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Forest Statistics for Rhode Island — 1972 and 1985

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Abstract

A statistical report on the third forest survey of Rhode Island conducted in 1984 by the Forest Inventory and Analysis Unit, Northeastern Forest Experiment Station. Statistics for forest area, numbers of trees, timber volume, tree biomass, wildlife habitat, and timber products output are displayed at the state and county levels. The current inventory indicates that the state has approximately 404 million cubic feet of growing-stock volume or 25.6 million tons, net green weight of live trees, on 372,000 acres of timberland. For use in trend analysis, this report includes estimates derived from reprocessing the 1972 data using current methods and standards.

Foreword

The third inventory of Rhode Island was under the overall direction of John R. Peters, Project Leader of the Forest Inventory and Analysis Unit. Eric H. Wharton assisted in the development and administration of the operating plan. Charles T. Scott was responsible for the design of the inventory and sample selection. David J. Alerich supervised the interpretation of aerial photos and collection of data. He was assisted by Joseph G. Reddan. Members of the field Staff were:

William C. Blish	Patricia J. Lawler
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David R. Dickson and Carol L. McAfee applied FINSYS (Forest INventory SYstem), a generalized data processing system, to the specific needs of the Rhode Island inventory and produced summary tables for the state and counties. Thomas W. Birch and Carol L. McAfee were instrumental in assuring that the area estimates were consistent with the two previous inventories. Anne E. Cane prepared the tables in this report for printing.

Robert L. Nevel, Jr., Richard H. Widmann, and Eric H. Wharton, with the assistance of Thomas G. Bourn, Rhode Island Division of Forest Environment, collected and compiled the data on timber products output and timber removals.

Carmela M. Hyland was responsible for administrative and secretarial services. Marie Pennestri typed the text for this report.

The Forest Inventory and Analysis Unit would like to thank the landowners of Rhode Island for their cooperation and assistance during this inventory.

FOREST STATISTICS FOR RHODE ISLAND--1972 AND 1985

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Highlights

- * The report contains both 1985 and updated 1972 tables.

Forest Area

- * Rhode Island, with 404,800 acres of forest land, is 60 percent forested. Forest area is unchanged since 1972.
- * Ninety-two percent of Rhode Island's forest land, 371,700 acres, is classified as timberland (formerly known as commercial forest land).
- * Area of timberland has decreased 7 percent between inventories.
- * The area of sawtimber stands has increased over 56 percent since the 1972 inventory; sawtimber stands now total 167,500 acres or 45 percent of the timberland. An 82 percent decrease in the area of seedling and sapling stands has reduced these stands to 21,100 acres, or 6 percent of the timberland.
- * Eighty-eight percent of Rhode Island's timberland is privately owned.

Timber Volume

- * Growing-stock volume is 404 million cubic feet, an average of 1,087 cubic feet per acre. This is a 19 percent increase over the 1972 inventory.
- * Sawtimber volume is 860.5 million board feet, an average of 2,315 board feet per acre. This is a 36 percent increase over the 1972 inventory.
- * Red oaks continue to be the dominant species in Rhode Island's forests. Northern red oak accounts for 16 percent of the growing-stock volume and 18 percent of the sawtimber volume. Other red oaks make up 26 percent of the growing-stock volume and 23 percent of the sawtimber volume.

- * Red maple, with 22 percent of the growing-stock volume, retained its second place ranking while increasing its growing-stock volume by 47 percent to 90 million cubic feet.
- * While white pine volumes are unchanged since the 1972 inventory, the total softwood growing-stock volume decreased 20 percent to 56 million cubic feet; the total softwood sawtimber volume decreased 11 percent to 176 million board feet.
- * Average annual net growth of growing-stock volume in Rhode Island is 2.3 percent of the inventory.

Wildlife Habitat

- * Tree mast in Rhode Island is essentially an acorn resource, dominated by red oak species.
- * White oak is the most common standing dead tree species; northern red oak is the second most common. These two species are also the most common dead tree species with observed cavities.
- * Red maple is the most common live tree species with observed cavities.
- * Blueberries (Vaccinium spp.) are the most common understory woody-stemmed species in Rhode Island.

Biomass

- * The net green weight of all live trees on timberland is 25.6 million tons or 68.9 tons per acre. Softwoods account for 2.5 million tons or 6.6 tons per acre; hardwoods account for 23.1 million tons or 62.3 tons per acre.
- * Fifteen million tons, or 59 percent of the net green weight of all live trees, is in growing-stock material.
- * 1.3 million tons of biomass is contained in salvable dead trees.

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 forest inventories of all states to provide up-to-date information on the forest resource of the Nation. The initial inventory of Rhode Island's resources was conducted in 1952. The second inventory was carried out in 1972. This report presents the forest resource data from the third inventory completed in 1984. This inventory involved a cooperative effort of the Rhode Island Division of Forest Environment, the USDA Soil Conservation Service, and the Northeastern Forest Experiment Station.

The Forest Inventory and Analysis project of the Northeastern Forest Experiment Station conducted the inventory on all forest land, developed the resource tables, and prepared this report.

The sampling procedure used during the current resurvey utilized aerial photography, the remeasurement of a sample of the ground plots established in the earlier inventories, and establishment of new ground plots. In Rhode Island this required remeasurement of 129 plots from the earlier inventories, classification of 2,542 points on aerial photographs into land-use and cubic-foot volume classes, and establishment of 95 new ground plot locations as a subsample of the photo points. The data collected were summarized using the FINSYS computer system developed at the Northeastern Forest Experiment Station.

The resurvey of Rhode Island's forest resources involved several associated studies and considerable analysis. Reports discussing the State's private forest-land owners and its primary forest products industry are being prepared. An additional report will also be published containing detailed 1985 biomass statistics.

The forest area, numbers of trees, timber volume, biomass, and wildlife habitat statistics shown in this report are but a summary of the information collected. Other information or additional summaries may be developed. For information about these, contact the Forest Inventory and Analysis Unit, USDA Forest Service, 370 Reed Road, Broomall, PA 19008 (phone 215-690-3037).

The four eastern Forest Experiment Stations have agreed to include a set of 25 core tables in each of their state resource bulletins. The format of any one 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 and content. A list of the core

table numbers and their corresponding numbers as presented in this publication follows the index of tables.

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. Among statisticians, 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 mainly interested 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 resources of Rhode Island. If questions arise, the data are reviewed and reanalyzed to resolve the differences. Also, great care is taken to keep all sources of procedural error to a minimum by 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.

Briefly, here is an example of how the sampling error is used to indicate reliability: The estimate of timberland for Rhode Island is 372,000 acres. Its sampling error is 2.4 percent, or 9,000 acres. This means that if there are no errors in the procedure and we repeated the inventory in the same way, the odds are 2 to 1 (66 percent probability) that the estimate would be between 363,000 and 381,000 acres ($372,000 \pm 9,000$). Similarly, the odds are 19 to 1 (95 percent probability) that the estimate would be within $\pm 18,000$ acres. It is worth noting that the state estimates have the smallest sampling errors and therefore are the most precise or reliable. County estimates are less reliable. In Rhode Island for example, the sampling error for the state area tables is 2.4 percent; while the sampling error for Providence County is 3.2 percent. Thus, county level estimates are often considerably less reliable than state level estimates. In general, as the size of the estimate decreases in relation to the total, the sampling error, expressed as a percentage of the estimate, increases.

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, for the comparisons to be valid, the procedures used in the two inventories must be similar. As a result of our ongoing efforts to improve the efficiency of the inventory, we have made several changes in procedures and definitions since 1972.

Because these changes make the direct comparison of the 1985 estimates with those published by Peters and Bowers (1977) inappropriate, data collected in 1972 have been reprocessed using the 1985 procedures and standards. Seven state-level tables containing the recalculated 1972 data have been included in this report. The tables provide area and volume data for comparison and trend analysis. They are printed in italic type to distinguish them from the current tables. Tables of recalculated data at the county level could not be provided because plots were selected at the state level in 1972; therefore, individual counties do not have enough plots to develop statistically sound data. The changes that have had an effect on the results of our computations follow.

The design used in this inventory, sampling with partial replacement, involved the establishment of new plots and the remeasurement of a sample of the previously measured plots. Thus, estimates, particularly those of small segments of a population, may vary from occasion to occasion, in part because of the change in the sample. For example, the area of a minor forest type may have been estimated at the previous occasion from only two or three plots; if those plots were not selected for remeasurement, the change from occasion to occasion would differ from the change based on a current sample that by chance did include those plots. The sampling errors presented in Table 57 should be used to determine the reliability of all estimates and particularly that of change in minor components.

A major change was made in the design of the plots established in 1984. In addition to the traditional data gathered to estimate forest area and tree volumes, information was collected to describe forest wildlife habitat, forest soils, and forest tree biomass.

New height and volume equations were developed for both growing stock and sawtimber (Scott 1979, 1981). These equations are derived by nonlinear regression techniques; in 1972 linear regression was used. The nonlinear method is used because it yields estimates with smaller errors between predicted and actual values.

Stand size is a classification of forest land based on the size of the trees that dominate an area, i.e., seedling/sapling, poletimber, sawtimber, or non-stocked. In the 1972 inventory only growing-stock trees were

considered in determining stand size; the 1985 procedure considers all live trees. This change caused a shift in acres among classes, especially between seedling/sapling and poletimber.

The procedures used to determine forest type have also been modified. In 1972, plots on which red maple made up the plurality of stocking were classified as elm/ash/red maple. In 1985, such plots were examined more closely and according to their moisture class and the other species present, were placed in either the red maple/northern hardwoods, red maple/central hardwoods or elm/ash/red maple type.

The basic building block for estimating forest area and timber volume has been changed from the state level or geographic unit level, to the county level. In the past, the statistics were developed at the unit or state level and prorated back to the county level on the basis of distribution of photo-interpretation points. Direct development of county-level data helps users interested in more precise local data, but can make comparisons with past county estimates developed by the proration technique uncertain. One of the prerequisites for developing direct county-level statistics is that a county must have at least 60,000 acres of timberland. Counties that do not meet this criterion have too few plots to allow reliable estimates. Such counties were grouped with neighboring counties to create a sampling base large enough to provide reliable estimates. Plots in Bristol and Newport Counties were combined with those in Washington County to provide such a base.

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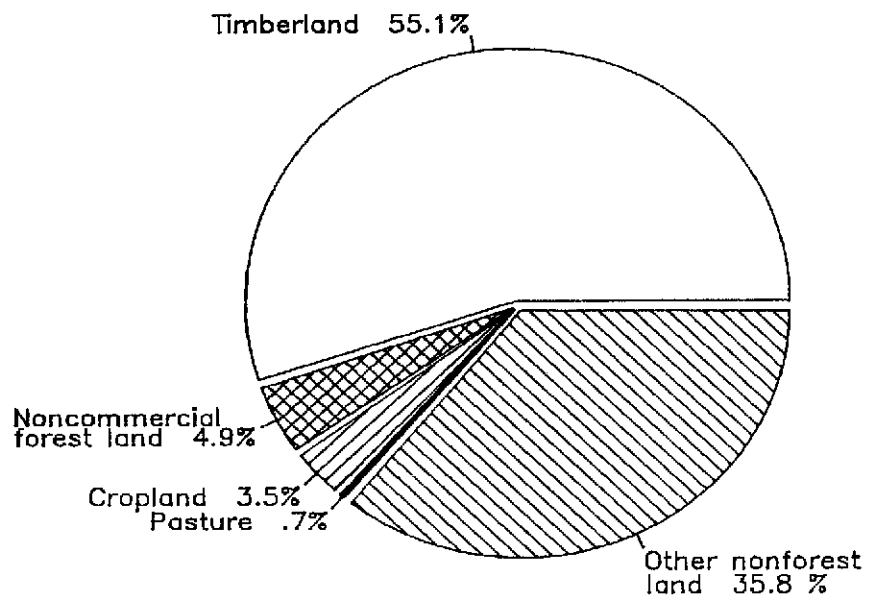


Table 1.--Land area by land class, Rhode Island, 1985^a

Land class	Area	
	Thousand acres	Percent
Timberland	371.7	55.1
Noncommercial forest land:		
Productive reserved	8.4	1.3
Unproductive ^b	20.5	3.0
Urban	4.2	.6
Total forest	404.8	60.0
Nonforest land:		
Cropland ^c	23.5	3.5
Pasture ^c	4.6	.7
Other	242.2	35.8
Total nonforest	270.3	40.0
Total land area ^d	675.1	100.0

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

^b Includes 400 acres of reserved unproductive land

^c Source: 1982 Census of Agriculture.

^d Source: 1981 United States Department of Commerce, Bureau of Census.

Table 2.--Area of timberland by forest type, forest-type group, and stand-size class, Rhode Island, 1972^a

(In thousands of acres)^b

Forest type and forest-type group	Stand-size class				All classes
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked	
Red pine	6.3	0	6.3	.0	12.6
White pine	19.0	9.7	0	.0	28.7
White pine/hemlock	.0	.0	6.1	.0	6.1
White/red pine group	25.3	9.7	12.4	.0	47.4
Pitch pine	.0	12.5	6.1	.0	18.6
Hard pine group	.0	12.5	6.1	.0	18.6
Wh. pine/no. red oak/wh. ash	.0	6.4	0	.0	6.4
Eastern redcedar/hardwood	.0	.0	6.1	.0	6.1
Other oak/pine	6.3	6.3	12.8	.0	25.4
Oak/pine group	6.3	12.7	18.9	.0	37.8
Post, black, or bear oak	.0	6.1	18.9	.0	25.0
Chestnut oak	.0	6.4	0	.0	6.4
White oak/red oak/hickory	12.6	12.6	6.1	.0	31.3
White oak	12.6	31.6	6.4	.0	50.6
Northern red oak	6.3	35.4	6.4	.0	48.1
Scarlet oak	.0	6.3	12.8	.0	19.1
Red maple/central hardwoods	31.6	31.7	6.5	.0	69.9
Mixed central hardwoods	6.3	.0	6.4	.0	12.7
Oak/hickory group	69.5	130.1	63.4	.0	263.0
Black ash/Amer. elm/red maple	6.1	6.1	0	.0	12.2
Elm/ash/red maple group	6.1	6.1	0	.0	12.2
Red maple/northern hardwoods	.0	.0	0	.0	0
Northern hardwoods group	.0	.0	12.5	.0	12.5
Aspen	.0	.0	6.1	.0	6.1
Aspen/birch group	.0	.0	6.1	.0	6.1
All forest types	107.2	171.1	119.3	.0	397.6

^aThe data on all 1972 tables have been reprocessed so as to be comparable to 1985 data.

^bIn 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.

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

(In thousands of acres)

Forest type and forest-type group	Stand-size class				All classes
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked	
White pine	12.5	4.5	.0	.0	17.0
White/red pine group	12.5	4.5	.0	.0	17.0
Eastern redcedar	3.3	.0	.0	.0	3.3
Pitch pine	.0	9.2	.0	.0	9.2
Hard pine group	3.3	9.2	.0	.0	12.5
Wh. pine/no. red oak/wh. ash	3.4	4.5	.0	.0	7.8
Other oak/pine	18.0	3.7	.0	.0	21.7
Oak/pine group	21.3	8.1	.0	.0	29.5
Post, black, or bear oak	9.6	29.4	6.8	.0	45.7
Chestnut oak	.0	2.2	.0	.0	2.2
White oak/red oak/hickory	10.2	11.8	.0	.0	22.0
White oak	6.8	18.8	3.4	.0	29.0
Northern red oak	16.1	29.3	4.7	.0	50.1
Scarlet oak	19.3	26.0	.0	.0	45.3
Sassafras/persimmon	.0	3.3	.0	.0	3.3
Red maple/central hardwood	27.2	26.8	.0	.0	54.0
Mixed central hardwoods	4.5	.0	.0	.0	4.5
Oak/hickory group	93.7	147.6	14.9	.0	256.1
Black ash/Amer. elm/red maple	17.5	5.5	.0	.0	23.0
Elm/ash/red maple group	17.5	5.5	.0	.0	23.0
Sugar maple/beech/yellow birch	7.5	.0	.0	.0	7.5
Red maple/northern hardwoods	11.8	8.1	.0	.0	19.9
Northern hardwoods group	19.3	8.1	.0	.0	27.4
Gray birch	.0	.0	6.2	.0	6.2
Aspen/birch group	.0	.0	6.2	.0	6.2
All forest types	167.5	183.1	21.1	.0	371.7

Area of timberland by ownership class,
Rhode Island, 1985

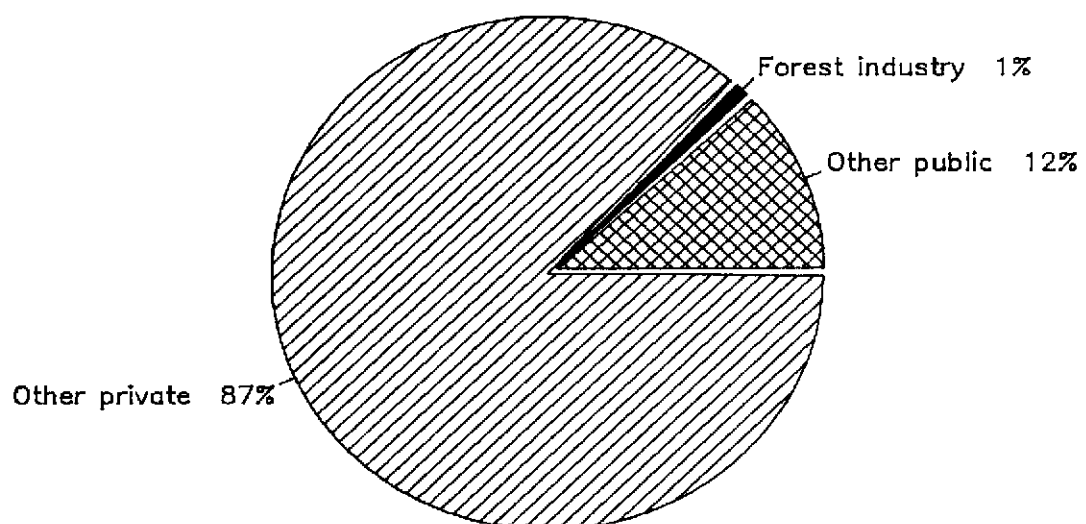


Table 4.--Area of timberland by forest-type group and ownership class, Rhode Island, 1985

(In thousands of acres)

Forest-type group	Ownership class				All classes
	National Forest	Other public	Forest industry	Other private	
White/red pine	.0	4.8	.0	12.2	17.0
Hard pine	.0	3.4	.0	9.1	12.5
Oak/pine	.0	3.4	.0	26.1	29.5
Oak/hickory	.0	26.3	4.4	225.4	256.1
Elm/ash/red maple	.0	1.3	.0	21.7	23.0
Northern hardwoods	.0	6.0	.0	21.4	27.4
Aspen/birch	.0	.0	.0	6.2	6.2
Total, all groups	.0	45.2	4.4	322.2	371.7

Table 5.--Area of timberland by stand-size class and ownership class, Rhode Island, 1985

(In thousands of acres)

Stand-size class	Ownership class				All classes
	National Forest	Other public	Forest industry	Other private	
Sawtimber	.0	29.2	.0	138.4	167.5
Poletimber	.0	16.0	4.4	162.7	183.1
Sapling and seedling	.0	.0	.0	21.1	21.1
Nonstocked	.0	.0	.0	.0	.0
Total, all classes	.0	45.2	4.4	322.2	371.7

Table 6.--Area of timberland by board-foot stand-volume class and ownership class, Rhode Island, 1985

(In thousands of acres)

Stand-volume class (board feet per acre)	Ownership class				All classes
	National Forest	Other public	Forest industry	Other private	
0 - 1,999	.0	17.5	4.4	173.8	195.7
2,000 - 3,999	.0	10.6	.0	90.3	100.9
4,000 - 5,999	.0	8.1	.0	31.6	39.7
6,000 - 7,999	.0	7.7	.0	15.4	23.1
8,000 - 9,999	.0	.0	.0	10.2	10.2
10,000+	.0	1.3	.0	.9	2.2
Total, all classes	.0	45.2	4.4	322.2	371.7

Table 7.--Area of timberland by stocking class of growing-stock trees and ownership class, Rhode Island, 1985

(In thousands of acres)

Stocking class	Ownership class				All classes
	National Forest	Other public	Forest industry	Other private	
Nonstocked	.0	.0	.0	.0	.0
Poorly stocked	.0	2.8	.0	30.6	33.5
Moderately stocked	.0	11.6	.0	104.5	116.1
Fully stocked	.0	19.8	4.4	128.1	152.3
Overstocked	.0	10.9	.0	58.9	69.8
Total, all classes	.0	45.2	4.4	322.2	371.7

Area of timberland by cubic-foot stand-volume
class (cubic feet per acre),
Rhode Island, 1985

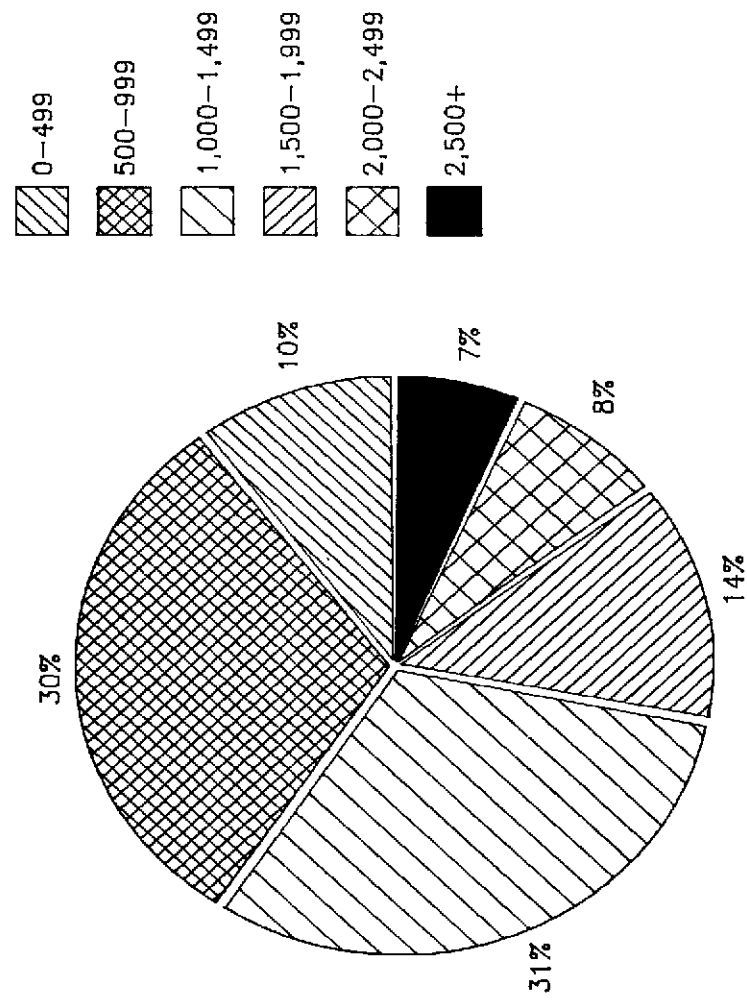


Table 8.--Area of timberland by forest-type group and cubic-foot stand-volume class, Rhode Island, 1985

(In thousands of acres)

Forest-type group	Stand-volume class (cubic feet per acre)						All classes
	0-499	500-999	1000-1499	1500-1999	2000-2499	2500+	
White/red pine	2.7	.0	.6	1.8	6.6	5.3	17.0
Hard pine	.0	12.5	.0	.0	.0	.0	12.5
Oak/pine	9.6	4.5	11.2	.0	4.3	.0	29.5
Oak/hickory	19.9	83.7	90.9	44.1	10.4	7.2	256.1
Elm/ash/red maple	.0	4.2	9.0	.0	.0	9.9	23.0
Northern hardwoods	.0	8.1	4.5	4.4	8.7	1.8	27.4
Aspen/birch	6.2	.0	.0	.0	.0	.0	6.2
Total, all groups	38.4	112.9	116.0	50.3	29.9	24.1	371.7

Table 9.--Area of timberland by forest-type group and board-foot stand-volume class, Rhode Island, 1985

(In thousands of acres)

Forest-type group	Stand-volume class (board feet per acre)						All classes
	0-1999	2000-3999	4000-5999	6000-7999	8000-9999	10000+	
White/red pine	2.7	1.8	3.9	3.3	3.0	2.2	17.0
Hard pine	12.5	.0	.0	.0	.0	.0	12.5
Oak/pine	14.0	11.2	4.3	.0	.0	.0	29.5
Oak/hickory	138.0	80.0	27.2	3.6	7.2	.0	256.1
Elm/ash/red maple	9.7	3.4	4.2	5.6	.0	.0	23.0
Northern hardwoods	12.5	4.5	.0	10.5	.0	.0	27.4
Aspen/birch	6.2	.0	.0	.0	.0	.0	6.2
Total, all groups	195.7	100.9	39.7	23.1	10.2	2.2	371.7

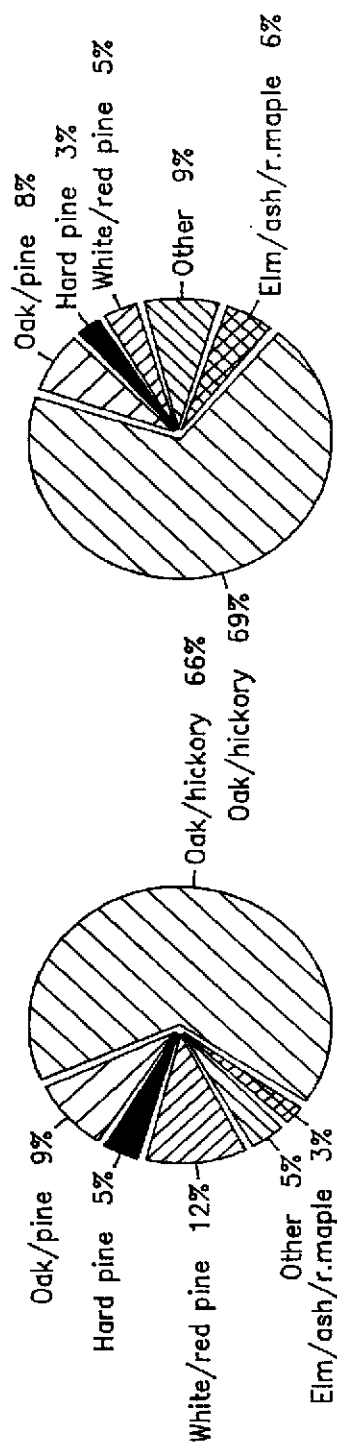
Table 10.--Area of timberland by forest-type group and green ton stand-volume class^a,
Rhode Island, 1985

(In thousands of acres)

Forest-type group	Stand-volume class (green tons per acre)									All classes
	0-24	25-49	50-74	75-99	100-124	125-149	150-174	175-199	200+	
White/red pine	7.3	.0	.0	.0	.0	.0	9.7	.0	.0	17.0
Hard pine	.0	12.5	.0	.0	.0	.0	.0	.0	.0	12.5
Oak/pine	.0	8.6	15.4	.0	5.5	.0	.0	.0	.0	29.5
Oak/hickory	6.7	50.2	90.1	85.8	15.1	8.2	.0	.0	.0	256.1
Elm/ash/red maple	.0	.0	.0	.0	.0	23.0	.0	.0	.0	23.0
Northern hardwoods	.0	.0	10.9	11.7	4.7	.0	.0	.0	.0	27.4
Aspen/birch	6.2	.0	.0	.0	.0	.0	.0	.0	.0	6.2
Total, all groups	20.2	71.3	116.5	97.5	25.3	31.2	9.7	.0	.0	371.7

^aAll biomass estimates are derived from new plots only.

Area of timberland by forest-type group, Rhode Island, 1972 and 1985



1972

1985

Table 11.--Area of timberland by forest-type group and stocking class of all live trees, Rhode Island, 1972

(In thousands of acres)

Forest-type group	Stocking class					All classes
	Nonstocked	Poorly stocked	Moderately stocked	Fully stocked	Over-stocked	
White/red pine	.0	.0	.0	34.8	12.6	47.4
Hard pine	.0	.0	6.1	6.4	6.1	18.6
Oak/pine	.0	.0	6.4	25.4	6.1	37.8
Oak/hickory	.0	6.1	35.4	164.9	56.6	263.0
Elm/ash/red maple	.0	12.2	.0	.0	.0	12.2
Northern hardwoods	.0	.0	6.4	.0	6.1	12.5
Aspen/birch	.0	.0	6.1	.0	.0	6.1
Total, all groups	.0	18.3	60.3	231.5	87.5	397.6

Table 12.--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
	Nonstocked	Poorly stocked	Moderately stocked	Fully stocked	Over-stocked	
White/red pine	.0	2.7	.6	1.8	11.9	17.0
Hard pine	.0	.0	6.6	5.9	.0	12.5
Oak/pine	.0	3.7	.0	22.4	3.4	29.5
Oak/hickory	.0	6.3	63.2	123.7	62.9	256.1
Elm/ash/red maple	.0	.0	4.2	2.2	16.6	23.0
Northern hardwoods	.0	.0	3.7	14.5	9.2	27.4
Aspen/birch	.0	.0	3.3	.0	2.9	6.2
Total, all groups	.0	12.7	81.7	170.5	106.8	371.7

Table 13.--Area of timberland by forest-type group and stocking class
of growing-stock trees, Rhode Island, 1972

(In thousands of acres)

Forest-type group	Stocking class					All classes
	Nonstocked	Poorly stocked	Moderately stocked	Fully stocked	Over- stocked	
White/red pine	0	0	24.9	22.5	0	47.4
Hard pine	0	0	12.5	6.1	0	18.6
Oak/pine	0	0	31.5	6.3	0	37.8
Oak/hickory	0	25.4	142.8	76.0	18.8	263.0
Elm/ash/red maple	6.1	6.1	0	0	0	12.2
Northern hardwoods	0	0	6.4	6.1	0	12.5
Aspen/birch	0	0	6.1	0	0	6.1
Total, all groups	6.1	31.5	224.2	117.0	18.8	397.6

Table 14.--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
	Nonstocked	Poorly stocked	Moderately stocked	Fully stocked	Over- stocked	
White/red pine	.0	2.7	.6	1.8	11.9	17.0
Hard pine	.0	3.3	3.3	5.9	.0	12.5
Oak/pine	.0	3.7	3.3	19.1	3.4	29.5
Oak/hickory	.0	19.6	99.6	97.9	39.0	256.1
Elm/ash/red maple	.0	4.2	2.2	13.2	3.4	23.0
Northern hardwoods	.0	.0	3.7	14.5	9.2	27.4
Aspen/birch	.0	.0	3.3	.0	2.9	6.2
Total, all groups	.0	33.5	116.1	152.3	69.8	371.7

Table 15.--Area of timberland by forest-type group and basal-area class (all live trees),
Rhode Island, 1985

(In thousands of acres)

Forest-type group	Basal-area class (square feet per acre)				All classes
	0-49	50-99	100-149	150-199	
White/red pine	2.7	.6	8.4	5.3	17.0
Hard pine	.0	12.5	.0	.0	12.5
Oak/pine	3.7	21.5	4.3	.0	29.5
Oak/hickory	24.7	161.9	63.7	5.8	256.1
Elm/ash/red maple	.0	6.4	12.4	4.2	23.0
Northern hardwoods	.0	12.6	13.0	1.8	27.4
Aspen/birch	6.2	.0	.0	.0	6.2
Total, all groups	37.3	215.5	101.9	17.1	371.7

Table 16.--Number of live trees on timberland by species and diameter class,
Rhode Island, 1985

(In thousands of trees)

Species	Diameter class (inches at breast height)												All classes
	1.0- 2.9	3.0- 4.9	5.0- 6.9	7.0- 8.9	9.0- 10.9	11.0- 12.9	13.0- 14.9	15.0- 16.9	17.0- 18.9	19.0- 20.9	21.0- 28.9	29+	
Red pine	0	0	22	202	68	58	22	0	0	0	0	0	371
Pitch pine	1,218	2,453	494	480	73	102	14	32	0	0	0	0	4,866
White pine	3,032	3,043	1,795	840	648	495	243	119	101	56	37	0	10,409
Hemlock	602	699	30	0	0	0	0	0	0	0	0	0	1,331
Other softwoods	1,476	598	17	153	103	44	29	12	0	0	0	0	2,434
Total softwoods	6,329	6,793	2,358	1,674	892	700	309	162	101	56	37	0	19,411
Red maple	25,572	11,364	5,593	3,947	2,098	1,262	605	246	150	15	50	26	50,927
Sugar maple	0	0	132	0	0	36	0	0	0	0	0	0	168
Yellow birch	752	0	579	286	238	100	19	34	0	0	0	0	2,009
Sweet birch	2,205	1,504	466	203	100	68	19	11	0	0	0	0	4,576
Paper birch	0	0	0	30	0	0	0	0	0	0	0	0	30
Hickory	3,430	0	637	338	132	76	22	9	0	0	0	0	4,645
Beech	598	827	247	58	101	55	11	31	42	0	0	0	1,969
White ash	0	0	583	269	235	165	160	27	29	51	0	0	1,519
Aspen	0	0	67	165	83	72	16	0	0	0	0	0	404
Black cherry	1,674	0	331	28	59	14	0	0	0	0	0	0	2,106
White oaks	5,229	3,428	3,514	2,094	945	305	334	77	54	51	30	3	16,075
Northern red oak	2,863	1,181	3,058	2,117	926	698	477	226	70	36	94	14	11,762
Other red oaks	4,434	3,572	5,265	4,023	2,301	1,432	689	220	78	20	35	3	22,073
Elm	0	0	88	0	29	15	0	0	0	0	0	0	132
Other comm. hardwoods	1,021	377	563	141	142	75	0	3	17	0	0	0	2,340
Noncomm. hardwoods	15,031	1,425	525	31	58	0	0	15	0	0	0	0	17,084
Total hardwoods	62,810	23,677	21,648	13,729	7,448	4,374	2,353	900	451	174	209	47	137,819
Total, all species	69,139	30,470	24,005	15,403	8,340	5,074	2,662	1,062	552	230	246	47	157,231

Table 17.--Number of live trees on timberland by diameter class, tree class, and species group, Rhode Island, 1985

(In thousands of trees)

Diameter class	Growing Stock		Cull		Total
	Softwoods	Hardwoods	Softwoods	Hardwoods	
Seedlings	15,727.9	871,889.4	-	144,894.0	1,032,511.3
1.0- 2.9	6,328.6	47,779.0	-	15,031.3	69,138.9
3.0- 4.9	6,793.3	22,252.4	-	1,424.5	30,470.3
Total seedlings and saplings	28,849.8	941,920.8	-	161,349.8	1,132,120.5
5.0- 6.9	2,096.2	17,724.4	261.4	3,923.1	24,005.2
7.0- 8.9	1,466.0	12,209.9	208.5	1,518.7	15,403.0
9.0-10.9	-	6,657.6	-	790.5	7,448.1
Total poletimber	3,562.2	36,591.9	469.9	6,232.3	46,856.3
9.0-10.9	819.2	-	72.9	-	892.1
11.0-12.9	700.3	4,009.9	.0	364.1	5,074.2
13.0-14.9	308.8	2,090.1	.0	263.0	2,661.9
Total small sawtimber	1,828.3	6,100.0	72.9	627.1	8,628.3
15.0-16.9	162.4	769.6	.0	130.3	1,062.3
17.0-18.9	92.9	420.5	8.4	30.3	552.1
19.0-20.9	55.6	149.2	.0	25.2	230.0
21.0-28.9	36.8	180.5	.0	28.6	245.9
29.0 and larger	.0	36.7	.0	10.0	46.7
Total larger sawtimber	347.7	1,556.4	8.4	224.5	2,137.0
All classes	34,587.9	986,169.1	551.2	168,433.7	1,189,742.0

Table 18.--Number of trees (5.0+ inches d.b.h.) on timberland by species and tree class, Rhode Island, 1985

(In thousands of trees)

Species	Tree class								
	Preferred	Acceptable	All growing stock	Rough cull	Rotten cull	All live	Salvable dead	Nonsalvable dead	All classes
Red pine	.0	349.8	349.8	21.7	.0	371.5	.0	86.9	458.4
Pitch pine	.0	1,084.7	1,084.7	110.5	.0	1,195.3	421.6	168.3	1,785.2
White pine	231.6	3,757.0	3,988.6	265.0	80.1	4,333.7	124.8	.0	4,458.5
Hemlock	29.8	.0	29.8	.0	.0	29.8	.0	.0	29.8
Other softwoods	.0	285.1	285.1	73.8	.0	358.9	.0	366.9	725.8
Total softwoods	261.4	5,476.6	5,738.0	471.1	80.1	6,289.2	546.5	622.2	7,457.9
Red maple	227.2	11,467.3	11,694.6	1,482.4	814.1	13,991.2	144.5	365.7	14,501.4
Sugar maple	29.8	137.9	167.7	.0	.0	167.7	.0	.0	167.7
Yellow birch	39.8	968.8	1,008.5	233.5	15.3	1,257.2	.0	.0	1,257.2
Sweet birch	41.7	734.3	776.1	38.6	52.9	867.6	54.3	.0	921.9
Paper birch	.0	29.6	29.6	.0	.0	29.6	.0	.0	29.6
Hickory	185.1	892.2	1,077.3	56.7	81.2	1,215.2	54.3	.0	1,269.5
Beech	.0	430.4	430.4	114.0	.0	544.4	.0	.0	544.4
White ash	193.3	1,097.6	1,290.8	143.5	84.4	1,518.7	133.1	104.0	1,755.8
Aspen	.0	272.9	272.9	34.6	96.5	404.0	.0	.0	404.0
Black cherry	.0	184.5	184.5	229.0	18.7	432.2	.0	53.0	485.2
White oak	148.1	6,166.6	6,314.7	426.3	676.7	7,417.8	1,266.6	958.2	9,642.6
Northern red oak	1,140.1	6,175.1	7,315.2	295.6	106.8	7,717.6	1,211.8	170.7	9,100.1
Other red oaks	794.3	12,076.1	12,870.3	849.2	347.6	14,067.1	384.6	278.5	14,730.2
Elm	.0	73.7	73.7	58.4	.0	132.1	.0	195.5	327.6
Other commercial hardwoods	51.8	690.2	742.0	91.9	108.1	941.9	46.8	185.4	1,174.1
Noncommercial hardwoods	.0	.0	.0	598.4	29.6	628.0	124.5	54.3	806.8
Total hardwoods	2,851.2	41,397.1	44,248.3	4,652.1	2,431.8	51,332.2	3,420.6	2,365.3	57,118.1
Total, all species	3,112.6	46,873.8	49,986.3	5,123.1	2,511.9	57,621.4	3,967.1	2,987.5	64,576.0

Table 19.--Number of growing-stock trees on timberland by species and diameter class, Rhode Island, 1985

(In thousands of trees)

Species	Diameter class (inches at breast height)												All classes
	1.0- 2.9	3.0- 4.9	5.0- 6.9	7.0- 8.9	9.0- 10.9	11.0- 12.9	13.0- 14.9	15.0- 16.9	17.0- 18.9	19.0- 20.9	21.0- 28.9	29+	
Red pine	0	0	22	180	68	58	22	0	0	0	0	0	350
Pitch pine	1,218	2,453	465	399	73	102	14	32	0	0	0	0	4,756
White pine	3,032	3,043	1,563	764	619	495	243	119	93	56	37	0	10,064
Hemlock	602	699	30	0	0	0	0	0	0	0	0	0	1,331
Other softwoods	1,476	598	17	123	59	44	29	12	0	0	0	0	2,360
Total softwoods	6,329	6,793	2,096	1,466	819	700	309	162	93	56	37	0	18,860
Red maple	25,572	11,364	4,621	3,518	1,717	1,037	410	167	150	15	41	19	48,630
Sugar maple	0	0	132	0	0	36	0	0	0	0	0	0	168
Yellow birch	752	0	463	236	213	58	19	19	0	0	0	0	1,760
Sweet birch	2,205	1,504	466	112	100	68	19	11	0	0	0	0	4,485
Paper birch	0	0	0	30	0	0	0	0	0	0	0	0	30
Hickory	3,430	0	552	310	132	64	9	9	0	0	0	0	4,507
Beech	598	827	147	58	101	55	11	31	28	0	0	0	1,855
White ash	0	0	450	190	235	165	160	27	29	36	0	0	1,291
Aspen	0	0	0	136	48	72	16	0	0	0	0	0	273
Black cherry	1,674	0	121	28	36	0	0	0	0	0	0	0	1,858
White oak	5,229	3,428	2,949	1,777	814	277	323	66	57	41	10	0	14,972
Northern red oak	2,863	1,181	2,891	1,969	891	667	456	226	70	36	94	14	11,360
Other red oaks	4,434	3,572	4,460	3,788	2,198	1,421	665	210	70	20	35	3	20,876
Elm	0	0	29	0	29	15	0	0	0	0	0	0	74
Other hardwoods	1,021	377	444	60	142	75	0	3	17	0	0	0	2,140
Total hardwoods	47,779	22,252	17,724	12,210	6,658	4,010	2,090	770	420	149	180	37	114,280
Total, all species	54,108	29,046	19,821	13,676	7,477	4,710	2,399	932	513	205	217	37	133,140

Table 20.--Number of all live nut- and fruit-producing trees on timberland by species and diameter class, Rhode Island, 1985

(In thousands of trees)

Species	Diameter class (inches at breast height)										All classes	Sampling error (percent)
	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+		
Eastern redcedar	0	119	103	44	29	12	0	0	0	0	307	87
Hickory	637	338	132	76	21	9	0	0	0	0	1,215	29
Dogwood	57	0	0	0	0	0	0	0	0	0	57	68
Beech	247	58	101	55	11	31	42	0	0	0	544	60
Blackgum	106	0	123	59	0	3	17	0	0	0	308	38
Eastern hornbeam	0	31	0	0	0	0	0	0	0	0	31	100
Black cherry	331	28	59	14	0	0	0	0	0	0	432	79
White oak	3,514	2,093	945	305	334	77	64	51	30	3	7,418	13
Scarlet oak	3,550	1,921	1,280	783	333	89	46	0	20	0	8,022	19
Pin oak	42	0	0	0	0	0	0	0	0	0	42	100
Chestnut oak	378	79	20	0	0	0	0	0	0	0	477	100
Northern red oak	3,058	2,117	926	698	477	226	70	36	94	14	7,718	15
Black oak	1,674	2,101	1,020	649	356	131	33	20	15	3	6,003	17
Sassafras	249	0	58	0	0	15	0	0	0	0	322	53
Total, all species	13,842	8,886	4,767	2,685	1,562	593	273	108	159	21	32,897	7.9
Sampling error (percent)	12	10	10	13	15	19	24	41	33	72	7.9	

Table 21.--Number of shrubs and saplings on timberland by stand-size class, type of stem, and mast type, Rhode Island, 1985^a

(In thousands of stems)					
Stand-size class and type of stem	Mast type			Other species	Total stems
	Nuts	Other seeds	Berries		
Sawtimber:					
Shrubs	1,582.7	330,371.6	1,479,424.6	554,974.7	2,366,353.6
Saplings	13,652.7	22,505.4	6,285.1	.0	42,443.2
Total sawtimber	15,235.4	352,877.0	1,485,709.7	554,974.7	2,408,796.8
Poletimber:					
Shrubs	9,459.2	878,710.9	2,680,303.0	557,969.0	4,126,442.0
Saplings	15,463.8	30,430.5	4,473.2	.0	50,367.6
Total poletimber	24,923.0	909,141.4	2,684,776.2	557,969.0	4,176,809.6
Sapling/seedling:					
Shrubs	.0	14,233.1	163,678.1	20,762.0	198,673.2
Saplings	.0	11,711.9	1,221.3	.0	12,933.2
Total sapling/seedling	.0	25,945.0	164,899.4	20,762.0	211,606.4
Nonstocked:					
Shrubs	.0	.0	.0	.0	.0
Saplings	.0	.0	.0	.0	.0
Total nonstocked	.0	.0	.0	.0	.0
Total, all classes	40,158.4	1,287,963.4	4,335,385.3	1,133,705.7	6,797,212.8

^aThe data in all wildlife habitat tables except Table 20 are derived from new plots only.

Table 22.--Number of standing dead trees on timberland by species, condition class,
and diameter class, Rhode Island, 1985

(In thousands of trees)

Species	Intact top				Broken top				Total all trees	Sampling error (percent)
	Diameter class (inches at breast height)				Diameter class (inches at breast height)					
	5.0- 10.9	11.0- 14.9	15+	Total	5.0- 10.9	11.0- 14.9	15+	Total		
Red pine	.0	.0	.0	.0	86.9	.0	.0	86.9	86.9	100
Pitch pine	.0	.0	.0	.0	590.0	.0	.0	590.0	590.0	100
White pine	124.8	.0	.0	124.8	.0	.0	.0	.0	124.8	100
Other softwoods	.0	.0	.0	.0	366.9	.0	.0	366.9	366.9	100
Total softwoods	124.8	.0	.0	124.8	1,043.8	.0	.0	1,043.8	1,168.7	61
Red maple	100.1	44.4	.0	144.5	365.7	.0	.0	365.7	510.2	50
Sweet birch	.0	.0	.0	.0	54.3	.0	.0	54.3	54.3	100
Hickory	54.3	.0	.0	54.3	.0	.0	.0	.0	54.3	100
White ash	106.0	.0	.0	106.0	104.0	27.1	.0	131.0	237.0	71
Black cherry	53.0	.0	.0	53.0	.0	.0	.0	.0	53.0	100
White oak	893.0	68.5	.0	961.5	1,212.9	.0	50.4	1,263.3	2,224.8	30
Northern red oak	794.9	196.8	7.4	999.1	361.7	21.7	.0	383.4	1,382.5	41
Other red oaks	54.3	92.1	60.0	206.3	404.0	52.8	.0	456.9	663.2	33
Elm	.0	.0	.0	.0	140.5	55.0	.0	195.5	195.5	100
Other comm. hrdwds.	46.8	.0	.0	46.8	185.4	.0	.0	185.4	232.2	81
Noncomm. hardwoods	.0	.0	.0	.0	178.8	.0	.0	178.8	178.8	76
Total hardwoods	2,102.5	401.7	67.4	2,571.6	3,007.4	156.6	50.4	3,214.4	5,785.9	18
Total, all species	2,227.3	401.7	67.4	2,696.4	4,051.2	156.6	50.4	4,258.2	6,954.6	18.6
Sampling error (percent)	34	37	55	29	24	47	71	23	18.6	

Table 23.--Number of trees (5.0+ inches d.b.h.) with observed cavities on timberland by species and condition class,
Rhode Island, 1985

(In thousands of trees)										
Species	Live				Total live	Dead		Total dead	Total all trees	Sampling error (percent)
	No cull	Intact live top	Broken top	Dead top		Intact top	Broken top			
White pine	.0	.0	.0	.0	.0	124.8	.0	124.8	124.8	100
Total softwoods	.0	.0	.0	.0	.0	124.8	.0	124.8	124.8	100
Red maple	1,849.6	841.2	93.3	70.5	2,854.6	46.8	158.8	205.6	3,060.3	27
Yellow birch	235.2	93.7	.0	.0	328.9	.0	.0	.0	328.9	100
Sweet birch	223.2	54.3	.0	.0	277.5	.0	54.3	54.3	331.8	66
Hickory	72.7	54.3	54.3	.0	181.3	.0	.0	.0	181.3	65
Beech	116.4	27.1	.0	.0	143.5	.0	.0	.0	143.5	59
White ash	108.2	.0	.0	.0	108.2	.0	.0	.0	108.2	61
Black cherry	.0	26.6	.0	.0	26.6	53.0	.0	53.0	79.6	75
White oak	310.2	35.5	54.3	133.3	533.4	124.9	239.5	364.3	897.7	24
Northern red oak	574.7	76.0	27.1	46.8	724.6	111.2	149.0	260.2	984.8	30
Other red oaks	741.6	331.0	.0	79.9	1,152.5	.0	144.8	144.8	1,297.3	27
Elm	.0	.0	.0	.0	.0	.0	55.0	55.0	55.0	100
Noncomm. hardwoods	108.6	.0	.0	.0	108.6	.0	54.3	54.3	162.9	52
Total hardwoods	4,340.4	1,539.7	229.0	330.6	6,439.6	335.9	855.7	1,191.5	7,631.2	15
Total, all species	4,340.4	1,539.7	229.0	330.6	6,439.6	460.7	855.7	1,316.4	7,756.0	15.1
Sampling error (percent)	18	26	48	39	16	38	29	25	15.1	

Table 24.--Number of seedlings, saplings, and shrubs on timberland by species
and stand-size class, Rhode Island, 1985

(In millions of stems)

Species	Stand-size class				All classes	Percent saplings
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked		
Eastern redcedar	.0	1.6	2.4	.0	4.0	30
Pitch pine	9.8	.0	.0	.0	9.8	50
Eastern white pine	6.3	2.7	.0	.0	9.0	28
Total softwoods	16.1	4.3	2.4	.0	22.8	
Red maple	96.3	75.4	49.1	.0	220.7	17
Sugar maple	2.8	.0	.0	.0	2.8	0
Other maple species	.0	1.4	.0	.0	1.4	100
Yellow birch	4.3	6.5	.0	.0	10.8	13
Sweet birch	11.0	2.7	.0	.0	13.8	20
Gray birch	12.4	17.2	3.8	.0	33.4	42
Hickory species	11.1	1.2	.0	.0	12.3	23
American chestnut	11.5	4.1	12.7	.0	28.2	0
Flowering dogwood	14.2	.0	.0	.0	14.2	22
Hawthorn	.0	2.5	.0	.0	2.5	0
American beech	18.0	.0	.0	.0	18.0	9
White ash	38.0	.0	.0	.0	38.0	0
Blackgum	15.0	.0	2.7	.0	17.7	0
Eastern hophornbeam	1.4	3.7	.0	.0	5.0	0
Pin cherry	4.9	.0	.0	.0	4.9	0
Black cherry	55.4	67.7	22.9	.0	146.0	2
Chokecherry	.0	17.7	.0	.0	17.7	0
White oak	103.0	122.8	2.6	.0	228.4	4
Scarlet oak	7.2	46.0	.0	.0	53.2	14
Bear oak	.0	1.4	1.4	.0	2.7	0
Chestnut oak	.0	.0	2.5	.0	2.5	0
Northern red oak	13.9	56.0	.0	.0	69.9	4
Black oak	33.3	52.8	27.1	.0	113.2	4
Sassafras	16.0	43.1	4.1	.0	63.2	7
Total hardwoods	469.7	522.1	129.0	.0	1,120.7	
Total trees	485.7	526.4	131.4	.0	1,143.6	

Table 24.--(Cont'd.) Number of seedlings, saplings, and shrubs on timberland by species and stand-size class, Rhode Island, 1985

(In millions of stems)

Species	Stand-size class				All classes
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked	
Sheep laurel	31.8	173.5	.0	.0	205.3
Mountain laurel	42.7	65.6	.0	.0	108.3
Other evergreen shrubs	.0	36.9	.0	.0	36.9
Total evergreen shrubs	74.5	275.9	.0	.0	350.5
Alder	1.5	.0	.0	.0	1.5
Azalea	.0	32.6	.0	.0	32.6
Barberry	41.2	34.2	.0	.0	75.3
Sweetfern	4.9	14.2	.0	.0	19.2
Silky dogwood	.0	8.2	.0	.0	8.2
American hazelnut	.0	9.5	.0	.0	9.5
Beaked hazelnut	1.6	.0	.0	.0	1.6
Huckleberry species	196.9	.0	.0	.0	196.9
Witch-hazel	42.1	20.4	10.1	.0	72.6
Common spicebush	13.9	51.9	.0	.0	65.8
Bush honeysuckle	.0	10.9	.0	.0	10.9
Rubus species	15.7	20.2	2.7	.0	38.6
American elderberry	.0	118.8	.0	.0	118.8
Spiraea species	207.3	572.4	4.1	.0	783.8
Blueberry species	1,096.1	2,381.9	159.7	.0	3,637.7
Maple-leaf viburnum	70.1	.0	.0	.0	70.1
Hobblebush viburnum	1.2	16.8	.0	.0	18.0
Wild raisin, witherod	5.5	19.1	.0	.0	24.6
Arrowwood	23.3	9.0	.0	.0	32.3
Other viburnum species	15.7	9.3	1.2	.0	26.2
Other deciduous shrubs	555.0	521.1	20.8	.0	1,096.8
Total deciduous shrubs	2,291.8	3,850.5	198.7	.0	6,341.0
All species	2,852.1	4,652.9	330.1	.0	7,835.0
Sampling error (percent)	21	19	63	0	8.3

Table 25.—Number of seedlings, saplings, and shrubs on timberland by species
and forest-type group, Rhode Island, 1985

(In millions of stems)

Species	Forest-type group								All groups
	White/ red pine	Spruce/ fir	Hard pine	Oak/ pine	Oak/ hickory	Elm/ash/ red maple	Northern hardwoods	Aspen/ birch	
Eastern redcedar	.0	.0	.0	1.6	.0	.0	.0	2.4	4.0
Pitch pine	.0	.0	.0	9.8	.0	.0	.0	.0	9.8
Eastern white pine	3.8	.0	.0	2.5	1.4	.0	1.4	.0	9.0
Total softwoods	3.8	.0	.0	13.8	1.4	.0	1.4	2.4	22.8
Red maple	.0	.0	4.9	51.3	125.4	12.4	23.1	3.7	220.7
Sugar maple	.0	.0	.0	1.2	1.6	.0	.0	.0	2.8
Other maple species	.0	.0	.0	.0	1.4	.0	.0	.0	1.4
Yellow birch	.0	.0	.0	.0	10.8	.0	.0	.0	10.8
Sweet birch	.0	.0	.0	.0	5.8	.0	7.9	.0	13.8
Gray birch	.0	.0	4.9	.0	10.7	3.1	12.3	2.4	33.4
Hickory species	.0	.0	.0	.0	12.3	.0	.0	.0	12.3
American chestnut	.0	.0	.0	.0	28.2	.0	.0	.0	28.2
Flowering dogwood	.0	.0	.0	.0	12.7	.0	1.6	.0	14.2
Hawthorn	.0	.0	2.5	.0	.0	.0	.0	.0	2.5
American beech	.0	.0	.0	.0	3.2	.0	14.9	.0	18.0
White ash	.0	.0	.0	2.4	29.4	6.2	.0	.0	38.0
Blackgum	.0	.0	.0	.0	17.7	.0	.0	.0	17.7
Eastern hophornbeam	.0	.0	.0	.0	5.0	.0	.0	.0	5.0
Pin cherry	.0	.0	.0	4.9	.0	.0	.0	.0	4.9
Black cherry	.0	.0	27.0	21.1	75.9	.0	19.5	2.4	146.0
Chokecherry	.0	.0	.0	.0	1.4	.0	16.4	.0	17.7
White oak	1.3	.0	39.3	71.6	112.1	.0	4.1	.0	228.4
Scarlet oak	.0	.0	.0	23.0	27.0	.0	3.2	.0	53.2
Bear oak	.0	.0	.0	.0	2.7	.0	.0	.0	2.7
Chestnut oak	.0	.0	.0	.0	2.5	.0	.0	.0	2.5
Northern red oak	.0	.0	34.3	1.2	27.5	.0	6.8	.0	69.9
Black oak	.0	.0	4.9	6.0	102.4	.0	.0	.0	113.2
Sassafras	.0	.0	17.2	.0	44.4	.0	1.6	.0	63.2
Total hardwoods	1.3	.0	134.9	182.9	660.2	21.6	111.3	8.5	1,120.7
Total trees	5.1	.0	134.9	196.7	661.6	21.6	112.6	11.0	1,143.6

Table 25.--(Cont'd.) Number of seedlings, saplings, and shrubs on timberland by species and forest-type group, Rhode Island, 1985

(In millions of stems)

Species	Forest-type group								All groups
	White/ red pine	Spruce/ fir	Hard pine	Oak/ pine	Oak/ hickory	Elm/ash/ red maple	Northern hardwoods	Aspen/ birch	
Sheep laurel	3.8	.0	4.9	.0	169.3	.0	27.3	.0	205.3
Mountain laurel	.0	.0	22.1	.0	86.2	.0	.0	.0	108.3
Other evergreen shrubs	.0	.0	.0	.0	9.6	.0	27.3	.0	36.9
Total evergreen shrubs	3.8	.0	27.0	.0	265.1	.0	54.6	.0	350.5
Alder	.0	.0	.0	.0	.0	1.5	.0	.0	1.5
Azalea	.0	.0	.0	.0	32.6	.0	.0	.0	32.6
Barberry	.0	.0	.0	.0	41.2	.0	34.2	.0	75.3
Sweetfern	.0	.0	.0	19.2	.0	.0	.0	.0	19.2
Silky dogwood	.0	.0	.0	.0	.0	.0	8.2	.0	8.2
American hazelnut	.0	.0	.0	.0	1.3	.0	8.2	.0	9.5
Beaked hazelnut	.0	.0	.0	.0	1.6	.0	.0	.0	1.6
Huckleberry species	.0	.0	.0	.0	196.9	.0	.0	.0	196.9
Witch-hazel	.0	.0	.0	6.3	66.3	.0	.0	.0	72.6
Common spicebush	.0	.0	.0	.0	38.3	13.9	13.7	.0	65.8
Bush honeysuckle	.0	.0	.0	.0	10.9	.0	.0	.0	10.9
Rubus species	.0	.0	.0	.0	12.2	6.2	20.2	.0	38.6
American elderberry	.0	.0	.0	.0	118.8	.0	.0	.0	118.8
Spiraea species	.0	.0	9.8	38.0	736.0	.0	.0	.0	783.8
Blueberry species	11.4	.0	159.5	626.5	2,566.1	.0	266.9	7.3	3,637.7
Maple-leaf viburnum	.0	.0	.0	4.9	65.2	.0	.0	.0	70.1
Hobblebush viburnum	.0	.0	.0	1.2	2.8	.0	14.0	.0	18.0
Wild raisin, witherod	.0	.0	.0	.0	24.6	.0	.0	.0	24.6
Arrowwood	.0	.0	.0	.0	7.6	.0	24.7	.0	32.3
Other viburnum species	.0	.0	.0	.0	25.0	.0	.0	1.2	26.2
Other deciduous shrubs	1.0	.0	.0	101.4	933.3	.0	40.4	20.8	1,096.8
Total deciduous shrubs	12.4	.0	169.3	797.4	4,880.7	21.6	430.3	29.3	6,341.0
All species	21.2	.0	331.2	994.1	5,807.4	43.3	597.6	40.3	7,835.0
Sampling error (percent)	96	0	100	49	12	100	54	100	8.3

Table 26.—Number of seedlings, saplings, and shrubs on timberland by species
and browse-utilization class, Rhode Island, 1985

(In millions of stems)

Species	Browse-utilization class				All classes	Sampling error (percent)
	None	Light	Moderate	Heavy		
Eastern redcedar	4.0	.0	.0	.0	4.0	72
Pitch pine	9.8	.0	.0	.0	9.8	100
Eastern white pine	9.0	.0	.0	.0	9.0	54
Total softwoods	22.8	.0	.0	.0	22.8	58
Red maple	218.0	2.7	.0	.0	220.7	23
Sugar maple	2.8	.0	.0	.0	2.8	71
Other maple species	1.4	.0	.0	.0	1.4	100
Yellow birch	10.8	.0	.0	.0	10.8	40
Sweet birch	13.8	.0	.0	.0	13.8	65
Gray birch	33.4	.0	.0	.0	33.4	46
Hickory species	12.3	.0	.0	.0	12.3	91
American chestnut	28.2	.0	.0	.0	28.2	54
Flowering dogwood	11.1	3.2	.0	.0	14.2	69
Hawthorn	2.5	.0	.0	.0	2.5	100
American beech	18.0	.0	.0	.0	18.0	66
White ash	28.6	9.4	.0	.0	38.0	69
Blackgum	17.7	.0	.0	.0	17.7	85
Eastern hophornbeam	5.0	.0	.0	.0	5.0	78
Pin cherry	.0	4.9	.0	.0	4.9	100
Black cherry	143.5	2.4	.0	.0	146.0	29
Chokecherry	17.7	.0	.0	.0	17.7	92
White oak	228.4	.0	.0	.0	228.4	26
Scarlet oak	53.2	.0	.0	.0	53.2	47
Bear oak	2.7	.0	.0	.0	2.7	68
Chestnut oak	2.5	.0	.0	.0	2.5	100
Northern red oak	69.9	.0	.0	.0	69.9	52
Black oak	113.2	.0	.0	.0	113.2	32
Sassafras	63.2	.0	.0	.0	63.2	39
Total hardwoods	1,098.1	22.6	.0	.0	1,120.7	15
Total trees	1,120.9	22.6	.0	.0	1,143.6	14

Table 26.--(Cont'd.) Number of seedlings, saplings, and shrubs on timberland by species and browse-utilization class, Rhode Island, 1985

(In millions of stems)

Species	Browse-utilization class				All classes	Sampling error (percent)
	None	Light	Moderate	Heavy		
Sheep laurel	205.3	.0	.0	.0	205.3	32
Mountain laurel	108.3	.0	.0	.0	108.3	55
Other evergreen shrubs	36.9	.0	.0	.0	36.9	76
Total evergreen shrubs	350.5	.0	.0	.0	350.5	29
Alder	1.5	.0	.0	.0	1.5	100
Azalea	32.6	.0	.0	.0	32.6	100
Barberry	75.3	.0	.0	.0	75.3	71
Sweetfern	19.2	.0	.0	.0	19.2	79
Silky dogwood	8.2	.0	.0	.0	8.2	100
American hazelnut	9.5	.0	.0	.0	9.5	88
Beaked hazelnut	1.6	.0	.0	.0	1.6	100
Huckleberry species	196.9	.0	.0	.0	196.9	100
Witch-hazel	72.6	.0	.0	.0	72.6	48
Common spicebush	65.8	.0	.0	.0	65.8	49
Bush honeysuckle	10.9	.0	.0	.0	10.9	100
Rubus species	38.6	.0	.0	.0	38.6	57
American elderberry	118.8	.0	.0	.0	118.8	100
Spiraea species	782.4	1.4	.0	.0	783.8	48
Blueberry species	3,613.3	12.3	12.0	.0	3,637.7	15
Maple-leaf viburnum	70.1	.0	.0	.0	70.1	83
Hobblebush viburnum	18.0	.0	.0	.0	18.0	79
Wild raisin, witherod	24.6	.0	.0	.0	24.6	58
Arrowwood	32.3	.0	.0	.0	32.3	76
Other viburnum species	26.2	.0	.0	.0	26.2	70
Other deciduous shrubs	1,096.8	.0	.0	.0	1,096.8	27
Total deciduous shrubs	6,315.3	13.7	12.0	.0	6,341.0	10
All species	7,786.7	36.4	12.0	.0	7,835.0	8.3
Sampling error (percent)	8	50	72	0	8.3	

Table 27.--Number of trees (5.0+ inches d.b.h.) with observed cavities on timberland
by species and presence of cavities, Rhode Island, 1985

(In thousands of trees)

Species	Live trees				Dead trees				Total all trees
	Presence of cavities				Presence of cavities				
	One or more small	One or more large	Multiple large or small	Total live	One or more small	One or more large	Multiple large or small	Total dead	
White pine	.0	.0	.0	.0	124.8	.0	.0	124.8	124.8
Total softwoods	.0	.0	.0	.0	124.8	.0	.0	124.8	124.8
Red maple	1,339.1	1,012.0	503.5	2,854.6	46.8	.0	158.8	205.6	3,060.3
Yellow birch	211.8	70.2	46.8	328.9	.0	.0	.0	.0	328.9
Sweet birch	51.1	172.2	54.3	277.5	54.3	.0	.0	54.3	331.8
Hickory	54.3	127.0	.0	181.3	.0	.0	.0	.0	181.3
Beech	116.4	27.1	.0	143.5	.0	.0	.0	.0	143.5
White ash	26.4	66.8	14.9	108.2	.0	.0	.0	.0	108.2
Black cherry	.0	26.6	.0	26.6	53.0	.0	.0	53.0	79.6
White oaks	294.5	193.0	45.9	533.4	270.4	43.5	50.4	364.3	897.7
Northern red oak	479.2	115.3	130.1	724.6	153.5	37.9	68.8	260.2	984.8
Other red oaks	453.7	541.8	157.0	1,152.5	120.4	.0	24.3	144.8	1,297.3
Elm	.0	.0	.0	.0	.0	23.4	31.7	55.0	55.0
Noncommercial hardwoods	54.3	54.3	.0	108.6	.0	54.3	.0	54.3	162.9
Total hardwoods	3,080.8	2,406.3	952.5	6,439.6	698.5	159.1	334.0	1,191.5	7,631.2
Total, all species	3,080.8	2,406.3	952.5	6,439.6	823.4	159.1	334.0	1,316.4	7,756.0

Table 28.--Net green weight of all live trees on timberland by species and diameter class, Rhode Island, 1985

(In thousands of tons)

Species	Diameter class (inches at breast height)										All classes
	1.0- 4.9	5.0- 6.9	7.0- 8.9	9.0- 10.9	11.0- 12.9	13.0- 14.9	15.0- 16.9	17.0- 18.9	19.0- 20.9	21+	
Spruce/fir	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Red pine	.0	9.5	120.7	71.8	76.5	55.2	.0	.0	.0	.0	333.8
Pitch pine	157.9	47.2	116.6	10.3	34.5	12.0	40.3	.0	.0	.0	418.7
White pine	99.9	187.1	255.9	264.6	158.7	128.1	147.4	139.1	202.5	84.8	1,668.1
Hemlock	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Other softwoods	7.2	6.1	15.4	.0	.0	.0	13.3	.0	.0	.0	42.0
Total softwoods	264.9	250.0	508.6	346.7	269.8	195.3	201.0	139.1	202.5	84.8	2,462.6
Red maple	942.3	824.7	1,084.8	914.7	688.7	631.0	170.3	185.9	.0	158.0	5,600.4
Sugar maple	.0	24.4	.0	.0	31.0	.0	.0	.0	.0	.0	55.4
Yellow birch	16.2	59.7	102.1	98.5	15.9	.0	.0	.0	.0	.0	292.5
Sweet birch	154.9	66.0	59.5	53.9	52.3	.0	31.5	.0	.0	.0	418.2
Paper birch	.0	.0	18.8	.0	.0	.0	.0	.0	.0	.0	18.8
Hickory	28.6	83.8	25.2	27.6	.0	.0	26.7	.0	.0	.0	191.9
Beech	106.9	59.0	43.3	120.3	95.4	29.9	104.2	176.6	.0	.0	735.7
White ash	.0	20.1	52.4	197.7	216.7	297.6	72.1	110.8	177.4	.0	1,144.8
Aspen	.0	.0	76.6	.0	.0	31.3	.0	.0	.0	.0	107.9
Black cherry	25.5	65.1	13.4	50.1	17.1	.0	.0	.0	.0	.0	171.3
White oaks	340.0	432.7	648.0	529.2	304.4	299.3	133.4	133.9	229.7	93.6	3,144.3
Northern red oak	58.1	556.4	753.2	559.9	689.0	461.5	318.0	97.5	65.1	636.7	4,195.4
Other red oaks	311.5	884.7	1,313.8	1,267.4	1,191.2	883.7	322.9	79.0	110.0	69.3	6,433.5
Elm	.0	28.3	.0	32.3	25.8	.0	.0	.0	.0	.0	86.3
Other comm. hrdwds.	.0	.0	.0	47.9	49.6	.0	.0	57.1	.0	.0	154.6
Noncomm. hardwoods	267.5	99.5	.0	24.1	.0	.0	.0	.0	.0	.0	391.1
Total hardwoods	2,251.7	3,204.4	4,191.1	3,923.8	3,377.1	2,634.3	1,179.1	840.9	582.2	957.6	23,142.1
Total, all species	2,516.6	3,454.4	4,699.7	4,270.4	3,646.9	2,829.6	1,380.0	980.0	784.7	1,042.4	25,604.6

Table 29.--Net green weight^a of all trees on timberland by class of timber and species group, Rhode Island, 1985

(In thousands of tons)

Class of timber	Species group		
	Softwoods	Hardwoods	All groups
Sawtimber trees:			
Sawlog portion	928.7	5,307.5	6,236.2
Upper stem	115.4	1,344.9	1,460.3
Total	1,044.2	6,652.3	7,696.5
Poletimber trees	481.6	6,946.7	7,428.2
All growing stock	1,525.7	13,599.0	15,124.7
Rough cull trees ^b	60.8	885.6	946.4
Rotten cull trees ^b	.0	412.5	412.5
Salvable dead trees ^c	49.5	1,237.8	1,287.4
Saplings ^c	264.9	2,251.7	2,516.6
Stumps ^d	22.8	389.8	412.5
Tops - growing stock	566.1	5,106.7	5,672.8
Tops - rough and rotten	23.5	521.8	545.2
All nongrowing stock	987.6	10,805.8	11,793.5
All classes	2,513.3	24,404.8	26,918.2

^aIncludes bark and sound cull; excludes rotten cull.

^bBole portion of trees 5.0 inches d.b.h. and larger.

^cIncludes entire tree aboveground.

^dOf all salvable dead and all live trees 5.0 inches d.b.h. and larger.

Table 30.--Net volume of all trees on timberland by class
of timber and species group, Rhode Island, 1985

(In millions of cubic feet)			
Class of timber	Softwoods	Hardwoods	All groups
Sawtimber trees:			
Sawlog portion	37.3	129.8	167.0
Upper stem portion	4.8	33.6	38.5
Total	42.1	163.4	205.5
Poletimber trees	14.2	184.3	198.5
Total growing stock	56.3	347.7	404.0
Rough trees:			
Sawtimber size	.7	7.4	8.1
Poletimber size	1.4	12.7	14.1
Total	2.1	20.1	22.2
Rotten trees:			
Sawtimber size	.0	3.1	3.1
Poletimber size	.3	6.2	6.5
Total	.3	9.3	9.6
Total, all live trees	58.6	377.2	435.8
Salvable ^a dead trees:			
Sawtimber size	.2	9.4	9.6
Poletimber size	.5	10.6	11.1
Total	.7	20.0	20.7
Total, all classes	59.3	397.2	456.5

^aIncludes noncommercial species.

Proportion of growing stock versus nongrowing stock, Rhode Island, 1985

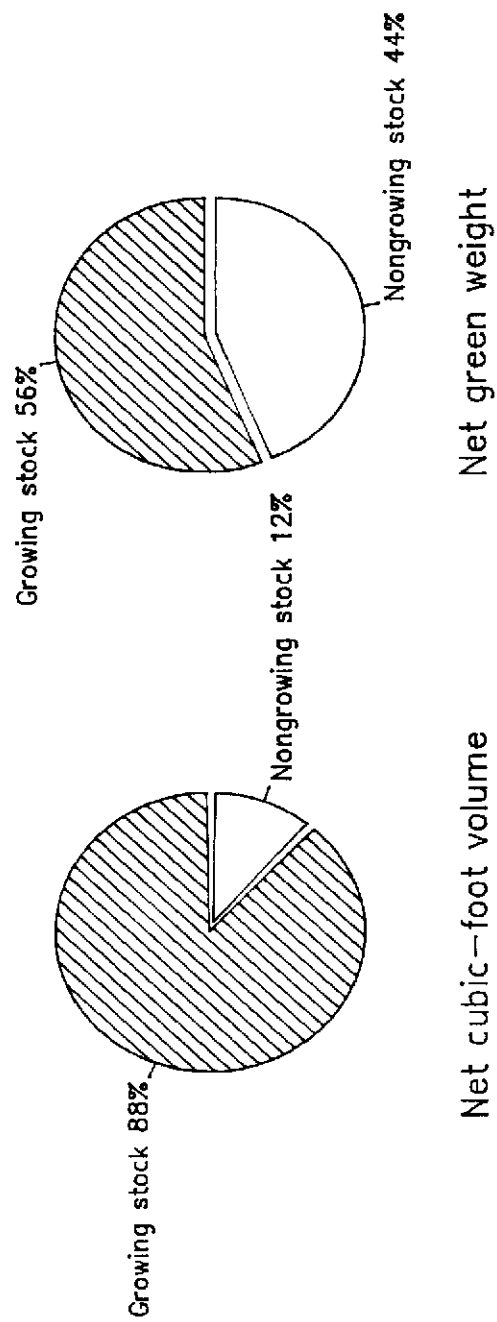


Table 31.--Net volume of all live, growing-stock, and sawtimber trees on timberland by species group and ownership class, Rhode Island, 1985

Species group	Ownership class				
	National Forest	Other public	Forest industry	Other private	All classes
<u>All live</u>					
(In millions of cubic feet)					
Softwoods	.0	15.1	.7	42.8	58.6
Hardwoods	.0	51.2	4.7	321.3	377.2
Total, all groups	.0	66.3	5.4	364.1	435.8
<u>Growing stock</u>					
(In millions of cubic feet)					
Softwoods	.0	14.5	.7	41.0	56.3
Hardwoods	.0	47.5	4.3	296.0	347.7
Total, all groups	.0	62.0	5.0	337.0	404.0
<u>Sawtimber</u>					
(In millions of board feet) ^a					
Softwoods	.0	47.8	2.2	125.8	175.8
Hardwoods	.0	115.2	8.6	560.9	684.6
Total, all groups	.0	163.0	10.8	686.7	860.5

^aInternational 1/4-inch rule.

Table 32.--Net volume of growing-stock trees on timberland by forest-type group and stand-size class, Rhode Island, 1985

(In millions of cubic feet)

Forest-type group	Stand-size class				All classes
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked	
White/red pine	29.8	3.7	.0	.0	33.4
Hard pine	1.4	7.4	.0	.0	8.8
Oak/pine	22.6	5.8	.0	.0	28.4
Oak/hickory	122.7	139.2	6.4	.0	268.3
Elm/ash/red maple	23.7	5.3	.0	.0	29.0
Northern hardwoods	27.3	8.2	.0	.0	35.4
Aspen/birch	.0	.0	.7	.0	.7
Total, all groups	227.4	169.5	7.1	.0	404.0

Table 33.--Net volume of growing-stock trees on timberland by forest-type group and basal-area class (all live trees), Rhode Island, 1985

(In millions of cubic feet)

Forest-type group	Basal-area class (square feet per acre)				All classes
	0-49	50-99	100-149	150-199	
White/red pine	.6	.8	15.4	16.8	33.4
Hard pine	.0	8.8	.0	.0	8.8
Oak/pine	1.1	18.2	9.1	.0	28.4
Oak/hickory	10.6	153.0	90.2	14.5	268.3
Elm/ash/red maple	.0	3.4	14.9	10.6	29.0
Northern hardwoods	.0	10.2	20.7	4.6	35.4
Aspen/birch	.7	.0	.0	.0	.7
Total, all groups	12.9	194.3	150.3	46.4	404.0

Table 34.--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
	White/ red pine	Hard pine	Oak/ pine	Oak/ hickory	Elm/ash/ red maple	Northern hardwoods	Aspen/ birch	
Red pine	3.2	.0	.0	.0	.0	.0	.1	3.4
Pitch pine	.1	4.5	1.1	.6	.0	.0	.0	6.3
White pine	25.4	.3	9.5	6.9	.0	2.5	.0	44.5
Hemlock	.0	.0	.0	.1	.0	.0	.0	.1
Other softwoods	.2	1.4	.0	.0	.0	.2	.2	2.0
Total softwoods	28.9	6.3	10.6	7.5	.0	2.7	.3	56.3
Red maple	.7	.0	5.3	50.6	18.2	15.0	.0	89.9
Sugar maple	.0	.0	.3	.1	.0	.5	.0	.9
Yellow birch	.0	.0	.0	3.6	.2	1.1	.0	6.0
Sweet birch	.0	0	.4	1.7	1.3	1.3	.0	4.6
Paper birch	.0	.0	.3	.0	.0	.0	.0	.3
Hickory	.0	.0	.3	5.9	.0	.0	.2	6.4
Beech	.1	.0	.0	.3	.0	4.8	.0	5.2
White ash	.0	.0	.0	7.9	7.3	.6	.0	15.8
Aspen	.2	.0	.0	1.8	.4	1.0	.0	3.4
Black cherry	.0	.0	.0	.4	.0	.3	.0	.7
White oak	1.0	.4	1.4	33.4	1.3	2.3	.0	38.5
Northern red oak	1.3	1.0	2.2	58.2	.6	3.3	.0	66.3
Other red oaks	1.4	1.1	6.7	92.9	.0	2.5	.2	104.8
Elm	.0	.0	.0	.3	.5	.0	.0	.7
Other hardwoods	.0	.0	.0	3.8	.5	.0	.0	4.3
Total hardwoods	4.5	2.5	17.8	260.9	29.0	32.7	.4	347.7
Total, all species	33.4	8.8	28.4	268.3	29.0	35.4	.7	404.0

Table 35.--Net volume of growing-stock trees on timberland by species and stand-size class, Rhode Island, 1972

(In millions of cubic feet)

Species	Stand-size class				All classes
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked	
Red pine	8.6	.0	3.0	.0	11.6
Pitch pine	2.4	7.0	1.3	.0	10.7
White pine	30.0	11.7	3.6	.0	45.3
Hemlock	.5	.0	.3	.0	.8
Other softwoods	.0	1.5	.3	.0	1.8
Total softwoods	41.6	20.2	8.5	.0	70.3
Red maple	32.0	23.7	5.4	.0	61.0
Sugar maple	.0	1.9	.0	.0	1.9
Yellow birch	5.0	1.1	.0	.0	6.0
Sweet birch	.0	2.6	.0	.0	2.6
Paper birch	.0	.0	.3	.0	.3
Hickory	2.4	1.3	.0	.0	3.7
Beech	.5	.0	.0	.0	.5
White ash	.8	1.0	.0	.0	1.8
Aspen	.0	.4	1.0	.0	1.4
Black cherry	.5	.0	.9	.0	1.4
White oak	19.1	29.5	2.3	.0	50.8
Northern red oak	12.7	31.1	4.7	.0	48.5
Other red oaks	23.5	43.6	8.8	.0	76.0
Elm	.0	.5	.4	.0	.9
Other hardwoods	5.5	7.0	.0	.0	12.5
Total hardwoods	101.9	143.6	23.7	.0	269.2
Total, all species	143.5	163.8	32.2	.0	339.5

Table 36.--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
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked	
Red pine	3.2	.0	.1	.0	3.4
Pitch pine	.8	5.5	.0	.0	6.3
White pine	38.4	5.8	.3	.0	44.5
Hemlock	.0	.1	.0	.0	.1
Other softwoods	1.7	.2	.2	.0	2.0
	44.1	11.6	.6	.0	56.3
Red maple	56.8	32.9	.1	.0	89.9
Sugar maple	.4	.5	.0	.0	.9
Yellow birch	4.3	1.5	.2	.0	6.0
Sweet birch	3.8	.8	.1	.0	4.6
Paper birch	.3	.0	.0	.0	.3
Hickory	3.4	2.8	.2	.0	6.4
Beech	5.0	.2	.0	.0	5.2
White ash	13.8	2.0	.0	.0	15.8
Aspen	1.7	1.7	.0	.0	3.4
Black cherry	.6	.1	.0	.0	.7
White oak	19.5	18.4	.5	.0	38.5
Northern red oak	30.0	34.6	1.8	.0	66.3
Other red oaks	41.0	60.1	3.7	.0	104.8
Elm	.7	.0	.0	.0	.7
Other hardwoods	2.0	2.3	.0	.0	4.3
Total hardwoods	183.3	157.9	6.5	.0	347.7
Total, all species	227.4	169.5	7.1	.0	404.0

Table 37.--Net volume of growing-stock trees on timberland by species and cubic-foot stand-volume class, Rhode Island, 1985

(In millions of cubic feet)

Species	Stand-volume class (cubic feet per acre)						All classes
	0-499	500-999	1000-1499	1500-1999	2000-2499	2500+	
Red pine	.1	.0	.0	.0	.0	3.2	3.4
Pitch pine	.6	5.6	.0	.0	.0	.1	6.3
White pine	2.0	2.1	6.6	4.2	15.2	14.4	44.5
Hemlock	.0	.0	.0	.1	.0	.0	.1
Other softwoods	.3	1.7	.0	.0	.0	.0	2.0
Total softwoods	3.1	9.4	6.6	4.2	15.2	17.8	56.3
Red maple	.1	14.7	25.9	13.2	13.4	22.6	89.9
Sugar maple	.0	.0	.3	.6	.0	.0	.9
Yellow birch	.0	.7	1.4	.9	2.4	.6	6.0
Sweet birch	.0	.9	.6	.7	1.1	1.3	4.6
Paper birch	.0	.0	.0	.0	.3	.0	.3
Hickory	.2	.1	4.0	.4	1.7	.0	6.4
Beech	.0	.0	1.6	.1	3.5	.0	5.2
White ash	.0	1.6	2.9	.7	.8	9.8	15.8
Aspen	.0	.0	.5	2.5	.0	.4	3.4
Black cherry	.0	.3	.1	.0	.0	.3	.7
White oak	2.0	9.2	13.7	11.0	2.2	.4	38.5
Northern red oak	.6	12.1	24.4	15.6	10.4	3.3	66.3
Other red oaks	4.0	22.2	46.5	24.6	6.2	1.1	104.8
Elm	.0	.0	.0	.3	.0	.5	.7
Other hardwoods	.0	2.8	.2	.7	.7	.0	4.3
Total hardwoods	6.9	64.7	122.0	71.4	42.6	40.2	347.7
Total, all species	9.9	74.0	128.6	75.6	57.9	57.9	404.0

Net volume of growing-stock trees by diameter class, Rhode Island, 1972 and 1985

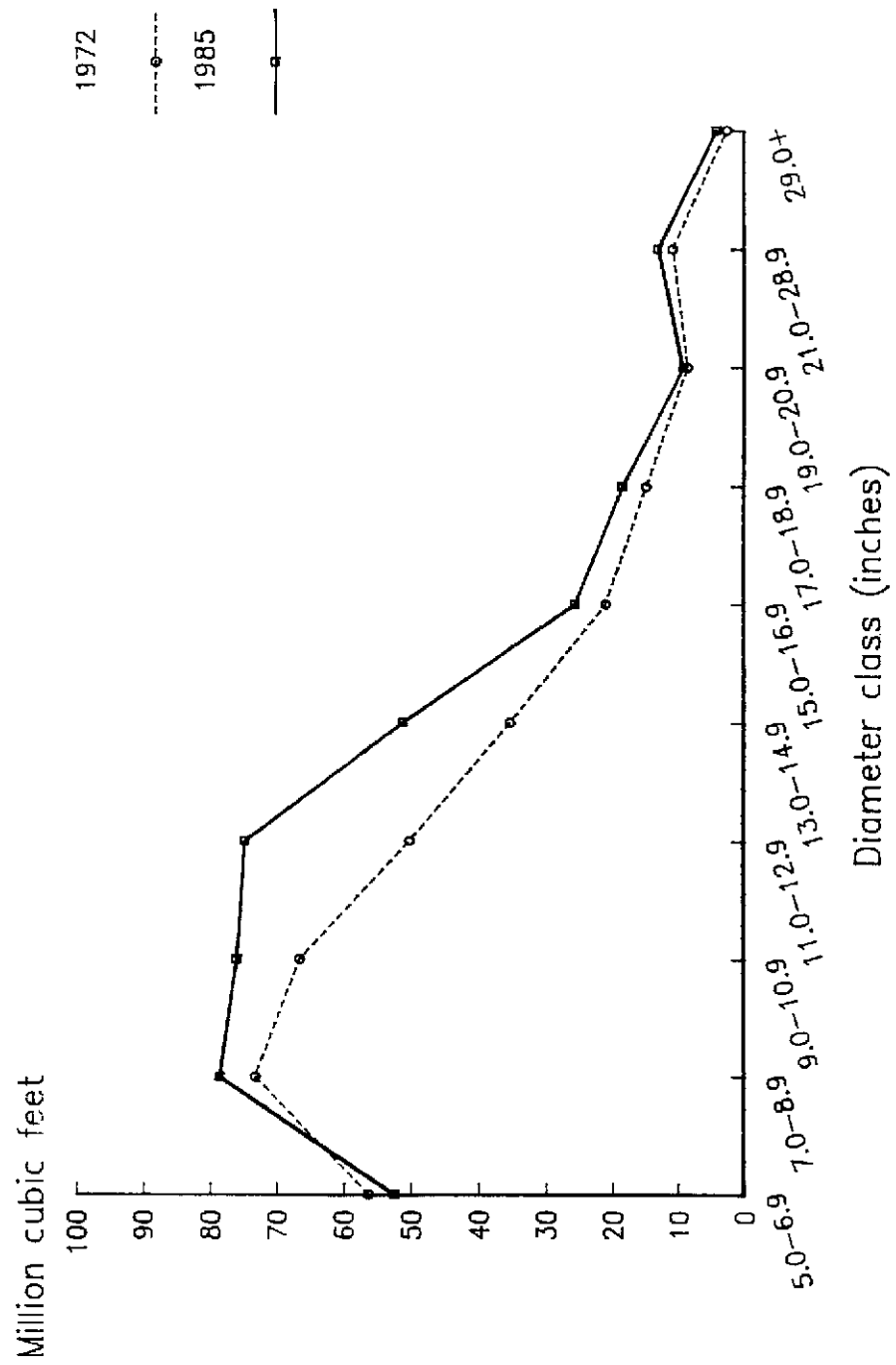


Table 38.--Net volume of growing-stock trees on timberland by species and diameter class, Rhode Island, 1972

(In millions of cubic feet)

Species	Diameter class (inches at breast height)										All classes
	5.0- 6.9	7.0- 8.9	9.0- 10.9	11.0- 12.9	13.0- 14.9	15.0- 16.9	17.0- 18.9	19.0- 20.9	21.0- 28.9	29+	
Red pine	.4	5.1	5.1	1.0	.0	.0	.0	.0	.0	.0	11.6
Pitch pine	2.1	3.2	2.5	1.7	.4	.4	.4	.0	.0	.0	10.7
White pine	4.0	5.0	4.2	6.2	7.4	8.7	2.2	2.9	3.5	1.2	45.3
Hemlock	.3	.0	.0	.0	.0	.0	.0	.5	.0	.0	.8
Other softwoods	.3	.7	.5	.0	.4	.0	.0	.0	.0	.0	1.8
Total softwoods	7.2	13.9	12.3	8.9	8.3	9.1	2.6	3.4	3.5	1.2	70.3
Red maple	14.0	12.6	9.9	8.0	4.6	3.2	4.8	1.3	2.6	.0	61.0
Sugar maple	.9	1.0	.0	.0	.0	.0	.0	.0	.0	.0	1.9
Yellow birch	1.2	.9	.9	.9	.5	.5	1.1	.0	.0	.0	6.0
Sweet birch	.3	2.3	.0	.0	.0	.0	.0	.0	.0	.0	2.6
Paper birch	.3	.0	.0	.0	.0	.0	.0	.0	.0	.0	.3
Hickory	1.0	1.0	.4	.0	.5	.0	.0	.7	.0	.0	3.7
Beech	.0	.0	.0	.0	.0	.0	.5	.0	.0	.0	.5
White ash	.0	.0	.7	.0	1.1	.0	.0	.0	.0	.0	1.8
Aspen	.7	.0	.0	.4	.0	.3	.0	.0	.0	.0	1.4
Black cherry	.3	.0	.0	1.1	.0	.0	.0	.0	.0	.0	1.4
White oak	6.3	15.4	10.6	6.9	7.4	1.6	2.1	.0	.5	.0	50.8
Northern red oak	11.2	9.7	12.3	6.9	4.0	2.2	.9	1.4	.0	.0	48.5
Other red oaks	11.4	13.5	14.7	16.2	7.0	4.1	3.0	1.7	3.0	1.4	76.0
Elm	.0	.0	.5	.0	.4	.0	.0	.0	.0	.0	.9
Other hardwoods	1.6	3.2	4.3	.7	1.4	.0	.0	.0	1.2	.0	12.5
Total hardwoods	49.1	59.5	54.3	41.3	27.0	11.9	12.3	5.1	7.3	1.4	269.2
Total, all species	56.3	73.3	66.6	50.2	35.3	21.0	14.9	8.5	10.8	2.6	339.5

Table 39.--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
	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+					
Red pine	.1	1.0	.8	.9	.6	.0	.0	.0	.0	.0	.0	.0	.0	3.4	
Pitch pine	1.2	2.0	.6	1.4	.2	.8	.0	.0	.0	.0	.0	.0	.0	6.3	
White pine	4.3	5.0	6.9	9.4	6.1	3.5	3.8	3.1	2.4	.0	.0	.0	.0	44.5	
Hemlock	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.1	
Other softwoods	.1	.4	.4	.4	.4	.2	.0	.0	.0	.0	.0	.0	.0	2.0	
Total softwoods	5.7	8.5	8.7	12.1	7.4	4.5	3.8	3.1	2.4	.0	.0	.0	.0	56.3	
Red maple	11.8	20.3	16.9	16.3	8.8	5.0	5.1	.7	2.3	2.6	.0	.0	.0	89.9	
Sugar maple	.3	.0	.0	.6	.0	.0	.0	.0	.0	.0	.0	.0	.0	.9	
Yellow birch	.9	1.6	2.1	.7	.3	.4	.0	.0	.0	.0	.0	.0	.0	6.0	
Sweet birch	1.2	.6	1.1	1.1	.4	.3	.0	.0	.0	.0	.0	.0	.0	4.6	
Paper birch	.0	.3	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.3	
Hickory	1.4	1.9	1.5	1.1	.2	.3	.0	.0	.0	.0	.0	.0	.0	6.4	
Beech	.3	.4	1.1	.9	.3	1.1	1.1	.0	.0	.0	.0	.0	.0	5.2	
White ash	1.4	1.4	2.8	2.8	3.8	.8	1.3	1.5	.0	.0	.0	.0	.0	15.8	
Aspen	.0	1.0	.7	1.4	.3	.0	.0	.0	.0	.0	.0	.0	.0	3.4	
Black cherry	.3	.1	.3	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.7	
White oak	7.2	8.8	7.1	3.9	6.2	1.7	1.7	1.3	.5	.0	.0	.0	.0	38.5	
Northern red oak	8.2	12.1	9.6	10.3	9.4	5.9	2.5	1.7	5.4	1.2	.0	.0	.0	66.3	
Other red oaks	12.7	21.4	22.6	22.2	14.0	5.7	2.5	.9	2.4	.4	.0	.0	.0	104.8	
Elm	.1	.0	.4	.3	.0	.0	.0	.0	.0	.0	.0	.0	.0	.7	
Other hardwoods	1.0	.2	1.3	1.2	.0	.1	.6	.0	.0	.0	.0	.0	.0	4.3	
Total hardwoods	46.8	70.2	67.3	62.8	43.8	21.2	14.6	6.1	10.7	4.2	.0	.0	.0	347.7	
Total, all species	52.5	78.7	76.1	74.9	51.2	25.7	18.5	9.2	13.1	4.2	.0	.0	.0	404.0	

Net volume of growing-stock trees by species, Rhode Island, 1985

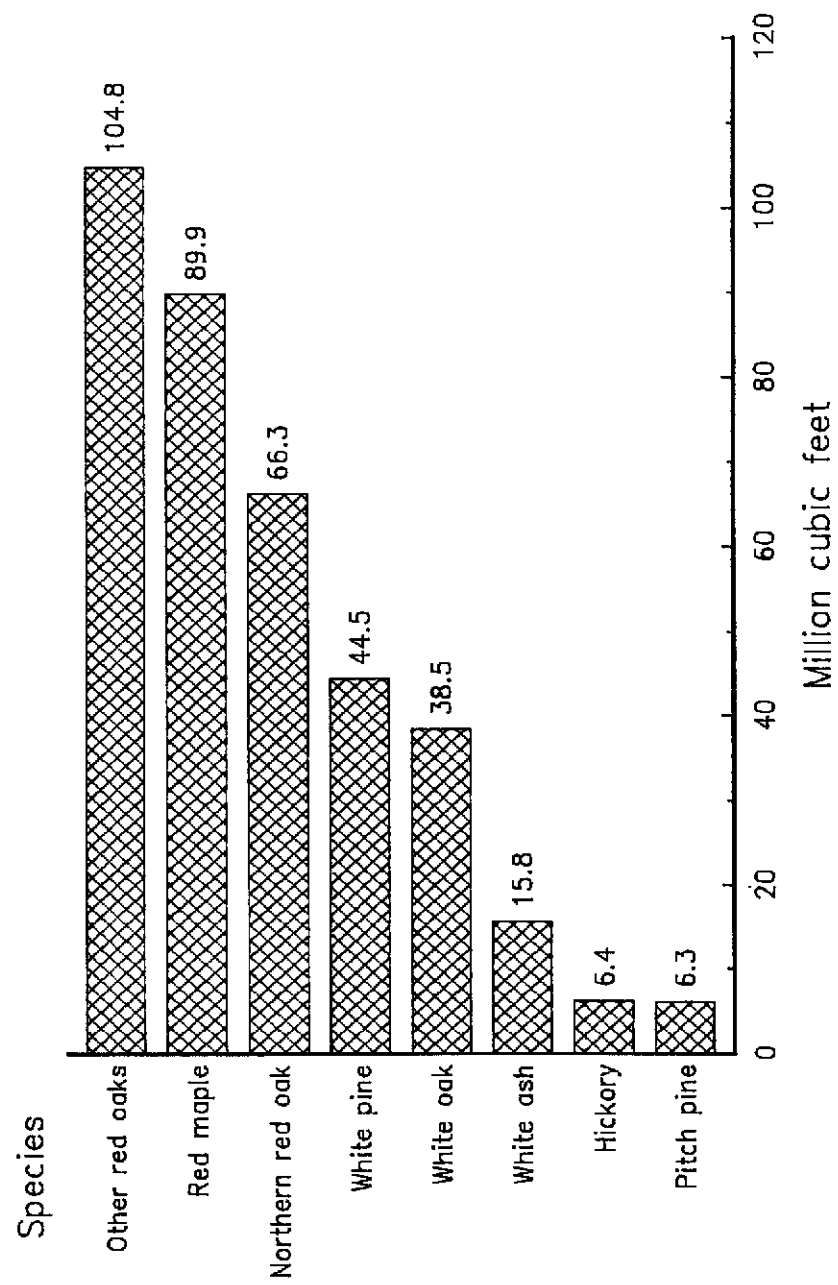


Table 40.--Net volume of growing stock in the sawlog portion^a of sawtimber trees on timberland by species and diameter class, Rhode Island, 1985

(In millions of cubic feet)

Species	Diameter class (inches at breast height)								All classes
	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+	
Red pine	.6	.8	.5	.0	.0	.0	.0	.0	2.0
Pitch pine	.5	1.2	.2	.7	.0	.0	.0	.0	2.7
White pine	5.8	8.2	5.5	3.2	3.5	2.9	2.2	.0	31.3
Hemlock	.0	.0	.0	.0	.0	.0	.0	.0	.0
Other softwoods	.4	.4	.4	.2	.0	.0	.0	.0	1.3
Total softwoods	7.3	10.6	6.6	4.1	3.5	2.9	2.2	.0	37.3
Red maple	-	0	7.1	4.2	4.3	.6	2.0	2.2	32.4
Sugar maple	-	.4	.0	.0	.0	.0	.0	.0	.4
Yellow birch	-	.5	.3	.3	.0	.0	.0	.0	1.1
Sweet birch	-	.8	.3	.2	.0	.0	.0	.0	1.4
Paper birch	-	.0	.0	.0	.0	.0	.0	.0	.0
Hickory	-	.8	.2	.2	.0	.0	.0	.0	1.2
Beech	-	.6	.3	.9	.9	.0	.0	.0	2.7
White ash	-	2.1	3.1	.7	1.1	1.3	.0	.0	8.2
Aspen	-	1.0	.3	.0	.0	.0	.0	.0	1.3
Black cherry	-	.0	.0	.0	.0	.0	.0	.0	.0
White oak	-	2.9	5.0	1.4	1.4	1.1	.5	.0	12.4
Northern red oak	-	7.6	7.6	5.0	2.1	1.5	4.6	1.0	29.3
Other red oaks	-	16.3	11.4	4.8	2.1	.7	2.1	.3	37.8
Elm	-	.2	.0	.0	.0	.0	.0	.0	.2
Other hardwoods	-	.9	.0	.1	.5	.0	.0	.0	1.5
Total hardwoods	-	46.2	35.5	17.8	12.4	5.2	9.1	3.5	129.8
Total, all species	7.3	56.8	42.1	21.9	16.0	8.1	11.3	3.5	167.0

^aThat part of the bole of sawtimber trees between the 1-foot stump and the sawlog top, including the portion of the forks large enough to contain a sawlog.

Table 41.--Net volume of sawtimber trees on timberland by species and diameter class,
Rhode Island, 1972

(In millions of board feet)^a

Species	Diameter class (inches at breast height)								All classes
	9.0- 10.9	11.0- 12.9	13.0- 14.9	15.0- 16.9	17.0- 18.9	19.0- 20.9	21.0- 28.9	29+	
Red pine	16.1	4.2	.0	.0	.0	.0	.0	.0	20.3
Pitch pine	8.7	6.1	1.5	1.6	1.7	.0	.0	.0	19.6
White pine	14.5	24.3	32.2	41.1	9.5	12.9	14.6	5.4	154.5
Hemlock	.0	.0	.0	.0	.0	1.5	.0	.0	1.5
Other softwoods	1.3	.0	1.5	.0	.0	.0	.0	.0	2.7
Total softwoods	40.5	34.6	35.2	42.7	11.2	14.4	14.6	5.4	198.6
Red maple	-	24.7	17.9	12.2	18.4	5.6	11.0	.0	89.8
Sugar maple	-	.0	.0	.0	.0	.0	.0	.0	.0
Yellow birch	-	3.6	2.3	1.8	5.0	.0	.0	.0	12.7
Sweet birch	-	.0	.0	.0	.0	.0	.0	.0	.0
Paper birch	-	.0	.0	.0	.0	.0	.0	.0	.0
Hickory	-	.0	2.2	.0	.0	3.4	.0	.0	5.6
Beech	-	.0	.0	.0	2.4	.0	.0	.0	2.4
White ash	-	.0	4.0	.0	.0	.0	.0	.0	4.0
Aspen	-	1.5	.0	1.2	.0	.0	.0	.0	2.8
Black cherry	-	4.5	.0	.0	.0	.0	.0	.0	4.5
White oak	-	28.1	32.8	7.5	9.1	.0	2.4	.0	79.9
Northern red oak	-	26.2	16.4	9.2	3.7	5.8	.0	.0	61.3
Other red oaks	-	63.3	31.2	17.1	14.4	8.8	13.8	6.5	155.1
Elm	-	.0	1.7	.0	.0	.0	.0	.0	1.7
Other hardwoods	-	3.3	5.4	.0	.0	.0	7.0	.0	15.8
Total hardwoods	-	155.4	113.9	49.0	53.0	23.7	34.2	6.5	435.6
Total, all species	40.5	190.0	149.1	91.8	64.2	38.0	48.8	11.9	634.3

^aInternational 1/4-inch rule.

Table 42.--Net volume of sawtimber trees on timberland by species and diameter class,
Rhode Island, 1985

Species	(In millions of board feet) ^a												All classes
	Diameter class (inches at breast height)												
	9.0- 10.9	11.0- 12.9	13.0- 14.9	15.0- 16.9	17.0- 18.9	19.0- 20.9	21.0- 22.9	23.0- 24.9	25.0- 26.9	27.0- 28.9	29.0- 30.9	31.0- 32.9	
Red pine	2.6	3.9	2.8	.0	.0	.0	.0	.0	.0	.0	.0	.0	9.2
Pitch pine	1.8	4.9	1.0	3.7	.0	.0	.0	.0	.0	.0	.0	.0	11.4
White pine	22.1	37.4	27.6	16.5	18.7	16.2	12.1	.0	.0	.0	.0	.0	150.6
Hemlock	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Other softwoods	1.0	1.3	1.3	.9	.0	.0	.0	.0	.0	.0	.0	.0	4.5
Total softwoods	27.5	47.5	32.7	21.1	18.7	16.2	12.1	.0	.0	.0	.0	.0	175.8
Red maple	-	58.9	37.0	22.2	20.0	3.2	12.8	13.6	.0	.0	.0	.0	167.7
Sugar maple	-	2.1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	2.1
Yellow birch	-	2.6	1.3	1.4	.0	.0	.0	.0	.0	.0	.0	.0	5.2
Sweet birch	-	4.8	1.5	1.2	.0	.0	.0	.0	.0	.0	.0	.0	7.6
Paper birch	-	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Hickory	-	4.6	1.1	1.5	.0	.0	.0	.0	.0	.0	.0	.0	7.1
Beech	-	3.2	1.4	5.3	5.6	.0	.0	.0	.0	.0	.0	.0	15.5
White ash	-	10.2	14.9	4.0	6.5	6.8	.0	.0	.0	.0	.0	.0	42.3
Aspen	-	5.1	1.4	.0	.0	.0	.0	.0	.0	.0	.0	.0	6.5
Black cherry	-	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
White oak	-	15.1	26.3	8.0	8.5	6.9	3.1	.0	.0	.0	.0	.0	68.0
Northern red oak	-	39.0	39.1	26.2	11.8	8.4	27.9	5.5	.0	.0	.0	.0	157.9
Other red oaks	-	81.7	58.3	26.0	11.8	4.2	12.2	2.3	.0	.0	.0	.0	196.4
Elm	-	1.1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	1.1
Other hardwoods	-	4.2	.0	.4	2.7	.0	.0	.0	.0	.0	.0	.0	7.2
Total hardwoods	-	232.6	182.1	96.4	66.8	29.4	55.9	21.4	.0	.0	.0	.0	684.6
Total, all species	27.5	280.1	214.9	117.4	85.6	45.6	68.0	21.4	.0	.0	.0	.0	860.5

^aInternational 1/4-inch rule.

^aInternational 1/4-inch rule.

Table 43.--Net volume of sawtimber trees on timberland by species, size class, and standard-lumber log grade, Rhode Island, 1972

(In millions of board feet)^a

Species	All size classes					>15" Diameter at breast height				
	Grade 1	Grade 2	Grade 3	Grade 4 ^b	All grades	Grade 1	Grade 2	Grade 3	Grade 4 ^b	All grades
Red pine	.0	.0	20.3	-	20.3	.0	.0	.0	-	.0
Pitch pine	.0	1.5	18.1	-	19.6	.0	.0	3.3	-	3.3
White pine	1.0	6.1	86.5	60.9	154.5	1.0	2.2	40.3	40.0	83.5
Hemlock ^c	1.5	-	-	-	1.5	1.5	-	-	-	1.5
Other softwoods	2.7	.0	.0	-	2.7	.0	.0	.0	-	.0
Total softwoods	5.2	7.6	125.0	60.9	198.6	2.5	2.2	43.7	40.0	88.4
Red maple	.0	4.2	56.6	29.0	89.8	.0	1.7	38.0	7.5	47.2
Sugar maple	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Yellow birch	2.0	2.2	7.9	.7	12.7	1.8	2.1	2.6	.3	6.8
Sweet birch	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Paper birch	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Hickory	1.5	1.9	1.3	.9	5.6	1.5	.6	.6	.7	3.4
Beech	.0	.0	2.1	.3	2.4	.0	.0	2.1	.3	2.4
White ash	.0	.0	3.2	.8	4.0	.0	.0	.0	.0	.0
Aspen	.0	.0	2.3	.4	2.8	.0	.0	1.0	.2	1.2
Black cherry	.0	.0	3.8	.7	4.5	.0	.0	.0	.0	.0
White oak	.0	10.1	46.1	23.8	79.9	.0	4.7	6.2	8.0	18.9
Northern red oak	2.4	3.6	44.7	10.7	61.3	2.4	2.2	10.3	3.8	18.7
Other red oaks	9.1	19.8	77.3	49.0	155.1	9.1	12.2	25.4	14.0	60.7
Elm	.0	.0	1.4	.3	1.7	.0	.0	.0	.0	.0
Other hardwoods	4.3	2.5	5.9	3.0	15.8	4.3	1.5	.9	.3	7.0
Total hardwoods	19.2	44.2	252.7	119.6	435.6	19.1	25.0	87.1	35.0	166.2
Percent of hardwood in each grade	4	10	58	28	100	12	15	52	21	100

^aInternational 1/4-inch rule.

^bGrade 4 applies only to white pine. For hardwoods, the volumes in this column are for construction logs.

^cThese species are not divided into standard-lumber grades.

Table 44.--Net volume of sawtimber trees on timberland by species, size class, and standard-lumber log grade, Rhode Island, 1985

(In millions of board feet)^a

	All size classes					>15" Diameter at breast height				
	Grade 1	Grade 2	Grade 3	Grade 4 ^b	All grades	Grade 1	Grade 2	Grade 3	Grade 4 ^b	All grades
Red pine	.0	3.4	5.9	-	9.2	.0	.0	.0	-	.0
Pitch pine	.0	1.9	9.5	-	11.4	.0	1.5	3.9	-	5.4
White pine	.0	42.6	76.7	31.3	150.6	.0	23.2	43.7	12.6	79.5
Hemlock ^c	.0	-	-	-	.0	.0	-	-	-	.0
Other softwoods	4.5	.0	.0	-	4.5	4.5	.0	.0	-	4.5
Total softwoods	4.5	47.9	92.1	31.3	175.8	4.5	24.7	47.6	12.6	89.4
Red maple	.0	9.2	101.8	56.7	167.7	.0	.0	37.1	21.3	58.4
Sugar maple	.0	.0	.1	2.0	2.1	.0	.0	.0	.0	.0
Yellow birch	.0	.0	5.2	.0	5.2	.0	.0	.0	.0	.0
Sweet birch	.2	.2	6.7	.5	7.6	.1	.1	2.3	.2	2.7
Paper birch	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Hickory	.0	.0	5.5	1.6	7.1	.0	.0	5.5	1.6	7.1
Beech	.1	.0	8.6	6.8	15.5	.0	.0	6.3	4.5	10.8
White ash	3.4	13.2	19.8	5.9	42.3	3.4	6.4	6.3	2.0	18.1
Aspen	.0	.0	5.5	1.0	6.5	.0	.0	.0	.0	.0
Black cherry	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
White oak	3.6	12.9	27.0	24.5	68.0	3.6	7.4	13.0	7.1	31.1
Northern red oak	26.8	34.4	80.1	16.6	157.9	26.8	21.5	25.9	8.4	82.6
Other red oaks	1.6	31.4	105.7	57.7	196.4	.0	10.2	26.7	12.8	49.7
Elm	.0	.0	.9	.2	1.1	.0	.0	.0	.0	.0
Other hardwoods	.0	.0	2.9	4.3	7.2	.0	.0	.1	3.8	3.9
Total hardwoods	35.7	101.3	369.9	177.8	684.6	33.9	45.6	123.2	61.7	264.4
Percent of hardwood in each grade	5	15	54	26	100	13	17	47	23	100

^aInternational 1/4-inch rule.

^bGrade 4 applies only to white pine. For hardwoods, the volumes in this column are for construction logs.

^cThese species are not divided into standard-lumber grades.

Table 45.--Average annual net change of growing-stock volume on timberland by species and component, Rhode Island, 1971-84

(In thousands of cubic feet)

Species	Ingrowth	Accretion	Gross growth	Mortality	Cull increment	Net growth	Removals	Net change
White pine	172	949	1,121	-173	-158	790	-857	-67
Other softwoods	12	12	24	-703	-387	-1,066	0	-1,066
Total softwoods	184	961	1,145	-876	-545	-276	-857	-1,133
Red maple	567	2,819	3,386	-200	-163	3,023	-689	2,334
Yellow birch	68	97	165	0	-23	142	-147	-5
Sweet birch	105	82	187	-12	-10	165	0	165
Hickory	136	269	405	-47	0	358	-139	219
Beech	384	0	384	0	0	384	0	384
White ash	368	769	1,137	-8	-1	1,128	0	1,128
Aspen	0	300	300	-127	-17	156	0	156
White oak	120	379	499	-739	-335	-575	-420	-995
Northern red oak	652	2,018	2,670	-77	-68	2,525	-1,080	1,445
Other red oaks	622	2,978	3,600	-355	-91	3,154	-820	2,334
Other hardwoods	3	8	11	-777	0	-766	-46	-812
Total hardwoods	3,025	9,719	12,744	-2,342	-708	9,694	-3,341	6,353
Total, all species	3,209	10,680	13,889	-3,218	-1,253	9,418	-4,198	5,220

Table 46.--Average annual net growth and average annual removals of growing-stock volume on timberland by species, Rhode Island, 1971-84

(In thousands of cubic feet)

Species	Net growth	Removals
White pine	790	-857
Other softwoods	-1,066	0
Total softwoods	-276	-857
Red maple	3,023	-689
Yellow birch	142	-147
Sweet birch	165	0
Hickory	358	-139
Beech	384	0
White ash	1,128	0
Aspen	156	0
White oak	-575	-420
Northern red oak	2,525	-1,080
Other red oaks	3,154	-820
Other hardwoods	-766	-46
Total hardwoods	9,694	-3,341
Total, all species	9,418	-4,198

Table 47.--Average annual net growth and average annual removals of sawtimber volume on timberland by species, Rhode Island, 1971-84

(In thousands of board feet)^a

Species	Net growth	Removals
White pine	3,218	-3,530
Other softwoods	-1,532	0
Total softwoods	1,686	-3,530
Red maple	6,739	-438
Sweet birch	612	0
Hickory	312	-195
Aspen	303	0
White oak	167	-1,136
Northern red oak	10,589	-2,777
Other red oaks	5,309	-1,973
Other hardwoods	2,984	-363
Total hardwoods	27,015	-6,883
Total, all species	28,701	-10,413

^aInternational 1/4-inch rule.

Table 48.--Average annual mortality of growing-stock and sawtimber volume on timberland by species, Rhode Island, 1971-84

Species	Growing stock	Sawtimber
	Thousand cubic feet	Thousand board feet ^b
White pine	-173	-680
Other softwoods	-703	-1,619
Total softwoods	-876	-2,299
Red maple	-200	-407
Yellow birch	0	a
Sweet birch	-12	0
Hickory	-47	0
Beech	0	a
White ash	-8	a
Aspen	-127	0
White oak	-739	-326
Northern red oak	-77	0
Other red oaks	-355	-1,411
Other hardwoods	-777	-47
Total hardwoods	-2,342	-2,191
Total, all species	-3,218	-4,490

a Included in Other hardwoods

^bInternational 1/4-inch rule.

Table 49.--Average annual net growth and average annual removals of growing-stock volume on timberland by ownership class and species group, Rhode Island, 1971-84

(In thousands of cubic feet)

Ownership class	Growth			Removals		
	Softwoods	Hardwoods	All groups	Softwoods	Hardwoods	All groups
Public	-148	1,726	1,578	0	-561	-561
Private	-128	7,968	7,840	-857	-2,780	-3,637
Total, all classes	-276	9,694	9,418	-857	-3,341	-4,198

Table 50.--Average annual net growth and average annual removals of sawtimber volume on timberland by ownership class and species group, Rhode Island, 1971-84.

(In thousands of board feet)^a

Ownership class	Growth			Removals		
	Softwoods	Hardwoods	All groups	Softwoods	Hardwoods	All groups
Public	0	4,540	4,540	0	0	0
Private	1,686	22,475	24,161	-3,530	-6,883	-10,413
Total, all classes	1,686	27,015	28,701	-3,530	-6,883	-10,413

^aInternational 1/4-inch rule.

Table 51.--Output^a of timber products by product, softwoods and hardwoods, and source of material, Rhode Island, 1984

(In standard units and thousands of cubic feet)

Product and species group	Standard Units ^b	Output from roundwood		Output from mill residues		Total output	
		Number of units	Thousand cubic feet	Number of units	Thousand cubic feet	Number of units	Thousand cubic feet
Sawlogs							
Softwood	M board feet	2,354	360	0	0	2,354	360
Hardwood	M board feet	4,290	679	0	0	4,290	679
Total	M board feet	6,644	1,039	0	0	6,644	1,039
Veneer							
Softwood	M board feet	0	0	0	0	0	0
Hardwood	M board feet	50	8	0	0	50	8
Total	M board feet	50	8	0	0	50	8
Pulpwood ^c							
Softwood	Standard cords	0	0	12	1	12	1
Hardwood	Standard cords	0	0	188	16	188	16
Total	Standard cords	0	0	200	17	200	17
Other products ^d							
Softwood	M board feet	0	0	0	0	0	0
Hardwood	M board feet	81	13	0	0	81	13
Total	M board feet	81	13	0	0	81	13
ALL INDUSTRIAL							
Softwood			360		1		361
Hardwood			700		16		716
Total			1,060		17		1,077
Fuelwood ^e							
Softwood	Standard cords	807	65	47	4	854	68
Hardwood	Standard cords	93,547	7,484	267	21	93,814	7,505
Total	Standard cords	94,354	7,548	314	25	94,668	7,573
ALL PRODUCTS ^f							
Softwood			425		5		429
Hardwood			8,184		37		8,221
Total			8,609		42		8,650

^aThe volume of wood received at manufacturing plants that used roundwood products.

^bBoard feet is expressed on the International 1/4-inch rule basis and standard cords is expressed on a rough wood basis (includes both roundwood and chips).

^cA standard cord of pulpwood is equivalent to 85 cubic feet of solid wood.

^dIncludes pallet stock.

^eA standard cord of fuelwood is equivalent to 80 cubic feet of solid wood.

^fDoes not include 96,000 cubic feet of softwood and 265,000 cubic feet of hardwood residues used for agricultural bedding.

Table 52.--Output of roundwood products by product, softwoods and hardwoods, and source of material^a, Rhode Island, 1984

(In thousands of cubic feet)

Product and species group	Growing-stock trees			Rough and rotten	Salvable dead trees	Other sources	All sources
	Poletimber	Sawtimber	Total				
Sawlogs							
Softwood	0	285	285	41	2	32	360
Hardwood	1	564	565	54	7	53	679
Total	1	849	850	95	9	85	1,039
Veneer							
Softwood	0	0	0	0	0	0	0
Hardwood	0	7	7	0	0	1	8
Total	0	7	7	0	0	1	8
Pulpwood							
Softwood	0	0	0	0	0	0	0
Hardwood	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0
Other products							
Softwood	0	0	0	0	0	0	0
Hardwood	0	12	12	1	0	0	13
Total	0	12	12	1	0	0	13
ALL INDUSTRIAL							
Softwood	0	285	285	41	2	32	360
Hardwood	1	583	584	55	7	54	700
Total	1	868	869	96	9	86	1,060
Fuelwood							
Softwood	0	6	6	17	19	23	65
Hardwood	86	543	629	1,979	2,188	2,688	7,484
Total	86	549	635	1,996	2,207	2,711	7,549
ALL PRODUCTS							
Softwood	0	291	291	58	21	55	425
Hardwood	87	1,126	1,213	2,034	2,195	2,742	8,184
Total	87	1,417	1,504	2,092	2,216	2,797	8,609

^aGrowing-stock trees, rough or rotten cull trees, and salvable dead trees are from timberland only. Other sources include trees less than 5.0 inches in diameter at breast height and tree tops and limbs from timberland, as well as any material from nontimberland or non-forest land such as fencerows, pastureland, and urban areas.

Output of roundwood products by source of material, Rhode Island, 1984

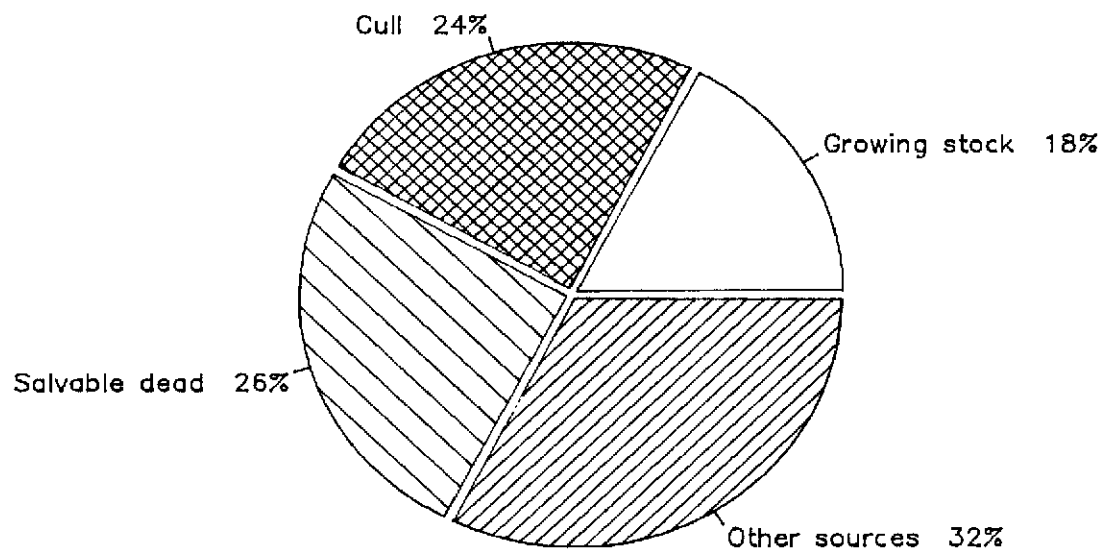


Table 53.--Timber removals from growing stock and sawtimber on timberland by component^a and softwoods and hardwoods, Rhode Island, 1984

Component of timber removals	Growing stock			Sawtimber		
	Softwoods	Hardwoods	All species	Softwoods	Hardwoods	All species
	-----Thousand cubic feet-----			-----Thousand board feet ^b -----		
Roundwood products:						
Sawlogs	285	565	850	1,862	3,563	5,425
Veneer	0	7	7	0	44	44
Pulpwood	0	0	0	0	0	0
Other products	0	12	12	0	75	75
Fuelwood	6	629	635	38	2,317	2,355
All products	291	1,213	1,504	1,900	5,999	7,899
Logging residues	19	65	84	122	410	532
Withdrawals	89	305	394	245	748	992
Total removals	399	1,583	1,982	2,267	7,157	9,423

^aLogging residue does not include material from tree tops and limbs. Land use change includes land sufficiently productive to be classified as timberland, but withdrawn from production through administrative designation, such as for wilderness or parks.

^bInternational 1/4-inch rule.

Table 54.--Volume of unused residues from primary manufacturing plants by softwoods and hardwoods, type of residue, and industry, Rhode Island, 1984

(In thousands of cubic feet)

Species group and type of residue	Lumber	Veneer	Other industries	All industries
Softwoods				
Coarse ^a	3	0	0	3
Fine ^b	3	0	0	3
Total	6	0	0	6
Hardwoods				
Coarse	2	0	0	2
Fine	0	0	0	0
Total	2	0	0	2
All species				
Coarse	5	0	0	5
Fine	3	0	0	3
Total	8	0	0	8

^aIncludes slabs, edgings, trimmings, veneer cores, and other material suitable for chipping.

^bIncludes sawdust, shavings, and other materials considered unsuitable for chipping.

Table 55.--Change in area of timberland between inventories by stand-size class, Rhode Island, 1972-85

(In thousands of acres)

Stand-size class	1972	1985	Change	Change
				Percent
Sawtimber	107.2	167.5	60.3	56
Poletimber	171.1	183.1	12.0	7
Sapling and seedling	119.3	21.1	-98.2	-82
Nonstocked	.0	.0	.0	0
All classes	397.6	371.7	-25.9	-7

Table 56.--Change in volume between inventories, Rhode Island, 1972-85

Species group	Growing-stock			
	1972	1985	Change	Change
	--- Millions of cubic feet ---			Percent
Softwoods	70.3	56.3	-14.0	-20
Hardwoods	269.2	347.7	78.5	29
Total, all groups	339.5	404.0	64.5	19

	Sawtimber			
	1972	1985	Change	Change
	--- Millions of board feet ^a ---			Percent
Softwoods	198.6	175.8	-22.8	-11
Hardwoods	435.6	684.6	249.0	57
Total, all groups	634.3	860.5	226.2	36

^aInternational 1/4-inch rule.

Area of timberland by stand-size class,
Rhode Island, 1972 and 1985

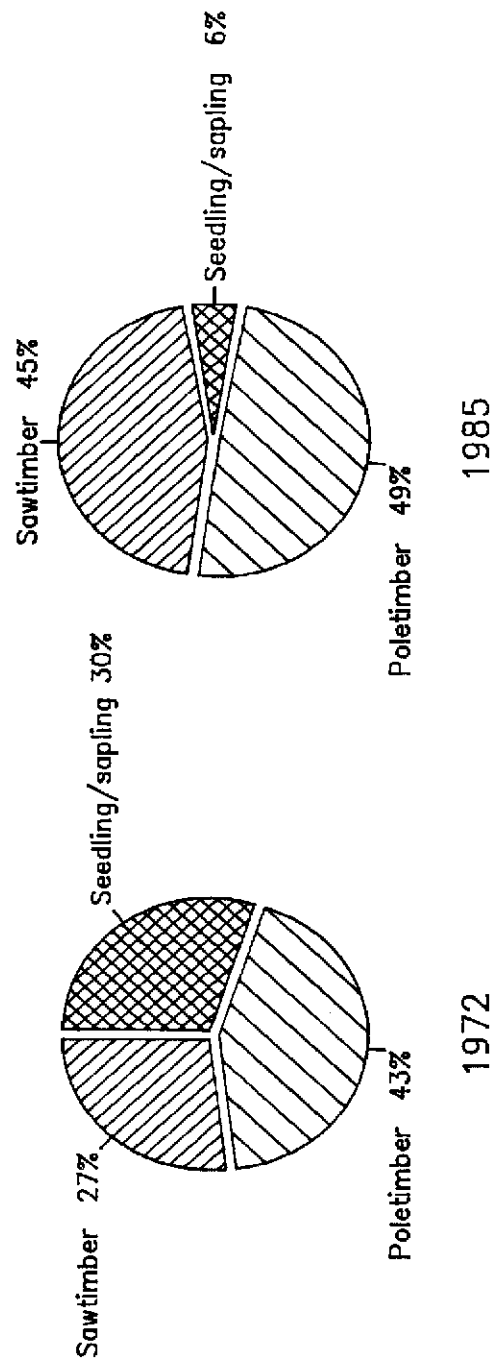


Table 57.--Sampling errors for estimates in various state-level tables,
Rhode Island, 1972 and 1985

(In percent)

Area by forest-type group (Table 3)	Stand-size class				All classes
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked	
White/red pine	46	71	-	-	39
Hard pine	99	73	-	-	59
Oak/pine	46	70	-	-	38
Oak/hickory	17	12	46	-	7
Elm/ash/red maple	46	71	-	-	39
Northern hardwoods	46	71	-	-	37
Aspen/birch	-	-	71	-	71
All groups	11.1	10.4	37.9	-	2.4

Species and diameter class	Number of trees		Growing-stock volume		Sawtimber volume	
	(Table 19)		(Table 38 Table 39)		(Table 41 Table 42)	
	(1"+)	(5"+)				
Red pine	96	96	76	96	70	94
Pitch pine	47	54	45	55	50	53
White pine	35	22	30	29	30	33
Hemlock	69	100	71	100	96	-
Other softwoods	56	71	71	74	101	83
Softwoods	25	20	27	26	26	31
Red maple	19	15	24	16	33	23
Sugar maple	75	75	100	66	-	72
Yellow birch	47	35	54	30	87	57
Sweet birch	46	34	72	38	-	58
Paper birch	100	100	101	100	-	-
Hickory	40	30	53	36	97	44
Beech	58	64	100	72	99	83
White ash	34	34	64	48	73	59
Aspen	52	52	78	52	74	62
Black cherry	68	74	73	65	73	-
White oak	14	14	20	13	26	23
Northern red oak	19	15	20	14	38	17
Other red oaks	19	13	15	12	21	16
Elm	82	82	71	73	101	100
Other hardwoods	44	59	51	40	51	50
Hardwoods	9	7	9	7	15	10
Total, all species	8.5	6.1	5.2	6.6	9.5	9.9
D.b.h. class (inches)						
1.0 to 2.9	14		-	-	-	-
3.0 to 4.9	21		-	-	-	-
5.0 to 6.9	9		13	9	-	-
7.0 to 8.9	9		11	9	-	-
9.0 to 10.9	8		10	9	35	23
11.0 to 12.9	10		12	10	14	11
13.0 to 14.9	11		12	11	14	11
15.0 to 16.9	16		18	17	18	17
17.0 to 18.9	19		20	19	20	19
19.0 to 20.9	29		35	29	32	29
21.0 to 28.9	25		26	25	24	25
29 +	66		73	70	71	70

COUNTY TABLES



Table 58.--Land area by county and land class, Rhode Island, 1985

(In thousands of acres)

County	Forest land area				Total forest	Non-forest	Total land area
	Timberland	Productive reserved	Urban forest	Unproductive			
Kent	66.1	6.1	.0	.3	72.5	37.6	110.1
Providence	150.5	1.6	4.2	1.5	157.9	108.4	266.3
Bristol/Newport/ Washington	155.2	.7	.0	18.6	174.5	124.1	298.6
Total	371.7	8.4	4.2	20.5	404.8	270.3	675.1

Table 59.--Area of timberland by ownership class and county, Rhode Island, 1985

(In thousands of acres)

Ownership class	County			
	Kent	Providence	Bristol/Newport/ Washington	All counties
National Forest	.0	.0	.0	.0
Other federal	.3	.0	.3	.6
State	8.3	8.9	17.0	34.2
County and municipal	.0	10.4	.0	10.4
Total public	8.6	19.3	17.3	45.2
Forest industry	.0	1.8	2.6	4.4
Farmer	2.7	14.2	12.9	29.8
Miscellaneous private:				
Individual	43.0	101.0	87.8	231.8
Corporate	.0	7.1	19.1	26.2
Other	11.8	7.1	15.5	34.4
Total private	57.5	131.2	137.9	326.6
All ownerships	66.1	150.5	155.2	371.7

Table 60.--Area of timberland by county and forest-type group, Rhode Island, 1985

(In thousands of acres)

County	Forest-type group							All groups
	White/ red pine	Hard pine	Oak/ pine	Oak/ hickory	Elm/ash/ red maple	Northern hardwoods	Aspen/ birch	
Kent	3.0	5.9	9.6	33.3	5.6	8.7	.0	66.1
Providence	2.4	.0	11.0	121.0	4.2	5.6	6.2	150.5
Bristol/Newport/ Washington	11.5	6.6	8.9	101.8	13.1	13.2	.0	155.2
Total, all counties	17.0	12.5	29.5	256.1	23.0	27.4	6.2	371.7

Table 61.--Area of timberland by county and stand-size class, Rhode Island, 1985

(In thousands of acres)

County	Stand-size class				All classes
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked	
Kent	29.8	33.2	3.0	.0	66.1
Providence	52.4	80.0	18.1	.0	150.5
Bristol/Newport/ Washington	85.3	69.9	.0	.0	155.2
Total, all counties	167.5	183.1	21.1	.0	371.7

Table 62.--Area of timberland by county and cubic-foot stand-volume class, Rhode Island, 1985

(In thousands of acres)

County	Stand-volume class (cubic feet per acre)						All classes
	0- 499	500- 999	1000- 1499	1500- 1999	2000- 2499	2500+	
Kent	15.6	16.3	13.8	3.0	8.7	8.7	66.1
Providence	13.3	34.8	45.3	29.8	13.9	13.2	150.5
Bristol/Newport/ Washington	9.4	61.8	56.9	17.4	7.4	2.2	155.2
Total, all counties	38.4	112.9	116.0	50.3	29.9	24.1	371.7

Table 63.--Area of timberland by county and green ton stand-volume class, Rhode Island, 1985

(In thousands of acres)

County	Stand-volume class (green tons per acre)				All classes
	0-49	50-99	100-149	150+	
Kent	35.7	14.1	6.6	9.7	66.1
Providence	33.5	75.9	41.2	.0	150.5
Bristol/Newport/ Washington	22.3	124.2	8.7	.0	155.2
Total, all counties	91.5	214.1	56.5	9.7	371.7

Table 64.--Area of timberland by county and stocking class of growing-stock trees, Rhode Island, 1985

(In thousands of acres)

County	Stocking class					All classes
	Nonstocked	Poorly stocked	Moderately stocked	Fully stocked	Over-stocked	
Kent	.0	3.7	17.6	32.7	12.2	66.1
Providence	.0	2.9	39.8	76.2	31.5	150.5
Bristol/Newport/ Washington	.0	26.9	58.7	43.4	26.1	155.2
Total, all counties	.0	33.5	116.1	152.3	69.8	371.7

Table 65.--Area of timberland by county and productivity class, Rhode Island, 1985

(In thousands of acres)

County	Productivity class (cubic feet/acre/year)				All classes
	Very good (120+)	Good (85-119)	Fair (50-84)	Poor (20-49)	
Kent	.0	6.7	16.1	43.3	66.1
Providence	1.8	11.3	41.3	96.1	150.5
Bristol/Newport/ Washington	2.2	6.6	26.8	119.5	155.2
Total, all counties	4.0	24.6	84.2	258.8	371.7

Table 66.--Net volume of growing-stock trees on timberland by county and forest-type group, Rhode Island, 1985

(In millions of cubic feet)

County	Forest-type group							All groups
	White/red pine	Hard pine	Oak/pine	Oak/hickory	Elm/ash/red maple	Northern hardwoods	Aspen/birch	
Kent	8.5	5.7	3.2	26.0	8.3	14.7	.0	66.4
Providence	3.9	.0	16.5	150.3	10.6	6.8	.7	88.7
Bristol/Newport/Washington	21.1	3.1	8.6	92.1	10.1	13.9	.0	48.9
Total, all counties	33.4	8.8	28.4	268.3	29.0	35.4	.7	404.0

Table 67.--Net volume of growing-stock trees on timberland by county and stand-size class, Rhode Island, 1985

(In millions of cubic feet)

County	Stand-size class				All classes
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked	
Kent	41.9	24.0	.5	.0	66.4
Providence	92.1	90.0	6.6	.0	188.7
Bristol/Newport/Washington	93.4	55.5	.0	.0	148.9
Total, all counties	227.4	169.5	7.1	.0	404.0

Table 68.--Net volume of growing-stock trees on timberland by species
and county, Rhode Island, 1985

(In millions of cubic feet)

Species	County			All Counties
	Kent	Providence	Bristol/Newport/ Washington	
Red pine	3.2	.1	.0	3.4
Pitch pine	3.7	.0	2.6	6.3
White pine	8.0	13.8	22.7	44.5
Hemlock	.0	.1	.0	.1
Other softwoods	.0	.2	1.9	2.0
Total softwoods	15.0	14.2	27.1	56.3
Soft maples	13.4	42.2	34.2	89.9
Sugar maple	.0	.4	.5	.9
Yellow birch	.7	4.0	1.3	6.0
Sweet birch	2.0	1.2	1.4	4.6
Paper birch	.0	.3	.0	.3
Hickory	1.1	4.2	1.1	6.4
Beech	3.4	.0	1.8	5.2
White ash	1.2	11.7	2.8	15.8
Aspen	.0	2.4	1.0	3.4
Black cherry	.0	.4	.3	.7
White oak	5.3	15.3	17.9	38.5
Northern red oak	11.3	45.0	10.0	66.3
Other red oaks	13.0	45.9	46.0	104.8
Elm	.0	.7	.0	.7
Other hardwoods	.0	.9	3.4	4.3
Total hardwoods	51.4	174.6	121.7	347.7
Total, all species	66.4	188.7	148.9	404.0

Table 69.--Net volume of growing-stock and sawtimber trees on timberland by county and species group, Rhode Island, 1985

County	Growing stock			Sawtimber		
	Softwoods	Hardwoods	All groups	Softwoods	Hardwoods	All groups
	-----Million cubic feet-----			-----Million board feet ^a -----		
Kent	15.0	51.4	66.4	41.2	126.0	167.3
Providence	14.2	174.6	188.7	41.7	326.1	367.8
Bristol/Newport/ Washington	27.1	121.7	148.9	92.9	232.5	325.4
Total, all counties	56.3	347.7	404.0	175.8	684.6	860.5

^aInternational 1/4-inch rule.

Table 70.--Net volume of sawtimber trees on timberland by county and forest-type group, Rhode Island, 1985

(In millions of board feet)^a

County	Forest-type group							All groups
	White/ red pine	Hard pine	Oak/ pine	Oak/ hickory	Elm/ash/ red maple	Northern hardwoods	Aspen/ birch	
Kent	26.1	9.5	7.0	46.9	23.8	54.0	.0	167.3
Providence	7.6	.0	43.7	279.2	23.0	13.6	.6	367.8
Bristol/Newport/ Washington	73.1	5.6	15.6	187.1	18.7	25.3	.0	325.4
Total, all counties	106.7	15.1	66.3	513.3	65.5	92.9	.6	860.5

^aInternational 1/4-inch rule.

Table 71.--Net volume of sawtimber trees on timberland by county and stand-size class, Rhode Island, 1985

(In millions of board feet)^a

County	Stand-size class				All classes
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked	
Kent	134.4	31.2	1.7	.0	167.3
Providence	259.1	95.9	12.8	.0	367.8
Bristol/Newport/ Washington	272.3	53.1	.0	.0	325.4
Total, all counties	665.8	180.2	14.4	.0	860.5

^aInternational 1/4-inch rule.

Table 72.--Net volume of sawtimber trees on timberland by species
and county, Rhode Island, 1985

(In millions of board feet)^a

Species	County			All counties
	Kent	Providence	Bristol/Newport/ Washington	
Red pine	8.6	.6	.0	9.2
Pitch pine	6.1	.0	5.3	11.4
White pine	26.4	41.1	83.1	150.6
Hemlock	.0	.0	.0	.0
Other softwoods	.0	.0	4.5	4.5
Total softwoods	41.2	41.7	92.9	175.8
Red maple	43.8	71.7	52.1	167.7
Sugar maple	.0	.8	1.3	2.1
Yellow birch	2.7	2.0	.6	5.2
Sweet birch	5.8	1.2	.5	7.6
Paper birch	.0	.0	.0	.0
Hickory	1.5	5.6	.0	7.1
Beech	12.5	.0	3.0	15.5
White ash	2.5	37.0	2.8	42.3
Aspen	.0	5.1	1.4	6.5
Black cherry	.0	.0	.0	.0
White oak	9.2	24.3	34.5	68.0
Northern red oak	34.2	98.6	25.0	157.9
Other red oaks	13.8	77.6	105.0	196.4
Elm	.0	1.1	.0	1.1
Other hardwoods	.0	1.0	6.3	7.2
Total hardwoods	126.0	326.1	232.5	684.6
Total, all species	167.3	367.8	325.4	860.5

^aInternational 1/4-inch rule.

Table 73.--Number of all live nut- and fruit-producing trees on
timberland by species and county, Rhode Island, 1985

(In thousands of trees)

Species	County			All counties
	Kent	Providence	Bristol/Newport/ Washington	
Eastern redcedar	.0	.0	22.2	22.2
Hickory	18.4	195.9	543.0	757.2
Dogwood	.0	.0	108.6	108.6
Beech	509.8	.0	439.1	948.9
Blackgum	.0	.0	198.6	198.6
Black cherry	.0	107.5	642.7	750.2
White oak	1,261.6	2,302.0	3,463.3	7,027.0
Scarlet oak	1,736.6	2,073.9	4,549.0	8,359.4
Pin oak	84.2	.0	.0	84.2
Northern red oak	1,311.6	6,308.7	993.5	8,613.8
Black oak	1,139.6	4,161.9	1,302.5	6,604.0
Sassafras	.0	152.7	162.9	315.6
Total, all species	6,061.7	15,302.6	12,425.4	33,789.7

Table 74.--Number of seedlings, saplings, and shrubs with observed browse and percent
of total on timberland by species and county, Rhode Island, 1985

(In thousands of stems)

Species	County						Total browsed
	Kent		Providence		Bristol/Newport/ Washington		
	<u>Number browsed</u>	<u>Percent of total</u>	<u>Number browsed</u>	<u>Percent of total</u>	<u>Number browsed</u>	<u>Percent of total</u>	
Red maple	.0	0	2,730.7	3	.0	0	2,730.7
Flowering dogwood	.0	0	.0	0	3,165.4	22	3,165.4
White ash	.0	0	9,394.6	26	.0	0	9,394.6
Pin cherry	4,906.7	100	.0	0	.0	0	4,906.7
Black cherry	.0	0	2,442.6	3	.0	0	2,442.6
Total trees	4,906.7		14,567.8		3,165.4		22,640.0
Spirea species	.0	0	1,365.3	1	.0	0	1,365.3
Blueberry species	17,254.5	2	.0	0	7,083.5	1	24,338.0
Total deciduous shrubs	17,254.5		1,365.3		7,083.5		25,703.3
All species	22,161.2		15,933.2		10,248.9		48,343.3

Table 75.--Number of standing dead trees (5.0+ inches d.b.h.) on timberland by species and county, Rhode Island, 1985

(In thousands of trees)

Species	County			All counties
	Kent	Providence	Bristol/Newport/ Washington	
Red pine	86.9	.0	.0	86.9
Pitch pine	590.0	.0	.0	590.0
White pine	.0	.0	124.8	124.8
Other softwoods	.0	.0	366.9	366.9
Total softwoods	676.9	.0	491.8	1,168.7
Red maple	.0	363.9	146.3	510.2
Sweet birch	.0	.0	54.3	54.3
Hickory	.0	.0	54.3	54.3
White ash	.0	106.0	131.0	237.0
Black cherry	.0	53.0	.0	53.0
White oak	217.4	834.9	1,172.6	2,224.8
Northern red oak	254.0	1,011.7	116.8	1,382.5
Other red oaks	117.1	317.1	229.0	663.2
Elm	.0	195.5	.0	195.5
Other commercial hardwoods	.0	232.2	.0	232.2
Noncommercial hardwoods	.0	124.5	54.3	178.8
Total hardwoods	588.4	3,238.9	1,958.7	5,785.9
Total, all species	1,265.3	3,238.9	2,450.4	6,954.6

Table 76.--Index to land-use edge by type of land use and county, Rhode Island, 1985

(Edge hits^a per thousand acres)

Land-use edge type	County			All counties
	Kent	Providence	Bristol/Newport/ Washington	
Forest -				
forest	8.8	7.0	10.0	8.6
shrub	2.6	1.8	2.4	2.2
agricultural/ herbaceous	1.5	3.2	6.0	4.1
cultural	10.9	11.7	8.2	10.1
Shrub -				
agricultural/ herbaceous	.2	.6	.8	.6
cultural	.6	.7	.5	.6
Agricultural/herbaceous - cultural	.8	.8	2.0	1.3
Hedgerow	.4	.5	3.1	1.6
Transportation right-of-way	17.6	10.8	15.0	13.8
Utility right-of-way	.9	2.9	.7	1.6
Aquatic	11.6	8.8	13.2	11.2
All types	55.9	48.7	61.8	55.6
Number of edge plots	16	38	41	95
Number of edge hits	501	1,036	1,418	2,955

^aEdge condition on an aerial photograph sampled by a line transect (Brooks and Sykes 1984).

Table 77.--Sampling errors for various county-level estimates,
Rhode Island, 1985

(In percent)

County	Timberland area	Growing-stock volume	Sawtimber volume
Kent	2.6	18.9	24.8
Providence	3.2	9.6	14.2
Bristol/Newport/ Washington	4.8	9.9	16.5
Total	2.4	6.6	9.9

APPENDIX

Literature Cited

- Brooks, Robert T.; Sykes, Karen J. 1984. Sampling land use edge from aerial photographs--line transect vs. circular patterns. Res. Note NE-321. Broomall, PA: U.S. Department of Agriculture, Forest Service, Northeastern Forest Experiment Station. 6 p.
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- Scott, Charles T. 1979. Northeastern forest survey board-foot volume equations. Res. Note NE-271. Broomall, PA: U.S. Department of Agriculture, Forest Service, Northeastern Forest Experiment Station. 3 p.
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Appendix

Definition 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. It does not include the growth on trees that were cut during the period, nor those trees that died.

Agricultural/herbaceous land. Land with herbaceous plant cover, both grasses and/or forbs, including cropland, pasture land, and natural grass lands.

Aquatic edge. An edge condition created when a terrestrial land use abuts a lake, pond, river, stream, or major wetland.

Basal area class. A classification of forest land in terms of 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.

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

Bog/Marsh/Swamp. Land that has less than 10 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 salty or brackish water during high tides.

Browse. Forage resource; defined here as current twig growth of woody-stemmed plants occurring between 1 and 8 feet in height.

Browse-utilization class. Four levels of browse use; none, light (1-10 percent available), moderate (11-40), and heavy (greater than 40 percent).

Cabin log. A relatively slender roundwood product that is cut to standard sizes; meets specifications of strength, straightness, and soundness; and is finished for use in constructing cabins, barns, and other buildings.

Cavity. A hollowed out space in a tree, either natural or faunal caused; frequently used as a nesting site or temporary refuge by many species of wildlife.

Coarse residues. Manufacturing residues suitable for chipping, such as slabs, edgings, and veneer cores.

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

Condition class. Classification of trees based on live or dead and condition of top of the tree (i.e. intact, broken, dead).

Cord. See Standard cord.

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.

Cubic-foot stand-volume class. A classification of forest land in terms of net cubic-foot volume of all live trees per acre.

Cull tree. A rough tree or a rotten tree.

Cull increment. The net volume of growing-stock trees on the previous inventory that became rough or rotten trees in the current inventory, divided by the number of growing seasons between surveys.

Cultural land. Land with human development as the major land cover; includes industrial, commercial, and residential land uses.

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

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.

Fine residues. Manufacturing residues not suitable for chipping, such as sawdust and shavings.

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 1 acre.

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

Forest-type group. A combination of forest types that share closely associated species or site requirements. The many forest types in Rhode Island were combined into the following major forest-type groups (the descriptions apply to forests in Rhode Island):

a. White/red pine--forests in which white pine, hemlock, or red pine make up the plurality of the stocking, singly or in combination; common associates include sugar maple, red maple, red spruce, balsam fir, and paper birch.

b. Hard pine--forests in which eastern redcedar or pitch pine, singly or in combination comprise a plurality of the stocking; common associates include oaks, gray birch, red maple, and blackgum.

c. Oak/pine--forests in which northern red oak or white ash, singly or in combination, make up a plurality of the stocking but where white pine contributes 25 to 50 percent of the stocking; beech, red spruce, and sugar maple are associates.

d. Oak/hickory--forests in which upland oaks, red maple (when associated with central hardwoods), or hawthorn, singly or in combination, make up a plurality of the stocking and in which white pine makes up less than 25 percent of the stocking; common associates include white pine, paper birch, red spruce, beech, hemlock, sugar maple, and red maple.

e. Elm/ash/red maple--forests in which black ash, elm, red maple (when growing on wet sites), willow, or green ash, singly or in combination, make up a plurality of the stocking; common associates include balsam fir, red maple, aspen, and white ash.

f. Northern hardwoods--forests in which sugar maple, beech, yellow birch, red maple (when associated with northern hardwoods), pin cherry, or black cherry, singly or in combination, make up a plurality of the stocking; common associates include balsam fir, red spruce, paper birch, hemlock, white ash, aspen, and basswood.

g. 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 balsam fir, red maple, red spruce, white ash, and white pine.

Fuelwood. Round, split, or chipped woody material (with or without bark) that is converted to household, commercial, or industrial energy.

Geographic unit. A county or a group of counties within a state that is large enough to provide an adequate sample that will yield statistically reliable estimates of timberland area, volume, and components of change.

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

Green ton stand-volume class. A classification of forest land in terms of net green weight of the aboveground components of all live trees per unit area. It is usually expressed in green tons per acre.

Green weight. The weight of wood and bark as it would be if it had been recently cut. It is usually expressed in pounds or tons.

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.

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

Harvested cropland. All land from which crops were harvested or hay was cut and all land in orchards, citrus groves, vineyards, and nursery and greenhouse products.

Idle farmland. Former cropland or pasture that has not been tended within the last 2 years and that 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).

Indian lands. (a) Lands held in trust by the United States or States for Indian tribes or individual Indians. (b) Lands owned in fee by Indian tribes whether subject to Federal or State restrictions against alienation or not.

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

Industrial products. All roundwood products except fuelwood.

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.

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 1/8 statute mile wide; and lakes, reservoirs, and ponds less than 40 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 edge. A condition created by the juxtaposition of two differing land uses.

Logging residues. The unused portions of growing-stock trees harvested or killed in the process of logging.

Manufacturing plant residues. Wood materials that are generated when round timber (roundwood) is converted into wood products. This includes slabs, edgings, trimmings, bark, miscuts, sawdust, shavings, veneer cores and clippings, and pulp screening. If these residues are used, they are referred to as plant byproducts.

Mast. Seed produced by woody-stemmed, perennial plants, generally refers to soft (fruit) and hard (nuts) mast.

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

Miscellaneous private lands. Privately owned lands other than forest industry and farmer-owned lands.

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.

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. Components of net change are ingrowth plus accretion, minus mortality, minus cull increment, minus removals.

Net green weight. The green 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. Components of net growth are ingrowth plus accretion, minus mortality, minus cull increment.

Noncensus water. Streams/ivers between 120 feet and 1/8 mile in width, and bodies of water between 1 and 40 acres in size. The Bureau of the Census classifies such water as land.

Noncommercial forest land. Productive reserved, urban, and unproductive forest land.

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, residential areas, and highways.

Nonsalvable dead tree. A dead tree with most or all of its bark missing that is at least 5.0 inches in diameter at breast height and is at least 10 feet in height.

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

Other cropland. Includes cropland used for cover crops; legumes, soil-improvement.

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

Ownership class. A classification of forest land based upon 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 land. Includes any pasture land other than cropland and woodland pasture. Can include lands which had applied lime fertilizer, seed, improved by irrigation, drainage, or control of weeds and brush.

Pastured cropland. Includes rotation pasture and grazing land that would have been used for crops without additional improvement.

Piling (piles). Relatively slender structural roundwood products that are cut to the maximum length possible (within top circumference and other specifications of strength, straightness, and soundness) that when nearly buried in the ground provide vertical or lateral support for buildings, foundations, bridges, docks, and other structures.

Plant byproducts. Wood products, such as pulp chips, recycled from manufacturing plant residues.

Poletimber stand. A stand-size class of forest land that is stocked with at least 10 percent of minimum full stocking with all 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. Live trees of commercial species meeting regional specifications of soundness and form and at least 5.0 inches in d.b.h., but smaller than sawtimber trees.

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.

Productive reserved forest land. Forest land sufficiently productive to qualify as timberland, but withdrawn from timber utilization through statute, administrative designation, or exclusive use for Christmas tree production.

Primary manufacturing plant. A plant that converts round timber into wood products such as woodpulp, lumber, veneer, cooperage, and dimension products.

Pulpwood. Roundwood converted into 4- or 5-foot lengths or chips, and chipped plant byproducts that are prepared for manufacture into woodpulp.

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

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

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.

Roundwood products. Logs, bolts, total tree chips, or other round timber generated by harvested trees for industrial or consumer uses.

Salvable dead trees. A tree at least 5.0 inches in diameter at breast height that has recently died and still has intact bark. The tree 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 deviation and are calculated as the square root of the variance, divided by the estimate, and multiplied by 100.

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

Sapling-seedling stand. A stand-size class of forest land that is stocked with at least 10 percent of minimum full stocking with all 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 diameter inside bark of 6 inches for softwoods and 8 inches for hardwoods. (See specifications under Log-Grade Classification).

Sawlog portion. That part of the bole of a sawtimber tree between the stump and the sawlog top; that is, the merchantable height.

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 stocked with at least 10 percent of minimum full stocking with all 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 trees. Live trees 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.

Seedlings. Live trees less than 1.0-inch d.b.h. and at least 1 foot in height.

Shrub. Woody-stemmed perennial plant, generally with no well-defined main stem and less than 12 feet in height at maturity; defined by species.

Shrub land. Land with shrub and/or tree cover and an obvious herbaceous understory; average canopy height of less than 25 feet and crown closure of less than 70 percent.

Single-family/custom house. Single-family dwelling and the immediately adjacent managed land.

Snag. Standing dead tree, with most or all of its bark missing that is at least 5.0 inches in diameter and at least 10 feet tall (does not include salvable dead).

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

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

Stand area class. The area, contiguous to the plot, that is of the same overall stand size and major type group (hardwood, softwood, or uniform mixture of both).

Stand-size class. A classification of forest land based on the size class (that is, seedlings, saplings, poletimber, or sawtimber) 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.

Standard-lumber log grade. A classification of the quality of sawtimber volume based on standard sawlog grades for hardwoods, white pine, and southern pine. (Note: In Rhode Island, red pine was graded using the southern pine guidelines. All specifications are shown under Log-Grade Classification).

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, measured by basal area and/or number of trees in a stand compared to the basal area and/or number of trees required to fully use the growth potential of the land (or the stocking standard). In the Eastern United States this standard is 75 square feet of basal area per acre for trees 5.0 inches d.b.h. and larger, or its equivalent in numbers of trees per acre for seedlings and saplings.

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 59, moderately stocked = 60 to 99, fully stocked = 100 to 129, and overstocked = 130 to 160.

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 byproducts 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 (See Table 53).

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). It generally includes the uppermost stem, branches, and twigs of the tree, but not the foliage.

Tract/multiple family. Multiple individual residential units or attached units (e.g. apartment buildings, 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 present 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).

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

Unproductive 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.

Unused manufacturing residues. Plant residues that are dumped or destroyed and not recovered for plant byproducts.

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. Noncommercial forest land within urban areas that is completely surrounded by urban development (not parks), whether commercial, industrial, or residential.

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

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

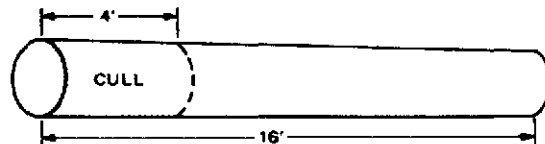
Volume suitable for pulpwood. The sound volume (only rotten cull excluded) of growing-stock and rough trees.

Windbreak/hedgerow. Linear areas, less than 120 feet in width; with predominantly tree and/or shrub vegetation.

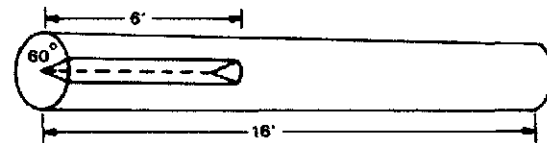
Log-grade classification

Methods of determining scaling deduction.

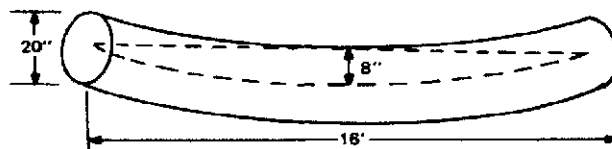
(Examples based on a 16-foot log with 20-inch scaling diameter)



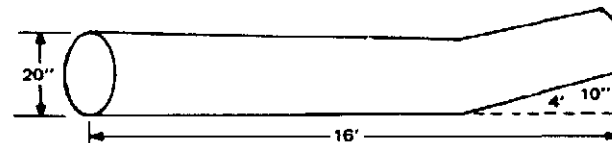
Defect section (rule 1): Percent deduction = $\frac{4}{16} = 25\%$



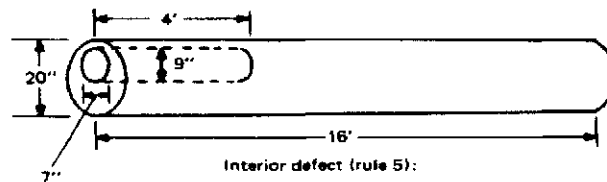
Defect section (rule 2): Percent deduction = $\left(\frac{6}{16}\right) \left(\frac{60}{360}\right) = 6\frac{1}{4}\%$



Sweep (rule 3): Percent deduction = $\frac{8 \cdot 2}{20} = 30\%$



Crook (rule 4): Percent deduction = $\left(\frac{10}{20}\right) \left(\frac{4}{16}\right) = 12\frac{1}{2}\%$



Interior defect (rule 5):

$$\text{Percent deduction} = \frac{(8)(10)}{(20-1)^2} \times \frac{4}{16} = 5\frac{5}{9}\%$$

In practice each ellipse axis can be divided by (20-1)

$$\text{Thus } \frac{8}{19} = .4, \frac{10}{19} = .5, \text{ and } (.4)(.5) \left(\frac{4}{16}\right) = 5\%$$

From: Groenbaugh, L.R. 1952. Shortcuts for cruisers and scalers. U.S. Dep. Agric. For. Serv. South. For. Exp. Stn. Occas. Pap. 126.

STANDARD GRADES FOR HARDWOOD FACTORY LUMBER LOGS

Grading Factors		Log grades							F3
		F1			F2				
Position in tree		Butts only	Butts & uppers		Butts & Uppers				Butts & uppers
Scaling diameter, inches		13-15 ^a	16-19	20+	11+ ^b	12+			8+
Length without trim, feet		10+			10+	8-9	10-11	12+	8+
Required clear cuttings ^c of each of 3 best faces ^d	Min. length, feet	7	5	3	3	3	3	3	2
	Max. number	2	2	2	2	2	2	3	No limit
	Min. proportion of log length required in clear cutting	5/6	5/6	5/6	2/3	3/4	2/3	2/3	1/2
Maximum sweep & crook allowance	For logs with less than 1/4 of end in sound defects	15%			30%				50%
	For logs with more than 1/4 of end in sound defects	10%			20%				35%
Maximum scaling	deduction	40% ^e			50% ^f				50%

End defects although not visible in standing trees, are important in grading cut logs. Instructions for dealing with this factor are contained in Forest Prod. Lab. Rpt. D 1737.

^aAsh and basswood butts can be 12 inches if they otherwise meet requirements for small #1's.

^bTen-inch logs of all species can be #2 if they otherwise meet requirements for small #1's.

^cA clear cutting is the portion of a face, extending the width of the face, that is free of defects.

^dA face is 1/4 of the surface of the log as divided lengthwise.

^eOtherwise #1 logs with 41-60% deductions can be #2.

^fOtherwise #2 logs with 51-60% deductions can be #3.

From: Vaughan, C. L., A. C. Wollin, K. A. McDonald, and E. H. Bulgrin. 1966. Hardwood log grades for standard lumber. USDA For. Serv. Res. Pap. FPL-63.

STANDARD SPECIFICATIONS FOR HARDWOOD CONSTRUCTION LOGS.^a

Position in tree		Butt & upper
Min. diameter, small end		8 inches +
Min. length, without trim		8 feet
Clear cuttings		No requirements.
Sweep allowance, absolute		1/4 diameter small end for each 8 feet of length.
Sound surface defects	Single knots	Any number, if no one knot has an average diameter above the callus in excess of 1/3 of log diameter at point of occurrence.
	Whorled knots	Any number if sum of knot diameters above the callus does not exceed 1/3 of log diameter at point of occurrence.
	Holes	Any number provided none has a diameter over 1/3 of log diameter at point of occurrence, and none extends over 3 inches into included timber. ^b
Unsound surface defects		Same requirements as for sound defects if they extend into included timber. ^b No limit if they do not.
End defects	Sound	No requirements.
	Unsound	None allowed; log must be sound internally, but will admit 1 shake not to exceed 1/4 the scaling diameter and a longitudinal split not extending over 5 inches into the contained timber.

^aThese specifications are minimum for the class. If, from a group of logs, factory logs are selected first, thus leaving only non-factory logs from which to select construction logs, then the quality range of the construction logs so selected is limited, and the class may be considered a grade. If selection for construction logs is given first priority, then it may be necessary to subdivide the class into grades.

^bIncluded timber is always square, and dimension is judged from small end.

From: Rast, E. D., D. L. Sonderman, and G. L. Gammon. 1973. A guide to hardwood log grading (Revised). USDA For. Serv. Gen. Tech. Rep. NE-1.

EASTERN WHITE PINE SAWLOG GRADE SPECIFICATIONS

GRADING FACTOR	LOG GRADE 1	LOG GRADE 2	LOG GRADE 3	LOG GRADE 4
(1) MINIMUM SCALING DIAMETER (inches)	14 ¹	6	6	6
(2) MINIMUM LOG LENGTH (feet)	10 ²	8	8	8
(3) MAXIMUM WEEVIL INJURY (number)	None	None	2 injuries ¹	No limit
(4) MINIMUM FACE REQUIREMENTS	Two full length or four 50%, length good faces. ⁴ (In addition, log knots on balance of faces shall not exceed size limitations of grade 2 logs.)	NO GOOD FACES REQUIRED. Maximum diameter of log knots on three best faces. SOUND RED KNOTS not to exceed 1/6 scaling diameter and 3 inch maximum. DEAD OR BLACK KNOTS including overgrown knots not to exceed 1/12 scaling diameter and 1½ inch maximum.		SOUND RED KNOTS not to exceed 1/3 scaling diameter and 5 inch maximum. DEAD OR BLACK KNOTS including overgrown knots not to exceed 1/6 scaling diameter and 2½ inch maximum. Includes all logs not qualifying for No. 3 or better and judged to have at least one-third of their gross volume in sound wood suitable for manufacture into standard lumber.
(5) MAXIMUM SWEEP OR CROOK ALLOWANCE (percent)	20	30	40	66⅔
(6) MAXIMUM TOTAL SCALING DEDUCTION (percent)	50	50	50	66⅔
After the tentative log grade is established from face examination, the log will be reduced in grade whenever the following defects are evident: (7) CONKS, PUNK KNOTS, AND PINE BORER DAMAGE ON BARK SURFACE: Degrade one grade if present on one face. Degrade two grades if present on two faces. Degrade three grades if present on three or more faces. (8) LOG END DEFECTS: RED ROT, RING SHAKE, HEAVY STAIN AND PINE BORER DAMAGE OUTSIDE HEART CENTER OF LOG: Consider log as having a total of 8 quarters (4 on each end) and degrade as indicated below: Degrade one grade if present in 2 quarters of log ends. Degrade two grades if present in 3 or 4 quarters of log ends. Degrade three grades if present in 5 or more quarters of log ends.				
¹ 12 and 13 inch logs with four full length good faces are acceptable. ² 8 foot logs with four full length good faces are acceptable. ³ 8 foot No. 3 logs limited to one weevil injury. ⁴ Minimum 50% length good face must be at least 6 feet. ⁵ Factors 7 and 8 are not cumulative (total degrade based on more serious of the two). No log to be degraded below grade 4 if net scale is at least one-third gross log scale.				

From: Ostrander, M. D., and R. L. Brisbin, 1971. Sawlog grades for eastern white pine. USDA For. Serv. Res. Pap. NE-205.

SOUTHERN PINE SAWLOGS

Grade 1. Logs with 3 or 4 clear faces.¹ Code 1.

Grade 2. Logs with 1 or 2 clear faces. Code 2.

Grade 3. Logs with no clear faces. Code 3.

After the tentative log grade is established from above, the log will be degraded one grade for each of the following, except that no log can be degraded below grade 3.

1. **Sweep.** Degrade any tentative 1 or 2 log one grade if sweep amounts to 3 or more inches and equals or exceeds one third (1/3) the diameter inside bark at small end. This is the final grade if there is no evidence of heart rot.

2. **Heart rot.** Degrade any tentative 1 or 2 log one grade if conk, massed hyphae, or other evidence of advanced heart rot is found anywhere in it.

¹ A face is one-fourth of the circumference in width extending full length of the log. Clear faces are those free of: knots measuring more than one-half inch in diameter, overgrown knots of any size, holes more than one-fourth inch in diameter. The faces may be rotated if necessary to obtain the maximum number of clear ones.

From: Schroeder, J. G., R. A. Campbell, and R. C. Rodenbach, 1968. Southern pine sawlogs for yard and structural lumber. USDA For. Serv. Res. Pap. SE-39.

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

Scientific Name ^a	Common Name(s)	Occurrence ^b
Softwoods		
<u>Juniperus virginiana</u> L.	eastern redcedar	c
<u>Larix</u> Mill.	larch	r
<u>Pinus resinosa</u> Ait.	red pine	c
<u>Pinus rigida</u> Mill.	pitch pine	c
<u>Pinus strobus</u> L.	eastern white pine	vc
<u>Tsuga canadensis</u> (L.) Carr.	eastern hemlock	r
Hardwoods		
<u>Acer rubrum</u> L.	red maple	vc
<u>Acer saccharum</u> Marsh.	sugar maple	r
<u>Betula alleghaniensis</u> Britton	yellow birch	c
<u>Betula lenta</u> L.	sweet birch	c
<u>Betula papyrifera</u> Marsh.	paper birch	r
<u>Betula populifolia</u> Marsh. ^c	gray birch	r
<u>Carpinus caroliniana</u> Walt. ^c	American hornbeam	r
<u>Carya</u> Nutt.	hickory	c
<u>Cornus florida</u> L. ^c	flowering dogwood	r
<u>Fagus grandifolia</u> Ehrh.	American beech	c
<u>Fraxinus americana</u> L.	white ash	c
<u>Fraxinus nigra</u> Marsh.	black ash	r
<u>Nyssa sylvatica</u> Marsh.	blackgum	c
<u>Ostrya virginiana</u> (Mill.) K. Koch ^c	eastern hophornbeam	r
<u>Populus grandidentata</u> Michx.	bigtooth aspen	c
<u>Populus tremuloides</u> Michx.	quaking aspen	r
<u>Prunus serotina</u> Ehrh.	black cherry	c
<u>Quercus alba</u> L.	white oak	vc
<u>Quercus coccinea</u> Muenchh.	scarlet oak	vc
<u>Quercus palustris</u> Muenchh.	pin oak	r
<u>Quercus prinus</u> L.	chestnut oak	c
<u>Quercus rubra</u> L.	northern red oak	vc
<u>Quercus velutina</u> Lam.	black oak	vc
<u>Sassafras albidum</u> (Nutt.) Nees ^c	sassafras	c
<u>Ulmus americana</u> L.	American elm	r

^aNames 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, Forest Service, 375 p.

^bOccurrence 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%).

^cNoncommercial species.

Relative Density^a, Relative Frequency^b, Importance Value^c,
and Species Frequency^d of Lesser Woody Stems^e by Species,
Rhode Island, 1985

Species	Relative		Importance Value	Species Frequency
	Density	Frequency		
Eastern redcedar	.11	.87	.49	8.00
Tamarack	.01	.22	.11	2.01
Red pine	.05	.22	.13	2.01
Pitch pine	.36	1.09	.72	10.01
Eastern white pine	.18	4.56	2.37	42.01
Boxelder	.02	.22	.12	2.01
Red maple	3.04	8.90	5.97	82.01
Sugar maple	.04	.66	.35	6.01
Alder species	.02	.22	.12	2.01
Azalea species	.41	.22	.32	2.01
Barberry	.94	.44	.69	4.01
Yellow birch	.15	2.17	1.16	20.01
Sweet birch	.20	1.74	.97	16.01
Paper birch	.01	.22	.11	2.01
Gray birch	.44	1.52	.98	14.00
Hickory species	.16	.87	.52	8.00
Pignut hickory	.03	.87	.45	8.00
American chestnut	.35	1.09	.72	10.01
American bittersweet ^f	-	-	-	2.01
Sweetfern	.24	.44	.34	4.01
Flowering dogwood	.18	.87	.53	8.00
Silky dogwood	.11	.22	.16	2.01
Hawthorn species	.04	.22	.13	2.01
American hazelnut	.12	.44	.28	4.01
Beaked hazelnut	.02	.22	.12	2.01
American beech	.24	.87	.56	8.00
White ash	.59	1.96	1.27	18.01
Black ash	.02	.22	.12	2.01
Teaberry	-	-	-	4.01
Huckleberry	2.45	.22	1.33	2.01
Witch-hazel	.90	1.96	1.43	18.01
Sheep laurel	2.55	2.82	2.69	26.01
Mountain laurel	1.35	.87	1.11	8.00
Common spicebush	.82	1.09	.96	10.01
Bush honeysuckle ^f	.14	.22	.18	2.01
Vine honeysuckle ^f	-	-	-	2.01
Black tupelo	.24	.87	.56	8.00
Eastern hophornbeam	.07	.44	.25	4.01
Virginia creeper ^f	-	-	-	4.01
Bigtooth aspen	.01	.22	.11	2.01
Quaking aspen	.01	.22	.11	2.01
Pin cherry	.07	.22	.14	2.01
Black cherry	1.84	4.99	3.42	46.01
Chokecherry	.23	.44	.33	4.01

Relative Density^a, Relative Frequency^b, Importance Value^c,
and Species Frequency^d of Lesser Woody Stems^e by Species,
Rhode Island, 1985 (Continued)

Species	Relative		Importance Value	Species Frequency
	Density	Frequency		
White oak	3.57	9.33	6.45	86.01
Scarlet oak	.86	4.99	2.93	46.01
Scrub, bear oak	.04	.44	.24	4.01
Pin oak	.01	.22	.11	2.01
Chestnut oak	.04	.22	.13	2.01
Northern red oak	1.46	7.38	4.42	68.01
Black oak	1.68	6.95	4.32	64.01
Poison ivy ^f	-	-	-	16.01
Rubus species	.48	1.52	1.00	14.00
American elderberry	1.48	.22	.85	2.01
Sassafras	.79	2.82	1.81	26.01
Greenbrier ^f	-	-	-	32.01
Spiraea species	9.72	2.39	6.06	22.01
American elm	.09	.44	.27	4.01
Blueberry	45.09	8.68	26.89	80.01
Viburnum species	.29	.66	.47	6.01
Maple-leaved viburnum	.87	.87	.87	8.00
Hobblebush viburnum	.23	.66	.44	6.01
Wild raisin	.31	.87	.59	8.00
Arrowwood	.41	.66	.53	6.01
Blackhaw	.04	.22	.13	2.01
Grape ^f	-	-	-	16.01
Unknown deciduous shrub	13.60	3.91	8.75	36.01
Unknown evergreen shrub	.46	.44	.45	4.01
Unknown tree	.02	.22	.12	2.01

^a(Total number of stems for a species/total number
of stems for all species) x 100.

^b(Frequency of a species/total of frequencies
of all species) x 100. Frequency = Number of plots
where a species occurs/total number of plots.

^cAverage of relative density and relative frequency
of a species.

^d(Number of plots where a species occurs/total
number of plots) x 100.

^eIncludes shrub and vine species and tree stems
less than 5.0 inches d.b.h.

^fNot included in calculations of importance value.

1 acre = 4,046.86 square meters or 0.404686 hectares

1,000 acres = 404.686 hectares

1,000,000 acres = 404,686 hectares

1 board foot^a = 0.00348 cubic meters or 3,480 cubic centimeters

1,000 board feet^a = 3.48 cubic meters

1,000,000 board feet^a = 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

Breast height = 1.4 meters above ground level

1 mile = 1.609 kilometers

1 square foot = 929.03 square centimeters or 0.0929 square meters

1 square foot per acre basal area = 0.229568 square meters per hectare

1 ton = 907.1848 kilograms

1,000 tons = 907,184.8 metric tons

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Dickson, David R.; McAfee, Carol L. 1988. Forest statistics for Rhode Island--1972 and 1985. Resour. Bull. NE-104. Broomall, PA: U.S. Department of Agriculture, Forest Service. 96 p.

A statistical report on the third forest survey of Rhode Island (1984). Findings are displayed in 77 tables containing estimates of forest area, numbers of trees, timber volume, tree biomass, and timber products output. Data are presented at two levels: state and county.

ODC (745)--905.2

Keywords: Forest survey, inventory, area, volume, biomass.

Headquarters of the Northeastern Forest Experiment Station are in Broomall, Pa. Field laboratories are maintained at:

- Amherst, Massachusetts, in cooperation with the University of Massachusetts.
- Berea, Kentucky, in cooperation with Berea College.
- Burlington, Vermont, in cooperation with the University of Vermont.
- Delaware, Ohio.
- Durham, New Hampshire, in cooperation with the University of New Hampshire.
- Hamden, Connecticut, in cooperation with Yale University.
- Morgantown, West Virginia, in cooperation with West Virginia University, Morgantown.
- Orono, Maine, in cooperation with the University of Maine, Orono.
- Parsons, West Virginia.
- Princeton, West Virginia.
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