands of cubic feet/board feet)

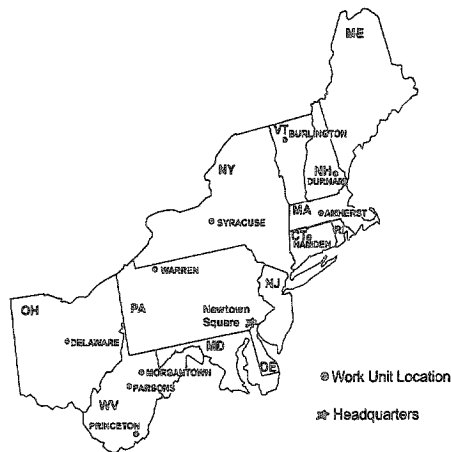
County	Growing Stock			Sawtimber		
	Softwoods	Hardwoods	All groups	Softwoods	Hardwoods	All groups
Kent	49	577	626	250	1,349	1,598
Providence	281	1,716	1,997	598	3,563	4,161
Bristol/Newport/Washington	413	2,422	2,835	1,086	3,759	4,845
All counties	743	4,715	5,458	1,934	8,670	10,604

Alerich, Carol L. 2000. **Forest statistics for Rhode Island: 1985 and 1998.**
Resour. Bull. NE-149. Newtown Square, PA: U.S. Department of Agriculture,
Forest Service, Northeastern Research Station. 104 p.

A statistical report on the fourth forest inventory of Rhode Island (1997-1998).
Findings are displayed in 67 tables containing estimates of forest area, numbers of
trees, wildlife habitat, timber volume, growth, change, and biomass. Data are
presented at two levels: state and county.

Keywords: Forest survey; inventory; area; volume; growth; change; biomass





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