Vermont's Use Value Appraisal Property Tax Program: A Forest Inventory and Analysis

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Abstract

Vermont's Use Value Appraisal (UVA) property tax program was designed to slow the rate of development of rural land, encourage production from agricultural and forest lands, and conserve and preserve a working rural landscape by making taxation of undeveloped land more equitable. In 1987, more than 669,000 acres were enrolled in the UVA Forest Land Program, 18 percent of the potentially eligible forest land. Forest inventory statistics were produced for these lands using data collected in the fourth forest survey of Vermont. UVA forest land comprises slightly more than a billion cubic feet of growing stock, including 2.2 million board feet of sawtimber. Forest inventory data indicate that timberland in the UVA program mirrors Vermont timberland in general. It does not appear that a disproportionate amount of poor sites or good sites are enrolled. Nor does the quantity or quality of the timber appear to be disproportionately represented. The projected net growth on UVA timberland could supply almost half the annual removals in the State.

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Cover photo: Vermont service foresters examining a red pine stand (courtesy Gary Salmon, Vermont Department of Forest, Parks and Recreation).

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Introduction

Vermont's Use Value Appraisal (UVA) property tax program was designed to slow the rate of development of rural land, encourage production from agricultural and forest lands, and conserve and preserve a working rural landscape by making taxation of undeveloped land more equitable (32 V.S.A. Chapter 124). With this legislation in 1977, Vermont joined a majority of states with modified property tax laws designed to address problems created by taxation of agricultural and forest land based on highest and best use.

Hickman (1982) traced the history of forest property and yield taxes in the United States and discussed current trends. Modified property taxes, either modified assessment or modified rate, existed in 38 states. As with Vermont's statute, the laws were passed to slow the unplanned development of farm and forest land by correcting the inequities of ad valorem property taxation that were encouraging development over traditional farming and forestry production. Modified assessment statutes are by far the most frequently used form of modified property taxes. A use value is substituted for market value assessment. The laws vary widely in their application, for example, being mandatory or optional, having various restrictions such as lot size or an approved management plan, application and reporting requirements, method of tax modification, and declassification penalty (Hickman 1982).

The Vermont UVA program is optional; landowners must apply to the State for enrollment. There are three programs based on land category: farmland, agricultural land, and forest land. Although the first two programs include some forested land, their primary intent is agriculture. We focused on the Forest Land Program because it contains the bulk of the enrolled forest.

To be eligible for the Forest Land Program, the parcel must contain at least 25 contiguous acres managed according to a forest management plan approved by the Vermont Department of Forests, Parks and Recreation. The combined area of the lowest productivity class (Site IV) and open land may not exceed 20 percent of the total acreage enrolled. The plan is most often prepared by a private consulting forester but this is not required. The plan must meet certain minimum criteria to be approved and the landowner must submit an annual report certifying completion of activities specified in the plan. Department foresters must inspect each enrolled property at least once every 5 years to ensure that standards are followed.

A lien is placed on the property at the time the property is enrolled in the program. If enrolled forest land is ever developed, the land use change tax—10 percent of the fair market value of the developed portion—is assessed. The obligation to pay the tax runs with the land in perpetuity and is guaranteed by the lien. Aside from the usual connotations of development, forest land may also be considered developed if timber is cut contrary to the forest management plan on file with the county forester.

Forest property was divided into USDA Forest Service site productivity classes through 1988 based on site index measurements. Use values are determined annually by the Current Use Advisory Board by capitalization of expected net returns from the land. Average annual growth for a site class is multiplied by an average stumpage price to estimate annual return. Annual growth is estimated by the Vermont Department of Forests, Parks and Recreation and stumpage prices are from the "Vermont Forest Quarterly" price report, published by the Extension Service. The capitalization rate has an interest component, estimated from Federal Land Bank farm rates, and a tax component. Currently, these values are 11 and 2 percent, respectively, for a capitalization rate of 13 percent.

In 1987, the year of the study, the current use values for forest land were:

Productivity class	Use value (Dollars/acre)
Site I	100
Site II	60
Site III	20
Site IV	10

In 1989, Sites I, II, and III were aggregated into one class, productive forest land, with a current use value of $65 per acre. The nonproductive land class, Site IV, was retained with a current use value of $10 per acre.

The tax paid by the landowner is based on the use value appraisal and the town tax rate. The difference between fair market value and use value is not lost to the town but the burden is shifted to all who pay taxes to the State. Annually, the State Legislature appropriates State tax revenue to reimburse the towns for their potential loss in property tax revenue. Enrolled land is assessed at fair market value also, so that the State payment to the town can be computed. The maximum per acre reimbursement is set by law, currently $24.50 per acre.

Annual participation by program is shown in Figure 1. In 1987, in addition to the 669,353 acres enrolled in the Forest Land Program, there were an estimated 442,000 acres of agricultural land and farmland enrolled. The 1987 State reimbursement to towns in total was $6.35 million. The enrollment represents 51 percent of potentially eligible agricultural land and 18 percent of forest land. The average tax savings as a proportion of the total tax bill was 70 percent (Vt. Dep. Taxes 1988).

In a study co-sponsored by the Current Use Tax Coalition and the Vermont Natural Resources Council, based on a survey of planners and business people, Brighton (1988) concludes that "the use value appraisal program is valuable
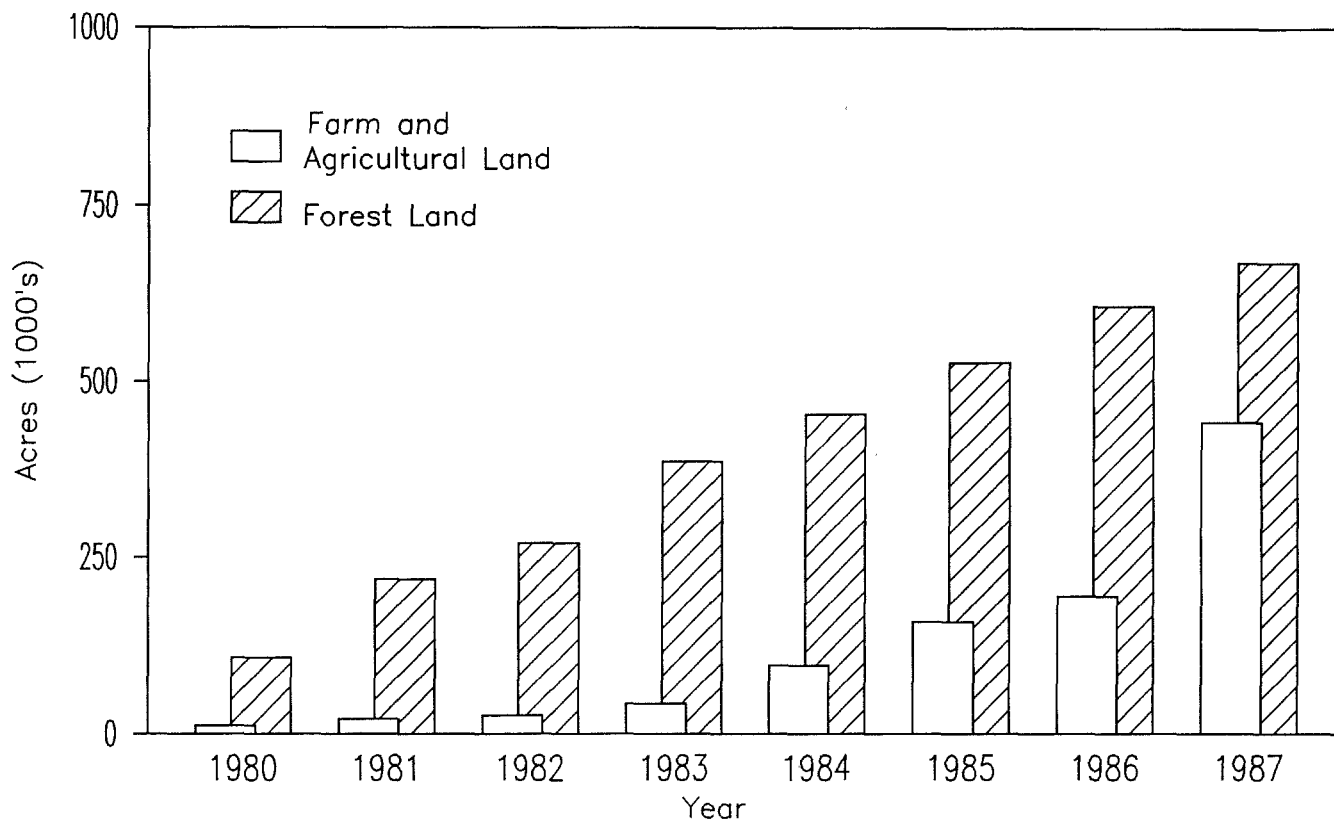
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Figure 1.—Land area enrolled in the Vermont Use Value Appraisal (UVA) property tax program by enrollment class and year.

and should be continued...." The results of the survey showed that the respondents felt that the program was achieving the goals set in the original legislation. Yet in a small state like Vermont, $6.35 million is a significant annual commitment of state revenue. One may legitimately question whether there are other ways to achieve the same goals, the rate at which goals are being approached, or even if the goals are appropriate. And, indeed, critics have asked these questions.

In attempting to answer such questions, information was found to be lacking or in a form incompatible with other important data, stored at geographically dispersed locations, or stored in a form not readily accessible to analysis. To help solve this problem, the USDA Forest Service provided a benchmark forest inventory for the UVA Forest Land Program by analyzing the most current forest inventory for Vermont, adding lands enrolled as forest land as a new classification.

The specific objectives of this study were to:
1. Produce a new set of forest inventory tables of land areas, volumes, and numbers of trees including the new

UVA stratum for the northern and southern survey units and the State.
2. Analyze these tables and report the results.

Procedures

Data

The data used in this study were gathered in the fourth forest inventory of Vermont, which was completed in 1983. The Forest Service's Forest Inventory and Analysis (FIA) project in Broomall, Pennsylvania, conducted the inventory on all forest land, developed the resource tables, and published the results (Frieswyk and Malley 1985). The data are stored on computer tape in Broomall and are accessible to FIA personnel for additional runs through the FINSYS computer program which is used to make summary tables of the data.

When the 1983 forest inventory was being designed, the UVA program was new and had little impact on forestry and forest land in the state due to the low enrollment. Since

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then, the program has grown, with almost a fifth of the potentially eligible forest area enrolled. In this study, forest data collected in 1983 were used to obtain a "snapshot" of the condition of the forest land that was enrolled in the program as of 1987. In effect, we analyzed the 1983 forest inventory by forming a new category of land ownership—land enrolled in the UVA Forest Land Program.

Plot Identification

The sampling procedure for the 1983 reinventory included the use of aerial photography, remeasured ground plots from earlier inventories, and measurement of new ground plots (Frieswyk and Malley 1985). For 1983, this resulted in the classification of 16,313 aerial photo points into land-use and cubic-foot volume classes, remeasurement of 435 old plots, and establishment of 823 new ground plots.

FIA data were used to estimate forest inventory information for UVA forest land. The new ground plots were used to estimate per-acre forest inventory, which was expanded by land area from the Vermont Division of Property Valuation and Review records to obtain State and unit totals.

The identification of plots on UVA Forest Land was done by the Vermont county foresters (State service foresters) because of their knowledge about the properties in the tax program. County foresters must approve the management plan for each property enrolled in the program, the properties must be inspected by the county forester at least once every 5 years, and records on forest land enrolled in the program are kept in the county office. Aerial photos showing ground plot locations were distributed to each county forester. Much of the plot identification was done from records, maps, and photos. Ambiguities were verified on the ground and through contact with consulting foresters.

Results

Scope

The UVA tax program is important in Vermont because most timber is produced on privately owned land. Of the 4.4 million acres of timberland in the State, only 10 percent is in public ownership. Nearly 4 million acres are owned by forest industry and other private owners, with 90 percent in the "other private" owner category (Frieswyk and Malley 1985). We estimated that 3.7 million acres of privately owned timberland were potentially eligible for enrollment in the UVA program.

Table 1 compares the timberland area and timber volumes in the UVA program and in public ownership. The 669,000-acre area in the UVA program is more then 1.5 times as large as the area under public forest management. According to Brighton (1988), 40 percent of the participants in the program had never worked with a forester prior to enrolling their timberland. In effect, the Vermont UVA program has put nearly 700,000 acres of privately owned timberland and more than a billion cubic feet of growing stock under a set of minimum forest management standards, requiring annual conformance and periodic inspection to maintain forest productivity.

UVA/Non-UVA Timberland: Statewide Comparisons

The forest inventory tables (3 through 62) are included in the Appendix. Specific UVA timberland tables are followed by counterpart tables for non-UVA timberland. The non-UVA tables were obtained by subtracting the UVA data from the State total as recorded in Frieswyk and Malley (1985). The UVA tables were created by the same procedure used by Frieswyk and Malley so that direct comparisons can be made between the two sets of tables. State tables are followed by tables for the Northern and Southern Units.

Table 1.—Amount of Vermont timberland, growing stock, and sawtimber enrolled as UVA Forest Land (1987) and in public (state, federal, other government) ownership

Ownership	Timberland area	Timber volume growing stock	Sawtimber
	Thousand acres	Million cubic feet	Million board feet
UVA	669.4	1,016.3	2,213.2
Public	429.5	674.2	1,592.4
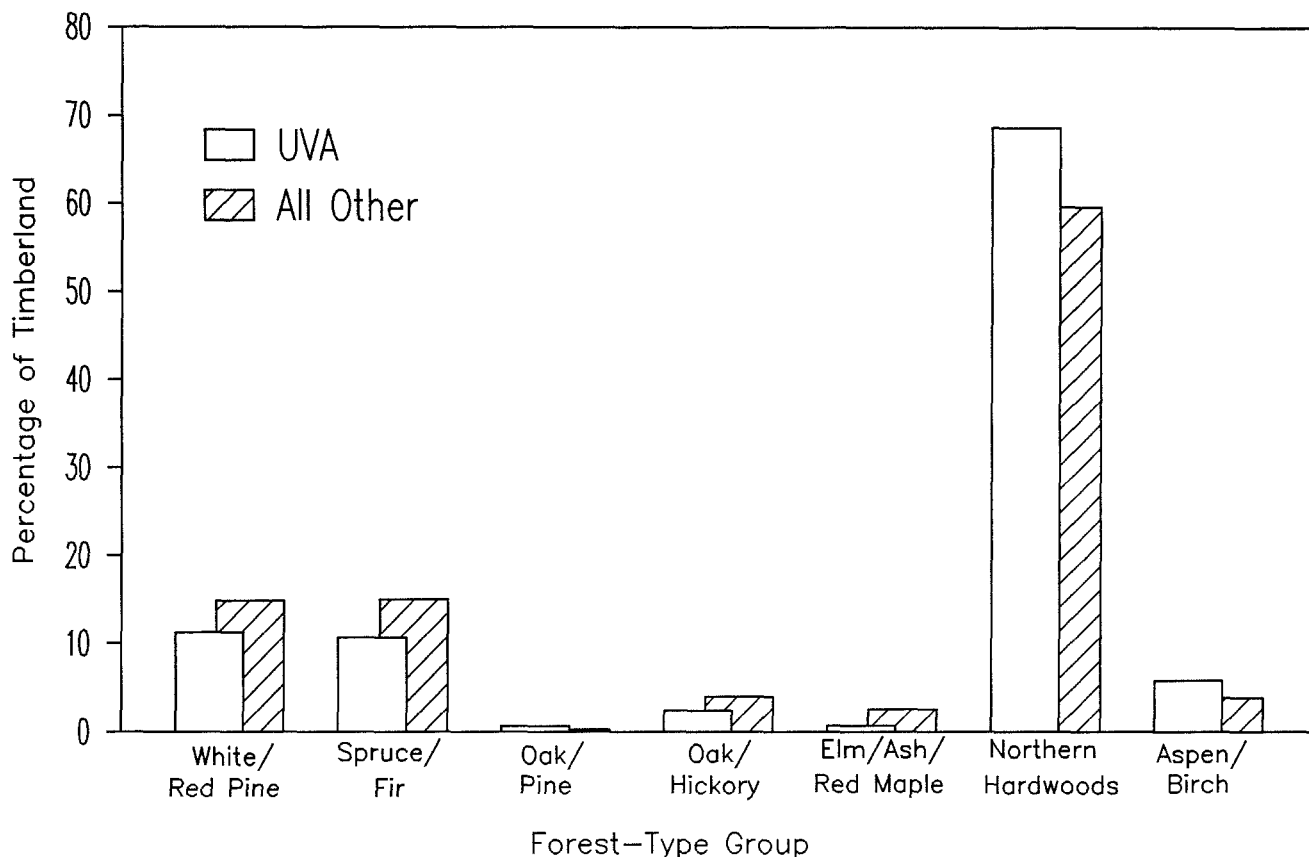
Figure 2.—Percentage distribution of area by forest-type group in Vermont for UVA timberland and all other timberland.

A key goal of our study was to see if and how UVA timberland differed from other timberland in Vermont. Much of the analysis is illustrated with bar graphs showing percentages of land areas or timber volumes to facilitate comparisons and eliminate scale differences.

The data presented in this report are estimates based on a sample. The probability nature of the sample provides a measure of the precision of the estimates—the sampling error. Frieswyk and Malley (1985) explain sampling error with an example from the Vermont Forest Survey as follows:

> Briefly, here is an example of how the sampling error is used to indicate reliability: The estimate of timberland for Vermont is 4,422.1 thousand acres. Its sampling error is 0.7 percent, or 30.9 thousand acres. This means that the estimate of timberland in 1983 is 4,422.1 thousand acres, and 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 4,391.2 and 4,453.0 thousand acres (4,422.1 ± 30.9). Similarly, the

odds are 19 to 1 (95 percent probability) that the estimate would be within ± 61.8 thousand acres. It is worth noting that the state estimates have the smallest sampling errors and therefore are the most precise or reliable. Geographic unit estimates are the next most reliable, followed by county estimates. In Vermont for example, the sampling error for the state area tables is .7 percent; the sampling error for the northern geographic unit is 1.2 percent, and the sampling error for Orange County is 4 percent. Thus, county level estimates are often considerably less reliable than unit or 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.

Table 62 shows selected sampling errors for land area and timber volume for the state and the UVA program. As anticipated from Frieswyk and Malley (1985), sampling errors are a larger percentage of the estimates on UVA timberland than for corresponding estimates for the entire

State. This follows the generality that, "as the size of the estimate decreases in relation to the total, the sampling error, expressed as a percentage of the estimate, increases." Thus, for land area classified as northern hardwoods forest-type group, which is a large part of the total land area, the sampling error was 3 percent for the state and 6 percent for UVA timberland. For the elm/ash/red maple group, which is a much smaller part of the total land area, the sampling error was 26 percent for the State and 99 percent for UVA timberland.

The discussion of sampling error is intended as a warning to the reader that the numbers reported are estimates based on a sample. Small differences between estimates can be interpreted as attributable to sampling error alone. Large differences between estimates are more likely to reflect actual differences in the values being estimated. The specification of how large depends on the value being estimated: If it represents a large part of the total, the critical differences will be relatively smaller than if it represents a small part of the total.

Timberland area. Figure 2 shows the percentage distribution of area in major timber-type groups in the UVA program compared to all other timberland. The two distributions are similar. Proportion of area in the two softwoods groups was less for UVA timberland and greater for the northern hardwoods group.

Percentage of area by stocking class was nearly identical on UVA and all other timberland (Fig. 3). With the restriction on amount of open land that can be enrolled in the program and the small amount of nonstocked and poorly stocked timberland in Vermont, it is not surprising to find little enrolled in the UVA program.

Because such a large proportion of timberland was classified in the northern hardwoods-type group, the distribution of stocking class was examined for this group (Fig. 4). More of the UVA timberland was classified as moderately stocked, with relatively less land classed as fully or overstocked, compared to all other timberland.
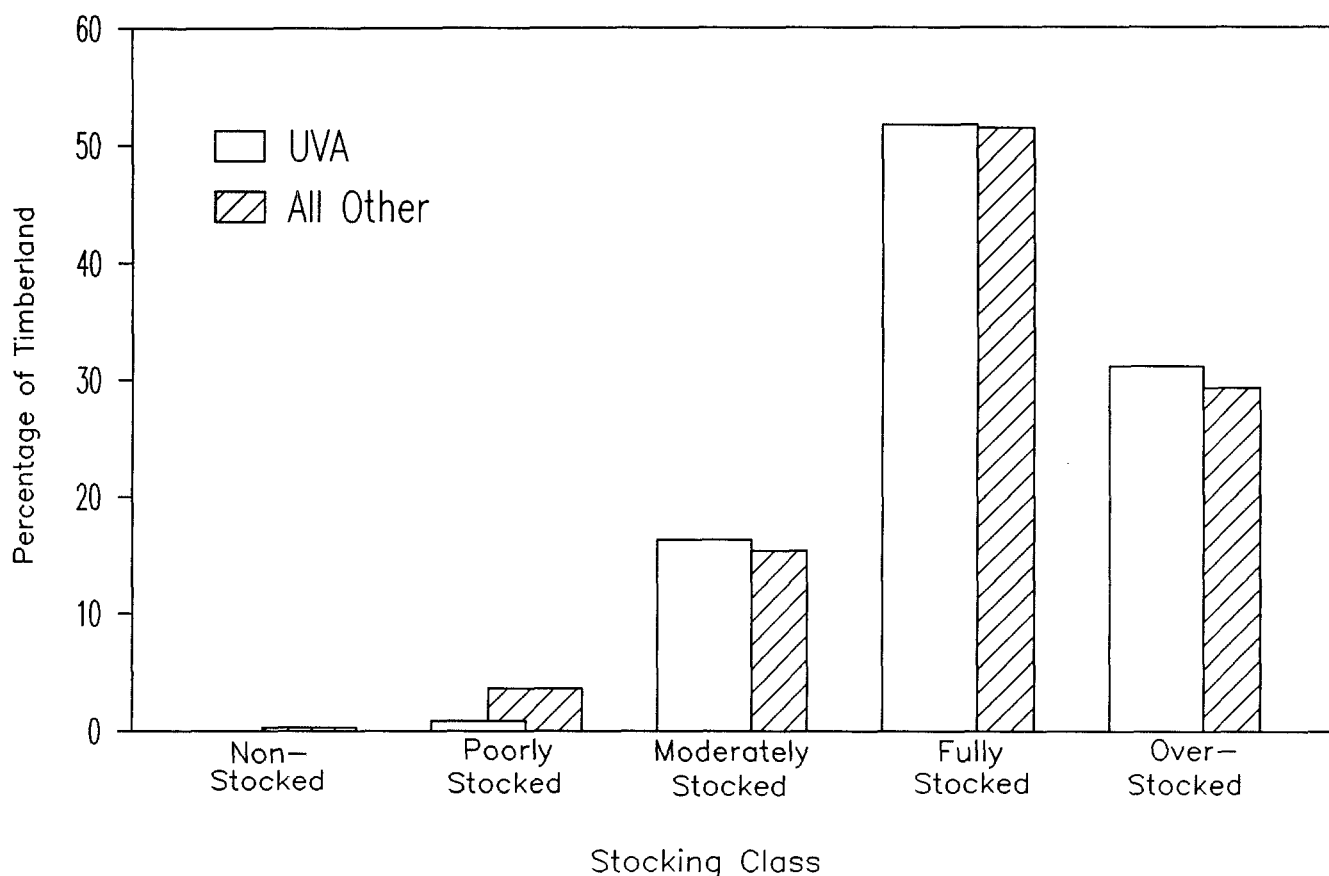
Figure 3.—Percentage distribution of area by stocking class of all live trees in Vermont for UVA timberland and all other timberland.
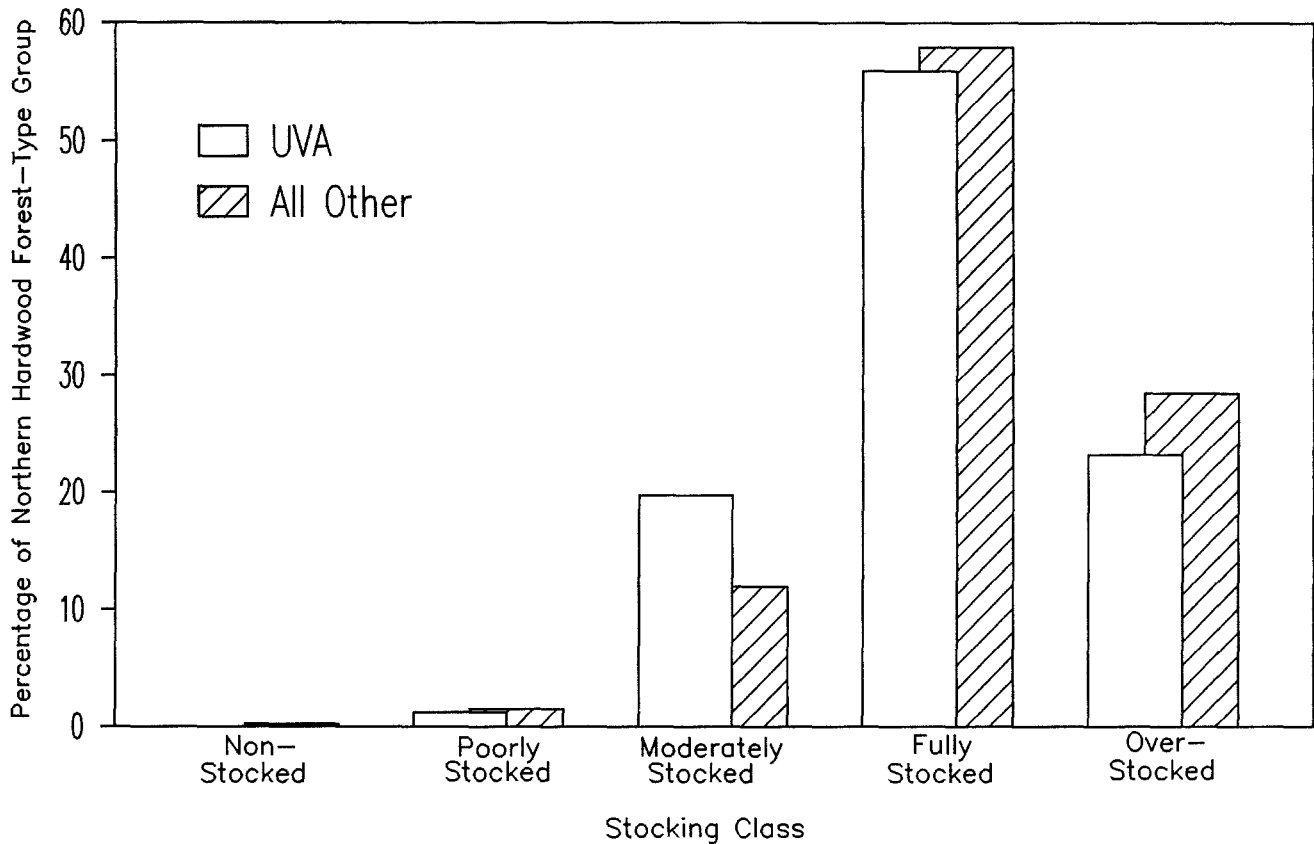
Figure 4.—Percentage distribution of land area classified as northern hardwoods timber-type group by stocking class of all live trees in Vermont for UVA timberland and all other timberland.

Looking only at growing-stock trees, live trees of commercial species, and the percentage of timberland area by stocking class, the difference between UVA timberland and all other timberland was more evident (Fig. 5). The moderately stocked and fully stocked classes were predominant for the UVA timberland.

Looking only at the northern hardwoods-type group, the proportion of the area in the moderately stocked class was dominant, with nearly 50 percent of the UVA timberland in this class (Fig. 6).

Stand volume was measured in two ways—net cubic-foot volume of all live trees per acre and net board-foot volume of sawtimber trees per acre. For net cubic-foot volume for the northern hardwoods-type group, a greater proportion of the UVA timberland was classified as fewer than 1,500 cubic feet per acre relative to all other timberland (Fig. 7). Similarly, the proportion of UVA northern hardwoods-type group, timberland classified as fewer than 4,000 board feet per acre was greater relative to all other timberland (Fig. 8). A larger proportion of UVA timberland was classified as

sawtimber-stand size, 70 percent, relative to all other private land, 63 percent.

Log grades. FIA classifies the quality of sawtimber volume based on standard sawlog grades for hardwoods, white pine, and red pine (Frieswyk end Malley 1985). Figures 9, 10, and 11 compare the proportion of sawtimber volume in the four grade classes for UVA timberland and all other timberland for all hardwoods, sugar maple, and red oak, respectively. The same pattern was evident in all three cases, a smaller percentage of sawtimber volume in the two highest quality grades combined and a higher percentage in grade 3 logs for UVA timberland.

A major factor in log grade is scaling diameter. Large-diameter trees tend to have more logs that scale out at higher grades, all else being equal. If UVA timberland is being actively managed and timber products, notably sawtimber, are being harvested, one would expect the larger mature trees to be already harvested, leaving behind the smaller diameter classes. These factors would tend to shift the sawtimber volume more toward the lower log grades.

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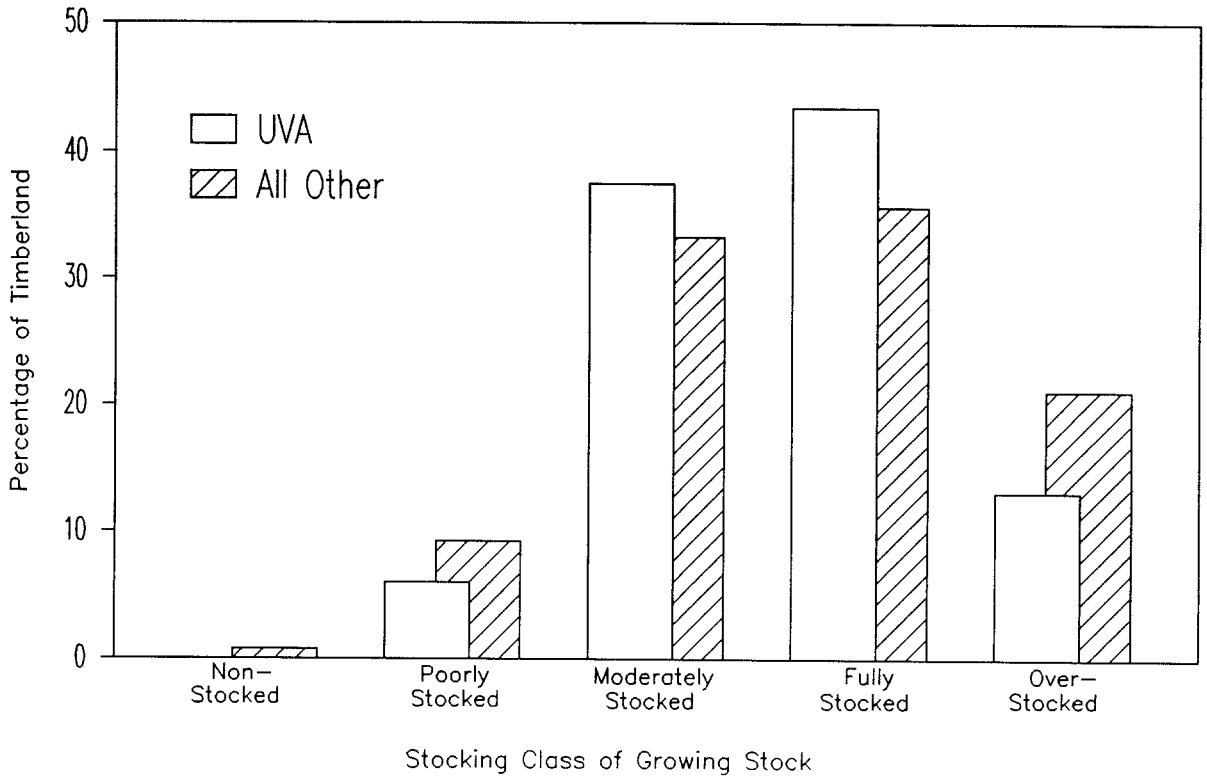
Figure 5.—Percentage distribution of land area by stocking class of growing-stock trees in Vermont for UVA timberland and all other timberland.
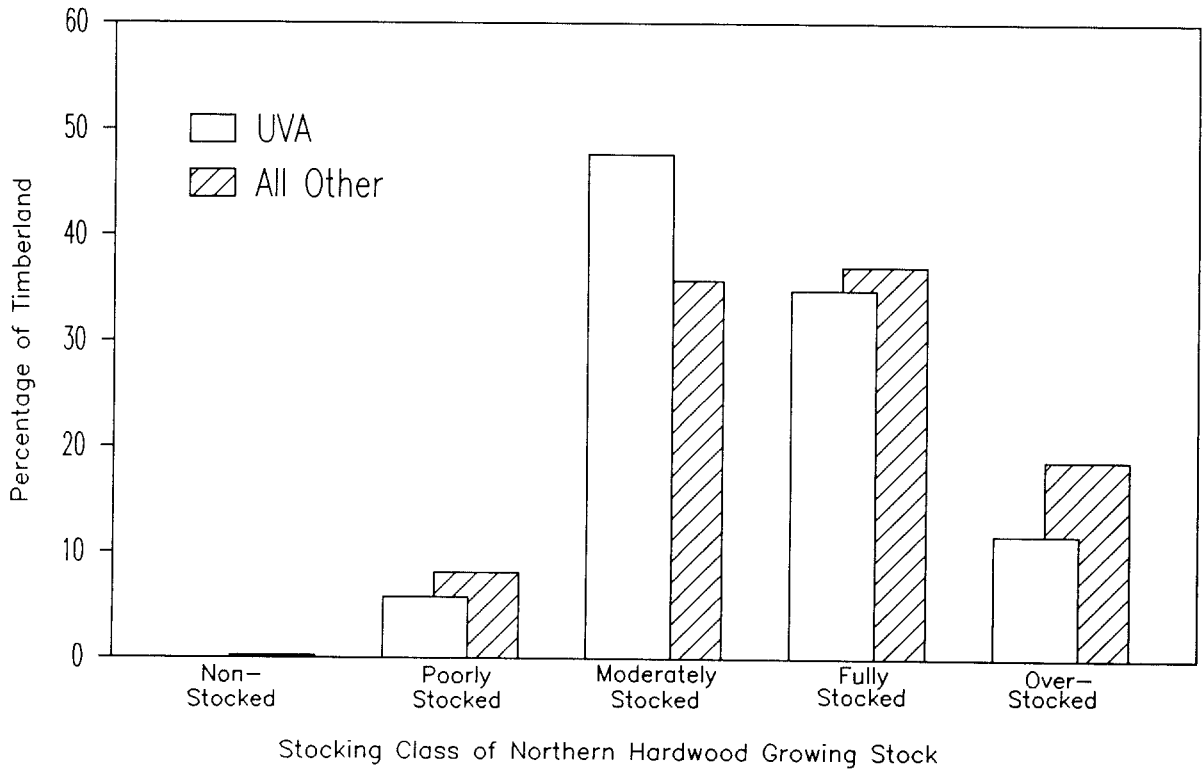
Figure 6.—Percentage distribution of land area classified as northern hardwoods timber-type group by stocking class of growing-stock trees in Vermont for UVA timberland and all other timberland.
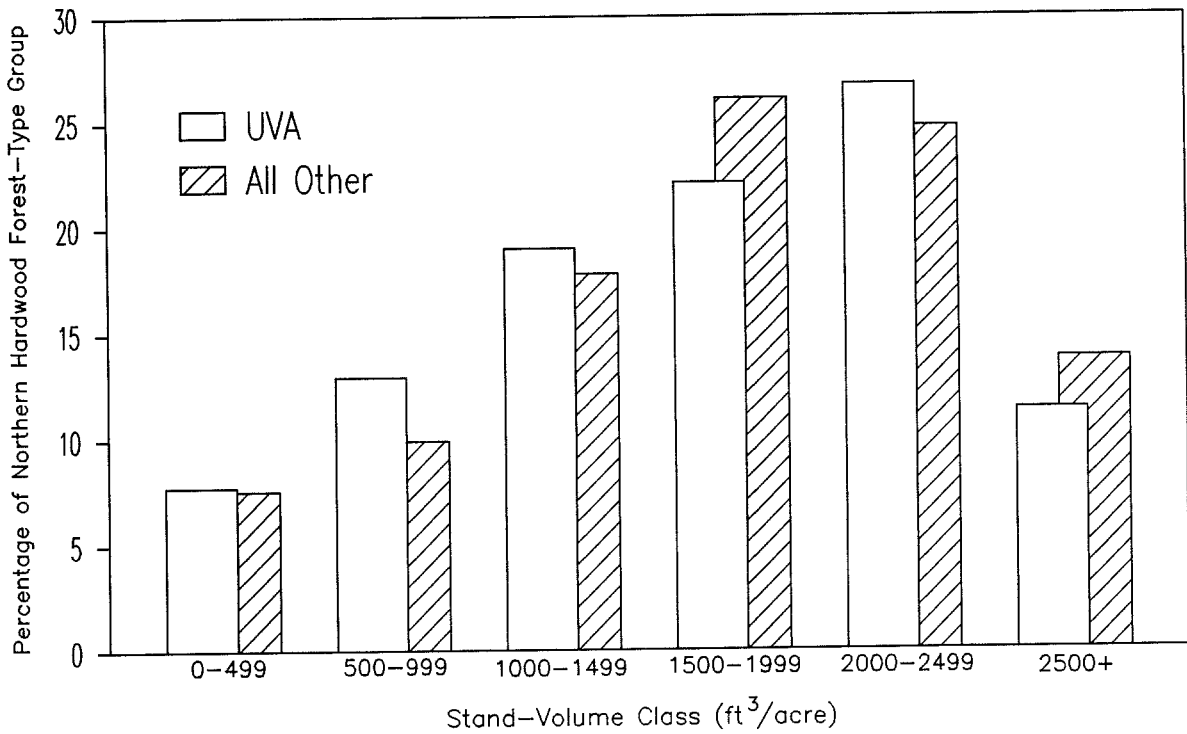
Figure 7.—Percentage distribution of land area classified as northern hardwoods timber-type group by cubic-foot stand-volume class in Vermont for UVA timberland and all other timberland.
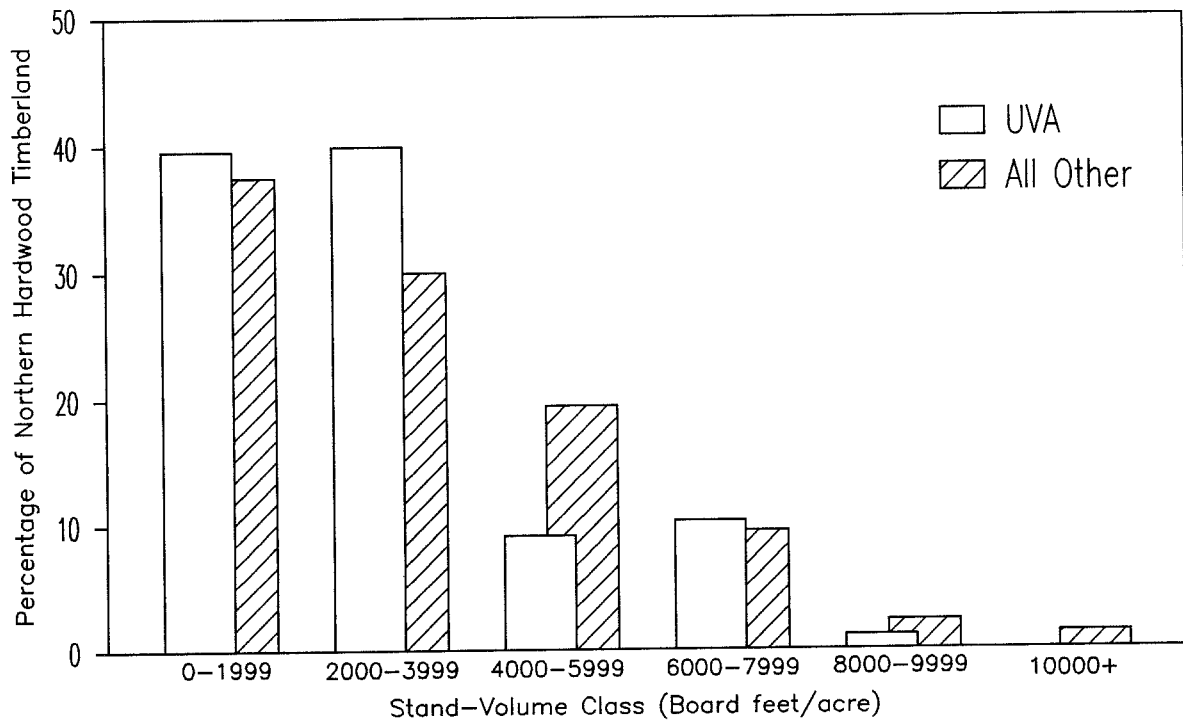
Figure 8.—Percentage distribution of land area classified as northern hardwoods timber-type group by board-foot stand-volume class in Vermont for UVA timberland and all other timberland.

Timber volume. Numbers of live trees per acre greater than 5 inches in d.b.h. are shown in Table 2. With the exception of the hardwoods category, the figures for UVA timberland and all other timberland are nearly identical. In the case of hardwoods, there were more trees per acre on UVA timberland then on all other timberland, 97 versus 91 trees. Further subdividing, there were 39 sawtimber-size trees per acre (softwoods and hardwoods) on UVA timberland versus 37 trees in this size class on all other timberland.

The average board-foot volume for sawtimber trees on UVA timberland was 84 board feet per tree versus 86 board feet on all other timberland. The average total sawtimber volumes on UVA timberland compared to all other timberland were 3,306 and 3,138 board feet per acre, respectively. In sum, UVA timberland had a slightly higher sawtimber volume per acre with a greater number of trees averaging fewer board feet per tree than all other timberland. The differences between the two land categories were almost entirely attributable to the hardwoods, but the differences were too small to be of practical significance.

Frieswyk and Malley (1985) estimated annual net growth and removals for Vermont timberland for the period 1973–83. If these rates are applied to UVA timberland, total net growth on these lands would be:

Timberland	Cubic feet
Softwoods	7,055,000
Hardwoods	20,502,000
Total	27,557,000

The average annual removals for timber products from Vermont timberland for the same period were:

Timberland	Cubic feet
Softwoods	24,254,000
Hardwoods	32,765,000
Total	57,019,000

In total, net growth on UVA timberland could supply nearly half of the annual removals. For softwoods, statewide removals were more than 3 times growth on UVA timberland, and hardwood removals were only a third greater than growth on UVA timberland.

The assumption of statewide rate of growth on UVA timberland probably is conservative. Forest management in general and silvicultural practices in particular should result

Table 2.—Number of live trees per acre >5.0 inches d.b.h. and sawtimber volume per acre on UVA timberland and all other timberland

Land class	Number of live trees/acre				Total
	Growing stock		Cull		
	Softwoods	Hardwoods	Softwoods	Hardwoods	
UVA timberland	49	97	11	31	188
All other timberland	50	91	10	31	182
Total	50	92	10	31	183

Land class	Sawtimber volume/acre		Total
	Softwoods	Hardwoods	
	---------------- Board feet ----------------		
UVA timberland	1,190	2,116	3,306
All other timberland	1,142	1,996	3,138
Total	1,149	2,014	3,163
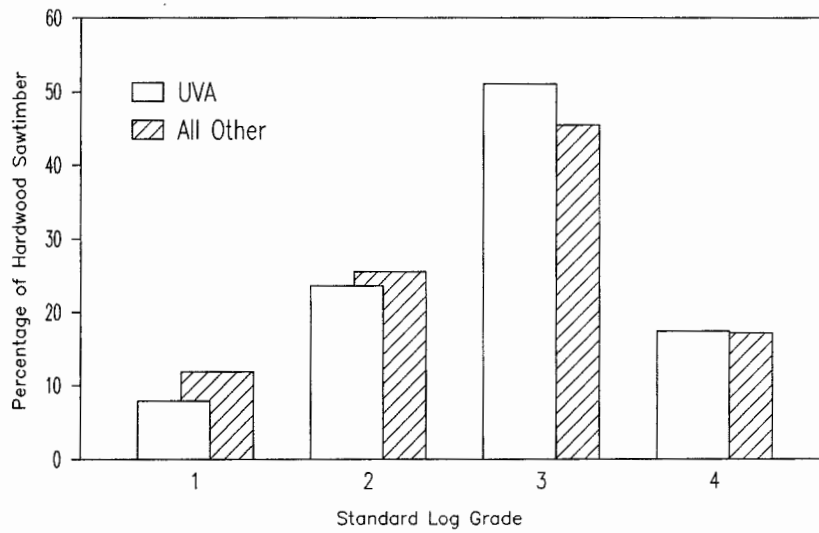
Figure 9.—Percentage distribution of net volume of hardwood sawtimber trees by standard log grade in Vermont for UVA timberland and all other timberland.
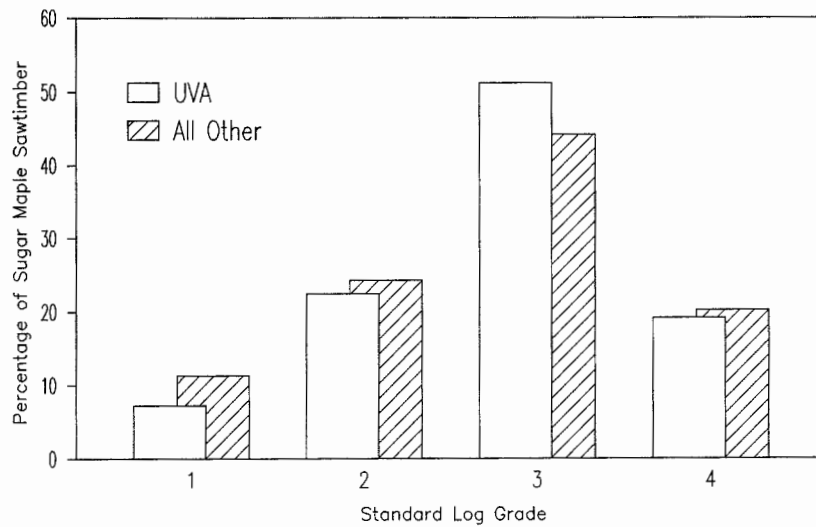
Figure 10.—Percentage distribution of net volume of sugar maple sawtimber trees by standard log grade in Vermont for UVA timberland and all other timberland.
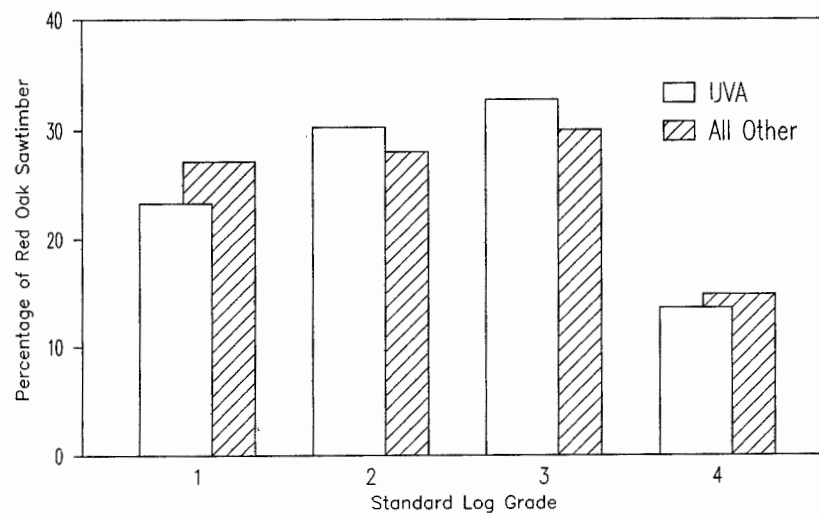
Figure 11.—Percentage distribution of net volume of red oak group sawtimber trees by standard log grade in Vermont for UVA timberland and all other timberland.

in greater productivity of merchantable wood fiber on UVA timberland. But by doubling the acreage in the UVA program and encouraging the enrollment of softwood inventory, the UVA timberland and publicly owned timberland could easily supply the current needs of forest industry in Vermont. What remains unknown and beyond the scope of this study is how the distribution of UVA timberland meshes with existing timbersheds for the various wood-using manufacturers.

Northern and Southern Survey Units

FIA divides Vermont into geographic regions—the Northern Unit and the Southern Unit—based on the homogeneity of the resource base. Precision of State-level estimates of land area and timber volume are mandated by law. Precision at the survey unit level is acceptable for most purposes. However, by adding a new stratum, such as UVA timberland, precision of survey estimates are affected adversely as discussed earlier. For our purpose, unit-level estimates were acceptable but further subdivision, for example to counties, was not.

Differences in UVA timberland between the Northern and

Southern Units were anticipated because of differences in resource and land ownership characteristics (Frieswyk and Malley 1985; Widmann and Birch 1988). The Northern Unit has most of the area of the spruce/fir timber-type group in the State. The Southern Unit has more of the white/red pine-type group timberland and nearly all of the oak/hickory-type group in the State. The predominant timber-type group in both units is northern hardwoods, but it is more dominant in the Southern Unit.

Federal landownership is predominately in the Southern Unit due to the location of the Green Mountain National Forest. Forest industry ownership is more prevalent in the Northern Unit. There are more "other private" owners, mostly individuals, holding smaller parcels of timberland in the Southern Unit than there are in the Northern Unit. For example, the Southern Unit has an estimated 22,800 owners with fewer than 20 acres compared to the Northern Unit with an estimated 3,400 owners in this holding-size class (Widmann and Birch 1988). For all private owners, the average holding is 99 acres in the Northern Unit and 47 acres in the Southern Unit. In the UVA program, the average parcel size was 167 acres in the Northern Unit and 149 acres in the Southern Unit in 1987 (Fig. 12).
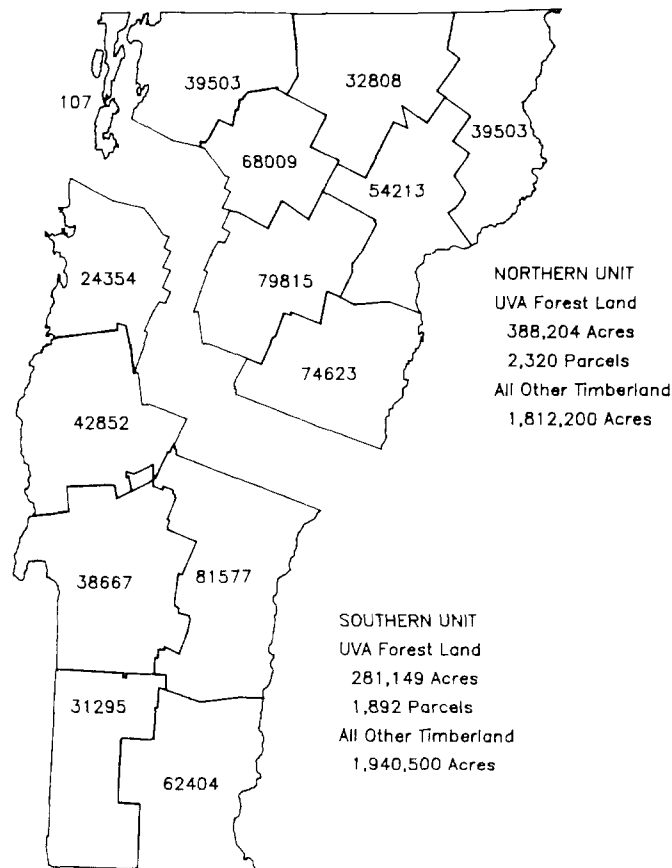
Figure 12.—Land area enrolled in the Vermont UVA program by county and survey unit in 1987.

Figures 13 and 14 show the percentage distribution of softwood and hardwood sawtimber, respectively, for UVA timberland in the Northern and Southern Units. As expected for softwoods, balsam fir and red spruce were more dominant in the Northern Unit and white pine more dominant in the Southern Unit. For hardwoods, sugar maple and yellow birch were more dominant in the Northern Unit and red oaks more dominant in the Southern Unit.

Discussion

The UVA program in Vermont was established to achieve six goals:

1. To encourage and assist the maintenance of Vermont's productive agricultural and forest land.

2. To encourage and assist in their conservation and preservation for future productive use and for the protection of the natural ecological system.

3. To prevent the accelerated conversion of these lands to more intensive use by the pressure of property taxation at values incompatible with the productive capacity of the land.

4. To achieve more equitable taxation for underdeveloped lands.

5. To encourage and assist in the preservation and enhancement of Vermont's scenic natural resources.

6. To enable the citizens of Vermont to plan its orderly growth in the face of increasing development pressures in the interest of the public health, safety, and welfare (32 V.S.A. Chapter 124).

Perhaps the easiest goal to assess is No. 4. Klemperer (1988) found little agreement about the ideal timber tax but widespread agreement on the inequity of the unmodified annual ad valorem property tax. Inasmuch as the Vermont UVA program significantly lowered the property tax on forest land based on some measure of physical productivity, it has achieved the goal. Whether this goal has been achieved in an efficient and optimal way is an important question, but the answer is beyond the scope of this report.

Goals 1 and 3, to encourage timber production and discourage conversion of timberland, are closely tied together. In essence they deal with long-run timber supply. It is difficult to estimate the results of the program from a theoretical model because theory offers a simplified abstraction of a complex and evolving system. Empirical research requires longitudinal studies to observe the behavior of the system over time. The task is further complicated by change. In the UVA program alone, there have been a half-dozen legislated changes and numerous procedural changes instituted by the Current Use Advisory Board and the Department of Forests, Parks and Recreation.

The property tax on forest land is a fixed cost with respect to the value of the timber on a given parcel both before and after enrollment in the UVA program. Therefore, although the amount of the tax is lowered significantly after enrollment because it is fixed with respect to timber value, it has no effect on the optimal rotation age (Duerr 1960). This implies no change in the long-run supply of timber.

However, another potential effect of the decreased tax would be an increase in the land area devoted to forest production. For example, given a set of resource values and costs of production, a certain low level of forest productivity can be identified as marginal. That is, the present value of the flow of benefits (positive) and costs (negative) at that level of productivity sum to zero. If costs are decreased, say, by lowering of annual property taxes, all else being equal, land of an even lower productivity becomes marginal for timber production. Thus, the long-run timber supply will be increased by increasing the amount of land area devoted to forest production. The short-run effect could lead to a decrease in the amount of timber offered for sale as landowners planning liquidation and conversion to nonforest use change their plans. The magnitude of these effects is unknown but almost certainly would be small.

Klemperer (1988) warns that the possible outcome of more favorable timber taxation may be to encourage forest management on poor sites and in areas with few market opportunities. This tendency is mitigated in Vermont by a cap on the amount of low site land and open land that any individual can enroll in the program (20 percent). However, enrollment in the program does not require an assessment of timber marketing opportunities. And regardless of the need to harvest timber as planned, the law does not force cutting if it is not economically sound to do so.

All that can be said about timber supply (goals 1 and 3) with regard to the UVA program is that, all else being equal, decreased property tax should increase the long-run timber supply by increasing the amount of land devoted to timber production. However, all else does not remain equal and empirical assessment will have to wait until the next State forest inventory, scheduled for the early 1990's. The Department of Forests, Parks and Recreation also has begun monitoring timber harvest on UVA forest land as part of its annual conformance report.

Goal 2, conservation, preservation, and protection of the natural ecosystem, follows at least partially from the success of goals 1 and 3 and compliance with the approved forest management plan. Silvicultural guidelines and supervision of harvesting by foresters favor protection of the long-run productivity of the growing site. A decrease in the rate of land conversions to nonforest use will favor the
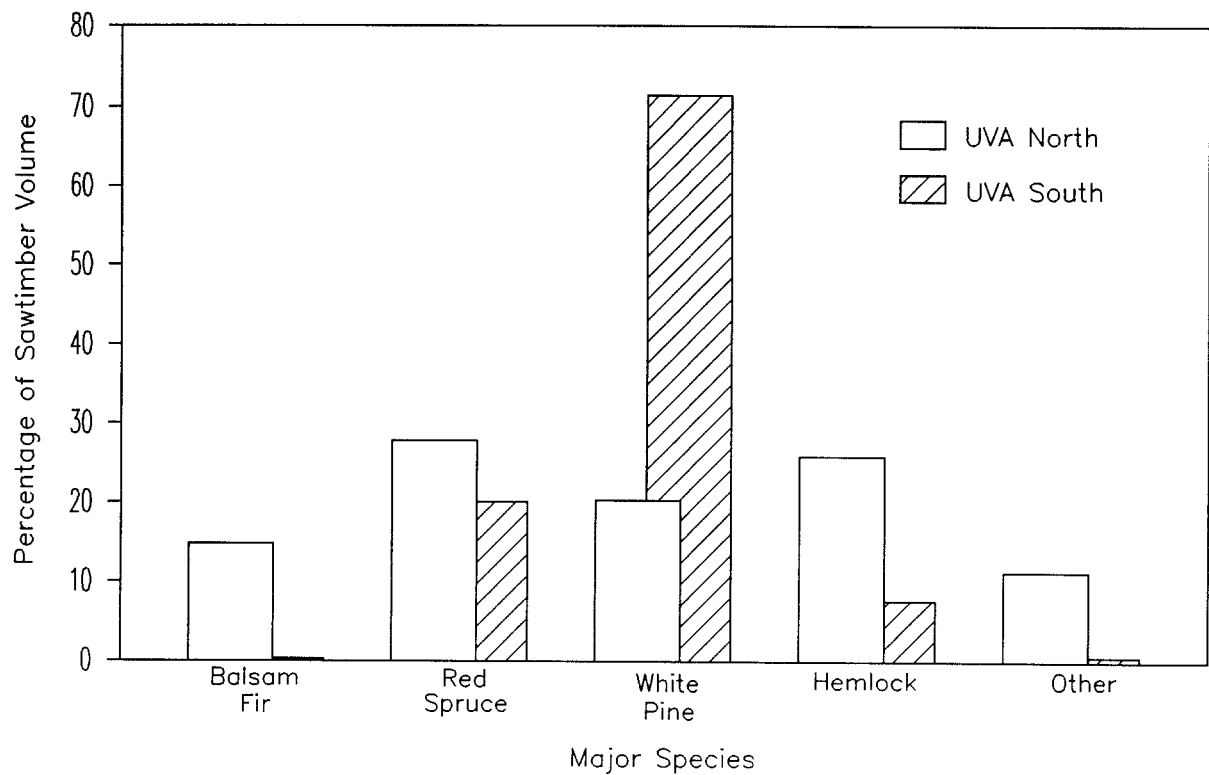
Figure 13.—Percentage distribution of volume of softwood sawtimber trees in Vermont by major species for UVA timberland in the Northern and Southern Units.
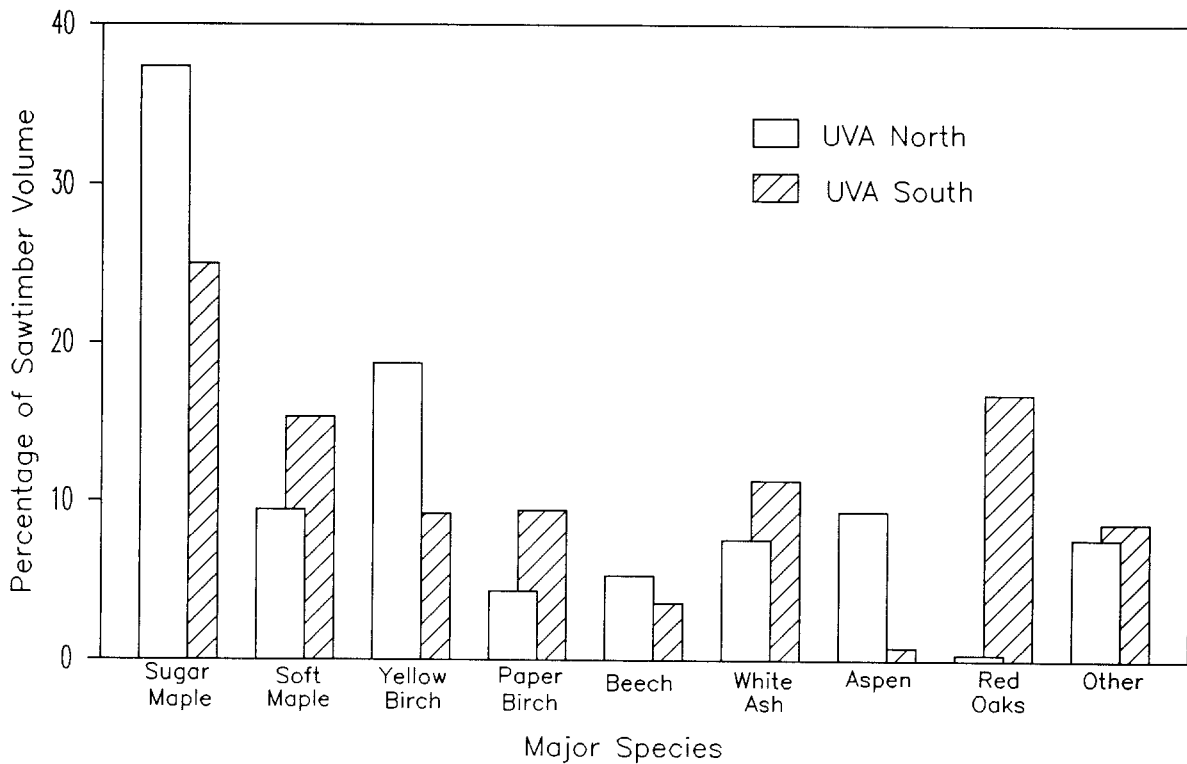
Figure 14.—Percentage distribution of volume of hardwood sawtimber trees in Vermont by major species for UVA timberland in the Northern and Southern Units.

preservation of more forest land for future use.

In goal 5, which deals with scenic enhancement, the Vermont Legislature defines scenic as a working landscape. This goal is perhaps the most difficult one to evaluate and it is beyond the scope of this report to do so.

Finally, goal 6 implies wise use of the time gained by slowing the rate of land conversion. In fact, recent legislation has moved the State in that direction. Act 200, the "growth bill," was adopted in the State Legislature in 1988. It is a complex, comprehensive act dealing with planning, agriculture, and land conversion (24 V.S.A. 4302). It is, in fact, another change that will make the effects of the UVA program on timberland more difficult to measure.

Based on the forest inventory data, timberland in the UVA program mirrors Vermont timberland in general. It does not appear that a disproportionate amount of exceptionally poor sites or exceptionally good sites are enrolled in the program. Nor does the quantity (volume, trees per acre) or quality (log grade, cull trees) appear to be disproportionately represented. Therefore, future Vermont forest inventories should show evidence of forest management because all UVA forest land must be managed actively and a high proportion of non-UVA timberland will remain unmanaged. Evidence of management might include fewer trees per acre averaging larger diameters, a smaller fraction of cull volume per acre, and a shift in tree quality with more sawtimber volume in the higher log grades relative to unmanaged land.

Acknowledgment

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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 land. At least 25 contiguous acres which are in active agricultural use, or smaller parcels which generate at least $2,000 annually from the sale of farm crops, or which are owned by a farmer.

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.

Capitalized value. Present value of a perpetual series of equal annual payments.

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.

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

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.

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. A person who earns at least one-half of his or her annual gross income from the business of farming.

Farmland. All agricultural land owned by a farmer.

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

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

Forest land. (a) As defined for forest inventory, 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. (b) As defined for the Vermont Use Value Appraisal Program, at least 25 contiguous acres of land managed according to a forest management plan approved by the State with no more than 20 percent of the area classified as site IV or open. Smaller parcels may be eligible if owned by a farmer.

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 Vermont were combined into the following major forest-type groups (the descriptions apply to forests in Vermont):

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. *Spruce/fir*—forests in which red spruce, northern white-cedar, balsam fir, white spruce, black spruce, or tamarack, singly or in combination, make up a plurality of the stocking; common associates include paper birch, red maple, aspen, white pine, hemlock, and sugar maple.

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 75 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.

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 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.

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.

In growth. 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.

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 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.

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

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.

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.

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

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.

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.

Rotten tree. A live tree of commerical 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.

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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 noncommerical species.

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

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 (Frieswyk and Malley 1985).]

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.

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

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-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 Vermont, red pine was graded using the southern pine guidelines.) All specifications are shown under Log-Grade Classification in Frieswyk and Malley (1985).

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 number 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 15, poorly stocked = 16 to 59, moderately stocked = 60 to 99, fully stocked = 100 to 129, and overstocked = 130 to 160.

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

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

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.

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State Tables

Table 3.—Area of UVA timberland by forest type, forest-type group, and stand-size class, Vermont, 1983

(Thousands of acres)[a]

Forest type and forest-type group	Stand-size class				
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked	All classes
Red pine	0.0	0.0	0.0	0.0	0.0
White pine	40.4	8.4	0.0	0.0	48.8
White pine/hemlock	4.2	0.0	0.0	0.0	4.2
Hemlock	22.2	0.0	0.0	0.0	22.2
White/red pine group	66.8	8.4	0.0	0.0	75.2
Balsam fir	0.0	0.0	0.0	0.0	0.0
Red spruce	24.7	0.0	0.0	0.0	24.7
Red spruce/balsam fir	14.2	10.9	0.0	0.0	25.1
White spruce	13.3	0.0	0.0	0.0	13.3
Black spruce	0.0	0.0	0.0	0.0	0.0
Northern white-cedar	8.1	0.0	0.0	0.0	8.1
Spruce/fir group	60.3	10.9	0.0	0.0	71.2
White pine/northern red oak/ white ash	4.2	0.0	0.0	0.0	4.2
Oak/pine group	4.2	0.0	0.0	0.0	4.2
White oak/red oak/hickory	0.0	0.0	0.0	0.0	0.0
White oak	0.0	0.0	0.0	0.0	0.0
Northern red oak	10.6	0.0	0.0	0.0	10.6
Hawthorn/reverting field	0.0	0.0	0.0	0.0	0.0
Red maple/central hardwoods	0.0	0.0	0.0	0.0	0.0
Mixed central hardwoods	5.1	0.0	0.0	0.0	5.1
Oak/hickory group	15.7	0.0	0.0	0.0	15.7
Black ash/American elm/ red maple	4.7	0.0	0.0	0.0	4.7
Elm/ash/red maple group	4.7	0.0	0.0	0.0	4.7
Sugar maple/beech/yellow birch	246.0	87.5	16.1	0.0	349.6
Black cherry	4.7	0.0	4.0	0.0	8.7
Red maple/northern hardwoods	31.1	15.9	0.0	0.0	47.0
Pin cherry/reverting field	0.0	0.0	9.1	0.0	9.1
Mixed northern hardwoods	29.5	5.1	10.4	0.0	45.1
Northern hardwoods group	311.3	108.5	39.6	0.0	459.5
Aspen	4.7	10.6	0.0	0.0	15.3
Paper birch	4.0	19.6	0.0	0.0	23.6
Gray birch	0.0	0.0	0.0	0.0	0.0
Aspen/birch group	8.7	30.2	0.0	0.0	38.9
All forest types	471.7	158.0	39.6	0.0	669.4

[a]Columns and rows may not sum to total due to rounding.

Table 4.—Area of non-UVA timberland by forest type, forest-type group, and stand-size class, Vermont, 1983

(Thousands of acres)[a]

Forest type and forest-type group	Stand-size class				
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked	All classes
Red pine	7.5	0.0	0.0	0.0	7.5
White pine	196.5	34.7	44.0	0.0	275.2
White pine/hemlock	96.2	7.5	0.0	0.0	103.7
Hemlock	155.0	14.7	0.0	0.0	169.7
White/red pine group	455.2	56.9	44.0	0.0	556.1
Balsam fir	15.0	64.8	22.6	0.0	102.4
Red spruce	75.9	14.4	0.0	0.0	90.3
Red spruce/balsam fir	154.0	41.7	65.8	0.0	261.5
White spruce	9.5	14.3	0.0	0.0	23.8
Black spruce	0.0	0.0	6.9	0.0	6.9
Northern white-cedar	43.7	7.4	26.4	0.0	77.5
Spruce/fir group	298.1	142.6	121.7	0.0	562.4
White pine/northern red oak/ white ash	2.5	6.8	0.0	0.0	9.3
Oak/pine group	2.5	6.8	0.0	0.0	9.3
White oak/red oak/hickory	7.2	7.1	6.0	0.0	20.3
White oak	6.7	13.8	0.0	0.0	20.5
Northern red oak	47.7	14.2	6.7	0.0	68.6
Hawthorn/reverting field	0.0	2.9	5.6	6.4	14.9
Red maple/central hardwoods	0.0	0.0	6.4	0.0	6.4
Mixed central hardwoods	3.4	7.4	7.2	0.0	18.0
Oak/hickory group	65.0	45.4	31.9	6.4	148.7
Black ash/American elm/ red maple	38.9	28.3	27.1	0.0	94.3
Elm/ash/red maple group	38.9	28.3	27.1	0.0	94.3
Sugar maple/beech/yellow birch	1,216.4	307.7	116.0	0.0	1,640.1
Black cherry	7.5	0.0	9.0	0.0	16.5
Red maple/northern hardwoods	162.4	92.4	14.8	0.0	269.6
Pin cherry/reverting field	0.0	0.0	23.5	5.6	29.1
Mixed northern hardwoods	134.7	116.0	32.1	0.0	282.7
Northern hardwoods group	1,521.0	516.1	195.4	5.6	2,238.0
Aspen	10.3	19.2	14.1	0.0	43.6
Paper birch	25.1	68.4	0.0	0.0	93.5
Gray birch	0.0	6.8	0.0	0.0	6.8
Aspen/birch group	35.4	94.4	14.1	0.0	143.9
Total all groups	2,416.1	890.5	434.2	12.0	3,752.7

[a]Columns and rows may not sum to total due to rounding.

Table 5.—Area of timberland by forest-type group and ownership class, Vermont, 1983

(Thousands of acres)[a]

Forest-type group	Ownership class				
	National Forest	Other public	UVA lands[b]	All other private	All classes
White/red pine	8.8	26.0	75.2	521.3	631.3
Spruce/fir	8.6	17.1	71.2	536.7	633.6
Oak/pine	—	—	4.2	9.3	13.5
Oak/hickory	—	4.6	15.7	144.1	164.4
Elm/ash/red maple	—	4.1	4.7	90.2	99.0
Northern hardwoods	165.7	172.3	459.5	1,900.0	2,697.5
Aspen/birch	—	22.3	38.9	121.6	182.8
Total all groups	183.1	246.4	669.4	3,323.2	4,422.1

[a]Columns and rows may not sum to total due to rounding.

[b]Use-Value Appraised private forest lands.

Table 6.—Area of timberland by stand-size class and ownership class, Vermont, 1983

(Thousands of acres)[a]

Stand-size class	Ownership class				
	National Forest	Other public	UVA lands[b]	All other private	All classes
Sawtimber	146.5	162.8	471.7	2,106.8	2,887.8
Poletimber	24.6	70.9	158.0	795.0	1,048.5
Sapling and seedling	12.0	12.7	39.6	409.5	473.8
Nonstocked	0.0	0.0	0.0	12.0	12.0
All classes	183.1	246.4	669.4	3,323.2	4,422.1

[a]Columns and rows may not sum to total due to rounding.

[b]Use-Value Appraised private forest lands.

Table 7.—Area of timberland by board-foot stand-volume class and ownership class, Vermont, 1983

(Thousands of acres)[a]

Stand-volume class (board feet/acre)	Ownership class				
	National Forest	Other public	UVA lands[b]	All other private	All classes
0–1,999	38.0	69.4	227.4	1,368.2	1,703.0
2,000–3,999	64.4	109.2	246.7	955.1	1,375.4
4,000–5,999	45.0	22.6	80.3	577.8	725.7
6,000–7,999	27.7	36.1	99.4	287.6	450.8
8,000–9,999	8.0	4.5	15.6	86.9	115.0
10,000 +	—	4.6	0.0	47.6	52.2
All classes	183.1	246.4	669.4	3,323.2	4,422.1

[a]Columns and rows may not sum to total due to rounding.

[b]Use-Value Appraised private forest lands.

Table 8.—Area of UVA timberland by forest-type group and cubic-foot stand-volume class, Vermont, 1983

(Thousands of acres)[a]

Forest-type group	Stand-volume class (cubic feet/acre)						
	0– 499	500– 999	1,000– 1,499	1,500– 1,999	2,000– 2,499	2,500 +	All classes
White/red pine	0.0	0.0	4.0	8.6	3.1	59.6	75.2
Spruce/fir	0.0	8.6	18.6	4.4	20.7	18.9	71.2
Oak/pine	0.0	0.0	0.0	4.2	0.0	0.0	4.2
Oak/hickory	0.0	0.0	0.0	5.1	10.6	0.0	15.7
Elm/ash/red maple	0.0	0.0	0.0	4.7	0.0	0.0	4.7
Northern hardwoods	35.5	59.5	87.4	101.7	123.1	52.3	459.5
Aspen/birch	0.0	0.0	0.0	9.9	14.5	14.6	38.9
Total all groups	35.5	68.1	110.1	138.5	171.9	145.3	669.4

[a]Columns and rows may not sum to total due to rounding.

Table 9.—Area of non-UVA timberland by forest-type group and cubic-foot stand-volume class, Vermont, 1983

(Thousands of acres)[a]

Forest-type group	Stand-volume class (cubic feet/acre)						
	0– 499	500– 999	1,000– 1,499	1,500– 1,999	2,000– 2,499	2,500 +	All classes
White/red pine	62.3	77.7	62.0	128.1	104.6	121.3	556.1
Spruce/fir	69.7	95.4	135.1	90.1	82.6	89.5	562.4
Oak/pine	0.0	0.0	6.8	2.6	0.0	0.0	9.4
Oak/hickory	41.1	22.1	21.5	29.6	19.6	14.8	148.7
Elm/ash/red maple	34.6	13.5	28.0	18.2	0.0	0.0	94.3
Northern hardwoods	169.2	221.7	398.3	584.9	554.9	309.0	2,238.0
Aspen/birch	6.8	21.5	28.9	49.3	14.9	22.5	143.9
Total all groups	383.7	451.9	680.6	902.8	776.6	557.2	3,752.8

[a]Columns and rows may not sum to total due to rounding.

Table 10.—Area of UVA timberland by forest-type group and board-foot stand-volume class, Vermont, 1983

(Thousands of acres)[a]

Forest-type group	Stand-volume class (board feet/acre)						
	0– 1,999	2,000– 3,999	4,000– 5,999	6,000– 7,999	8,000– 9,999	10,000 +	Total
White/red pine	13.5	17.9	0.0	33.2	10.6	0.0	75.2
Spruce/fir	16.7	25.8	9.8	18.9	0.0	0.0	71.2
Oak/pine	0.0	4.2	0.0	0.0	0.0	0.0	4.2
Oak/hickory	5.1	0.0	10.6	0.0	0.0	0.0	15.7
Elm/ash/red maple	0.0	0.0	4.7	0.0	0.0	0.0	4.7
Northern hardwoods	181.9	183.5	41.8	47.2	5.1	0.0	459.5
Aspen/birch	10.2	15.3	13.4	0.0	0.0	0.0	38.9
Total all groups	227.4	246.7	80.3	99.4	15.6	0.0	669.4

[a]Columns and rows may not sum to total due to rounding.

Table 11.—Area of non-UVA timberland by forest-type group and board-foot stand-volume class, Vermont, 1983

(Thousands of acres)[a]

Forest-type group	Stand-volume class (board feet/acre)						
	0–1,999	2,000–3,999	4,000–5,999	6,000–7,999	8,000–9,999	10,000+	Total
White/red pine	154.5	210.4	79.8	78.3	18.1	15.0	556.1
Spruce/fir	250.7	157.6	92.2	39.8	22.1	0.0	562.4
Oak/pine	6.8	2.6	0.0	0.0	0.0	0.0	9.4
Oak/hickory	71.8	35.4	12.2	14.6	7.2	7.5	148.7
Elm/ash/red maple	62.6	29.0	2.7	0.0	0.0	0.0	94.3
Northern hardwoods	839.1	671.1	434.6	211.6	51.9	29.7	2,238.0
Aspen/birch	90.1	22.7	23.9	7.2	0.0	0.0	143.9
Total all groups	1,475.6	1,128.7	645.5	351.4	99.4	52.2	3,752.8

[a]Columns and rows may not sum to total due to rounding.

Table 12.—Area of UVA timberland by forest-type group and stocking class of all live trees, Vermont, 1983

(Thousands of acres)[a]

Forest-type group	Stocking class					
	Non-stocked	Poorly stocked	Moderately stocked	Fully stocked	Over-stocked	All classes
White/red pine	0.0	0.0	4.0	23.2	48.0	75.2
Spruce/fir	0.0	0.0	14.7	17.3	39.3	71.2
Oak/pine	0.0	0.0	0.0	4.2	0.0	4.2
Oak/hickory	0.0	0.0	0.0	15.7	0.0	15.7
Elm/ash/red maple	0.0	0.0	0.0	4.7	0.0	4.7
Northern hardwoods	0.0	5.7	90.6	256.7	106.6	459.5
Aspen/birch	0.0	0.0	0.0	24.3	14.6	38.9
Total all groups	0.0	5.7	109.2	346.0	208.5	669.4

[a]Columns and rows may not sum to total due to rounding.

Table 13.—Area of non-UVA timberland by forest-type group and stocking class of all live trees, Vermont, 1983

(Thousands of acres)[a]

Forest-type group	Stocking class					
	Non-stocked	Poorly stocked	Moderately stocked	Fully stocked	Over-stocked	All classes
White/red pine	0.0	46.0	87.9	264.3	157.9	556.1
Spruce/fir	0.0	27.0	99.5	225.7	210.2	562.4
Oak/pine	0.0	0.0	6.8	2.6	0.0	9.4
Oak/hickory	6.4	10.3	49.3	60.4	22.3	148.7
Elm/ash/red maple	0.0	20.4	42.3	9.8	21.8	94.3
Northern hardwoods	5.6	33.1	267.1	1,295.9	636.4	2,238.0
Aspen/birch	0.0	0.0	23.0	70.6	50.3	143.9
Total all groups	12.0	136.8	576.0	1,929.1	1,098.9	3,752.8

[a]Columns and rows may not sum to total due to rounding.

Table 14.—Area of UVA timberland by forest-type group and stocking class of growing-stock trees, Vermont, 1983

(Thousands of acres)[a]

Forest-type group	Stocking class					
	Non-stocked	Poorly stocked	Moderately stocked	Fully stocked	Over-stocked	All classes
White/red pine	0.0	5.1	8.4	46.9	14.8	75.2
Spruce/fir	0.0	8.6	18.6	29.8	14.2	71.2
Oak/pine	0.0	0.0	0.0	4.2	0.0	4.2
Oak/hickory	0.0	0.0	5.1	10.6	0.0	15.7
Elm/ash/red maple	0.0	0.0	0.0	4.7	0.0	4.7
Northern hardwoods	0.0	26.5	218.9	160.2	54.0	459.5
Aspen/birch	0.0	0.0	0.0	34.2	4.7	38.9
Total all groups	0.0	40.1	251.1	290.5	87.7	669.4

[a]Columns and rows may not sum to total due to rounding.

Table 15.—Area of non-UVA timberland by forest-type group and stocking class of growing-stock trees, Vermont, 1983

(Thousands of acres)[a]

Forest-type group	Stocking class					
	Non-stocked	Poorly stocked	Moderately stocked	Fully stocked	Over-stocked	All classes
White/red pine	13.4	68.9	184.9	229.0	59.9	556.1
Spruce/fir	0.0	47.0	126.3	166.4	222.7	562.4
Oak/pine	0.0	0.0	6.8	2.6	0.0	9.4
Oak/hickory	9.3	7.5	70.8	32.0	29.1	148.7
Elm/ash/red maple	0.0	41.8	21.0	18.2	13.3	94.3
Northern hardwoods	5.6	181.5	800.7	829.7	420.5	2,238.0
Aspen/birch	0.0	0.0	38.1	60.9	44.9	143.9
Total all groups	28.3	346.7	1,248.6	1,338.8	790.4	3,752.8

[a]Columns and rows may not sum to total due to rounding.

Table 16.—Number of live trees on UVA timberland by diameter and tree classes and softwoods and hardwoods, Vermont, 1983

(Thousands of trees)[a]

Diameter class (inches)	Growing stock		Cull		Total
	Softwoods	Hardwoods	Softwoods	Hardwoods	
Seedlings	220,547	1,719,946	0	669,887	2,610,381
1.0– 2.9	39,248	83,147	0	23,172	145,567
3.0– 4.9	14,298	38,187	0	7,450	59,936
Total seedlings and saplings	274,094	1,841,281	0	700,509	2,815,883
5.0– 6.9	12,717	19,801	2,751	9,730	45,000
7.0– 8.9	9,022	16,302	2,130	4,062	31,516
9.0–10.9	0	13,323	0	2,269	15,592
Total poletimber	21,739	49,426	4,881	16,061	92,108
9.0–10.9	5,255	0	832	0	6,087
11.0–12.9	3,024	7,773	459	1,643	12,900
13.0–14.9	1,164	4,187	259	1,028	6,637
Total small sawtimber	9,443	11,961	1,550	2,671	25,624
15.0–16.9	787	1,817	198	724	3,527
17.0–18.9	359	848	151	560	1,918
19.0–20.9	200	321	65	329	915
21.0–28.9	180	275	121	428	1,004
29 and larger	49	55	67	137	307
Total larger sawtimber	1,575	3,316	603	2,178	7,672
All classes	306,852	1,905,983	7,033	721,418	2,941,286

[a]Columns and rows may not sum to total due to rounding.

Table 17.—Number of live trees on non-UVA timberland by diameter and tree classes and softwoods and hardwoods, Vermont, 1983

(Thousands of trees)[a]

Diameter class (inches)	Growing stock		Cull		Total
	Softwoods	Hardwoods	Softwoods	Hardwoods	
Seedlings	1,238,339	8,411,042	0	3,104,780	12,754,160
1.0– 2.9	313,481	540,631	0	160,055	1,014,167
3.0– 4.9	178,765	248,781	0	39,657	467,202
Total seedlings and saplings	1,730,584	9,200,453	0	3,304,492	14,235,530
5.0– 6.9	75,783	117,193	20,103	56,445	269,523
7.0– 8.9	48,954	93,385	8,239	24,167	174,745
9.0–10.9	0	57,077	0	13,113	70,190
Total poletimber	124,737	267,655	28,342	93,725	514,458
9.0–10.9	30,442	0	4,009	0	34,451
11.0–12.9	17,410	34,990	2,661	7,558	62,618
13.0–14.9	8,545	18,142	1,539	4,898	33,125
Total small sawtimber	56,397	53,131	8,209	12,456	130,194
15.0–16.9	4,208	10,166	934	3,398	18,705
17.0–18.9	1,887	4,934	499	2,124	9,444
19.0–20.9	761	2,692	240	1,594	5,287
21.0–28.9	799	2,323	298	2,357	5,777
29 and larger	52	263	68	643	1,027
Total larger sawtimber	7,707	20,378	2,038	10,116	40,239
All classes	1,919,424	9,541,618	38,590	3,420,790	14,920,422

[a]Columns and rows may not sum to total due to rounding.

Table 18.—Number of live trees (5.0+ inches d.b.h.) on UVA timberland by species and tree class, Vermont, 1983

(Thousands of trees)[a]

Species	Tree class					
	Preferred	Acceptable	All growing stock	Rough cull	Rotten cull	All classes
Balsam fir	370	5,882	6,252	903	541	7,696
Tamarack	22	162	184	0	0	184
White spruce	0	1,841	1,841	111	0	1,952
Black spruce	0	0	0	0	0	0
Red spruce	289	9,445	9,734	637	342	10,713
Red pine	0	0	0	0	0	0
White pine	602	6,231	6,833	1,492	186	8,512
Northern white-cedar	588	2,661	3,250	706	354	4,310
Hemlock	245	4,383	4,628	1,623	117	6,368
Other softwoods	0	37	37	19	0	55
Total softwoods	2,116	30,641	32,757	5,492	1,541	39,791
Sugar maples	866	24,133	24,999	3,222	2,819	31,040
Soft maples	189	8,995	9,184	2,144	1,351	12,679
Yellow birch	305	6,840	7,146	1,562	793	9,501
Paper birch	580	6,431	7,011	271	684	7,966
Gray birch	0	292	292	193	0	485
Beech	9	2,877	2,886	807	1,215	4,909
White ash	935	3,431	4,367	145	229	4,741
Black ash	0	870	870	94	12	976
Aspen	41	2,306	2,347	157	268	2,772
White oaks	0	0	0	0	0	0
Red oaks	592	1,915	2,507	91	96	2,695
Basswood	0	311	311	0	0	311
Elm	0	302	302	160	0	462
Other commercial hardwoods	211	2,268	2,479	487	223	3,189
Noncommercial hardwoods	0	0	0	3,199	646	3,845
Total hardwoods	3,730	60,972	64,702	12,532	9,337	85,570
Total all species	5,846	91,613	97,460	18,024	9,877	125,361

[a]Columns and rows may not sum to total due to rounding.

Table 19.—Number of live trees (5.0 + inches d.b.h.) on non-UVA timberland by species and tree class, Vermont, 1963

(Thousands of trees)[a]

Species	Tree class					
	Preferred	Acceptable	All growing stock	Rough cull	Rotten cull	All classes
Balsam fir	5,654	39,351	45,005	4,108	1,541	50,654
Tamarack	86	1,207	1,293	0	0	1,293
White spruce	417	6,574	6,991	450	43	7,484
Black spruce	90	573	663	0	0	633
Red spruce	4,160	40,147	44,307	6,407	1,283	51,997
Red pine	256	827	1,083	0	0	1,633
White pine	2,654	26,499	29,153	8,773	1,110	39,035
Northern white-cedar	104	11,473	11,576	2,718	1,004	15,298
Hemlock	4,942	43,791	48,733	9,428	1,132	59,293
Other softwoods	0	35	35	572	23	631
Total softwoods	18,363	170,478	188,841	32,455	6,135	227,430
Sugar maples	7,278	92,041	99,319	15,867	10,711	125,897
Soft maples	4,580	50,113	54,693	8,946	7,066	70,705
Yellow birch	2,910	35,221	38,130	7,893	4,645	50,668
Paper birch	4,527	40,018	44,545	3,278	1,583	49,406
Gray birch	0	1,837	1,837	3,870	240	5,947
Beech	1,109	28,471	29,580	8,537	9,508	47,624
White ash	3,571	15,716	19,286	1,762	927	21,975
Black ash	0	1,204	1,204	0	68	1,272
Aspen	932	10,908	11,840	1,047	466	13,353
White oaks	177	1,677	1,854	286	43	2,183
Red oaks	1,824	7,976	9,800	284	121	10,204
Basswood	132	2,464	2,596	489	287	3,372
Elm	50	4,843	4,893	499	172	5,564
Other commercial hardwoods	2,535	19,054	21,589	2,049	1,314	24,952
Noncommercial hardwoods	0	0	0	21,108	3,273	24,381
Total hardwoods	29,623	311,542	341,165	75,915	40,423	457,504
Total all species	47,986	482,020	530,005	108,370	46,559	684,934

[a]Columns and rows may not sum to total due to rounding.

Table 20.—Number of growing-stock trees on UVA timberland by species and diameter class, Vermont, 1983

(Thousands of trees)[a]

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	29.0+	
Balsam fir	3,354	1,643	827	310	52	65	0	0	0	0	6,251
Tamarack	43	0	82	47	11	0	0	0	0	0	184
White spruce	441	490	679	219	11	0	0	0	0	0	1,841
Black spruce	0	0	0	0	0	0	0	0	0	0	0
Red spruce	4,180	2,884	1,494	430	379	179	134	41	12	0	9,733
Red pine	0	0	0	0	0	0	0	0	0	0	0
White pine	2,665	970	1,180	916	325	261	190	134	144	49	6,833
Northern white-cedar	1,489	1,324	161	257	19	0	0	0	0	0	3,250
Hemlock	526	1,692	832	845	368	282	34	24	25	0	4,629
Other softwoods	19	19	0	0	0	0	0	0	0	0	37
Total softwoods	12,717	9,022	5,255	3,025	1,164	788	359	200	180	49	32,757
Sugar maple	8,252	6,667	5,062	2,668	1,409	538	256	115	34	0	25,000
Soft maples	3,862	1,780	1,534	806	660	397	54	36	55	0	9,185
Yellow birch	1,687	1,986	1,338	943	769	223	46	39	78	37	7,146
Paper birch	1,850	1,993	1,867	944	222	25	89	10	11	0	7,011
Gray birch	271	22	0	0	0	0	0	0	0	0	292
Beech	1,423	521	447	183	111	94	57	24	13	9	2,882
White ash	641	1,081	1,329	785	255	146	129	0	0	0	4,366
Black ash	215	325	93	147	33	0	16	0	0	0	829
Aspen	414	599	638	396	104	129	51	0	16	0	2,347
White oaks	0	0	0	0	0	0	0	0	0	0	0
Red oaks	302	525	509	402	411	197	61	38	60	0	2,507
Basswood	111	86	24	12	49	29	0	0	0	0	311
Elm	36	71	85	83	11	10	0	0	0	5	302
Other hardwoods	737	645	354	402	155	30	88	59	8	0	2,479
Total hardwoods	19,801	16,302	13,282	7,774	4,187	1,817	848	321	275	51	64,658
Total all species	32,518	25,324	18,537	10,798	5,351	2,605	1,207	521	455	100	97,415

[a]Columns and rows may not sum to total due to rounding.

Table 21.—Number of growing-stock trees on non-UVA timberland by species and diameter class, Vermont, 1983

(Thousands of trees)[a]

Species	Diameter class (inches at breast height)										
	5.0–6.9	7.0–8.9	9.0–10.9	11.0–12.9	13.0–14.9	15.0–16.9	17.0–18.9	19.0–20.9	21.0–28.9	29.0+	All classes
Balsam fir	22,609	13,125	5,725	2,782	699	49	0	17	0	0	45,006
Tamarack	681	368	116	77	23	29	0	0	0	0	1,293
White spruce	3,078	1,968	1,135	592	141	52	26	0	0	0	6,991
Black spruce	262	0	350	51	0	0	0	0	0	0	663
Red spruce	17,238	12,432	7,800	4,088	1,762	510	319	38	121	0	44,308
Red pine	309	124	221	73	159	121	42	17	17	0	1,083
White pine	10,085	5,936	4,901	2,992	2,244	1,538	677	322	410	47	29,153
Northern white-cedar	4,783	3,042	2,191	827	373	276	26	40	18	0	11,576
Hemlock	16,721	11,942	8,003	5,928	3,143	1,633	798	328	232	5	48,732
Other softwoods	17	17	0	0	0	0	0	0	0	0	35
Total softwoods	75,783	48,954	30,442	17,409	8,545	4,207	1,887	761	799	52	188,841
Sugar maple	31,587	26,700	14,741	11,616	6,606	3,660	1,774	1,317	1,177	139	99,318
Soft maples	16,645	17,795	9,825	5,279	2,689	1,354	595	299	196	16	54,692
Yellow birch	12,003	8,835	8,091	4,365	2,093	1,295	711	292	417	28	38,130
Paper birch	18,127	13,009	8,623	2,857	1,245	452	155	71	6	0	44,545
Gray birch	1,446	390	0	0	0	0	0	0	0	0	1,837
Beech	11,097	7,268	4,582	2,981	1,760	887	555	284	170	0	29,580
White ash	6,819	5,980	2,359	1,823	1,219	735	164	101	87	0	19,287
Black ash	586	600	0	15	18	17	9	0	0	0	1,204
Aspen	4,495	2,084	2,322	1,297	807	492	220	73	50	0	11,840
White oaks	62	895	418	193	85	79	39	36	31	16	1,854
Red oaks	2,333	2,001	1,672	1,881	525	616	411	161	147	55	9,800
Basswood	928	377	655	260	236	63	55	16	0	6	2,596
Elm	1,192	1,731	1,003	461	286	103	70	19	26	3	4,893
Other hardwoods	9,873	5,721	2,829	1,964	571	412	177	23	16	4	21,589
Total hardwoods	117,193	93,385	57,118	34,989	18,142	10,166	4,934	2,692	2,323	267	341,209
Total all species	192,976	142,339	87,560	52,399	26,687	14,373	6,821	3,453	3,122	319	530,050

[a]Columns and rows may not sum to total due to rounding.

Table 22.—Net green weight[a] of all trees on UVA timberland by class of material and softwoods and hardwoods, Vermont, 1983

(Thousands of tons)[b]

Class of material	Softwoods	Hardwoods	All species
Sawtimber trees:			
Sawlog portion	6,148.2	10,327.8	16,475.9
Upper stem	791.0	2,618.6	3,409.7
Total sawtimber	6,939.2	12,946.4	19,885.6
Total poletimber	2,825.3	10,861.7	13,687.1
All growing stock	9,674.5	23,808.1	33,572.6
Rough culls[c]	2,240.2	3,357.6	5,597.8
Rotten culls[c]	227.1	3,377.3	3,604.4
Saplings[d]	1,161.3	4,131.6	5,292.9
Tops: growing stock	3,543.2	8,661.2	12,204.5
Tops: rough and rotten	778.8	2,374.5	3,152.4
All nongrowing stock	7,949.7	21,902.3	29,852.0
Total all classes	17,714.2	45,710.4	63,424.7

[a]Includes bark and sound cull; excludes rotten cull.

[b]Columns and rows may not sum to total due to rounding.

[c]Bole portion of trees 5.0 inches d.b.h. and larger.

[d]Includes entire tree aboveground.

Table 23.—Net green weight[a] of all trees on non-UVA timberland by class of material and softwoods and hardwoods, Vermont, 1983

(Thousands of tons)[b]

Class of material	Softwoods	Hardwoods	All species
Sawtimber trees:			
Sawlog portion	32,635.1	55,295.5	87,930.7
Upper stem	4,365.8	13,390.8	17,756.5
Total sawtimber	37,000.9	68,686.3	105,687.2
Total poletimber	15,719.9	56,910.5	72,630.3
All growing stock	52,720.8	125,596.8	178,317.6
Rough culls[c]	7,929.3	16,926.3	24,855.6
Rotten culls[c]	1,103.3	15,749.2	16,852.5
Saplings[d]	12,081.6	25,057.4	37,139.0
Tops: growing stock	19,442.8	46,139.2	65,581.9
Tops: rough and rotten	3,302.1	11,536.0	14,838.0
All nongrowing stock	43,859.0	115,408.0	159,267.0
Total all classes	96,579.8	241,004.8	337,584.5

[a]Includes bark and sound cull; excludes rotten cull.

[b]Columns and rows may not sum to total due to rounding.

[c]Bole portion of trees 5.0 inches d.b.h. and larger.

[d]Includes entire tree aboveground.

Table 24.—Net volume of growing-stock trees on UVA timberland by forest-type group and stand-size class, Vermont, 1983

(Millions of cubic feet)[a]

Forest-type group	Stand-size class				
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked	All classes
White/red pine	146.4	9.5	0.0	0.0	155.9
Spruce/fir	93.4	21.4	0.0	0.0	114.8
Oak/pine	7.0	0.0	0.0	0.0	7.0
Oak/hickory	28.2	0.0	0.0	0.0	28.2
Elm/ash/red maple	9.4	0.0	0.0	0.0	9.4
Northern hardwoods	465.0	143.5	12.7	0.0	621.2
Aspen/birch	17.7	62.3	0.0	0.0	79.9
All types	767.1	236.7	12.7	0.0	1,016.5

[a]Columns and rows may not sum to total due to rounding.

Table 25.—Net volume of growing-stock trees on non-UVA timberland by forest-type group and stand-size class, Vermont, 1983

(Millions of cubic feet)[a]

Forest-type group	Stand-size class				
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked	All classes
White/red pine	744.2	66.6	9.6	0.0	820.4
Spruce/fir	554.1	168.3	47.7	0.0	770.1
Oak/pine	4.3	7.7	0.0	0.0	12.0
Oak/hickory	130.3	48.2	6.1	0.9	185.5
Elm/ash/red maple	38.8	25.3	7.2	0.0	71.3
Northern hardwoods	2,463.7	667.9	51.8	0.0	3,183.4
Aspen/birch	75.4	133.9	6.9	0.0	216.3
All types	4,010.8	1,117.9	129.3	0.9	5,258.9

[a]Columns and rows may not sum to total due to rounding.

Table 26.—Net volume of growing-stock trees on UVA timberland by species and forest-type group, Vermont, 1983

(Millions of cubic feet)[a]

Species	White/ red pine	Spruce/ fir	Oak/ pine	Oak/ hickory	Elm/ash/ red maple	Northern hardwoods	Aspen/ birch	All groups
Balsam fir	3.4	10.3	0.0	0.0	1.7	24.1	4.8	44.2
Tamarack	0.0	1.5	0.0	0.0	0.0	0.5	0.0	2.0
White spruce	7.6	10.5	0.0	0.0	0.0	0.0	0.0	18.1
Black spruce	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Red spruce	10.3	51.5	0.3	0.0	0.0	14.7	8.3	85.1
Red pine	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
White pine	64.8	5.5	1.9	0.0	0.0	15.5	3.7	91.5
Northern white-cedar	1.0	11.6	0.0	0.0	0.0	3.1	0.0	15.7
Hemlock	36.8	5.8	0.0	0.0	0.0	13.1	0.0	55.7
Other softwoods	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Total softwoods	123.9	96.7	2.2	0.0	1.7	71.0	16.8	312.3
Sugar maple	9.7	2.7	0.6	0.0	0.2	233.0	4.9	251.1
Red maple	6.4	7.4	0.0	1.5	0.0	66.9	5.2	87.4
Yellow birch	3.1	0.5	0.0	0.0	0.0	78.4	2.4	84.4
Paper birch	1.7	1.5	0.0	2.2	0.0	32.0	30.4	67.7
Gray birch	0.0	0.2	0.0	0.0	0.0	0.7	0.2	1.1
Beech	0.0	0.0	0.0	0.0	0.0	27.7	0.0	27.7
White ash	1.4	4.1	0.0	0.0	0.0	57.3	2.1	64.8
Black ash	1.7	0.0	0.0	0.0	4.5	2.7	0.0	8.9
Aspen	2.5	1.3	0.0	0.0	0.0	12.3	15.9	32.1
White oaks	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Red oaks	0.5	0.0	4.2	22.9	0.0	11.2	2.0	40.8
Basswood	1.3	0.0	0.0	0.0	0.0	2.2	0.0	3.4
Elm	1.8	0.2	0.0	0.0	0.5	0.6	0.0	3.1
Other hardwoods	2.1	0.1	0.0	1.7	2.4	25.1	0.0	31.4
Total hardwoods	32.0	18.1	4.8	28.2	7.7	550.0	63.2	704.0
Total all species	155.9	114.8	7.0	28.2	9.4	621.0	79.9	1,016.3

[a]Columns and rows may not sum to total due to rounding.

Table 27.—Net volume of growing-stock trees on non-UVA timberland by species and forest-type group, Vermont, 1983

(Millions of cubic feet)[a]

Species	White/ red pine	Spruce/ fir	Oak/ pine	Oak/ hickory	Elm/ash/ red maple	Northern hardwoods	Aspen/ birch	All groups
Balsam fir	20.7	222.0	0.0	0.8	1.0	61.7	3.1	309.4
Tamarack	0.0	6.3	0.0	0.0	0.0	1.3	0.0	7.6
White spruce	0.0	45.7	0.0	0.0	0.0	9.6	0.0	55.2
Black spruce	0.0	5.6	0.0	0.0	0.0	0.2	0.0	5.8
Red spruce	24.8	211.4	0.2	2.3	0.0	149.9	8.6	397.2
Red pine	18.8	0.0	0.0	0.0	0.0	0.0	0.0	18.8
White pine	251.5	25.4	3.5	16.1	0.0	57.0	4.0	357.4
Northern white-cedar	1.2	70.3	0.0	0.1	0.0	4.6	0.0	76.2
Hemlock	245.0	20.6	0.1	13.7	0.9	179.7	4.4	464.4
Other softwoods	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total softwoods	562.0	607.3	3.8	33.0	1.9	464.0	20.1	1,692.2
Sugar maple	46.3	16.2	1.6	13.8	2.4	1,108.6	7.2	1,196.1
Red maple	56.1	32.0	0.1	7.4	16.2	394.2	12.4	518.4
Yellow birch	17.3	29.6	0.0	0.9	0.0	358.3	7.6	413.7
Paper birch	37.3	37.7	0.0	4.9	0.6	152.4	111.0	344.0
Gray birch	2.8	2.5	0.0	0.0	0.0	1.2	0.4	6.9
Beech	5.9	0.0	0.7	6.2	2.5	285.4	1.3	302.0
White ash	19.1	6.3	0.0	3.0	17.2	156.7	6.6	209.0
Black ash	2.2	2.7	0.0	0.0	2.6	0.0	0.0	7.5
Aspen	23.0	29.2	0.0	1.5	2.3	49.4	35.9	141.2
White oaks	2.0	0.0	0.0	16.5	1.5	3.5	0.0	23.5
Red oaks	11.9	0.3	5.8	78.4	0.7	52.1	9.2	158.4
Basswood	0.5	0.0	0.0	3.4	1.2	24.4	0.4	30.0
Elm	6.5	1.8	0.0	1.5	18.1	10.2	2.6	40.7
Other hardwoods	27.2	4.6	0.0	14.9	4.2	123.1	1.6	175.6
Total hardwoods	258.3	162.8	8.2	152.5	69.4	2,719.4	196.1	3,566.8
Total all species	820.4	770.1	12.0	185.5	71.3	3,183.4	216.3	5,259.0

[a]Columns and rows may not sum to total due to rounding.

Table 28.—Net volume of growing-stock trees on UVA timberland by species and stand-size class, Vermont, 1983

(Millions of cubic feet)[a]

Species	Stand-size class				
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked	All classes
Balsam fir	24.5	19.7	0.0	0.0	44.2
Tamarack	2.0	0.0	0.0	0.0	2.0
White spruce	18.2	0.0	0.0	0.0	18.2
Black spruce	0.0	0.0	0.0	0.0	0.0
Red spruce	65.6	19.4	0.0	0.0	85.1
Red pine	0.0	0.0	0.0	0.0	0.0
White pine	81.5	9.8	0.2	0.0	91.5
Northern white-cedar	15.7	0.0	0.0	0.0	15.7
Hemlock	53.7	1.8	0.2	0.0	55.7
Other softwoods	0.0	0.1	0.0	0.0	0.1
Total softwoods	261.1	50.8	0.4	0.0	312.3
Sugar maple	193.2	57.5	0.4	0.0	251.1
Soft maples	65.8	21.6	0.0	0.0	87.4
Yellow birch	50.4	28.6	5.5	0.0	84.4
Paper birch	35.9	29.4	2.4	0.0	67.7
Gray birch	0.5	0.6	0.0	0.0	1.1
Beech	19.9	7.0	0.8	0.0	27.7
White ash	43.1	21.6	0.1	0.0	64.8
Black ash	6.2	2.8	0.0	0.0	9.0
Aspen	19.7	12.4	0.0	0.0	32.1
White oaks	0.0	0.0	0.0	0.0	0.0
Red oaks	36.6	3.0	1.2	0.0	40.8
Basswood	3.2	0.3	0.0	0.0	3.4
Elm	2.5	0.3	0.3	0.0	3.1
Other hardwoods	29.1	0.9	1.4	0.0	31.4
Total hardwoods	506.0	185.8	12.3	0.0	704.1
Total all species	767.1	236.6	12.7	0.0	1,016.4

[a]Columns and rows may not sum to total due to rounding.

Table 29.—Net volume of growing-stock trees on non-UVA timberland by species and stand-size class, Vermont, 1983

(Millions of cubic feet)[a]

Species	Stand-size class				
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked	All classes
Balsam fir	186.3	106.1	17.0	0.0	309.4
Tamarack	6.8	0.7	0.1	0.0	7.6
White spruce	39.8	11.5	3.9	0.0	55.2
Black spruce	4.0	1.8	0.0	0.0	5.8
Red spruce	316.4	65.8	15.1	0.0	397.2
Red pine	18.8	0.0	0.0	0.0	18.8
White pine	303.2	40.1	14.1	0.0	357.4
Northern white-cedar	60.5	6.4	9.3	0.0	76.2
Hemlock	426.6	35.4	2.4	0.0	464.4
Other softwoods	0.0	0.0	0.0	0.0	0.0
Total softwoods	1,362.5	267.8	61.9	0.0	1,692.2
Sugar maple	976.2	200.9	19.0	0.0	1,196.1
Soft maples	389.4	118.9	10.1	0.0	518.4
Yellow birch	320.9	83.5	9.2	0.0	413.7
Paper birch	173.9	164.1	6.0	0.0	344.0
Gray birch	4.1	2.8	0.0	0.0	6.9
Beech	250.9	49.3	1.8	0.0	302.0
White ash	132.7	72.0	4.3	0.0	209.0
Black ash	7.4	0.0	0.0	0.0	7.4
Aspen	87.1	46.5	7.6	0.0	141.2
White oaks	13.2	9.9	0.4	0.0	23.5
Red oaks	115.5	41.4	1.5	0.0	158.4
Basswood	20.1	8.7	1.1	0.0	30.0
Elm	24.0	12.8	3.9	0.0	40.7
Other hardwoods	132.8	39.2	2.7	0.9	175.6
Total hardwoods	2,648.3	850.2	67.4	0.9	3,566.8
Total all species	4,010.8	1,118.0	129.3	0.9	5,259.0

[a]Columns and rows may not sum to total due to rounding.

Table 30.—Net volume of growing-stock trees on UVA timberland by species and diameter class, Vermont, 1983

(Millions of cubic feet)[a]

Species	\	\	\	Diameter class (inches at breast height)	\	\	\	\	\	\	\
	5.0–6.9	7.0–8.9	9.0–10.9	11.0–12.9	13.0–14.9	15.0–16.9	17.0–18.9	19.0–20.9	21.0–28.9	29.0+	All classes
Balsam fir	12.1	12.1	10.6	5.6	1.5	2.3	0.0	0.0	0.0	0.0	44.2
Tamarack	0.1	0.0	0.9	0.8	0.3	0.0	0.0	0.0	0.0	0.0	2.0
White spruce	1.6	3.8	8.4	3.9	0.4	0.0	0.0	0.0	0.0	0.0	18.2
Black spruce	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Red spruce	12.7	20.5	18.6	8.4	9.5	6.5	5.7	2.1	1.0	0.0	85.5
Red pine	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
White pine	7.0	6.4	13.1	16.1	8.0	8.7	9.1	7.0	10.9	5.2	91.5
Northern white-cedar	4.1	6.6	1.5	3.2	0.3	0.0	0.0	0.0	0.0	0.0	15.7
Hemlock	1.2	10.2	9.0	13.2	8.8	8.8	1.4	1.0	2.1	0.0	55.7
Other softwoods	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Total softwoods	38.8	59.7	62.1	51.2	28.7	26.3	16.2	10.1	14.0	5.2	312.3
Sugar maple	22.1	45.9	60.1	49.0	36.6	18.3	10.2	5.7	3.1	0.0	251.1
Soft maples	9.8	11.2	16.8	13.4	15.6	13.0	2.1	1.6	3.8	0.0	87.4
Yellow birch	4.2	13.1	14.3	15.5	18.1	6.7	1.8	1.6	4.8	4.3	84.4
Paper birch	6.3	14.1	20.6	16.4	5.3	0.8	3.2	0.5	0.6	0.0	67.7
Gray birch	1.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1
Beech	3.7	3.0	5.1	3.3	2.7	3.4	2.7	1.3	1.0	0.9	27.1
White ash	2.3	8.9	18.5	16.4	7.6	5.7	5.5	0.0	0.0	0.0	64.8
Black ash	0.9	2.4	0.9	2.9	0.9	0.0	0.7	0.0	0.0	0.0	8.6
Aspen	1.6	4.0	7.8	7.9	2.8	4.5	2.3	0.0	1.3	0.0	32.1
White oaks	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Red oaks	1.0	2.6	5.0	6.4	10.9	6.0	2.6	2.2	4.1	0.0	40.8
Basswood	0.3	0.5	0.3	0.2	1.3	1.0	0.0	0.0	0.0	0.0	3.4
Elm	0.1	0.3	0.7	1.1	0.2	0.3	0.0	0.0	0.0	0.5	3.1
Other hardwoods	2.1	3.9	4.0	7.9	4.2	1.2	4.0	3.5	0.7	0.0	31.4
Total hardwoods	55.2	110.0	153.9	140.1	106.1	60.9	35.2	16.6	19.4	5.7	703.1
Total all species	94.0	169.7	215.9	191.3	134.8	87.3	51.4	26.7	33.4	10.9	1,015.4

[a]Columns and rows may not sum to total due to rounding.

Table 31.—Net volume of growing-stock trees on non-UVA timberland by species and diameter class, Vermont, 1983

(Millions of cubic feet)[a]

| Species | Diameter class (inches at breast height) |
	5.0–6.9	7.0–8.9	9.0–10.9	11.0–12.9	13.0–14.9	15.0–16.9	17.0–18.9	19.0–20.9	21.0–28.9	29.0+	All classes
Balsam fir	71.8	89.3	72.7	53.5	19.2	1.8	0.0	1.1	0.0	0.0	309.4
Tamarack	1.7	1.8	1.1	1.3	0.6	1.0	0.0	0.0	0.0	0.0	7.6
White spruce	9.9	14.0	14.1	11.1	3.4	1.7	1.1	0.0	0.0	0.0	55.2
Black spruce	0.6	0.0	4.3	0.9	0.0	0.0	0.0	0.0	0.0	0.0	5.8
Red spruce	55.5	83.5	96.6	73.7	44.8	17.8	14.5	1.9	9.0	0.0	397.2
Red pine	0.5	0.8	2.3	1.4	4.9	4.4	2.0	0.9	1.6	0.0	18.8
White pine	28.9	35.8	54.9	51.3	57.6	50.3	26.9	16.2	31.0	7.5	357.4
Northern white-cedar	11.3	16.5	19.9	11.3	7.1	7.0	0.8	1.5	0.8	0.0	76.2
Hemlock	42.7	66.9	80.3	92.1	69.9	49.6	31.7	15.4	15.1	0.7	464.4
Other softwoods	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total softwoods	222.9	308.6	346.2	296.6	204.6	133.6	77.0	37.0	57.5	8.2	1,692.0
Sugar maple	92.4	174.2	171.3	214.0	171.0	123.9	74.3	68.9	87.7	18.5	1,196.1
Soft maples	44.8	112.5	107.2	91.3	63.9	44.1	23.7	15.4	13.4	2.2	518.4
Yellow birch	31.2	57.6	87.6	73.4	50.2	40.0	27.7	14.0	28.3	3.7	413.7
Paper birch	51.5	88.1	100.0	51.1	29.1	14.2	5.9	3.6	0.4	0.0	344.0
Gray birch	4.1	2.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.9
Beech	25.6	43.7	48.7	53.9	46.7	30.4	23.9	16.0	13.7	0.0	302.6
White ash	21.9	42.7	28.6	34.1	34.9	26.9	7.6	5.1	7.1	0.0	209.0
Black ash	2.1	3.8	0.0	0.4	0.5	0.5	0.4	0.0	0.0	0.0	7.8
Aspen	14.8	14.3	28.4	26.1	21.9	17.6	9.5	4.8	3.7	0.0	141.2
White oaks	0.2	4.7	3.7	2.8	1.9	2.2	1.2	1.7	1.9	3.2	23.5
Red oaks	6.0	13.1	17.9	31.9	12.8	19.3	16.6	9.5	10.2	21.1	158.4
Basswood	2.7	2.5	7.1	4.5	6.1	2.2	2.7	1.1	0.0	0.9	30.0
Elm	2.9	8.3	8.8	7.3	5.9	2.6	2.4	0.6	1.5	0.3	40.7
Other hardwoods	28.4	36.4	34.8	36.7	14.5	14.5	7.1	1.0	1.3	0.8	175.6
Total hardwoods	328.8	604.7	644.3	627.8	459.5	338.4	202.9	141.5	169.2	50.7	3,567.8
Total all species	551.7	913.3	990.6	924.4	664.1	471.9	279.9	178.5	226.7	58.9	5,260.0

[a]Columns and rows may not sum to total due to rounding.

Table 32.—Net volume of sawtimber trees on UVA timberland by species and diameter class, Vermont, 1983

(Millions of board feet)[a]

Species	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	21.0–28.9	29.0+	All classes
Balsam fir	39.2	21.9	7.4	9.8	0.0	0.0	0.0	0.0	78.3
Tamarack	2.8	2.5	1.0	0.0	0.0	0.0	0.0	0.0	6.4
White spruce	26.2	14.7	1.7	0.0	0.0	0.0	0.0	0.0	42.6
Black spruce	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Red spruce	61.3	33.4	38.4	29.7	25.4	9.7	3.0	0.0	200.7
Red pine	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
White pine	38.0	58.0	30.9	34.0	41.0	30.2	51.6	16.2	299.9
Northern white-cedar	3.3	8.1	0.7	0.0	0.0	0.0	0.0	0.0	12.0
Hemlock	26.9	45.1	33.4	35.6	5.3	4.0	6.4	0.0	156.8
Other softwoods	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total softwoods	197.7	183.8	113.5	109.1	71.7	43.9	60.9	16.2	796.8
Sugar maple	0.0	161.7	137.0	69.6	38.7	23.2	17.6	0.0	447.7
Soft maples	0.0	40.1	52.0	50.1	8.8	5.9	15.2	0.0	172.1
Yellow birch	0.0	53.3	68.4	24.3	7.2	6.7	22.0	20.8	202.6
Paper birch	0.0	55.8	18.3	2.7	13.1	2.1	2.6	0.0	94.7
Gray birch	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Beech	0.0	12.1	11.2	13.7	11.5	5.6	4.8	5.0	63.9
White ash	0.0	59.1	25.4	25.6	21.6	0.0	0.0	0.0	131.7
Black ash	0.0	10.9	3.3	0.0	3.0	0.0	0.0	0.0	17.2
Aspen	0.0	29.5	11.0	18.8	9.8	0.0	7.2	0.0	76.3
White oaks	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Red oaks	0.0	18.9	34.4	22.2	10.0	8.7	18.8	0.0	113.0
Basswood	0.0	0.8	4.6	4.3	0.0	0.0	0.0	0.0	9.7
Elm	0.0	3.3	1.0	1.0	0.0	0.0	0.0	2.4	7.7
Other hardwoods	0.0	24.8	15.9	4.7	16.7	14.8	3.0	0.0	79.9
Total hardwoods	0.0	470.3	382.6	237.0	140.3	66.9	91.2	28.1	1,416.4
Total all species	197.7	654.0	496.1	346.1	212.0	110.9	152.1	44.3	2,213.2

[a]International 1/4-inch rule; columns and rows may not sum to total due to rounding.

Table 33.—Net volume of sawtimber trees on non-UVA timberland by species and diameter class, Vermont, 1983

(Millions of board feet)[a]

Species	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	21.0–28.9	29.0+	All classes
Balsam fir	260.1	226.1	87.0	9.2	0.0	4.6	0.0	0.0	587.0
Tamarack	3.6	5.0	2.5	4.3	0.0	0.0	0.0	0.0	15.3
White spruce	47.1	44.1	14.4	6.9	4.6	0.0	0.0	0.0	117.1
Black spruce	14.0	3.6	0.0	0.0	0.0	0.0	0.0	0.0	17.6
Red spruce	313.8	282.6	185.3	78.3	65.7	8.3	43.0	0.0	977.2
Red pine	5.8	5.2	20.4	16.9	9.4	3.0	5.0	0.0	65.7
White pine	160.8	185.3	213.6	204.5	111.1	64.9	129.6	34.6	1,104.4
Northern white-cedar	47.0	32.9	22.0	22.9	2.7	5.6	3.2	0.0	136.4
Hemlock	225.2	314.1	259.6	200.5	127.0	63.7	71.2	3.7	1,264.9
Other softwoods	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total softwoods	1,077.4	1,098.8	804.8	543.5	320.5	150.1	252.1	38.3	4,285.5
Sugar maple	0.0	704.9	623.8	479.3	298.1	286.0	390.9	93.8	2,876.9
Soft maples	0.0	295.5	227.4	175.1	91.9	63.5	60.1	7.3	920.8
Yellow birch	0.0	244.2	184.9	152.1	109.3	57.7	118.2	19.3	885.8
Paper birch	0.0	180.4	106.6	54.7	24.5	14.8	1.5	0.0	382.4
Gray birch	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Beech	0.0	180.4	180.0	123.0	97.5	66.4	63.4	0.0	710.7
White ash	0.0	117.7	135.6	111.3	34.2	20.5	32.4	0.0	451.7
Black ash	0.0	1.6	1.9	2.1	1.8	0.0	0.0	0.0	7.4
Aspen	0.0	96.7	83.0	71.4	39.1	21.0	17.3	0.0	328.5
White oaks	0.0	9.7	7.0	8.4	4.6	6.3	8.6	13.4	58.0
Red oaks	0.0	102.3	45.9	71.4	63.0	38.8	44.2	73.5	439.1
Basswood	0.0	15.8	20.9	10.1	10.4	4.7	0.0	4.9	66.8
Elm	0.0	25.8	20.1	10.7	9.5	2.9	6.8	1.3	77.1
Other hardwoods	0.0	128.0	54.8	59.1	29.0	2.8	5.7	4.1	283.5
Total hardwoods	0.0	2,103.0	1,691.8	1,328.7	813.0	585.5	749.1	217.7	7,488.8
Total all species	1,077.4	3,201.9	2,496.6	1,872.2	1,133.5	735.5	1,001.2	256.0	11,774.3

[a]International 1/4-inch rule; columns and rows may not sum to total due to rounding.

Table 34.—Net volume of sawtimber trees on UVA timberland by species, size class, and standard-lumber log grade, Vermont, 1983

(Millions of board feet)[a]

Species	All size classes				All Grades	>15-inch diameter at breast height				All Grades
	Grade 1	Grade 2	Grade 3	Grade 4[b]		Grade 1	Grade 2	Grade 3	Grade 4[b]	
Balsam fir[c]	0.0	0.0	0.0	0.0	79.7	0.0	0.0	0.0	0.0	0.0
Tamarack[c]	0.0	0.0	0.0	0.0	6.3	0.0	0.0	0.0	0.0	0.0
White spruce[c]	0.0	0.0	0.0	0.0	42.6	0.0	0.0	0.0	0.0	0.0
Black spruce[c]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Red spruce[c]	0.0	0.0	0.0	0.0	197.6	0.0	0.0	0.0	0.0	0.0
Red pine	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
White pine	16.7	74.6	127.1	58.3	276.6	15.0	20.3	52.6	25.5	113.4
Northern white-cedar[c]	0.0	0.0	0.0	0.0	12.0	0.0	0.0	0.0	0.0	0.0
Hemlock[c]	0.0	0.0	0.0	0.0	169.2	0.0	0.0	0.0	0.0	0.0
Other softwoods[c]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total softwoods	16.7	74.6	127.1	58.3	784.0	15.0	20.3	52.6	25.5	113.4
Sugar maple	31.1	96.4	220.1	82.3	429.9	17.4	27.1	49.6	33.3	127.4
Soft maples	11.4	36.2	107.0	30.2	184.8	8.6	13.5	35.2	7.6	64.9
Yellow birch	9.8	57.2	124.7	24.0	215.7	8.1	22.6	37.4	9.6	77.7
Paper birch	3.1	16.2	56.8	23.8	99.8	2.3	4.5	6.5	2.2	15.5
Gray birch	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Beech	0.8	8.6	34.4	19.7	63.6	0.4	3.1	20.3	13.7	37.5
White ash	13.1	39.6	49.5	19.1	121.2	9.5	12.6	11.8	3.7	37.6
Black ash	1.9	1.2	11.3	2.9	17.2	1.9	0.3	0.7	0.1	3.0
Aspen	8.5	24.1	31.5	12.9	77.0	8.5	15.8	9.4	2.2	35.9
White oaks	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Red oaks	27.2	35.3	38.2	15.8	116.6	16.4	7.9	12.5	4.8	41.6
Basswood	0.5	2.4	2.9	2.4	8.2	0.5	0.9	0.6	0.1	2.1
Elm	0.0	0.7	6.1	1.0	7.8	0.0	0.0	3.0	0.4	3.4
Other hardwoods	6.1	20.2	49.1	14.9	90.3	4.0	13.7	8.3	7.2	33.2
Total hardwoods	113.5	338.0	731.7	248.8	1,432.1	77.6	122.2	195.1	84.8	479.7

[a]International 1/4-inch rule; columns and rows may not sum to total due to rounding.

[b]Grade 4 applies only to white pine. For hardwoods, the volumes in this column are for construction logs.

[c]These species are not divided into standard-lumber grades.

Table 35.—Net volume of sawtimber trees on non-UVA timberland by species, size class, and standard-lumber log grade, Vermont, 1983

(Millions of board feet)[a]

Species	All size classes				All Grades	>15-inch diameter at breast height				All Grades
	Grade 1	Grade 2	Grade 3	Grade 4[b]		Grade 1	Grade 2	Grade 3	Grade 4[b]	
Balsam fir[c]	0.0	0.0	0.0	0.0	585.6	0.0	0.0	0.0	0.0	0.0
Tamarack[c]	0.0	0.0	0.0	0.0	15.4	0.0	0.0	0.0	0.0	0.0
White spruce[c]	0.0	0.0	0.0	0.0	117.1	0.0	0.0	0.0	0.0	0.0
Black spruce[c]	0.0	0.0	0.0	0.0	17.6	0.0	0.0	0.0	0.0	0.0
Red spruce[c]	0.0	0.0	0.0	0.0	980.3	0.0	0.0	0.0	0.0	0.0
Red pine	18.5	13.4	33.8	0.0	65.7	8.6	7.6	18.1	0.0	34.3
White pine	47.5	242.7	497.7	339.7	1,127.7	36.6	100.7	259.4	207.6	604.3
Northern white-cedar[c]	0.0	0.0	0.0	0.0	136.4	0.0	0.0	0.0	0.0	0.0
Hemlock[c]	0.0	0.0	0.0	0.0	1,252.5	0.0	0.0	0.0	0.0	0.0
Other softwoods[c]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total softwoods	66.0	256.1	531.5	339.7	4,298.3	45.2	108.3	277.5	207.6	638.6
Sugar maple	327.5	702.3	1,279.4	585.5	2,894.7	248.7	357.7	624.2	339.1	1,569.7
Soft maples	77.5	237.6	420.7	172.3	908.1	67.5	122.3	154.7	68.4	412.9
Yellow birch	87.0	249.4	431.7	104.6	872.7	75.1	117.9	202.5	64.3	459.8
Paper birch	26.2	130.6	176.8	43.6	377.3	20.2	31.5	30.2	18.6	100.5
Gray birch	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Beech	41.3	114.0	425.0	130.8	711.0	24.9	41.9	212.9	73.9	353.6
White ash	126.7	125.3	157.0	53.1	462.2	79.6	53.6	55.4	19.4	208.0
Black ash	1.1	1.8	3.7	0.7	7.4	1.1	1.4	1.2	0.1	3.8
Aspen	42.4	82.6	146.6	56.2	327.8	37.3	28.1	57.0	26.4	148.8
White oaks	5.9	9.8	31.4	10.9	58.0	4.8	5.1	24.8	6.6	41.3
Red oaks	118.3	122.0	130.8	64.5	435.5	112.7	62.2	81.1	52.9	308.9
Basswood	5.5	23.6	35.9	3.3	68.3	5.5	11.3	14.0	1.4	32.2
Elm	3.7	30.5	30.0	12.8	77.0	3.7	8.0	13.1	6.4	31.2
Other hardwoods	24.7	79.1	126.1	43.2	273.1	16.8	35.5	37.6	17.1	107.0
Total hardwoods	887.8	908.7	3,395.0	1,281.7	7,473.1	697.9	876.3	1,508.9	694.7	3,777.8

[a]International 1/4-inch rule; columns and rows may not sum to total due to rounding.

[b]Grade 4 applies only to white pine. For hardwoods, the volumes in this column are for construction logs.

[c]These species are not divided into standard-lumber grades.

Table 36.—Area of UVA timberland by forest type, forest-type group, and geographic unit, Vermont, 1983

(Thousands of acres)[a]

Forest type and forest-type group	Northern Unit	Southern Unit
Red pine	0.0	0.0
White pine	11.0	37.8
White pine/hemlock	0.0	4.2
Hemlock	22.2	0.0
White/red pine group	33.2	42.0
Balsam fir	0.0	0.0
Red spruce	10.8	13.9
Red spruce/balsam fir	25.1	0.0
White spruce	13.3	0.0
Black spruce	0.0	0.0
Northern white-cedar	8.1	0.0
Spruce/fir group	57.3	13.9
White pine/n. red oak/white ash	0.0	4.2
Oak/pine group	0.0	4.2
White oak/red oak/hickory	0.0	0.0
White oak	0.0	0.0
Northern red oak	0.0	10.6
Hawthorn/reverting field	0.0	0.0
Red maple/central hardwoods	0.0	0.0
Mixed central hardwoods	0.0	5.1
Oak/hickory group	0.0	15.7
Black ash/Am. elm/red maple	4.7	0.0
Elm/ash/red maple group	4.7	0.0
Sugar maple/beech/y. birch	220.7	128.9
Black cherry	4.7	4.0
Red maple/northern hardwoods	26.3	20.7
Pin cherry/reverting field	6.1	3.1
Mixed northern hardwoods	10.6	34.5
Northern hardwoods group	268.3	191.2
Aspen	12.2	0.0
Paper birch	12.5	14.2
Gray birch	0.0	0.0
Aspen/birch group	24.7	14.2
All forest types	388.2	281.2

[a]Columns and rows may not sum to total due to rounding.

Table 37.—Area of non-UVA timberland by forest type, forest-type group, and geographic unit, Vermont, 1983

(Thousands of acres)[a]

Forest type and forest-type group	Northern Unit	Southern Unit
Red pine	0.0	7.5
White pine	82.5	192.7
White pine/hemlock	59.5	44.3
Hemlock	68.1	101.6
White/red pine group	210.1	346.0
Balsam fir	102.4	0.0
Red spruce	40.9	49.4
Red spruce/balsam fir	232.0	29.3
White spruce	23.8	0.0
Black spruce	6.9	0.0
Northern white-cedar	65.5	12.0
Spruce/fir group	471.7	90.7
White pine/n. red oak/white ash	0.0	9.4
Oak/pine group	0.0	9.4
White oak/red oak/hickory	0.0	20.3
White oak	0.0	20.5
Northern red oak	7.5	61.1
Hawthorn/reverting field	2.9	12.0
Red maple/central hardwoods	0.0	6.4
Mixed central hardwoods	7.4	10.6
Oak/hickory group	17.8	130.9
Black ash/Am. elm/red maple	51.8	42.5
Elm/ash/red maple group	51.8	42.5
Sugar maple/beech/y. birch	771.8	868.2
Black cherry	8.9	7.6
Red maple/northern hardwoods	91.5	178.1
Pin cherry/reverting field	15.7	13.4
Mixed northern hardwoods	100.7	182.1
Northern hardwoods group	988.6	1,249.4
Aspen	17.6	29.1
Paper birch	54.6	35.8
Gray birch	0.0	6.8
Aspen/birch group	72.2	71.7
All forest types	1,812.2	1,940.5

[a]Columns and rows may not sum to total due to rounding.

Table 38.—Area of UVA timberland by forest type, forest-type group, and stand-size class, Northern Unit, Vermont, 1983

(Thousands of acres)[a]

Forest type and forest-type group	Stand-size class				
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked	All classes
White pine	11.0	0.0	0.0	0.0	11.0
White pine/hemlock	0.0	0.0	0.0	0.0	0.0
Hemlock	22.2	0.0	0.0	0.0	22.2
White pine/red pine group	33.2	0.0	0.0	0.0	33.2
Balsam fir	0.0	0.0	0.0	0.0	0.0
Red spruce	10.8	0.0	0.0	0.0	10.8
Red spruce/balsam fir	14.2	10.9	0.0	0.0	25.1
White spruce	13.3	0.0	0.0	0.0	13.3
Black spruce	0.0	0.0	0.0	0.0	0.0
Northern white-cedar	8.1	0.0	0.0	0.0	8.1
Spruce/fir group	46.4	10.9	0.0	0.0	57.3
Northern red oak	0.0	0.0	0.0	0.0	0.0
Hawthorn/reverting field	0.0	0.0	0.0	0.0	0.0
Mixed central hardwoods	0.0	0.0	0.0	0.0	0.0
Oak/hickory group	0.0	0.0	0.0	0.0	0.0
Black ash/Am. elm/red maple	4.7	0.0	0.0	0.0	4.7
Elm/ash/red maple group	4.7	0.0	0.0	0.0	4.7
Sugar maple/beech/y. birch	136.0	79.0	5.7	0.0	220.7
Black cherry	4.7	0.0	0.0	0.0	4.7
Red maple/northern hardwoods	15.5	10.8	0.0	0.0	26.3
Pin cherry/reverting field	0.0	0.0	6.1	0.0	6.1
Mixed northern hardwoods	10.6	0.0	0.0	0.0	10.6
Northern hardwoods group	166.8	89.8	11.7	0.0	268.3
Aspen	4.7	7.5	0.0	0.0	12.2
Paper birch	0.0	12.5	0.0	0.0	12.5
Aspen/birch group	4.7	20.0	0.0	0.0	24.7
All forest types	255.8	120.7	11.7	0.0	388.2

[a]Columns and rows may not sum to total due to rounding.

Table 39.—Area of non-UVA timberland by forest type, forest-type group, and stand-size class, Northern Unit, Vermont, 1983

(Thousands of acres)[a]

Forest type and forest-type group	Sawtimber	Poletimber	Sapling and seedling	Nonstocked	All classes
White pine	69.8	0.0	12.7	0.0	82.5
White pine/hemlock	52.0	7.5	0.0	0.0	59.5
Hemlock	53.4	14.7	0.0	0.0	68.1
White pine/red pine group	175.2	22.2	12.7	0.0	210.1
Balsam fir	15.0	64.8	22.6	0.0	102.4
Red spruce	33.5	7.4	0.0	0.0	40.9
Red spruce/balsam fir	147.0	34.0	51.2	0.0	232.2
White spruce	9.5	14.3	0.0	0.0	23.8
Black spruce	0.0	0.0	6.9	0.0	6.9
Northern white-cedar	43.7	7.4	14.4	0.0	65.5
Spruce/fir group	248.7	127.9	95.1	0.0	471.7
Northern red oak	7.5	0.0	0.0	0.0	7.5
Hawthorn/reverting field	0.0	2.9	0.0	0.0	2.9
Mixed central hardwoods	0.0	7.4	0.0	0.0	7.4
Oak/hickory group	7.5	10.3	0.0	0.0	17.8
Black ash/Am. elm/red maple	10.1	21.3	20.4	0.0	51.8
Elm/ash/red maple group	10.1	21.3	20.4	0.0	51.8
Sugar maple/beech/y. birch	505.3	202.3	64.3	0.0	771.8
Black cherry	2.6	0.0	6.3	0.0	8.9
Red maple/northern hardwoods	36.3	47.6	7.6	0.0	91.5
Pin cherry/reverting field	0.0	0.0	15.7	0.0	15.7
Mixed northern hardwoods	27.2	59.3	14.2	0.0	100.7
Northern hardwoods group	571.5	309.2	108.0	0.0	988.6
Aspen	10.3	0.0	7.3	0.0	17.6
Paper birch	0.0	54.6	0.0	0.0	54.6
Aspen/birch group	10.3	54.6	7.3	0.0	72.2
All forest types	1,023.2	545.5	243.5	0.0	1,812.2

[a]Columns and rows may not sum to total due to rounding.

Table 40.—Number of growing-stock trees on UVA timberland by species and diameter class, Northern Unit, Vermont, 1983

(Thousands of trees)[a]

Species	Diameter class (inches at breast height)										
	5.0–6.9	7.0–8.9	9.0–10.9	11.0–12.9	13.0–14.9	15.0–16.9	17.0–18.9	19.0–20.9	21.0–28.9	29.0+	All classes
Balsam fir	3,110	1,623	817	300	52	65	0	0	0	0	5,967
Tamarack	43	0	82	11	11	0	0	0	0	0	147
White spruce	441	490	679	219	11	0	0	0	0	0	1,841
Black spruce	0	0	0	0	0	0	0	0	0	0	0
Red spruce	3,139	2,143	1,339	348	202	105	87	16	0	0	7,380
Red pine	0	0	0	0	0	0	0	0	0	0	0
White pine	202	100	447	348	231	50	60	55	48	0	1,543
Northern white-cedar	1,489	1,324	161	257	19	0	0	0	0	0	3,250
Hemlock	135	1,091	693	717	349	250	34	0	25	0	3,294
Other softwoods	0	0	0	0	0	0	0	0	0	0	0
Total softwoods	8,560	6,770	4,219	2,200	875	470	182	71	73	0	23,421
Sugar maple	4,953	4,929	3,750	1,980	908	232	95	65	13	0	16,924
Soft maples	1,966	921	784	344	319	43	37	0	44	0	4,457
Yellow birch	1,427	1,438	935	603	484	150	39	15	68	24	5,185
Paper birch	1,313	650	451	395	11	0	32	0	11	0	2,862
Gray birch	271	22	0	0	0	0	0	0	0	0	292
Beech	969	199	177	120	81	48	34	24	13	0	1,666
White ash	589	948	877	296	77	79	31	0	0	0	2,897
Black ash	215	325	93	147	33	0	16	0	0	0	829
Aspen	414	570	321	369	60	129	51	0	16	0	1,929
White oaks	0	0	0	0	0	0	0	0	0	0	0
Red oaks	22	91	65	22	11	0	0	0	0	0	210
Basswood	0	49	0	0	49	0	0	0	0	0	98
Elm	22	0	49	83	11	0	0	0	0	5	170
Other hardwoods	503	270	0	121	24	30	52	11	8	0	1,019
Total hardwoods	12,663	10,412	7,502	4,481	2,068	709	386	116	173	29	38,540
Total all species	21,224	17,182	11,720	6,682	2,942	1,180	568	187	246	29	61,961

[a]Columns and rows may not sum to total due to rounding.

Table 41.—Number of growing-stock trees on non-UVA timberland by species and diameter class, Northern Unit, Vermont, 1983

(Thousands of trees)[a]

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	29.0+	
Balsam fir	20,831	12,282	5,386	2,668	598	49	0	17	0	0	41,831
Tamarack	681	337	116	6	23	29	0	0	0	0	1,192
White spruce	3,078	1,968	1,135	592	141	52	26	0	0	0	6,991
Black spruce	262	0	350	51	0	0	0	0	0	0	663
Red spruce	11,384	7,271	5,205	2,334	1,106	310	203	25	102	0	27,939
Red pine	0	0	0	0	0	0	0	0	0	0	0
White pine	2,501	2,393	1,823	1,332	1,050	888	348	163	141	7	10,644
Northern white-cedar	4,222	2,976	2,144	795	336	276	26	40	18	0	10,833
Hemlock	7,427	6,141	4,321	2,622	1,247	712	368	135	78	0	23,051
Other softwoods	0	0	0	0	0	0	0	0	0	0	0
Total softwoods	50,385	33,369	20,479	10,400	4,501	2,316	970	380	339	7	123,145
Sugar maple	17,326	13,799	6,342	4,899	2,350	1,229	778	410	428	56	47,618
Soft maples	8,242	7,809	5,363	2,356	1,149	381	209	55	8	0	25,573
Yellow birch	6,401	4,935	4,356	2,407	869	682	403	137	231	23	20,442
Paper birch	10,755	7,570	3,962	1,455	414	162	92	0	6	0	24,417
Gray birch	1,034	390	0	0	0	0	0	0	0	0	1,425
Beech	2,735	1,623	630	717	493	364	197	91	52	0	6,901
White ash	1,824	1,890	405	519	381	233	61	17	72	0	5,402
Black ash	586	569	0	15	18	17	9	0	0	0	1,214
Aspen	2,657	891	1,111	725	438	284	106	73	35	0	6,321
White oaks	0	117	0	0	0	47	0	0	18	0	182
Red oaks	484	709	138	250	134	17	17	0	0	35	1,785
Basswood	480	205	437	159	86	0	35	16	0	0	1,418
Elm	281	584	137	50	121	50	0	0	0	3	1,226
Other hardwoods	2,648	1,666	584	540	66	96	23	6	5	4	5,638
Total hardwoods	55,454	42,757	23,465	14,091	6,519	3,564	1,931	804	855	121	149,560
Total all species	105,838	76,126	43,945	24,490	11,021	5,879	2,901	1,184	1,194	128	272,705

[a]Columns and rows may not sum to total due to rounding.

Table 42.—Net green weight[a] of all trees on UVA timberland by class of material and softwoods and hardwoods, Northern Unit, Vermont, 1983

(Thousands of tons)[b]

Class of material	Softwoods	Hardwoods	All species
Sawtimber trees:			
Sawlog portion	3,894.7	5,365.0	9,259.7
Upper stem	544.2	1,397.5	1,941.7
Total sawtimber	4,438.8	6,762.6	11,201.7
Total poletimber	2,011.6	6,583.8	8,595.4
All growing stock	6,450.4	13,346.4	19,796.8
Rough culls[c]	760.7	1,873.4	2,634.1
Rotten culls[c]	113.4	1,895.6	2,009.0
Saplings[d]	803.9	2,230.3	3,034.3
Tops: growing stock	2,409.9	4,934.2	7,344.1
Tops: rough and rotten	321.4	1,314.9	1,636.2
All nongrowing stock	4,409.3	12,248.4	16,657.7
Total all classes	10,859.7	25,594.8	36,454.5

[a]Includes bark and sound cull; exludes rotten cull.

[b]Columns and rows may not sum to total due to rounding.

[c]Bole portion of trees 5.0 inches d.b.h. and larger.

[d]Includes entire tree aboveground.

Table 43.—Net green weight[a] of all trees on non-UVA timberland by class of material and softwoods and hardwoods, Northern Unit, Vermont, 1983

(Thousands of tons)[b]

Class of material	Softwoods	Hardwoods	All species
Sawtimber trees:			
Sawlog portion	18,525.0	21,756.9	40,281.9
Upper stem	2,579.8	5,304.3	7,884.1
Total sawtimber	21,104.9	27,061.1	48,165.7
Total poletimber	10,494.6	24,954.0	35,448.6
All growing stock	31,599.5	52,015.1	83,614.6
Rough culls[c]	3,266.2	8,297.1	11,563.3
Rotten culls[c]	519.4	7,106.1	7,625.5
Saplings[d]	9,228.5	10,450.7	19,679.1
Tops: growing stock	11,916.5	19,362.3	31,278.8
Tops: rough and rotten	1,463.4	5,373.1	6,836.6
All nongrowing stock	26,394.0	50,589.3	76,983.3
Total all classes	57,993.5	102,604.4	160,597.9

[a]Includes bark and sound cull; exludes rotten cull.

[b]Columns and rows may not sum to total due to rounding.

[c]Bole portion of trees 5.0 inches d.b.h. and larger.

[d]Includes entire tree aboveground.

Table 44.—Net volume of growing-stock trees on UVA timberland by species and diameter class, Northern Unit, Vermont, 1983

(Millions of cubic feet)[a]

Species	Diameter class (inches at breast height)										
	5.0–6.9	7.0–8.9	9.0–10.9	11.0–12.9	13.0–14.9	15.0–16.9	17.0–18.9	19.0–20.9	21.0–28.9	29.0+	All classes
Balsam fir	11.6	12.0	10.5	5.5	1.5	2.3	0.0	0.0	0.0	0.0	43.3
Tamarack	0.1	0.0	0.9	0.2	0.3	0.0	0.0	0.0	0.0	0.0	1.5
White spruce	1.6	3.8	8.4	3.9	0.4	0.0	0.0	0.0	0.0	0.0	18.2
Black spruce	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Red spruce	9.9	15.8	16.8	7.1	5.2	4.1	3.8	0.9	0.0	0.0	63.6
Red pine	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
White pine	0.6	0.6	5.6	6.3	5.9	2.0	2.7	2.9	2.9	0.0	29.7
Northern white-cedar	4.1	6.6	1.5	3.2	0.3	0.0	0.0	0.0	0.0	0.0	15.7
Hemlock	0.3	6.2	7.5	11.2	8.4	7.9	1.4	0.0	2.1	0.0	44.9
Other softwoods	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total softwoods	28.3	45.0	51.2	37.4	21.9	16.3	7.9	3.8	5.1	0.0	216.8
Sugar maple	14.0	33.9	45.0	36.7	24.6	8.1	4.2	3.5	1.5	0.0	171.5
Soft maples	5.6	6.2	8.7	5.9	7.9	1.3	1.5	0.0	3.1	0.0	40.3
Yellow birch	3.5	9.2	10.0	10.2	11.3	4.4	1.6	0.6	4.2	3.1	58.4
Paper birch	4.6	4.9	5.4	6.9	0.3	0.0	1.2	0.0	0.6	0.0	24.0
Gray birch	1.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1
Beech	2.7	1.4	2.0	2.3	2.1	1.7	1.7	1.3	1.0	0.0	16.2
White ash	2.2	7.9	12.7	6.6	2.3	3.3	1.4	0.0	0.0	0.0	36.3
Black ash	0.9	2.4	0.9	2.9	0.9	0.0	0.7	0.0	0.0	0.0	8.6
Aspen	1.6	3.8	3.9	7.4	1.8	4.5	2.3	0.0	1.3	0.0	26.6
White oaks	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Red oaks	0.0	0.4	0.9	0.4	0.3	0.0	0.0	0.0	0.0	0.0	2.0
Basswood	0.0	0.3	0.0	0.0	1.3	0.0	0.0	0.0	0.0	0.0	1.5
Elm	0.0	0.0	0.4	1.1	0.2	0.0	0.0	0.0	0.0	0.5	2.2
Other hardwoods	1.5	1.7	0.0	2.5	0.7	1.2	2.4	0.5	0.7	0.0	11.2
Total hardwoods	37.6	72.2	89.9	83.0	53.6	24.5	17.0	5.9	12.4	3.6	399.9
Total all species	65.8	117.2	141.2	120.4	75.5	40.8	24.9	9.8	17.5	3.6	616.7

[a]Columns and rows may not sum to total due to rounding.

Table 45.—Net volume of growing-stock trees on non-UVA timberland by species and diameter class, Northern Unit, Vermont, 1983

(Millions of cubic feet)[a]

Species	Diameter class (inches at breast height)										
	5.0–6.9	7.0–8.9	9.0–10.9	11.0–12.9	13.0–14.9	15.0–16.9	17.0–18.9	19.0–20.9	21.0–28.9	29.0+	All classes
Balsam fir	66.4	83.6	68.9	51.8	17.2	1.8	0.0	1.1	0.0	0.0	290.9
Tamarack	1.7	1.7	1.1	0.2	0.6	1.0	0.0	0.0	0.0	0.0	6.3
White spruce	9.9	14.0	14.1	11.1	3.4	1.7	1.1	0.0	0.0	0.0	55.2
Black spruce	0.6	0.0	4.3	0.9	0.0	0.0	0.0	0.0	0.0	0.0	5.8
Red spruce	37.2	49.6	65.3	43.1	28.8	11.0	9.5	1.3	7.6	0.0	253.4
Red pine	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
White pine	8.0	15.3	20.9	24.5	26.7	29.7	14.2	8.7	11.2	1.0	160.0
Northern white-cedar	10.1	16.2	19.5	10.9	6.4	7.0	0.8	1.5	0.8	0.0	73.2
Hemlock	20.3	34.2	43.5	40.7	27.9	22.3	14.7	6.6	5.1	0.0	215.4
Other softwoods	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total softwoods	154.1	214.6	237.6	183.2	111.1	74.5	40.3	19.2	24.6	1.0	1,060.3
Sugar maple	52.3	93.9	74.4	92.9	61.7	43.7	34.0	24.0	33.8	7.1	517.8
Soft maples	21.2	49.9	58.9	40.7	27.3	12.3	8.2	2.8	0.6	0.0	221.8
Yellow birch	18.1	32.5	48.2	39.9	20.5	21.5	16.0	7.1	16.1	2.5	222.1
Paper birch	31.4	49.4	44.5	26.5	9.1	4.9	3.8	0.0	0.4	0.0	169.9
Gray birch	3.1	2.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.9
Beech	7.6	10.4	7.0	13.4	13.0	13.3	9.0	5.3	4.0	0.0	83.0
White ash	6.6	15.0	4.6	9.4	11.9	9.0	3.3	0.8	6.2	0.0	66.9
Black ash	2.1	3.7	0.0	0.4	0.5	0.5	0.4	0.0	0.0	0.0	7.7
Aspen	9.1	6.2	14.3	15.2	12.2	10.3	5.0	4.8	2.7	0.0	79.8
White oaks	0.0	0.6	0.0	0.0	0.0	1.3	0.0	0.0	1.2	0.0	3.1
Red oaks	0.9	4.6	1.6	4.4	3.2	0.6	0.9	0.0	0.0	18.3	34.5
Basswood	1.3	1.2	4.5	2.7	1.9	0.0	1.8	1.1	0.0	0.0	14.6
Elm	0.8	2.8	1.2	0.6	2.3	1.3	0.0	0.0	0.0	0.3	9.3
Other hardwoods	7.8	11.0	6.6	10.4	1.7	3.2	0.8	0.2	0.4	0.8	42.9
Total hardwoods	162.3	284.0	265.8	256.4	165.4	121.9	83.2	46.1	65.4	29.0	1,479.3
Total all species	316.5	498.6	503.3	439.6	276.5	196.4	123.5	65.2	90.0	30.0	2,539.6

[a]Columns and rows may not sum to total due to rounding.

Table 46.—Net volume of sawtimber trees on UVA timberland by species and diameter class, Northern Unit, Vermont, 1983

(Millions of board feet)[a]

Species	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	21.0–28.9	29.0+	All classes
Balsam fir	38.9	21.5	7.4	9.8	0.0	0.0	0.0	0.0	77.6
Tamarack	2.8	0.9	1.0	0.0	0.0	0.0	0.0	0.0	4.7
White spruce	26.2	14.7	1.7	0.0	0.0	0.0	0.0	0.0	42.6
Black spruce	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Red spruce	55.8	28.7	20.7	19.8	17.4	4.0	0.0	0.0	146.3
Red pine	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
White pine	17.0	23.6	22.5	7.9	11.0	12.3	12.1	0.0	106.4
Northern white-cedar	3.3	8.1	0.7	0.0	0.0	0.0	0.0	0.0	12.0
Hemlock	22.4	38.2	31.5	32.2	5.3	0.0	6.4	0.0	136.1
Other softwoods	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total softwoods	166.4	135.6	85.6	69.7	33.7	16.3	18.5	0.0	525.8
Sugar maple	0.0	120.8	93.3	30.5	16.2	14.3	8.5	0.0	283.6
Soft maples	0.0	18.0	29.4	5.6	6.3	0.0	12.4	0.0	71.7
Yellow birch	0.0	37.1	44.1	16.5	6.2	2.7	20.2	15.4	142.1
Paper birch	0.0	24.8	0.7	0.0	4.8	0.0	2.6	0.0	32.9
Gray birch	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Beech	0.0	8.1	8.5	6.3	7.0	5.6	4.8	0.0	40.2
White ash	0.0	27.3	9.2	15.1	5.8	0.0	0.0	0.0	57.4
Black ash	0.0	10.9	3.3	0.0	3.0	0.0	0.0	0.0	17.2
Aspen	0.0	27.8	7.4	18.8	9.8	0.0	7.2	0.0	71.1
White oaks	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Red oaks	0.0	1.6	1.2	0.0	0.0	0.0	0.0	0.0	2.8
Basswood	0.0	0.0	4.6	0.0	0.0	0.0	0.0	0.0	4.6
Elm	0.0	3.3	1.0	0.0	0.0	0.0	0.0	2.4	6.7
Other hardwoods	0.0	7.8	2.6	4.7	9.8	1.6	3.0	0.0	29.4
Total hardwoods	0.0	287.4	205.3	97.4	68.9	24.2	58.8	17.7	759.7
Total all species	166.4	423.0	290.9	167.1	102.6	40.4	77.2	17.7	1,285.5

[a]International 1/4-inch rule; columns and rows may not sum to total due to rounding.

Table 47.—Net volume of sawtimber trees on non-UVA timberland by species and diameter class, Northern Unit, Vermont, 1983

(Millions of board feet)[a]

Species	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	21.0–28.9	29.0+	All classes
Balsam fir	247.7	220.3	78.6	9.2	0.0	4.6	0.0	0.0	560.4
Tamarack	3.6	0.5	2.5	4.3	0.0	0.0	0.0	0.0	10.9
White spruce	47.1	44.1	14.4	6.9	4.6	0.0	0.0	0.0	117.1
Black spruce	14.0	3.6	0.0	0.0	0.0	0.0	0.0	0.0	17.6
Red spruce	219.5	168.6	119.9	49.4	43.2	5.6	36.6	0.0	642.9
Red pine	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
White pine	62.4	91.3	107.3	120.5	60.5	36.2	48.8	4.5	531.5
Northern white-cedar	46.2	32.2	19.6	22.9	2.7	5.6	3.2	0.0	132.5
Hemlock	122.5	137.4	99.2	89.2	56.5	27.3	23.0	0.0	555.0
Other softwoods	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total softwoods	763.0	698.1	441.4	302.4	167.5	79.3	111.6	4.5	2,567.8
Sugar maple	0.0	312.4	229.2	172.1	141.1	102.9	156.1	34.7	1,148.5
Soft maples	0.0	134.4	96.9	49.3	32.4	12.2	3.3	0.0	328.5
Yellow birch	0.0	133.2	75.3	81.1	62.7	28.7	70.2	12.6	463.9
Paper birch	0.0	97.1	33.2	18.9	15.5	0.0	1.5	0.0	166.2
Gray birch	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Beech	0.0	43.5	49.9	54.4	36.0	21.6	19.4	0.0	224.9
White ash	0.0	35.3	49.3	39.9	16.5	3.3	28.5	0.0	172.8
Black ash	0.0	1.6	1.9	2.1	1.8	0.0	0.0	0.0	7.4
Aspen	0.0	60.8	48.2	43.0	20.1	21.0	13.2	0.0	206.2
White oaks	0.0	0.0	0.0	5.1	0.0	0.0	5.2	0.0	10.3
Red oaks	0.0	14.7	11.0	2.6	3.6	0.0	0.0	59.2	91.1
Basswood	0.0	9.2	6.2	0.0	6.9	4.7	0.0	0.0	27.0
Elm	0.0	1.9	8.7	5.4	0.0	0.0	0.0	1.3	17.3
Other hardwoods	0.0	35.7	6.3	12.1	3.2	0.9	1.7	4.1	64.1
Total hardwoods	0.0	879.9	616.1	486.1	339.8	195.3	299.0	112.0	2,928.2
Total all species	763.0	1,578.0	1,057.5	788.5	507.3	274.7	410.7	116.5	5,496.0

[a]International 1/4-inch rule; columns and rows may not sum to total due to rounding.

Table 48.—Net volume of sawtimber trees on UVA timberland by species, size class, and standard-lumber log grade, Northern Unit, Vermont, 1983

(Millions of board feet)[a]

Species	All size classes				All Grades	>15-inch diameter at breast height				All Grades
	Grade 1	Grade 2	Grade 3	Grade 4[b]		Grade 1	Grade 2	Grade 3	Grade 4[b]	
Balsam fir[c]	0.0	0.0	0.0	0.0	77.6	0.0	0.0	0.0	0.0	0.0
Tamarack[c]	0.0	0.0	0.0	0.0	4.7	0.0	0.0	0.0	0.0	0.0
White spruce[c]	0.0	0.0	0.0	0.0	42.6	0.0	0.0	0.0	0.0	0.0
Black spruce[c]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Red spruce[c]	0.0	0.0	0.0	0.0	146.3	0.0	0.0	0.0	0.0	0.0
Red pine	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
White pine	1.7	36.0	49.7	19.0	106.4	0.0	10.9	22.0	10.4	43.3
Northern white-cedar[c]	0.0	0.0	0.0	0.0	12.0	0.0	0.0	0.0	0.0	0.0
Hemlock[c]	0.0	0.0	0.0	0.0	136.1	0.0	0.0	0.0	0.0	0.0
Other softwoods[c]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total softwoods	1.7	36.0	49.7	19.0	525.8	0.0	10.9	22.0	10.4	43.3
Sugar maple	19.0	64.7	143.1	56.9	283.6	9.2	14.5	26.7	19.2	69.6
Soft maples	1.8	10.8	46.6	12.4	71.7	1.8	4.1	16.2	2.2	24.3
Yellow birch	8.4	36.8	78.4	18.5	142.1	7.4	18.5	26.5	8.6	61.0
Paper birch	1.6	2.7	22.3	6.2	32.9	1.6	2.3	2.9	0.5	7.3
Gray birch	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Beech	0.4	2.5	20.0	17.3	40.2	0.1	0.0	11.4	12.2	23.7
White ash	10.3	16.3	21.7	9.2	57.4	9.5	3.2	6.6	1.6	20.9
Black ash	1.9	1.2	11.3	2.9	17.2	1.9	0.3	0.7	0.1	3.0
Aspen	8.5	21.8	29.7	11.1	71.1	8.5	15.8	9.4	2.2	35.9
White oaks	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Red oaks	0.0	0.8	1.7	0.3	2.8	0.0	0.0	0.0	0.0	0.0
Basswood	0.0	1.5	0.8	2.3	4.6	0.0	0.0	0.0	0.0	0.0
Elm	0.0	0.7	5.0	1.0	6.7	0.0	0.0	2.0	0.4	2.4
Other hardwoods	2.9	4.7	13.6	7.1	29.4	2.9	4.7	5.2	5.2	16.9
Total hardwoods	54.8	164.5	394.3	145.0	759.7	42.9	63.4	107.5	52.1	261.2

[a]International 1/4-inch rule; columns and rows may not sum to total due to rounding.

[b]Grade 4 applies only to white pine. For hardwoods, the volumes in this column are for construction logs.

[c]These species are not divided into standard-lumber grades.

Table 49.—Net volume of sawtimber trees on non-UVA timberland by species, size class, and standard-lumber log grade, Northern Unit, Vermont, 1983

(Millions of board feet)[a]

Species	All size classes				All Grades	>15-inch diameter at breast height				All Grades
	Grade 1	Grade 2	Grade 3	Grade 4[b]		Grade 1	Grade 2	Grade 3	Grade 4[b]	
Balsam fir[c]	0.0	0.0	0.0	0.0	560.4	0.0	0.0	0.0	0.0	0.0
Tamarack[c]	0.0	0.0	0.0	0.0	10.9	0.0	0.0	0.0	0.0	0.0
White spruce[c]	0.0	0.0	0.0	0.0	117.1	0.0	0.0	0.0	0.0	0.0
Black spruce[c]	0.0	0.0	0.0	0.0	17.6	0.0	0.0	0.0	0.0	0.0
Red spruce[c]	0.0	0.0	0.0	0.0	642.9	0.0	0.0	0.0	0.0	0.0
Red pine	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
White pine	14.4	135.3	242.5	139.3	531.5	13.1	50.5	120.7	86.2	270.5
Northern white-cedar[c]	0.0	0.0	0.0	0.0	132.5	0.0	0.0	0.0	0.0	0.0
Hemlock[c]	0.0	0.0	0.0	0.0	555.0	0.0	0.0	0.0	0.0	0.0
Other softwoods[c]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total softwoods	14.4	135.3	242.5	139.3	2,567.8	13.1	50.5	120.7	86.2	270.5
Sugar maple	122.8	233.2	512.7	279.7	1,148.5	97.0	131.0	215.2	163.6	606.8
Soft maple	9.2	48.9	193.9	76.6	328.5	9.2	25.3	46.9	15.8	97.2
Yellow birch	40.9	120.6	236.1	66.3	463.9	38.5	69.0	103.8	44.0	255.3
Paper birch	11.9	47.3	87.0	20.1	166.2	10.7	4.7	14.4	6.2	36.0
Gray birch	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Beech	5.5	32.5	142.1	44.8	224.9	4.4	22.6	78.2	26.3	131.5
White ash	58.6	42.7	55.2	16.2	172.8	40.1	23.0	20.0	5.1	88.2
Black ash	1.1	1.8	3.7	0.7	7.4	1.1	1.4	1.2	0.1	3.8
Aspen	25.3	57.0	85.0	38.9	206.2	22.5	23.1	32.7	18.9	97.2
White oaks	4.8	2.7	1.9	0.9	10.3	4.8	2.7	1.9	0.9	10.3
Red oaks	16.0	14.6	21.9	38.6	91.1	13.8	6.8	8.3	36.4	65.3
Basswood	1.9	10.9	13.0	1.2	27.0	1.9	5.7	3.4	0.6	11.6
Elm	1.9	6.0	7.8	1.6	17.3	1.9	2.2	2.1	0.5	6.7
Other hardwoods	0.0	14.7	32.5	18.0	64.1	0.0	6.9	7.5	8.8	24.3
Total hardwoods	299.9	632.9	1,392.7	603.8	2,928.2	245.9	324.4	535.7	327.3	1,434.4

[a]International 1/4-inch rule; columns and rows may not sum to total due to rounding.

[b]Grade 4 applies only to white pine. For hardwoods, the volumes in this column are for construction logs.

[c]These species are not divided into standard-lumber grades.

Table 50.—Area of UVA timberland by forest type, forest-type group, and stand-size class, Southern Unit, Vermont, 1983

(Thousands of acres)[a]

Forest type and forest-type group	Stand-size class				
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked	All classes
Red pine	0.0	0.0	0.0	0.0	0.0
White pine	29.4	8.4	0.0	0.0	37.8
White pine/hemlock	4.2	0.0	0.0	0.0	4.2
Hemlock	0.0	0.0	0.0	0.0	0.0
White/red pine group	33.6	8.4	0.0	0.0	42.0
Red spruce	13.9	0.0	0.0	0.0	13.9
Red spruce/balsam fir	0.0	0.0	0.0	0.0	0.0
Northern white-cedar	0.0	0.0	0.0	0.0	0.0
Spruce/fir group	13.9	0.0	0.0	0.0	13.9
White pine/northern red oak/ white ash	4.2	0.0	0.0	0.0	4.2
Oak/pine group	4.2	0.0	0.0	0.0	4.2
White oak/red oak/hickory	0.0	0.0	0.0	0.0	0.0
White oak	0.0	0.0	0.0	0.0	0.0
Northern red oak	10.6	0.0	0.0	0.0	10.6
Hawthorn/reverting field	0.0	0.0	0.0	0.0	0.0
Red maple/central hardwoods	0.0	0.0	0.0	0.0	0.0
Mixed central hardwoods	5.1	0.0	0.0	0.0	5.1
Oak/hickory group	15.7	0.0	0.0	0.0	15.7
Black ash/American elm/ red maple	0.0	0.0	0.0	0.0	0.0
Elm/ash/red maple group	0.0	0.0	0.0	0.0	0.0
Sugar maple/beech/yellow birch	110.0	8.5	10.4	0.0	128.9
Black cherry	0.0	0.0	4.0	0.0	4.0
Red maple/northern hardwoods	15.6	5.1	0.0	0.0	20.7
Pin cherry/reverting field	0.0	0.0	3.1	0.0	3.1
Mixed northern hardwoods	18.9	5.1	10.4	0.0	34.5
Northern hardwoods group	144.6	18.7	27.9	0.0	191.2
Aspen	0.0	0.0	0.0	0.0	0.0
Paper birch	4.0	10.2	0.0	0.0	14.2
Gray birch	0.0	0.0	0.0	0.0	0.0
Aspen/birch group	4.0	10.2	0.0	0.0	14.2
All forest types	215.9	37.3	27.9	0.0	281.2

[a]Columns and rows may not sum to total due to rounding.

Table 51.—Area of non-UVA timberland by forest type, forest-type group, and stand-size class, Southern Unit, Vermont, 1983

(Thousands of acres)[a]

Forest type and forest-type group	Stand-size class				
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked	All classes
Red pine	7.5	0.0	0.0	0.0	7.5
White pine	126.7	34.7	31.3	0.0	192.7
White pine/hemlock	44.3	0.0	0.0	0.0	44.3
Hemlock	101.6	0.0	0.0	0.0	101.6
White/red pine group	280.0	34.7	31.3	0.0	346.0
Red spruce	42.4	7.0	0.0	0.0	49.4
Red spruce/balsam fir	7.0	7.7	14.6	0.0	29.3
Northern white-cedar	0.0	0.0	12.0	0.0	12.0
Spruce/fir group	49.4	14.7	26.6	0.0	90.7
White pine/northern red oak/ white ash	2.6	6.8	0.0	0.0	9.4
Oak/pine group	2.6	6.8	0.0	0.0	9.4
White oak/red oak/hickory	7.2	7.1	6.0	0.0	20.3
White oak	6.7	13.8	0.0	0.0	20.5
Northern red oak	40.2	14.2	6.7	0.0	61.1
Hawthorn/reverting field	0.0	0.0	5.6	6.4	12.0
Red maple/central hardwoods	0.0	0.0	6.4	0.0	6.4
Mixed central hardwoods	3.4	0.0	7.2	0.0	10.6
Oak/hickory group	57.5	35.1	31.9	6.4	130.9
Black ash/American elm/ red maple	28.8	7.0	6.7	0.0	42.5
Elm/ash/red maple group	28.8	7.0	6.7	0.0	42.5
Sugar maple/beech/yellow birch	711.1	105.4	51.8	0.0	868.2
Black cherry	4.9	0.0	2.7	0.0	7.6
Red maple/northern hardwoods	126.1	44.8	7.2	0.0	178.1
Pin cherry/reverting field	0.0	0.0	7.8	5.6	13.4
Mixed northern hardwoods	107.5	56.7	17.9	0.0	182.1
Northern hardwoods group	949.5	206.9	87.4	5.6	1,249.4
Aspen	0.0	22.3	6.8	0.0	29.1
Paper birch	25.1	10.7	0.0	0.0	35.8
Gray birch	0.0	6.8	0.0	0.0	6.8
Aspen/birch group	25.1	39.8	6.8	0.0	71.7
All forest types	1,392.9	345.0	190.7	12.0	1,940.5

[a]Columns and rows may not sum to total due to rounding.

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Table 52.—Number of growing-stock trees on UVA timberland by species and diameter class, Southern Unit, Vermont, 1983

(Thousands of trees)[a]

Species	Diameter class (inches at breast height)										
	5.0–6.9	7.0–8.9	9.0–10.9	11.0–12.9	13.0–14.9	15.0–16.9	17.0–18.9	19.0–20.9	21.0–28.9	29.0+	All classes
Balsam fir	244	20	10	10	0	0	0	0	0	0	285
Tamarack	0	0	0	37	0	0	0	0	0	0	37
White spruce	0	0	0	0	0	0	0	0	0	0	0
Black spruce	0	0	0	0	0	0	0	0	0	0	0
Red spruce	1,041	742	154	82	177	74	47	25	12	0	2,353
Red pine	0	0	0	0	0	0	0	0	0	0	0
White pine	2,463	870	732	568	93	211	130	78	95	49	5,290
Northern white-cedar	0	0	0	0	0	0	0	0	0	0	0
Hemlock	391	601	139	127	19	32	0	24	0	0	1,335
Other softwoods	19	19	0	0	0	0	0	0	0	0	37
Total softwoods	4,156	2,252	1,036	824	289	317	177	128	107	49	9,336
Sugar maple	3,299	1,738	1,312	689	500	306	161	50	21	0	8,076
Soft maples	1,896	859	750	462	342	355	18	36	10	0	4,728
Yellow birch	259	548	403	340	285	73	7	23	10	13	1,961
Paper birch	538	1,343	1,416	549	211	25	57	10	0	0	4,148
Gray birch	0	0	0	0	0	0	0	0	0	0	0
Beech	454	322	271	63	29	46	23	0	0	9	1,216
White ash	52	134	452	489	177	67	99	0	0	0	1,470
Black ash	0	0	0	0	0	0	0	0	0	0	0
Aspen	0	29	317	27	44	0	0	0	0	0	418
White oaks	0	0	0	0	0	0	0	0	0	0	0
Red oaks	281	434	444	381	400	197	61	38	60	0	2,297
Basswood	111	37	24	12	0	29	0	0	0	0	212
Elm	14	71	36	0	0	10	0	0	0	0	132
Other hardwoods	235	375	354	281	131	0	36	48	0	0	1,460
Total hardwoods	7,138	5,890	5,780	3,292	2,119	1,108	462	206	102	21	26,118
Total all species	11,294	8,142	6,816	4,116	2,409	1,425	639	334	209	70	35,454

[a]Columns and rows may not sum to total due to rounding.

Table 53.—Number of growing-stock trees on non-UVA timberland by species and diameter class, Southern Unit, Vermont, 1983

(Thousands of trees)[a]

Species	Diameter class (inches at breast height)										
	5.0–6.9	7.0–8.9	9.0–10.9	11.0–12.9	13.0–14.9	15.0–16.9	17.0–18.9	19.0–20.9	21.0–28.9	29.0+	All classes
Balsam fir	1,778	843	339	114	101	0	0	0	0	0	3,174
Tamarack	0	31	0	70	0	0	0	0	0	101	
White spruce	0	0	0	0	0	0	0	0	0	0	0
Black spruce	0	0	0	0	0	0	0	0	0	0	0
Red spruce	5,854	5,160	2,596	1,754	656	200	116	13	19	0	16,369
Red pine	309	124	221	73	159	121	42	17	17	0	1,083
White pine	7,584	3,543	3,079	1,660	1,195	650	329	160	270	40	18,509
Northern white-cedar	561	66	47	32	37	0	0	0	0	0	743
Hemlock	9,294	5,801	3,682	3,307	1,896	921	430	193	154	5	25,681
Other softwoods	17	17	0	0	0	0	0	0	0	0	35
Total softwoods	25,399	15,585	9,963	7,010	4,044	1,892	917	382	460	45	65,696
Sugar maple	14,261	12,901	8,399	6,716	4,257	2,431	996	907	749	83	51,700
Soft maples	8,403	9,986	4,462	2,923	1,539	972	385	244	189	16	29,119
Yellow birch	5,603	3,900	3,735	1,958	1,224	613	308	156	186	5	17,688
Paper birch	7,371	5,439	4,661	1,402	831	290	63	71	0	0	20,129
Gray birch	412	0	0	0	0	0	0	0	0	0	412
Beech	8,362	5,645	3,951	2,264	1,268	523	358	193	118	0	22,683
White ash	4,995	4,089	1,954	1,304	839	502	102	84	15	0	13,884
Black ash	0	31	0	0	0	0	0	0	0	0	31
Aspen	1,838	1,193	1,211	572	369	208	114	0	15	0	5,519
White oaks	62	778	418	193	85	32	39	36	13	16	1,672
Red oaks	1,848	1,292	1,534	1,630	391	599	394	161	147	20	8,015
Basswood	448	172	218	101	150	63	20	0	0	6	1,179
Elm	911	1,147	866	411	165	53	70	19	26	0	3,667
Other hardwoods	7,224	4,055	2,245	1,424	505	316	154	17	11	0	15,951
Total hardwoods	61,739	50,628	33,653	20,899	11,623	6,602	3,003	1,887	1,468	147	191,649
Total all species	87,138	66,213	43,616	27,909	15,666	8,494	3,920	2,269	1,928	192	257,345

[a]Columns and rows may not sum to total due to rounding.

Table 54.—Net green weight[a] of all trees on UVA timberland by class of material and softwoods and hardwoods, Southern Unit, Vermont, 1983

(Thousands of tons)[b]

Class of material	Softwoods	Hardwoods	All species
Sawtimber trees:			
Sawlog portion	2,253.5	4,962.7	7,216.2
Upper stem	246.9	1,221.1	1,468.0
Total sawtimber	2,500.4	6,183.8	8,684.2
Total poletimber	813.7	4,277.9	5,091.6
All growing stock	3,314.1	10,461.8	13,775.9
Rough culls[c]	1,479.6	1,484.2	2,963.7
Rotten culls[c]	113.7	1,481.7	1,595.4
Saplings[d]	357.4	1,901.3	2,258.7
Tops:			
Growing stock	1,133.4	3,727.0	4,860.4
Rough and rotten	456.5	1,059.6	1,516.1
All nongrowing stock	3,540.5	9,653.9	13,194.3
Total all classes	6,854.5	20,115.6	26,970.2

[a]Includes bark and sound cull; exludes rotten cull.

[b]Columns and rows may not sum to total due to rounding.

[c]Bole portion of trees 5.0 inches d.b.h. and larger.

[d]Includes entire tree aboveground.

Table 55.—Net green weight[a] of all trees on non-UVA timberland by class of material and softwoods and hardwoods, Southern Unit, Vermont, 1983

(Thousands of tons)[b]

Class of material	Softwoods	Hardwoods	All species
Sawtimber trees:			
Sawlog portion	14,110.1	33,538.7	47,648.8
Upper stem	1,785.9	8,086.5	9,872.4
Total sawtimber	15,896.0	41,625.2	57,521.2
Total poletimber	5,225.3	31,956.5	37,181.8
All growing stock	21,121.3	73,581.6	94,702.9
Rough culls[c]	4,663.0	8,629.2	13,292.3
Rotten culls[c]	583.9	8,643.1	9,227.0
Saplings[d]	2,853.1	14,606.7	17,459.8
Tops:			
Growing stock	7,526.2	26,776.9	34,303.1
Rough and rotten	1,838.6	6,162.9	8,001.5
All nongrowing stock	17,464.9	64,818.7	82,283.7
Total all classes	38,586.3	138,400.4	176,986.6

[a]Includes bark and sound cull; exludes rotten cull.

[b]Columns and rows may not sum to total due to rounding.

[c]Bole portion of trees 5.0 inches d.b.h. and larger.

[d]Includes entire tree aboveground.

Table 56.—Net volume of growing-stock trees on UVA timberland by species and diameter class, Southern Unit, Vermont, 1983

(Millions of cubic feet)[a]

Species	Diameter class (inches at breast height)										
	5.0–6.9	7.0–8.9	9.0–10.9	11.0–12.9	13.0–14.9	15.0–16.9	17.0–18.9	19.0–20.9	21.0–28.9	29.0+	All classes
Balsam fir	0.5	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.9
Tamarack	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.5
White spruce	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Black spruce	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Red spruce	2.7	4.7	1.8	1.3	4.3	2.4	1.9	1.2	1.0	0.0	21.5
Red pine	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
White pine	6.4	5.8	7.5	9.8	2.1	6.7	6.4	4.1	8.0	5.2	61.8
Northern white-cedar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hemlock	0.9	4.0	1.5	2.0	0.4	0.9	0.0	1.0	0.0	0.0	10.8
Other softwoods	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total softwoods	10.5	14.7	10.8	13.8	6.8	10.0	8.3	6.3	9.0	5.2	95.5
Sugar maple	8.1	12.0	15.0	12.2	12.0	10.2	6.1	2.2	1.6	0.0	79.6
Soft maples	4.2	5.0	8.1	7.5	7.7	11.7	0.6	1.6	0.6	0.0	47.1
Yellow birch	0.6	3.8	4.3	5.3	6.8	2.3	0.2	1.0	0.6	1.2	26.1
Paper birch	1.7	9.2	15.2	9.4	5.0	0.8	2.0	0.5	0.0	0.0	43.8
Gray birch	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Beech	1.1	1.7	3.1	1.0	0.6	1.7	1.0	0.0	0.0	0.9	10.9
White ash	0.2	0.9	5.8	9.8	5.3	2.4	4.1	0.0	0.0	0.0	28.5
Black ash	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Aspen	0.0	0.2	3.9	0.4	1.0	0.0	0.0	0.0	0.0	0.0	5.5
White oaks	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Red oaks	1.0	2.2	4.1	5.9	10.6	6.0	2.6	2.2	4.1	0.0	38.8
Basswood	0.3	0.2	0.3	0.2	0.0	1.0	0.0	0.0	0.0	0.0	1.9
Elm	0.0	0.3	0.3	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.9
Other hardwoods	0.5	2.1	4.0	5.4	3.5	0.0	1.6	3.1	0.0	0.0	20.2
Total hardwoods	17.6	37.8	64.0	57.1	52.5	36.4	18.1	10.7	7.0	2.1	303.2
Total all species	28.2	52.5	74.8	70.9	59.3	46.4	26.4	17.0	15.9	7.2	398.7

[a]Columns and rows may not sum to total due to rounding.

Table 57.—Net volume of growing-stock trees on non-UVA timberland by species and diameter class, Southern Unit, Vermont, 1983

(Millions of cubic feet)[a]

Species	Diameter class (inches at breast height)										
	5.0–6.9	7.0–8.9	9.0–10.9	11.0–12.9	13.0–14.9	15.0–16.9	17.0–18.9	19.0–20.9	21.0–28.9	29.0+	All classes
Balsam fir	5.4	5.7	3.8	1.7	2.0	0.0	0.0	0.0	0.0	0.0	18.5
Tamarack	0.0	0.1	0.0	1.2	0.0	0.0	0.0	0.0	0.0	0.0	1.3
White spruce	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Black spruce	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Red spruce	18.4	33.9	31.3	30.6	16.0	6.8	5.0	0.6	1.4	0.0	143.8
Red pine	0.5	0.8	2.3	1.4	4.9	4.4	2.0	0.9	1.6	0.0	18.8
White pine	20.9	20.5	34.0	26.8	27.9	20.6	12.7	7.5	19.8	6.5	197.4
Northern white-cedar	1.2	0.3	0.4	0.4	0.7	0.0	0.0	0.0	0.0	0.0	3.0
Hemlock	22.4	32.7	36.8	51.4	42.0	27.3	17.0	8.8	10.0	0.7	249.0
Other softwoods	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total softwoods	68.8	94.0	108.7	113.4	93.5	59.1	36.7	17.8	32.8	7.2	631.9
Sugar maple	40.1	80.3	97.0	121.2	109.3	80.2	40.2	44.9	53.9	11.4	678.3
Soft maples	23.6	62.6	48.3	50.6	36.6	31.8	15.5	12.6	12.9	2.2	296.6
Yellow birch	13.2	25.2	39.4	33.5	29.7	18.5	11.7	6.9	12.2	1.2	191.5
Paper birch	20.1	38.7	55.5	24.7	20.0	9.3	2.1	3.6	0.0	0.0	174.0
Gray birch	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0
Beech	17.9	33.2	41.7	40.5	33.7	17.1	14.9	10.7	9.7	0.0	219.6
White ash	15.2	27.8	24.0	24.7	23.0	17.9	4.3	4.3	0.9	0.0	142.1
Black ash	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Aspen	5.7	8.1	14.1	11.0	9.7	7.3	4.5	0.0	1.0	0.0	61.4
White oaks	0.2	4.1	3.7	2.8	1.9	0.9	1.2	1.7	0.7	3.2	20.4
Red oaks	5.1	8.5	16.3	27.6	9.6	18.7	15.7	9.5	10.2	2.8	123.9
Basswood	1.4	1.3	2.6	1.8	4.2	2.2	0.9	0.0	0.0	0.9	15.4
Elm	2.2	5.5	7.6	6.7	3.6	1.3	2.4	0.6	1.5	0.0	31.4
Other hardwoods	20.7	25.5	28.2	26.3	12.8	11.3	6.3	0.7	0.9	0.0	132.7
Total hardwoods	166.5	320.7	378.5	371.4	294.1	216.5	119.8	95.4	103.8	21.7	2,088.5
Total all species	235.2	414.7	487.2	484.8	387.6	275.6	156.5	113.2	136.7	29.0	2,720.4

[a]Columns and rows may not sum to total due to rounding.

Table 58.—Net volume of sawtimber trees on UVA timberland by species and diameter class, Southern Unit, Vermont, 1983

(Millions of board feet)[a]

Species	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	21.0–28.9	29.0+	All classes
Balsam fir	0.3	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.8
Tamarack	0.0	1.7	0.0	0.0	0.0	0.0	0.0	0.0	1.7
White spruce	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Black spruce	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Red spruce	5.4	4.7	17.7	9.8	8.0	5.7	3.0	0.0	54.4
Red pine	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
White pine	21.1	34.5	8.3	26.1	30.0	18.0	39.5	16.2	193.5
Northern white-cedar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hemlock	4.5	6.9	1.9	3.5	0.0	4.0	0.0	0.0	20.7
Other softwoods	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total softwoods	31.3	48.1	27.9	39.4	38.0	27.7	42.4	16.2	271.0
Sugar maple	0.0	40.9	43.7	39.1	22.5	8.8	9.1	0.0	164.1
Soft maples	0.0	22.1	22.6	44.5	2.5	5.9	2.8	0.0	100.4
Yellow birch	0.0	16.2	24.3	7.8	1.0	4.0	1.7	5.4	60.5
Paper birch	0.0	31.1	17.6	2.7	8.3	2.1	0.0	0.0	61.8
Gray birch	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Beech	0.0	4.0	2.7	7.5	4.5	0.0	0.0	5.0	23.6
White ash	0.0	31.8	16.2	10.6	15.8	0.0	0.0	0.0	74.3
Black ash	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Aspen	0.0	1.7	3.6	0.0	0.0	0.0	0.0	0.0	5.3
White oaks	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Red oaks	0.0	17.4	33.2	22.2	10.0	8.7	18.8	0.0	110.2
Basswood	0.0	0.8	0.0	4.3	0.0	0.0	0.0	0.0	5.1
Elm	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	1.0
Other hardwoods	0.0	17.1	13.3	0.0	6.9	13.2	0.0	0.0	50.5
Total hardwoods	0.0	182.9	177.3	139.6	71.4	42.8	32.4	10.3	656.7
Total all species	31.3	231.0	205.2	179.0	109.4	70.5	74.8	26.5	927.7

[a]International 1/4-inch rule; columns and rows may not sum to total due to rounding.

Table 59.—Net volume of sawtimber trees on non-UVA timberland by species and diameter class, Southern Unit, Vermont, 1983

(Millions of board feet)[a]

Species	_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	21.0–28.9	29.0+	All classes
Balsam fir	12.4	5.8	8.4	0.0	0.0	0.0	0.0	0.0	26.5
Tamarack	0.0	4.4	0.0	0.0	0.0	0.0	0.0	0.0	4.4
White spruce	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Black spruce	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Red spruce	94.4	114.0	65.4	29.0	22.5	2.7	6.4	0.0	334.3
Red pine	5.8	5.2	20.4	16.9	9.4	3.0	5.0	0.0	65.7
White pine	98.3	93.9	106.4	84.0	50.6	28.6	80.8	30.1	572.9
Northern white-cedar	0.8	0.7	2.4	0.0	0.0	0.0	0.0	0.0	3.9
Hemlock	102.7	176.7	160.4	111.2	70.5	36.4	48.2	3.7	709.9
Other softwoods	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total softwoods	314.4	400.8	363.4	241.1	153.0	70.7	140.5	33.8	1,717.7
Sugar maple	0.0	392.5	394.6	307.2	157.0	183.2	234.8	59.1	1,728.4
Soft maples	0.0	161.1	130.5	125.8	59.5	51.3	56.8	7.3	592.3
Yellow birch	0.0	111.0	109.6	71.0	46.6	29.0	48.1	6.7	421.9
Paper birch	0.0	83.2	73.4	35.8	9.0	14.8	0.0	0.0	216.2
Gray birch	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Beech	0.0	136.9	130.1	68.5	61.5	44.8	44.0	0.0	485.9
White ash	0.0	82.4	86.3	71.3	17.7	17.2	3.9	0.0	278.9
Black ash	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Aspen	0.0	35.9	34.8	28.4	19.0	0.0	4.1	0.0	122.2
White oaks	0.0	9.7	7.0	3.3	4.6	6.3	3.4	13.4	47.7
Red oaks	0.0	87.5	34.9	68.8	59.4	38.8	44.2	14.3	348.0
Basswood	0.0	6.6	14.7	10.1	3.5	0.0	0.0	4.9	39.8
Elm	0.0	23.9	11.4	5.3	9.5	2.9	6.8	0.0	59.8
Other hardwoods	0.0	92.2	48.5	47.0	25.8	1.9	4.0	0.0	219.4
Total hardwoods	0.0	1,223.1	1,075.7	842.6	473.2	390.1	450.1	105.8	4,560.6
Total all species	314.4	1,623.9	1,439.1	1,083.7	626.2	460.8	590.6	139.6	6,278.3

[a]International 1/4-inch rule; columns and rows may not sum to total due to rounding.

Table 60.—Net volume of sawtimber trees on UVA timberland by species, size class, and standard-lumber log grade, Southern Unit, Vermont, 1983

(Millions of board feet)[a]

Species	All size classes				All Grades	>15-inch diameter at breast height				All Grades
	Grade 1	Grade 2	Grade 3	Grade 4[b]		Grade 1	Grade 2	Grade 3	Grade 4[b]	
Balsam fir[c]	0.0	0.0	0.0	0.0	2.1	0.0	0.0	0.0	0.0	0.0
Tamarack[c]	0.0	0.0	0.0	0.0	1.5	0.0	0.0	0.0	0.0	0.0
White spruce[c]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Black spruce[c]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Red spruce[c]	0.0	0.0	0.0	0.0	51.2	0.0	0.0	0.0	0.0	0.0
Red pine	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
White pine	15.0	38.6	77.3	39.3	170.2	15.0	9.4	30.6	15.1	70.1
Northern white-cedar[c]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hemlock[c]	0.0	0.0	0.0	0.0	33.1	0.0	0.0	0.0	0.0	0.0
Other softwoods[c]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total softwoods	15.0	38.6	77.3	39.3	258.1	15.0	9.4	30.6	15.1	70.1
Sugar maple	12.1	31.7	77.0	25.4	146.2	8.2	12.7	22.9	14.1	57.9
Soft maples	9.5	25.4	60.4	17.8	113.1	6.8	9.5	19.0	5.4	40.7
Yellow birch	1.4	20.4	46.3	5.5	73.6	0.7	4.2	10.9	0.9	16.7
Paper birch	1.4	13.5	34.4	17.5	66.9	0.7	2.2	3.6	1.7	8.2
Gray birch	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Beech	0.5	6.1	14.4	2.4	23.4	0.2	3.1	8.9	1.5	13.7
White ash	2.8	23.3	27.8	9.9	63.8	0.0	9.4	5.2	2.1	16.7
Black ash	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Aspen	0.0	2.3	1.8	1.9	6.0	0.0	0.0	0.0	0.0	0.0
White oaks	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Red oaks	27.2	34.5	36.5	15.6	113.8	16.4	7.9	12.5	4.8	41.6
Basswood	0.5	0.9	2.1	0.1	3.6	0.5	0.9	0.6	0.1	2.1
Elm	0.0	0.0	1.1	0.0	1.1	0.0	0.0	1.1	0.0	1.1
Other hardwoods	2.1	15.5	35.6	7.8	61.0	0.0	9.1	3.1	2.0	14.2
Total hardwoods	57.6	173.5	337.4	103.8	672.4	33.6	58.8	87.6	32.7	212.7

[a]International 1/4-inch rule; columns and rows may not sum to total due to rounding.

[b]Grade 4 applies only to white pine. For hardwoods, the volumes in this column are for construction logs.

[c]These species are not divided into standard-lumber grades.

Table 61.—Net volume of sawtimber trees on non-UVA timberland by species, size class, and standard-lumber log grade, Southern Unit, Vermont, 1983

(Millions of board feet)[a]

Species	All size classes				All Grades	>15-inch diameter at breast height				All Grades
	Grade 1	Grade 2	Grade 3	Grade 4[b]		Grade 1	Grade 2	Grade 3	Grade 4[b]	
Balsam fir[c]	0.0	0.0	0.0	0.0	25.2	0.0	0.0	0.0	0.0	0.0
Tamarack[c]	0.0	0.0	0.0	0.0	4.6	0.0	0.0	0.0	0.0	0.0
White spruce[c]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Black spruce[c]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Red spruce[c]	0.0	0.0	0.0	0.0	337.5	0.0	0.0	0.0	0.0	0.0
Red pine	18.5	13.4	33.8	0.0	65.7	8.6	7.6	18.1	0.0	34.3
White pine	33.1	107.4	255.3	200.4	596.2	23.5	50.2	138.7	121.4	333.8
Northern white-cedar[c]	0.0	0.0	0.0	0.0	3.9	0.0	0.0	0.0	0.0	0.0
Hemlock[c]	0.0	0.0	0.0	0.0	697.5	0.0	0.0	0.0	0.0	0.0
Other softwoods[c]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total softwoods	51.6	120.8	289.1	200.4	1,730.6	32.1	57.8	156.8	121.4	368.1
Sugar maple	204.7	469.1	766.7	305.8	1,746.3	151.7	226.6	409.0	175.5	962.8
Soft maples	68.4	188.7	226.8	95.7	579.6	58.3	96.9	107.8	52.6	315.6
Yellow birch	46.1	128.8	195.6	38.3	408.8	36.6	48.8	98.7	20.4	204.5
Paper birch	14.4	83.3	89.9	23.6	211.1	9.5	26.8	15.8	12.4	64.5
Gray birch	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Beech	35.7	81.5	282.9	86.0	486.1	20.6	19.3	134.7	47.6	222.2
White ash	68.1	82.6	101.8	36.9	289.4	39.5	30.6	35.4	14.3	119.8
Black ash	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Aspen	17.1	25.6	61.6	17.2	121.5	14.8	5.0	24.3	7.5	51.6
White oaks	1.1	7.1	29.5	10.0	47.7	0.0	2.4	22.9	5.7	31.0
Red oaks	102.3	107.4	108.9	25.8	344.4	98.9	55.4	72.8	16.5	243.6
Basswood	3.6	12.7	22.9	2.1	41.3	3.6	5.6	10.6	0.8	20.6
Elm	1.8	24.5	22.2	11.2	59.7	1.8	5.8	10.9	5.9	24.4
Other hardwoods	25.8	64.4	93.5	25.2	208.9	17.9	28.5	30.1	8.3	84.8
Total hardwoods	589.0	1,275.8	2,002.3	677.9	4,544.9	453.1	551.9	973.2	367.4	2,345.6

[a]International 1/4-inch rule; columns and rows may not sum to total due to rounding.

[b]Grade 4 applies only to white pine. For hardwoods, the volumes in this column are for construction logs.

[c]These species are not divided into standard-lumber grades.

Table 62.—Sampling errors for timberland area by forest-type group and for sawtimber volume by selected species, Vermont (Frieswyk and Malley 1985) and UVA timberland

Area by forest-type group	Sampling error	
	State	UVA
	---------------- Percent ----------------	
White/red pine	10	29
Spruce/fir	9	25
Oak/pine	71	95
Oak/hickory	20	67
Elm/ash/red maple	26	99
Northern hardwoods	3	6
Aspen/birch	20	37
All groups	< 1	a

Sawtimber volume by species		
Red spruce	11	22
White pine	13	24
Tamarack	46	76
All softwoods	b	12
Sugar maple	7	14
Yellow birch	9	21
Red oak	20	45
All hardwoods	b	7
All species	3	b

[a]Total UVA forest-land area obtained from program enrollment records, Vermont Division of Property Valuation and Review.

[b]Not estimated.

A statistical report and analysis of the timberland enrolled in the Vermont Use Value Appraisal (UVA) property tax program. The study was conducted using data collected in the fourth forest survey of Vermont (1983). Estimates are presented on land area, timber volumes, tree quality, numbers of live trees, and biomass for timberland enrolled in the UVA program and for all other timberland at the State and geographic unit level. Characteristics of the timberland in the program are compared with those of all other timberland.

Headquarters of the Northeastern Forest Experiment Station is in Broomall, Pennsylvania. 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

Orono, Maine, in cooperation with the University of Maine

Parsons, West Virginia

Princeton, West Virginia

Syracuse, New York, in cooperation with the State University of New York, College of Environmental Sciences and Forestry at Syracuse University

University Park, Pennsylvania, in cooperation with The Pennsylvania State University

Warren, Pennsylvania