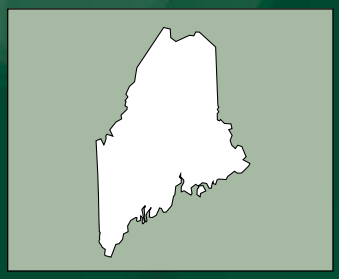
The Forests of Maine: 2003



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Abstract

In 1999, the Maine Forest Service (MFS) and USDA Forest Service's Forest Inventory and Analysis (FIA) program implemented a new system for inventorying and monitoring Maine's forests. A salient feature of the new inventory process is a nearly threefold improvement in timeliness as full inventories are completed every 5 years. The 2003 results represent the first full set of annual inventory and growth data since the end of the extreme spruce-budworm epidemic (SBE) of the 1970's and 1980's. The effects of the SBE continue to affect the composition, structure, and distribution of Maine's forested ecosystems. Insight into current forest dynamics will help stakeholders plan for potential future disturbances like SBE. The area of forest land in Maine has remained stable since the 1970's. Although relatively small acreages of forest are converted to other land uses these conversions often remove highly valued forests such as white pine. The total inventory volume of live trees increased slightly, indicating the beginning of a response of Maine's forest to the tremendous devastation from SBE. The spatial distribution of sapling-size spruce and fir across the State reveals a general abundance of regeneration, foretelling waves of merchantable wood in coming years.

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Brief

In 1999, the Maine Forest Service (MFS) and the USDA Forest Service's Forest Inventory and Analysis (FIA) program implemented a new system for inventorying and monitoring Maine's forest resources. The most obvious benefit of the new system is a nearly threefold improvement in timeliness. The extension of the sample includes a broader range of measurements that will help analysts understand the relationships between resource change and underlying ecological variables. The following is a summary of resource conditions, a prospective future outlook, and policy implications related to the principal findings of this report.

Resource Conditions

- With 17.8 million acres of forest land, Maine is the most heavily forested state in the Nation at 90 percent. The State's forest has been essentially stable for the last several decades (Fig. 1).
- There have been multiple shifts in acreage among owner groups during the last 45 years. Public ownership has increased steadily yet it constitutes a small portion of Maine's forest land. The ownership of Maine's large private forests is changing. Over the last several decades, industrial owners have reduced their holdings while a new category of investor owners that includes timber investment management organizations, real estate investment trusts, and limited liability corporations have increased their holdings (Fig. 2).
- Unlike forests in other timber-producing states, most of Maine's forests are naturally regenerated stands that are managed extensively (Fig. 3). These stands comprise 46

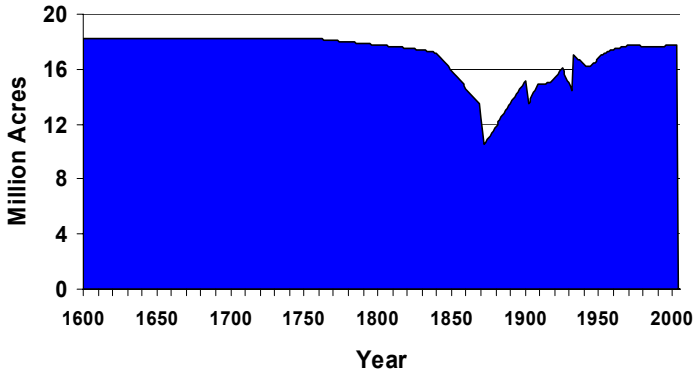


Figure 1.--Area of forest land, Maine, 1660 – 2003, (Irland, 1998).

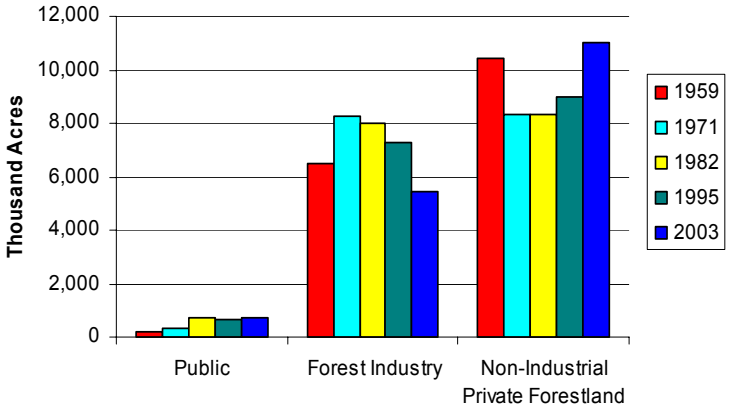


Figure 2.—Timberland acreage by owner group, Maine, 1959, 1971, 1982, 1995, 2003.

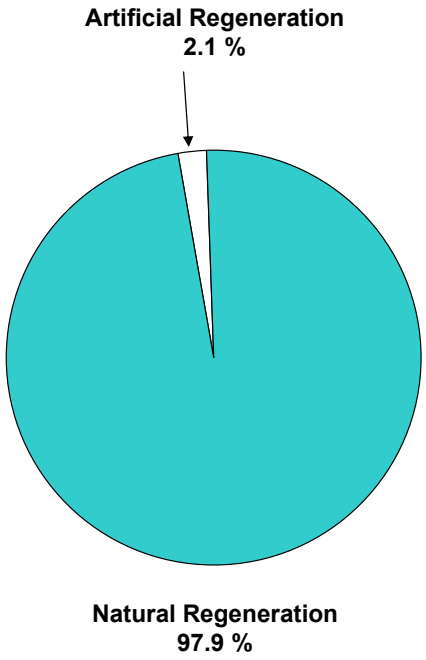


Figure 3.—Percent of timberland by stand origin, Maine, 2003 (Laustsen 2004, personal communication).

commercial tree species. Species with the most trees 1 inch or larger in diameter at breast height (d.b.h.) are balsam fir (35 percent), red maple (12); red, white, and black spruce (11), sugar maple, yellow birch, and American beech (11). This indicates these stands are diverse and closely resemble "natural" forests. The small portion of Maine's forest that is managed intensively includes plantation, precommercial thinning (spacing), and conifer release (Fig. 4).

- Maine's underlying forest habitat is 38 percent hardwood and 62 percent softwood types (Fig. 5), but this acreage currently is occupied by 59 percent hardwood and 41 percent softwood forest types. This is an artifact of mixed-wood stands and recovery following spruce budworm outbreaks, and reflects the difference between FIA estimates of existing vegetative cover and habitat classification that represents potential natural vegetation of a site.
- The volume of timber on Maine's forests is nearly double that in 1952 (Fig. 6). Current estimates of growth and harvest are essentially equal (0.35 cord/acre/year).
- Regenerating forest stands in Maine generally is not a concern as natural regeneration typically results in as many as tens of thousands of seedlings/acre within several years of a disturbance. Over the long term, the vegetative composition of

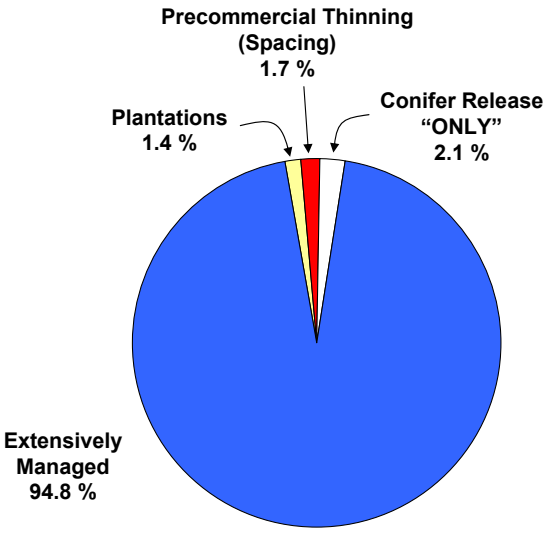


Figure 4.—Percent of timberland by management practice, Maine, 2003 (Laustsen 2004, personal communication).

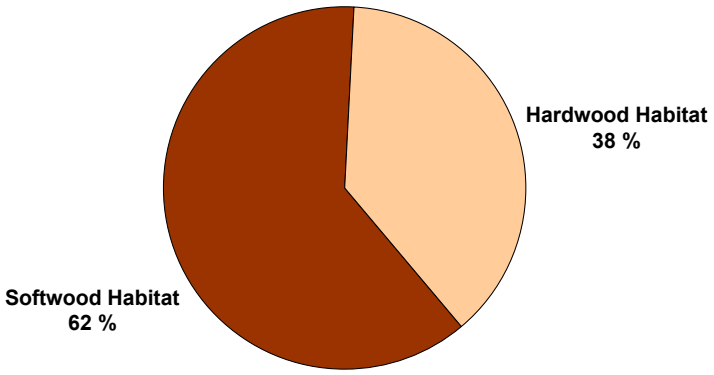


Figure 5.—Distribution of softwood and hardwood habitat groups, Maine, 2003.

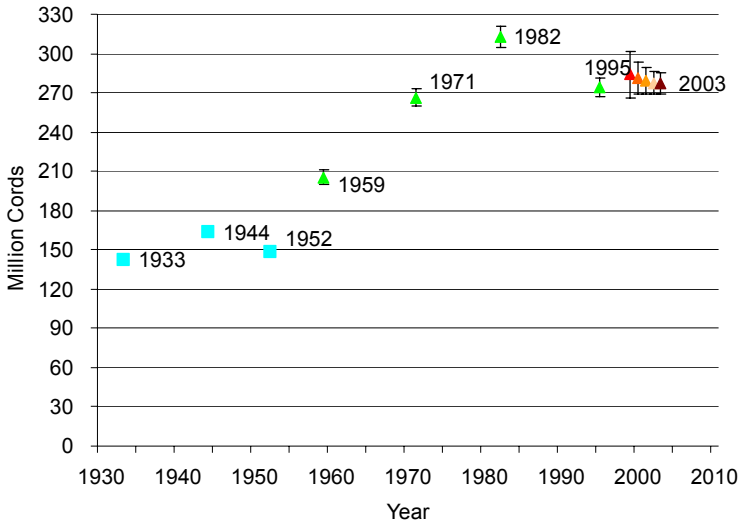


Figure 6.—Volume of pulpwood quality or better trees on timberland, Maine, 1933, 1944, 1952, 1959, 1971, 1982, 1995, 1999, 2000, 2001, 2002, and 2003. Confidence intervals (95 percent) are shown for the 1999, 2000, 2001, 2002, and 2003 annual inventory results.

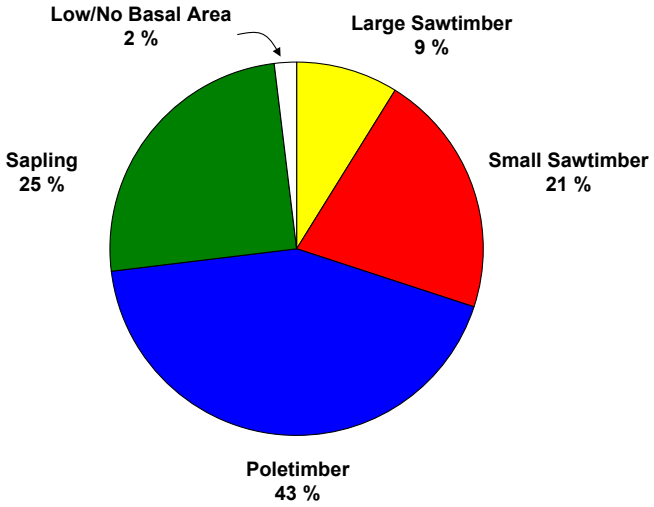


Figure 7.—Percent of timberland by stand-diameter class, Maine, 2003.

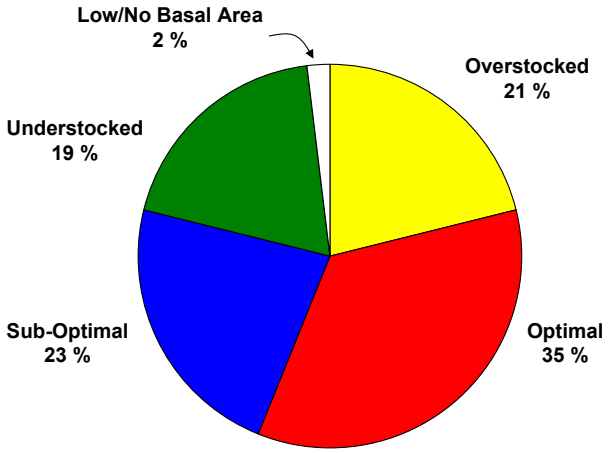


Figure 8.-—Percent of timberland by FIBER stocking region, Maine, 2003.

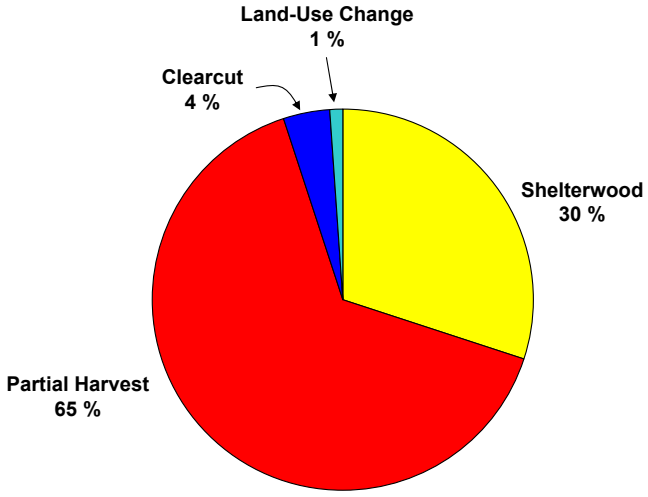


Figure 9.—Percent of timberland by harvest type, Maine (MFS 1996-2003).

these stands reflects the underlying habitat type.

- The major groupings and the current distribution of Maine's timberland by stand-diameter class reveal that one-fourth of Maine's timberland is in sapling-size stands (Fig. 7). Poletimber and sawtimber-size stands account for 43 and 30 percent, respectively. Large sawtimber comprises only 9 percent of the timberland.
- The major groupings and the current distribution of Maine's timberlands by stocking region are shown in Figure 8. Stocking regions are categories related to stand development guides. About one-third of Maine's timberland is in the optimal class. The suboptimal and overstocked classes account for 23 and 21 percent, respectively.
- Currently, timber is harvested on nearly 562,000 acres/year. Most of this activity consists of partial harvesting or shelterwood cutting (Fig. 9).
- Eastern white pine and six major hardwood species (sugar maple, red maple, yellow and white birch, aspen, and northern red oak) consistently account for 90 percent of the sawtimber volume usually graded for quality, and volumes of sawtimber have increased steadily over the 45-year inventory period (Fig. 10).

- White pine has shown a small but steady increase in the average size of sawtimber trees over the inventory period, peaking at 14.8 inches during the last 8 years (Fig. 11). The average diameter of the major hardwoods declined slightly but then recovered during the same period. The current average, 14.4 inches, has remained stable over the last 8 years.
- Volume of sawtimber per acre of timberland acre is a measure used to assess trends. Both white pine (73 percent) and the major hardwoods (95 percent) have shown steady increases over the inventory period (Fig. 12).
- The stocking and distribution of large trees (at least 16 inches d.b.h.) greatly affect wildlife habitat, biodiversity, and stand structure. The relative distribution of large trees in Maine's forests is shown in Figure 13.
- The distribution of sawtimber volume by tree grade (quality) for the two most recent inventories shows improvement for sugar and red maple, yellow and white birch, and aspen. This improvement is apparent from the increase in the percentage of grade 1 and 2 material. When all sawtimber size classes are considered, the quality of white pine decreased while northern red oak showed little change (Fig. 14). However, the distribution is influenced heavily by tree size. When only trees at least 15 inches d.b.h. are considered, white pine shows little change while northern red oak improves slightly.

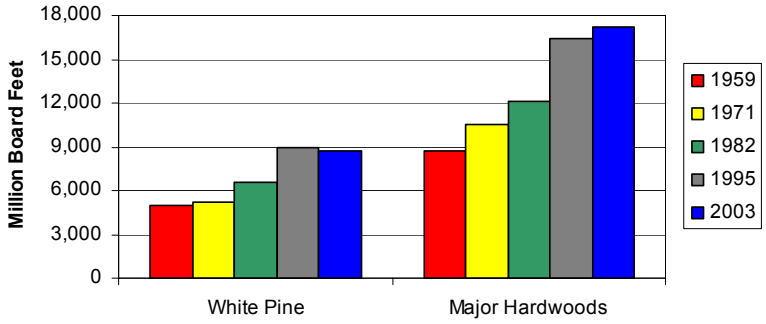


Figure 10.—Volume of white pine and major hardwood sawtimber, Maine, 1959, 1971, 1982, 1995, 2003.

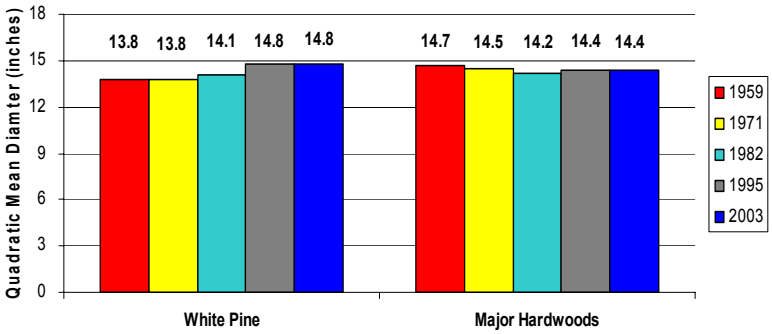


Figure 11.—Quadratic mean diameter of sawtimber trees for white pine and major hardwoods, Maine, 1959, 1971, 1982, 1995, 2003.

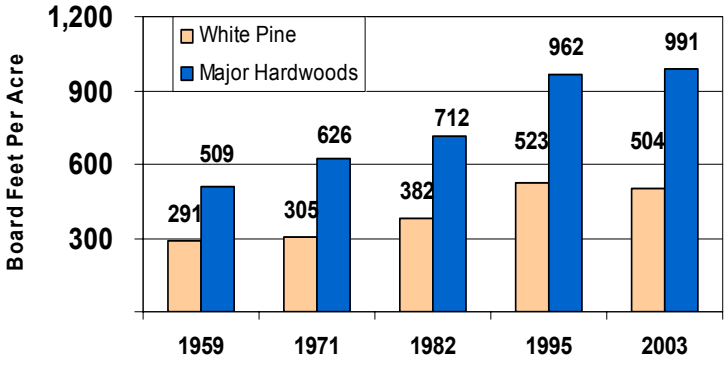


Figure 12.—Average volume of sawtimber per timberland acre for white pine and major hardwoods (red and sugar maple, yellow and white birch, aspen, and northern red oak), Maine 1959, 1971, 1982, 1995, 2003.

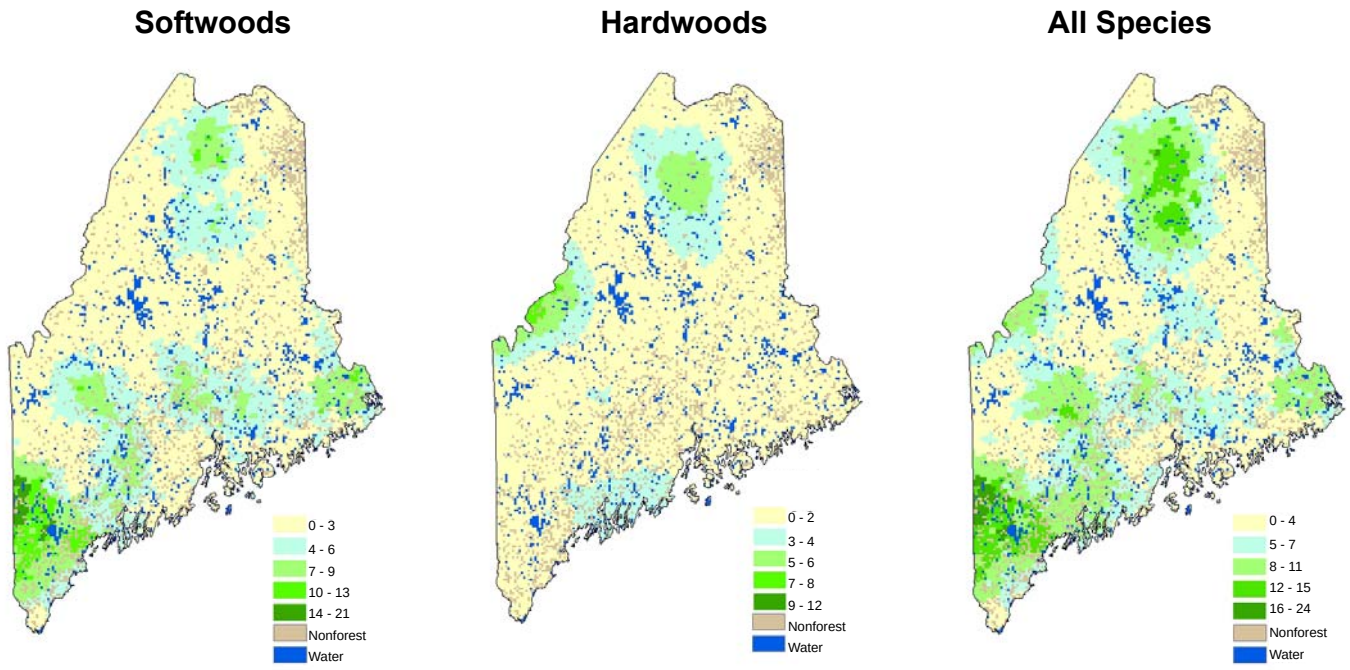


Figure 13.—Estimated number of trees per acre greater than 16.0 inches in diameter at breast height, Maine, 2003.

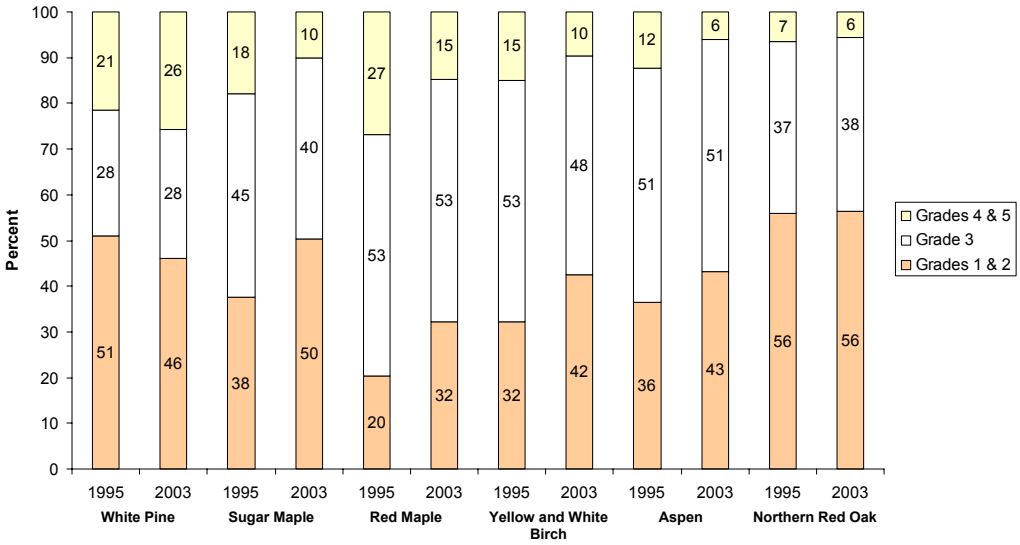


Figure 14.—Percentage of sawtimber volume on timberland by tree grade for white pine and major hardwood species, Maine, 1995 and 2003.

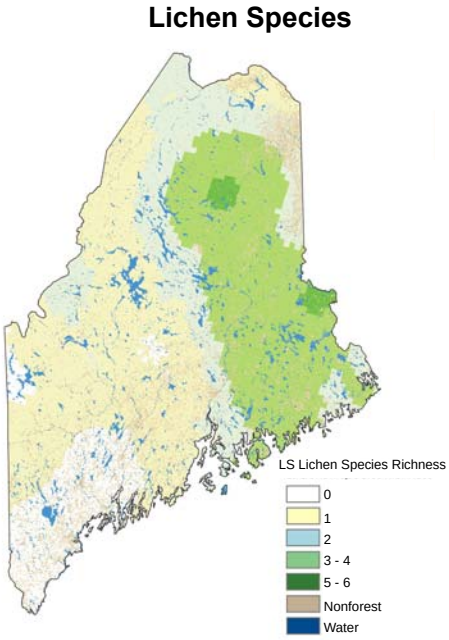


Figure 15.—Number of late-successional lichen species, Maine 2003.

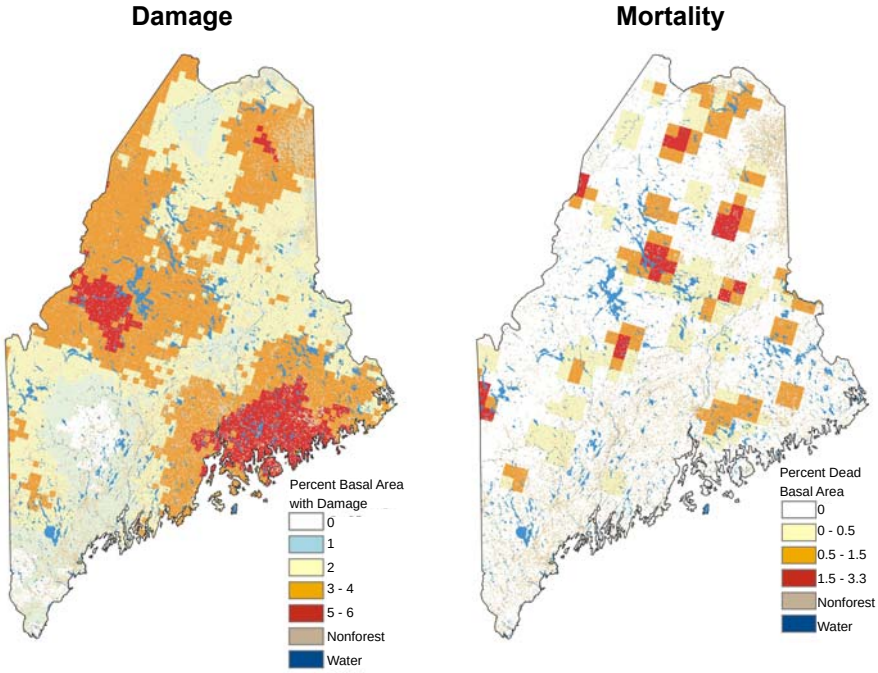


Figure 16.—Beech damage and mortality, Maine, 2003.

- Certain species of lichens occur only on older trees. The distribution of those species is shown in Figure 15.
- Terminal harvests constitute a large share of total harvests for white pine and northern red oak--25 percent and 39 percent, respectively, of total annual removal.
- The continued vigor of beech is at risk due to factors such as drought and disease. Areas with the greatest impact are shown in dark red in Figure 16.
- To date in Maine, assessments of forest health by FIA have not revealed ozone-related plant damage.
- FIA data indicate that Maine's forests have a low diversity of shrub/vine species. Only 23 percent of the plot samples contain more than four of the species tallied, most of which are deciduous shrubs. Many deciduous shrub species have tremendous value to wildlife.
- Maine's forests have high fuel loads, posing an extreme fire risk at long intervals associated with prolonged drought. These conditions occur when organic material in soils dries to the point that it becomes flammable.

Outlook

- If growth and harvest rates are maintained at current levels, timber volumes will remain stable and then likely increase as stands recovering from spruce budworm outbreaks grow to merchantable size.
- The long-term implications of the increased frequency of harvesting Maine's forest resources are unclear. Timber harvesting has increased from nearly 250,000 to more than 500,000 acres annually, and has shifted from clearcutting to largely "partial harvesting."
- It is not known how long the reversion of agricultural land throughout the State will continue to balance the amount of land converted to development (mostly in southern Maine).
- That harvests from site conversions account for 25 and 39 percent of the annual harvest for white pine and red oak, respectively, has implications for the future supply of these species.
- With respect to the timber supply, the importance of small nonindustrial private forest-land owners is increasing. Because of the large

number of these owners, the fragmented spatial distribution of their forests, and a perceived reluctance to harvest, it is difficult for resource planners to coordinate management strategies.

- It is not known how changes in land ownership in Maine (e.g., number of small ownerships and shift from the forest industry owners to investors) will affect long-term timber management and availability.
- Invasive exotic pests likely will pose a greater threat in the future. For example:
  - o Balsam woolly adelgid, which in the past has been limited to the coastal area of Maine, has expanded to inland areas and is causing significant mortality of balsam fir.
  - o Hemlock woolly adelgid is now established in extreme southern Maine and is expanding northward.
  - o Maine's forests could be threatened by the emerald ash borer, which is expanding from Michigan, and *Phytophthora ramorum*, which causes sudden oak death. The latter is expanding from nursery stock in California, but it is not known whether *P. ramorum* can survive in Maine's climate.

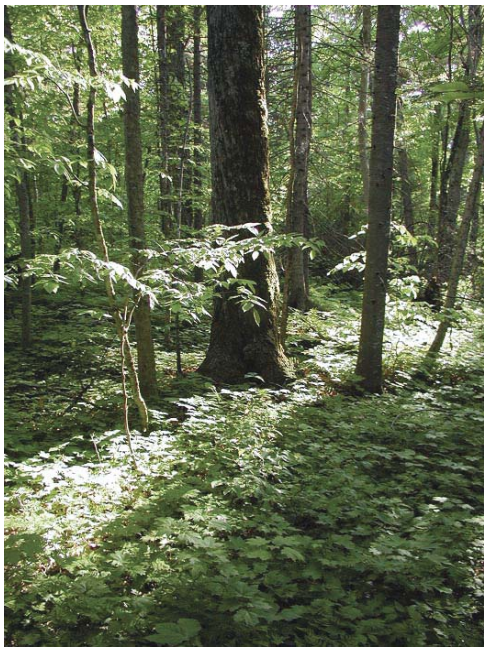
- If current trends continue, there will be declining inventories of species such as beech (largely because of beech bark disease) and aspen. At the same time, there will be increased inventories of species such as sugar maple, white ash, northern red oak, and yellow birch. These changes will influence wildlife habitats and other resource values.
- With respect to changes in stand structure on an acreage basis, the impact of the spruce budworm epidemic in Maine rivals that of other forest disturbances in the Eastern United States over the last century. Merchantable-size stands will reemerge over the next 25 years as waves of young spruce-fir mature. The result will be a large block of acreage in a relatively even-age condition, much like the condition of spruce-fir early in the last century.
- Because the most recent FIA data have not been modeled, we cannot accurately predict when the new sapling-size stands of spruce-fir in areas affected by spruce budworm mortality or salvage harvests will grow to merchantable size for harvesting.

Policy Implications

- The annual inventories of Maine's forest resource have been extremely valuable and will continue to provide information needed for informed decisionmaking on forestry issues. The diversity of the underlying forest stands and associated issues elevate the importance and complexity of these inventories. The data generated are particularly important in addressing both timber and nontimber values, for example, assessing wildlife habitat conditions and biodiversity and predicting the vulnerability of Maine's forests to invasive exotic pests.
- Monitoring growth and harvest levels and predicting future growth rates will require careful attention, particularly for species like white pine and red oak, which account for a large portion of the harvest due to site conversion.
- Growth and yield modeling and modeling of future forest conditions at the stand level are needed so that we can:
  - o Predict when sapling-size spruce-fir stands will grow to merchantable size.
  - o Monitor species-specific inventory gains and declines and their effect on the timber supply, quality trends, wildlife habitat, and other ecosystem values.

- Increase timber yields from Maine's forests through improved utilization and more intensive management.
- Improve our understanding of the trends in the quality of timber for Maine's forest-products industry.

- Planning for wildfire suppression in Maine should take into account that at long intervals, the threat of fire is extremely high when soil organic matter dries to the point that it can burn.
- There is a need to evaluate the implications for timber supplies and other forest values of increasing the amount of acreage harvested annually, as well as the effect of shifting from clearcutting to partial harvesting.
- The potential threat from invasive exotic pests will require increased monitoring.
- There is a need to evaluate the impact on timber supply and other forest values from declining inventories of species such as beech and aspen, increasing inventories of species such as sugar maple, white ash, northern red oak, and yellow birch, and the reliance on timber volumes from site conversion for white pine and red oak.



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- There is a need to evaluate the effect of changes in ownership (e.g., number of small landowners and shift from industry owners to investors) on timber supply/avaiability and the stability of the land base managed actively for forestry.
- The conversion of forest land to other uses threatens future sustainability in the southern portion of the State. Monitoring and evaluation of this trend should continue.
- The structural characteristics of forest land in Maine have undergone major changes. Currently, there are large blocks of forest in the early stages of succession; other areas contain one-, two-, and multistory stands. This more complex structure benefits certain nontimber values and may require new harvest and management strategies.
- Management planners must consider whether the abundance of balsam fir in the next forest (currently nearly 40 percent of sapling-size trees) could make Maine's forests vulnerable to another spruce budworm epidemic as they mature.
- As Maine's young forest grows, considerable spruce-fir acreage will offer opportunities for intensive management, including precommercial thinning in stands less than 20 years old and commercial thinning in older stands. These activities can increase yields while reducing risk and mortality.
- Maine's spruce-fir forests tend to dominate management and policy discussions because of the importance of this type (e.g., special value in papermaking). However, there are many other forested ecosystems with important values and complex issues. For example, recent increases in demand for hardwoods for both pulp and sawlogs have created opportunities for managing and developing deciduous forests. Hemlock woolly adelgid could destroy hemlock across its range and the decline of beech affects the major source of hard mast for fauna.
- Public concerns for nontimber resources such as noteworthy plant and wildlife habitats, sensitive areas, water quality, biodiversity, and providing public access and recreation opportunities likely will continue to be high-profile forest policy issues for the foreseeable future.

Introduction

In this bulletin we analyze forest vitality (health) based on data from the first full annual inventory of Maine's forest resources conducted by FIA and the MFS. Previous annual reports have been published since the new annual inventory system was implemented in 1999 (MFS 2000; Griffith and Laustsen 2001; Laustsen and Griffith 2002; Laustsen and others 2003). Past periodic inventories were published in 1959 (Ferguson and Longwood 1960), 1971 (Ferguson and Kingsley 1972), 1982 (Powell and Dickson 1984), and 1995 (Griffith 1996). This first full report includes data collected over the first 5 years following the implementation of the new FIA annual inventory system. For simplicity, the 5-year inventory date is referred to as 2003.

Perhaps the most compelling objective of this report was to work toward merging FIA's national inventory protocols with the specific issues and needs of Maine's stakeholders. The degree to which this report serves the forestry community is a measure of success in meeting this objective. The process of customizing the inventory and analysis to the needs of Maine's clients is an ongoing process. Policy discussions aimed at improving the FIA inventory system began in earnest following the 1995 inventory of Maine. It was clear that periodic inventories with cycle lengths exceeding 10 years did not address the needs of the State's stakeholders. Both federal and state legislation of the late 1990's resulted in a federal mandate to conduct annual inventories across the United States and a state mandate for Maine. The results of these early deliberations provided considerable input for developing improved analytical constructs for the new system.

A draft outline for this report was developed using the improved constructs and comments that emerged from discussions of previous annual reports. Then in the spring of 2004, two stakeholder listening sessions were held to solicit further suggestions. It was agreed that this report should focus on the salient findings of the FIA inventory but also incorporate closely related data that clarify or extend the utility of the findings. For example, Bureau of Census population data provide information on the urbanization of forest land. The intent is to focus on basic findings of the inventory and avoid specialized analyses that are better addressed in separate studies. In some cases, it is recognized that existing FIA data may not fully quantify the required variables for a specific analysis. For example, the information on change components (net growth, removals, and mortality) will not be based on a full remeasurement of sample plots until the second 5-year cycle is completed. FIA indicators are presented geospatially where possible to gain insight into Maine's current forest condition, recent changes, and prospective future trends. The intent is to provide timely and relevant analyses for the creation of wise-use policies affecting the forest-land base.

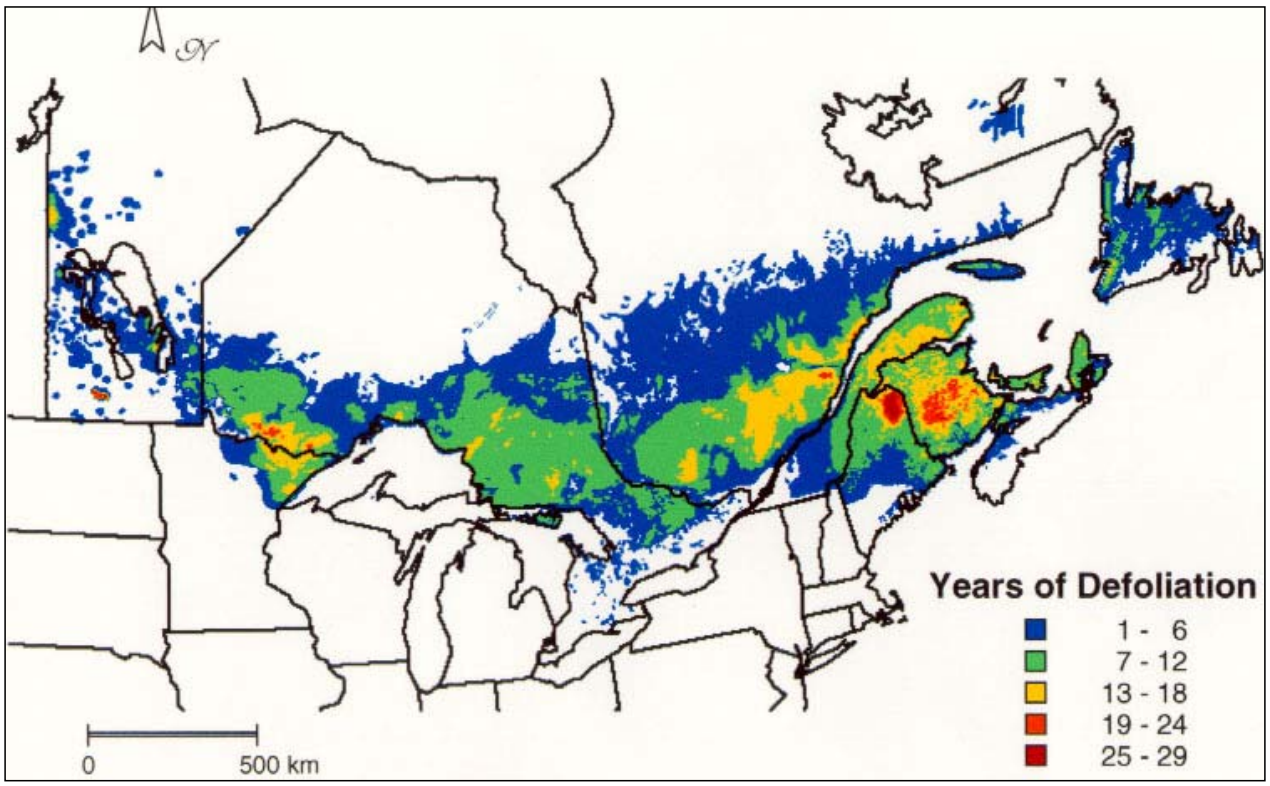


Figure 17.—Frequency of eastern spruce budworm defoliation in North America (1954-88).

Spruce Budworm

The impact of the eastern spruce budworm underlies resource changes in Maine's forests. Two major outbreaks occurred in the past century. The most recent spruce budworm epidemic (SBE) began in the late 1960's and was a major force through the mid-1980's, devastating stands containing spruce and especially balsam fir (Brann and others 1985, Trial 1989). Salvage harvests began during the mid-1970's and harvesting remained heavy through the 1990's. As a result, removals have exceeded growth. High levels of fir and spruce mortality associated with harvest activity reduced the inventory (Irland and McWilliams 1997). A map for outbreaks covering the SBE years clearly shows the significance of Maine's outbreaks (Fig. 17) as it depicts the frequency of occurrence of aerially detectable defoliation from 1954 to 1988. The severity of budworm activity varied considerably from stand to stand in a given year. Stands containing significant stocking of balsam fir were impacted most severely. The most extensive and severe damage from SBE in Eastern North America occurred over a large area of Aroostook County, Maine, and New Brunswick, Canada. The effect of SBE on the ecology and management of Maine's spruce-fir forests has rivaled similar landscape-level disturbances in the Eastern United States by gypsy moth, southern pine beetle, and the large-scale conversion of natural pine stands to plantations across the Coastal Plain of the Eastern United States. Throughout this report, such impacts are reflected in changes in the major habitat types, stand-diameter classes, and stocking levels, as well as inventory volume, net growth, removals, and mortality.

Forest Land

Location and Trends

Forests cover 17.7 million acres or 90 percent of the land area of Maine (Fig. 18; Appendix Table A1). Maine has the highest proportion of forest land of any state. The other primary land uses are agriculture (3 percent) and "other" (7 percent). All but 3 percent of the forested acreage is classified as timberland or forest land capable of producing commercial crops of wood and not restricted from harvest. Forest land includes reserved forest land in Baxter Park and other public holdings, unproductive forest land, and other lands that meet the FIA definition of forest but are not available for timber harvest.

At the time of European settlement around 1630, the estimated area of forest land in what is now Maine was 18.2 million acres (Smith and others 2001). As settlement increased, the area in forest land decreased (Irland 1999) (Fig. 19). This trend continued in Maine until the early 1900's. The area of forest in the State peaked around 1971 and has been stable since then. The current estimate of forest land is not significantly different from the 1982 or 1995 estimates.

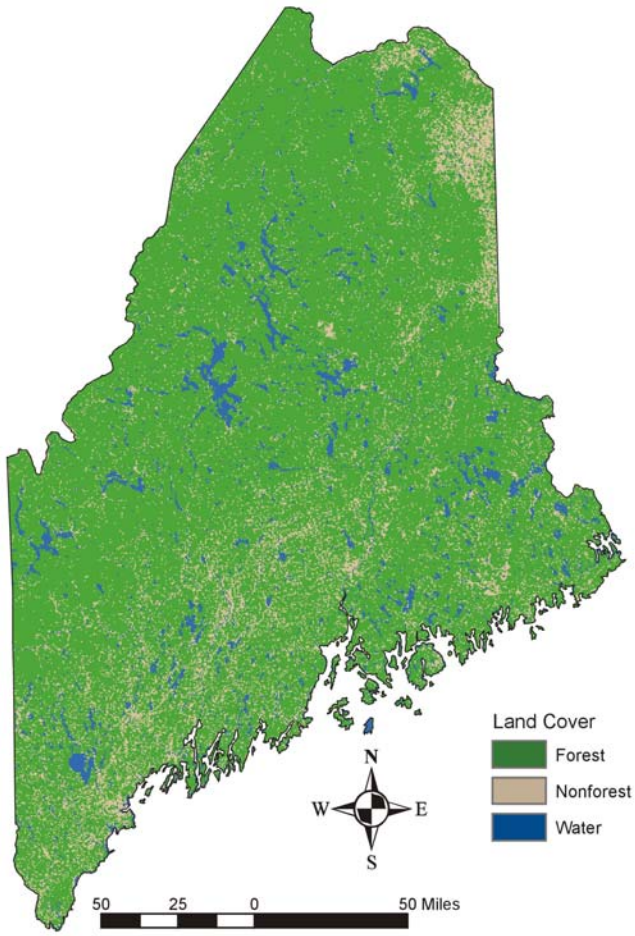
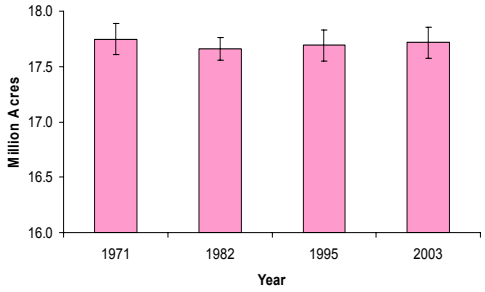


Figure 18.—Location of forest land, Maine, 2003.



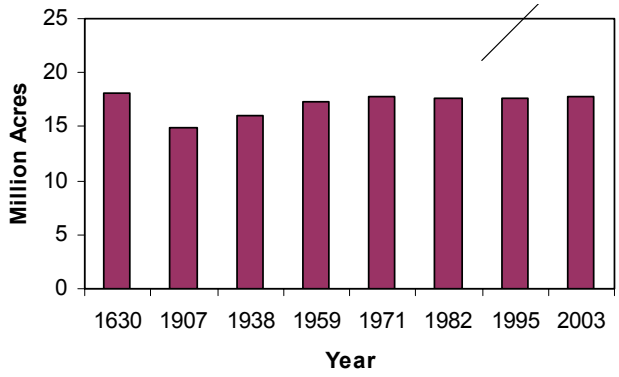


Figure 19.—Area of forest land, Maine, 1630-2003. Confidence intervals (95-percent level) are shown for 1971, 1982, 1995, and 2003.

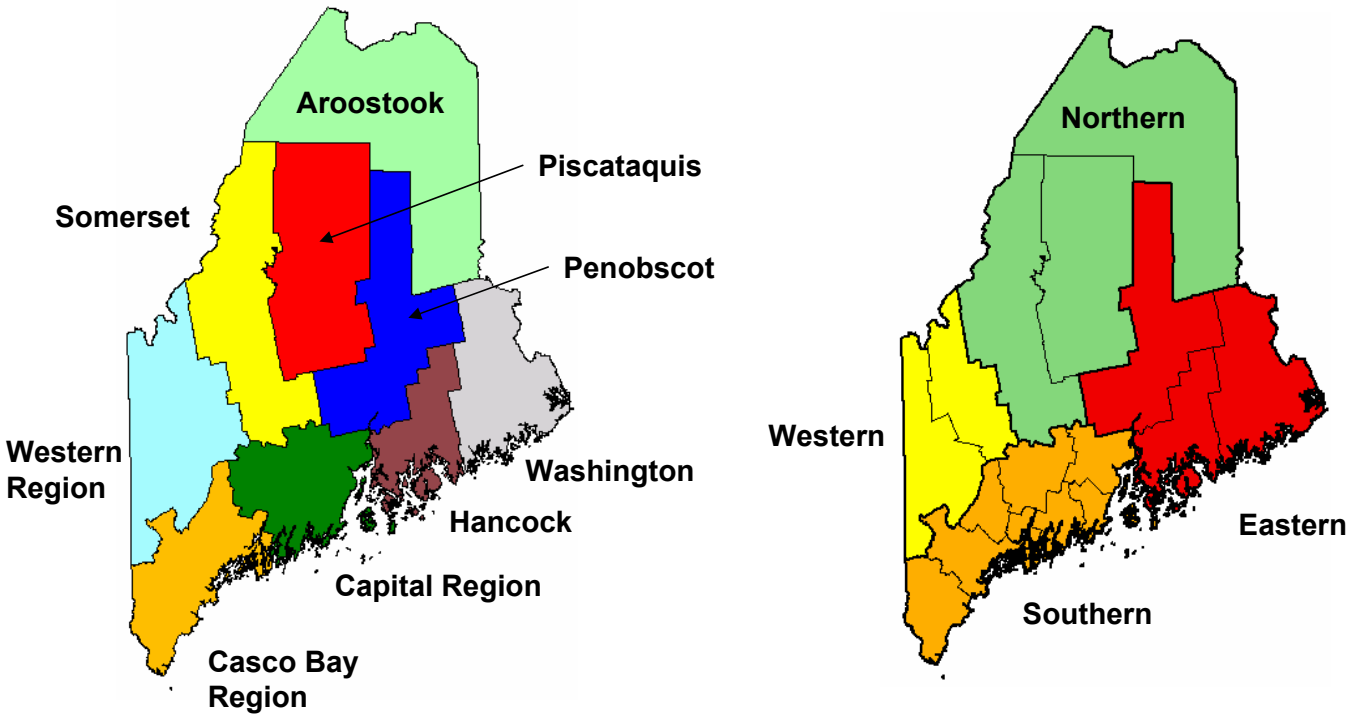


Figure 20.—FIA inventory regions and megaregions, Maine.

The use of inventory regions facilitates analysis of areas that are relatively homogeneous for variables such as physiography, climate, ownership, and management regimes. It is difficult to combine Maine's counties into analysis regions because of their size and latitudinal breadth. For example, Penobscot County spans well over a degree of latitude and includes both organized and unorganized townships. To overcome this difficulty, Maine's inventory regions were combined into four megaregions (Fig. 20). Even these regions do not fully delineate the north-south differences in resource conditions.

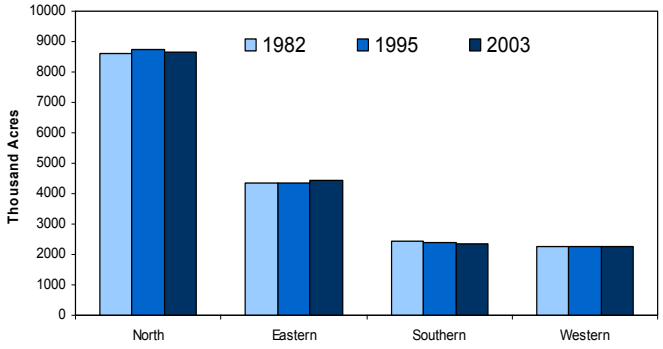


Figure 21.—Area of forest land by megaregion, Maine 1982, 1995, 2003.

Current estimates for the four megaregions confirm the stability of Maine's forest-land base. No region is experiencing a great loss of forest land (Fig. 21). These changes in acreage are the net result of acreage entering and leaving forest land. Of the total FIA sample, only 37 samples representing about 220,000 acres shifted either to or from forest land. The distribution of those plots is:

Land use	Additions to forest	Diversions from forest
Agriculture	9	0
Urban/other	7	8
Wet/water	8	2
Denied access/hazardous	-	3

Note: Denied access/hazardous samples are not measured, so it is not known whether the location is forested.

This does not minimize the importance of forest-land conversion that is occurring in populated (e.g., southern Maine) and other areas, nor its impact on wood availability.

Biophysical Regions and Watersheds

A complex mix of biotic and abiotic factors determines forest composition, structure, and function. Traditional geopolitical boundaries such as the FIA inventory regions are not always correlated with these natural phenomena. To place FIA data in an ecological context, they have been summarized by biophysical region and watershed.

Maine's diverse landscape can be mapped into logical reporting units using biological and physical characteristics. McMahon (1990) developed 15 biophysical regions for Maine (Fig. 22). McMahon (1998) refined the regions and harmonized Maine's regions with those of other eastern states (Keys and others 1995), increasing biophysical regions in Maine to 19. In this report, the earlier work of McMahon was used to overcome the statistical limitation of a small sample size associated with smaller polygons (Table 1).

Because there has been considerable interest in forest-inventory summaries by watershed, FIA samples were further summarized by U.S. Geological Survey hydrologic units at a level that maintains an adequate number of samples (Watermolen 2002) (Figure 23 and Table 2).

The biophysical regions and watershed summaries are examples of how FIA data can be used beyond traditional timber assessments. Other in-depth analyses could be conducted for specific issues of interest. For example, a survey of tree-species diversity by watershed could add to current research related to the larger issue of biodiversity.

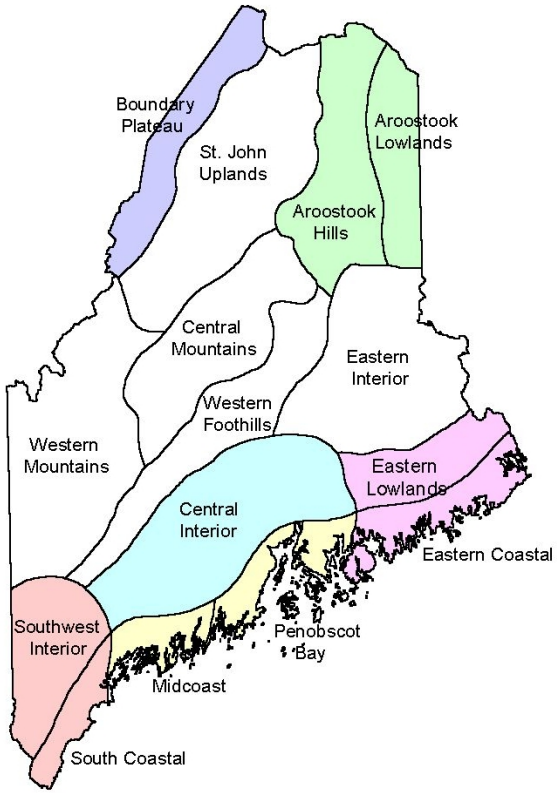


Figure 22.—Biophysical regions of Maine (Maine Dep. of Conserv. 2003).

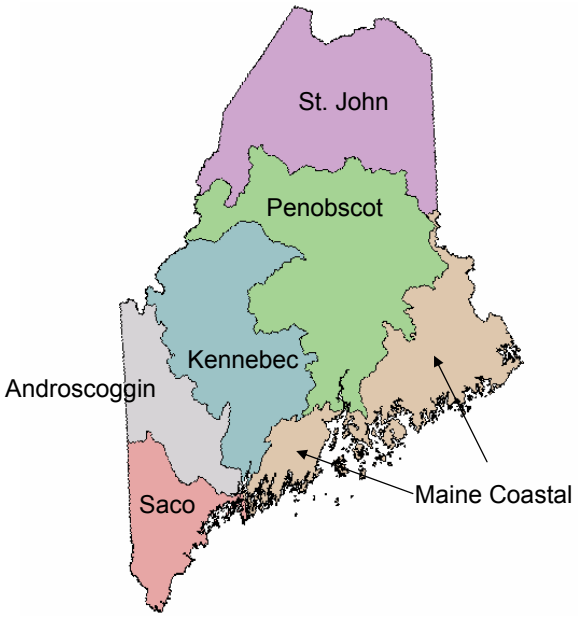


Figure 23.—Watersheds of Maine (Watermolen 2002).

Table 1.—Distribution of forest land by biophysical region, Maine, 2003

Biophysical region	Land area	Forest land	Percent forest	Percent of total
	--Thousands of acres--			
Aroostook Hills	1,532.4	1,398.7	91	8
Aroostook Lowlands	874.2	625.2	72	4
Boundary Plateau	1,002.4	990.5	99	5
Central Interior	2,275.5	1,773.8	78	12
Central Mountains	1,607.3	1,546.7	96	8
East Coastal Region	670.0	575.8	86	3
Eastern Interior	2,159.9	2,073.7	96	11
Eastern Lowlands	769.3	742.1	96	4
Midcoast Region	356.2	264.8	74	2
Penobscot Bay Region	566.2	424.2	75	3
Saint John Uplands	2,545.2	2,502.2	98	13
South Coastal Region	390.0	229.5	59	2
Southwest Interior	1,019.2	855.7	84	5
Western Foothills	1,431.3	1,281.9	90	7
Western Mountains	2,552.3	2,432.6	95	13
Total	19,751.5	17,717.5	90	100

Note: Data may not add to totals due to rounding.

Table 2.—Distribution of forest land by major watershed, Maine, 2003

Watershed	Land area	Forest land	Percent forest
	---Thousands of acres---		
Androscoggin	1,716.0	1,480.2	86
Kennebec	3,574.1	3,173.5	89
Maine Coastal	3,154.1	2,765.9	88
Penobscot	5,242.0	4,959.9	95
Saco	1,504.2	1,165.0	77
St. John	4,561.0	4,173.1	91
Total	19,751.5	17,717.5	90

Note: Data may not add to totals due to rounding.

Urbanization

Urban forests include trees and associated vegetation within urban, suburban, and industrial settings. These forests often differ from their rural counterparts in forest structure and function as they can be exposed to unique abiotic and biotic pressures associated with their proximity to cities (Zipperer and Pouyat 1995). Urban forests offer environmental benefits such as habitat for wildlife, aesthetic enjoyment, visual barriers, climate control, water improvement, and air and noise pollution abatement.

FIA has published estimates of urban forest area in previous statistical reports. These estimates are based on a visual inspection of the land uses surrounding each inventory plot. Forested sample locations that are bordered by developed land on three sides are designated as urban forest locations. Because of the subjective nature of this field call for urban forest and the small number of plot locations sampled, the error associated with state- and county-level estimates of urban forest area is high. The FIA field classification is useful for local analyses but an alternative method for calculating urban forest area

Table 3.—Distribution of forest land by population density class, Maine (source: U.S. Bureau of Census 2000 and MRLC 1992)

FIA region	Persons per square mile						
	0-25	25-50	51-100	101-250	251-500	501-1000	1000+
	Percent						
Washington	95	4	-	1	-	-	-
Aroostook	95	3	2	-	-	-	-
Penobscot	69	15	12	3	1	-	-
Hancock	68	21	9	2	-	-	-
Piscataquis	97	2	-	-	-	-	-
Capital Region	10	37	40	12	1	-	-
Somerset	87	8	4	-	-	-	-
Casco Bay	3	14	39	35	6	2	1
Western	77	14	6	2	-	-	-
All regions	76	10	9	4	1	-	-

Note: Data may not add to totals due to rounding.

has been developed that identifies areas of forest within a state that fall in U.S. Census-designated urban areas or in areas of high population density. Urban forest statistics were calculated using data on forest-land distribution from satellite derived land-cover maps (Vogelman and others 2001) and urban area and population data from the 2000 Census. For areas not officially classified as urban by the Census, population-density classes are displayed based on census tracts. Multi-Resolution Land Cover (MRLC) data are somewhat dated (1992) but allow a useful baseline estimate for comparison with a newer classification of 2002 data that is under development.

Less than 0.5 percent of Maine's forests is in urban areas designated by the U.S. Bureau of Census (Fig. 24). Cumberland County has the highest percentage of heavily populated urban forest with 16 percent. Most of Maine's counties have little forest land within densely populated areas (Table 3), particularly counties within unorganized townships. This does not minimize the potential effect of urbanization on the availability of traditional resources from forests in an urban setting in some areas of Maine (Wear and others 1999).

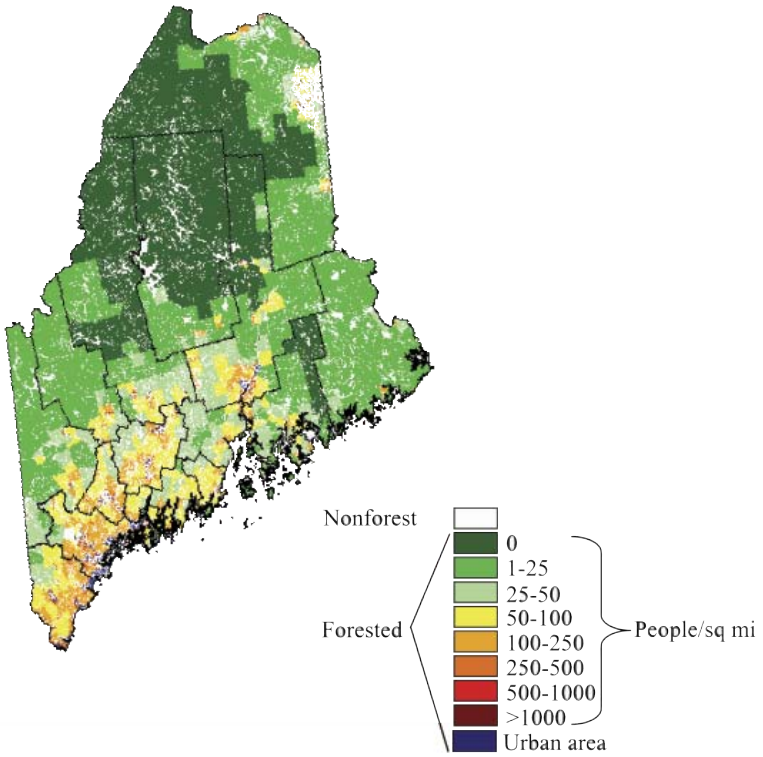


Figure 24.—Location of forest land in Maine by population density and urban status (U.S. Bureau of Census 2002).

Forest-Land Ownership

FIA conducts the National Woodland Owner Survey (NWOS) as a social survey complementing the forest inventory. Data presented here are based on survey responses from 189 families and individuals who own forest land in Maine. As with the base FIA program, the NWOS is implemented on an annual basis and estimates will improve as responses from additional forest-land owners are received.

Private forest land in Maine is distributed evenly among families and individuals, forest industry, and other private groups (Fig. 25). Forest industry and other private groups own the majority of forest land in the northern portion of the state, while families and individuals own a majority of the forest land in southern Maine (Fig. 26). Six percent of forest land is under the stewardship of public agencies. The State, primarily under the Bureau of Parks and Lands, is the dominant public owner and controls an estimated 743,000 acres of forest land (Table 4).

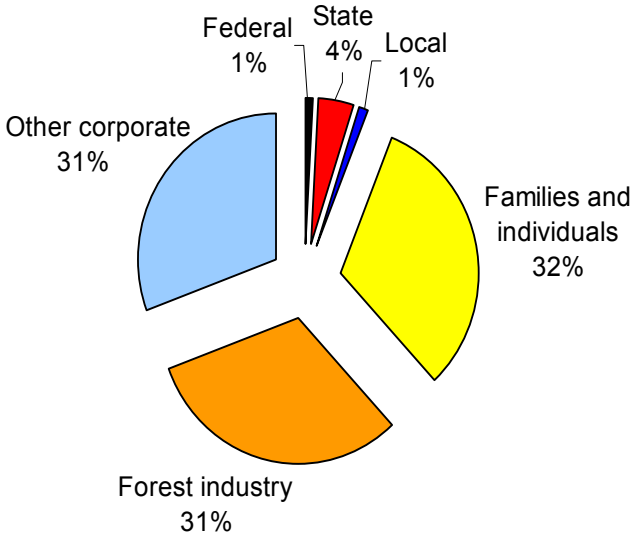


Figure 25.—Forest-land ownership (percent of area), Maine, 2003.

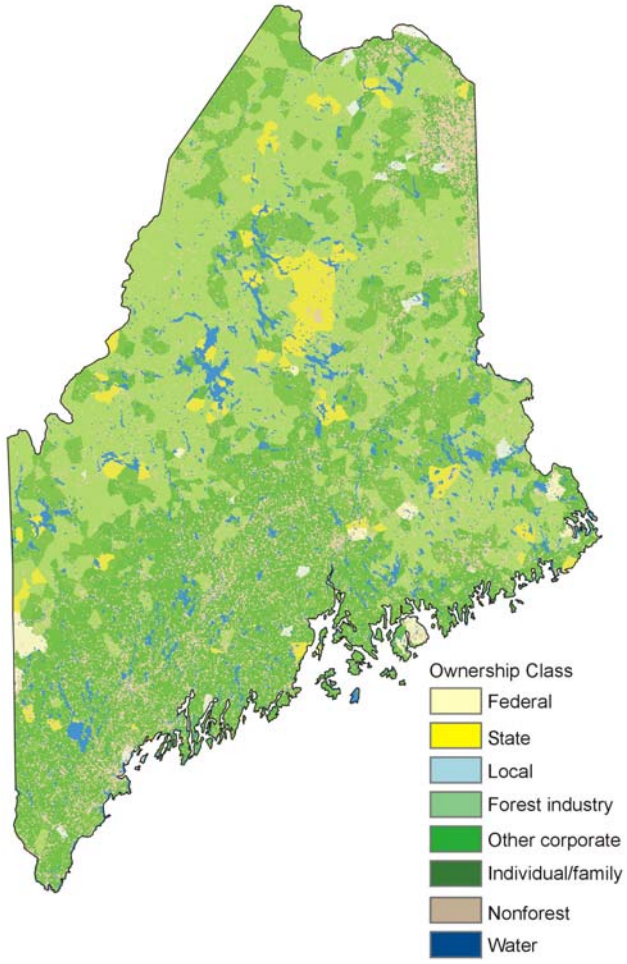


Figure 26.—Location of forest land by ownership class, Maine, 2003.

Table 4.—Forest land area in Maine by ownership type, 2003 (numbers in parentheses are standard errors)

Public				Private			
Federal	State	Local	Total	Family	Business[a]	Total	All ownerships
Thousands of acres							
155	743	179	1,076	5,690	10,951	16,641	17,718
(29)	(62)	(31)	(76)	(131)	(142)	(193)	(7)

[a] Includes corporations, nonfamily partnerships, tribal lands, nongovernmental organizations, clubs, or other nonfamily groups.

Note: Data may not add to totals due to rounding.

Table 5.—Area and number of family-owned forests in Maine by size of ownership, 2003

Forest	Area			Ownerships			
holdings (acres)	Acres	SE	Percent	Number	SE	Percent	Count
	---Thousands---			*---Thousands---*			
1-9	445	171	7.8	132	41	59.5	15
10-49	1,215	214	21.4	57	9	25.8	41
50-99	1,393	220	24.5	22	3	9.8	47
100-499	1,660	228	29.2	10	1	4.6	56
500-999	296	160	5.2	<1	<1	0.2	10
1000-4999	385	167	6.8	<1	<1	0.1	13
5000+	296	160	5.2	<1	<1	<0.1	7
Total	5,690	131	100.0	222	41	100.0	189

Private ownership of Maine's forest lands has been dynamic over the last 2 decades. Initially, millions of acres of forest land were transferred among forest industry firms as they merged and realigned landholdings. Eventually, a number of these companies became less inclined to own forest land and more willing to rely on wood procured on the open market. This more recent shift in corporate philosophy is driven by market forces and the desire to reduce debt and realign assets to concentrate on core businesses. Despite this shift in philosophy, forest-industry landholdings in the State are substantial.

As the landholdings of forest industry decreased, the area of forest land owned by other private entities increased. Between 1995 and 2003, the area of forest land in Maine owned by other corporate private owners increased by approximately 60 percent. The majority of this land (78 percent) came from forest industry; the remainder was acquired from families and individuals. These other corporate private entities include institutional investors such as pension funds, and land acquired on the behalf of individuals; most of these lands are managed by private companies, including timberland investment management organizations.

As for nonindustrial owners, results from the NWOS indicate that an estimated 222,000 families and individuals own 5.7 million acres of forest land in Maine. They are the dominant land-ownership group in the southeast and south-central portions of the State. While 60 percent of these owners own fewer than 10 acres of forest land (Table 5), the majority of the family and individual forest land is owned by people with landholdings of 50 to 500 acres (Fig. 27). Large parcels are more common in the unorganized regions of the State (Fig. 28).

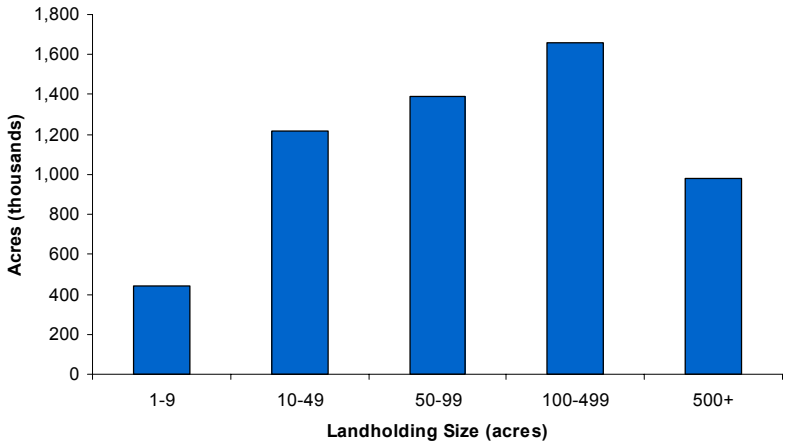


Figure 27.—Total forest land by size of ownership for families and individuals, Maine, 2003.

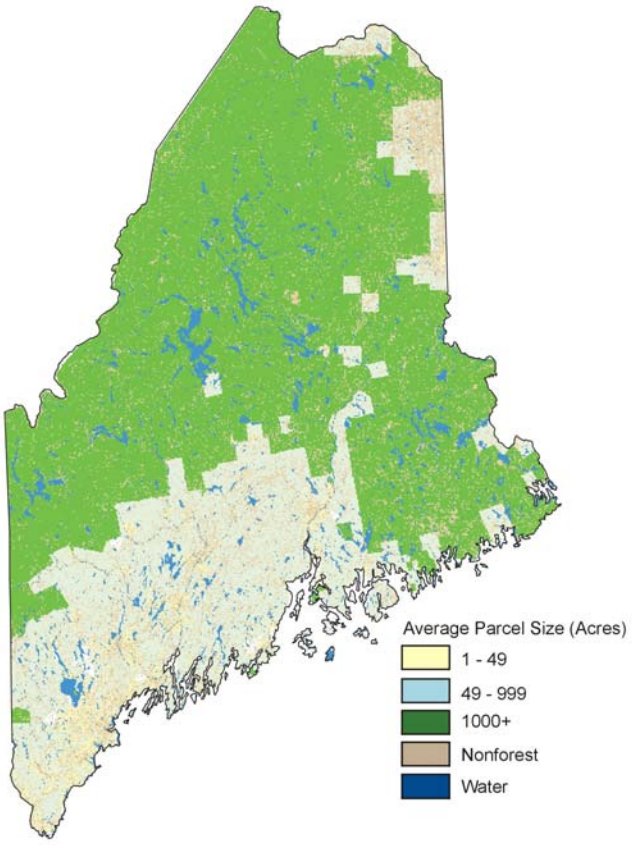


Figure 28.—Distribution of land by parcel size, Maine, 2003

The families and individuals have diverse ownership and forest management objectives. The most common reasons for owning forest land are related to aesthetics and privacy and/or the fact that the land is a part of a family legacy. Other common reasons for ownership include recreational opportunities, including hunting and fishing, land investment, and timber production (Table 6).

While about one-third of family and individual owners have harvested trees from their land in the past 5 years (Table 7), less than 5 percent have a written forest management plan (Table 8). A higher proportion of owners, 14 percent, have sought management advice. As the size of an owner's landholdings increases, so does the likelihood that he/she has a written management plan and has sought management advice.

Property taxes and the ability to maintain the land within the family are the greatest concerns of family and indivitual owners. Such concerns may be related to the finding that 9 percent of the forest land is owned by people who plan to sell their land or pass it on to their heirs in the next 5 years (Tables 9-10).

Table 6.—Area and number of family-owned forests in Maine by reason for owning forest land, 2003 (includes owners who ranked each objective as very important or important on seven-point Likert scale)

	Area			Ownerships			
Reason [a]	Acres	SE	Percent	Number	SE	Percent	Count
	---Thousands---			*---Thousands---*			
Aesthetics	3,823	233	67.2	166	39	74.8	126
Nature protection	3,023	244	53.1	117	35	52.7	99
Land investment	2,223	240	39.1	68	21	30.6	72
Part of farm, home, or cabin [b]	800	194	14.1	54	31	24.3	27
Privacy	3,793	234	66.7	194	41	87.4	126
Family legacy	2,845	244	50.0	114	36	51.4	94
Nontimber forest products	533	178	9.4	9	4	4.1	16
Firewood production	1,511	224	26.6	30	9	13.5	49
Timber production	1,749	231	30.7	12	2	5.4	56
Hunting or fishing	1,837	233	32.3	59	31	26.6	60
Other recreation	2,252	240	39.6	86	33	38.7	74
No answer	119	143	2.1	5	3	2.3	4

[a] Categories are not exclusive.
[b] Includes primary and secondary residences.
Note: Data may not add to totals due to rounding.

Table 7.—Area and number of family-owned forests in Maine by recent (past 5 years) forestry activity, 2003

Activity [a]	Area			Ownerships			
	Acres	SE	Percent	Number	SE	Percent	Count
	---Thousands---			*---Thousands---*			
Timber harvest	2,658	256	46.7	81	37	36.5	75
Collection of NTFPs [b]	1,397	231	24.6	17	4	7.7	38
Site preparation	356	165	6.3	24	16	10.8	12
Tree planting	593	182	10.4	33	17	14.9	20
Fire hazard reduction	1,393	220	24.5	41	12	18.5	45
Application of chemicals	178	149	3.1	33	30	14.9	6
Road/trail maintenance	2,223	240	39.1	78	32	35.1	74
Wildlife habitat improvement	593	182	10.4	44	31	19.8	20
Posting land	833	344	14.6	6	7	2.7	6
Private recreation	2,498	465	43.9	115	142	51.8	18
Public recreation	1,110	380	19.5	96	142	43.2	8
Cost share	415	169	7.3	2	1	0.9	14
Conservation easement [c]	119	59	2.1	1	1	0.5	4
Green certification [c]	207	152	3.6	1	1	0.5	7

[a] Categories are not exclusive.

[b] NTFPs = nontimber forest products

[c] Not limited to past 5 years.

Note: Data may not add to totals due to rounding.

Table 8.—Area and number of family-owned forests, by management plan, advice sought, and source of advice, Maine, 2003

Item	Area			Ownerships			
	Acres	SE	Percent	Number	SE	Percent	Count
	---Thousands---			*---Thousands---*			
Written management plan							
Yes	1,778	231	31.2	10	2	4.5	57
No	3,734	235	65.6	208	41	93.7	126
No answer	178	149	3.1	4	2	1.8	6
Sought advice							
Yes	2,163	239	38.0	32	8	14.4	71
No	3,408	241	59.9	188	41	84.7	114
No answer	119	143	2.1	3	2	1.4	4
Advice source [a]							
State forestry agency	741	191	13.0	9	4	4.1	23
Extension	356	165	6.3	2	1	0.9	12
Other state agency	119	143	2.1	1	1	0.5	4
Federal agency	237	155	4.2	1	0	0.5	8
Private consultant	1156	211	20.3	11	3	5.0	39
Forest industry forester	385	167	6.8	3	1	1.4	13
Logger	563	180	9.9	5	2	2.3	19
Other landowner	415	169	7.3	3	1	1.4	14

[a] Categories are not exclusive.

Note: Data may not add to totals due to rounding.

Table 9.—Area and number of family-owned forests in Maine by owners' concerns, 2003 (includes owners who ranked each issue as very important or important on seven-point Likert scale

	Area			Ownerships			
Concern [a]	Acres	SE	Percent	Number	SE	Percent	Count
	---Thousands---			---Thousands---			
Endangered species	1,363	229	24.0	62	37	27.9	38
Property taxes	3,101	256	54.5	111	39	50.0	89
Family legacy	2,726	257	47.9	115	42	51.8	77
Lawsuits	1,397	231	24.6	58	36	26.1	39
Harvesting regulations	2,453	255	43.1	47	14	21.2	69
Land development	1,840	245	32.3	117	43	52.7	52
Noise pollution	1,533	236	26.9	83	39	37.4	43
Trespassing	1,840	245	32.3	90	39	40.5	52
Timber theft	1,499	234	26.3	48	17	21.6	42
Dumping	2,385	254	41.9	63	19	28.4	68
Air or water pollution	2,317	253	40.7	116	40	52.3	66
Exotic plant species	1,056	216	18.6	80	39	36.0	29
Domestic animals	273	161	4.8	3	1	1.4	8
Wild animals	443	176	7.8	39	21	17.6	13
Fire	2794	257	49.1	83	24	37.4	80
Insects/diseases	2215	252	38.9	71	21	32.0	63
Regeneration	681	194	12.0	34	21	15.3	18
Storms	1,908	246	33.5	97	42	43.7	54

[a] Categories are not exclusive.

Note: Data may not add to totals due to rounding.

Forest Type, Habitat Type, Stand-Diameter Class, and Stocking

Maine's forests have experienced tremendous change over the last three decades. Understanding this change requires measures of forest composition and structure. Composition is often addressed by classifying forest land according to the makeup of "existing" or "potential natural" tree vegetation. Two such measures are examined in this report: the traditional FIA forest type and habitat type. Measures of structure typically describe the relative size of and degree of site occupancy by trees. An alternative diameter-based size class that uses basal area per acre as a measure of site occupancy is presented herein.

The FIA forest-type and stand-size class variables are calculated using a national algorithm that provides consistent classification of dominant tree-species composition for all states and regions of the country.[1] The resulting information can be compared across large forested landscapes and provides input to national and international resource studies. Changes to the algorithm

[1]Arner, Stanford L.; Woudenberg, S; Waters, S.; Vissage, J.; MaClean, C.; Thompson, M. 2000. National algorithm for determining stocking class, stand size class, and forest type for forest inventory and analysis plots. On file with the Northeastern Research Station, Forest Inventory and Analysis, 11 Campus Blvd., Suite 200, Newtown Square, PA 19073.

Table 10.—Area and number of family-owned forests by owners' future (5-year) plans for their land, Maine, 2003

Future plans [a]	Area			Ownerships			
	Acres	SE	Percent	Number	SE	Percent	Count
	---Thousands---			---Thousands---			
No activity	682	187	12.0	57	20	25.7	23
Minimal activity	1,926	235	33.8	94	35	42.3	65
Harvest firewood	2,312	241	40.6	42	11	18.9	76
Harvest sawlogs or pulpwood	1,867	233	32.8	22	5	9.9	62
Collect NTFPs [b]	579	187	10.2	6	2	2.7	16
Sell all or part of land	741	191	13.0	14	6	6.3	25
Transfer all or part of land to heirs	919	200	16.2	20	6	9.0	31
Subdivide all or part of land	148	146	2.6	0	0	0.0	5
Buy more forest land	771	192	13.6	8	3	3.6	26
Land-use conversion (forest to other)	356	165	6.3	4	1	1.8	12
Land-use conversion (other to forest)	119	143	2.1	0	0	0.0	4
No current plans	296	160	5.2	16	8	7.2	10
No answer	0	131	0.0	0	0	0.0	0

[a] Categories are not exclusive.
[b] NTFPs = nontimber forest products
Note: Data may not add to totals due to rounding.

have caused FIA to modify estimates for the 1982 and 1995 inventories based on the latest classification scheme. To overcome this, the previous three inventories were reprocessed using the latest approach. The results are summarized by ownership class in Table 11. To illustrate the utility of the FIA forest-type groups for large-scale analysis, Maine's spruce/fir forest land is compared to other leading spruce/fir states:

	Thousand acres
Maine	5,829.9
Minnesota	3,777.3
Michigan	2,684.9
Wisconsin	1,300.9

As shown, Maine continues to lead the Nation in total spruce/fir forest land. The reprocessed forest type information is presented in detail in the Appendix. (the information in the Appendix is for timberland acreage only).

The traditional FIA forest-type classification presents a challenge to resource analysts attempting to track composition shifts in Maine. The large amount of disturbance that has occurred over the period since the 1982 inventory makes it difficult to assess when, where, and how changes in forest habitat are affecting forest conditions in Maine. The FIA forest-type variable assesses existing vegetation based on the dominant overstory at the time of measurement. A prime example of the difficulty of interpreting FIA types occurs in heavily disturbed spruce/fir acreage. Transitional deciduous species often occupy these sites temporarily and have a major impact on the forest-type classification and resultant shifts over time. Another issue with the FIA forest type is that the naming scheme was designed to address regional and national needs rather than nomenclature typically used in Maine. To overcome these issues, an alternative approach was used. The approach considers potential natural vegetation, termed "habitat

Table 11.—Area of forest land by FIA forest-type group and ownership class, Maine, 2003

Forest type group	Ownership class					
	Forest Service	Other federal	State/local/public	Forest industry	Nonindustrial private	Total
	Thousands of acres					
White/red/jack pine	5.9	7.6	46.9	244.2	1044.2	1348.8
Spruce/fir	5.9	35.5	346.8	2243.8	3197.6	5829.6
Exotic softwood plantations	0.0	0.0	7.5	0.0	11.6	19.1
Oak/pine	0.0	0.0	20.5	28.4	285.5	334.4
Oak/hickory	0.0	0.0	10.1	10.2	299.8	320.0
Oak/gum/cypress	0.0	0.0	0.0	0.0	11.7	11.7
Elm/ash/red maple	0.0	0.0	32.6	82.1	292.4	407.2
Maple/beech/birch	41.3	22.1	309.1	2243.9	4439.2	7055.6
Aspen/birch	0.0	35.3	147.9	666.2	1492.5	2341.9
Nonstocked	0.0	1.4	0.0	2.8	45.1	49.3
Total	53.1	101.9	921.4	5521.6	11119.6	17717.5

Note: Data may not add to totals due to rounding.

Table 12.—Area of forest land by habitat type and ownership class, Maine, 2003

Habitat type	Ownership class			
	Public	Forest industry	Nonindustrial private	Total
	Thousands of acres			
Beech/red maple	157.1	758.7	1736.2	2652.1
Cedar/black spruce	165.8	569.5	988.9	1724.3
Hemlock/red spruce	63.7	460.5	1142.8	1666.9
Oak/white pine	61.1	80.4	1351.0	1492.5
Spruce/balsam fir	481.3	2646.0	4395.9	7523.2
Sugar maple/ash	147.3	1006.4	1504.8	2658.6
Total	1076.4	5521.6	11119.6	17717.6

Note: Data may not add to totals due to rounding.

type," to estimate the most likely long-term composition for a given site. Habitat types indicate the probable climax or late-successional species composition that is determined by biophysical relationships relating to site quality. Habitat types are based on the work of Leak (1982) and are used in the FIBER model (Solomon and others 1995). The same approach for classifying forest land has been used to project future timber supplies and silvicultural priorities (Gadzik and others 1998; Wagner and others 2003).

Table 12 shows the distribution of forest land by habitat type and ownership class for comparison with the FIA forest-type group results. The basic difference between philosophies is evident when estimates for spruce/fir using the two approaches are compared. The spruce/fir

forest-type group was estimated at 5,829,600 acres compared to 7,523,200 acres of spruce/fir habitat type. The larger acreage for the latter type reflects the inclusion of forest land that is currently dominated by transitional species, typically intolerant hardwoods. The habitat-type assignment considered information other than the current dominance by hardwoods. The classification takes into consideration previous forest composition, soil conditions, and whether there are spruce or fir seedlings sampled.

The standard FIA measure of stand size provides a general indication of stand development stage and is referred to as "stand-size class." Each sampled condition is assigned to one of three stand-size classes based on the class that accounts for the most stocking of live trees per acre: sapling/seedling, poletimber, and sawtimber (see Definition of Terms). In this report, the variable for stand-size class was modified to provide three improvements that were deemed useful in Maine. The sawtimber-size class was divided into large and small sawtimber to provide more detail. The traditional minimum breakpoints for the sawtimber class of 9.0- and 11.0-inches in diameter at breast height (d.b.h.) for softwood and hardwood, respectively, were changed to a single 10-inch breakpoint for all species. Basal area per acre was used as the importance value for calculating the predominant size of sampled trees. The modified variable will be referred to as "stand-diameter class" to avoid confusion with the standard FIA stand-size class variable (see Appendix tables for information on FIA stand size).

Stocking provides a measure of site occupancy that can be used in conjunction with other variables to analyze prospective management options and policy implications. Relative stocking is a term describing existing stocking in relation to stocking guidelines. It is calculated for individual species using existing equations in the literature. In many cases, research has been completed for the major "timber" species; however, some species still lack specific equations and are assigned to the most logical equation possible. To overcome this limitation, simplify the understanding of the term "stocking," and provide a measure more specific to Maine's habitat types; stocking was assigned using stocking charts from the FIBER model (Solomon and others 1995) that are referred to as stocking regions (see Definition of Terms).

The new habitat type, stand-diameter class, and stocking approaches were used to reprocess the 1982, 1995, and 2003 inventory data. This provides a consistent set of results for the three inventory dates. The detailed results of the reprocessing are shown in Tables 13-15.

Generalized distribution surfaces for the habitat types are shown in Figure 29. These surfaces were derived from the FIA inventory data. Geostatistical techniques were used to provide continuous surfaces that represent the most probable distribution for a given type (see Appendix). The resulting "surface" represents habitat types and should not be confused with distribution maps for individual species described later in this report. The reason for including both products is to provide a more complete analysis of species occurrence in Maine. For example, spruce species are split between habitat types, but are combined in the species distribution map. The surfaces provide a graphic depiction for habitat types that often are scattered geographically.

Beech/red maple habitat is scattered across Maine with the highest confidence of occurrence in the southern portion of the State. Cedar/black spruce habitat also is dispersed; it is most common in wet areas. Hemlock/red spruce is concentrated in a band across southern Maine. Oak/white pine habitat predominates in southwestern Maine and along the coast. Spruce/fir is heavily concentrated in the unorganized townships, the western mountains, and the eastern coastal region. Sugar maple/ash is common in all but southwestern Maine and Downeast.

Changes in the distribution of forest land by habitat type for the last three inventories are shown in Figure 30. As would be expected, changes in the distribution are less drastic than changes in FIA forest-type groups. Spruce/fir is the most prevalent habitat, accounting for 42 percent of Maine's forest land. The impact of SBE and harvesting reduced spruce/fir by about 500,000 acres between the 1982 and 1995 inventories. Restocking of spruce/fir

Table 13.—Area of forest land by habitat type, stand-diameter class, and FIBER stocking region, Maine, 1982

Habitat type	Stand-diameter class	Stocking region					
		Low/no basal area	Understocked	Suboptimal	Optimal	Overstocked	Total
Beech/red maple	Low/no basal area	129.5	0.0	0.0	0.0	0.0	129.5
	Sapling	19.9	76.6	129.5	162.7	321.7	710.4
	Poletimber	11.7	230.0	127.6	498.8	578.6	1446.7
	Small sawtimber	0.0	106.6	43.2	89.2	62.4	301.4
	Large sawtimber	0.0	38.5	12.2	59.2	32.9	142.9
	Total	161.1	451.7	312.5	809.9	995.7	2730.8
Cedar/black spruce	Low/no basal area	257.1	0.0	0.0	0.0	0.0	257.1
	Sapling	4.0	63.6	79.3	20.3	110.7	277.7
	Poletimber	12.8	258.3	243.5	275.6	288.2	1078.4
	Small sawtimber	0.0	36.0	21.1	85.3	18.7	161.1
	Large sawtimber	0.0	46.6	0.0	18.9	0.0	65.5
	Total	273.9	404.5	344.0	400.0	417.6	1839.9
Hemlock/red spruce	Low/no basal area	151.6	0.0	0.0	0.0	0.0	151.6
	Sapling	8.7	9.5	25.7	25.7	127.0	196.5
	Poletimber	0.0	115.3	137.0	341.2	326.1	919.5
	Small sawtimber	0.0	27.7	21.8	118.6	99.8	267.9
	Large sawtimber	0.0	0.0	0.0	28.6	26.1	54.7
	Total	160.2	152.5	184.5	514.1	579.0	1590.3
Oak/white pine	Low/no basal area	8.3	0.0	0.0	0.0	0.0	8.3
	Sapling	10.9	32.0	39.2	22.2	152.9	257.2
	Poletimber	4.5	81.6	113.4	231.5	156.5	587.5
	Small sawtimber	0.0	43.9	66.1	77.8	32.7	220.4
	Large sawtimber	0.0	20.4	35.4	79.8	29.0	164.6
	Total	23.7	177.8	254.1	411.2	371.1	1238.0
Spruce/fir	Low/no basal area	433.5	0.0	0.0	0.0	0.0	433.5
	Sapling	8.9	117.0	226.1	71.9	708.0	1131.8
	Poletimber	31.0	988.6	1167.3	1482.7	1287.1	4956.7
	Small sawtimber	0.0	257.6	174.2	341.2	141.8	914.7
	Large sawtimber	0.0	76.3	37.4	153.1	8.4	275.1
	Total	473.3	1439.4	1605.0	2048.9	2145.3	7711.9
Sugar maple/ash	Low/no basal area	163.0	0.0	0.0	0.0	0.0	163.0
	Sapling	0.0	18.7	42.8	56.9	173.8	292.1
	Poletimber	10.4	129.8	153.5	482.9	356.9	1133.5
	Small sawtimber	0.0	14.4	95.9	273.3	167.7	551.3
	Large sawtimber	0.0	18.9	35.1	191.3	165.4	410.8
	Total	173.3	181.7	327.3	1004.4	863.8	2550.6
Total	Low/no basal area	1143.0	0.0	0.0	0.0	0.0	1143.0
	Sapling	52.2	317.3	542.6	359.6	1594.0	2865.7
	Poletimber	70.3	1803.5	1942.4	3312.7	2993.4	10122.3
	Small sawtimber	0.0	486.1	422.3	985.3	523.1	2416.8
	Large sawtimber	0.0	200.7	120.1	530.9	261.9	1113.6
	Total	1265.6	2807.6	3027.3	5188.4	5372.5	17661.4

Table 14.—Area of forest land by habitat type, stand-diameter class, and FIBER stocking region, Maine, 1995

		Stocking region					
Habitat type	Stand-diameter class	Low/no basal area	Understocked	Suboptimal	Optimal	Overstocked	Total
Beech/red maple	Low/No Basal Area	79.2	0.0	0.0	0.0	0.0	79.2
	Sapling	35.7	159.1	242.4	95.6	358.7	891.6
	Poletimber	26.5	282.7	255.0	420.8	540.9	1525.9
	Small sawtimber	0.0	81.5	64.0	171.0	179.6	496.2
	Large sawtimber	0.0	63.7	38.6	72.1	101.4	275.7
	Total	141.5	587.0	600.0	759.5	1180.6	3268.6
Cedar/black spruce	Low/no basal area	51.6	0.0	0.0	0.0	0.0	51.6
	Sapling	61.3	88.5	100.1	18.1	161.6	429.6
	Poletimber	22.8	162.9	252.4	227.2	316.1	981.3
	Small sawtimber	0.0	58.1	60.7	134.9	110.2	363.9
	Large sawtimber	0.0	17.2	0.0	19.7	25.3	62.1
	Total	135.8	326.6	413.2	399.8	613.1	1888.5
Hemlock/red spruce	Low/no basal area	34.3	0.0	0.0	0.0	0.0	34.3
	Sapling	25.6	42.6	69.7	0.0	86.1	224.0
	Poletimber	12.6	96.0	173.6	157.8	171.1	611.2
	Small sawtimber	0.0	60.3	66.3	132.5	84.1	343.2
	Large sawtimber	0.0	6.6	1.4	48.1	40.5	96.6
	Total	72.6	205.5	311.0	338.4	381.8	1309.3
Oak/white pine	Low/no basal area	15.1	0.0	0.0	0.0	0.0	15.1
	Sapling	0.0	0.0	56.2	48.0	121.2	225.4
	Poletimber	0.0	53.3	56.8	225.6	156.8	492.5
	Small sawtimber	0.0	39.7	27.3	143.0	40.6	250.5
	Large sawtimber	0.0	43.6	60.8	152.7	95.9	353.0
	Total	15.1	136.6	201.0	569.2	414.6	1336.5
Spruce/fir	Low/no basal area	166.2	0.0	0.0	0.0	0.0	166.2
	Sapling	147.2	453.7	508.7	110.7	1158.2	2378.4
	Poletimber	39.6	546.5	687.3	806.1	1153.9	3233.3
	Small sawtimber	5.9	213.5	208.9	374.7	261.2	1064.1
	Large sawtimber	0.0	120.3	66.6	56.0	95.1	338.1
	Total	358.9	1333.9	1471.5	1347.5	2668.3	7180.2
Sugar maple/ash	Low/no basal area	26.2	0.0	0.0	0.0	0.0	26.2
	Sapling	7.6	36.3	36.7	70.1	184.5	335.1
	Poletimber	15.6	79.8	123.7	419.2	385.0	1023.2
	Small sawtimber	6.6	26.6	53.8	263.5	418.4	768.9
	Large sawtimber	0.0	13.2	12.8	181.8	355.2	563.0
	Total	56.0	155.9	226.9	934.6	1343.1	2716.5
Total	Low/no basal area	372.7	0.0	0.0	0.0	0.0	372.7
	Sapling	277.5	780.1	1013.8	342.5	2070.3	4484.2
	Poletimber	117.1	1221.1	1548.8	2256.7	2723.7	7867.4
	Small sawtimber	12.5	479.6	481.0	1219.5	1094.2	3286.8
	Large sawtimber	0.0	264.6	180.1	530.3	713.4	1688.4
	Total	779.8	2745.5	3223.7	4349.0	6601.5	17699.5

Table 15.—Area of forest land by habitat type, stand-diameter class, and FIBER stocking region, Maine, 2003

Habitat type	Stand-diameter class	Stocking region					
		Low/no basal area	Understocked	Suboptimal	Optimal	Overstocked	Total
Beech/red maple	Low/No Basal Area	113.7	1.6	0.2	0.9	0.8	117.1
	Sapling	24.4	120.2	146.9	183.7	279.7	754.8
	Poletimber	5.8	293.4	202.2	597.2	124.7	1223.3
	Small Sawtimber	0.0	65.0	74.9	164.2	95.3	399.4
	Large Sawtimber	0.0	25.9	16.2	81.7	33.7	157.5
	Total	143.9	506.1	440.4	1027.6	534.2	2652.1
Cedar/black spruce	Low/no basal area	217.5	0.0	0.5	0.0	0.0	218.0
	Sapling	12.3	98.6	94.0	19.2	72.4	296.5
	Poletimber	11.5	168.7	300.7	238.9	171.8	891.6
	Small sawtimber	0.0	39.4	31.7	85.3	86.6	242.9
	Large sawtimber	0.0	7.0	6.0	38.8	23.5	75.3
	Total	241.3	313.7	432.9	382.2	354.3	1724.3
Hemlock/red spruce	Low/no basal area	26.8	0.0	0.0	0.0	0.0	26.8
	Sapling	12.4	46.5	36.2	23.4	110.2	228.7
	Poletimber	0.0	207.0	183.6	205.6	74.2	670.3
	Small sawtimber	0.0	116.6	132.2	239.8	51.0	539.5
	Large sawtimber	0.0	19.5	37.5	114.9	29.9	201.8
	Total	39.2	389.6	389.4	583.5	265.3	1667.0
Oak/white pine	Low/no basal area	12.7	0.0	0.0	0.3	0.0	13.0
	Sapling	4.4	30.0	44.1	43.8	37.1	159.5
	Poletimber	0.0	148.9	142.1	258.9	70.2	620.0
	Small sawtimber	0.0	83.6	69.3	157.1	44.1	354.0
	Large sawtimber	0.0	61.5	82.0	168.9	33.6	346.0
	Total	17.1	324.0	337.4	629.0	184.9	1492.4
Spruce/fir	Low/no basal area	351.1	1.4	0.8	2.4	1.3	356.9
	Sapling	24.4	405.0	681.0	261.8	1164.7	2536.9
	Poletimber	22.3	817.2	953.1	924.0	377.5	3094.0
	Small sawtimber	0.0	215.6	335.2	492.5	142.4	1185.6
	Large sawtimber	0.0	74.6	53.7	156.0	65.5	349.8
	Total	397.7	1513.8	2023.9	1836.6	1751.3	7523.2
Sugar maple/ash	Low/no basal area	42.2	0.0	0.0	0.0	0.0	42.2
	Sapling	21.5	64.4	79.9	69.1	90.1	324.9
	Poletimber	12.7	134.6	114.8	544.0	106.5	912.6
	Small sawtimber	0.0	54.5	163.2	503.8	157.0	878.4
	Large sawtimber	0.0	25.7	44.1	284.0	146.7	500.5
	Total	76.4	279.1	401.9	1400.9	500.2	2658.6
Total	Low/no basal area	763.9	2.9	1.5	3.6	2.0	773.9
	Sapling	99.3	764.8	1082.1	600.9	1754.1	4301.2
	Poletimber	52.3	1769.8	1896.4	2768.5	924.8	7411.8
	Small sawtimber	0.0	574.6	806.4	1642.5	576.3	3599.8
	Large sawtimber	0.0	214.2	239.5	844.2	333.0	1630.9
	Total	915.6	3326.3	4025.8	5859.8	3590.1	17717.6

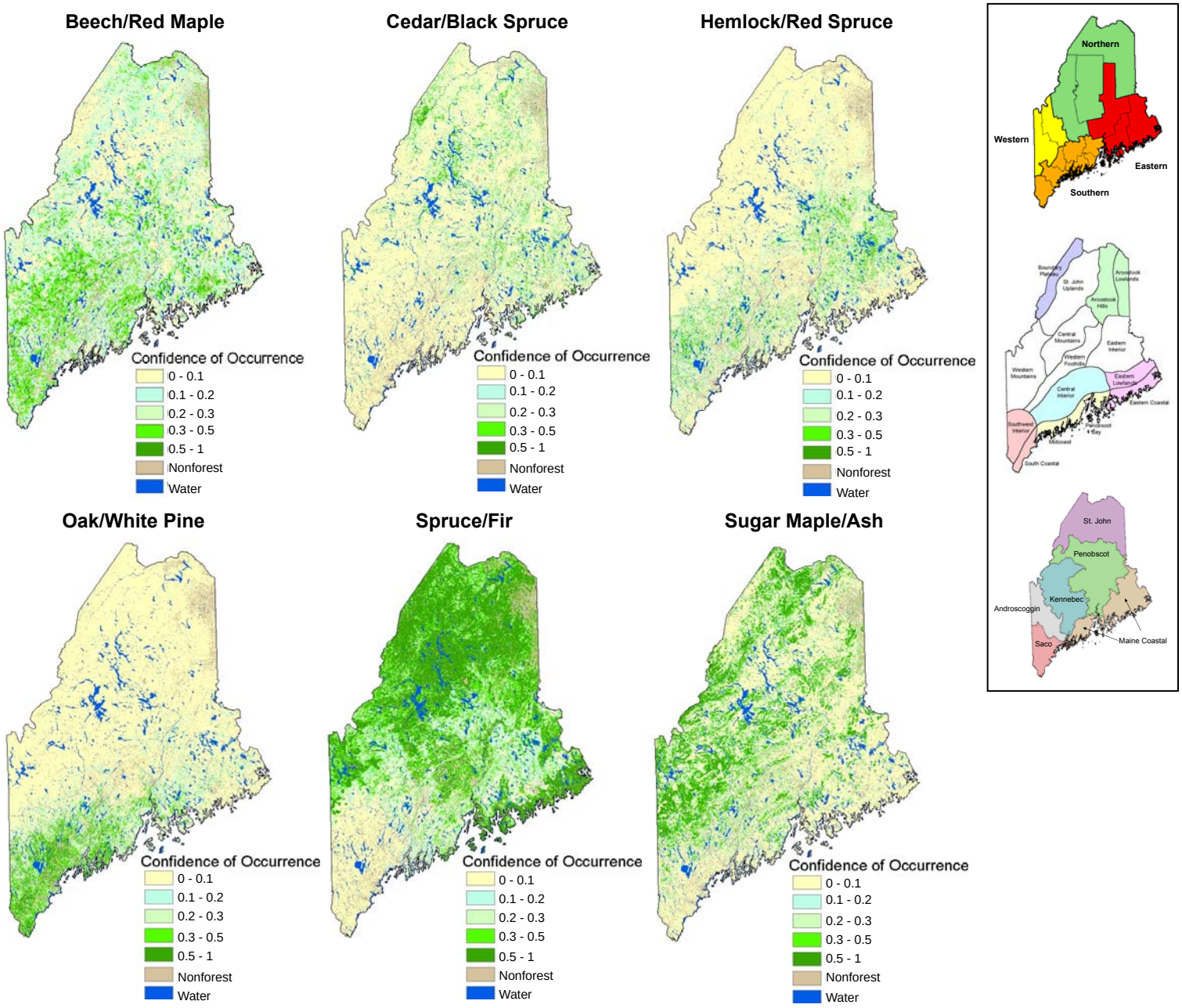


Figure 29.—Distribution of forest land by habitat type, Maine, 2003.

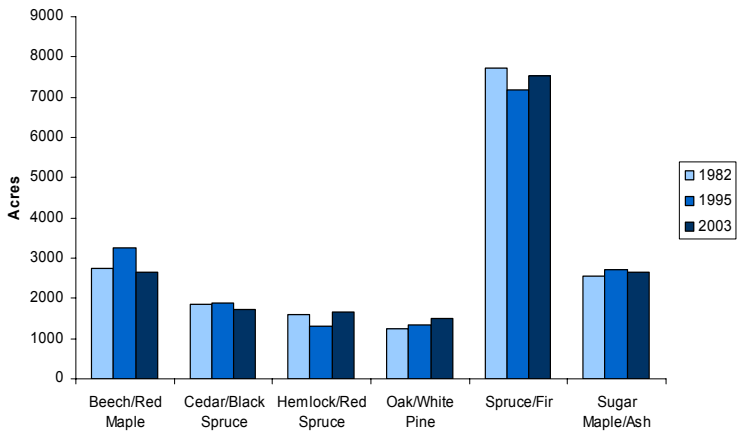


Figure 30.—Area of forest land by habitat type and inventory date, Maine, 1982, 1995, 2003.

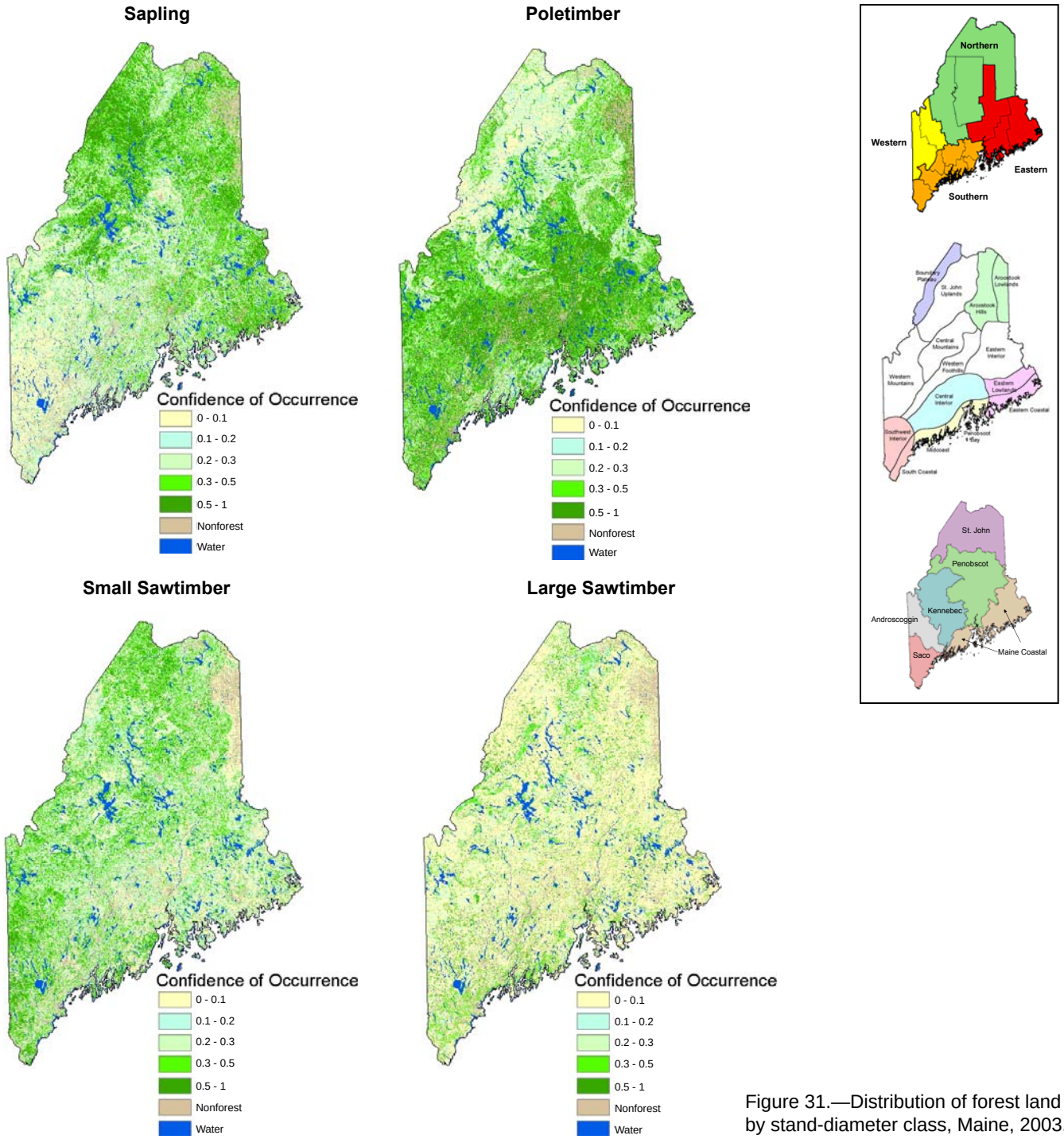


Figure 31.—Distribution of forest land by stand-diameter class, Maine, 2003.

acreage is reflected in the subsequent increase of 342,900 acres between 1995 and 2003. Other habitat types containing spruce and fir also experienced decreases. The oak/white pine habitat type increased steadily and now totals 1, 492,400 acres. The beech/red maple increased dramatically between 1982 and 1995 but has decreased since then. This change occurred as young red maple flourished due to the opening up of stands to sunlight, but was subsequently classified as spruce/fir and other types as these species outcompeted red maple for space and sunlight. The sugar maple/ash habitat type remained stable over the period and now totals 2,658,600 acres.

The distribution surfaces for stand-diameter classes are shown in Figure 31. Today's sapling stands are concentrated heavily in the unorganized regions and

Downeast. Poletimber stands are found across Maine, but are most abundant in the southern half of the State. Small and large sawtimber also are dispersed widely, though large sawtimber stands are relatively uncommon.

Changes in the distribution of forest land by stand-diameter class reflect increases in sapling-size acreage as poletimber stands were decreasing due primarily to disturbance effects (Fig. 32). Sapling stands increased by 1,435,500 acres between 1982 and 2003. There was a corresponding decrease in poletimber of 2,710,500 acres. Poletimber stands containing significant stocking of balsam fir often were impacted by SBE and related salvage harvesting. Not all of the poletimber stands were converted to younger sapling stands as some poletimber stands grew to small-sawtimber size. The current distribution of forest land by stand-diameter class is 24 percent sapling, 42 percent poletimber, 20 percent small sawtimber, and 9 percent large sawtimber.

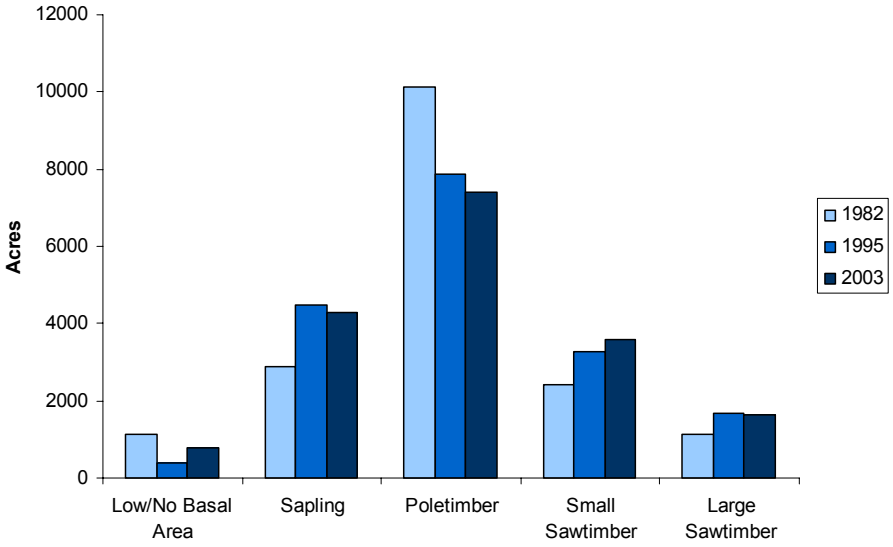


Figure 32.—Area of forest land by stand-diameter class and inventory date, Maine, 1982, 1995, 2003.

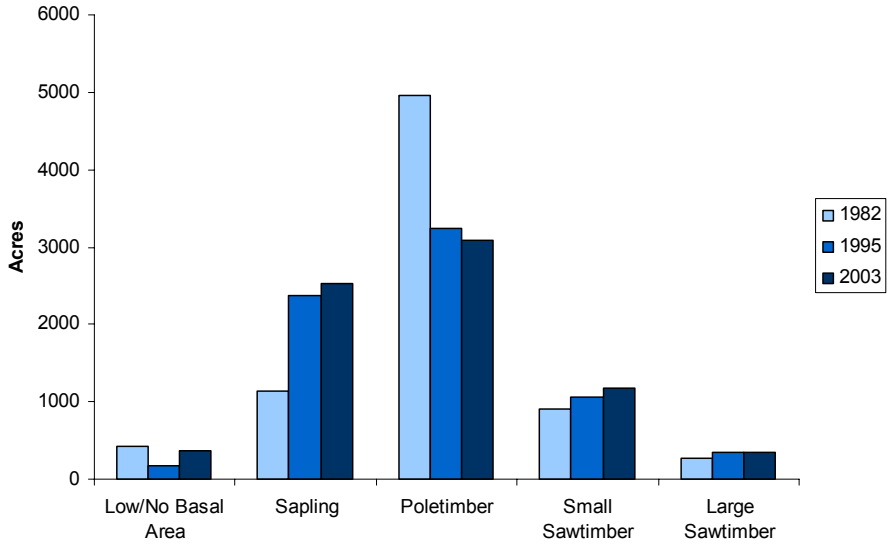


Figure 33.—Area of spruce/fir forest land by stand-diameter class and inventory date, Maine, 1982, 1995, 2003.

Isolating the changes in the spruce/fir habitat type clarifies the major role of this habitat in the structural changes that have occurred across Maine's forested landscape (Fig. 33). As would be expected, the characteristic decline in poletimber and increase in sapling acreage is more dramatic for spruce/fir and the megaregions covering the unorganized regions (Fig. 34). The Southern region had an increase in poletimber and both small- and large-sawtimber classes.

The most dramatic examples of the dominant trend is apparent on forest industry forest land located mostly in the unorganized regions (Fig. 35). Nonindustrial private acreage has seen an increase in poletimber, small sawtimber, and large sawtimber since the 1995 inventory.

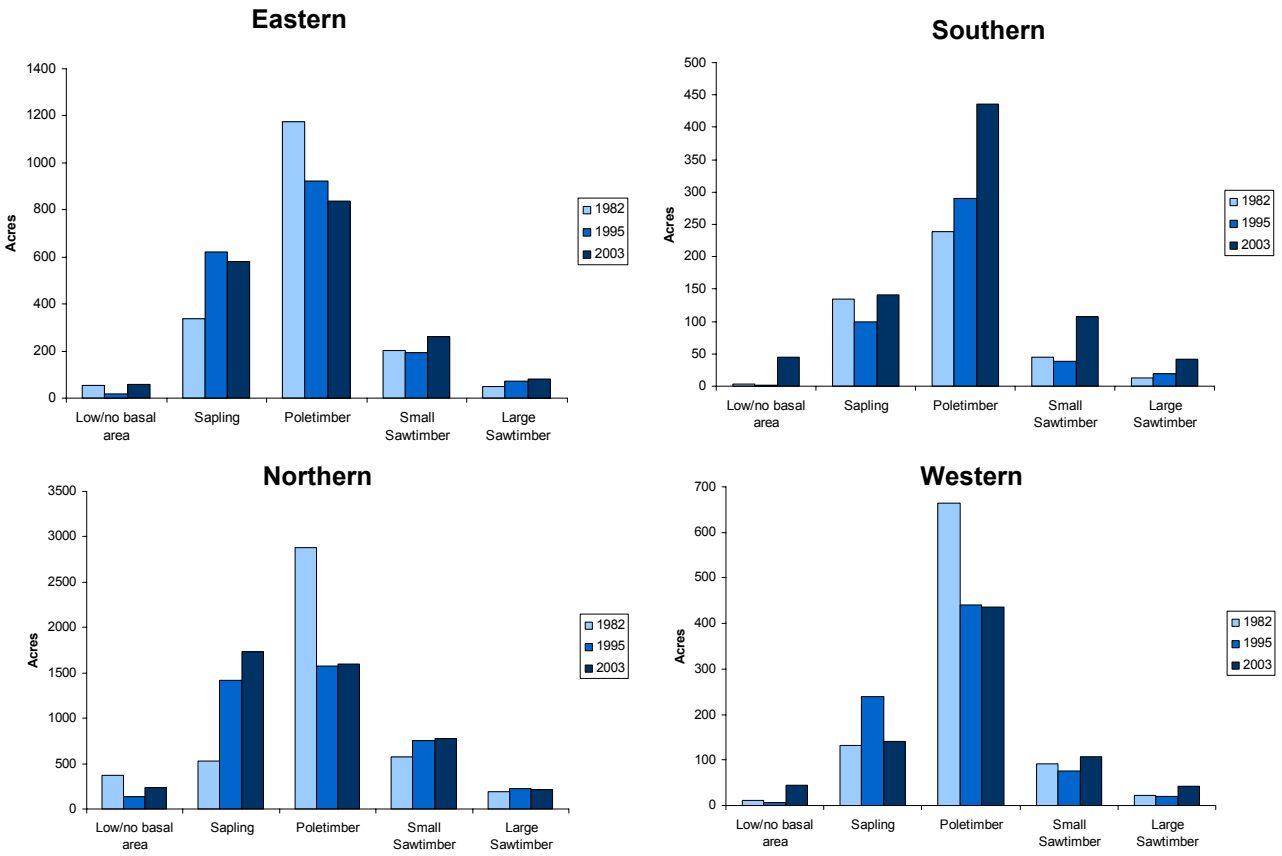


Figure 34.—Area of spruce/fir forest land by stand-diameter class, megaregion, and inventory date, Maine, 1982, 1995, 2003.

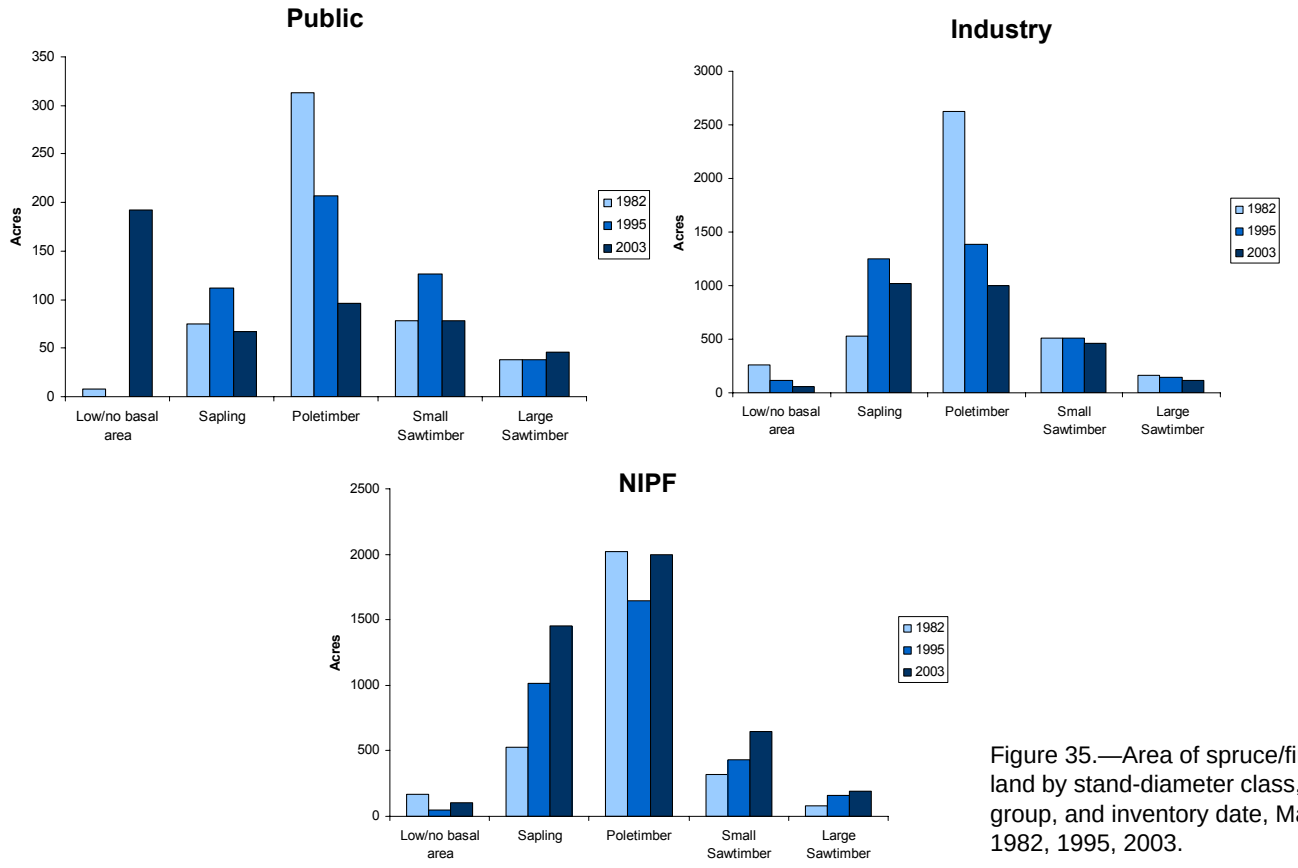


Figure 35.—Area of spruce/fir forest land by stand-diameter class, owner group, and inventory date, Maine, 1982, 1995, 2003.

Trends for the oak/white pine habitat type differ from those for spruce/fir (Fig. 36). Oak/white pine has had steady decreases in sapling acreage and increases in the larger stand-diameter classes. This foretells an aging resource with little recruitment into younger age classes.

The findings for changes in the distribution of forest land by stocking level indicate encouraging trends and general improvements (Fig. 37). Although the understocked and suboptimal class had increases, improvements were more dramatic in the other classes. The acreage in the optimal stocking region decreased by 839,400 acres between 1982 and 1995, but then increased by 1,510,800 acres since 1995—a net gain of 671,400 acres. Another positive trend was the decrease of 3,011,400 acres in overstocked forest land. This decrease followed an increase between 1982 and 1995. As with other changes in composition and structure, the spruce/fir habitat type has driven trends at the state level (Fig. 38).

Stand Structure

The distribution of forest land by stand-structure class helps explain the current mix of conditions across Maine (Table 16). This information is useful for crafting management strategies for the various habitat types in the State. Each forested condition that is encountered is assigned to one of the following: single story, two story, multistory, or mosaic, e.g., a condition that is characterized by two distinct canopy layers is assigned to the two-story class. A common example

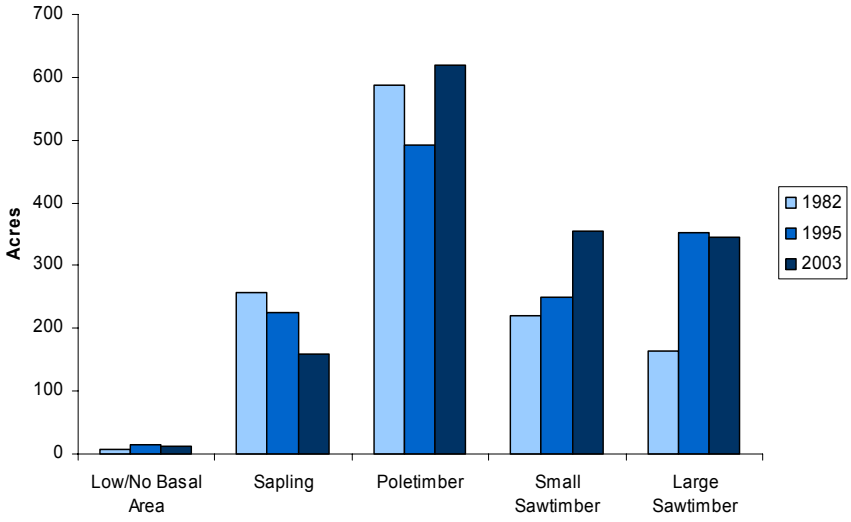


Figure 36.—Area of oak/white pine forest land by stand-diameter class and inventory date, Maine, 1982, 1995, 2003.

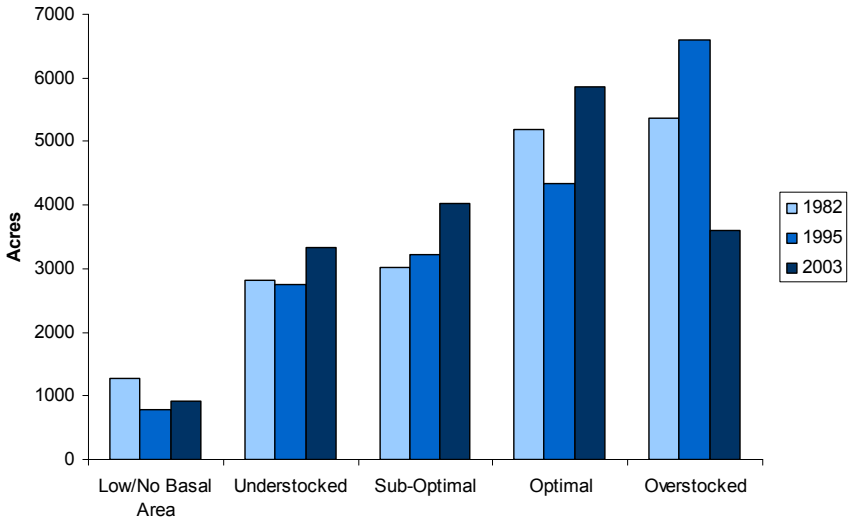


Figure 37.—Area of forest land by FIBER stocking region and inventory date, Maine, 1982, 1995, 2003.

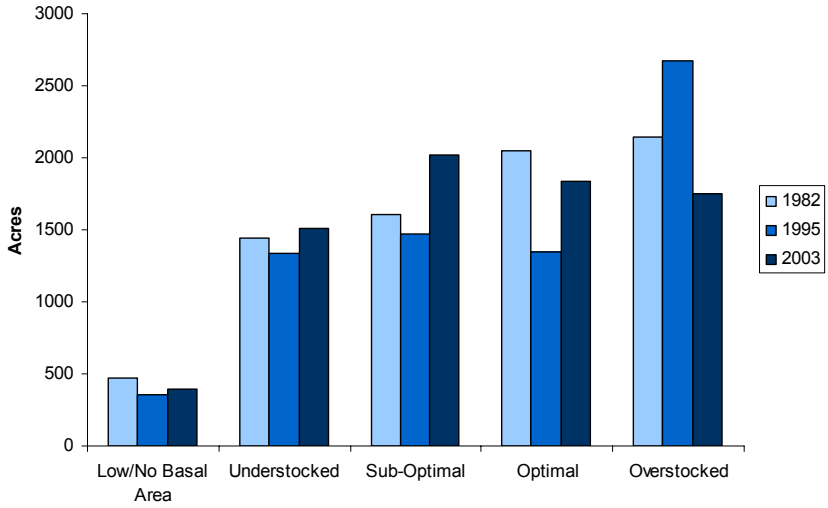


Figure 38.—Area of spruce/fir forest land by FIBER stocking region and inventory date, Maine, 1982, 1995, 2003.

Table 16.—Area of forest land by habitat type and stand structure class, Maine, 2003

Habitat type	Stand-structure class				
	Single-story	Two-story	Multistory	Mosaic	Total
	Thousands of acres				
Beech/red maple	1127.7	1227.3	210.8	80.5	2646.3
Cedar/black spruce	947.4	572.3	126.6	72.2	1718.5
Hemlock/red spruce	646.5	761.1	177.8	81.6	1666.9
Oak/white pine	619.8	685.8	155.3	31.5	1492.5
Spruce/fir	3435.6	2971.5	795.7	320.5	7523.2
Sugar maple/ash	1111.8	1304.5	237.8	4.4	2658.6
Total	7888.7	7522.5	1704.0	590.8	17717.5

Note: Excludes nonstocked acreage; data may not add to totals due to rounding.

would be a mature overstory with an understory of sapling-size trees. The management options for this condition differ from those for the single-story condition. Currently, the bulk of Maine's forest land is single story (45 percent) or two story (42 percent).

Low Basal-Area Conditions

Since the 1995 inventory, there have been two statewide referenda and other proposed legislation concerning forest-management practices. These initiatives have focused on the frequency and size of clearcutting, the need to balance periodic growth and harvests, and the impact of liquidation harvesting. The continuing interest in policy development related to practices that create stands with low basal area provides the basis for the analysis that follows.

Each sample condition was assigned to one of seven classes based on basal area per acre of all tallied live trees 1 inch or larger in d.b.h. The lowest basal-area class represents stocking of 0 to 49 square feet per acre. This class comprises more than 3 million acres of timberland (17 percent of total), a substantial increase of 450,000 acres since 1995. Current status of the low basal-area class is examined by ownership, megaregion, and stand-diameter class.

For the most part, these acres have potential; 47 percent of all acres in this basal-area class are in the sapling-seedling stand-diameter class (Table 17). Appropriate silvicultural practices are needed to enhance the growth of this acreage.

Statewide, forest industry owns 36 percent of these low basal-area acres; 54 percent are in the sapling class (Table 17). Proper management of this acreage and its composition through practices such as precommercial thinning and the prompt return of this land to merchantable size will enhance the productivity of Maine's forests.

Another concern is combination of low/no basal-area and sawtimber stand-diameter classes that are currently classed as low/no basal area or understocked. This grouping accounts for only 10 percent of the acres in lowest basal-area class. However, 58 percent of the 320,000 acres are held by nonindustrial private landowners (Table 17).

The northern region accounts for 56 percent of the acres in the low basal-area class (Table 18). The share of low/no basal-area acreage in the southern and western regions, at 82 and 81 percent, respectively, is troubling because most of these acres are in poletimber-size stands for which there are fewer management opportunities.

Table 17.—Percentage of timberland acres in the 0 to 49 ft² basal-area class, by ownership, stand-diameter, and FIBER stocking classes, Maine, 2003

Stand-diameter and stocking classes	Ownership class			
	Public	Forest industry	Nonindustrial private	Subtotal
Low/No Basal-Area Stands				
Low/no basal area and understocked	0	4	4	8
Suboptimal stocking	0	0	0	0
Optimal stocking and overstocked	0	0	0	0
Subtotal	0	4	4	9
Owner Class Share	4	44	52	100
Sapling Stands				
Low/no basal area and understocked	0	10	16	26
Suboptimal stocking	1	8	9	17
Optimal stocking and overstocked	0	1	3	4
Subtotal	1	18	27	47
Owner Class Share	2	40	59	100
Poletimber Stands				
Low/no basal area and understocked	1	10	19	30
Suboptimal stocking	0	2	2	4
Optimal stocking and overstocked	0	0	0	0
Subtotal	1	11	22	35
Owner Class Share	2	33	64	100
Small Sawtimber Stands				
Low/no basal area and understocked	0	2	5	7
Suboptimal stocking	0	0	0	1
Optimal stocking and overstocked	0	0	0	0
Subtotal	0	2	6	8
Ownership Share	3	24	73	100
Large Sawtimber Stands				
Low/no basal area and understocked	0	1	1	2
Suboptimal stocking	0	0	0	0
Optimal stocking and overstocked	0	0	0	0
Subtotal	0	1	1	2
Ownership Share	0	34	66	100
Ownership share of 0 to 49 ft² basal-area class	2	36	61	100
Proportionate ownership share of 17.2 million timberland acres	4	32	64	100

Note: Data may not add to totals due to rounding.

Table 18.—Timberland acres in the 0 to 49 ft² basal area class, by region, stand-diameter, and FIBER stocking classes, Maine, 2003

Stand-diameter and stocking class	Region				Subtotal
	Eastern	Northern	Southern	Western	
Low/No Basal-Area Stands					
Low/no basal area and understocked	79,664	131,164	15,491	25,533	251,852
Suboptimal stocking	-	1,504	-	-	1,504
Optimal stocking and overstocked	1,871	2,990	284	439	5,584
Subtotal	81,535	135,658	15,775	25,972	258,940
Sapling Stands					
Low/no basal area and understocked	215,927	475,308	59,239	41,562	792,036
Suboptimal stocking	89,318	367,318	25,242	19,666	501,544
Optimal stocking and overstocked	29,261	69,401	7,483	9,732	115,877
Subtotal	334,506	912,027	91,964	70,960	1,409,457
Poletimber Stands					
Low/no basal area and understocked	265,749	417,571	120,774	98,786	902,880
Suboptimal stocking	28,666	73,417	14,950	12,017	129,050
Optimal stocking and overstocked	996	8,225	2,312	-	11,533
Subtotal	295,411	499,213	138,036	110,803	1,043,463
Small Sawtimber Stands					
Low/no basal area and understocked	62,138	94,300	31,033	30,616	218,087
Suboptimal stocking	9,978	8,248	-	4,384	22,610
Optimal stocking and overstocked	-	-	732	-	732
Subtotal	72,116	102,548	31,765	35,000	241,429
Large Sawtimber Stands					
Low/no basal area and understocked	21,623	29,639	3,291	5,897	60,450
Suboptimal stocking	-	5,614	-	-	5,614
Optimal stocking and overstocked	-	-	-	-	-
Subtotal	21,623	35,253	3,291	5,897	66,064
Subtotal low/no basal area and understocked	645,101	1,147,982	229,828	202,394	2,225,305
Subtotal suboptimal	127,962	456,101	40,192	36,067	660,322
Subtotal optimal and overstocked	32,128	80,616	10,811	10,171	133,726
Regional totals of 0 to 49 ft² basal-area class	805,191	1,684,698	280,831	248,634	3,019,354

Note: Data may not add to totals due to rounding.

Harvest Disturbance

The MFS has conducted censuses of harvest activity in Maine since 1982 (the period from 1982 to 1986 is a single average). Harvest trends of the 1980's and 1990's clearly reflect increased cutting (in acres) over the period (Figs. 39-40). The average annual harvest from 1982 to 1989 totaled 286,600 acres compared to 449,200 acres from 1990 to 1994. Since then, the average acreage harvested increased to 531,000 acres. Trends also indicate a dramatic shift from clearcutting to partial cutting, e.g., partial and shelterwood, beginning in the early 1990's. Partial cutting now dominates harvesting in Maine. Other MFS data indicate that natural extensive management practices dominate Maine's forestry practices. Statewide, planting, precommercial thinning, and conifer release occur only on about 5 percent of the timberland.

FIA data allow one to evaluate the degree to which forest land in Maine has been impacted by harvesting. The distribution of timberland by cutting intensity reflects the current character of timberland. Cutting intensity is defined as the basal area of cut trees divided by total basal area prior to harvest expressed as a percentage. The results reflect harvest activity over the recent inventory period, from 1995 to 2003. The acreage of timberland with no trees removed was 84 percent. This estimate is based on the limited remeasurement sample of the first 5 years of annual inventory. The estimate compares to a MFS estimate of 75 percent from 1995 to 2002 (MFS 1986 to 2003). As additional remeasurement data emerges, detailed analyses of harvesting (by diameter and species) can be completed.

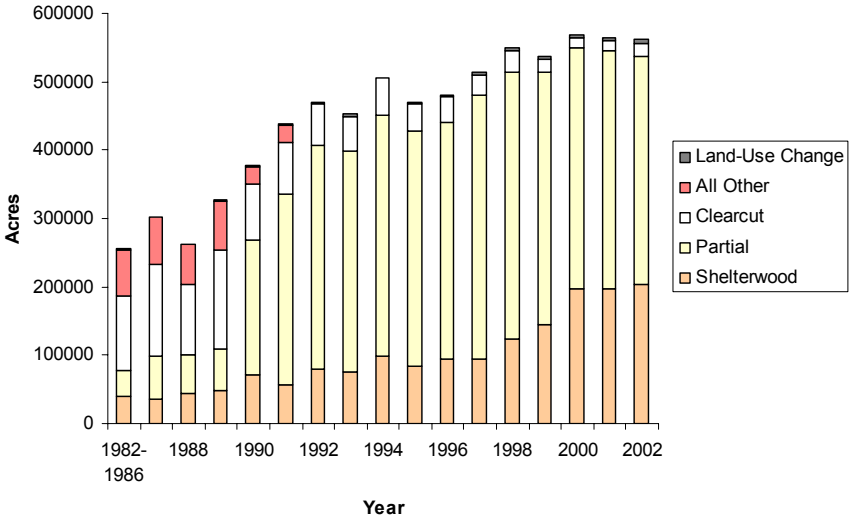


Figure 39.—Silvicultural trends, acres harvested by harvest type, Maine, 2003 (MFS 1986-2003).

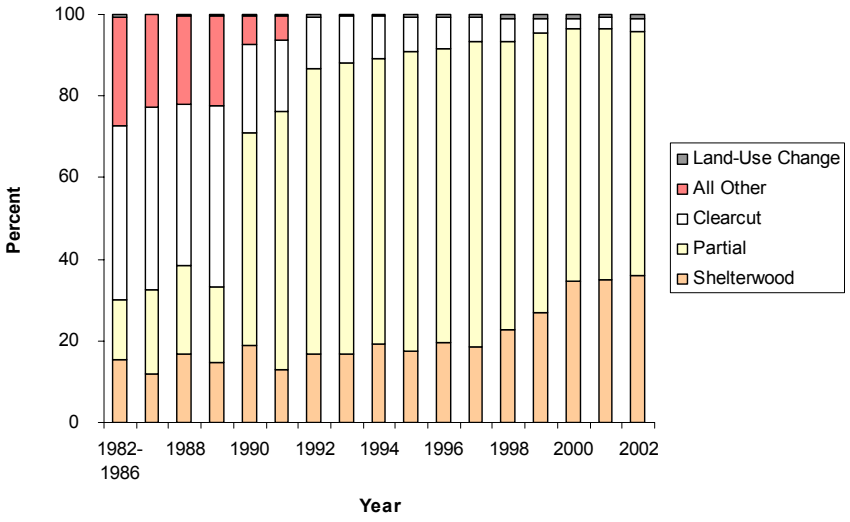


Figure 40.—Percentage distribution of harvest type, Maine, 2003 (MFS 1986-2003).

Numbers of Trees

The forest land of Maine is frequently referred to as the "Acadian Forest" because of its unique location between Boreal Forests to the north and Central Hardwood Forests to the south. This transition zone provides a rich mixture of commercial species. This diversity is reflected in the variety of tree species tallied—14 commercial softwood species, 32 commercial hardwood species, and 16 noncommercial hardwood species. Tree-species diversity is shown in Figure 41. Each pixel is highlighted according to modeled numbers of species tallied.

Courtesy of Maine Forest Service

Balsam fir represents 35 percent of all live trees that are larger than 1.0 inch d.b.h., followed by red maple (12 percent), red spruce (9), noncommercial hardwoods (8), and paper birch (6). The high proportion of pioneer species reflects the sapling share of forest land (24 percent).

Shifting focus to abundance only on the timberland base and merchantable-size trees (at least 5.0 inches d.b.h.), balsam fir remains the most abundant species with a 15-percent share, followed by red maple (13), red spruce (13), northern white-cedar (10), and paper birch (6).

Maine's softwood resource has a higher proportion of sawlog quality trees than the hardwood resource (Fig. 42). Sawtimber-size trees (at least 9 and 11 inches for softwoods and hardwoods, respectively) represent 27 percent of all softwood stems. The bulk of softwoods is classified as growing-stock trees; 67 percent of live trees at least 5.0 inches d.b.h. are of acceptable sawlog quality but these trees do not meet the minimum size (9 inches d.b.h.). Poor-quality softwoods include rough (poor form) trees (4 percent) and rotten (excessive defect) trees (2 percent).

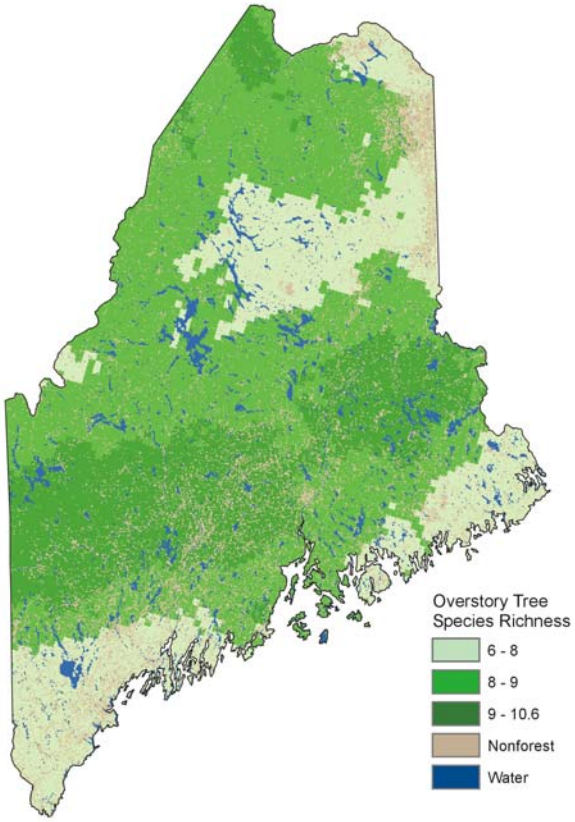


Figure 41.—Average number of tree species tallied on FIA sample plots, Maine, 2003.

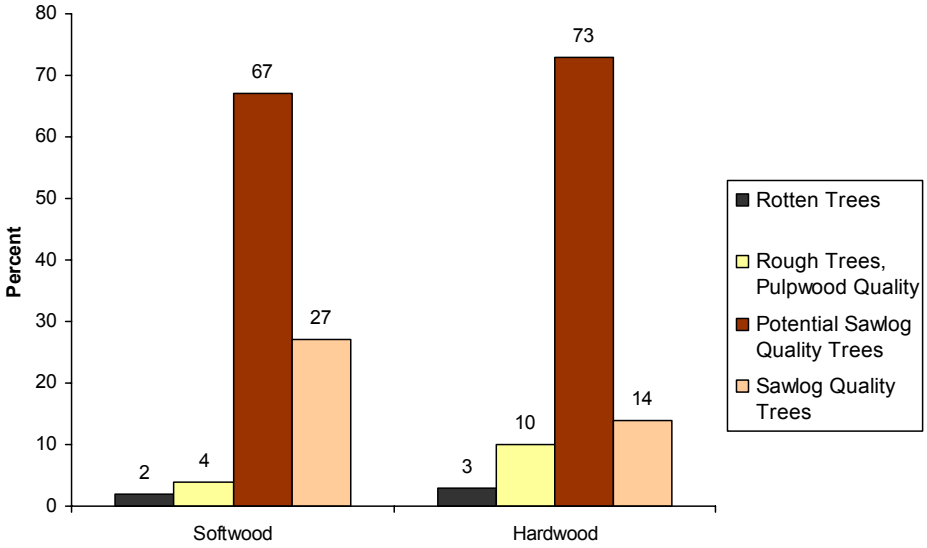


Figure 42.—Distribution of live merchantable size trees (≥ 5.0 inches d.b.h.) by tree class, Maine, 2003.

Sawtimber-size hardwood trees represent 14 percent of live hardwoods. Most of the live merchantable-size hardwoods are growing-stock trees, 73 percent of which are of acceptable sawlog quality but too small for sawtimber. Poor-quality hardwood trees include rough trees (10 percent) and rotten trees (3 percent).

Over the last 45 years, the periodic inventory of Maine's forest resources has provided an interesting perspective of stand development and dynamics in reaction to natural and forest-management interventions (Fig. 43). The per-acre average for timberland in 1959 was 813 sapling-size, 144 poletimber-size, and 15 sawtimber-size trees. The 1971 periodic inventory revealed rapid stand development across the State during this interval. On the average acre, saplings decreased to 617, poletimber trees increased moderately to 179, and sawtimber trees increased substantially to 43. Over the next decade or so, stand dynamics were in apparent equilibrium. The 1982 inventory estimated continuing minor decreases in saplings (589) and poletimber (174), and a continuing minor maturation to sawtimber trees (46). Concurrent with part of this period is the SBE and the beginning of salvage harvesting.

Both of these impacts are apparent in the inventory period of 1982 to 1995. The 1995 inventory showed a major shift in the distribution of trees by size. The trees present on the average acre increased to 785 saplings; poletimber had a major decrease to 135 trees that was attributed to both SBE-induced mortality of small suppressed/intermediate trees and salvage harvests; sawtimber had a minor decrease to 42 trees.

The 2003 estimate continues to reflect the rapid development of young saplings, currently representing 1,051 trees per acre of timberland, along with continued minor decreases in the number of poletimber and sawtimber trees at 131 and 41, respectively.

Since one-quarter of Maine's timberland is classed as sapling stand-diameter class, these submerchantable trees warrant closer examination to understand the future prospects of Maine's forest resources. Between 1995 and 2003, there was a 52-percent increase

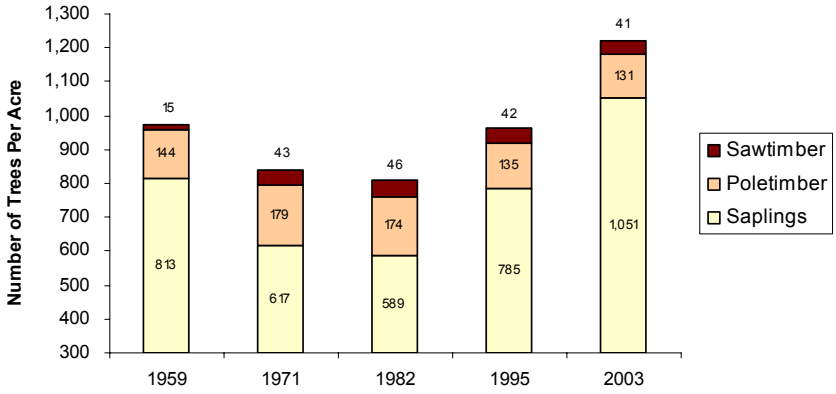


Figure 43.—Distribution of live trees per acre of timberland by tree-size class, Maine, 1959, 1971, 1982, 1995, 2003.

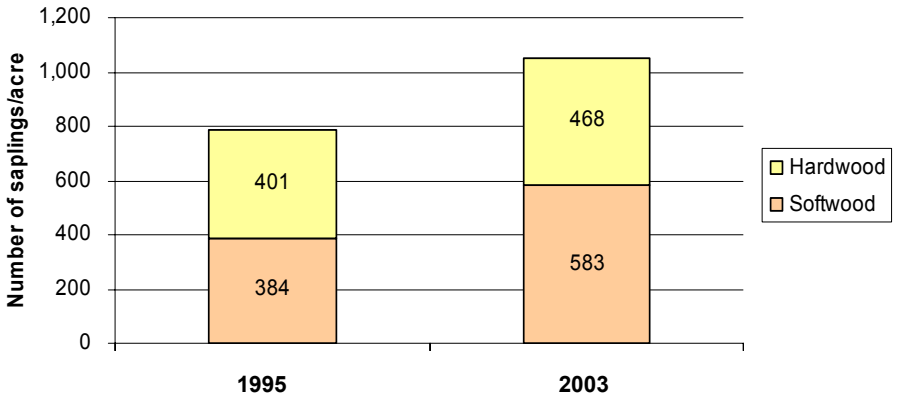


Figure 44.—Distribution of saplings per acre of timberland by species group, Maine, 1995 and 2003.

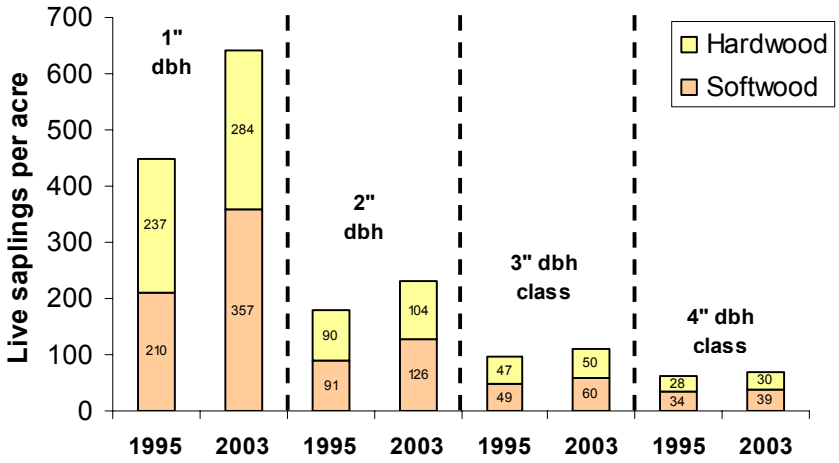


Figure 45.—Change in live saplings per acre by diameter class and species group, Maine, 1995 and 2003.

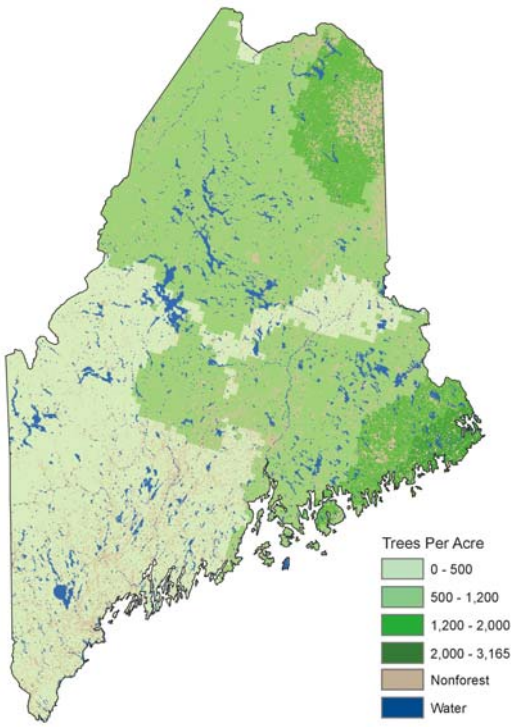


Figure 46.—Estimated number of saplings per acre, Maine, 2003.

in softwood saplings, while hardwood saplings have increased only by 17 percent (Fig. 44). Further, the increases follow a reverse J-shaped distribution, with the bulk of the increase occurring in the 1-inch d.b.h. class and dropping rapidly off to the 4-inch d.b.h. class (Fig. 45). From a statistical standpoint, all of these sapling increases within each d.b.h. class represent a significant change since the 1995 estimate.

The spatial distribution of the expected increase in saplings is important to certain forest product-industries and reflects progressive stand development following extensive harvest over the last 25 years (Figs. 46-47). Examining the distribution of larger to smaller diameter classes provides a general representation of where and when waves of spruce and fir forest will attain merchantable size. There are three areas with relatively high concentrations of 4-inch saplings: northern

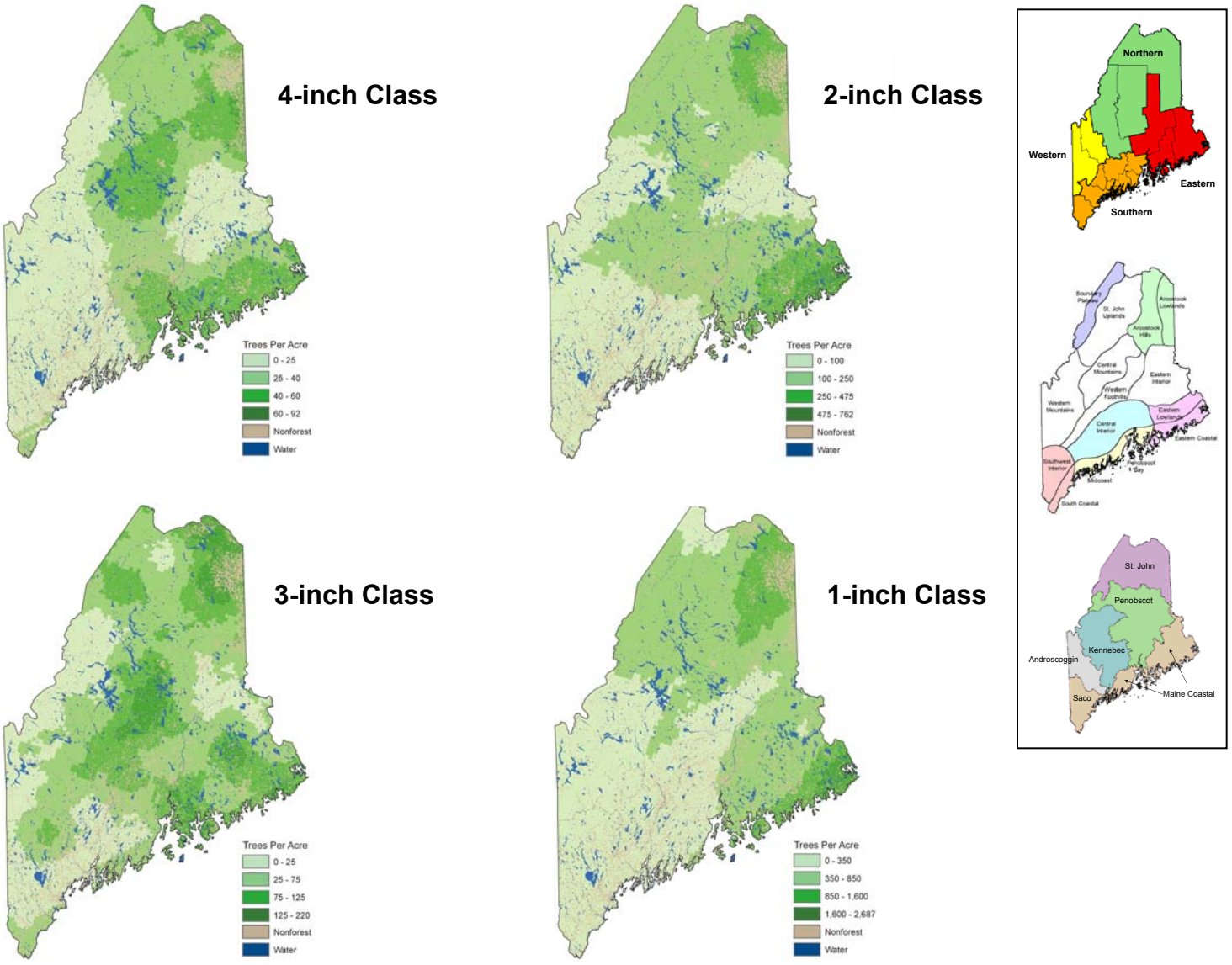


Figure 47.—Estimated number of saplings per acre by 1-inch diameter classes, Maine, 2003.

Piscataquis County, a localized area in the southern part of the Aroostook Lowlands, and a band along the Eastern Coastal region. The concentration of 3-inch saplings is highest in a band encompassing portions of the biophysical regions of the Western Foothills, Central Mountains, Aroostook Hills, and the Aroostook Lowlands. Concentrations of 2- and 1-inch trees are highest in the Downeast and Aroostook Hills regions.

Standing Dead Trees

Unutilized dead trees represent a loss in the productivity of the land for forest products; however, dead trees contribute to a forest's biodiversity by providing den sites for cavity-nesting birds and as the future source of down woody material. Both the frequency and size of dead trees are important characteristics in determining these and other nontimber attributes.

Salvable dead trees are defined as at least 5.0 inches d.b.h., have died recently, and still retain an intact bark structure. The numbers of these trees has remained fairly constant since 1982. Current estimates of nonsalvable dead trees show a substantial decrease since 1995, especially in softwoods and particularly balsam fir and red spruce. This is an indication that nonsalvable dead trees tallied in 1995 no longer are standing and probably are part of the current estimates of down woody material (Tables A17, B11, and C11).

Standing dead trees are further characterized by diameter class (5.0 to 10.9 inches d.b.h., 11.0 to 14.9 inches, and 15 inches and larger) and by tree-condition class (intact top or broken top). Dead trees in the largest class are of primary interest because of their expected longevity within the existing stand structure. The current distribution for this size class is 18.1 million trees, an average of 1.1 per acre of timberland. Trees in this class in 1995 averaged 0.9 per acre of timberland.

Down Woody Material

Down woody material (DWM) is defined as dead material on the ground in various stages of decay. DWM is an important component of forest ecosystems because it affects the: quality and structure of wildlife habitats, structural diversity, fuel loading and fire behavior, carbon sequestration, and the storage and cycling of water (USDA For. Serv. 2002b). Components measured include coarse woody debris (CWD), fine woody debris (FWD), duff, litter, herbs/shrubs, and fuelbed depth. CWD is dead wood 3 inches or larger in diameter (1,000-hour fuels); FWD is dead wood 0.1 to 2.9 inches in diameter (1-, 10-, and 100-hour fuels). Litter is defined as the loose plant material on top of the forest floor where little decomposition has occurred. Duff is the layer just below the litter and consists of decomposing leaves and other organic material. CWD and FWD are sampled using line-intersect sampling methodologies. DWM sample transects begin at each subplot center extending 24 feet to the subplot border. CWD and FWD are sampled only along transects in accessible forest land.

It should be noted that the analysis and interpretation of Maine's DWM data is based on only 2 years of data (2001 and 2002). As additional data are available and as analysis techniques are refined, DWM inventory analyses will be more extensive. With regard to estimates of fuel loading, Maine's fuel profile matches what might be expected for a landscape dominated by Acadian forests. There is a tremendous amount of duff due to slow decay rates, but the amounts of FWD and CWD are relatively minimal. The shrub/herb fuel depths are low, indicating relatively little development of nontree vegetation that might serve as ladder fuels during a wildfire. Compared to western states, Maine's fire hazard is low. However, given the presence of fuels in all size classes and the large amounts of duff and standing timber across Maine, the fire hazard in Maine's forests could be great during extended periods of drought.

Courtesy of Maine Forest Service

CWD creates numerous ecological niches and serves as habitat for plants, animals, protists, bacteria, and fungi (Harmon and others 1986). Most of Maine's habitat type groups contain an appreciable amount of CWD that provides a diversity of habitat (Table 19). The spruce/fir and sugar maple/ash habitat types have the largest mean amount of CWD mass at more than 4 tons/acre. The cedar/black spruce and oak/white pine habitat types have the least amount of CWD mass at less than 2 tons/acre. In, Maine, one might expect low mortality of individual trees and subsequent CWD recruitment. The loadings of CWD appear adequate for maintaining habitat diversity across Maine. Most of the State's CWD pieces are dominated by small diameters (< 7.9 inches in transect diameter) (Fig. 48) in advanced stages of decay (decay classes 4 and 5) (Fig. 49). Generally, the most desirable CWD habitat needed to accommodate a diversity of species is represented by a diversity of tree sizes and decay classes. Only an estimated 11 percent of Maine's CWD was characterized as freshly fallen or within several years of recruitment (decay class 1 or 2).

With respect to stand-size class, the mean volume of CWD is greater in stands containing large- and medium-size trees (Fig. 50). It takes several decades of stand development and competition-induced tree mortality to recruit CWD. It is logical that stands with large trees would have more CWD volume than

Table 19.—Mean fuel loadings (tons/acre) and associated standard errors for habitat types, Maine, 2001-2002

Habitat type	No. plots	1 hr	SE	10 hr	SE	100 hr	SE	1,000 hr	SE	Duff	SE	Litter	SE	Shrub/herbs [a]	SE
Beech - red maple	19	0.47	0.11	0.94	0.33	1.92	0.45	2.33	0.39	31.02	4.23	1.22	0.22	0.79	0.27
Cedar - black spruce	5	0.18	0.06	0.40	0.07	1.30	0.40	1.49	0.79	75.74	17.05	0.33	0.13	1.30	0.66
Hemlock - red spruce	8	1.42	0.62	0.79	0.10	1.89	0.34	3.07	0.52	44.69	6.71	1.38	0.35	0.21	0.13
Oak - white pine	7	0.22	0.05	0.51	0.07	1.31	0.25	1.85	0.48	42.45	9.47	1.55	0.44	0.23	0.13
Spruce - fir	53	0.48	0.11	0.57	0.06	1.52	0.13	4.25	0.50	42.73	2.70	1.15	0.13	0.72	0.16
Sugar Maple - ash	13	0.30	0.08	0.41	0.12	1.51	0.58	4.18	1.40	30.41	4.45	1.25	0.30	1.01	0.33
All plots	105	0.50	0.08	0.62	0.07	1.59	0.13	3.51	0.33	40.79	2.16	1.18	0.09	0.72	0.11

[a] Feet.

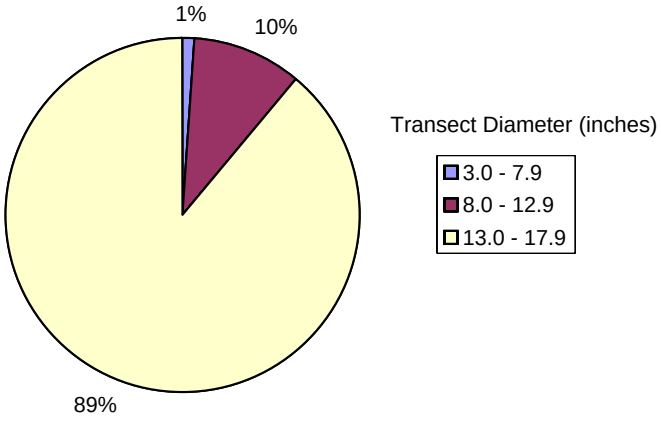


Figure 48.—Distribution of diameters of coarse woody debris, Maine, 2001-02.

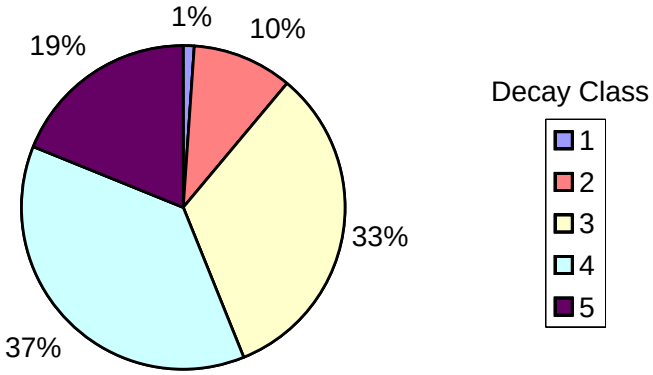


Figure 49.—Distribution of coarse woody debris by decay class, Maine, 2001-02.

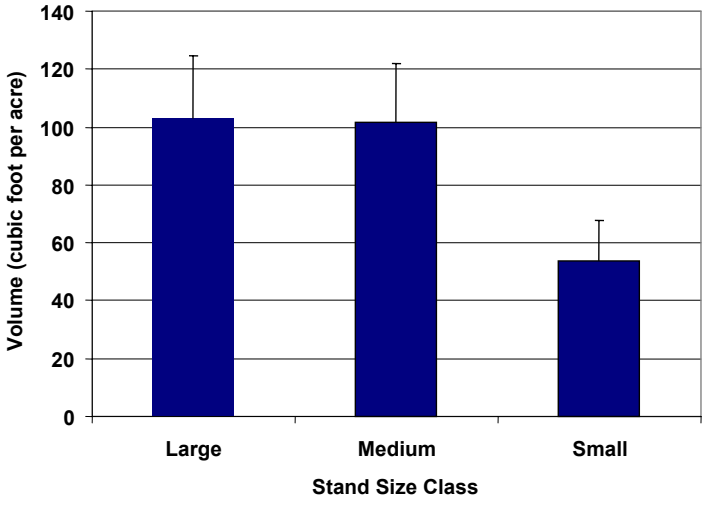


Figure 50.—Distribution of coarse woody debris volumes by stand size class, Maine, 2001-02.

those with smaller trees. The amount of small FWD was significantly greater in stands with small trees (Fig. 51). Because FWD is recruited through the development and death of fine tree-crown branches and saplings, it stands to reason that the ratio of fine branches to overall crown volume is greater in small trees. Therefore, a stand of small trees may have more FWD (1, 10, or 100 hour) than those with large and medium-size trees. The increase in FWD cannot be attributed solely to fine branch material.

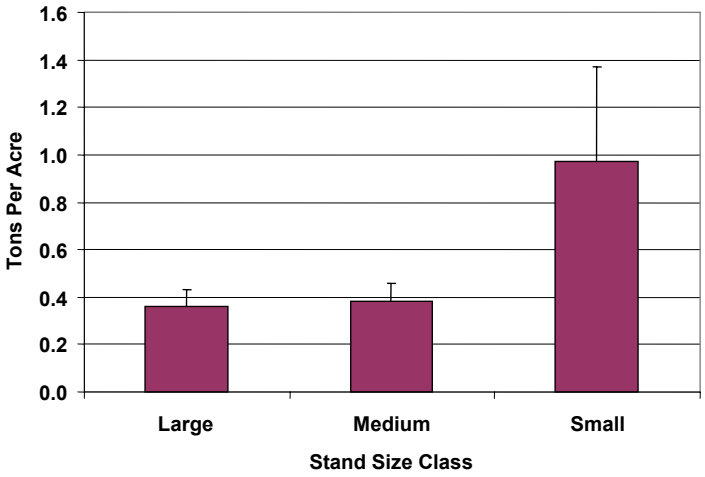


Figure 51.—Distribution of fine woody debris loadings by stand-size class, Maine, 2001-02.

The spatial distribution of DWM attributes can be examined in a cursory manner by spatial interpolation of individual plot values (Fig. 52). CWD levels were significantly lower in the southern half of Maine. The spatial distributions of duff and litter weights apparently are distributed randomly.

Distribution of Tree Species

Displaying the spatial distribution of forest attributes enhances our ability to address the "where" part of the overall challenge of looking at prospective future developments in species composition. The purpose of these distribution surfaces is to display the current spatial distribution of species across Maine's forested landscape.

Compositional patterns depend on a complex mix of factors. Broad geophysical and biophysical features are apparent; however, local site conditions and factors affecting trends in their composition are beyond these distributions; hence, the use of surfaces rather than "maps." Figure 53 shows species-distribution surfaces for select softwood and hardwood species using basal area of the species of interest as a percentage of total basal area per acre.

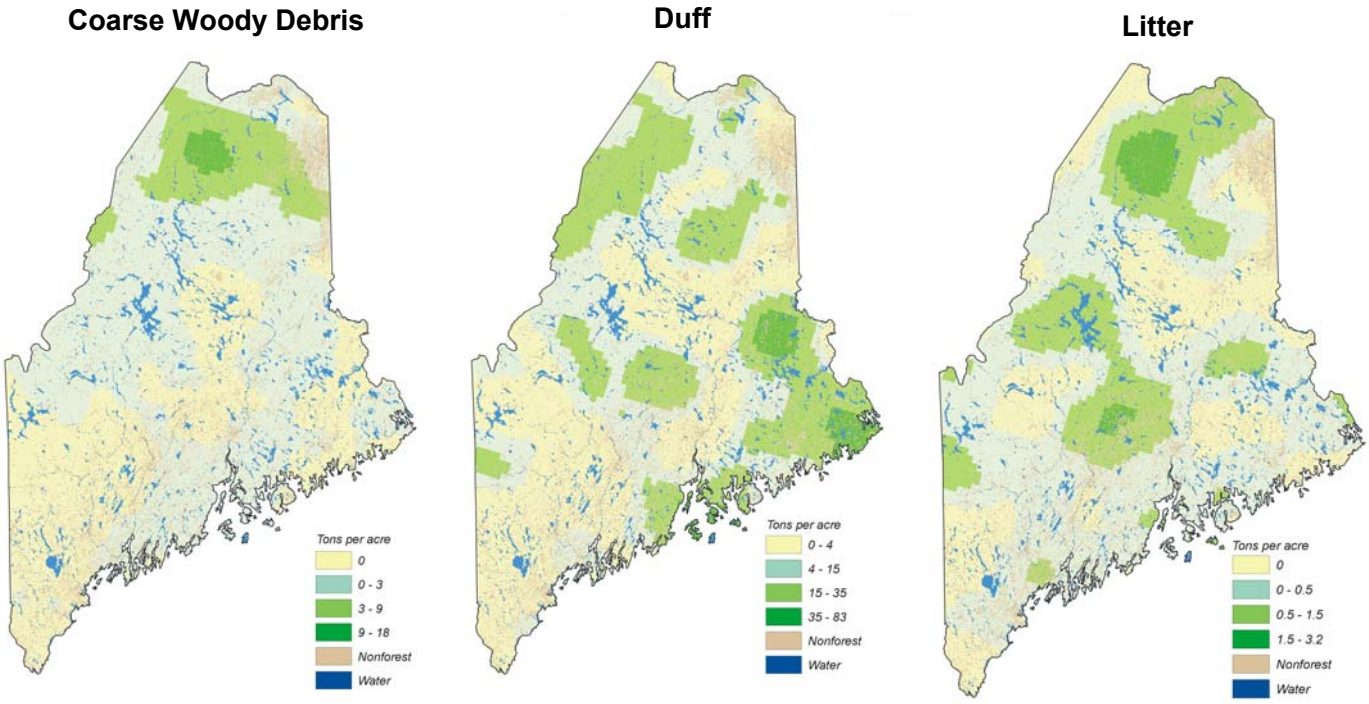
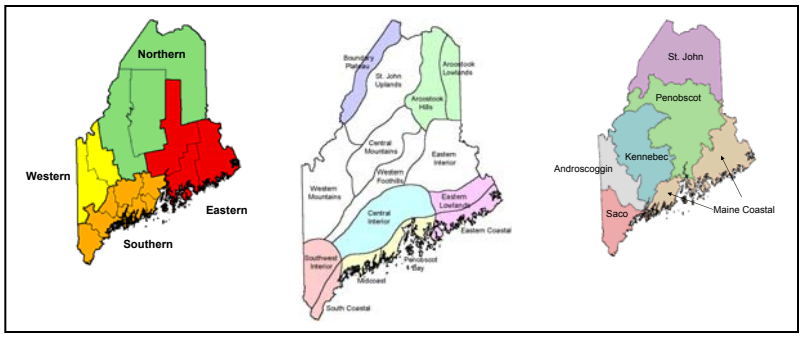
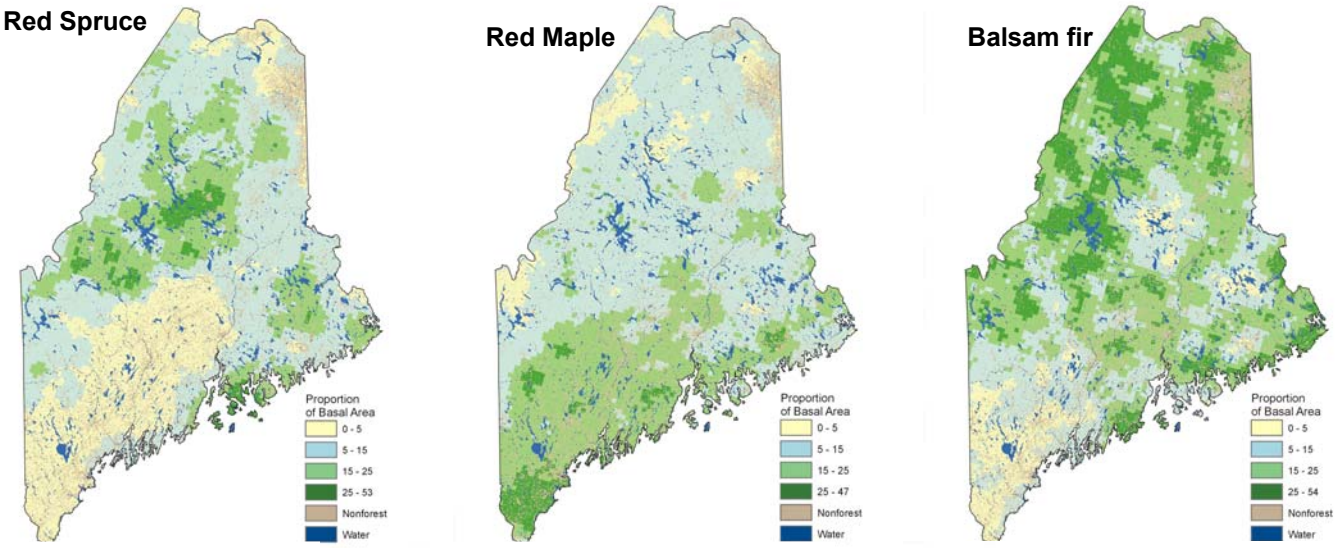


Figure 52.—Distribution of down woody material components, Maine, 2001-02.





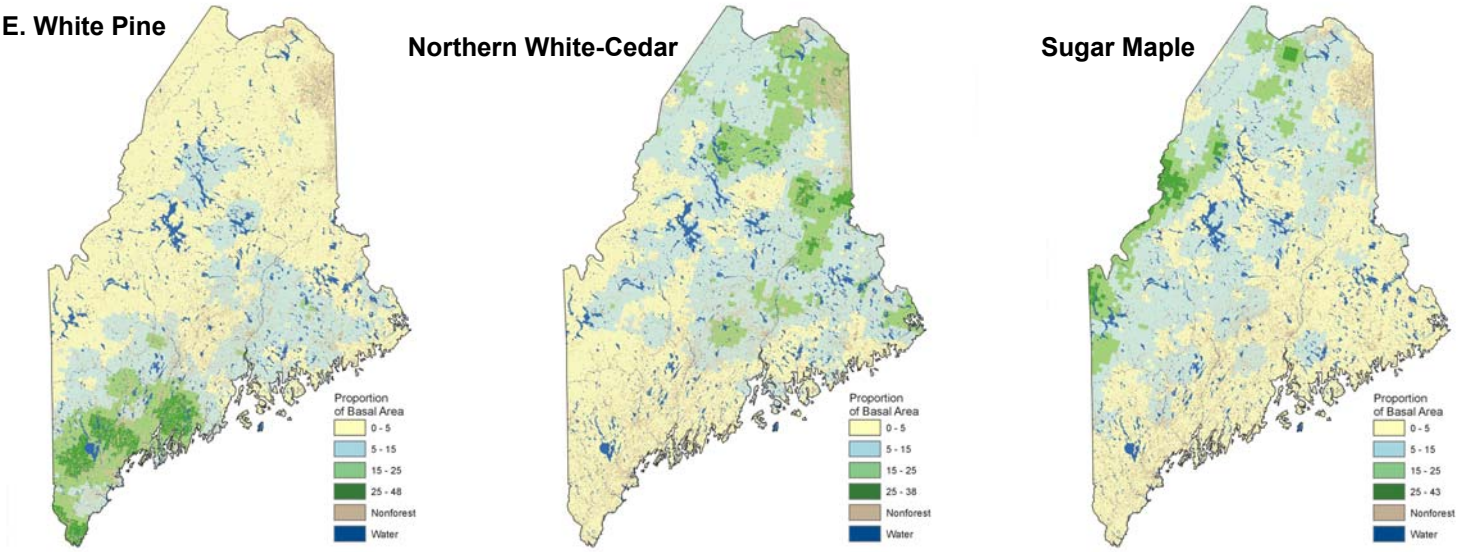
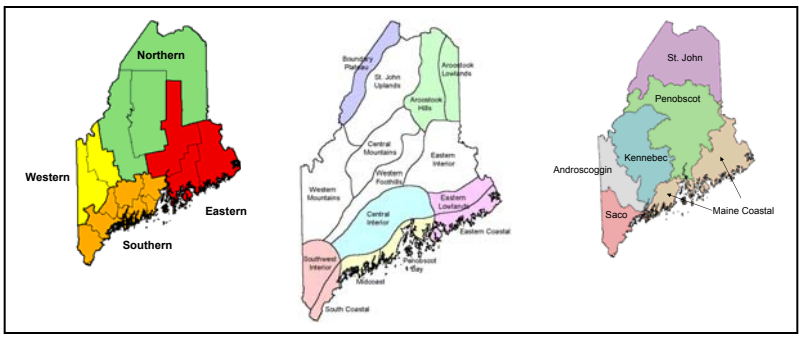


Figure 53.—Estimated basal-area proportion for selected species, Maine, 2003.



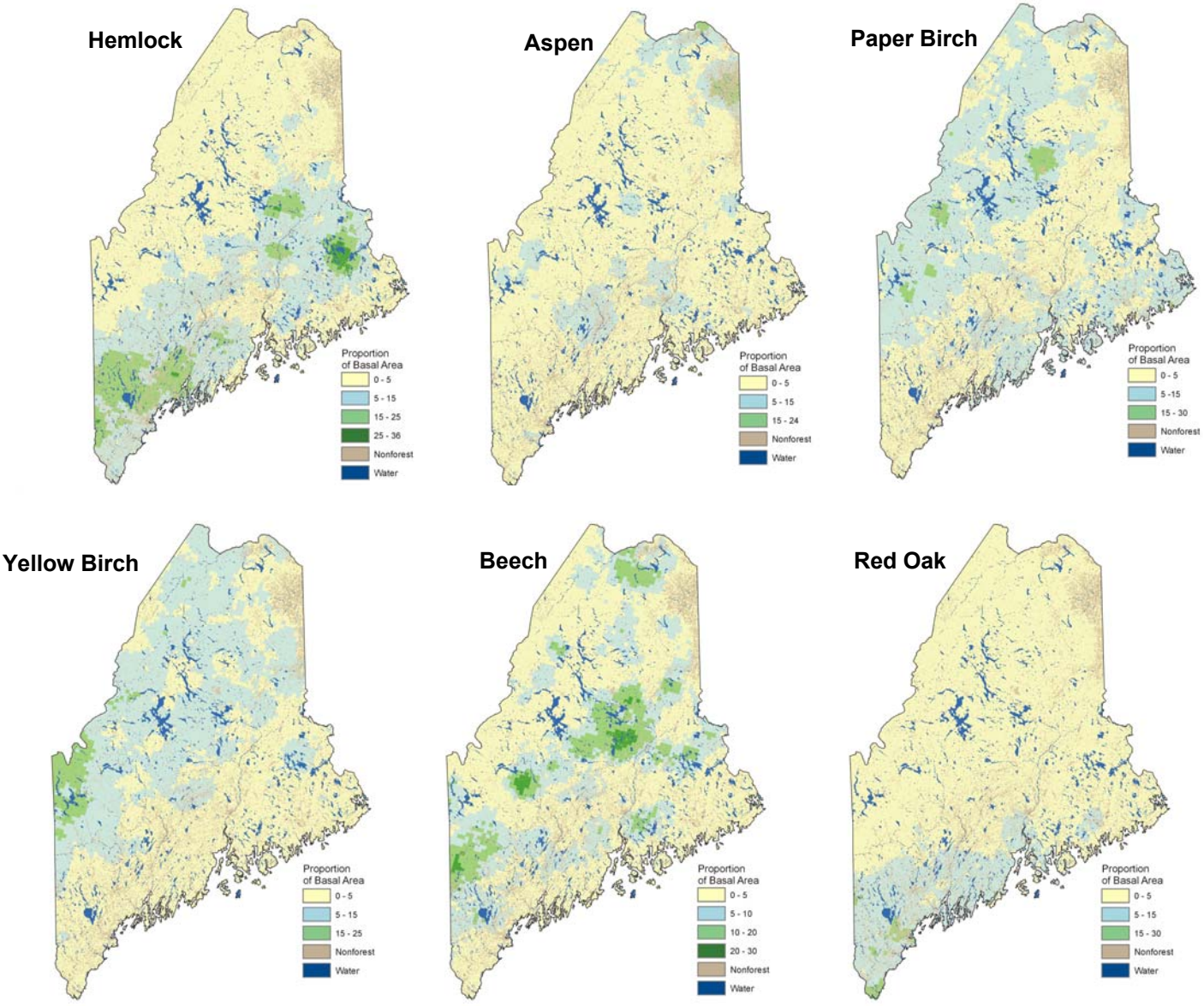


Figure 53 (continued).—Estimated basal-area proportion for selected species, Maine, 2003.

The concentration of red spruce in the Central and Western Mountains is evident, as is the abundance of this species in St. Johns Uplands, Aroostook Hills, and Eastern Lowlands. Red maple is scattered across Maine with the highest concentration in the Southwest interior and South Coastal Regions. Balsam fir is common from the Central Interior northward. Concentrations of fir are high in pockets to the north and west of Mount Katahdin. The association of eastern white pine with Coastal Maine is evident, as is the occurrence of this species in the Central, Southern, and Coastal regions. Northern white-cedar is common across the State and follows a predictable pattern through low-lying wet areas. Sugar maple is most common from the Interior regions northward. The distribution of eastern hemlock nearly mirrors that of sugar maple, with localized high concentrations in Washington County and in the southwestern portion of the State. Aspen is found mostly in central and northern Maine. Paper birch is prevalent in Mountain and other upland regions, particularly the higher elevation Central and Western Mountains. The distribution of yellow birch mimics sugar maple but with more diffuse occurrence. Beech is found throughout the State with patchy occurrence in Mountain regions. Northern red oak is most common in the warmer regions in the southwest.

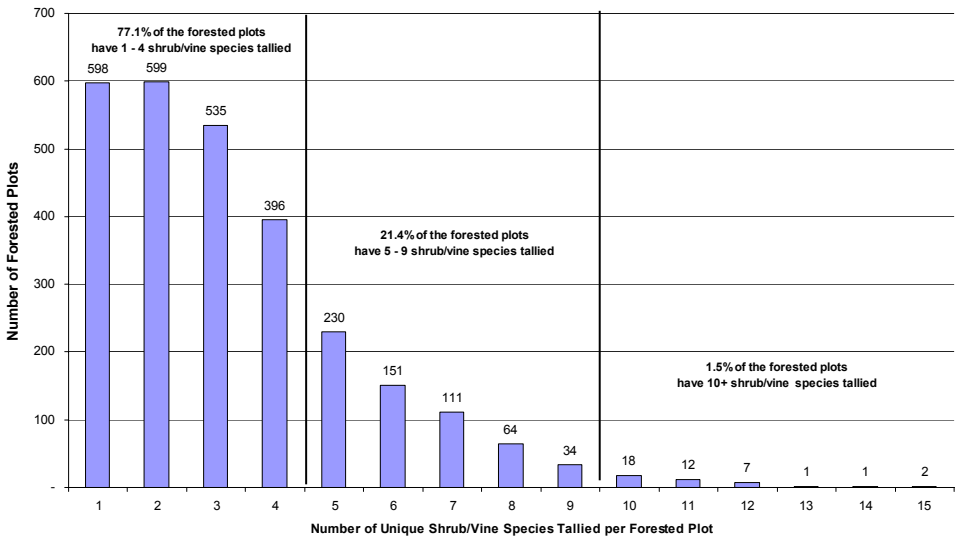


Figure 54.—Richness index for shrub and vine species (the number of forested plots from panels 1-5) and total count of unique species, Maine, 2003.

Shrubs and Vines

The FIA tally of shrubs and vines includes deciduous, evergreen, and dwarf shrubs, and vines; there are as many as 96 unique species or groupings of species. Shrubs and vines are tallied on a milacre plot concentric to the 1/300-acre microplot that is used to tally seedlings and saplings. For each condition class, as many as 99 individuals can be tallied for each species grouping.

In the 2003 inventory, 75 species groups were tallied in Maine; 87 percent of the forested plots had shrubs and vines of some nature. Of the 2,759 forested plots, deciduous shrubs occurred on 75 percent, dwarf shrubs were present on 56 percent, evergreen shrubs on 11 percent, and vines on 3 percent.

Figure 54 depicts only forested plots on which shrubs and vines were recorded and the frequency distribution of plots with unique species counts (species richness). Slightly more than 77 percent of the plots from the five panels had four or fewer shrub and vine species. Only 1.5 percent would be characterized as being high in diversity, i.e., 10 or more shrub and vine species.

The most frequently occurring shrub or vine species are the bunchberry dwarf shrub, found on more than half of the plots, Rhubus species (raspberry), tallied on 40 percent, and blueberry and twinflower (20 percent each) (Table 20).

Because of the nature of the FIA inventory, there is less opportunity for finding and recording species that occupy areas of diverse biotic edges or species that are classified as exotic/invasive. The frequency of species of concern, e.g. buckthorn, barberry, and honeysuckle, is relatively low in Maine.

Table 20.—Distribution of shrub and vine species on FIA sample plots, Maine, 2003

Species	Number of forested plots	Species	Number of forested plots
Bunchberry	1413	Pipsissewa	32
Rhubus species	1097	Chokeberry species	30
Blueberry	546	Rose species	28
Twinflower	544	Common Juniper	24
Beaked Hazelnut	506	Silky Dogwood	24
Teaberry	420	Swamp Laurel	22
Creeping Snowberry	388	Sweet Gale	22
Hobblebush Viburnum	377	Chokecherry species	19
Bush Honeysuckle	343	Buckthorn	18
Speckled Alder	321	Vine - Unknown	17
Spirea	252	Canada Yew	15
Withe-rod Viburnum	249	Gray-stemmed Dogwood	13
Sheep Laurel	243	Clamatic species	12
Currant/Gooseberry	216	Rhododendron	10
Partridgeberry	212	Evergreen Shrub - Unknown	10
Shrub Willow species	151	Grape species	9
Winterberry Holly	138	Staghorn Sumac	8
Mountain-holly	133	Dwarf Shrub - Unknown	8
Alder	130	Round-leaved Dogwood	7
Red-osier Dogwood	117	Mountain Laurel	7
American Elderberry	87	Highbush Cranberry	7
American Hazelnut	76	Bog Rosemary	5
Labrador Tea	76	Barberry	5
Witch Hazel	71	Hog Peanut	5
Arrowwood Viburnum	67	Smooth Sumac	4
Nannyberry	65	Vine Honeysuckle	3
Red-berried Elderberry	57	Bayberry	3
Leatherleaf	53	Virginia Creeper	3
Maple-leaved Viburnum	49	Hercules Club	2
Sweetfern	48	Buttonbush	2
Alternate-leaved Dogwood	42	American Bittersweet	2
Poison Ivy	40	Sweet Pepperbush	2
Huckleberry	39	Male-Berry	2
Deciduous Shrub - Unknown	37	American Bladdernut	2
Azalea (deciduous)	35	Striped Pipsissewa	1
Cranberry	33	Large Leaf Holly	1
Vimurnum species	33	Common Prickly-Ash	1

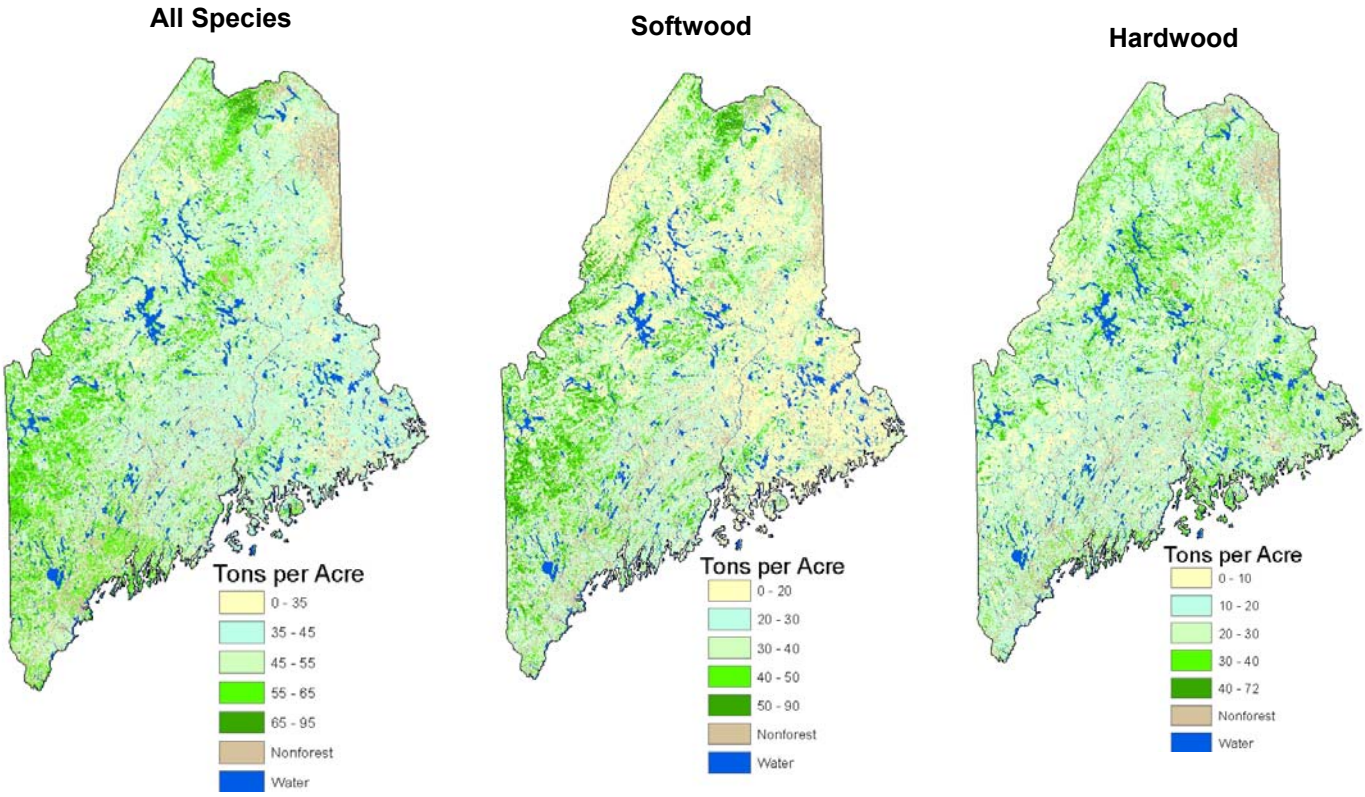


Figure 55.—Distribution of aboveground tree biomass by species group, Maine, 2003.

Biomass

Biomass provides the most inclusive accounting of tree-fiber resources from Maine's forest. Biomass information can be used to address a host of issues, e.g., residue availability, which could be captured as part of current harvesting practices and be reasonably transported, processed, and utilized for new products or as alternative fuels and energy sources. FIA partitions the biomass of growing-stock trees into four major components: growing stock (the traditional bole portion), branches, foliage, and stumps and roots (Appendix Tables A41, A44, and A45). An inclusive estimate for FIA rough and rotten trees is included. The bole portion comprises the bulk of total biomass. The total from this table (total timber) is carried forward to biomass summary tables that also include saplings, dead trees, and shrubs (Appendix Tables A40, A42, and A43).

The current total biomass estimate on timberland is 980 million dry tons, a 13-percent increase since 1995 (Wharton and Griffith 1995). Probability surfaces for softwood, hardwood, and total aboveground biomass are shown in Figure 55.

The sapling-component estimate reflects a 22-percent increase followed by the timber component (+11 percent). These increased estimates complement increases in volume discussed elsewhere.

Estimates of overall change in biomass reflect the effects of land-use change, harvesting, and regrowth. Figure 56 shows changes in biomass per acre by town between 1991 and 2000. The classification of forest land is based on the ability of Landsat Thematic Mapper imagery to detect change. Little of Maine's forest land has changed in terms of biomass. The yellow areas show where biomass is increasing due to increases in forest-land area or regrowth. By far, most of the yellow areas represent regrowth as they occur in areas with little increase of forest land, mainly in the unorganized regions in the northern half of Maine. The red areas depict where forest land is being lost, harvesting has occurred, or some other factor is reducing biomass per acre. Most of the red areas are in the southern half of the State.

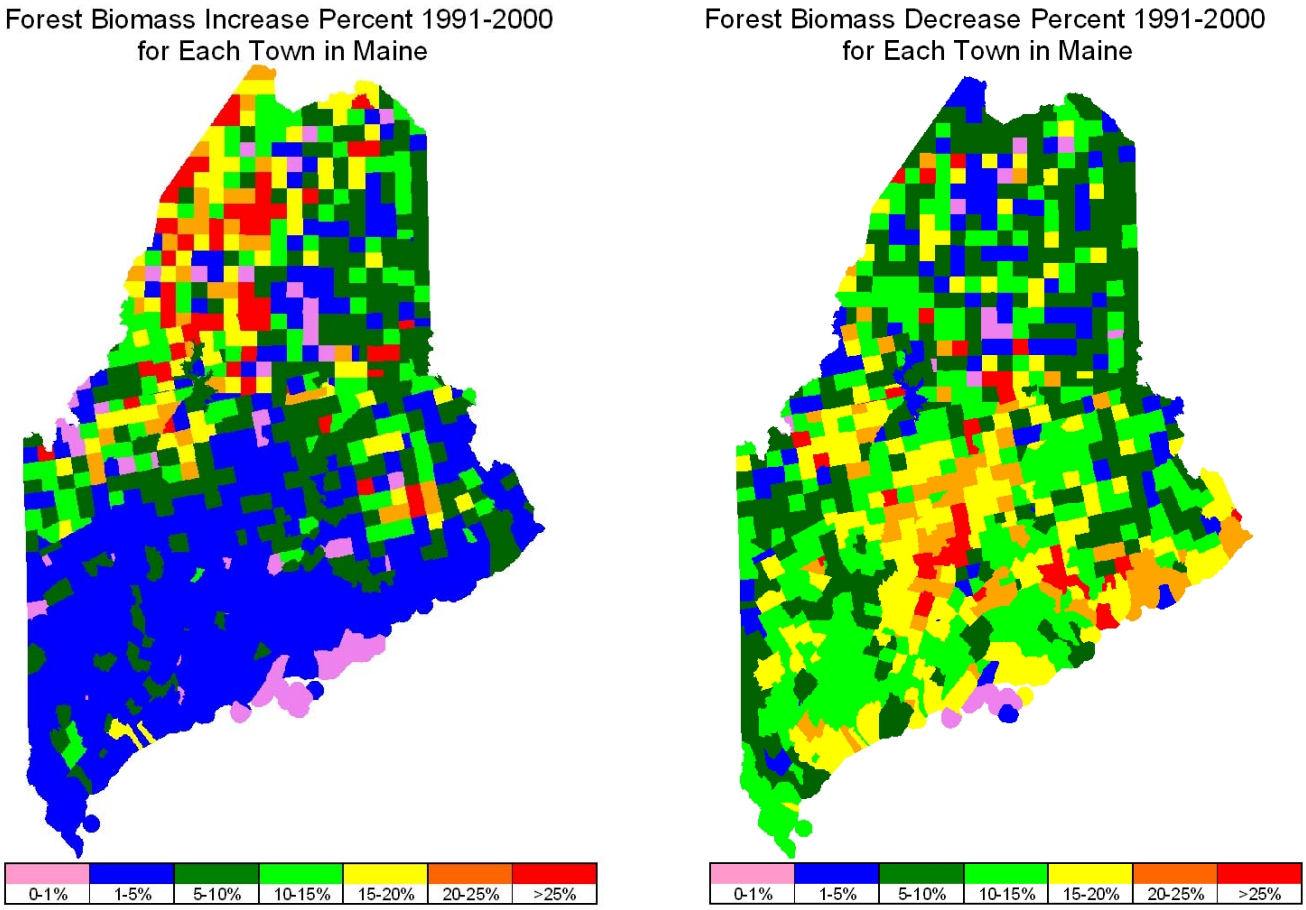


Figure 56.—Percent change in forest biomass by town, Maine, 1991 to 2000.

Inventory Volume

During the analysis of the new annual inventory data and results, it became apparent that the 1995 tree volumes needed to be reviewed due to discrepancies in measured tree bole and sawlog lengths. A new model for estimating tree height was developed and implemented for this report (Westfall and Laustsen, in press). As shown in Figure 58, the new estimates of 1982 and 1995 growing-stock volume correlate well with trends in basal area--an indication that tree heights are now in line.

There are a number of options for discussing inventory volume (see Appendix Tables A17, B11, and C11). The following summarizes the distribution of volume (million ft^3) for trees at least 5.0 inches d.b.h. on timberland by tree class for the three most recent inventories:

Tree Class	1982	1995	2003
Sawtimber	12,348.6	11,840.8	12,616.8
Poletimber	11,760.5	10,145.4	9,796.7
Total growing stock	24,109.1	21,986.2	22,413.4
Rough	1,941.7	880.4	1,132.9
Rotten	898.3	311.5	223.2
Total cull	2,840.0	1,191.9	1,356.1
Volume of live trees	26,949.1	23,178.1	23,769.4
Salvable dead	535.7	409.5	449.7
Volume of all trees	27,484.8	23,587.6	24,219.2

Forest Carbon

Estimates of forest carbon are derived from biomass estimates and reflect carbon dioxide (CO_2) fluxes in greenhouse-gas accounting. In 2003, Maine enacted legislation that requires the Department of Environmental Protection, Bureau of Air Quality, to produce a statewide Greenhouse Gas (GHG) emission inventory annually.

The Environmental Protection Agency, through its contractor and with input from the USDA Forest Service, developed a spreadsheet program to assist individual states in compiling GHG inventories. The program includes default inventory data, with an option for users to input their own data to improve prediction accuracy. Maine's 1995 FIA inventory was used to estimate forested conditions for the 2000 ending base year. It was estimated that the Land Use Change and Forestry (LUCF) account provided 15 percent of the CO_2 emissions (Fig. 57). The magnitude and direction (emission vs. sequestration) did not agree with recent annual inventory reports by MFS that estimated that forest land and biomass increased from 1995 to 2002 (Laustsen and others 2003).

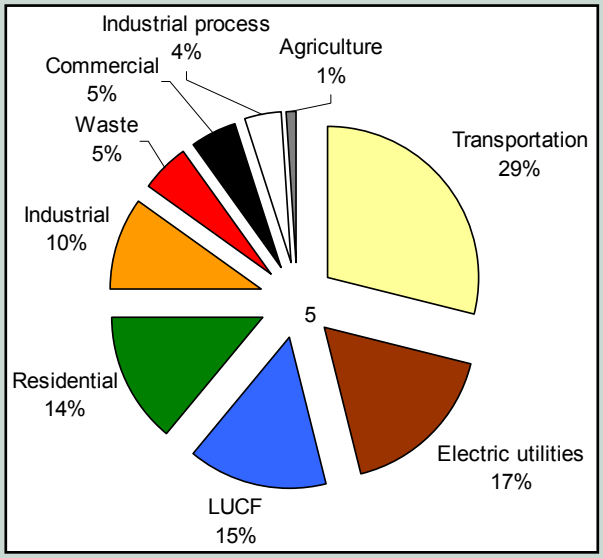


Figure 57.—Estimates of carbon dioxide emissions, Maine, 2000.

Additional investigation determined that the carbon component of soils represented nearly 60 percent of predicted emissions in the total forest carbon flux. For the initial base estimate, the 1990 Forest Carbon Flux uses revised estimates of Maine's 1982 FIA periodic inventory as reported in the 1987 Resource Planning Act Assessment (RPA). The ending base estimates a 2000 Forest Carbon Flux using Maine's 1995 periodic inventory as reported in the 1997 RPA. The inconsistent treatment and updating of the base estimates was further compounded with additional changes in classification techniques, sampling design, and the FORCARB models.

After these improvements and land-use change information were incorporated, it was found that the GHG accounting and inventory estimated that the LUCF account became a minor sequestration source from 1990 to 2000. The challenge is how forest management can improve the ability of Maine's expansive forest resource to become a larger and more effective sink for carbon.

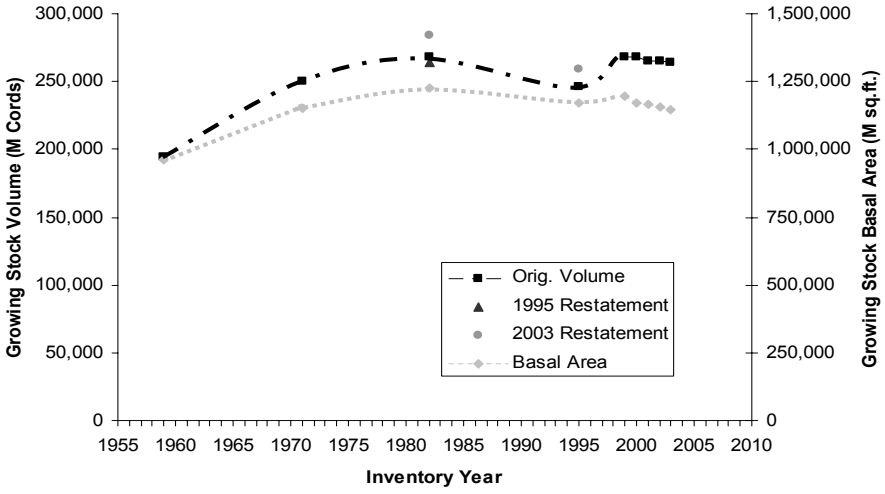


Figure 58.—Growing-stock volume and basal area on timberland, Maine, 1959, 1971, 1982, 1995, 2002 (on the y-axis, 5 square feet of basal area equals 1 cord of wood).

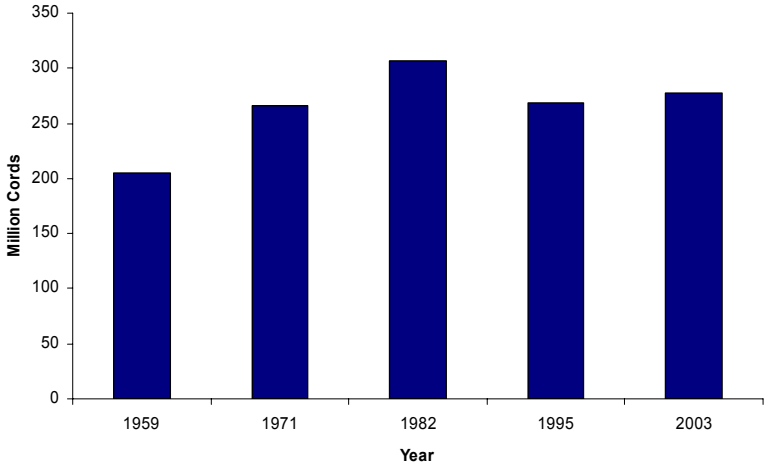


Figure 59.—Volume of pulpwood quality or better trees on timberland, Maine, 1959, 1971, 1982, 1995, 2003.

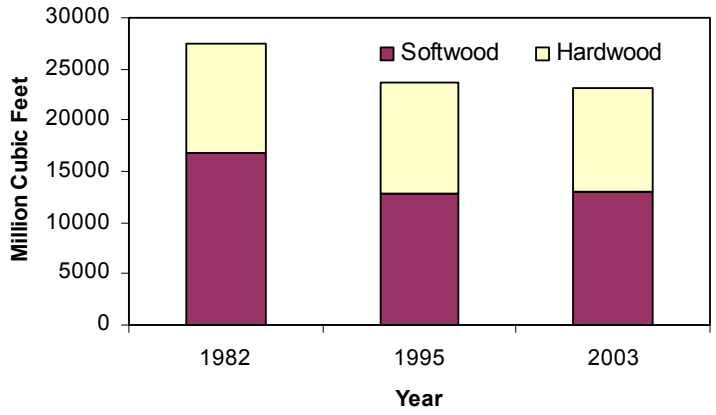


Figure 60.—Volume of live trees on forest land by inventory year, Maine, 1982, 1995, 2003.

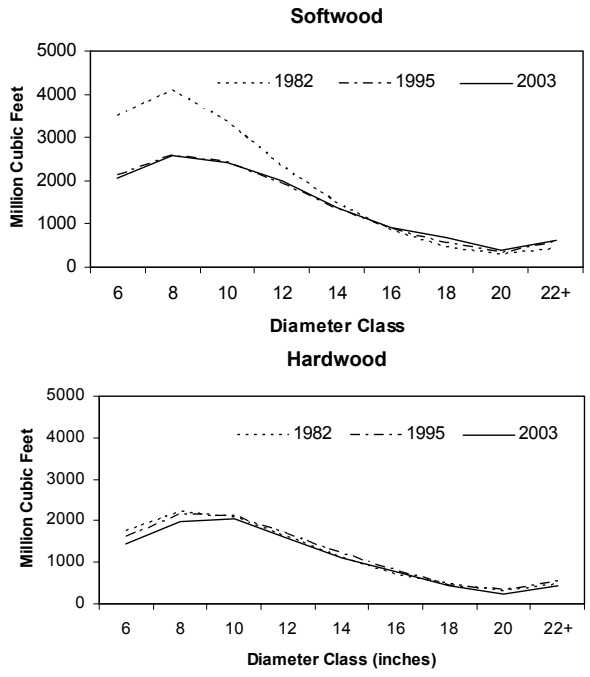


Figure 61.—Volume of live trees on forest land by diameter class and inventory year, Maine, 1982, 1995, 2003.

The most traditional measure is growing-stock volume on timberland, which represents the net merchantable volume of the central stem of trees at least 5 inches d.b.h. on acres that are productive, accessible, and not reserved from harvesting (forest land also includes nonproductive areas). Growing-stock volume currently totals 22.4 million ft^3, of which 56 percent is softwood and 44 percent is hardwood. Growing-stock volume excludes the volume of rough and rotten trees. In Maine, the volume of pulpwood quality or better trees on timberland often is discussed because it includes trees that are useable as pulpwood (growing-stock and rough trees, but not rotten trees). The long-term trend in pulpwood or better inventory volume is depicted in Figure 59. The volume of pulpwood or better trees reached a peak that was apparent in the 1982 inventory. Total volume then decreased by 12 percent following the SBE. The pulpwood quality volume was stable between 1995 and 2003.

The most inclusive estimates of volume include growing-stock, and rough and rotten trees, or the volume of live trees on forest land. Recent trends in the volume of live trees parallel those for pulpwood-quality trees (Fig. 60). Again, the most striking change in volume occurred between the 1982 and 1995 inventories. It is clear that although hardwood volume decreased slightly, the drop in total live inventory resulted primarily from the decrease in softwood volume as a result of spruce budworm mortality and related salvage-harvest activities. The latter decrease resulted from major reductions in volume in the 6- to 12-inch diameter classes (Fig. 61) for softwoods, particularly red spruce and balsam fir. As expected, most of the decrease was in the Northern megaregion (Fig. 62). This decrease in volume has been at the center of discussions about the future of Maine's next-generation forest.

The 2003 estimates indicate that the total inventory of live trees on forest land has increased

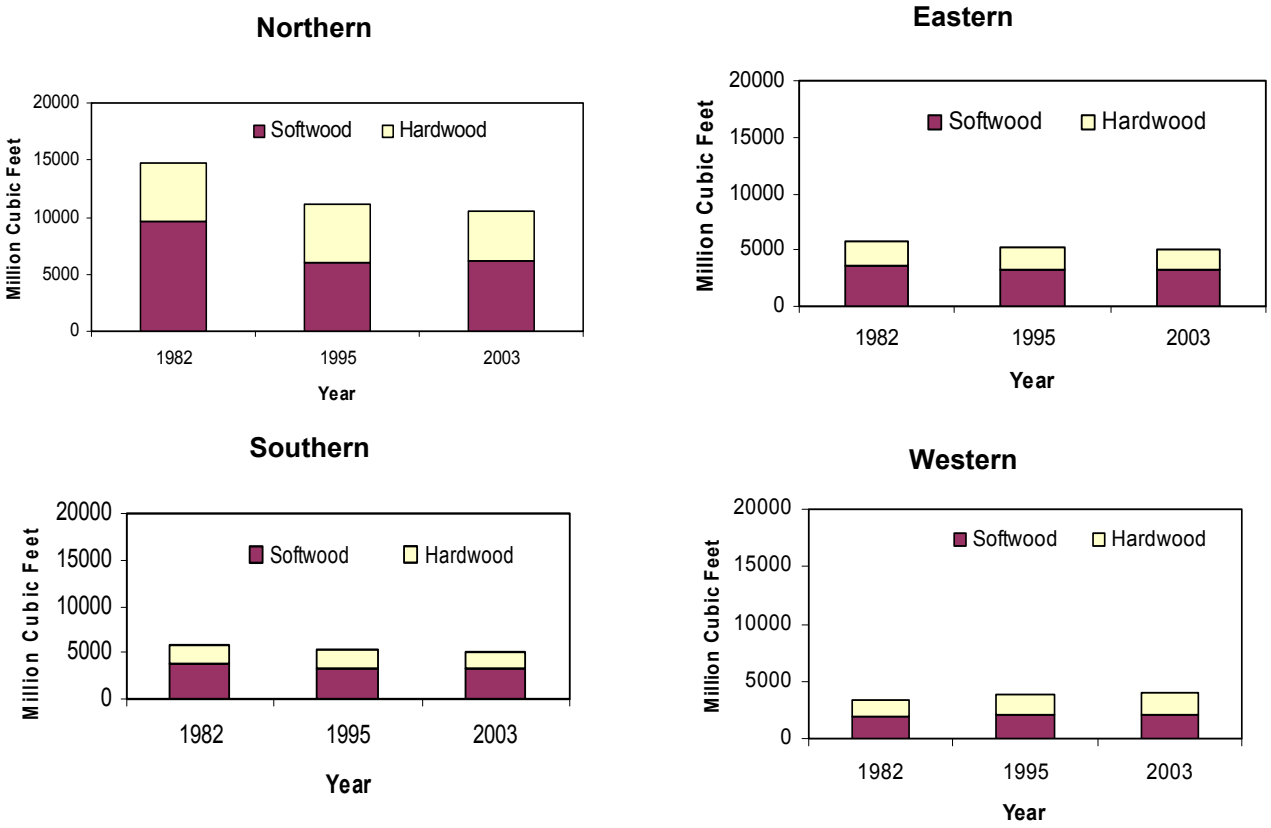


Figure 62.—Volume of live trees on forest land by megaregion and inventory year, Maine, 1982, 1995, 2003.

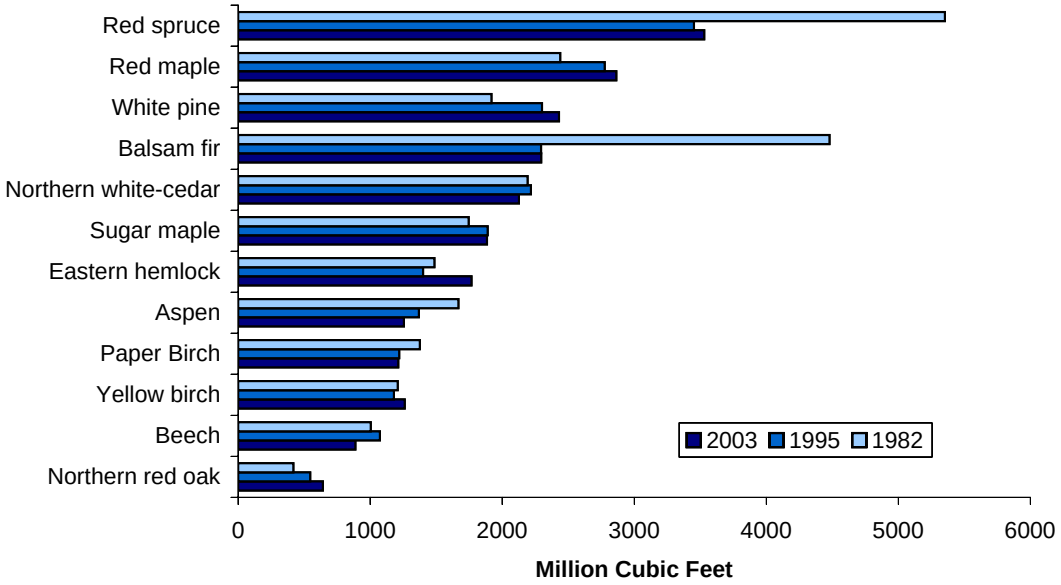


Figure 63.—Volume of live trees on forest land by inventory year for selected species, Maine, 1982, 1995, 2003.

by 3 percent since 1995. Figure 63 shows trends in volume for selected species in Maine. Although many species did not change appreciably, there are signs that conditions have improved over the last 8 years. Trends for red spruce and balsam fir are prime indicators. Between the 1982 and 1995 inventories, the volume of these two species decreased by 49 and 35 percent, respectively. The bulk of these decreases occurred in the 6- to 12-

inch diameter classes (Fig. 64). The 2003 results show little change in balsam fir volume and a slight increase in red spruce volume—a sign that Maine's forests are stable. American beech experienced a recent volume decrease of 17 percent. This occurred across a wide range of diameters following an expansion in the volume of 6- to 10-inch trees between 1982 and 1995 (Fig. 65). Other species with significant decreases are northern white-cedar (-4 percent) and aspen (-8 percent). Species with notable positive gains are hemlock (26 percent) and northern red oak (18 percent).

Sawtimber Volume

The volume of sawtimber on timberland represents that portion of the resource capable of being used as traditional veneer logs, sawlogs, bolts, and other sawn products. Sawtimber volume includes the merchantable board-foot volume of the central stem for trees 9 and 11 d.b.h. for softwoods and hardwoods, respectively, that are of sufficient quality to be considered sawtimber. The upper limits of merchantability are 7 and 9 inches top diameter outside bark, respectively. The 2003 results show that the overall sawtimber volume has changed little over the last 2 decades (Fig. 66). Hardwood sawtimber increased slightly between 1995 and 2003, but at a slower rate than between 1982 and 1995. Changes in sawtimber volume by megaregion were minor (Fig. 67).

The results revealed differences in trends for individual species (Fig 68). On the positive side, paper birch has increased by 14 percent since 1995 following a slight decrease between 1982 and 1995. Red oak sawtimber has expanded by 25 percent since 1995, but at a slower rate of increase than the 59-percent increase between 1982 and 1995. White spruce and hemlock sawtimber increased steadily over both periods.

On the negative side, sugar maple decreased by 6 percent between 1995 and 2003, a significant reversal of a previous 34-percent increase in sawtimber volume. White pine sawtimber decreased by 3 percent following an increase of 46 percent between 1982 and 1995. Northern white-cedar also experienced the reversal of a positive trend that was evident 1982 and 1995. Both red spruce and balsam fir had minor decreases in sawtimber inventory, though these decreases were minor compared to previous decreases of 26 and 46 percent, respectively.

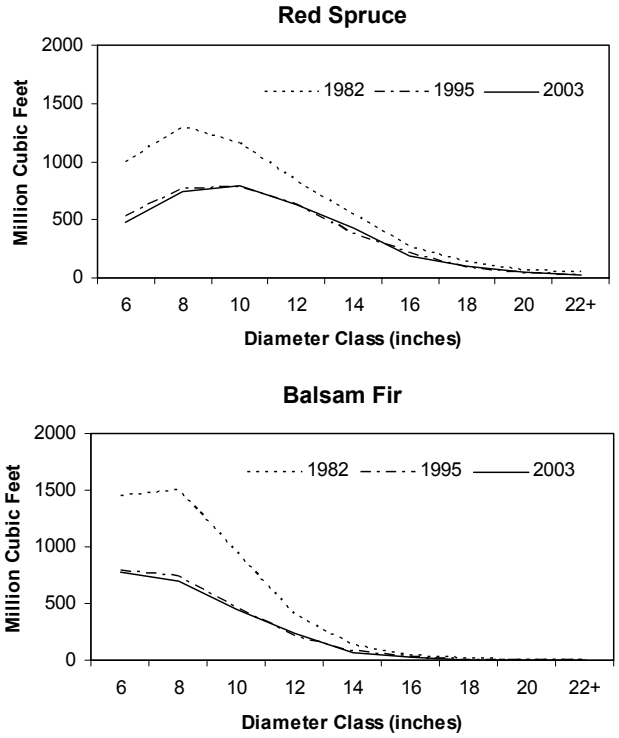


Figure 64.—Volume of live red spruce and balsam fir trees on forest land, by diameter class and inventory year, Maine, 1982, 1995, 2003.

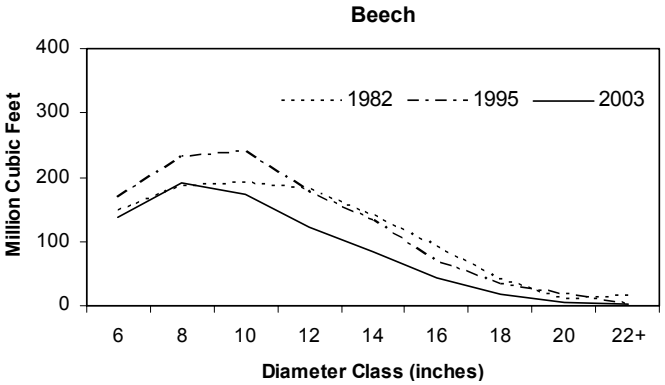


Figure 65.—Volume of live beech trees on forest land, by diameter class and inventory year, Maine, 1982, 1995, 2003.

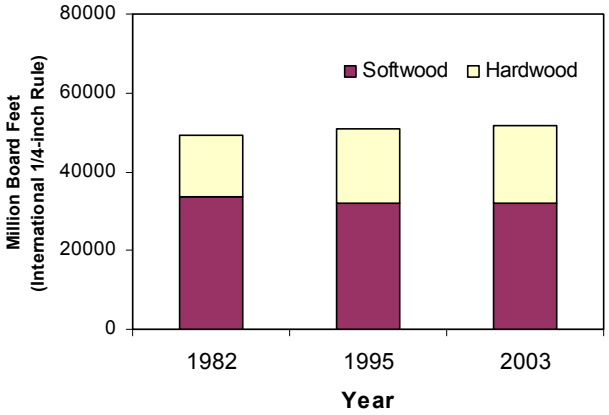


Figure 66.—Volume of sawtimber on timberland by inventory year, Maine, 1982, 1995, 2003.

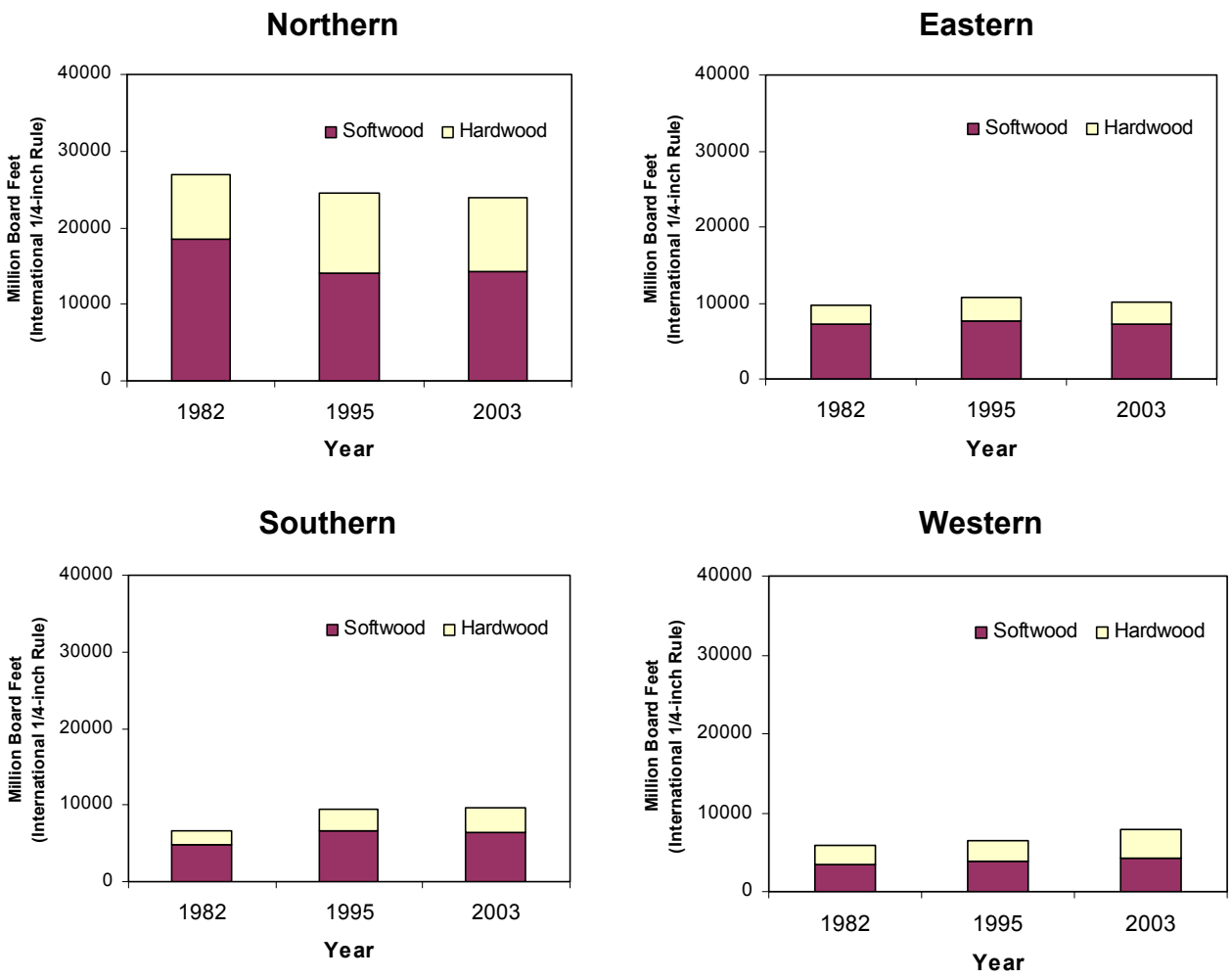


Figure 67.—Volume of sawtimber on timberland by megaregion and inventory year, Maine, 1982, 1995, 2003.

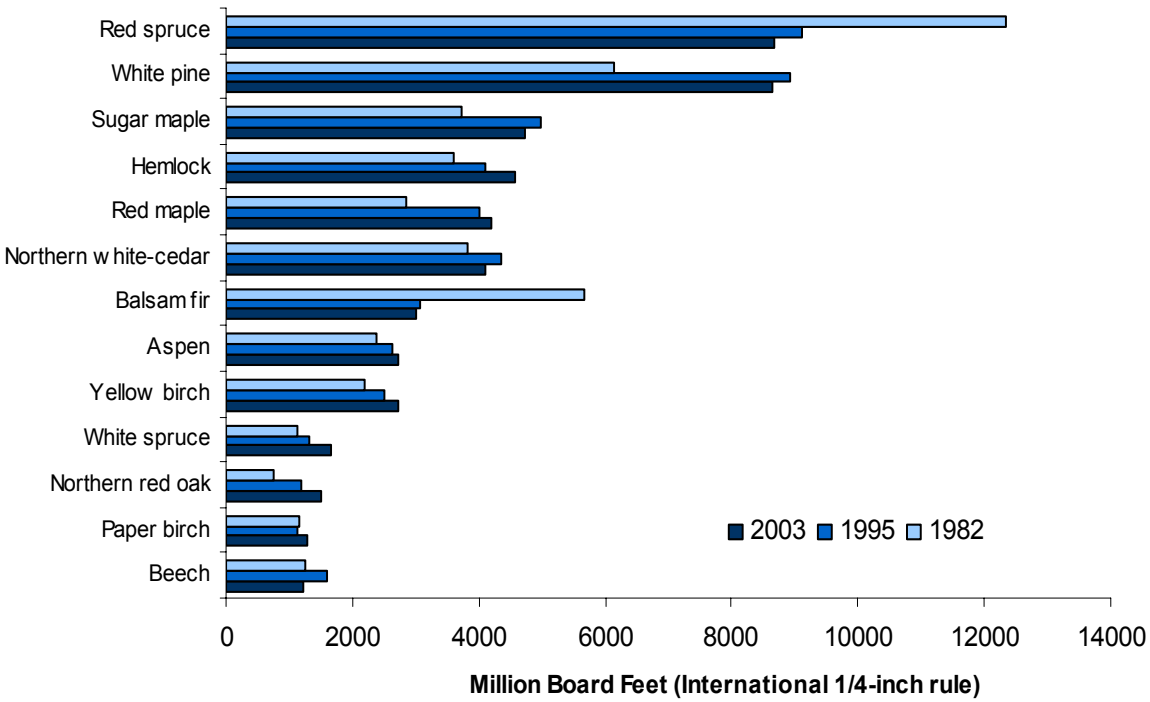


Figure 68.—Volume of sawtimber on timberland by inventory year and diameter class, Maine, 1982, 1995, 2003.

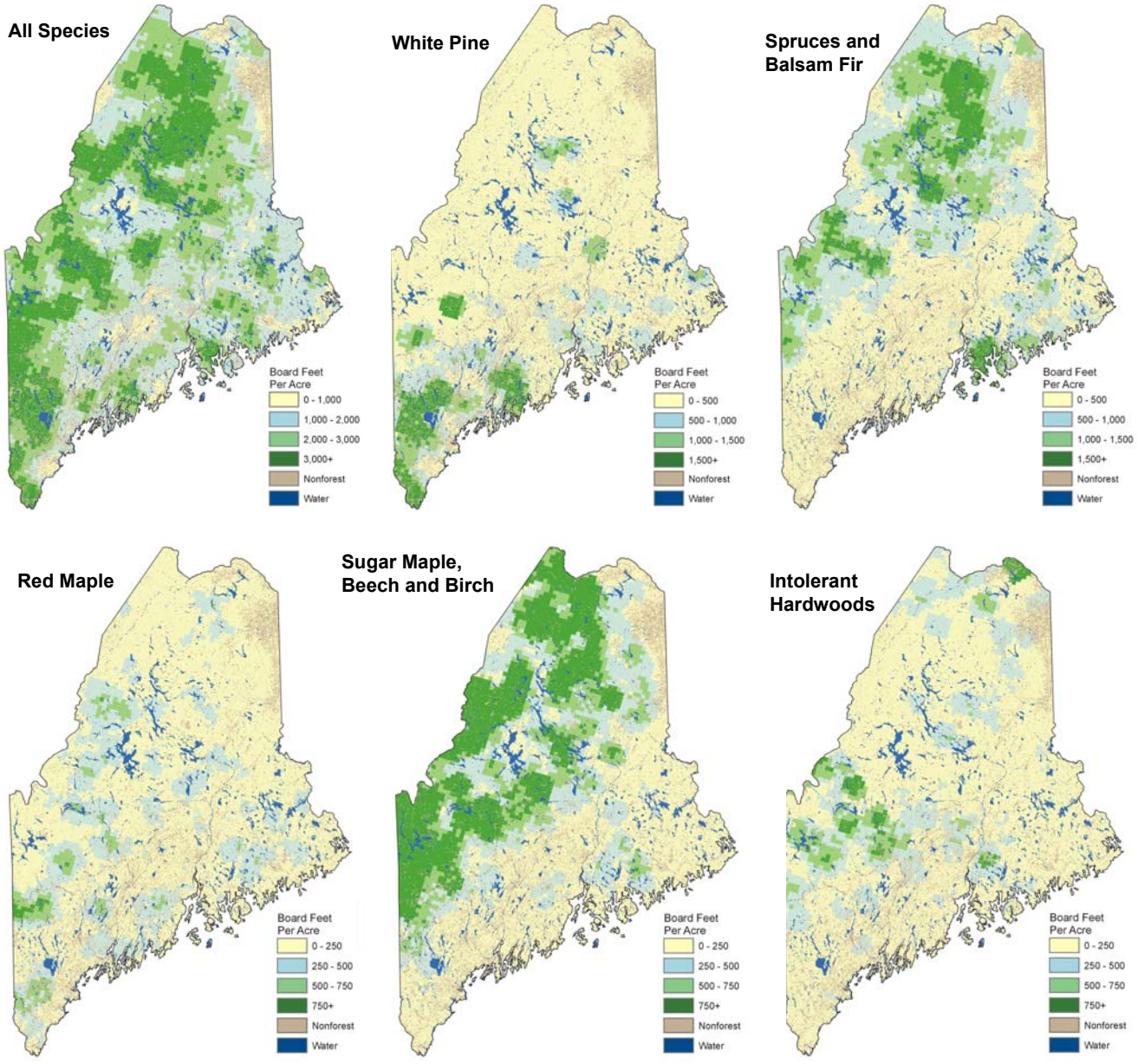


Figure 69.—Distribution of sawtimber volume for selected species, Maine, 2003.

Figure 69 depicts the current distribution of sawtimber volume on a per-acre basis for select species and all species combined. Sawtimber volume is well distributed across Maine but is more common in the Western and Northern megaregions. White pine sawtimber is located primarily in the Southern megaregion. The sawtimber volume of spruce and fir is concentrated heavily in the Western and Northern megaregions, as well as the Downeast area. Red maple is common across Maine but is less common above a latitude of 45 degrees N. Sugar maple, beech, and birch are most abundant in the Western and Northern megaregions. Intolerant hardwoods are most prevalent in a band extending from Oxford County westward to Hancock County, and are scattered in the Northern megaregion.

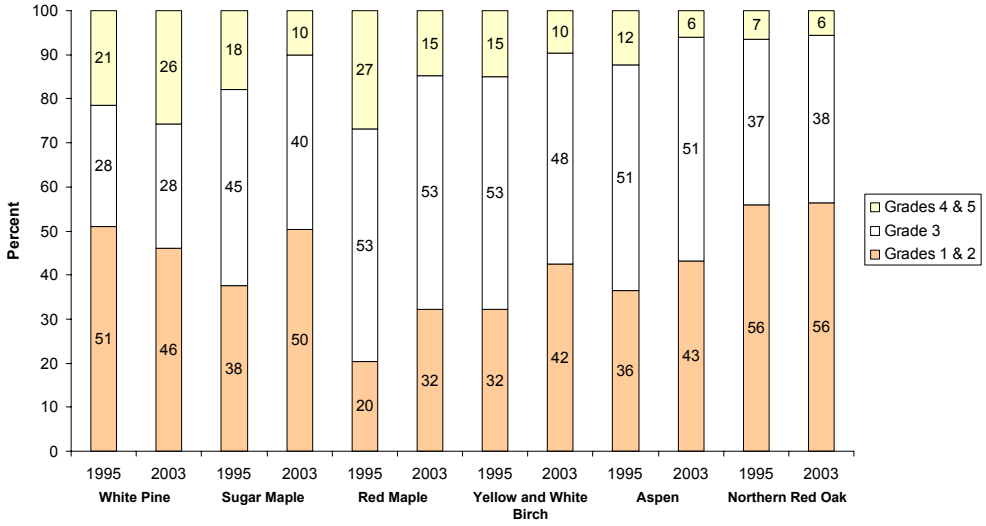


Figure 70.—Percentage of sawtimber volume on timberland by tree grade for white pine and major hardwood species, Maine, 1995 and 2003.

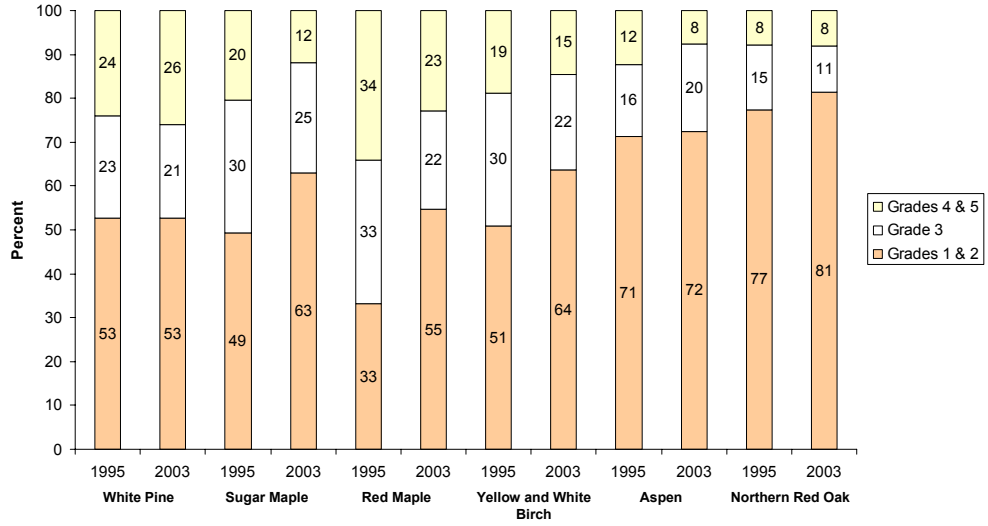


Figure 71.—Percentage of sawtimber volume on timberland by tree grade for white pine and major hardwood species with a minimum diameter of 15.0 inches, Maine, 1995 and 2003.

The distribution of sawtimber volume by tree grade provides an estimate of the relative quality of species in Maine and potential sawtimber products, especially hardwoods and white pine. Trees of sawtimber size are assigned a tree grade based on the quality characteristics of the first 16-foot section of the bole. Factors affecting the grade assignment are minimum diameter, length of clear cuttings, and other form and cull defects. The board-foot volume of each tree is ascribed to the tree grade and summed to provide the distribution. Minimum diameter is a critical variable in determining tree grade. For example, to be considered for grade 1, the minimum diameter of the graded section is 16.0 inches. Typically, sawmills prefer tree grades one and two for the more desirable lumber products (premium and better for pine; firsts and seconds for hardwoods). Tree grade three is less desirable and the other grade material often is used for products such as pallets, which do not require long sections of clear wood.

The distribution of sawtimber volume by tree grade for all trees for the two most recent inventories shows improvement for sugar maple, red maple, yellow and white birch, and aspen (Fig. 70). The improvement is apparent by the increase in the percentage of grade 1 and 2 material. White pine quality decreased and northern red oak showed little change; however, the distribution is heavily influenced by tree size. When only trees at least 15.0 inches d.b.h. are considered, white pine shows little change and northern red oak shows some improvement (Fig. 71). The reason is that trees with high quality potential are classified as lower grades until they reach the minimum threshold for tree grade 2.

Wood Availability

A complete analysis of wood availability in Maine is beyond the scope of this report. However, a discussion of key concepts that underlie actual wood availability should help clarify current conditions and aid in future studies. Wood availability is dependant on complex interactions among physical, economic, and social constraints. For example, most of the white pine sawtimber is in the southwestern part of the State. Other physical constraints include factors such as slope, distance to a road, and product volume per acre. Figure 72 shows how the inventory of growing-stock volume on timberland is distributed by volume-per-acre class. About one-fourth of timberland has less than 500 ft^3 (less than 6 cords) per acre, though this acreage accounts for only 4 percent of the inventory volume. About half of the volume is in stands with at least 2,000 ft^3 (more than 23 cords) per acre, but this volume occurs on less than one-fourth of the timberland. As such, the inventory for stands with enough volume per acre to make harvest feasible is more limited than the total inventory statistics would imply. This phenomenon is most prominent for the forest-industry owner group (Fig. 73). Conditions are similar for the volume of sawtimber (Figs. 74-75).

Ownership objectives play a strong role in wood availability. As mentioned earlier, the primary reason for holding forest land cited by Maine's family/individual owners are aesthetics, privacy, and family legacy. Add to these factors the relationship between timber supply and demand and it is obvious that wood availability is less than simple inventory metrics imply. Efforts are needed to develop an integrated approach for predicting future wood supplies, as was done by Gadzik and others (1998) and Seymour and Lemin (1989). There is an opportunity to add economic and ecological indicators to the mix of projected parameters (Turner and Caldwell 2001).

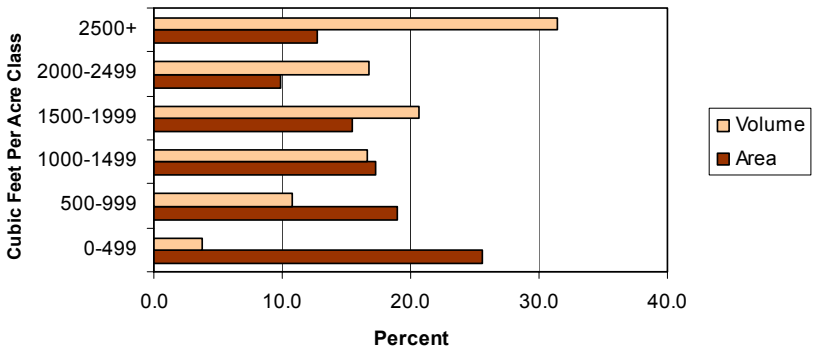


Figure 72.—Area of timberland and growing-stock volume by volume class, Maine, 2003.

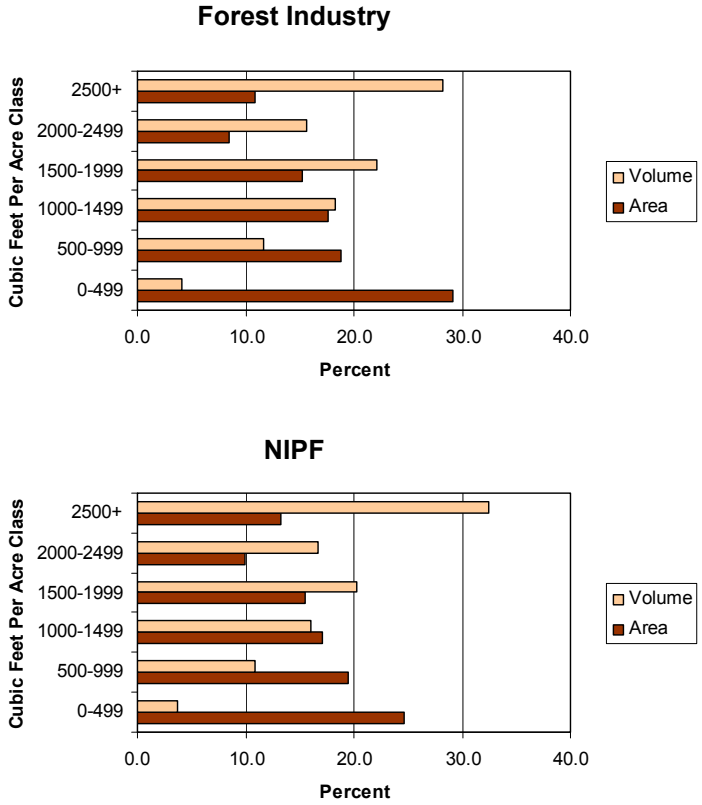


Figure 73.—Area of timberland and growing-stock volume by volume class and private owner class, Maine, 2003.

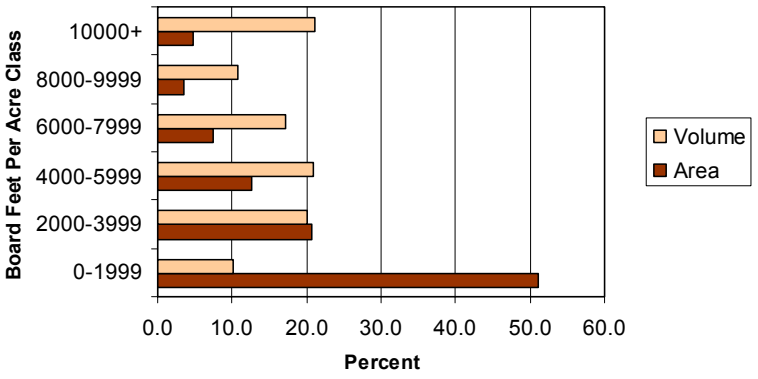


Figure 74.—Area of timberland and sawtimber volume by stand volume class, Maine, 2003.

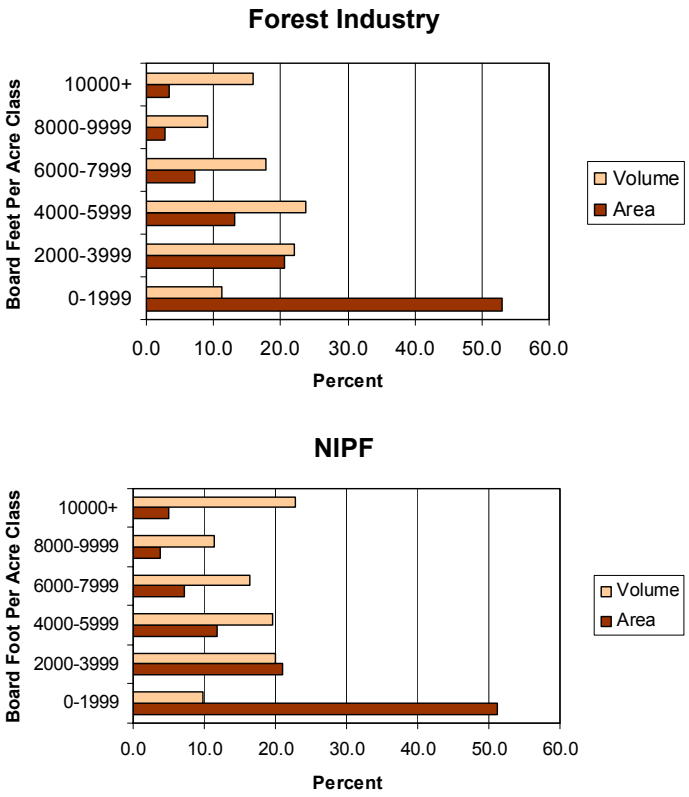


Figure 75.—Area of timberland and sawtimber volume by stand volume class and private owner class, Maine, 2003.

Components of Volume Change

Changes in the volume of Maine's forests depend on the interrelationship of growth, removals, and mortality, or the components of change. In this section, change components are expressed as growing-stock, live-tree, and sawtimber volume to provide a link to changes occurring in inventory volume. An analysis based on basal area is included as a crosscheck to changes in volume. This crosscheck is important in light of recent changes in sample design, the limited remeasurement sample, and the evolution of estimation procedures (see Change in Basal Area). Usually, three terms are used to discuss changes in inventory: gross growth, net growth, and net change:

Gross Growth = Ingrowth (trees achieving merchantable size) + Accretion (survivor growth);

Net Growth = Gross Growth – Mortality;

Net Change = Net Growth - Removals

In the case of growing-stock and sawtimber inventory, the net difference between trees entering the growing-stock class (as cull decrement) and departing the growing-stock class (as cull increment) is added or subtracted to growth as appropriate.

All components are expressed on an average annual basis from the year of the previous plot measurement to the current year of plot measurement. If all sample plots were remeasured, the net change based on change components should match the change based on inventory volume. Currently, these estimates do not match because of the relatively low number of remeasured plots. As each new panel is added, the sample or remeasured plots and trees will increase substantially. For example, more trees were remeasured in the sixth year than in all of the previous 5 years.

Growing Stock

Change components expressed as growing-stock volume on timberland indicate how the manageable portion of Maine's forest inventory is changing over time. Figures 76 and 77 illustrate the simple but important relationship between specific components for all species and the major species groups. The tight relationship between net growth and removals explains why inventory volume has changed little since 1995. This situation will continue until the large inventory of submerchantable stems grows to the 5-inch merchantability limit. At that time, increases in the ingrowth component will boost overall net growth. The large impact of mortality on gross growth also is well illustrated. Softwood mortality was about one-third of gross growth and one-fourth of hardwood gross growth over the period.

The results for species/species groups show that several species currently have removals in excess of net growth, including red spruce, balsam fir, northern white-cedar, aspen, paper birch, and beech (Fig. 78). Species/species groups with net growth in excess of removals include red maple, white pine, sugar maple, yellow birch, and northern red oak. As discussed previously, information on change components does

not always match changes reflected in the inventory. White pine illustrates the statistical mismatch between change in inventory volume and net change based on change components. Although the species had considerable excess of growth over removals, the inventory volume of white pine volume showed little change. The situation for northern white-cedar and beech further illustrate how the various components interact (Fig. 79). The negative net change in the volume of northern white-cedar was caused by a high level of removals, rather than mortality. The decrease in inventory volume of beech was due to high levels of mortality that effectively made net growth negative (rather than heavy removals). In the case of beech, mortality exceeded removals.

Live Tree

Change components for live trees reflect all tree classes and usually parallel the results for growing-stock volume. The basic difference between them is that live-tree components do not include changes in cull trees so that less volume is subtracted from gross growth in calculating net growth. Also, land switching between timberland and forest land is not a factor. As such, the results look slightly better than for growing stock (Fig. 80). The ratio of net growth to removals is useful for summarizing net growth and removals relationships. Ratios less than 1 indicate decreases in volume while ratios greater than 1 indicate increases in volume. As an example of differences between growing-stock and live-tree estimates, the red spruce ratio was 0.64 to 1.0 based on growing-stock trees and 0.94 to1.0 using live trees (Fig. 81).

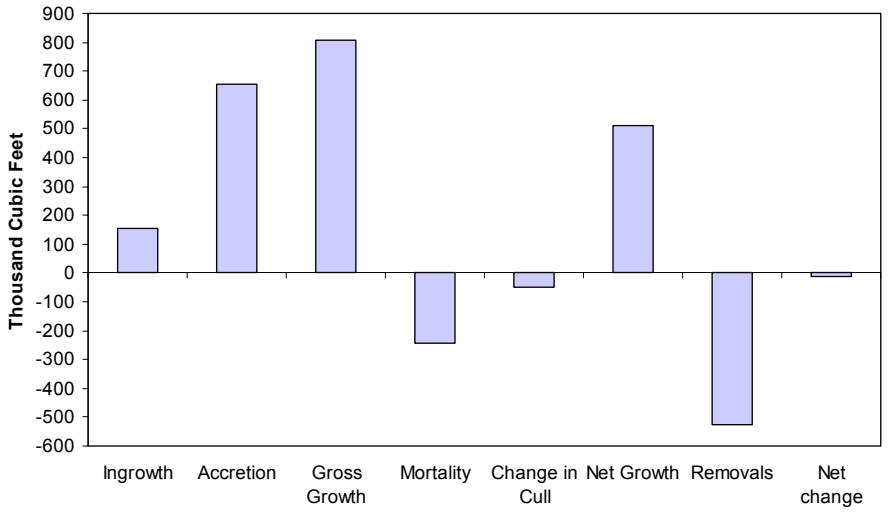


Figure 76.—Average annual components of change in growing-stock volume on timberland for all species, Maine, 1996-2003.

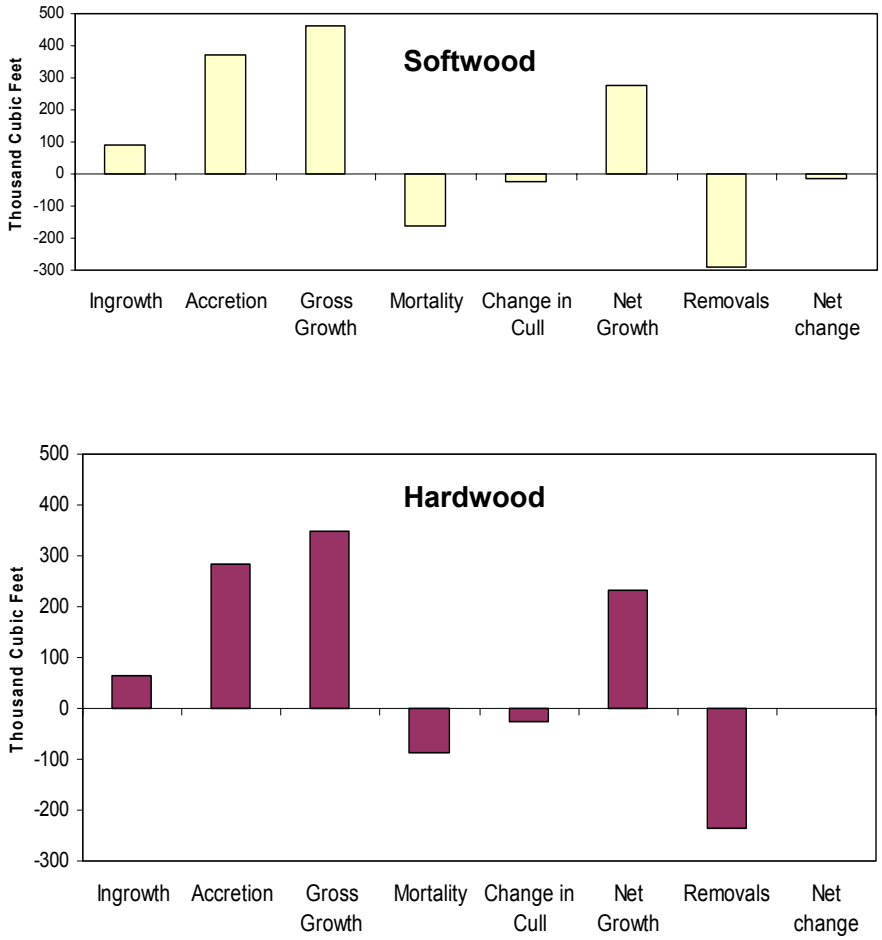


Figure 77.—Average annual components of change in softwood and hardwood growing-stock volume on timberland, Maine, 1996-2003.

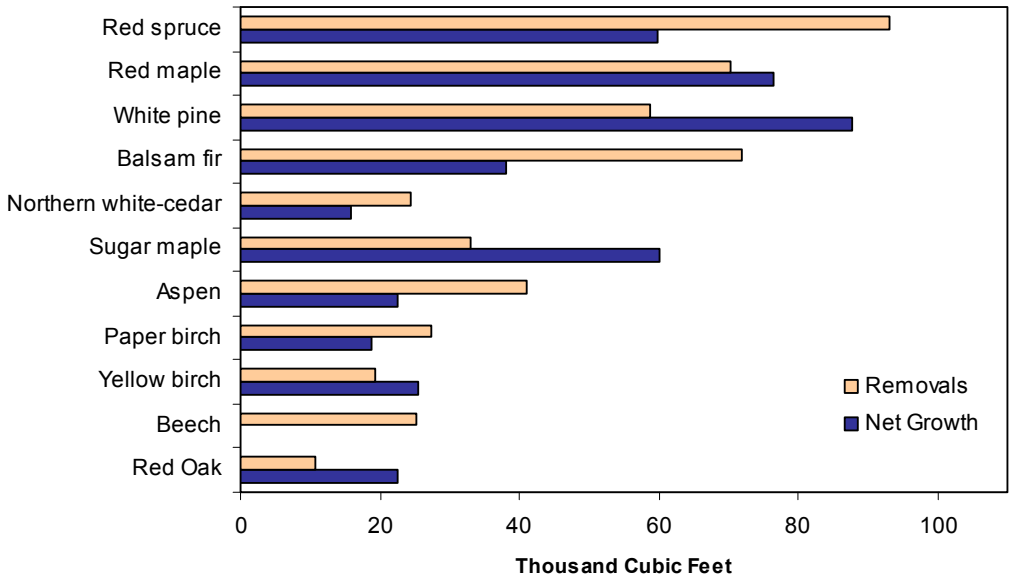


Figure 78.—Average annual net growth and removals of growing-stock volume on timberland for selected species, Maine, 1996-2003 (note: negative net-growth values for beech are not shown).

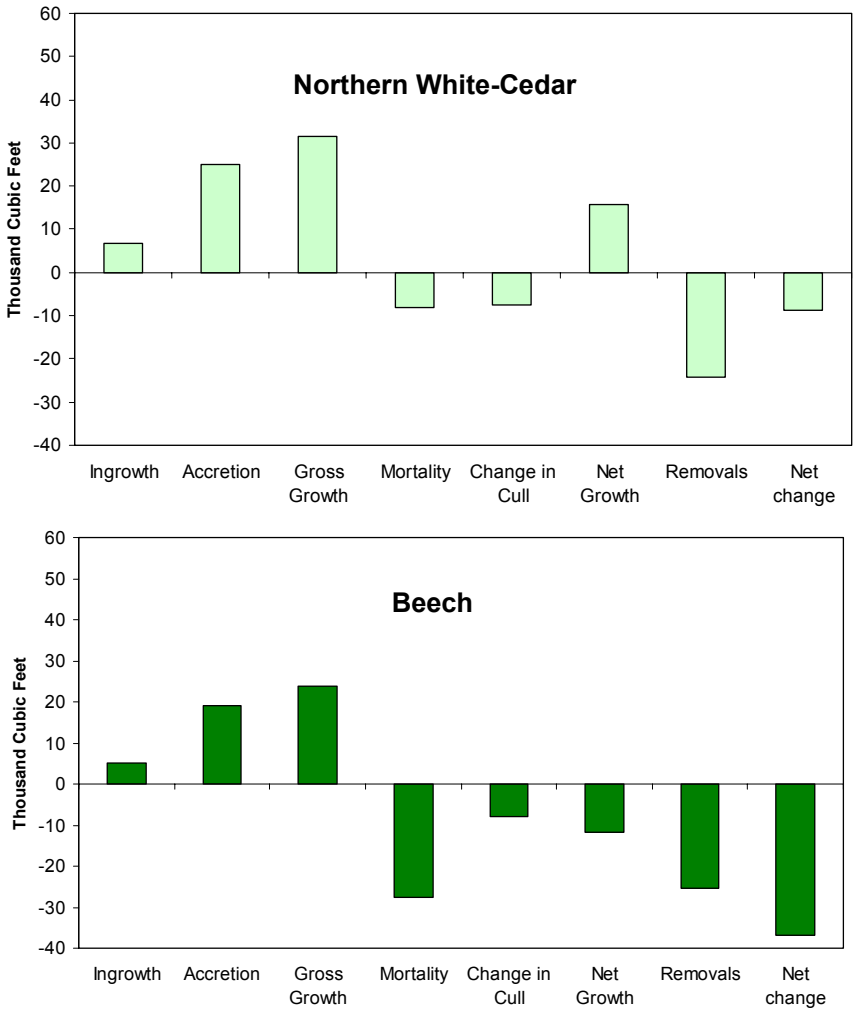


Figure 79.—Average annual components of change in northern white-cedar and beech growing-stock volume on timberland, Maine, 1996-2003.

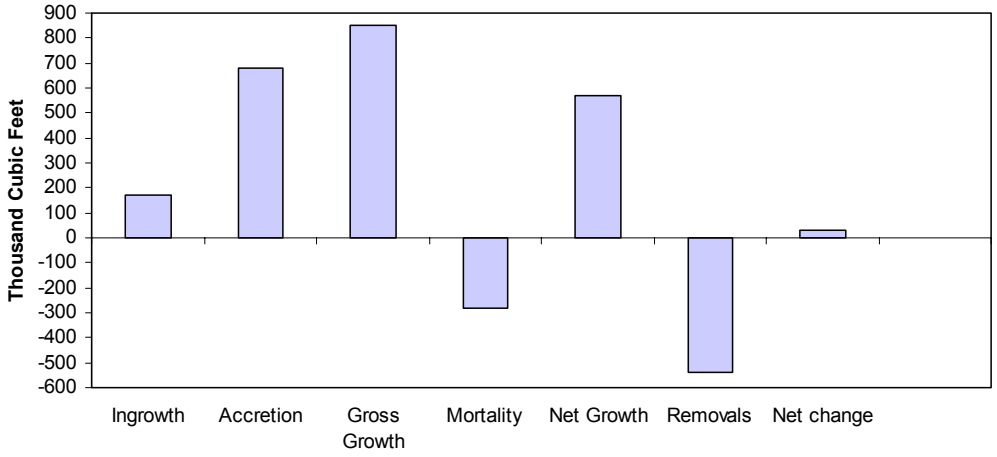


Figure 80.—Average annual components of change for live-tree volume on timberland for all species, Maine, 1996-2003.

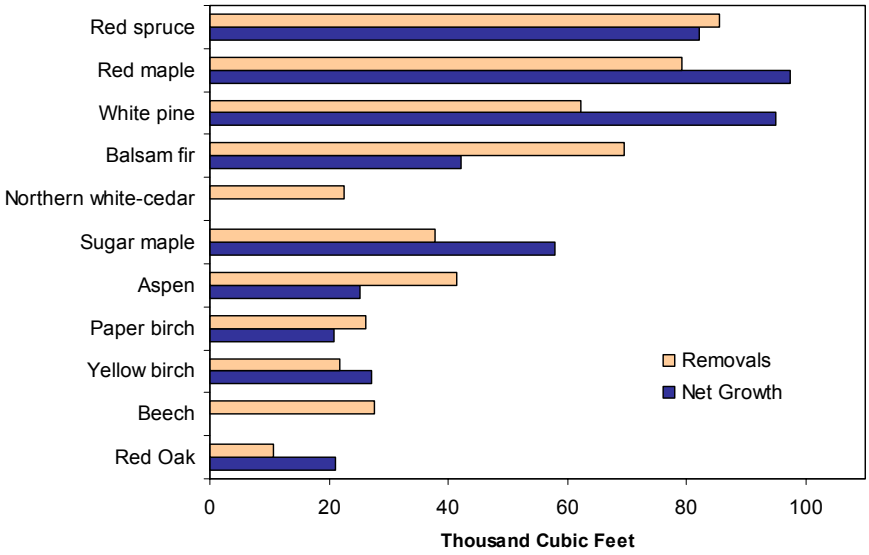


Figure 81.—Average annual net growth and removals of live-tree volume on timberland for selected species, Maine, 1996-2003.(note: negative net-growth values for northern white-cedar and beech are not shown.)

Ratios of live-tree growth to removals also are useful for analyzing relationships among megaregions. These ratios were:

Region	Softwood	Hardwood	All species
Northern	0.9:1.0	0.8:1.0	0.9:1.0
Eastern	1.4:1.0	0.8:1.0	1.1:1.0
Southern	1.4:1.0	1.4:1.0	1.4:1.0
Western	1.1:1.0	1.3:1.0	1.2:1.0
State	1.1:1.0	1.0:1.0	1.1:1.0

Total removals were 2.3 percent of the 1995 estimate of live-tree volume. A noteworthy breakdown of total removal volume is by harvest removal and removal due conversion of forest land to nonforest land uses. Although loss of forest land is not a major issue in Maine, it is important to note that 6 percent of the removal volume was attributed to forest land being converted to other uses. The more important finding is for species located in regions of the State where conversion is more likely. Prime examples are white pine and red oak for which 24 percent and 38 percent, respectively, of the removal volume was due to conversion to nonforest uses (Fig. 82).

Sawtimber

Change components, expressed in board feet, are shown in Figures 83 and 84. These data are more unreliable than components based on growing stock or live trees because the portion of sawtimber in the overall sample is smaller. In fact, the results for net change in total sawtimber (negative) do not match those for sawtimber inventory volume (positive). The change in inventory volume is more reliable because it is based on a sample of many more trees. These figures should be used with caution and are presented here for completeness.

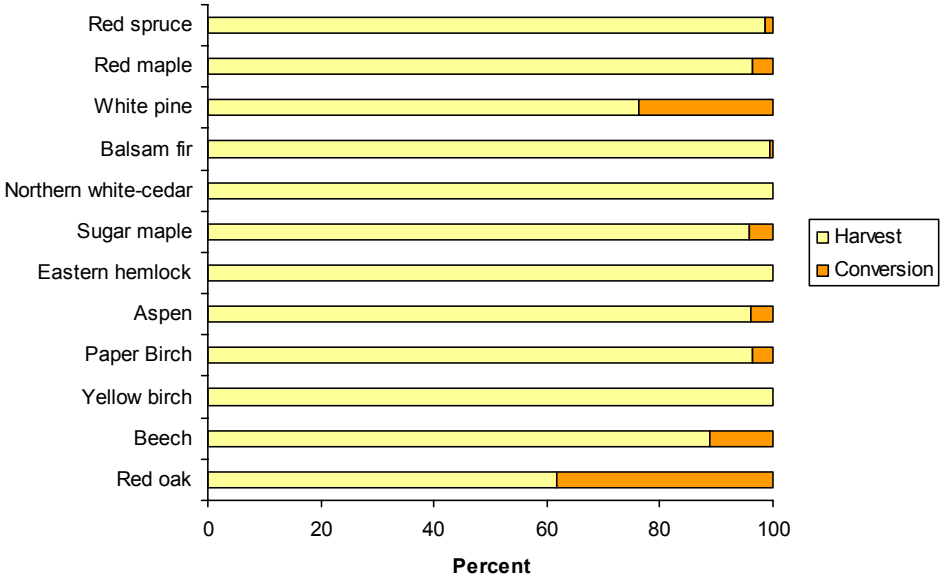


Figure 82.—Percentage of average annual live-tree removals on forest land by source and species/species group, Maine, 1996-2003.

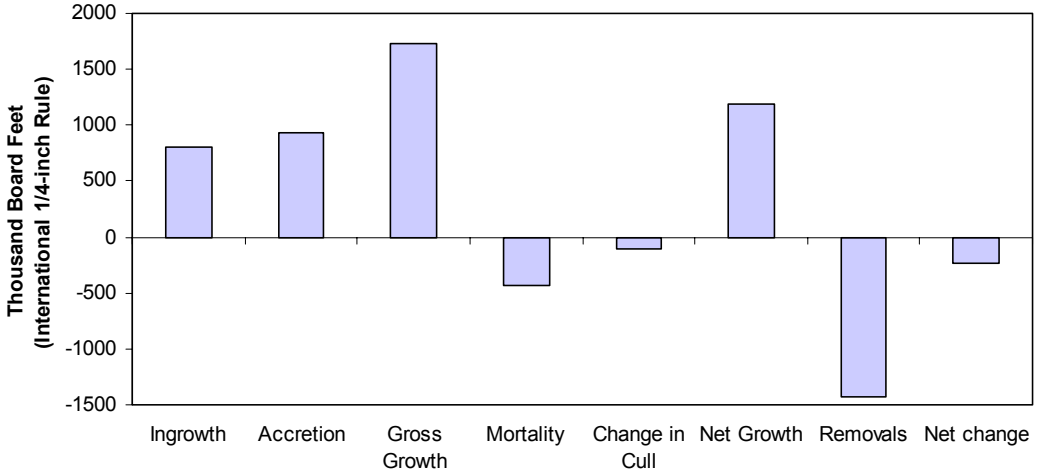


Figure 83.—Average annual components of change for sawtimber on timberland, Maine, 1996-2003.

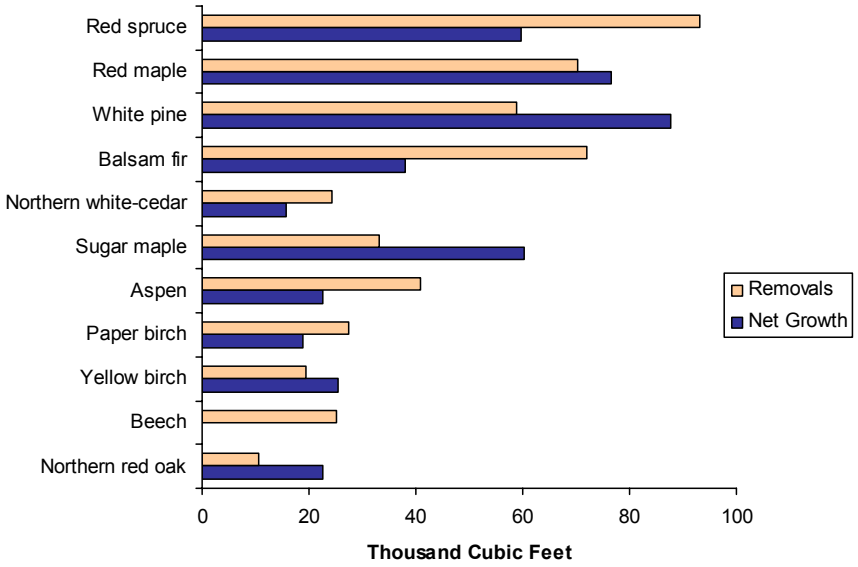


Figure 84—Average annual net growth and removals of sawtimber volume on timberland for selected species, Maine, 1996-2003 (note: negative net growth values for beech are not shown).

Change in Basal Area

In the early years of the annual inventory, components of change were evaluated using basal area to overcome limitations of a relatively small remeasurement sample (Laustsen and others 2003; Laustsen and Griffith 2002). The continuation of this analysis provides a link to previous reports and an assessment of trends but more importantly a strong correlation with the volume-based inventory and components of change. The analysis was conducted for growing-stock trees on timberland from 1995 to 2003 (Table 21).

The annualized net change as a percentage of growing-stock basal area has improved over the 3-year period. In the third annual report, this rate was estimated at -1.3 percent. It improved to -1.1 percent in the fourth report, and again to the current estimate of -0.9 percent. These three estimates continue to track the status in which removals exceed net growth; however, the steady improvement is encouraging.

Estimates of components of change for individual species illustrate past problems and future trends:

- Balsam fir's estimated annual basal-area ingrowth is 20 percent more than accretion, indicating a younger forest beginning to cross the merchantability threshold of 5 inches d.b.h..
- The 1-percent net change for eastern hemlock represents a reversal from the 1995 analysis.
- American beech is a species of concern for two reasons. First, the estimate of growing-stock decrement is 200 percent more than the estimate for increment, indicating substantial reductions in quality over the last 8 years. Second, the annualized change of -5.3 percent further documents the imbalance in growth, mortality, and removals.
- The major species that are most out of balance in net change are American beech (-5.3 percent), aspen (-2.3), red spruce (-2.3), and balsam fir (-1.9). In the case of red spruce and balsam fir, a positive relationship should occur when small trees begin to reach the 5.0-inch merchantability limit.

Table 21.—Average annual net change of growing-stock basal area on timberland, by species group and component, Maine, 1996 to 2003

Species group	Ingrowth	Accretion	Gross growth	Mortality	Growing-stock increment	Growing-stock decrement	Net growth	Harvest	Land-use removal	Total removals	Net change	Annual percentage change from total current basal-area inventory
						Million ft²						
Balsam fir	3.30	2.74	6.04	-4.40	0.24	-0.38	1.50	-3.57	-0.14	-3.71	-2.22	-1.9
White spruce	0.34	0.42	0.76	-0.24	0.07	-0.07	0.52	-0.44	0.00	-0.44	0.09	0.3
Black spruce	0.30	0.23	0.53	-0.28	0.03	0.00	0.28	-0.45	-0.09	-0.54	-0.26	-1.1
Red spruce	0.99	2.23	3.22	-1.79	0.26	-0.74	0.95	-3.83	-0.37	-4.21	-3.26	-2.3
Red pine	0.24	0.07	0.31	0.00	0.00	0.00	0.31	0.00	-0.04	-0.04	0.27	4.4
Pitch pine	0.00	0.00	0.00	0.00	0.00	-0.09	-0.09	0.00	0.00	0.00	-0.09	-9.5
Eastern white pine	0.52	2.77	3.29	-0.57	0.46	-0.52	2.66	-2.17	-0.81	-2.98	-0.31	-0.3
Other yellow pines	0.03	0.01	0.04	0.00	0.04	0.00	0.08	0.00	0.00	0.00	0.08	34.1
Northern white-cedar	0.52	1.20	1.72	-0.56	1.01	-1.56	0.61	-1.27	-0.26	-1.53	-0.92	-0.8
Eastern hemlock	0.56	1.55	2.11	-0.28	0.50	-0.58	1.75	-0.96	0.00	-0.96	0.79	1.0
Other comm. softwoods	0.06	0.17	0.22	-0.17	0.03	0.00	0.08	-0.25	0.00	-0.25	-0.17	-2.0
Total softwoods	6.85	11.40	18.25	-8.29	2.64	-3.94	8.65	-12.94	-1.71	-14.65	-6.00	-1.0
95% confidence interval	6.10 - 7.61	10.48 - 12.31	16.98 - 19.51	-9.68 to -6.90	1.94 - 3.34	-5.04 to -2.85	6.43 - 10.87	-15.96 to -9.92	-3.03 to -0.39	-17.93 to -11.37	-10.00 to -2.00	
Red maple	1.32	2.61	3.93	-0.73	1.59	-1.71	3.08	-3.79	-0.18	-3.97	-0.89	-0.6
Sugar maple	0.52	1.35	1.87	-0.15	0.59	-0.45	1.87	-1.58	-0.10	-1.68	0.19	0.2
Yellow birch	0.41	0.99	1.40	-0.35	1.02	-0.86	1.20	-1.09	0.00	-1.09	0.11	0.2
Paper birch	0.64	0.86	1.50	-0.91	0.18	-0.41	0.37	-1.24	-0.11	-1.35	-0.98	-1.7
Hickory	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0
American beech	0.47	0.80	1.27	-1.54	0.43	-1.00	-0.84	-1.22	-0.18	-1.39	-2.24	-5.3
White ash	0.19	0.49	0.68	-0.08	0.09	-0.02	0.66	-0.23	-0.02	-0.25	0.41	2.3
Aspen	0.71	1.13	1.85	-0.74	0.01	-0.50	0.62	-1.75	-0.08	-1.83	-1.21	-2.3
Black cherry	0.01	0.02	0.03	-0.02	0.00	-0.02	-0.01	-0.02	0.00	-0.02	-0.03	-1.8
White oak	0.00	0.01	0.01	0.00	0.02	-0.01	0.02	0.00	0.00	0.00	0.02	1.7
Northern red oak	0.34	0.71	1.05	-0.09	0.05	-0.01	0.99	-0.34	-0.20	-0.54	0.45	1.4
Other white oaks	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0
Other red oaks	0.00	0.03	0.03	-0.07	0.00	0.00	-0.04	0.00	0.00	0.00	-0.04	-2.8
American basswood	0.01	0.03	0.03	0.00	0.00	-0.02	0.01	-0.02	0.00	-0.02	-0.01	-1.1
Elm	0.08	0.01	0.09	-0.05	0.00	0.00	0.04	-0.03	0.00	-0.03	0.01	1.7
Other comm. hardwoods	0.08	0.05	0.13	-0.13	0.01	-0.16	-0.16	-0.02	-0.11	-0.14	-0.29	-6.3
Total hardwoods	4.79	9.07	13.86	-4.86	4.00	-5.19	7.80	-11.31	-0.98	-12.30	-4.49	-0.9
95% confidence interval	4.03 - 5.54	8.31 - 9.84	12.72 - 15.00	-5.74 to -3.98	2.92 - 5.07	-6.33 to -4.05	5.65 - 9.96	-13.74 to -8.89	-1.78 to -0.18	-14.84 to -9.75	-7.81 to -1.17	
Total, all species	11.64	20.47	32.11	-13.16	6.63	-9.13	16.46	-24.25	-2.70	-26.95	-10.49	-0.9
95% confidence interval	10.53 - 12.75	19.31 - 21.63	30.43 - 33.79	30.43 - 33.79	5.35 - 7.92	-10.86 to -7.40	13.26 - 19.65	-28.49 - -20.02	-4.42 to -0.98	-31.48 to -22.41	-16.09 to -4.89	

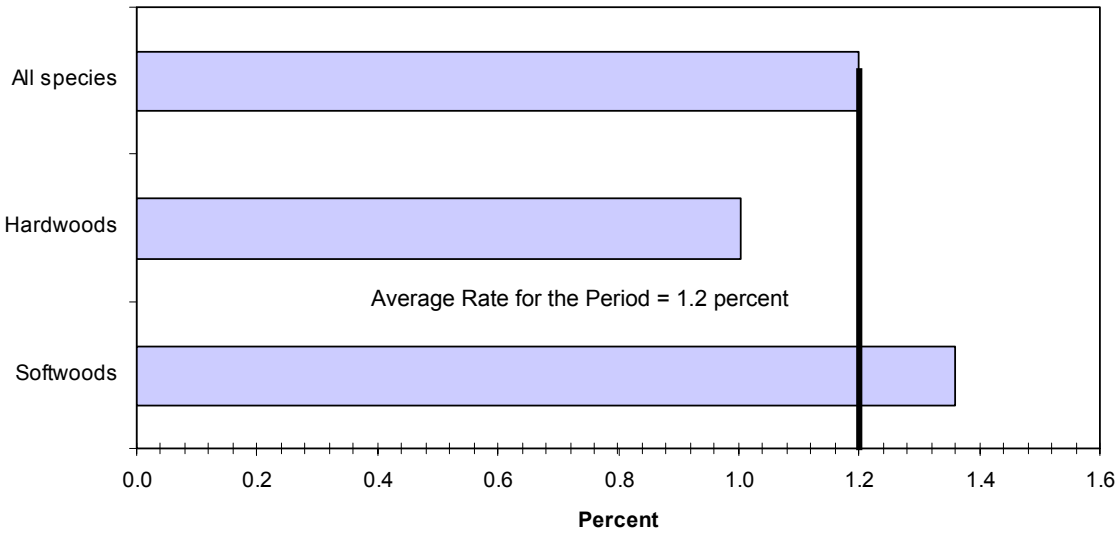


Figure 85.—Average annual mortality of live-tree volume on forest land as a percentage of inventory, Maine, 2003.

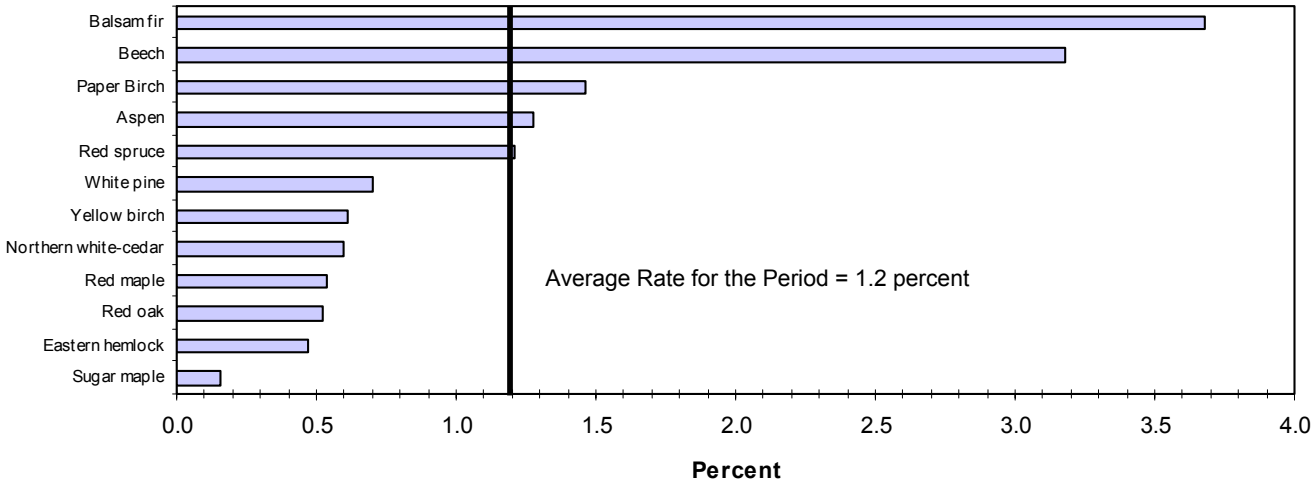
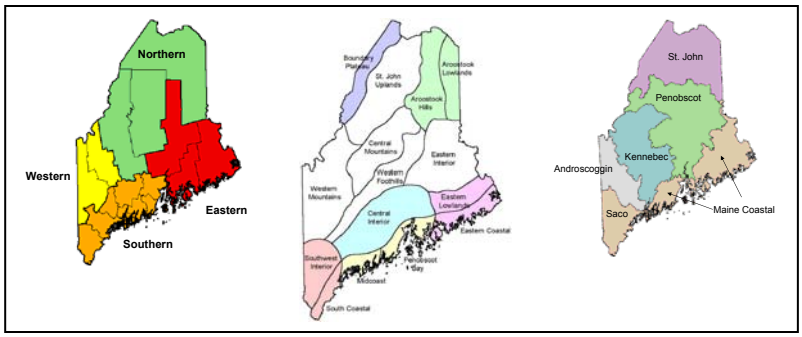


Figure 86.—Average annual mortality of live-tree volume on forest land as a percentage of inventory for select species, Maine, 2003.

Mortality

Estimates of mortality or the volume of trees that died since the previous inventory are the most important forest-health variable collected by FIA. Mortality reflects a combination of factors that cause tree death. The estimates are intended to describe major disturbances that affect significant acreage or numbers of trees, e.g., effects of ice storms (Irland 1998). Ultimately, tree death creates gaps and openings that result in the establishment of new trees. It should be noted that mortality may be underrepresented because a tree that dies and then is cut is classified as removal because of the difficulty in determining whether it died prior to cutting. At the landscape level, tree mortality was one-third of the gross growth of live trees, which is a proxy for the total productivity of the forest from 1995 to 2003. It is difficult to compare data from different periods, but the estimate of mortality likely was about half of gross growth from 1983 to 1995. Currently, stands at risk of impending mortality represent a prime opportunity to capture live volume and thus maximize stand productivity.

The overall average rate of mortality for the recent inventory period was 1.2 percent of the volume of live trees. Comparing this to rates for the major species/species groups allows a relative assessment. As expected, softwood mortality was above average (Fig. 85). Mortality of balsam fir, beech, paper birch, and aspen was above average mortality (Fig. 86). Mortality of red spruce roughly equaled the state average. Important species with below



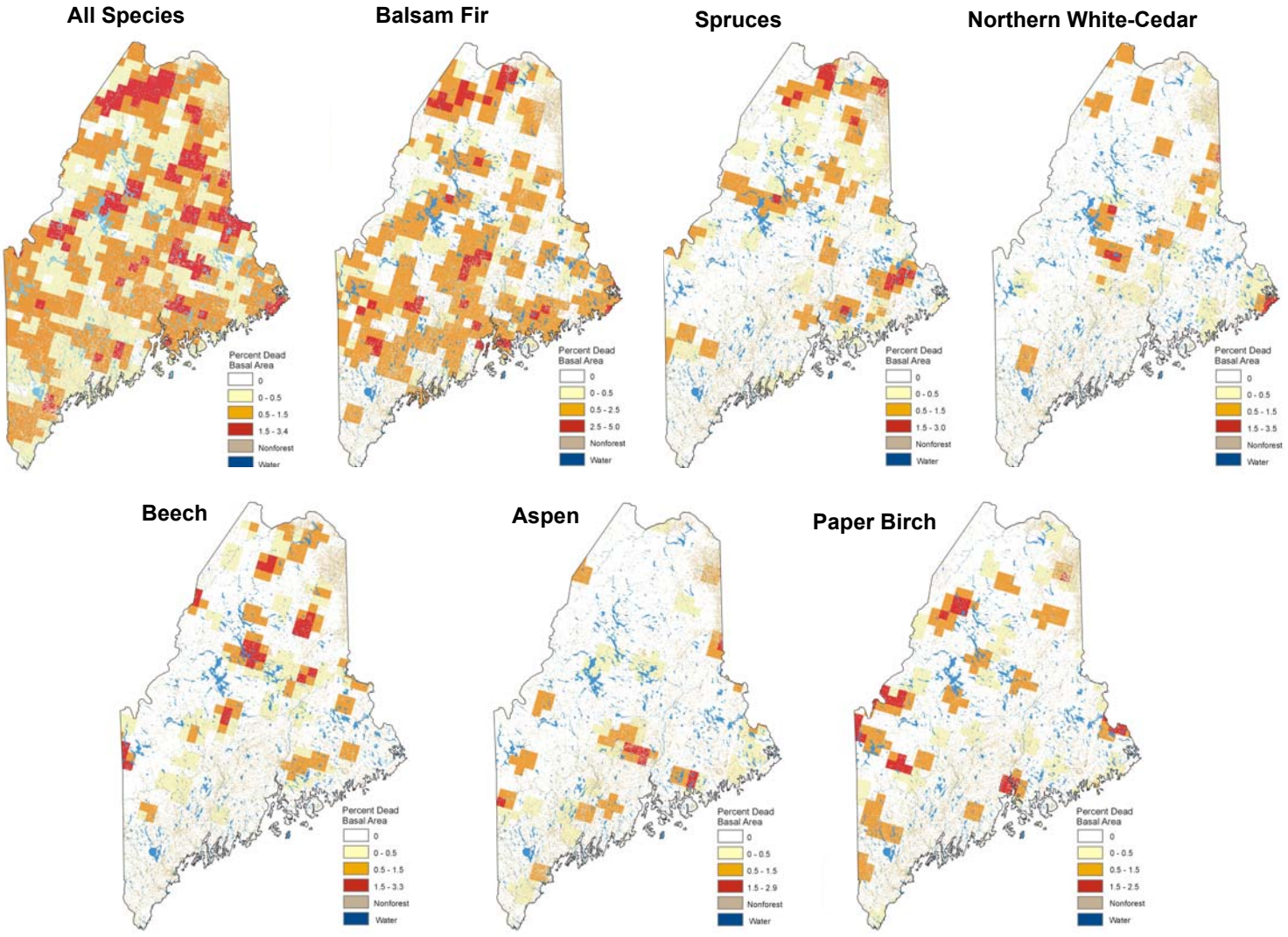


Figure 87.—Distribution of mortality expressed as a percentage of basal area per acre of forest land, Maine, 2003.

average mortality were white pine, yellow birch, northern white-cedar, red maple, and northern red oak.

The spatial distribution of mortality shows a random patchy pattern across Maine (Fig. 87). Balsam fir mortality is prevalent across the Central region of the State. This appears to be a major shift from mortality that was concentrated in northern Maine between 1982 and 1995 (McWilliams and others 1997). Other species display more sporadic patterns.

Timber Products Output

The MFS has records and sources of timber products output that date to the early 1900's. These records reflect the harvest of sawlog and pulpwood products for softwoods and hardwoods. The history of Maine's product output for the past century centers on two major production events. The first, a buildup of production, lasted through the first decade of the 1900's (Fig. 88). Overall production peaked in 1909. This was followed by a collapse that reached a low point in the early 1930's due to a combination of the negative impact of the spruce budworm outbreak in the 1910-20 era and reduced demand associated with the Great Depression. Production then increased in three steeply cascading surges, each of which was followed by a brief period of level production.

Softwood products, primarily pulpwood, dominate all the major trends in product output (Fig. 89). Production of softwood pulpwood peaked at 2.3 million cords in 1984. This was followed by a precipitous decline that continues today. Beginning in the early 1950's, hardwood pulpwood increased steadily until it exceeded softwood production in 1991. The production mix has been roughly two-thirds hardwood and one-third softwood over the last 5 years.

The history of sawlog production reveals more dramatic reversals in periodic production that were driven primarily by three declines in softwood production: from 1910 to 1930, 1950 to

Figure 88.—Annual total harvest (pulpwood and sawlogs), Maine (1870 – 2002), displayed as a trailing 5-year average.

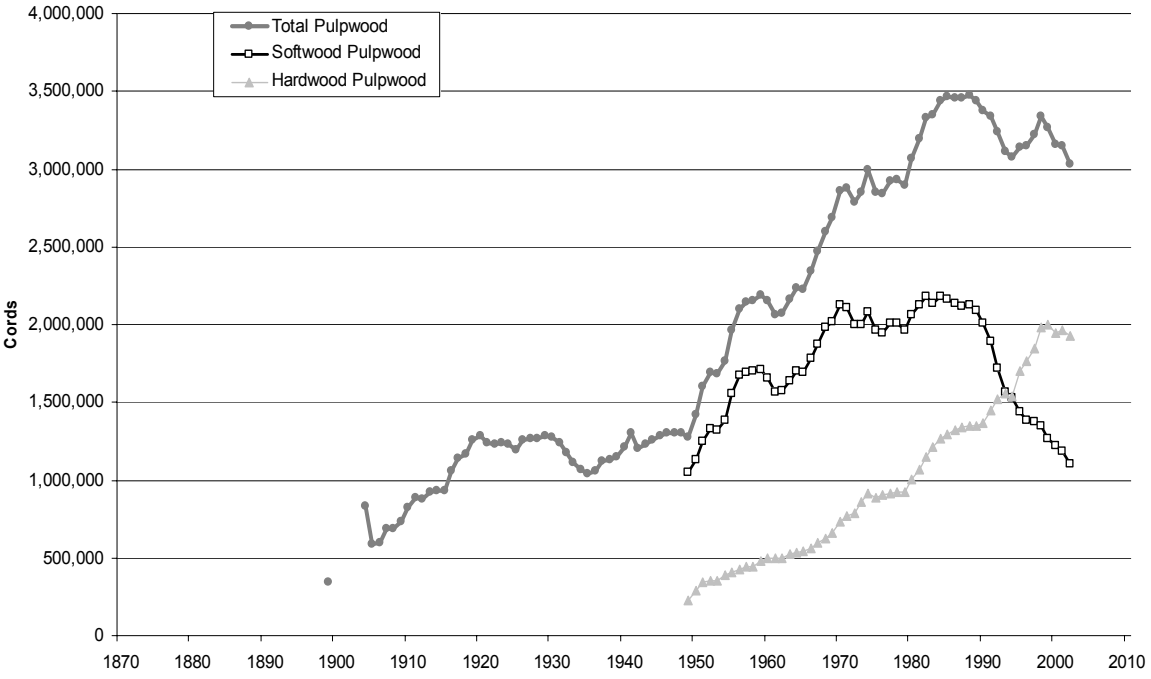


Figure 89.—Reported pulpwood harvest volumes (cords), by major species, for Maine (1899 - 2002), displayed as a trailing 5 year average, 2003.

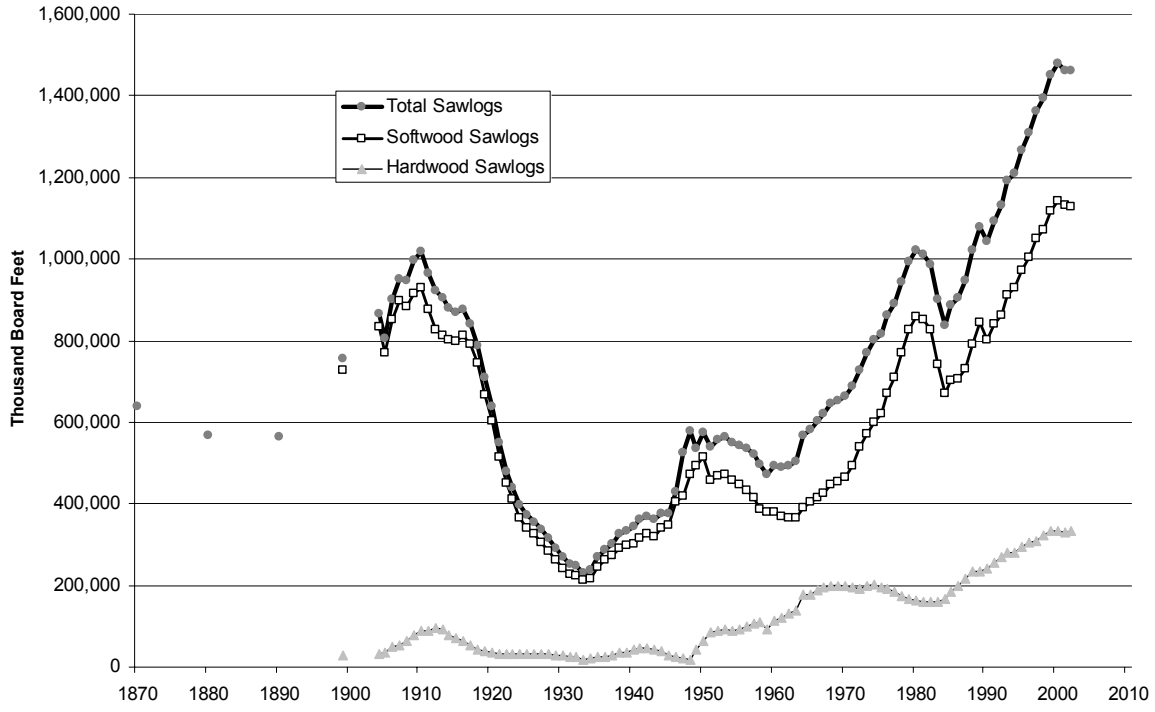


Figure 90.—Reported sawlog harvest volumes (Mbf), by major species group, for Maine (1870 - 2002), displayed as a trailing 5 year average, 2003.

1960, and 1975 to 1985 (Fig. 90). Trends in sawlog output are heavily weighted toward the production of softwood sawlogs. Hardwood sawlog production began to grow in the 1950's and has increased steadily since then. Hardwood sawlogs have contributed more than 20 percent of total sawlog production during the past 5 years.

Forest Health Parameters

The national Forest Health Monitoring (FHM) program was first initiated in New England in 1990 (Brooks and others 1992) in response to increasing concern for the health of the Nation's forests with respect to pollution, insects, diseases, climate change, and other stressors. The objective of the FHM program is to monitor, assess, and report on the long-term status, changes, and trends in forest-health indicators at regional and national scales.

Measurements of FHM indicators are taken in addition to the basic tree measurements collected on Phase 2 plots that are coincident with Phase 3 plots. Indicators are defined as any environmental component that quantitatively estimates the condition or change in the condition of ecological resources, the magnitude of stress, or the exposure of a biological component to stress. The FHM indicators addressed in this report are tree damage, crown condition, down woody material, ground-level ozone injury, lichens, and vegetation. The data-collection method for each indicator is described briefly in each section. The data presented here represent P3 plots that were surveyed at some time in the 1999-2003 period.

Tree Damage

Tree damage and the severity of that damage are assessed for trees at least 1 inch in diameter. As many as three damages can be recorded per tree in the following order: roots, roots and lower bole, lower bole, lower and upper bole, upper bole, crown, stem, and branches (USDA For. Serv. 2002a). The types of damage that are recorded include cankers, decay, wounds, resinosis, cracks, broken bole or roots, brooms, dead roots, vines, dead terminal, dead or broken branches, excessive branching, damaged foliage, and discoloration of foliage. Decay is the most common type of damage encountered. All trees with a damage recorded were considered damaged regardless of location or severity.

A map of the percentage of total basal area at each plot with damage is shown for selected species in Figure 91. For a given species, plots were included only if at least three trees were sampled. The spatial distributions of damage appear to be random for most species. Beech had the highest proportion of plots (71 percent) showing substantial damage. Most of this damage likely is due to the effects of beech bark disease and severe drought. In general, the frequency of substantial damage was much higher for hardwoods than for softwoods.

White Pine

Percent Basal Area with Damage
0 - 5
5 - 10
10 - 15
15 - 30
30 - 41
Nonforest
Water

Balsam Fir

Percent Basal Area with Damage
0 - 5
5 - 10
10 - 15
15 - 20
20 - 43
Nonforest
Water

Spruces

Percent Basal Area with Damage
0 - 5
5 - 10
10 - 15
15 - 20
20 - 33
Nonforest
Water

Sugar Maple

Percent Basal Area with Damage
0 - 15
15 - 20
20 - 25
25 - 35
35 - 60
Nonforest
Water

Beech

Percent Basal Area with Damage
0 - 25
25 - 40
40 - 50
50 - 65
65 - 92
Nonforest
Water

Aspen

Percent Basal Area with Damage
0 - 15
15 - 20
20 - 25
25 - 35
35 - 58
Nonforest
Water

Figure 91.—Tree damage recorded on Phase 2 samples for selected species, Maine, 2003.

Crown Condition

Each measurement of crown condition contains information that can be used individually or in combination with other measurements. Tree-level measurements include vigor class, crown ratio, light exposure, crown position, crown density, crown dieback, and foliage transparency. Factors used to determine the condition of tree crowns are crown dieback, crown density, and foliage transparency. Crown dieback is recent mortality of branches with fine twigs and reflects the severity of recent stresses on a tree. Crown density is defined as the amount of crown branches, foliage, and reproductive structures that block light visibility through the crown. Crown density can serve as an indicator of expected growth in the near future. Foliage transparency is the amount of skylight visible through the live, normally foliated portion of the crown. Changes in foliage transparency also can occur due to defoliation or from reduced foliage resulting from stresses in preceding years. A crown was labeled as poor if crown dieback exceeded 20 percent, crown density was less than 35 percent, or foliage transparency was greater than 35 percent. These thresholds were based on preliminary findings by Steinman (2000) that associated crown ratings with tree mortality.

The percentage of basal area with poor crowns is shown for selected species in Figure 92. The incidence of poor crowns was highest in beech and aspen. Nearly 65 percent of the plots had more than 10 percent basal area with poor crowns. Poor beech crowns would be expected in light of other findings and because the foliage of trees infected with beech bark disease often become sparse (Le Guerrier 2003). Since aspen is relatively short lived (Laidly 1990; Perala 1990), crowns may be poor in trees nearing the end of their normal lifespan. For white pine and balsam fir, nearly 21 percent of the plots had more than 10 percent basal area with poor crowns. Conversely, relatively few sugar maple and spruce species had poor crowns.

Ground-Level Ozone Injury

Ozone (O_3) is a byproduct of industrial development and is found in the lower atmosphere. It forms when nitrogen oxides and volatile organic compounds react in the presence of sunlight (Brace and others 1999). Ground-level O_3 has been known to have a detrimental effect on forest ecosystems. Certain plant species exhibit visible, easily diagnosed foliar symptoms. O_3 stress in a forest environment can be detected and monitored by using these plants as indicators. In the FHM program, these indicator plants monitor changes in air quality across a region and are used to evaluate the relationship between O_3 air quality and the indicators of forest condition (USDA For. Serv. 2002b).

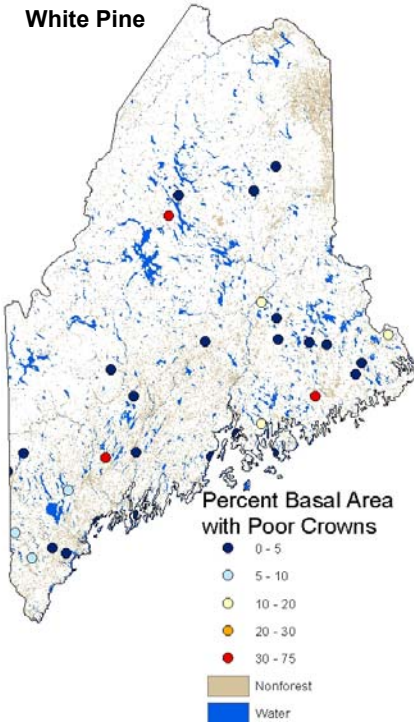
Table 22.—Distribution of plants sampled for ozone injury by species, Maine, 2003

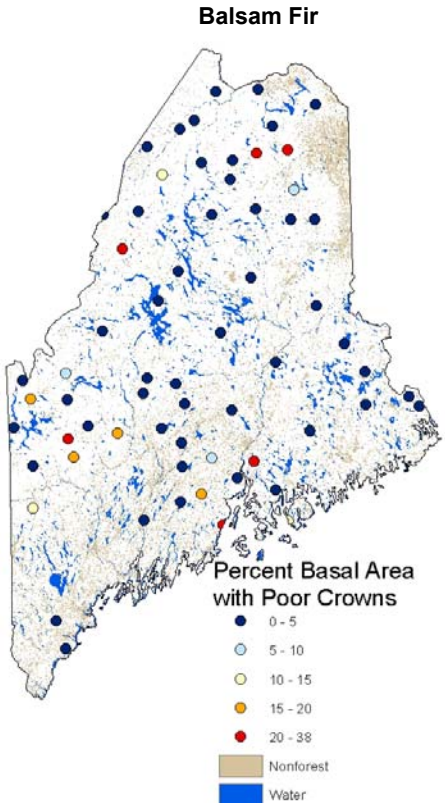
Species	Percent
Dogbane	28
Milkweed	27
Blackberry	22
White ash	8
Pin cherry	8
Black cherry	6
Aster	1

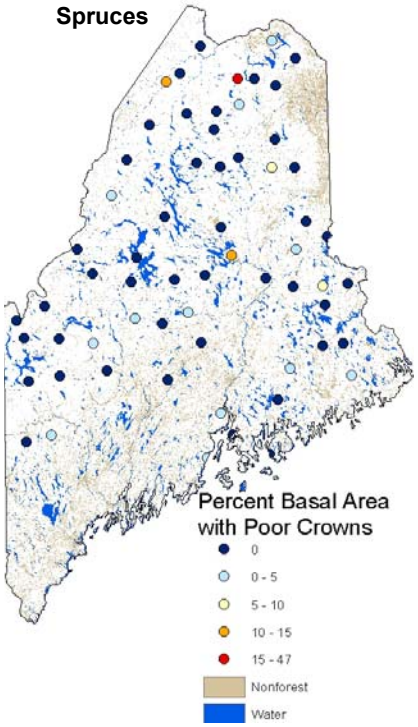
The O_3-induced foliar injury on indicator plants is used to describe the risk of impact within the forest environment using a national system of sites (Smith and others 2003). These sites are not co-located with FIA samples. O_3 plots are chosen for ease of access and optimal size, species, and plant counts. As such, the plots do not have set boundaries and vary in size. At each plot, 10 to 30 individual plants of three or more indicator species are evaluated for O_3 injury (Table 22). Each plant is rated for the proportion of leaves with O_3 injury and the mean severity of symptoms using break points that correspond to the human eye's ability to distinguish differences. An index is calculated based on amount and severity ratings. The findings for Maine indicate that there is little or no risk of foliar injury due to O_3 across the entire State (Table 23). By contrast, portions of the Mid-Atlantic region are at medium or high risk (Coulston and others 2003).

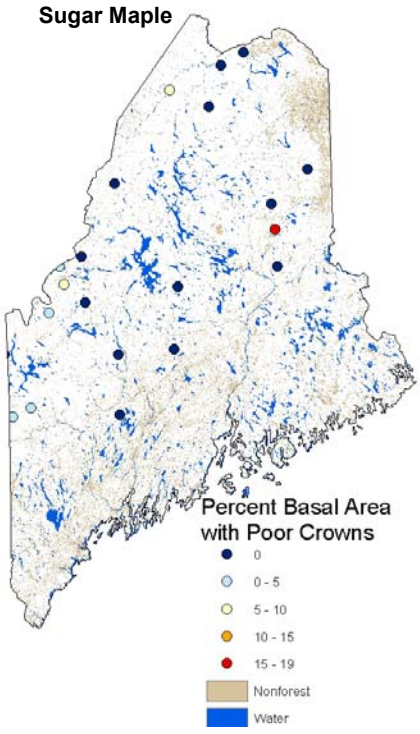
Table 23.—FIA P3 plots and plant specimens examined for ozone injury, Maine, 2003

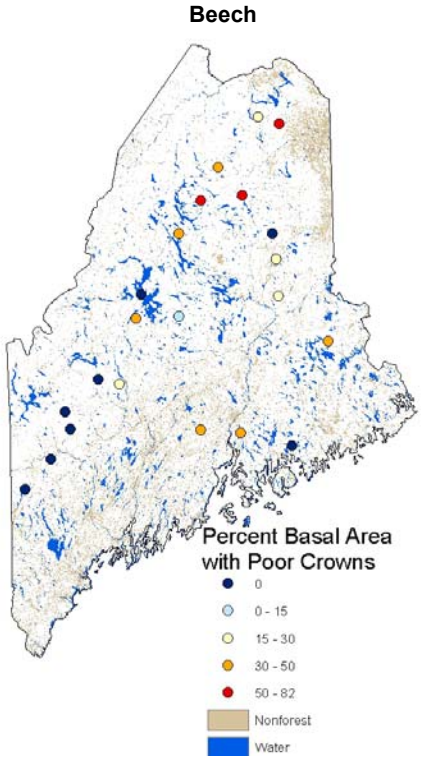
Year	Number of plots	Number of plants	Number of injured plants
1999	24	1070	0
2000	19	799	0
2001	22	940	0
2002	16	1611	0
2003	18	1539	0











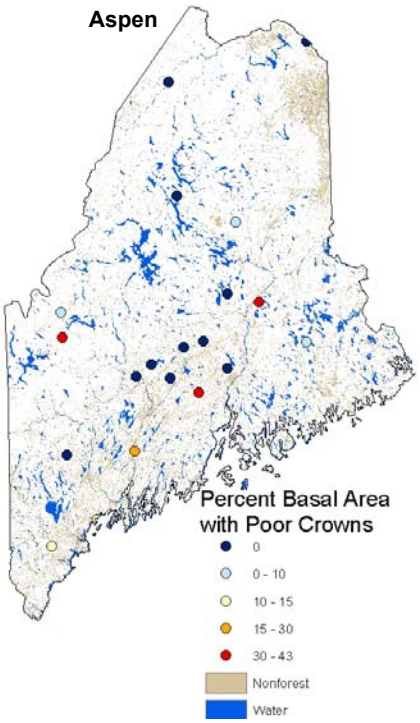


Figure 92.—Crown conditions recorded on Phase 3 samples for selected species, Maine, 2003.

Lichens

Lichens are composite, symbiotic organisms from as many as three kingdoms. The dominant partner is a fungus. Fungi can produce their own food as parasites or decomposers. The lichen fungi (kingdom Fungi) cultivate partners that manufacture food by photosynthesis. At times, the partners are algae (kingdom Protista) or cyanobacteria (kingdom Monera), formerly called blue-green algae. Some enterprising fungi exploit both at once (Brodo and others 2001).

Monitoring of the lichen community was included in the FHM process to address key issues such as the impact of air pollution on forest resources, and spatial and temporal trends in biodiversity. This long-term monitoring program in the United States dates to 1994 and is currently implemented in 32 states. The objectives of the lichen indicator are to determine the presence and abundance of lichen species on woody plants and collect samples. Lichens are found on many substrates, e.g., rocks, though sampling was restricted to standing trees or branches/twigs that recently fell to the ground. The samples were sent to lichen experts for species identification.

There is a close relationship between lichen communities and air pollution, particularly sulfur dioxide and acidifying or fertilizing nitrogen- and sulfur-based pollutants. Lichens are highly sensitive to air quality because they rely on atmospheric sources of nutrition. By contrast, it is difficult to separate tree-growth responses specific to air pollution (McCune 2000).

In all, 149 lichen species in 42 genera were sampled on Phase 3 plots (1999-2003) (Table 24). The most common lichen genera, Parmelia and Usnea, were on 10 percent of the plots. The genera with the most species sampled were Cladonia (22 species) and Usnea (16).

Species diversity is a combination of the number of species (species richness) in an area and the distribution of individuals among species (eveness). The distribution of species richness for lichens and associated diversity are shown in Figure 93. In general, species richness and

Table 24.—Percentage of specimens and number of species for lichen genera sampled, Maine, 2003

Genus	All specimens	All species
Parmelia	11.4	5
Usnea	9.7	16
Hypogymnia	9.3	3
Cetraria	8.9	8
Melanelia	6.7	7
Cladonia	6.1	22
Evernia	5.3	1
Bryoria	5.0	6
Platismatia	5.0	2
Lobaria	4.6	2
Phaeophyscia	3.9	5
Punctelia	3.9	3
Myelochroa	3.3	2
Flavoparmelia	2.3	2
Physcia	2.1	4
Ramalina	2.1	7
Imshaugia	1.5	1
Leptogium	1.3	8
Pyxine	1.2	1
Parmeliopsis	1.2	3
Cetrelia	0.9	2
Physconia	0.7	2
Collema	0.6	2
Menegazzia	0.5	1
Candelaria	0.4	2
Xanthoria	0.3	2
Pseudocyphellaria	0.3	2
Anaptychia	0.3	1
Heterodermia	0.2	1
Pannaria	0.2	3
Parmeliella	0.1	5
Peltigera	0.1	3
Nephroma	0.1	2
Parmotrema	0.1	2
Alectoria	0.1	1
Cladina	0.1	1
Hypotrachyna	0.1	1
Pseudevernia	0.0	2
Sticta	0.0	2
Everniastrum	0.0	1
Fuscopannaria	0.0	2
Vulpicida	0.0	1
Total	100.0	149

Note: Data may not add to totals due to rounding.

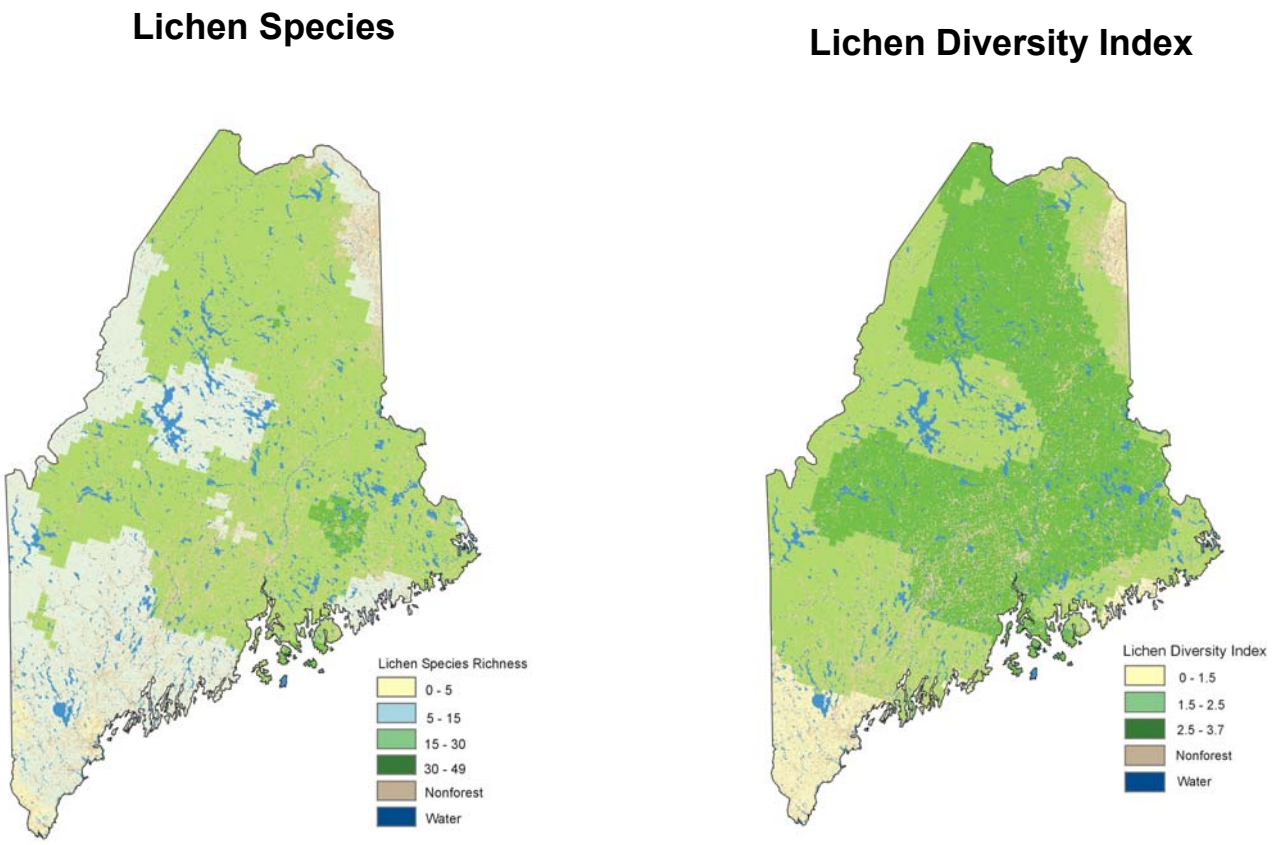


Figure 93.—Number of lichen species and lichen diversity index, Maine, 2003.

diversity are higher in the northern half of Maine. This is a function of the spatial distribution of forest-type groups in the State. Mean species richness of the spruce/fir forest-type group that makes up most of Maine's northern forest is higher than the type groups that make up the forests in Southern region (Table 25). Lichen species richness is similar among stand-diameter classes (Table 26). The mean number of lichen species sampled was lowest on large sawtimber plots and highest on small sawtimber-size plots.

Some lichen species are more apt to be found in late-successional and old-growth (LSOG) forests. Thus, they can be used as an indicator of LSOG stands (Selva 1994). The spatial distribution of LSOG lichen species richness is shown in Figure 94. Areas with high numbers of LSOG lichen species exhibit some correspondence to areas with high numbers of trees at least 16.0 inches d.b.h. (Fig. 95). Existing research has shown that forest land with significant numbers of trees 16.0 inches are likely candidates for classification as LSOG (Whitman

Table 25.—Number of FIA P3 plots and richness and diversity of lichen species by forest-type group, Maine, 2003

Forest-type group	Plots	Richness	Diversity
Spruce/fir	96	21.2	2.87
Maple/beech/birch	61	19.2	2.76
Aspen/birch	15	16.5	2.5
White pine/hemlock	19	15.7	2.57

Table 26.—Number of FIA P3 plots and richness and diversity of lichen species by stand-diameter class

Stand-diameter class	Plots	Richness	Diversity
Sapling	48	19.56	2.77
Poletimber	87	19.49	2.8
Small sawtimber	36	20.83	2.92
Large sawtimber	23	17.91	2.73

and Hagan 2004). The twenty-five LSOG lichen species sampled in Maine included:

Alectoria sarmentosa
Anaptychia palmulata
Collema nigrescens
Collema subflaccidum
Heterodermia speciosa
Hypogymnia tabulosa
Leptogium burnetiae
Leptogium corticola
Leptogium cyanescens
Leptogium laceroides
Leptogium lichenoides
Leptogium miligranum
Leptogium saturninum
Leptogium tenuissimum
Lobaria pulmonaria
Lobaria quercizans
Menegazzia terebrata
Myelochroa aurulenta
Nephroma helveticum
Nephroma resuptinatum
Pseudocyphellaria aurata
Pseudocyphellaria crocata
Pyxine sorediata
Ramalina thrausta
Usnea longissmia

Soil Erosion

In general, Maine's forests are associated with low levels of erosion. None of the samples in the four megaregions showed evidence of soil erosion. Preventive forces, such as forest cover, an evenly distributed precipitation regime, and large areas with low slopes account for the State's low erosion levels. This does not mean that management practices should ignore erosion potential as steeper slopes, compacted areas, and lack of vegetation foster erosion.

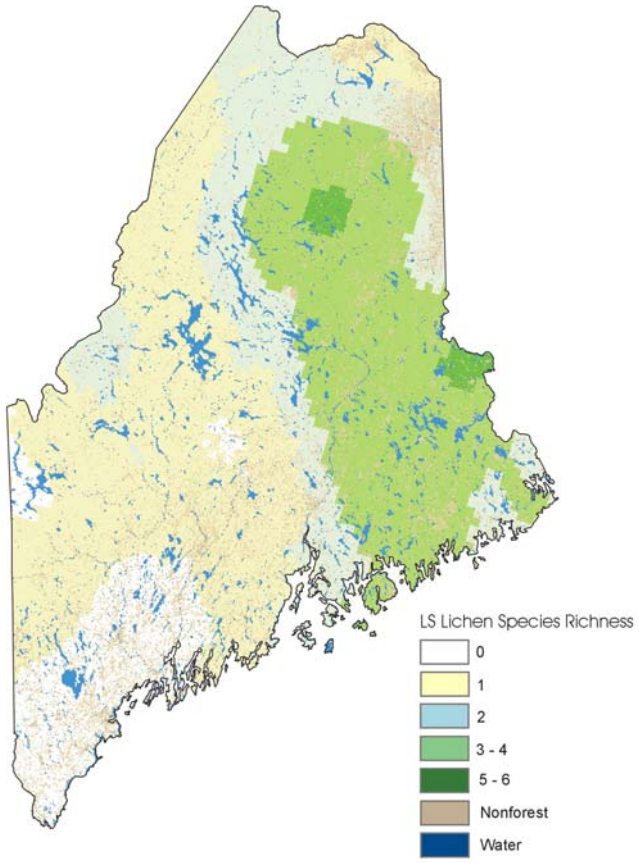


Figure 94.—Number of late-successional lichen species, Maine, 2003.

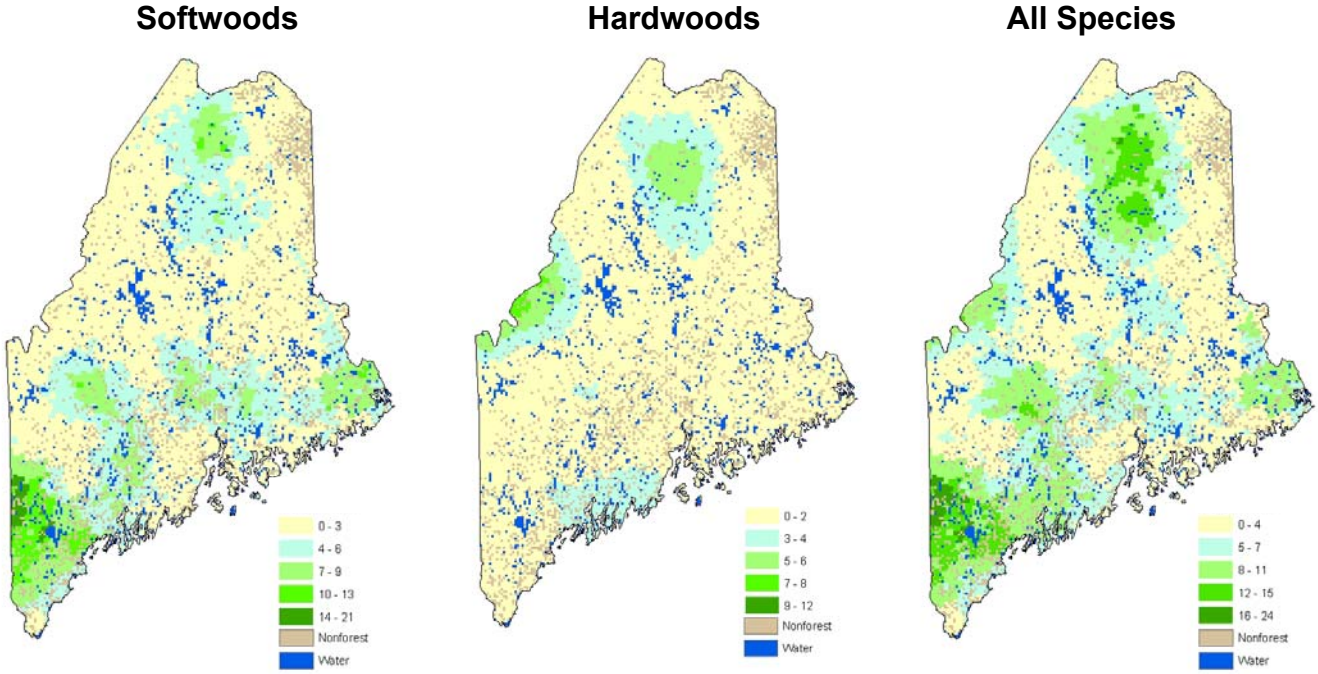


Figure 95.—Estimated number of trees per acre larger than 16.0 inches in diameter at breast height, Maine, 2003.

Vegetation Diversity and Structure

The objectives of the vegetation indicator are to assess forest ecosystem health with respect to diversity, abundance, and rate of change of native and nonnative vascular plant species, and the vertical layering of vegetation within a forest (Stapanian and others 1998). Chronic stressors like discrete site degradation, climate change, and pollution can change the composition of species and lead to the decline or local eradication of sensitive species, as well as increase the number of opportunistic species such as weedy nonnative plants. The abundance and layering of vegetation is a good predictor of wildlife habitat and the severity of damage that might develop when fire occurs. In addition, individual species are important indicators of a site's potential productivity, economic value, and wildlife forage and shelter (USDA For. Serv. 2002b). In Maine, data collection for the vegetation indicator is scheduled to begin in FY2006.

Web Resources

USDA Forest Service, Northeastern Research Station FIA:
http://www.fs.fed.us/ne/fia/

USDA Forest Service, Forest Inventory Mapmaker:
http://ncrs2.fs.fed.us/4801/fiadb/index.htm

USDA Forest Service, National Woodland Ownership Survey:
http://www.fs.fed.us/woodlandowners

Maine Department of Conservation, Maine Forest Service:
http://www.state.me.us/doc/mfs/mfshome.htm

Department of Maine Inland Fish and Wildlife:
http://www.state.me.us/ifw/index.html

University of Maine, College of Natural Sciences, Forestry and Agriculture:
http://www.nsfa.umaine.edu/

Maine Audubon:
http://www.maineaudubon.org/conserve/index.shtml

Manomet Center for Conservation Sciences:
http://www.manomet.org/

Multi-Resolution Land Characteristics Consortium:
http://www.mrlc.gov/index.asp

U.S. Census Bureau:
http://www.census.gov/

U.S. Department of the Interior Geological Survey:
http://www.usgs.gov/

USDA National Resource Conservation Service:
http://www.nrcs.usda.gov/

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Appendix

Annual Inventory Design

The annual inventory system combines features of the periodic system with a new systematic grid of sample plots and incorporates measurements from the FHM program. The inventory consists of three phases.

Phase 1

Phase 1 procedures reduce variance associated with estimates of forest-land area. A statistical estimation technique is used to classify digital satellite imagery and stratify the land base as forest or nonforest to assign a representative acreage to each sample plot. Source data are from Landsat Thematic Mapper (30-m resolution) imagery that ranged from 1999 to 2001. An image filtering technique is used to classify individual pixels using the 5- by 5-pixel region that surrounds each pixel that contains the sample plot. The resulting 26 classes are collapsed for each estimation unit (county or supercounty; the latter is a combination of small counties). Stratified estimation is applied by assigning each plot to one of these collapsed strata and by calculating the area of each collapsed stratum in each estimation unit. Stratified estimation produces more precise estimates than simple random sampling.

Phase 2

Field measurements are conducted at sample locations distributed systematically about every 3 miles across the landscape. Sample locations are situated within individual cells of a national hexagonal grid laid across the State of Maine. Each Phase 2 sample represents about 6,000 acres depending on the Phase 1 stratification of forest land. The new national design also incorporates a change to a four-subplot cluster (USDA For. Serv. 2002a). At each location, a suite of variables is measured that characterizes the land and trees associated with the sample (Fig. 96). Each year, 20 percent of the sample locations are measured, that is, it takes 5 years to

Figure 96.—Phase 2 and 3 sample design, Maine, 1995-2003.

complete the inventory. Each year's sample is referred to as an "inventory panel." The overall design is referred to as an "interpenetrating design" because no two cells are adjacent to one another within each inventory panel. As a result, each panel provides an unbiased representation of conditions across the State. Each completed panel is combined with existing panels to produce the most precise estimates possible. This report is based on the first five panels measured in Maine using the new annual inventory protocols. After the next panel is complete, the set of panels used for estimation "moves" to the most recent five panels (2nd through 6th year). The moving average approach ensures that the most current and complete inventory data are used.

Phase 3

More extensive forest-health measurements are collected during a 10-week period in summer on a subset of Phase 2 sample locations. The measurements are grouped into six general categories of indicators: crown condition, understory vegetation, down woody material, soil condition, lichen communities, and ozone damage. The intensity of the Phase 3 sample is one sample location per 96,000 acres of land. The relatively small number of Phase 3 samples does not provide detailed analyses in some cases. For example, breaking down tree damage for a particular species by region reduces the number of samples and yields a high sampling error (SE).

Ensuring Consistency with Previous Inventories

Compiling and reporting results for the first five panels of the annual inventory required additional work to ensure comparisons were valid in light of changing procedures, definitions, and estimation methods. Three areas of concern were addressed for the 1982 and 1995 inventories because existing digital inventory data could be recompiled to current standards. Comparisons to published inventory information prior to 1982 should be used with caution to ensure valid comparisons.

The first concern involved consistency in the estimate of total forest land in Maine. In previous annual reports, analyses were limited to the timberland portion of the forest-land base. This approach has adequately addressed wood-supply issues, but more holistic analyses cover the entire forest-land base. This has required incorporating "other forest land" in a consistent manner for the previous two periodic inventories.

Also, as part of the nationalization of the FIA program, all statistical estimation and compilation systems are being reviewed for consistency among regional FIA units. The intent is to have a national system with comparable data and information across state and regional boundaries. This resulted in modifications to the procedures and algorithms for compiling data on stocking, forest type, and stand-size class that were used in development of information for this report. The algorithm used to classify these variables has undergone significant modifications, so estimates in older publications are not comparable with current ones. To overcome this limitation, the latest national approach was used to recompute stocking, forest type, and stand-size class for the current and two most recent inventories. Comparisons of these variables now can be analyzed using a temporally consistent classification system (Appendix Tables A2, A3, A28, A31, A32, A35, A36, A37, A38, A39, B3, B4, B14, C3, C4, and C14). A supplemental approach for developing forest-habitat types was implemented because this variable is preferred as a measure of composition in Maine (see Gadzik and others 1998). A more detailed measure of stand-size class--stand-diameter class--was developed to divide the sawtimber class into small and large sizes. Also, stocking levels were assigned using the FIBER model (see Definition of Terms).

The third concern involved the estimation of individual tree volumes that are used to develop trend data for inventory volume. Due to continuing difficulties in estimating tree bole and sawlog lengths over time, a procedure that predicts previous merchantable lengths by assigning an average length by species group and diameter class has been used in the past. An improved procedure that uses nonlinear regression were developed (Westfall and Laustsen, in press). New tree-section lengths have been used to recompute all individual tree volumes for the 1982 and 1995 inventories. These new estimates improve the ability to estimate change

components (net growth, removals, and mortality), but does not solve the problematic lack of remeasurement of all sample locations and trees in the sample during the first 5-year inventory cycle. When the new sample grid was put in place, half of the sample locations were new. On the roughly 50 percent of sample locations that were remeasured, only trees on the central 24-foot, circular-radius fixed plot centered over the previously used 52.7-foot, circular-radius fixed plot (1/5 acre) were remeasured. Thus, only 12-percent of the sample trees measured in 1995 were remeasured in the first 5-year cycle. During the second cycle of inventory measurements, all sample locations and trees will be remeasured on forested samples. It is interesting to note that the first panel to be remeasured will capture a remeasured sample of trees that exceeds the entire first 5 years. As a result, the second cycle of inventory is expected to provide consistency between change in inventory volume and the net difference between net growth and removals estimates.

To overcome inconsistencies in previous publications, all of the 1982 and 1995 data have been recompiled to current standards. A set of reconciled tables is included in the Appendix.

Statistical Significance

This report contains a wealth of statistical estimates that are compared over time and among numerous variables. Changes in estimates are discussed in terms of direction and magnitude. In most cases, mention of "significant" changes are based on comparing 67-percent confidence intervals for the various estimates. If confidence intervals overlap, there has been no real change in a statistical sense. When confidence intervals do not overlap, significant change has occurred. This approach was used throughout the report, though no attempt was made to include all of the statistical tests of significance. Sampling errors are provided in the Appendix Tables. To approximate 95-percent confidence intervals, multiply the SE's by 2.

Benefits: More Rapid and Complete Resource Analyses

Perhaps the most salient benefit of the new inventory system will be the nearly threefold improvement in timeliness. A complete new inventory will be available at the end of each 5-year cycle with updates on conditions available yearly. The installation of a single remeasured sample design across the State will greatly improve the quality of information on change in resource extent, status, and condition. The use of this national sample design will facilitate resource assessments that straddle traditional regional and state boundaries to include Maine's results within the New England region, as well as national and international assessments. The FIA website can be used to download data and make specific tabular queries for any state in the Nation: http://ncrs2.fs.fed.us/4801/fiadb/index.htm.

The extension of the sample to include a broader range of measurements will help analysts better understand the relationships between resource change and underlying ecological variables. The implementation of a suite of forest health variables (Phase 3) will foster a more complete understanding of conditions on Phase 2 plots.

The hiring of permanent field crews is a significant advantage over the use of temporary crews. Under the new design, crew members are visiting sample locations within their region year after year, enhancing their ability to locate samples, obtain permission from landowners, identify local species, evaluate tree quality, understand forest composition and management activities, and measure the forces affecting resource change in their region.

Although not a direct benefit of the annual inventory, new developments in geospatial analysis allow the use of the FIA grid samples to produce spatial surfaces that represent indicators of interest in Maine. A suite of mapped products is presented. The mapped surfaces were developed using modeling techniques or, in some cases, a simple display of sample locations. In the case of kriging and other modeling, the Phase 1 forest-land base map is used to highlight variables of interest on 30-m pixels. The techniques selected take the best advantage of the spatial variability of the FIA data. Each approach provides a "mapped surface" that expresses this variability for the variable of interest. The intent of these products is not attempt to actually map each 30-m pixel but to display

the area according to confidence of occurrence classes based on the FIA samples. One concern is determining how many sample plots are needed to provide a reasonable depiction of the spatial variability. In many cases, the FIA data are rich enough to utilize kriging.

Another issue involves the neighbor-search routines used by kriging and the caution of displaying averages that reflect a wide range of values. For example, high basal-area plots that are averaged with low basal-area plots result in medium values assigned to pixels.

Definition of Terms

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

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

Board foot. A unit of lumber measurement 1 foot long, 1 foot wide, and 1 inch thick, or its equivalent. International ¼ inch rule is used as the USDA Forest Service standard log rule in the Eastern United States.

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

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

Cropland. Land that currently supports agricultural crops including silage and feed grains, bare farm fields resulting from cultivation or harvest, and maintained orchards. Includes cropland used for cover crops and soil improvement.

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

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

Cull tree. A rough tree or a rotten tree.

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

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

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

Forest land. Land that is at least 10 percent stocked with trees of any size, or that formerly had such tree cover and is not currently developed for a nonforest use. The minimum area for classification of forest land is 1 acre. The components that make up forest land are timberland and all noncommercial forest land.

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

Forest-type group. A combination of forest types that share closely associated species or site requirements are combined into forest-type groups.

Gross growth. The sum of accretion and ingrowth.

Growing-stock trees. Live trees of commercial species classified as sawtimber, or poletimber; 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 and larger d.b.h. in from a 1-foot stump to a minimum 4.0-inch top diameter outside the 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.

Habitat type. A classification of forest land that uses existing trees to classify conditions according to "potential natural" tree communities. These ecological habitat types are intended to describe communities that are stable over time as opposed to traditional FIA forest types that describe only the existing vegetation. The FIBER model is used to classify sample plot conditions using habitats

that are determined by soil-site relationships that change slowly (Solomon and others 1995; Leak 1982). Habitat types used for Maine are beech/red maple, cedar/black spruce, hemlock/red spruce, oak/white pine, spruce/fir, and sugar maple/ash.

Harvest disturbance.

a) Partial harvest. Harvest by which trees are removed individually or in small patches (fewer than 5 acres in size), sometimes referred to as selection cutting.

b) Shelterwood. Harvest of mature trees from a forest site in two or more stages. The first stage removes only a portion of the trees to allow establishment of regeneration before the remaining trees are removed in a subsequent harvest.

c) Clearcut. Harvest on a site more than 5 acres in size that results in a residual basal area of acceptable growing-stock trees more than 4.5-inches d.b.h. and less than 30 square feet per acre, unless after harvesting the site has a well-distributed stand of acceptable growing-stock trees at least 3.0 and 5.0 feet tall for softwoods and hardwoods, respectively.

d) Change of land use. Harvest conducted to convert forest land to another land use, such as house lots, farm pastures, and other uses.

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

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

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

Board-foot volume = (0.22D2 - 0.71D)(0.904762)

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

Land area. (a) Bureau of Census: The area of dry land and land temporarily or partly covered by water, such as marshes, swamps, and river flood plains; streams, sloughs, estuaries, and canals less than 200 feet wide; and lakes, reservoirs, and ponds less than 4.5 acres in area; (b) Forest Inventory and Analysis: same as (a) except that the minimum width of streams, etc. is 120 feet, and the minimum size of lakes, etc. is 1 acre.

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

Live tree. Growing-stock, rough, and rotten trees of any size. Live trees at least 1.0 inch d.b.h. and larger are commonly referred to.

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

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

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

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

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

Noncensus water. Streams/rivers 120 to 200 feet wide and bodies of water 1 to 4.5 acres in size. The Bureau of the Census classifies such water as land.

Noncommercial species. Tree of typically small size, poor form, or inferior quality that usually are unsuitable for industrial wood products.

Nonforest land. Land that has never supported forests, or land formerly forested but now in nonforest use, e.g., cropland, pasture, residential areas, marshes, swamps, highways, industrial or commercial sites, or noncensus water.

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

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

Owner class. A classification land into categories of ownership:

a) Forest industry. Land owned by companies or individuals that operate wood-using plants.

b) Nonindustrial private . Land owned by companies, nongovernmental organizations (such as timber investment management organizations), or individuals that do not operate wood-using plants.

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

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

Poletimber stand. A stand-size class of forest land that is at least 10 percent stocked with live trees of which half or more of such stocking is in poletimber or sawtimber trees, or both, and in which the stocking of poletimber exceeds that of sawtimber. This term also applies to the stand-diameter class variable that is based on basal area per acre.

Poletimber tree. A live tree of commercial species meeting regional specifications of soundness and form and at least 5.0 inches in d.b.h. but smaller than a sawtimber tree (9.0 inches d.b.h. for softwoods and 11.0 inches d.b.h. for hardwoods).

Potential sawtimber tree (sawlog quality). A commercial tree species that is field coded as a growing stock tree but is below the minimum diameter for sawtimber (9.0 inches d.b.h. for softwoods and 11.0 inches d.b.h. for hardwoods).

Pulpwood quality tree. A commercial tree species that is field coded as a growing-stock tree or as a rough cull tree.

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

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

Reserved productive forest land. Forest land sufficiently productive to qualify as timberland but withdrawn from timber utilization through statute or administrative designation; land exclusively used for Christmas tree production.

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

Rough tree. 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 a live tree of noncommercial species.

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

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

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

Sapling stand. A stand-diameter class of forest land that is at least 10 percent stocked with live trees where half or more of the basal area per acre is in saplings or seedlings or both.

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

Sawlog portion. That part of the bole of a sawtimber tree between the stump and the sawlog top.

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

Sawtimber stand. A stand-size class of forest land that is at least 10 percent stocked with live trees of which half or more of such stocking is in poletimber or sawtimber trees or both, and in which the stocking of sawtimber is at least equal to that of poletimber. This term also applies to the stand-diameter class variable that is based on basal area per acre.

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

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

SE. See Sampling error.

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

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

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

Sound-Wood Volume. Tree volume of the central stem from a 1-foot stump to a minimum top diameter outside bark or a point where the stem breaks into limbs. Sound cull portions are included. Rotten cull portions are excluded. Most often expressed in cubic feet for live trees.

Species Group. Species groups referred to in some tables and figures are as follows:

a) Balsam fir.

b) Spruces. white spruce, red spruce, and black spruce.

c) Eastern white pine. eastern white pine

d) Northern white-cedar.

e) Hemlock. eastern hemlock

f) Other miscellaneous softwoods. These species were tallied in 1999, 2000, 2001, 2002, or 2003: plantation larch, tamarack, Norway spruce, jack pine, red pine, pitch pine, and Scotch pine.

g) Red maple.

h) Sugar maple/beech/yellow birch. sugar maple, American beech, and yellow birch.

i) Intolerant hardwoods. paper birch, cottonwood species, balsam poplar, eastern cottonwood, bigtooth aspen, swamp cottonwood, and quaking aspen.

j) Other miscellaneous commercial hardwoods . These species were tallied in 1999, 2000, 2001, 2002, or 2003: silver maple, black maple, Ohio buckeye, birches, shagbark hickory, white ash, black ash, green

ash, butternut, black cherry, white oak, swamp white oak, scarlet oak, northern red oak, black oak, black willow, basswood species, American basswood, elm species, and American elm.

k) Noncommercial hardwoods. These species were tallied in 1999, 2000, 2001, 2002, or 2003: maple species, boxelder, striped maple, mountain maple, Norway maple, serviceberry, gray birch, American hornbeam, hawthorns, apple species, eastern hophornbeam, pin cherry, chokecherry, bear/scrub oak, willow species, and American mountain-ash.

l) All unknown species. Tree species that are unknown or not listed.

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

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

Stand-diameter class. A classification of forest land based on the plurality of basal area per acre of live trees sampled on each condition: sapling (1.0 to 4.9 inches d.b.h.), poletimber (5.0 to 10.0 inches d.b.h.), small sawtimber (10.0 to 14.9 inches d.b.h.), and large sawtimber (15.0 inches and larger d.b.h.). The classification requires at least 5.0 square feet of basal area per acre in trees that are in the intermediate, codominant, or dominant crown position. Conditions with less than 5.0 square feet are classified as low/no basal area. This classification is an alternative to the traditional FIA stand-size class and is used only for Maine.

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

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

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

In this report, stocking regions were developed using the FIBER model (Solomon and others 1995) to classify forest land as understocked, suboptimal, optimal, or overstocked. Stocking regions describe the site's degree of stocking in relation to management opportunities, e.g., suboptimal stands typically require 10 years before stocking would be sufficient for management activity. Stocking regions relate directly to thresholds depicted by FIBER stocking charts. Understocked acreage is below the "C line." Suboptimal acreage is between the C line and "B line." Optimal acreage is between the B line and the "A line." Overstocked acreage is above the A line.

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

Timberland. Forest land producing or capable of producing crops of industrial wood (more than 20 cubic feet per acre per year) and not withdrawn from timber utilization by statute (Acadia National Park and Appalachian Trail Corridor) or administrative designation (Baxter State Park and Bureau of Parks and Lands Ecological Reserve). The statutes and designations apply to publicly owned land only. Timberland was formerly known as commercial forest land. Timberland may be "nonstocked" so long as no natural condition or human activity prevents or inhibits the establishment of tree seedlings.

Timberland includes the following components:

a) Rural. The historical and traditional acreage classified as timberland in previous inventories.

b) Other forest land. Defines a subset of forest land that is producing or capable of producing crops of industrial wood, but is associated with or part of a nonforest land use. In the past, these areas would have been treated as inclusions in the nonforest land use because they were considered part of a development. The minimum area for classification as Other Forest

Land is 1 acre. These strips of timber must have a crown width of at least 120 feet. Examples of land that could be classified as Other Forest Land are forested portions of city parks, forested land in highway medians and rights-of-way, forested areas between ski runs, and forested areas within golf courses. Generally, although surrounded by nonforest development, these areas have not been developed and exhibit natural, undisturbed understories.

c) Urban timberland. A subset of forest land that now is grouped into timberland. Includes land that except for its location would be classified as rural timberland. This land is nearly (surrounded on three sides) or completely surrounded by urban development, whether commercial, industrial, or residential. This land meets all the criteria for timberland, that is, at least 1 acre capable of producing at least 20 cubic feet per acre per year of industrial wood, is not developed for other than timber production, and is not reserved by a public agency. It is highly unlikely that such land would be used for timber products on a continuing basis. Such land may be held for future development, or scheduled for development. (The timber that is present may be utilized only at the time of development.) The land may be undeveloped due to periodic flooding, low wet sites, steep slopes, or its proximity to industrial facilities that are unsuitable for residential development. Forested areas within city parks are not urban forest land; they may be Other Forest Land if all requirements are met. City parks cannot be classified as urban timberland as it is currently defined.

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

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

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

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

Tree grade. A classification of sawtimber quality based on guidelines for tree grades for hardwoods, white pine, and southern pine. (Note: Red pine was graded using the guidelines for southern pine.)

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

Unproductive forest land. Forest land that is incapable of producing 20 cubic feet per acre per year of industrial wood under natural conditions due to adverse site conditions.

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

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

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

Table A1. Land area by land class, Maine, 2003[a]

(In thousands of acres)

Land class	Acres	SE
Timberland:		
Rural	17,148.5	.5
Urban	54.1	25.1
Total timberland	17,202.5	.5
Forested land:		
Productive reserved	280.4	13.8
Unproductive reserved	33.2	39.4
Other forest land[c]	201.4	15.9
Total forest land	17,717.5	.4
Nonforest land:		
Cropland	495.3	8.6
Pasture	81.2	22.6
Other	1,381.7	4.8
Noncensus water	75.7	19.7
Total nonforest land	2,033.8	3.6
Total land area[d]	19,751.4[b]	.0
SE	.0	

[a] In this and other tables, a zero indicates that the data are negligible or the condition was not encountered in the sample. A dash indicates that the condition is not possible under current Forest Service definitions.
[b] Rows and columns in all tables may not sum due to rounding.
[c] "Other forest land" formerly known as unproductive forest land.
[d] Source: 2000 United States Department of Commerce, Bureau of Census.

Table A2. Area of timberland by forest type, forest-type group, and stand-size class, Maine, 2003

(In thousands of acres)

Forest type	Stand-size class				All classes	SE
	Saw-timber	Pole-timber	Sapling and seedling	Non-stock		
Jack pine	.0	5.8	.0	.0	5.8	100.0
Red pine	18.2	10.4	20.6	.0	49.2	32.0
White pine	351.5	124.1	19.3	.0	494.9	9.9
White pine/hemlock	118.8	38.1	4.6	.0	161.5	18.0
Hemlock	490.2	121.8	13.9	.0	625.9	9.1
White/red pine group	978.7	300.2	58.4	.0	1,337.4	5.9
Balsam fir	320.3	486.6	1,148.1	.0	1,955.0	5.0
White spruce	41.1	56.0	84.1	.0	181.2	16.4
Red spruce	512.9	323.4	178.0	.0	1,014.3	7.1
Red spruce/balsam fir	252.5	181.2	514.9	.0	948.6	7.3
Black spruce	17.5	213.5	204.2	.0	435.2	11.1
Tamarack	9.0	34.4	15.3	.0	58.7	27.8
Northern white-cedar	559.7	340.5	58.6	.0	958.9	7.2
Spruce/fir group	1,713.1	1,635.5	2,203.3	.0	5,551.9	2.5
Norway spruce	.0	1.5	11.4	.0	12.9	63.6
Larch	.0	6.2	.0	.0	6.2	100.0
Exotic softwoods group	.0	7.7	11.4	.0	19.1	53.8
Wh. pine/no.red oak/wh. ash	152.8	137.1	32.5	.0	322.4	12.3
Other oak/pine	1.6	8.9	1.5	.0	12.0	55.9
Oak/pine group	154.4	145.9	34.0	.0	334.4	12.0
White oak/red oak/hickory	19.2	67.4	13.1	.0	99.7	22.5
Northern red oak	72.1	104.9	9.2	.0	186.2	16.4
Southern scrub oak	.0	.0	5.7	.0	5.7	100.0
Red maple/oak	1.5	10.2	.0	.0	11.7	59.2
Mixed upland hardwoods	.0	1.3	15.5	.0	16.8	54.7
Oak/hickory group	92.9	183.7	43.4	.0	320.0	12.3
Sweetbay/swamp tupelo/red mple	.0	11.7	.0	.0	11.7	70.7
Oak/gum/cypress group	.0	11.7	.0	.0	11.7	70.7

Table A2. continued

(In thousands of acres)

Forest type	Stand-size class				All classes	SE
	Saw-timber	Pole-timber	Sapling and seedling	Non-stocked		
Black ash/Amer. elm/red maple	11.9	64.2	44.5	.0	120.6	20.3
River birch/sycamore	.0	.0	16.8	.0	16.8	52.2
Cottonwood	.0	1.3	6.0	.0	7.3	84.0
Willow	.0	.0	17.1	.0	17.1	53.2
Sycamore/pecan/American elm	.0	4.3	4.8	.0	9.0	70.8
Sugarbrry/hackbrry/elm/gr.ash	.0	13.9	2.0	.0	15.9	52.3
Silver maple/American elm	.0	5.9	11.4	.0	17.3	57.8
Red maple(lowland)	17.9	96.9	44.1	.0	159.0	17.3
Elm/ash/red maple group	29.8	186.4	146.8	.0	363.0	11.5
Sugar maple/beech/yellow birch	2,425.4	2,628.2	1,181.7	.0	6,235.3	2.4
Black cherry	1.8	.0	1.6	.0	3.4	69.4
Cherry/ash/yellow poplar	20.9	75.3	58.3	.0	154.5	18.2
Hard maple/basswood	.0	.0	21.4	.0	21.4	50.7
Elm/ash/locust	.0	.0	3.1	.0	3.1	70.8
Red maple/uplands	98.5	295.3	145.1	.0	538.9	9.6
Northern hardwoods group	2,546.6	2,998.8	1,411.1	.0	6,956.5	2.2
Aspen	103.9	375.2	446.6	.0	925.7	7.4
Paper birch	112.0	529.1	600.4	.0	1,241.5	6.4
Balsam poplar	9.0	34.9	49.7	.0	93.6	23.1
Aspen/birch group	224.9	939.1	1,096.8	.0	2,260.8	4.6
Nonstocked	.0	.0	.0	47.8	47.8	28.9
All forest types	5,740.4	6,409.1	5,005.2	47.8	17,202.5	.5
SE	2.5	2.3	2.8	28.9	.5	

Table A3. Area of timberland by forest-type group and stocking class of all live trees, Maine, 2003

(In thousands of acres)

Forest-type group	Stocking class					All classes	SE
	Nonstocked	Poorly stocked	Moderately stocked	Fully stocked	Over-stocked		
White/red pine	.0	68.2	433.7	732.8	102.7	1,337.4	5.9
Spruce/fir	.0	311.3	1,569.4	2,695.7	975.4	5,551.9	2.5
Exotic Softwoods	.0	1.5	6.2	11.4	.0	19.1	53.8
Oak/pine	.0	28.9	113.5	170.8	21.1	334.4	12.0
Oak/hickory	.0	7.4	128.1	168.0	16.6	320.0	12.3
Oak/gum/cypress	.0	.0	.0	11.7	.0	11.7	70.7
Elm/ash/red maple	.0	60.1	144.5	126.6	31.9	363.0	11.5
Northern hardwoods	.0	310.2	2,054.2	3,756.3	835.8	6,956.5	2.2
Aspen/birch	.0	101.5	526.1	1,069.5	563.6	2,260.8	4.6
All type groups	.0	889.1	4,975.7	8,742.9	2,547.0	17,154.8	.5
Nonstocked	47.8	.0	.0	.0	.0	47.8	28.9
All groups	47.8	889.1	4,975.7	8,742.9	2,547.0	17,202.5	.5
SE	28.9	7.5	2.8	1.8	4.2	.5	

Table A4. Area of timberland by cubic-foot stand-volume class and ownership class, Maine, 2003

(In thousands of acres)

Ownership group	Stand-volume class (cubic feet per acre)						All classes	SE
	0-499	500-999	1000-1499	1500-1999	2000-2499	2500+		
Forest Service	.0	.0	11.8	17.7	5.9	11.8	47.2	34.7
Other Federal	23.8	.0	11.7	10.4	.0	2.0	47.9	33.8
State/Local Governments	89.1	104.5	112.3	97.5	127.6	117.4	648.5	9.1
Forest Industry	1,593.4	1,028.4	963.6	830.4	460.6	593.2	5,469.7	2.6
Non-industrial Private	2,702.9	2,133.8	1,882.7	1,709.7	1,098.6	1,461.5	10,989.3	1.4
All owners	4,409.2	3,266.8	2,982.1	2,665.8	1,692.7	2,185.8	17,202.5	.5
SE	3.0	3.7	3.9	4.2	5.4	4.6	.5	

Table A5. Area of timberland by board-foot stand-volume class and ownership class, Maine, 2003

(In thousands of acres)

Ownership group	Stand-volume class (board feet per acre)						All classes	SE
	0-1999	2000-3999	4000-5999	6000-7999	8000-9999	10000+		
Forest Service	.0	11.8	23.6	.0	.0	11.8	47.2	34.7
Other Federal	45.9	.0	.0	.0	.0	2.0	47.9	33.8
State/Local Governments	235.2	121.8	106.0	96.3	40.0	49.3	648.5	9.1
Forest Industry	2,897.2	1,128.6	719.6	389.5	147.9	186.9	5,469.7	2.6
Non-industrial Private	5,624.2	2,301.3	1,304.4	781.8	425.5	552.0	10,989.3	1.4
All owners	8,802.5	3,563.5	2,153.6	1,267.6	613.4	802.0	17,202.5	.5
SE	1.8	3.5	4.7	6.3	9.2	7.8	.5	

Table A6. Number of live trees (1.0+ inches d.b.h.) on forest land by species and diameter class, Maine, 2003

(In thousands of trees)

Species group	Diameter class (inches at breast height)						
	1.0-2.9	3.0-4.9	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9
Balsam fir	6,130,952	977,901	290,143	109,801	39,154	13,239	2,986
White spruce	118,239	60,600	27,024	17,178	9,136	5,198	3,279
Black spruce	274,556	103,260	56,007	23,179	7,789	2,362	628
Red spruce	1,230,911	276,622	151,249	105,808	65,006	33,853	16,108
Red pine	3,891	11,081	5,042	2,717	2,078	1,424	769
Pitch pine	0	0	263	275	593	384	177
Eastern white pine	192,197	84,014	45,852	34,514	23,836	17,064	10,871
Other yellow pines	442	867	791	233	35	35	0
Northern white-cedar	336,655	127,106	104,857	87,127	57,557	34,589	16,115
Eastern hemlock	277,115	107,047	54,447	41,775	30,651	20,670	10,825
Other softwoods	31,126	18,159	10,788	5,810	3,004	1,538	1,019
Total softwoods	8,596,084	1,766,657	746,465	428,416	238,839	130,358	62,778
Red maple	1,703,501	405,031	179,647	109,237	59,983	29,679	13,121
Sugar maple	400,426	117,483	51,817	38,881	27,317	16,761	10,483
Yellow birch	593,632	135,877	52,497	31,980	20,972	16,042	8,838
Paper birch	959,183	204,248	95,437	51,629	26,445	9,802	4,568
Hickory	457	0	37	37	0	0	0
American beech	582,013	141,967	67,535	39,066	20,081	10,061	5,055
White ash	145,567	33,809	21,512	11,807	7,470	3,911	1,655
Aspen	569,017	108,465	43,376	29,777	20,394	12,752	6,364
Black cherry	64,477	10,979	3,714	2,513	1,035	585	0
White oak	1,829	1,780	1,532	593	487	209	257
Northern red oak	76,291	33,754	21,535	14,753	11,449	7,713	3,617
Other white oaks	0	0	0	0	0	34	0
Other red oaks	1,294	3,148	1,106	672	521	453	231
American basswood	2,204	1,778	1,201	618	596	309	105
Elm	16,277	7,921	2,264	532	358	74	0
Other commercial hardwoods	129,849	29,821	11,828	4,471	1,898	521	258
Noncommercial hardwoods	1,542,827	172,593	34,715	9,002	2,059	506	180
Total hardwoods	6,788,844	1,408,654	589,754	345,569	201,067	109,413	54,733
Total, all species	15,384,928	3,175,311	1,336,219	773,986	439,906	239,771	117,510
SE	2.0	1.9	1.4	1.4	1.6	1.9	2.3

Table A6. continued

(In thousands of trees)

Species group	Diameter class (inches at breast height)							
	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29.0+	Total 5.0+	All classes	SE
Balsam fir	744	107	0	0	0	456,175	7,565,028	2.9
White spruce	1,619	810	175	102	0	64,523	243,362	8.9
Black spruce	264	34	0	0	0	90,263	468,079	10.8
Red spruce	5,586	2,271	922	281	34	381,119	1,888,652	4.1
Red pine	648	136	135	104	0	13,054	28,026	25.0
Pitch pine	134	35	0	0	0	1,861	1,861	34.1
Eastern white pine	8,701	6,687	3,725	5,076	610	156,937	433,148	6.1
Other yellow pines	72	37	0	0	0	1,203	2,512	61.1
Northern white-cedar	6,701	3,809	1,125	877	72	312,829	776,590	5.7
Eastern hemlock	6,482	3,638	1,914	1,416	75	171,895	556,056	5.9
Other softwoods	571	211	34	80	0	23,056	72,341	15.0
Total softwoods	31,523	17,777	8,030	7,937	791	1,672,914	12,035,655	2.3
Red maple	5,999	3,017	1,005	1,267	70	403,026	2,511,558	3.2
Sugar maple	6,303	3,278	1,888	3,178	286	160,191	678,101	5.3
Yellow birch	5,529	3,005	1,370	1,855	71	142,160	871,669	4.6
Paper birch	1,411	382	103	175	0	189,952	1,353,382	4.8
Hickory	0	0	0	0	0	75	532	86.5
American beech	2,222	739	315	120	0	145,194	869,175	5.2
White ash	842	279	242	103	0	47,819	227,196	7.3
Aspen	3,227	1,781	640	570	0	118,883	796,364	7.4
Black cherry	39	0	0	0	0	7,886	83,342	14.6
White oak	37	0	0	0	0	3,115	6,724	27.3
Northern red oak	2,303	951	655	524	69	63,571	173,616	7.7
Other white oaks	0	0	0	0	0	34	34	100.0
Other red oaks	70	33	0	0	0	3,088	7,530	40.2
American basswood	129	0	0	0	0	2,958	6,940	27.5
Elm	0	0	0	35	0	3,263	27,461	21.3
Other commercial hardwoods	204	117	0	69	0	19,366	179,035	10.7
Noncommercial hardwoods	71	78	35	0	0	46,648	1,762,068	3.8
Total hardwoods	28,385	13,660	6,255	7,896	496	1,357,229	9,554,728	2.0
Total, all species	59,908	31,437	14,286	15,833	1,287	3,030,143	21,590,383	1.5
SE	3.0	4.4	5.6	5.7	17.0	1.1	1.5	

Table A7. Number of live trees (1.0+ inches d.b.h.) on timberland by species and diameter class, Maine, 2003

(In thousands of trees)

Species group	Diameter class (inches at breast height)						
	1.0-2.9	3.0-4.9	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9
Balsam fir	6,020,613	957,574	284,735	108,080	38,352	13,162	2,950
White spruce	108,825	59,266	26,542	17,066	9,103	5,068	3,246
Black spruce	196,021	86,129	54,125	22,746	7,581	2,362	592
Red spruce	1,174,024	262,199	142,215	100,085	61,506	31,848	15,173
Red pine	3,891	11,081	5,008	2,682	2,078	1,424	735
Pitch pine	0	0	263	275	593	384	177
Eastern white pine	189,991	82,611	45,374	33,953	23,408	16,758	10,45
Other yellow pines	442	867	791	233	35	35	0
Northern white-cedar	322,498	120,609	101,652	84,951	56,239	33,927	15,518
Eastern hemlock	277,115	107,047	54,132	41,663	30,581	20,635	10,825
Other softwoods	26,946	17,274	10,640	5,705	3,004	1,538	1,019
Total softwoods	8,320,366	1,704,657	725,479	417,440	232,480	127,142	60,689
Red maple	1,682,724	397,928	176,222	107,011	58,741	28,946	12,976
Sugar maple	400,426	117,062	51,068	38,396	26,757	16,545	10,239
Yellow birch	586,448	132,902	50,952	30,839	20,525	15,833	8,563
Paper birch	909,735	193,839	89,393	48,852	25,717	9,558	4,325
Hickory	457	0	37	37	0	0	0
American beech	575,451	139,878	66,210	38,520	19,795	9,921	4,914
White ash	145,567	33,809	21,394	11,734	7,437	3,911	1,655
Aspen	569,017	108,465	43,131	29,439	20,081	12,473	6,262
Black cherry	64,477	10,979	3,714	2,479	1,035	551	0
White oak	1,829	1,780	1,532	593	487	209	257
Northern red oak	76,291	33,754	21,501	14,711	11,406	7,713	3,575
Other white oaks	0	0	0	0	0	34	0
Other red oaks	1,294	3,148	1,106	672	521	453	231
American basswood	2,204	1,778	1,201	618	596	309	105
Elm	16,277	7,921	2,230	532	358	74	0
Other commercial hardwoods	128,513	29,821	11,188	4,150	1,790	521	258
Noncommercial hardwoods	1,514,647	169,633	34,337	8,969	2,059	506	180
Total hardwoods	6,675,358	1,382,699	575,220	337,551	197,307	107,558	53,540
Total, all species	14,995,724	3,087,355	1,300,699	754,991	429,787	234,700	114,230
SE	2.0	1.9	1.4	1.4	1.6	2.0	2.4

Table A7. continued

(In thousands of trees)

Species group	Diameter class (inches at breast height)							
	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29.0+	Total 5.0+	All classes	SE
Balsam fir	744	107	0	0	0	448,131	7,426,317	3.0
White spruce	1,585	776	175	102	0	63,663	231,755	8.5
Black spruce	264	34	0	0	0	87,705	369,854	11.2
Red spruce	5,297	2,079	888	281	34	359,406	1,795,629	4.1
Red pine	615	102	101	104	0	12,849	27,822	25.2
Pitch pine	134	35	0	0	0	1,861	1,861	34.1
Eastern white pine	8,282	6,409	3,621	4,904	610	153,775	426,378	6.1
Other yellow pines	72	37	0	0	0	1,203	2,512	61.1
Northern white-cedar	6,519	3,708	1,023	811	72	304,422	747,528	5.9
Eastern hemlock	6,415	3,638	1,914	1,416	75	171,295	555,457	5.9
Other softwoods	571	211	34	80	0	22,803	67,024	15.9
Total softwoods	30,499	17,137	7,757	7,699	791	1,627,113	11,652,136	2.3
Red maple	5,864	2,980	1,005	1,267	70	395,083	2,475,735	3.3
Sugar maple	6,130	3,178	1,849	3,035	286	157,482	674,970	5.4
Yellow birch	5,391	2,935	1,298	1,819	71	138,227	857,578	4.7
Paper birch	1,377	348	103	175	0	179,848	1,283,422	4.8
Hickory	0	0	0	0	0	75	532	86.5
American beech	2,222	739	315	120	0	142,757	858,087	5.2
White ash	842	279	242	103	0	47,595	226,971	7.3
Aspen	3,191	1,745	640	570	0	117,533	795,014	7.4
Black cherry	39	0	0	0	0	7,818	83,274	14.6
White oak	37	0	0	0	0	3,115	6,724	27.3
Northern red oak	2,261	909	655	524	69	63,325	173,370	7.7
Other white oaks	0	0	0	0	0	34	34	100.0
Other red oaks	70	33	0	0	0	3,088	7,530	40.2
American basswood	129	0	0	0	0	2,958	6,940	27.5
Elm	0	0	0	35	0	3,230	27,427	21.3
Other commercial hardwoods	170	117	0	69	0	18,263	176,597	10.9
Noncommercial hardwoods	71	78	35	0	0	46,236	1,730,517	3.8
Total hardwoods	27,793	13,341	6,144	7,716	496	1,326,667	9,384,723	2.0
Total, all species	58,292	30,479	13,901	15,415	1,287	2,953,780	21,036,860	1.5
SE	3.0	4.5	5.7	5.8	17.0	1.1	1.5	

Table A8. Number of trees (5.0+ inches d.b.h.) on timberland by species and tree class, Maine, 2003

(In thousands of trees)

Species group	Tree class						All classes
	Growing stock	Rough cull	Rotten cull	All live	Salvable dead	Nonsalvable dead	
Balsam fir	436,853	8,447	2,831	448,131	18,990	123,963	591,084
White spruce	61,451	2,073	139	63,663	2,214	3,294	69,171
Black spruce	86,064	1,471	169	87,705	4,042	5,990	97,737
Red spruce	350,653	8,029	725	359,406	10,138	23,178	392,722
Red pine	12,566	283	0	12,849	0	206	13,056
Pitch pine	1,600	261	0	1,861	154	611	2,626
Eastern white pine	142,159	11,303	314	153,775	3,157	19,226	176,157
Other yellow pines	972	231	0	1,203	35	70	1,307
Northern white-cedar	258,039	18,726	27,656	304,422	11,085	37,076	352,584
Eastern hemlock	158,406	11,283	1,606	171,295	2,256	5,562	179,114
Other softwoods	21,584	1,078	141	22,803	1,808	6,228	30,840
Total softwoods	1,530,347	63,186	33,580	1,627,113	53,879	225,404	1,906,397
Red maple	351,892	27,693	15,498	395,083	5,157	28,583	428,823
Sugar maple	147,196	7,486	2,799	157,482	778	6,224	164,484
Yellow birch	119,443	14,341	4,444	138,227	1,891	13,398	153,516
Paper birch	169,594	7,512	2,742	179,848	5,204	28,869	213,920
Hickory	75	0	0	75	0	0	75
American beech	114,630	18,848	9,279	142,757	6,659	18,866	168,283
White ash	45,111	1,676	807	47,595	599	1,244	49,437
Aspen	112,110	3,030	2,392	117,533	4,122	20,967	142,621
Black cherry	5,419	2,045	354	7,818	247	2,111	10,177
White oak	2,867	178	70	3,115	0	569	3,68
Northern red oak	61,395	1,857	73	63,325	189	2,183	65,697
Other white oaks	34	0	0	34	0	0	34
Other red oaks	2,787	301	0	3,088	70	517	3,675
American basswood	2,368	556	34	2,958	67	311	3,336
Elm	3,051	179	0	3,230	271	1,328	4,828
Other commercial hardwoods	14,733	2,528	1,002	18,263	563	3,702	22,529
Noncommercial hardwoods	0	41,208	5,028	46,236	2,877	13,113	62,227
Total hardwoods	1,152,704	129,438	44,524	1,326,667	28,693	141,985	1,497,345
Total, all species	2,683,052	192,624	78,104	2,953,780	82,572	367,389	3,403,742

Table A9. Number of growing-stock trees (5.0+ inches d.b.h.) on timberland by species and diameter class, Maine, 2003

(In thousands of trees)

Species group	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
Balsam fir	277,870	105,426	37,347	12,741	2,723	638	107
White spruce	25,913	16,788	8,595	4,843	3,031	1,440	634
Black spruce	53,207	22,677	7,201	2,224	525	230	0
Red spruce	139,484	98,948	59,040	30,763	14,651	4,710	2,002
Red pine	4,935	2,646	1,975	1,424	699	615	102
Pitch pine	217	275	520	311	140	101	35
Eastern white pine	42,247	32,197	19,973	15,491	9,807	7,997	5,833
Other yellow pines	654	138	35	35	0	72	37
Northern white-cedar	88,040	73,264	45,478	28,441	12,970	5,369	3,208
Eastern hemlock	51,713	40,497	25,983	18,493	9,906	5,611	3,319
Other softwoods	10,167	5,519	2,819	1,297	954	502	211
Total softwoods	694,449	398,375	208,967	116,064	55,405	27,285	15,490
Red maple	155,496	97,103	54,128	24,740	11,111	5,229	2,627
Sugar maple	47,474	36,199	25,576	15,161	9,367	5,703	3,040
Yellow birch	45,412	26,792	18,146	12,743	7,166	4,628	2,275
Paper birch	84,627	46,103	24,646	8,422	4,004	1,271	348
Hickory	37	37	0	0	0	0	0
American beech	53,632	31,187	16,226	7,552	3,812	1,587	448
White ash	20,324	11,199	7,196	3,485	1,513	842	244
Aspen	40,863	28,187	19,316	12,152	6,012	2,910	1,604
Black cherry	2,599	1,586	821	413	0	0	0
White oak	1,390	593	487	176	185	37	0
Northern red oak	20,894	14,453	11,261	7,150	3,473	2,113	872
Other white oaks	0	0	0	34	0	0	0
Other red oaks	972	606	489	385	231	70	3
American basswood	886	549	459	309	71	95	0
Elm	2,127	532	358	34	0	0	0
Other hardwoods	8,768	3,384	1,641	485	213	100	72
Total hardwoods	485,501	298,512	180,750	93,242	47,158	24,585	11,564
Total, all species	1,179,950	696,887	389,717	209,306	102,563	51,869	27,054
SE	1.5	1.5	1.6	2.0	2.5	3.2	4.8

Table A9. continued

(In thousands of trees)

Species group	Diameter class (inches at breast height)				
	19.0-20.9	21.0-28.9	29.0+	All classes	SE
Balsam fir	0	0	0	436,853	2.7
White spruce	106	102	0	61,451	7.7
Black spruce	0	0	0	86,064	10.4
Red spruce	774	246	34	350,653	3.5
Red pine	67	104	0	12,566	23.9
Pitch pine	0	0	0	1,600	32.2
Eastern white pine	3,488	4,620	506	142,159	5.5
Other yellow pines	0	0	0	972	59.9
Northern white-cedar	702	531	36	258,039	5.1
Eastern hemlock	1,772	1,072	40	158,406	4.9
Other softwoods	34	80	0	21,584	14.4
Total softwoods	6,942	6,755	616	1,530,347	1.8
Red maple	508	915	36	351,892	2.5
Sugar maple	1,745	2,753	177	147,196	4.8
Yellow birch	956	1,289	35	119,443	3.5
Paper birch	69	105	0	169,594	4.1
Hickory	0	0	0	75	69.9
American beech	143	42	0	114,630	5.2
White ash	205	103	0	45,111	6.8
Aspen	568	497	0	112,110	5.6
Black cherry	0	0	0	5,419	15.7
White oak	0	0	0	2,867	21.1
Northern red oak	619	524	34	61,395	7.2
Other white oaks	0	0	0	34	100.0
Other red oaks	0	0	0	2,787	25.0
American basswood	0	0	0	2,368	19.9
Elm	0	0	0	3,051	14.8
Other hardwoods	0	69	0	14,733	11.9
Total hardwoods	4,813	6,296	282	1,152,704	1.7
Total, all species	11,756	13,051	898	2,683,052	1.2
SE	6.3	6.4	20.6	1.2	

Table A10. Number of standing dead trees (5.0+ inches d.b.h.) on forest land by species, condition class, and diameter class, Maine, 2003

(In thousands of trees)

Species group	Intact top				Broken top				
	5.0-10.9	11.0-14.9	15+	Total	5.0-10.9	11.0-14.9	15+	Total	Total all trees
Balsam fir	20,725	1,234	72	22,032	118,176	6,760	491	125,426	147,458
White spruce	2,412	249	104	2,764	1,959	429	323	2,711	5,475
Black spruce	3,439	106	35	3,580	6,463	329	0	6,792	10,372
Red spruce	10,881	571	249	11,702	19,618	2,813	655	23,086	34,788
Red pine	35	0	35	70	70	66	0	136	206
Pitch pine	222	0	0	222	438	72	33	543	765
Eastern white pine	8,414	866	748	10,028	9,191	1,865	1,712	12,768	22,796
Other yellow pines	35	35	0	70	35	0	0	35	104
Northern white-cedar	21,638	6,404	2,149	30,191	14,987	2,572	1,055	18,614	48,805
Eastern hemlock	2,007	351	139	2,497	3,621	735	568	4,924	7,422
Other softwoods	2,302	551	259	3,111	3,704	1,086	171	4,961	8,073
Total softwoods	72,111	10,367	3,790	86,268	178,263	16,726	5,009	199,997	286,265
Red maple	6,144	559	212	6,915	22,496	3,430	1,813	27,740	34,655
Sugar maple	676	279	0	955	3,428	1,355	1,339	6,122	7,077
Yellow birch	1,890	425	107	2,423	8,014	2,917	2,435	13,366	15,788
Paper birch	4,985	294	0	5,279	26,974	3,116	419	30,510	35,789
American beech	6,464	775	360	7,599	13,064	3,624	1,458	18,146	25,745
White ash	533	34	0	567	1,213	142	36	1,391	1,959
Aspen	3,458	462	215	4,135	18,557	2,436	677	21,669	25,805
Black cherry	509	0	0	509	1,747	103	0	1,850	2,359
White oak	37	0	0	37	387	144	0	532	569
Northern red oak	603	34	0	637	1,457	137	141	1,735	2,372
Other red oaks	315	0	0	315	272	0	0	272	587
American basswood	32	0	0	32	346	0	0	346	378
Elm	494	67	65	626	624	141	207	973	1,598
Other commercial hardwoods	773	108	103	985	3,151	482	0	3,633	4,617
Noncommercial hardwoods	4,476	0	0	4,476	11,573	146	111	11,829	16,305
Total hardwoods	31,389	3,038	1,063	35,489	113,304	18,173	8,637	140,114	175,604
Total, all species	103,500	13,405	4,853	121,758	291,566	34,899	13,646	340,111	461,869

Table A11. Number of standing dead trees (5.0+ inches d.b.h.) on timberland by species, condition class, and diameter class, Maine, 2003

(In thousands of trees)

Species group	Intact top				Broken top					
	5.0-10.9	11.0-14.9	15+	Total	5.0-10.9	11.0-14.9	15+	Total	Total all trees	SE
Balsam fir	19,839.6	1,234.5	72.2	21,146.3	114,460.8	6,499.4	490.6	121,450.8	142,597.1	3.4
White spruce	2,411.6	248.6	103.7	2,763.9	1,959.3	429.1	322.8	2,711.2	5,475.0	20.0
Black spruce	3,334.4	105.8	35.3	3,475.5	6,156.5	328.9	.0	6,485.4	9,960.9	14.9
Red spruce	10,440.0	571.5	249.5	11,260.9	18,135.4	2,666.1	620.5	21,422.0	32,682.9	5.2
Red pine	35.3	.0	34.8	70.1	70.3	65.9	.0	136.2	206.3	40.8
Pitch pine	222.4	.0	.0	222.4	438.0	72.0	32.9	542.9	765.3	52.1
Eastern white pine	8,274.5	865.7	748.1	9,888.2	8,986.9	1,795.3	1,712.0	12,494.1	22,382.4	7.9
Other yellow pines	34.8	34.8	.0	69.6	34.8	.0	.0	34.8	104.4	100.0
Northern white-cedar	20,502.6	6,203.7	2,148.7	28,854.9	14,603.5	2,535.7	1,055.5	18,194.8	47,049.7	5.8
Eastern hemlock	2,007.3	351.6	138.7	2,497.5	3,621.6	734.7	568.0	4,924.4	7,421.9	11.0
Other softwoods	2,302.0	550.8	258.7	3,111.5	3,667.3	1,086.1	171.3	4,924.7	8,036.2	19.9
Total softwoods	69,404.6	10,166.8	3,789.6	83,361.0	172,134.5	16,213.1	4,973.5	193,321.1	276,682.1	2.6
Red maple	5,969.0	523.0	211.7	6,703.8	21,861.3	3,289.0	1,779.7	26,930.0	33,633.8	4.7
Sugar maple	676.0	279.4	.0	955.4	3,357.7	1,315.5	1,339.6	6,012.8	6,968.2	9.9
Yellow birch	1,747.9	425.0	107.3	2,280.3	7,801.6	2,880.5	2,326.0	13,008.2	15,288.5	6.5
Paper birch	4,391.8	294.2	.0	4,686.0	25,714.2	3,011.4	419.2	29,144.8	33,830.8	5.3
American beech	6,329.0	775.0	360.2	7,464.2	12,962.7	3,590.0	1,425.3	17,978.0	25,442.2	7.2
White ash	533.2	33.9	.0	567.2	1,097.3	142.0	36.0	1,275.3	1,842.4	17.1
Aspen	3,457.9	462.2	179.1	4,099.2	17,974.9	2,402.2	570.8	20,947.9	25,047.1	7.5
Black cherry	508.5	.0	.0	508.5	1,746.8	103.5	.0	1,850.2	2,358.8	18.8
White oak	37.4	.0	.0	37.4	387.5	144.2	.0	531.7	569.1	30.0
Northern red oak	603.5	33.8	.0	637.3	1,456.7	137.5	140.8	1,734.9	2,372.2	17.8
Other red oaks	315.2	.0	.0	315.2	271.8	.0	.0	271.8	587.0	53.6
American basswood	31.6	.0	.0	31.6	346.3	.0	.0	346.3	377.9	34.8
Elm	493.7	66.8	65.1	625.6	624.4	140.8	207.5	972.8	1,598.4	19.5
Other commercial hardwoods	773.0	108.1	103.5	984.5	2,833.8	446.9	.0	3,280.7	4,265.2	13.4
Noncommercial hardwoods	4,374.3	.0	.0	4,374.3	11,319.2	145.7	110.8	11,575.6	15,949.9	7.6
Total hardwoods	30,242.2	3,001.5	1,026.9	34,270.6	109,756.3	17,749.1	8,355.7	135,861.0	170,131.6	2.5
Total, all species	99,646.8	13,168.3	4,816.5	117,631.6	281,890.7	33,962.2	13,329.2	329,182.1	446,813.8	1.8
SE	3.3	6.3	9.8	3.1	2.1	3.8	6.0	1.9	1.8	

Table A12. Number of saplings on timberland by species and stand-size class, Maine, 2003

(In millions of stems)

Species	Stand-size class				All classes	SE
	Saw-timber	Pole-timber	Sapling and seedling	Non-stocked		
balsam fir	1,407	1,801	3,769	1	6,978	3.1
larch (introduced)	0	1	0	0	1	100.0
tamarack (native)	2	13	19	0	34	21.0
Norway spruce	1	0	7	0	8	61.7
white spruce	42	42	83	0	168	10.2
black spruce	22	86	174	0	282	13.2
red spruce	319	323	793	1	1,436	4.9
jack pine	0	1	0	0	1	100.0
Table Mountain pine	0	0	0	0	0	100.0
red pine	0	3	12	0	15	35.0
eastern white pine	45	109	118	0	273	8.4
baldcypress	0	0	0	0	0	100.0
northern white-cedar	131	176	137	0	443	7.8
eastern hemlock	163	156	65	0	384	7.3
boxelder	0	0	1	0	1	100.0
striped maple	284	207	142	0	633	5.8
red maple	441	653	986	0	2,081	3.8
sugar maple	196	211	110	0	517	6.4
mountain maple	161	84	50	0	294	9.2
Norway maple	1	0	0	0	1	70.9
ailanthus	0	0	0	0	0	100.0
serviceberry	6	7	5	0	17	22.2
yellow birch	268	212	239	0	719	5.5
sweet birch	3	4	0	0	6	56.1
paper birch	184	210	709	0	1,103	5.5
gray birch	16	70	208	0	294	11.2
American hornbeam	7	4	0	0	11	37.1
shagbark hickory	0	0	0	0	0	100.0
hawthorn	0	0	2	0	2	100.0
American beech	276	328	111	0	715	5.6
ash	0	0	0	0	0	100.0
white ash	50	75	55	0	179	8.5
black ash	40	50	45	0	135	13.0
green ash	3	10	1	0	14	30.3
apple	3	1	7	0	10	29.9
eastern hophornbeam	34	67	23	0	125	11.0
balsam poplar	7	10	45	0	62	24.5
eastern cottonwood	0	1	5	0	6	81.9
bigtooth aspen	7	38	128	0	173	17.3
quaking aspen	35	84	317	0	436	9.7
pin cherry	29	36	133	0	199	10.3
black cherry	14	23	39	0	75	15.8
chokecherry	3	10	10	0	23	29.4
white oak	0	3	0	0	4	39.6
bear oak, scrub oak	0	0	0	0	0	100.0
northern red oak	26	53	31	0	110	10.2
black oak	2	3	0	0	4	56.5
willow	2	2	22	0	26	29.2
black willow	0	0	2	0	3	47.1
American mountain-ash	11	9	24	0	44	17.4
American basswood	0	3	0	0	4	43.1
elm	0	1	0	0	1	100.0
American elm	6	10	8	0	23	24.2
unknown tree	1	2	0	0	3	73.0
Total saplings	4,250	5,196	8,635	2	18,083	1.8
SE	3.7	3.2	4.0	60.1	1.8	

Table A13. Number of saplings on forest land by species and stand-size class, Maine, 2003

(In millions of stems)

Species	Stand-size class				All classes	SE
	Saw-timber	Pole-timber	Sapling and seedling	Non-stocked		
balsam fir	1,439	1,831	3,837	1	7,109	3.1
larch (introduced)	0	1	0	0	1	100.0
tamarack (native)	2	13	24	0	39	19.1
Norway spruce	1	0	7	0	8	61.7
white spruce	43	42	94	0	179	10.9
black spruce	22	87	269	0	378	12.4
red spruce	327	351	829	1	1,507	4.8
jack pine	0	1	0	0	1	100.0
Table Mountain pine	0	0	0	0	0	100.0
red pine	0	3	12	0	15	35.0
eastern white pine	45	110	120	0	276	8.3
baldcypress	0	0	0	0	0	100.0
northern white-cedar	133	181	149	0	464	7.6
eastern hemlock	163	156	65	0	384	7.3
boxelder	0	0	1	0	1	100.0
striped maple	289	212	142	0	643	5.7
red maple	445	658	1,005	0	2,109	3.8
sugar maple	196	212	110	0	518	6.4
mountain maple	163	84	50	0	297	9.2
Norway maple	1	0	0	0	1	70.9
ailanthus	0	0	0	0	0	100.0
serviceberry	6	7	5	0	18	21.4
yellow birch	273	214	242	0	729	5.4
sweet birch	3	4	0	0	6	56.1
paper birch	188	223	752	0	1,163	5.5
gray birch	17	70	222	0	309	11.5
American hornbeam	7	4	0	0	11	37.1
shagbark hickory	0	0	0	0	0	100.0
hawthorn	0	0	2	0	2	100.0
American beech	283	330	111	0	724	5.6
ash	0	0	0	0	0	100.0
white ash	50	75	55	0	179	8.5
black ash	41	50	46	0	136	12.8
green ash	3	10	1	0	14	30.3
apple	3	1	7	0	10	29.9
eastern hophornbeam	34	68	23	0	125	10.9
balsam poplar	7	10	45	0	62	24.5
eastern cottonwood	0	1	5	0	6	81.9
bigtooth aspen	7	38	128	0	173	17.3
quaking aspen	35	84	317	0	436	9.7
pin cherry	29	36	134	0	200	10.2
black cherry	14	23	39	0	75	15.8
chokecherry	3	10	10	0	23	29.4
white oak	0	3	0	0	4	39.6
bear oak, scrub oak	0	0	0	0	0	100.0
northern red oak	26	53	31	0	110	10.2
black oak	2	3	0	0	4	56.5
willow	2	2	22	0	26	29.2
black willow	0	0	2	0	3	47.1
American mountain-ash	12	9	24	0	45	17.0
American basswood	0	3	0	0	4	43.1
elm	0	1	0	0	1	100.0
American elm	6	10	8	0	23	24.2
unknown tree	1	2	0	0	3	73.0
Total saplings	4,323	5,289	8,945	2	18,560	1.8
SE	3.7	3.2	3.9	60.1	1.8	

Table A14. Number of shrubs on timberland by species and stand-size class, Maine, 2003

(In millions of stems)

Species	Stand-size class				All classes	SE
	Saw-timber	Pole-timber	Sapling and seedling	Non-stocked		
leatherleaf	394	517	1,529	55	2,495	29.2
common juniper	79	98	8	0	184	29.0
Canada yew	35	118	11	0	163	38.1
alder	384	509	993	9	1,895	18.7
speckled alder	1,246	1,916	2,404	68	5,635	8.6
Hercules club	5	0	19	0	23	82.7
bog rosemary	0	6	41	0	47	87.8
chokeberry	44	38	153	0	235	33.1
azalea	37	61	89	0	187	32.5
barberry	17	9	30	0	56	49.6
buttonbush	0	0	3	0	3	100.0
sweet pepperbush	0	4	0	0	4	100.0
sweetfern	70	152	645	0	868	29.2
alternate-leaved dogwood	66	67	64	0	198	19.4
silky dogwood	58	112	37	0	208	30.7
round-leaved dogwood	7	35	7	0	49	45.9
gray-stemmed dogwood	52	36	46	0	134	38.0
red-osier dogwood	321	358	1,283	4	1,967	18.2
American hazelnut	293	411	156	0	860	14.8
beaked hazelnut	2,155	2,807	2,270	0	7,232	7.2
huckleberry	262	677	235	0	1,175	26.0
witch-hazel	192	218	64	0	475	14.5
winterberry holly	325	1,089	604	0	2,017	13.3
sheep laurel	941	2,002	3,827	0	6,769	12.1
mountain laurel	3	31	16	0	50	55.1
swamp laurel	10	102	123	0	235	35.8
Labrador tea	139	291	955	0	1,385	22.4
bush honeysuckle	796	1,025	1,576	0	3,397	10.6
male-berry, staggerbush	0	4	4	0	8	70.7
sweet gale	144	182	338	0	665	42.9
bayberry	0	0	10	0	10	86.8
mountain-holly	212	511	708	0	1,431	15.2
buckthorn	67	59	32	0	158	35.2
rhododendron (evergreen)	16	35	351	0	403	77.6
azalea (deciduous)	28	55	1,752	0	1,835	39.2
smooth sumac	0	0	129	0	129	100.0
staghorn sumac	3	3	54	0	60	78.2
currant, gooseberry	586	274	387	34	1,281	10.0
rose	45	98	111	0	255	28.2
brier, bramble, dewberry	9,406	9,721	17,703	240	37,069	5.0
American elderberry	62	259	294	0	615	21.9
red-berried elderberry	73	62	91	0	226	18.7
Other shrub willows	112	125	803	12	1,052	12.0
spirea	411	1,311	2,097	156	3,975	12.6
American bladdernut	31	0	0	0	31	96.4
blueberry	1,282	3,163	4,645	0	9,090	9.2
viburnum	84	90	227	0	401	40.7
maple-leaved viburnum	79	90	71	0	241	19.9
hobblebush viburnum	3,831	2,029	959	0	6,820	7.7
wild raisin, withe-rod	323	1,076	1,174	15	2,588	10.5
arrowwood	137	162	205	1	506	17.9
nannyberry	78	177	474	16	745	25.7
highbush cranberry	5	30	20	0	55	46.9
common prickly-ash	0	0	9	0	9	100.0
unknown deciduous shrub	37	73	177	0	287	42.8
unknown evergreen shrub	10	17	63	0	90	70.7
Total shrubs	24,997	32,297	50,079	611	107,984	3.4
SE	6.2	5.5	6.3	38.3	3.4	

Table A15. Number of shrubs on forest land by species and stand-size class, Maine, 2003

(In millions of stems)

Species	Stand-size class				All classes	SE
	Saw-timber	Pole-timber	Sapling and seedling	Non-stocked		
leatherleaf	394	517	4,049	55	5,016	22.6
common juniper	79	98	8	0	184	29.0
Canada yew	35	118	11	0	163	38.1
alder	384	524	1,041	9	1,958	18.1
speckled alder	1,341	1,924	3,013	68	6,346	8.4
Hercules club	5	0	19	0	23	82.7
bog rosemary	0	6	150	0	156	56.3
chokeberry	44	38	204	0	286	28.8
azalea	37	61	104	0	202	31.0
barberry	17	9	30	0	56	49.6
buttonbush	0	11	3	0	14	82.7
sweet pepperbush	0	4	1	0	6	78.4
sweetfern	74	152	648	0	874	29.0
alternate-leaved dogwood	66	67	64	0	198	19.4
silky dogwood	58	112	37	0	208	30.7
round-leaved dogwood	7	35	7	0	49	45.9
gray-stemmed dogwood	52	36	46	0	134	38.0
red-osier dogwood	321	363	1,388	10	2,083	17.9
American hazelnut	293	411	156	0	860	14.8
beaked hazelnut	2,173	2,878	2,270	0	7,322	7.2
huckleberry	262	677	670	0	1,610	22.8
witch-hazel	192	231	64	0	488	14.3
large-leaf holly	0	18	0	0	18	100.0
winterberry holly	325	1,182	670	0	2,176	13.3
sheep laurel	941	2,048	5,643	0	8,632	12.4
mountain laurel	3	31	61	0	95	55.7
swamp laurel	10	102	1,030	0	1,142	43.2
Labrador tea	139	312	3,003	0	3,454	20.1
bush honeysuckle	826	1,038	1,576	0	3,441	10.5
male-berry, staggerbush	0	4	4	0	8	70.7
sweet gale	144	182	595	0	921	33.3
bayberry	0	0	15	0	15	67.3
mountain-holly	220	579	977	0	1,776	13.9
buckthorn	70	59	164	0	294	48.9
rhododendron (evergreen)	16	35	546	0	597	57.2
azalea (deciduous)	28	55	2,263	0	2,346	32.2
smooth sumac	0	0	448	0	448	70.0
staghorn sumac	3	3	54	0	60	78.2
currant, gooseberry	638	278	401	34	1,352	9.9
rose	45	98	116	0	259	27.7
brier, bramble, dewberry	9,429	9,741	17,911	240	37,321	5.0
American elderberry	62	259	294	0	615	21.9
red-berried elderberry	73	62	93	0	228	18.6
Other shrub willows	112	140	809	12	1,072	11.8
spirea	414	1,311	2,241	161	4,126	12.2
American bladdernut	31	0	0	0	31	96.4
blueberry	1,300	3,265	5,343	0	9,909	8.8
viburnum	84	90	227	0	401	40.7
maple-leaved viburnum	79	90	71	0	241	19.9
hobblebush viburnum	3,894	2,072	959	0	6,925	7.6
wild raisin, withe-rod	323	1,100	1,232	15	2,669	10.3
arrowwood	137	166	205	4	513	17.6
nannyberry	78	177	474	16	745	25.7
highbush cranberry	5	30	20	0	55	46.9
common prickly-ash	0	0	9	0	9	100.0
unknown deciduous shrub	37	73	195	0	305	40.7
unknown evergreen shrub	10	17	63	0	90	70.7
Total shrubs	25,313	32,891	61,698	625	120,528	3.6
SE	6.2	5.4	6.4	37.5	3.6	

Table A16. Biomass of all trees on forest land by species and component, Maine, 2003

(In thousands of dry tons)

Species group	Component								All trees	SE
	Growing stock	Branches	Foliage	Stump and roots	Cull trees	Total timber	Saplings	Salvable dead trees		
Balsam fir	34,120	6,628	5,057	12,034	1,486	59,325	62,539	2,176	124,040	2.3
White spruce	8,711	1,727	1,221	3,122	894	15,675	2,744	471	18,891	7.4
Black spruce	7,395	1,427	1,090	2,591	339	12,843	5,299	379	18,521	9.0
Red spruce	50,271	9,707	6,951	17,560	2,749	87,240	16,202	1,403	104,845	3.3
Red pine	2,382	458	311	825	126	4,103	478	0	4,581	20.2
Pitch pine	357	80	54	144	111	746	0	25	771	35.5
Eastern white pine	35,302	7,127	4,534	12,764	4,309	64,037	4,079	444	68,559	5.1
Other yellow pines	63	15	11	27	26	142	33	1	177	60.8
Northern white-cedar	20,969	4,857	3,455	8,781	5,180	43,242	6,381	1,092	50,715	4.6
Eastern hemlock	27,647	5,772	3,917	10,399	5,048	52,783	5,385	356	58,524	4.8
Other softwoods	2,362	476	339	861	262	4,301	871	325	5,498	11.7
Total softwoods	189,582	38,275	26,942	69,108	20,531	344,437	104,010	6,674	455,122	1.6
Red maple	65,482	9,281	2,737	23,126	11,295	111,921	23,278	884	136,083	2.4
Sugar maple	59,680	7,650	2,117	19,337	5,752	94,536	6,081	307	100,924	4.8
Yellow birch	34,728	4,992	1,385	12,610	9,092	62,806	7,816	360	70,983	3.5
Paper birch	27,508	3,688	1,121	9,124	2,629	44,069	11,863	785	56,717	3.5
Hickory	9	1	0	3	0	13	4	0	17	59.7
American beech	27,395	4,411	1,321	10,951	8,688	52,767	8,087	1,327	62,181	4.9
White ash	10,496	1,357	402	3,377	786	16,417	2,057	117	18,592	6.7
Aspen	28,343	3,616	1,028	9,084	1,720	43,792	6,345	810	50,946	5.3
Black cherry	913	167	51	413	586	2,131	701	54	2,887	13.9
White oak	562	76	22	190	84	935	72	0	1,006	21.6
Northern red oak	21,704	2,649	733	6,693	1,518	33,297	1,601	59	34,957	7.4
Other white oaks	20	2	1	6	0	28	0	0	28	100.0
Other red oaks	724	94	27	235	89	1,168	124	4	1,296	22.1
American basswood	535	80	23	201	143	982	77	4	1,063	22.4
Elm	343	52	16	130	115	656	371	99	1,127	17.0
Other commercial hardwoods	2,472	375	113	931	678	4,568	1,708	85	6,361	10.4
Noncommercial hardwoods	0	669	209	1,643	7,300	9,821	12,764	246	22,831	3.9
Total hardwoods	280,913	39,161	11,308	98,052	50,476	479,910	82,948	5,142	568,000	1.6
Total, all species	470,495	77,437	38,250	167,160	71,007	824,348	186,958	11,816	1,023,123	1.0
SE	1.3	1.2	1.3	1.2	2.6	1.2	1.6	4.0	1.0	

Table A17. Net volume of all trees on timberland by class of timber and species group, Maine, 2003

(In millions of cubic feet)

Class of timber	Species group				All species	SE
	Pines	Other softwoods	Soft hardwoods	Hard hardwoods		
Growing-stock trees:						
Sawtimber size:						
Sawlog portion	1,851.0	5,305.0	1,665.1	1,930.1	10,751.2	1.9
Upper stem	200.4	760.8	439.5	464.9	1,865.6	1.8
Total sawtimber size	2,051.4	6,065.8	2,104.6	2,395.0	12,616.8	1.9
Poletimber size	354.3	4,157.0	3,322.0	1,963.4	9,796.7	1.4
Total growing-stock trees	2,405.6	10,222.8	5,426.7	4,358.4	22,413.4	1.4
Rough trees:						
Sawtimber size	92.0	328.7	124.1	158.9	703.8	4.3
Poletimber size	14.3	64.2	178.6	172.0	429.1	3.2
Total rough trees	106.3	393.0	302.7	330.9	1,132.9	3.0
Rotten trees:						
Sawtimber size	2.0	56.1	43.5	46.0	147.6	6.9
Poletimber size	.1	19.9	33.0	22.6	75.6	5.4
Total rotten trees	2.1	76.0	76.5	68.6	223.2	5.0
Salvable dead trees:						
Sawtimber size	11.7	161.4	24.8	17.6	215.5	7.2
Poletimber size	8.2	134.0	60.6	31.4	234.1	4.3
Total salvable dead trees	19.9	295.4	85.4	49.0	449.7	4.4
All classes	2,533.9	10,987.1	5,891.2	4,806.9	24,219.2	1.3
SE	5.3	2.1	2.3	3.1	1.3	

Table A18. Net volume of all trees (5.0+ inches d.b.h.) on timberland by class of timber and diameter class, Maine, 2003

(In millions of cubic feet)

Class of timber	Diameter class (inches at breast height)										All classes	SE
	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29.0+		
Growing-stock trees:												
Sawtimber size:												
Sawlog portion	.0	.0	1,980.3	2,848.3	2,060.3	1,424.1	969.5	528.3	827.6	112.7	10,751.2	1.9
Upper stem	.0	.0	374.1	666.5	347.0	198.1	116.2	58.6	94.1	11.0	1,865.6	1.8
Total sawtimber size	.0	.0	2,354.5	3,514.8	2,407.2	1,622.2	1,085.6	587.0	921.7	123.7	12,616.8	1.9
Poletimber size	3,356.8	4,443.3	1,996.5	.0	.0	.0	.0	.0	.0	.0	9,796.7	1.4
Total growing-stock trees	3,356.8	4,443.3	4,351.0	3,514.8	2,407.2	1,622.2	1,085.6	587.0	921.7	123.7	22,413.4	1.4
Rough trees:												
Sawtimber size	.0	.0	125.5	204.1	126.3	87.2	54.9	35.7	56.2	14.0	703.8	4.3
Poletimber size	183.1	161.2	84.9	.0	.0	.0	.0	.0	.0	.0	429.1	3.2
Total rough trees	183.1	161.2	210.4	204.1	126.3	87.2	54.9	35.7	56.2	14.0	1,132.9	3.0
Rotten trees:												
Sawtimber size	.0	.0	16.5	35.8	25.2	18.2	15.6	13.5	18.4	4.4	147.6	6.9
Poletimber size	22.5	34.4	18.7	.0	.0	.0	.0	.0	.0	.0	75.6	5.4
Total rotten trees	22.5	34.4	35.1	35.8	25.2	18.2	15.6	13.5	18.4	4.4	223.2	5.0
Salvable dead trees:												
Sawtimber size	.0	.0	60.9	61.9	38.3	31.8	8.8	5.8	8.0	.0	215.5	7.2
Poletimber size	98.7	109.1	26.3	.0	.0	.0	.0	.0	.0	.0	234.1	4.3
Total salvable dead trees	98.7	109.1	87.2	61.9	38.3	31.8	8.8	5.8	8.0	.0	449.7	4.4
All classes	3,661.2	4,748.0	4,683.7	3,816.6	2,597.1	1,759.4	1,164.9	642.0	1,004.3	142.0	24,219.2	1.3
SE	1.5	1.5	1.6	2.0	2.5	3.2	4.7	6.1	6.5	20.1	1.3	

Table A19. Net volume of live trees on forest land by species and diameter class, Maine, 2003

(In millions of cubic feet)

Species group	Diameter class (inches at breast height)										All classes	SE
	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29.0+		
Balsam fir	793.2	701.8	460.4	236.6	73.8	24.7	4.5	.0	.0	.0	2,295.1	3.0
White spruce	74.9	111.3	109.2	100.8	91.2	61.7	38.3	11.3	7.8	.0	606.5	7.8
Black spruce	188.5	165.0	94.1	42.2	15.0	9.6	.8	.0	.0	.0	515.1	10.4
Red spruce	484.7	753.0	814.3	642.8	437.0	203.0	108.8	52.9	22.3	11.1	3,529.8	3.7
Red pine	11.5	14.9	25.2	26.1	19.5	23.4	5.9	7.3	7.7	.0	141.3	23.4
Pitch pine	.9	1.4	5.7	5.0	3.6	3.5	1.2	.0	.0	.0	21.2	33.3
Eastern white pine	128.3	213.8	262.6	290.7	265.3	293.1	291.1	204.3	405.1	74.8	2,429.2	5.5
Other yellow pines	2.0	1.1	.4	.4	.0	.0	.0	.0	.0	.0	3.9	59.1
Northern white-cedar	241.6	408.4	454.6	418.5	268.8	145.7	113.7	34.6	36.2	3.7	2,125.9	4.8
Eastern hemlock	143.1	237.7	307.8	317.9	240.9	194.4	139.6	91.7	87.2	6.0	1,766.3	5.2
Other softwoods	30.1	34.9	33.5	24.6	22.0	17.3	8.7	1.7	5.4	.0	178.2	12.9
Total softwoods	2,098.6	2,643.3	2,568.0	2,105.5	1,437.1	976.4	712.6	403.8	571.7	95.5	13,612.5	2.0
Red maple	457.7	656.1	620.9	465.8	281.4	170.6	106.4	32.9	67.0	5.0	2,863.8	2.7
Sugar maple	148.0	256.8	309.2	284.5	244.3	194.9	132.2	88.8	198.6	27.4	1,884.7	5.1
Yellow birch	127.5	177.0	197.3	218.0	171.5	137.4	87.2	50.3	86.3	8.4	1,261.0	3.8
Paper birch	275.8	324.3	286.4	157.5	101.2	42.2	14.1	3.6	6.7	.0	1,211.8	4.0
Hickory	.1	.2	.0	.0	.0	.0	.0	.0	.0	.0	.3	71.4
American beech	156.5	217.4	198.2	143.7	93.8	46.1	21.8	7.3	2.2	.0	887.0	5.6
White ash	67.0	82.2	91.8	71.9	40.5	29.9	11.0	11.9	8.8	.0	415.2	7.3
Aspen	141.9	220.2	253.9	235.2	165.2	102.4	69.3	29.0	37.6	.0	1,254.8	6.1
Black cherry	8.7	11.3	10.0	8.8	.0	1.2	.0	.0	.0	.0	40.2	17.5
White oak	3.9	3.0	4.3	2.4	4.7	1.0	.0	.0	.0	.0	19.2	22.1
Northern red oak	61.7	91.6	120.0	117.4	79.8	67.9	35.6	27.7	34.3	5.6	641.7	7.5
Other white oaks	.0	.0	.0	.6	.0	.0	.0	.0	.0	.0	.6	100.0
Other red oaks	2.5	3.8	4.5	6.7	5.2	1.8	.8	.0	.0	.0	25.3	23.4
American basswood	3.0	3.3	6.0	6.4	2.4	3.0	.0	.0	.0	.0	24.0	23.3
Elm	4.8	2.6	3.2	.7	.0	.0	.0	.0	1.4	.0	12.7	17.6
Other commercial hardwoods	29.7	24.3	19.1	7.5	5.6	4.5	3.1	.0	6.0	.0	99.8	12.0
Noncommercial hardwoods	71.9	37.2	13.7	5.7	2.4	1.7	2.2	.4	.0	.0	135.1	6.4
Total hardwoods	1,560.8	2,111.2	2,138.6	1,732.8	1,198.1	804.6	483.7	252.1	448.9	46.5	10,777.4	1.9
Total, all species	3,659.5	4,754.5	4,706.6	3,838.3	2,635.2	1,781.0	1,196.3	655.9	1,020.5	142.0	24,389.9	1.3
SE	1.5	1.5	1.6	2.0	2.4	3.2	4.7	6.1	6.4	20.1	1.3	

Table A20. Net volume of growing-stock trees on timberland by species and diameter class, Maine, 2003

(In millions of cubic feet)

Species group	Diameter class (inches at breast height)										All classes	SE
	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29.0+		
Balsam fir	764.9	679.7	443.3	230.5	70.1	22.5	4.5	.0	.0	.0	2,215.5	3.0
White spruce	72.4	109.9	104.4	94.7	84.8	55.8	31.1	7.6	7.8	.0	568.7	7.9
Black spruce	180.9	162.3	88.4	41.0	13.2	8.6	.0	.0	.0	.0	494.5	10.7
Red spruce	447.8	706.6	749.0	588.4	400.0	173.9	96.4	47.3	19.7	11.1	3,240.0	3.8
Red pine	11.2	14.6	24.6	26.1	18.0	22.3	4.4	3.4	7.7	.0	132.3	24.3
Pitch pine	.7	1.4	5.3	4.4	3.2	2.9	1.2	.0	.0	.0	19.0	33.8
Eastern white pine	120.9	202.9	233.4	271.7	244.1	270.8	264.8	193.2	378.2	70.9	2,251.0	5.5
Other yellow pines	1.7	.7	.4	.4	.0	.0	.0	.0	.0	.0	3.3	61.2
Northern white-cedar	221.8	376.3	399.7	378.2	234.6	131.7	103.2	28.0	30.6	3.6	1,907.7	5.0
Eastern hemlock	138.5	233.5	273.8	293.3	225.3	173.2	129.4	86.4	70.0	3.4	1,626.8	5.4
Other softwoods	28.7	33.6	32.1	22.2	21.0	16.0	8.7	1.7	5.4	.0	169.5	13.4
Total softwoods	1,989.7	2,521.6	2,354.5	1,950.8	1,314.4	877.7	643.6	367.8	519.4	89.0	12,628.4	2.0
Red maple	421.6	610.1	584.1	414.0	253.5	155.9	97.7	21.9	53.5	3.9	2,616.3	2.8
Sugar maple	140.4	245.3	293.8	262.7	225.7	181.6	124.8	83.5	187.3	20.2	1,765.3	5.3
Yellow birch	114.9	155.3	177.9	187.3	147.5	123.4	74.9	40.7	70.7	6.9	1,099.4	4.0
Paper birch	251.8	299.3	273.2	142.1	90.9	40.6	13.1	2.8	4.8	.0	1,118.7	4.2
Hickory	.1	.2	.0	.0	.0	.0	.0	.0	.0	.0	.3	71.4
American beech	133.2	187.7	171.8	122.5	82.4	43.3	17.6	5.4	1.7	.0	765.6	5.9
White ash	64.6	80.2	90.3	66.7	39.0	29.9	10.4	10.2	8.8	.0	400.2	7.3
Aspen	136.3	212.7	244.5	227.2	160.4	96.8	66.7	28.5	35.2	.0	1,208.4	6.2
Black cherry	7.0	8.2	8.5	6.6	.0	.0	.0	.0	.0	.0	30.3	19.6
White oak	3.7	3.0	4.3	2.0	4.0	1.0	.0	.0	.0	.0	18.0	22.5
Northern red oak	60.4	90.5	118.6	112.0	77.7	64.6	34.1	26.1	34.3	3.8	622.1	7.6
Other white oaks	.0	.0	.0	.6	.0	.0	.0	.0	.0	.0	.6	100.0
Other red oaks	2.2	3.5	4.3	5.9	5.2	1.8	.8	.0	.0	.0	23.8	23.7
American basswood	2.5	3.1	5.2	6.4	1.8	2.7	.0	.0	.0	.0	21.7	25.0
Elm	4.6	2.6	3.2	.4	.0	.0	.0	.0	.0	.0	10.8	16.0
Other hardwoods	23.9	20.0	16.9	7.5	4.7	2.8	1.8	.0	6.0	.0	83.6	12.5
Total hardwoods	1,367.2	1,921.7	1,996.5	1,564.0	1,092.8	744.5	442.0	219.2	402.4	34.7	9,785.0	2.0
Total, all species	3,356.8	4,443.3	4,351.0	3,514.8	2,407.2	1,622.2	1,085.6	587.0	921.7	123.7	22,413.4	1.4
SE	1.6	1.6	1.7	2.1	2.6	3.3	5.0	6.5	6.9	22.2	1.4	

Table A21. Net volume of growing-stock trees on timberland by forest type and stand-size class, Maine, 2003

(In millions of cubic feet)

Forest type	Stand-size class				All classes	SE
	Saw-timber	Pole-timber	Sapling and seedling	Non-stocked		
Jack pine	.0	3.7	.0	.0	3.7	100.0
Red pine	57.6	14.2	4.2	.0	76.0	44.5
White pine	1,013.9	209.7	6.1	.0	1,229.7	10.9
White pine/hemlock	337.4	73.3	1.2	.0	411.8	19.9
Hemlock	1,098.2	188.2	3.1	.0	1,289.5	10.1
White/red pine group	2,507.0	489.0	14.6	.0	3,010.7	6.6
Balsam fir	595.8	651.8	352.4	.0	1,600.0	7.3
White spruce	91.4	77.3	17.7	.0	186.4	23.2
Red spruce	1,271.8	577.6	73.5	.0	1,922.9	8.1
Red spruce/balsam fir	508.4	248.6	226.2	.0	983.2	10.0
Black spruce	27.0	327.1	62.9	.0	417.0	14.7
Tamarack	8.8	47.0	5.7	.0	61.5	33.2
Northern white-cedar	1,167.7	499.2	32.8	.0	1,699.7	8.1
Spruce/fir group	3,670.9	2,428.5	771.2	.0	6,870.6	3.6
Norway spruce	.0	.0	1.7	.0	1.7	74.4
Larch	.0	3.4	.0	.0	3.4	100.0
Exotic softwoods group	.0	3.4	1.7	.0	5.1	71.5
Wh. pine/no.red oak/wh. ash	362.7	185.5	6.6	.0	554.9	14.4
Other oak/pine	1.1	22.6	.0	.0	23.7	70.3
Oak/pine group	363.9	208.1	6.6	.0	578.6	14.1
White oak/red oak/hickory	25.4	82.6	1.5	.0	109.5	27.2
Northern red oak	179.8	148.9	2.7	.0	331.4	18.2
Southern scrub oak	.0	.0	.2	.0	.2	100.0
Red maple/oak	7.1	19.7	.0	.0	26.8	50.4
Mixed upland hardwoods	.0	.5	2.2	.0	2.7	81.4
Oak/hickory group	212.3	251.7	6.6	.0	470.6	14.4
Sweetbay/swamp tupelo/red mple	.0	16.0	.0	.0	16.0	71.4
Oak/gum/cypress group	.0	16.0	.0	.0	16.0	71.4

Table A21. continued

(In millions of cubic feet)

Forest type	Stand-size class				All classes	SE
	Saw-timber	Pole-timber	Sapling and seedling	Non-stocked		
Black ash/Amer. elm/red maple	27.4	60.1	17.6	.0	105.0	27.6
River birch/sycamore	.0	.0	2.7	.0	2.7	77.1
Cottonwood	.0	1.3	.9	.0	2.2	72.1
Willow	.0	.0	.3	.0	.3	100.0
Sycamore/pecan/American elm	.0	7.6	.3	.0	7.9	96.6
Sugarbrry/hackbrry/elm/gr.ash	.0	7.6	.2	.0	7.8	59.2
Silver maple/American elm	.0	.9	1.0	.0	1.8	70.8
Red maple(lowland)	22.1	93.7	12.3	.0	128.1	21.0
Elm/ash/red maple group	49.5	171.1	35.2	.0	255.8	15.8
Sugar maple/beech/yellow birch	4,402.5	3,474.0	363.9	.0	8,240.3	3.0
Cherry/ash/yellow poplar	48.4	101.0	13.4	.0	162.8	25.0
Hard maple/basswood	.0	.0	3.3	.0	3.3	98.0
Red maple/uplands	167.1	406.3	53.0	.0	626.4	11.6
Northern hardwoods group	4,617.9	3,981.3	433.6	.0	9,032.8	2.8
Aspen	255.1	602.5	117.7	.0	975.3	10.3
Paper birch	228.8	751.9	131.0	.0	1,111.7	9.0
Balsam poplar	25.6	42.4	17.2	.0	85.3	37.2
Aspen/birch group	509.5	1,396.9	265.9	.0	2,172.4	6.6
Nonstocked	.0	.0	.0	.9	.9	56.9
All forest types	11,931.0	8,946.2	1,535.4	.9	22,413.4	1.4
SE	2.8	2.7	4.4	56.9	1.4	

Table A22. Net volume of sawtimber trees on timberland by species and diameter class, Maine, 2003

(In millions of board feet)

Species group	Diameter class (inches at breast height)								All classes	SE
	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29.0+		
Balsam fir	1,576.0	973.7	321.4	111.2	23.3	.0	.0	.0	3,005.6	5.1
White spruce	369.3	402.6	386.8	267.8	141.4	42.5	36.6	.0	1,647.1	9.7
Black spruce	307.3	170.5	58.4	38.2	.0	.0	.0	.0	574.4	13.8
Red spruce	2,771.4	2,486.1	1,789.1	809.3	457.4	220.7	95.3	51.5	8,680.9	4.4
Red pine	89.2	107.3	78.7	103.7	21.1	18.2	39.7	.0	457.8	26.4
Pitch pine	17.3	16.4	13.0	12.0	4.7	.0	.0	.0	63.4	35.4
Eastern white pine	812.3	1,091.3	1,066.0	1,248.4	1,264.4	946.8	1,857.3	376.1	8,662.6	6.1
Other yellow pines	1.2	1.6	.0	.0	.0	.0	.0	.0	2.8	71.7
Northern white-cedar	1,062.7	1,179.3	799.4	464.4	356.0	107.7	115.7	13.7	4,099.0	5.8
Eastern hemlock	867.6	1,033.7	837.9	660.8	488.0	364.8	292.9	16.6	4,562.4	6.2
Other softwoods	105.3	79.2	77.4	63.9	34.5	7.9	20.2	.0	388.4	16.6
Total softwoods	7,979.5	7,541.8	5,428.0	3,779.9	2,790.8	1,708.6	2,457.7	458.0	32,144.3	2.7
Red maple	.0	1,634.0	1,073.5	672.0	446.8	93.6	262.7	15.1	4,197.6	4.8
Sugar maple	.0	1,041.7	923.6	802.5	562.2	391.3	903.7	96.9	4,721.8	6.4
Yellow birch	.0	762.5	611.3	523.8	318.9	165.2	306.8	40.8	2,729.3	5.5
Paper birch	.0	613.9	387.6	179.5	60.6	12.9	20.3	.0	1,274.8	7.3
American beech	.0	528.5	371.4	210.1	74.9	27.2	10.6	.0	1,222.6	8.8
White ash	.0	270.3	162.0	131.4	45.6	44.8	38.2	.0	692.4	11.1
Aspen	.0	962.5	721.3	437.1	304.7	138.4	172.5	.0	2,736.5	8.1
Black cherry	.0	24.8	.0	.0	.0	.0	.0	.0	24.8	44.4
White oak	.0	8.5	17.0	4.7	.0	.0	.0	.0	30.2	39.6
Northern red oak	.0	435.7	333.0	271.5	156.5	126.7	165.4	19.3	1,508.0	10.0
Other white oaks	.0	2.5	.0	.0	.0	.0	.0	.0	2.5	100.0
Other red oaks	.0	21.1	21.6	7.4	4.5	.0	.0	.0	54.6	29.5
American basswood	.0	25.3	9.1	11.4	.0	.0	.0	.0	45.8	41.3
Elm	.0	1.5	.0	.0	.0	.0	.0	.0	1.5	100.0
Other hardwoods	.0	33.6	18.1	12.7	8.1	.0	32.4	.0	104.9	28.6
Total hardwoods	.0	6,366.4	4,649.5	3,264.1	1,982.8	1,000.0	1,912.6	172.1	19,347.4	2.9
Total, all species	7,979.5	13,908.1	10,077.5	7,043.9	4,773.6	2,708.6	4,370.2	630.2	51,491.7	2.0
SE	2.6	2.2	2.7	3.4	4.9	6.7	7.1	23.0	2.0	

Table A23. Net volume of sawtimber trees on timberland by species, size class, and tree grade, Maine, 2003

(In millions of board feet)

Species group	>15" Diameter at breast height						All size classes						
	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	All grades	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	All grades	SE
Balsam fir	129.6	.0	.0	.0	5.0	134.5	2,852.6	.0	.0	.0	153.0	3,005.6	5.1
White spruce	458.6	.0	.0	.0	29.7	488.3	1,573.9	.0	.0	.0	73.2	1,647.1	9.7
Black spruce	34.3	.0	.0	.0	3.9	38.2	557.2	.0	.0	.0	17.1	574.4	13.8
Red spruce	1,548.2	.0	.0	.0	86.1	1,634.3	8,332.7	.0	.0	.0	348.2	8,680.9	4.4
Red pine	89.4	52.7	40.6	.0	.0	182.6	147.7	69.9	234.8	.0	5.5	457.8	26.4
Pitch pine	4.6	.0	7.4	.0	4.7	16.7	4.6	3.2	50.8	.0	4.7	63.4	35.4
Eastern white pine	1,144.0	1,849.3	1,221.7	678.1	799.9	5,693.0	1,314.9	2,680.7	2,433.6	1,142.3	1,091.1	8,662.6	6.1
Other yellow pines	.0	.0	.0	.0	.0	.0	.0	.0	2.8	.0	.0	2.8	71.7
Northern white-cedar	864.6	.0	.0	.0	193.0	1,057.5	3,542.9	.0	.0	.0	556.1	4,099.0	5.8
Eastern hemlock	1,534.0	.0	.0	.0	289.1	1,823.2	3,939.8	.0	.0	.0	622.6	4,562.4	6.2
Other softwoods	126.5	.0	.0	.0	.0	126.5	367.8	.0	.0	.0	20.5	388.4	16.6
Total softwoods	5,933.7	1,902.0	1,269.7	678.1	1,411.5	11,195.0	22,634.3	2,753.7	2,722.0	1,142.3	2,892.0	32,144.3	2.7
Red maple	250.0	565.7	334.7	56.8	282.9	1,490.1	250.0	1,105.4	2,222.0	147.2	473.1	4,197.6	4.8
Sugar maple	1,110.8	626.0	689.5	110.9	219.2	2,756.5	1,110.8	1,270.7	1,869.5	174.6	296.1	4,721.8	6.4
Yellow birch	487.2	336.8	315.5	56.5	159.6	1,355.5	487.2	709.5	1,211.7	101.5	219.5	2,729.3	5.5
Paper birch	73.7	137.8	41.0	.0	20.8	273.3	73.7	427.5	708.7	19.0	45.8	1,274.8	7.3
American beech	32.8	61.9	140.6	30.6	56.8	322.8	32.8	189.6	720.1	157.0	123.1	1,222.6	8.8
White ash	119.3	66.1	29.2	.0	45.4	260.0	119.3	194.6	308.8	.0	69.7	692.4	11.1
Aspen	431.7	330.8	211.0	14.2	65.1	1,052.7	431.7	748.5	1,391.5	62.6	102.4	2,736.5	8.1
Black cherry	.0	.0	.0	.0	.0	.0	.0	.0	19.4	.0	5.3	24.8	44.4
White oak	.0	.0	.0	4.7	.0	4.7	.0	11.2	14.3	4.7	.0	30.2	39.6
Northern red oak	323.9	277.3	79.2	.0	58.9	739.4	323.9	525.0	574.7	2.0	82.4	1,508.0	10.0
Other white oaks	.0	.0	.0	.0	.0	.0	.0	.0	2.5	.0	.0	2.5	100.0
Other red oaks	.0	11.9	.0	.0	.0	11.9	.0	30.5	22.8	.0	1.4	54.6	29.5
American basswood	5.3	.0	.0	.0	6.2	11.4	5.3	9.1	21.3	2.6	7.5	45.8	41.3
Elm	.0	.0	.0	.0	.0	.0	.0	.0	1.5	.0	.0	1.5	100.0
Other hardwoods	12.5	27.7	9.0	.0	4.0	53.2	12.5	36.0	48.0	.0	8.4	104.9	28.6
Total hardwoods	2,847.1	2,442.0	1,849.8	273.7	918.9	8,331.5	2,847.1	5,257.7	9,136.8	671.1	1,434.7	19,347.4	2.9
Total, all species	8,780.8	4,344.0	3,119.5	951.8	2,330.4	19,526.5	25,481.3	8,011.4	11,858.8	1,813.4	4,326.8	51,491.7	2.0
SE	4.5	6.4	6.6	11.6	7.3	3.3	2.7	4.3	3.1	7.9	4.8	2.0	

Table A24. Average annual net change of all live volume on forest land by species and component of change, Maine, 2003

(In thousands of cubic feet)

Species group	Component of change									Net change
	Ingrowth	Accretion	Gross growth	Mortality	Cull decrement	Cull increment	Net growth	Harvest removals	Land use removals	
Balsam fir	43,696	82,158	125,854	-83,752	0	0	42,102	-69,108	-475	-27,481
White spruce	4,153	15,629	19,782	-5,648	0	0	14,134	-8,441	0	5,694
Black spruce	4,563	10,183	14,745	-5,315	0	0	9,430	-9,028	0	402
Red spruce	14,967	108,875	123,842	-41,585	0	0	82,257	-84,330	-1,186	-3,259
Red pine	2,686	1,826	4,513	0	0	0	4,513	0	-1,107	3,406
Pitch pine	0	-1,144	-1,144	0	0	0	-1,144	0	0	-1,144
Eastern white pine	6,680	97,966	104,646	-16,169	0	0	88,477	-47,502	-14,881	26,094
Other yellow pines	622	582	1,204	0	0	0	1,204	0	0	1,204
Northern white-cedar	5,112	24,176	29,288	-12,393	0	0	16,895	-22,536	0	-5,640
Eastern hemlock	6,795	52,102	58,897	-7,141	0	0	51,756	-18,060	0	33,695
Other softwoods	807	7,053	7,860	-3,323	0	0	4,537	-4,972	0	-435
Total softwoods	90,081	399,406	489,487	-175,326	0	0	314,161	-263,977	-17,649	32,535
Red maple	16,477	87,335	103,812	-14,659	0	0	89,153	-76,450	-2,825	9,878
Sugar maple	4,775	56,009	60,784	-2,943	0	0	57,841	-36,221	-1,545	20,075
Yellow birch	5,161	27,961	33,122	-7,094	0	0	26,028	-21,683	-22	4,323
Paper birch	9,021	29,121	38,142	-17,436	0	0	20,707	-25,135	-967	-5,395
American beech	5,394	19,846	25,240	-29,441	0	0	-4,201	-24,490	-3,069	-31,759
White ash	2,789	19,525	22,314	-1,437	0	0	20,877	-6,649	0	14,229
Aspen	12,173	29,594	41,767	-16,549	0	0	25,218	-39,801	-1,655	-16,238
Black cherry	546	481	1,027	-477	0	0	550	-208	0	342
White oak	0	276	276	-437	0	0	-161	0	0	-161
Northern red oak	4,203	19,908	24,112	-3,069	0	0	21,042	-6,614	-4,087	10,341
Other red oaks	0	697	697	-1,115	0	0	-418	0	0	-418
American basswood	80	1,454	1,534	0	0	0	1,534	-632	0	903
Elm	1,042	329	1,371	-2,506	0	0	-1,135	-447	0	-1,582
Other commercial hardwoods	991	391	1,382	-2,008	0	0	-626	-421	0	-1,047
Noncommercial hardwoods	1,967	3,144	5,111	-6,052	0	0	-941	-1,568	-35	-2,544
Total hardwoods	64,621	296,072	360,693	-105,225	0	0	255,469	-240,317	-14,205	947
Total, all species	154,703	695,478	850,180	-280,550	0	0	569,630	-504,294	-31,853	33,483

Table A25. Average annual net change of growing-stock volume on timberland by species and component of change, Maine, 2003

(In thousands of cubic feet)

Species group	Component of change									Net change
	Ingrowth	Accretion	Gross growth	Mortality	Cull decrement	Cull increment	Net growth	Harvest removals	Land use removals	
Balsam fir	43,089	78,275	121,364	-80,827	3,897	-6,306	38,128	-68,836	-3,060	-33,768
White spruce	4,123	14,231	18,354	-5,648	928	-1,014	12,620	-8,441	-1,048	3,132
Black spruce	5,258	9,371	14,629	-5,228	237	0	9,637	-9,028	-1,658	-1,049
Red spruce	13,886	94,491	108,377	-38,799	4,890	-14,761	59,707	-84,330	-8,709	-33,332
Red pine	2,686	1,826	4,513	0	0	0	4,513	0	-1,107	3,406
Pitch pine	0	-456	-456	0	0	-1,729	-2,186	0	0	-2,186
Eastern white pine	6,344	92,464	98,808	-12,228	9,001	-8,599	86,982	-44,102	-14,696	28,183
Other yellow pines	372	138	510	0	474	0	984	0	0	984
Northern white-cedar	6,623	24,887	31,510	-8,161	13,674	-21,321	15,702	-20,489	-3,867	-8,653
Eastern hemlock	7,500	48,463	55,963	-5,318	8,048	-10,807	47,885	-17,120	0	30,765
Other softwoods	722	6,090	6,812	-3,323	529	0	4,018	-4,561	0	-542
Total softwoods	90,603	369,780	460,383	-159,531	41,677	-64,538	277,991	-256,906	-34,145	-13,059
Red maple	16,497	75,102	91,599	-12,249	25,818	-27,838	77,330	-66,770	-3,485	7,075
Sugar maple	7,683	52,231	59,915	-2,564	10,885	-8,051	60,185	-31,514	-1,545	27,125
Yellow birch	4,935	28,023	32,958	-6,524	15,633	-16,783	25,284	-19,419	0	5,865
Paper birch	9,033	30,243	39,276	-15,667	2,452	-7,165	18,895	-25,083	-2,239	-8,428
American beech	4,950	18,950	23,901	-27,547	6,609	-14,538	-11,575	-22,236	-3,013	-36,824
White ash	2,752	18,007	20,758	-1,386	1,814	-473	20,713	-4,149	-395	16,169
Aspen	12,023	37,752	49,775	-14,897	206	-12,623	22,461	-39,275	-1,655	-18,469
Black cherry	58	380	439	-271	0	-348	-180	-208	0	-388
White oak	0	99	99	0	503	-200	403	0	0	403
Northern red oak	4,203	19,123	23,326	-1,435	896	-154	22,633	-6,519	-4,087	12,028
Other red oaks	0	697	697	-1,115	0	0	-418	0	0	-418
American basswood	80	1,666	1,746	0	0	-388	1,358	-409	0	950
Elm	1,042	329	1,371	-722	0	0	648	-447	0	201
Other hardwoods	1,158	11	1,169	-1,872	81	-2,581	-3,203	-421	-1,851	-5,474
Total hardwoods	64,416	282,614	347,031	-86,250	64,897	-91,143	234,534	-216,450	-18,270	-186
Total, all species	155,020	652,394	807,414	-245,781	106,575	-155,681	512,526	-473,357	-52,415	-13,246

Table A26. Average annual net change of sawtimber volume on timberland by species and component of change, Maine, 2003

(In thousands of board feet)

Species group	Component of change									Net change
	Ingrowth	Accretion	Gross growth	Mortality	Cull decrement	Cull increment	Net growth	Harvest removals	Land use removals	
Balsam fir	113,094	70,387	183,480	-124,864	8,325	-4,236	62,706	-166,757	0	-104,052
White spruce	15,871	35,399	51,270	-23,229	2,580	-4,242	26,379	-28,611	-6,298	-8,530
Black spruce	8,766	10,733	19,499	-4,481	0	0	15,018	-13,017	-4,878	-2,877
Red spruce	113,370	143,491	256,861	-97,123	11,034	-60,939	109,833	-250,104	-13,978	-154,249
Red pine	3,645	8,504	12,149	0	0	0	12,149	0	-5,134	7,015
Pitch pine	0	-1,705	-1,705	0	0	-7,485	-9,190	0	0	-9,190
Eastern white pine	62,925	320,065	382,991	-38,500	28,924	-13,421	359,993	-197,589	-62,170	100,234
Northern white-cedar	36,116	12,296	48,412	-15,962	32,526	-50,798	14,177	-70,219	-4,365	-60,406
Eastern hemlock	50,690	33,765	84,455	-15,046	22,000	-35,147	56,261	-57,650	0	-1,389
Other softwoods	6,139	-616	5,523	-5,509	0	0	14	-14,041	0	-14,027
Total softwoods	410,617	632,318	1,042,935	-324,715	105,390	-176,268	647,341	-797,989	-96,823	-247,471
Red maple	109,343	58,679	168,022	-5,117	61,667	-59,415	165,158	-125,902	0	39,256
Sugar maple	56,336	106,794	163,129	-2,911	34,114	-19,910	174,422	-106,113	-6,450	61,859
Yellow birch	56,555	37,939	94,494	-15,573	40,432	-49,204	70,149	-57,809	0	12,340
Paper birch	26,343	26,574	52,917	-5,027	0	-2,498	45,392	-45,862	-5,773	-6,244
American beech	34,147	9,714	43,861	-64,820	14,063	-11,298	-18,194	-48,455	0	-66,650
White ash	32,747	14,043	46,790	0	3,269	0	50,060	-9,927	0	40,133
Aspen	62,534	17,084	79,618	-12,961	0	-49,688	16,969	-94,527	0	-77,558
White oak	0	852	852	0	0	0	852	0	0	852
Northern red oak	17,842	18,995	36,837	0	2,986	0	39,823	-14,986	-14,232	10,606
Other red oaks	0	-250	-250	0	0	0	-250	0	0	-250
American basswood	0	2,385	2,385	0	0	0	2,385	0	0	2,385
Other hardwoods	2,948	1,633	4,581	-3,404	0	0	1,177	0	0	1,177
Total hardwoods	398,795	294,443	693,238	-109,814	156,531	-192,012	547,943	-503,581	-26,456	17,906
Total, all species	809,412	926,761	1,736,173	-434,529	261,921	-368,281	1,195,284	-1,301,570	-123,279	-229,565

Table A27. Land area by county and land class, Maine, 2003

(In thousands of acres)

Counties	Land class						All classes
	Timberland	Productive reserved	Unproductive reserved	Other forest	Total forest land	Nonforest land	
Androscoggin	193.7	.0	.0	1.5	195.2	105.8	301.0
Aroostook	3,779.5	16.8	6.0	42.1	3,844.3	425.5	4,269.8
Cumberland	368.8	.0	.0	.0	368.8	166.0	534.7
Franklin	969.4	27.0	9.0	10.5	1,015.9	70.7	1,086.6
Hancock	855.5	25.7	2.3	33.2	916.8	99.4	1,016.1
Kennebec	385.6	.0	.0	4.1	389.7	165.6	555.3
Knox	161.9	12.9	.0	.0	174.8	59.3	234.0
Lincoln	214.4	.0	.0	.0	214.4	77.4	291.8
Oxford	1,230.4	1.5	4.4	.0	1,236.3	93.6	1,329.9
Penobscot	1,958.7	4.4	.0	38.1	2,001.2	172.1	2,173.3
Piscataquis	2,233.2	171.9	11.4	23.0	2,439.5	98.9	2,538.4
Sagadahoc	122.3	.0	.0	.0	122.3	40.2	162.5
Somerset	2,356.5	9.0	.0	11.9	2,377.4	135.6	2,513.0
Waldo	392.1	.0	.0	.0	392.1	74.9	467.0
Washington	1,481.3	11.2	.0	37.0	1,529.5	114.3	1,643.8
York	499.4	.0	.0	.0	499.4	134.8	634.2
Total, all counties	17,202.5	280.4	33.2	201.4	17,717.5	2,033.8	19,751.4

Table A28. Area of timberland by county and forest-type group, Maine, 2003

(In thousands of acres)

Counties	Forest-type group						
	White/ red pine	Spruce/ fir	Loblolly/ shortleaf	Pinyon- /Juniper	Exotic Softwoods	Oak/ pine	Oak/ hickory
Androscoggin	73.9	.0	.0	.0	.0	4.9	13.4
Aroostook	58.0	1,714.1	.0	.0	12.9	.0	.0
Cumberland	85.2	.0	.0	.0	.0	69.3	61.1
Franklin	31.9	187.5	.0	.0	.0	1.5	.0
Hancock	79.4	361.9	.0	.0	.0	3.9	30.0
Kennebec	58.2	27.3	.0	.0	.0	34.9	18.2
Knox	5.0	52.0	.0	.0	.0	12.8	15.9
Lincoln	71.7	6.7	.0	.0	.0	29.9	8.1
Oxford	141.1	119.5	.0	.0	.0	36.3	37.2
Penobscot	239.0	642.4	.0	.0	6.2	24.8	5.9
Piscataquis	55.1	921.1	.0	.0	.0	5.8	17.8
Sagadahoc	18.2	18.2	.0	.0	.0	17.5	18.2
Somerset	80.6	785.3	.0	.0	.0	19.1	4.3
Waldo	45.8	79.5	.0	.0	.0	5.6	9.4
Washington	169.4	628.8	.0	.0	.0	16.9	.0
York	129.6	2.9	.0	.0	.0	51.1	80.6
Total, all counties	1,342.0	5,547.2	.0	.0	19.1	334.4	320.0
SE	5.9	2.5	.0	.0	53.8	12.0	12.3

Table A28. continued

(In thousands of acres)

Counties	Forest-type group							
	Oak/gum/ cypress	Elm/ash/ red maple	Northern hardwoods	Aspen/ birch	Exotic Hardwoods	Nonstocked	All groups	SE
Androscoggin	.0	7.7	81.9	10.3	.0	1.5	193.7	7.8
Aroostook	.0	53.8	1,369.4	559.0	.0	12.3	3,779.5	.9
Cumberland	.0	14.5	129.9	8.8	.0	.0	368.8	4.8
Franklin	6.0	17.7	510.8	213.9	.0	.0	969.4	2.4
Hancock	.0	11.4	260.7	108.3	.0	.0	855.5	2.9
Kennebec	.0	14.4	184.2	45.4	.0	2.8	385.6	4.3
Knox	.0	.0	58.1	18.2	.0	.0	161.9	8.0
Lincoln	.0	15.6	59.3	23.2	.0	.0	214.4	6.7
Oxford	.0	11.4	778.3	106.5	.0	.0	1,230.4	1.6
Penobscot	.0	77.1	708.7	254.6	.0	.0	1,958.7	1.4
Piscataquis	.0	20.5	984.6	219.6	.0	8.7	2,233.2	1.6
Sagadahoc	5.7	4.2	37.9	.0	.0	2.3	122.3	6.3
Somerset	.0	44.9	1,055.9	361.5	.0	4.9	2,356.5	1.1
Waldo	.0	7.7	187.6	56.5	.0	.0	392.1	3.1
Washington	.0	23.9	372.3	256.4	.0	13.6	1,481.3	1.7
York	.0	38.3	176.9	18.5	.0	1.6	499.4	3.7
Total, all counties	11.7	363.0	6,956.5	2,260.8	.0	47.8	17,202.5	.5
SE	70.7	11.5	2.2	4.6	.0	28.9	.5	

Table A29. Area of forest land by county and ownership class, Maine, 2003

(In thousands of acres)

Counties	Ownership group					All owners	SE
	Forest Service	Other Federal	State/Local Govt	Forest Industry	Nonindustrial Private		
Androscoggin	.0	.0	.0	.0	195.2	195.2	7.7
Aroostook	.0	3.5	214.7	1,946.0	1,680.1	3,844.3	.8
Cumberland	.0	2.0	23.2	5.8	337.9	368.8	4.8
Franklin	.0	12.0	36.1	462.3	505.6	1,015.9	1.7
Hancock	.0	28.0	36.0	328.9	523.9	916.8	2.0
Kennebec	.0	6.1	6.1	6.1	371.5	389.7	4.1
Knox	.0	.0	12.9	.0	161.9	174.8	5.9
Lincoln	.0	.0	6.7	.0	207.8	214.4	6.7
Oxford	53.1	.0	61.6	330.5	791.2	1,236.3	1.5
Penobscot	.0	.0	81.3	716.8	1,203.0	2,001.2	1.2
Piscataquis	.0	5.8	340.1	763.5	1,330.0	2,439.5	.8
Sagadahoc	.0	.0	.0	.0	122.3	122.3	6.3
Somerset	.0	8.5	41.6	573.9	1,753.5	2,377.4	1.0
Waldo	.0	.0	5.3	.0	386.8	392.1	3.1
Washington	.0	36.0	36.5	387.9	1,069.1	1,529.5	1.3
York	.0	.0	19.4	.0	480.0	499.4	3.7
Total, all counties	53.1	101.9	921.4	5,521.6	11,119.6	17,717.5	.4
SE	32.6	23.4	7.5	2.6	1.4	.4	

Table A30. Area of timberland by county and ownership class, Maine, 2003

(In thousands of acres)

Counties	Ownership group					All owners	SE
	Forest Service	Other Federal	State/Local Govt	Forest Industry	Nonindustrial Private		
Androscoggin	.0	.0	.0	.0	193.7	193.7	7.8
Aroostook	.0	3.5	182.2	1,934.6	1,659.2	3,779.5	.9
Cumberland	.0	2.0	23.2	5.8	337.9	368.8	4.8
Franklin	.0	.0	12.0	456.2	501.1	969.4	2.4
Hancock	.0	.0	36.0	323.1	496.4	855.5	2.9
Kennebec	.0	6.1	6.1	6.1	367.4	385.6	4.3
Knox	.0	.0	.0	.0	161.9	161.9	8.0
Lincoln	.0	.0	6.7	.0	207.8	214.4	6.7
Oxford	47.2	.0	61.6	330.5	791.2	1,230.4	1.6
Penobscot	.0	.0	69.6	708.9	1,180.2	1,958.7	1.4
Piscataquis	.0	.0	160.5	756.8	1,315.8	2,233.2	1.6
Sagadahoc	.0	.0	.0	.0	122.3	122.3	6.3
Somerset	.0	5.9	35.1	573.9	1,741.6	2,356.5	1.1
Waldo	.0	.0	5.3	.0	386.8	392.1	3.1
Washington	.0	30.4	30.9	373.8	1,046.1	1,481.3	1.7
York	.0	.0	19.4	.0	480.0	499.4	3.7
Total, all counties	47.2	47.9	648.5	5,469.7	10,989.3	17,202.5	.5
SE	34.7	33.8	9.1	2.6	1.4	.5	

Table A31. Area of forest land by county and stand-size class, Maine, 2003

(In thousands of acres)

Counties	Stand-size class				All classes	SE
	Saw-timber	Pole-timber	Sapling and seedling	Non-stocked		
Androscoggin	66.5	90.8	34.9	3.0	195.2	7.7
Aroostook	1,298.9	1,173.1	1,359.9	12.3	3,844.3	.8
Cumberland	190.0	153.6	25.1	.0	368.8	4.8
Franklin	280.5	512.8	222.6	.0	1,015.9	1.7
Hancock	264.1	392.9	259.8	.0	916.8	2.0
Kennebec	142.5	175.2	69.1	2.8	389.7	4.1
Knox	40.7	94.4	39.7	.0	174.8	5.9
Lincoln	96.7	91.2	26.5	.0	214.4	6.7
Oxford	521.9	571.0	143.4	.0	1,236.3	1.5
Penobscot	515.1	817.6	668.5	.0	2,001.2	1.2
Piscataquis	914.2	730.9	785.6	8.7	2,439.5	.8
Sagadahoc	53.0	52.7	14.2	2.3	122.3	6.3
Somerset	789.2	773.4	809.9	4.9	2,377.4	1.0
Waldo	117.4	165.7	109.0	.0	392.1	3.1
Washington	341.7	535.9	638.3	13.6	1,529.5	1.3
York	231.6	213.3	53.0	1.6	499.4	3.7
Total, all counties	5,864.2	6,544.6	5,259.5	49.3	17,717.5	.4
SE	2.5	2.3	2.7	28.1	.4	

Table A32. Area of timberland by county and stand-size class, Maine, 2003

(In thousands of acres)

Counties	Stand-size class				All classes	SE
	Saw-timber	Pole-timber	Sapling and seedling	Non-stocked		
Androscoggin	66.5	90.8	34.9	1.5	193.7	7.8
Aroostook	1,276.1	1,173.1	1,317.9	12.3	3,779.5	.9
Cumberland	190.0	153.6	25.1	.0	368.8	4.8
Franklin	262.5	503.8	203.1	.0	969.4	2.4
Hancock	251.3	385.6	218.6	.0	855.5	2.9
Kennebec	142.5	171.1	69.1	2.8	385.6	4.3
Knox	40.7	81.5	39.7	.0	161.9	8.0
Lincoln	96.7	91.2	26.5	.0	214.4	6.7
Oxford	520.5	566.6	143.4	.0	1,230.4	1.6
Penobscot	510.7	815.7	632.3	.0	1,958.7	1.4
Piscataquis	862.1	649.1	713.3	8.7	2,233.2	1.6
Sagadahoc	53.0	52.7	14.2	2.3	122.3	6.3
Somerset	782.7	765.0	803.9	4.9	2,356.5	1.1
Waldo	117.4	165.7	109.0	.0	392.1	3.1
Washington	336.1	530.3	601.2	13.6	1,481.3	1.7
York	231.6	213.3	53.0	1.6	499.4	3.7
Total, all counties	5,740.4	6,409.1	5,005.2	47.8	17,202.5	.5
SE	2.5	2.3	2.8	28.9	.5	

Table A33. Area of timberland by county and stocking class of all live trees, Maine, 2003

(In thousands of acres)

Counties	Stocking class					All classes	SE
	Nonstocked	Poorly stocked	Moderately stocked	Fully stocked	Over-stocked		
Androscoggin	1.5	16.1	55.5	108.2	12.3	193.7	7.8
Aroostook	12.3	205.6	1,119.0	1,770.6	672.0	3,779.5	.9
Cumberland	.0	7.3	104.8	221.8	34.8	368.8	4.8
Franklin	.0	60.5	273.7	485.6	149.7	969.4	2.4
Hancock	.0	78.1	222.2	451.4	103.8	855.5	2.9
Kennebec	2.8	22.8	121.5	203.7	39.3	385.6	4.3
Knox	.0	11.6	75.0	59.2	16.1	161.9	8.0
Lincoln	.0	13.5	64.8	134.2	2.0	214.4	6.7
Oxford	.0	61.5	297.4	765.4	106.1	1,230.4	1.6
Penobscot	.0	118.0	640.5	907.3	292.9	1,958.7	1.4
Piscataquis	8.7	79.7	583.3	1,165.0	396.3	2,233.2	1.6
Sagadahoc	2.3	1.5	40.6	61.8	16.0	122.3	6.3
Somerset	4.9	78.8	567.4	1,278.1	427.3	2,356.5	1.1
Waldo	.0	28.1	108.9	219.0	36.1	392.1	3.1
Washington	13.6	87.2	489.0	692.7	198.7	1,481.3	1.7
York	1.6	18.8	212.0	223.4	43.8	499.4	3.7
Total, all counties	47.8	889.1	4,975.7	8,747.5	2,547.0	17,202.5	.5
SE	28.9	7.5	2.8	1.8	4.2	.5	

Table A34. Area of timberland by county and stocking class of growing-stock trees, Maine, 2003

(In thousands of acres)

Counties	Stocking class					All classes	SE
	Nonstocked	Poorly stocked	Moderately stocked	Fully stocked	Over-stocked		
Androscoggin	1.5	28.5	62.5	91.8	9.3	193.7	7.8
Aroostook	32.2	400.0	1,372.2	1,544.6	430.4	3,779.5	.9
Cumberland	4.9	23.8	148.5	162.4	29.1	368.8	4.8
Franklin	6.0	111.4	342.0	428.4	81.6	969.4	2.4
Hancock	8.7	112.6	263.0	409.9	61.3	855.5	2.9
Kennebec	2.8	36.4	158.2	167.0	21.1	385.6	4.3
Knox	1.8	23.7	69.2	64.1	3.2	161.9	8.0
Lincoln	.0	20.2	68.3	123.9	2.0	214.4	6.7
Oxford	.0	112.0	361.8	691.0	65.6	1,230.4	1.6
Penobscot	14.0	213.7	753.6	821.3	156.1	1,958.7	1.4
Piscataquis	12.3	176.2	744.6	1,040.3	259.7	2,233.2	1.6
Sagadahoc	2.3	7.6	64.0	43.0	5.3	122.3	6.3
Somerset	16.1	150.6	761.8	1,150.3	277.6	2,356.5	1.1
Waldo	9.8	42.2	147.0	181.0	12.2	392.1	3.1
Washington	41.2	145.8	577.2	596.9	120.1	1,481.3	1.7
York	7.2	59.8	214.2	195.5	22.7	499.4	3.7
Total, all counties	160.8	1,664.6	6,108.2	7,711.6	1,557.3	17,202.5	.5
SE	16.5	5.4	2.5	2.0	5.6	.5	

Table A35. Net volume of growing-stock trees on timberland by county and forest-type group, Maine, 2003

(In millions of cubic feet)

Counties	Forest-type group						
	White/ red pine	Spruce/ fir	Loblolly/ shortleaf	Pinyon- /Juniper	Exotic Softwoods	Oak/ pine	Oak/ hickory
Androscoggin	159.7	.0	.0	.0	.0	12.4	24.1
Aroostook	128.2	2,090.3	.0	.0	1.7	.0	.0
Cumberland	246.6	.0	.0	.0	.0	144.4	95.6
Franklin	78.9	239.4	.0	.0	.0	.0	.0
Hancock	147.4	450.5	.0	.0	.0	6.6	52.3
Kennebec	151.0	31.9	.0	.0	.0	52.3	34.3
Knox	14.7	79.4	.0	.0	.0	18.7	13.7
Lincoln	148.4	19.7	.0	.0	.0	32.7	11.4
Oxford	399.7	158.7	.0	.0	.0	75.5	56.8
Penobscot	479.9	862.9	.0	.0	3.4	28.1	21.6
Piscataquis	142.0	1,220.0	.0	.0	.0	6.6	18.3
Sagadahoc	38.3	47.0	.0	.0	.0	40.9	12.1
Somerset	178.2	892.1	.0	.0	.0	28.1	.1
Waldo	106.5	108.2	.0	.0	.0	8.9	30.1
Washington	294.8	669.5	.0	.0	.0	11.1	.0
York	296.4	1.1	.0	.0	.0	112.4	100.1
Total, all counties	3,010.7	6,870.6	.0	.0	5.1	578.6	470.6

Table A35. continued

(In millions of cubic feet)

Counties	Forest-type group						
	Oak/gum/ cypress	Elm/ash/ red maple	Northern hardwoods	Aspen/ birch	Exotic Hardwoods	Nonstocked	All groups
Androscoggin	.0	4.2	118.0	11.7	.0	.0	330.2
Aroostook	.0	21.8	1,613.7	500.3	.0	.4	4,356.5
Cumberland	.0	15.0	244.0	16.5	.0	.0	762.0
Franklin	9.1	4.7	744.2	284.7	.0	.0	1,360.9
Hancock	.0	4.4	372.1	132.2	.0	.0	1,165.4
Kennebec	.0	11.7	259.9	49.8	.0	.0	591.0
Knox	.0	.0	88.0	8.8	.0	.0	223.2
Lincoln	.0	20.9	119.4	34.1	.0	.0	386.5
Oxford	.0	3.9	1,197.0	151.6	.0	.0	2,043.3
Penobscot	.0	57.5	701.0	237.7	.0	.0	2,392.1
Piscataquis	.0	18.8	1,215.3	206.6	.0	.4	2,827.9
Sagadahoc	6.9	6.6	54.4	.0	.0	.0	206.2
Somerset	.0	37.7	1,447.6	375.6	.0	.0	2,959.3
Waldo	.0	5.7	240.6	37.2	.0	.0	537.1
Washington	.0	10.4	317.3	120.3	.0	.0	1,423.4
York	.0	32.7	300.2	5.3	.0	.1	848.3
Total, all counties	16.0	255.8	9,032.8	2,172.4	.0	.9	22,413.4

Table A36. Net volume of live trees on forest land by county and stand-size class, Maine, 2003

(In millions of cubic feet)

Counties	Stand-size class				All classes	SE
	Saw-timber	Pole-timber	Sapling and seedling	Non-stocked		
Androscoggin	184.5	156.2	10.4	.1	351.2	11.8
Aroostook	2,559.8	1,642.8	428.5	.8	4,631.9	2.9
Cumberland	532.4	255.4	12.5	.0	800.2	6.2
Franklin	615.3	777.7	83.8	.0	1,476.8	5.1
Hancock	618.0	623.0	92.9	.0	1,333.9	5.9
Kennebec	350.2	261.1	26.6	.0	637.9	7.6
Knox	115.9	139.0	13.4	.0	268.3	13.3
Lincoln	255.3	142.5	11.8	.0	409.6	11.0
Oxford	1,225.7	899.5	50.9	.0	2,176.1	4.0
Penobscot	1,197.8	1,196.9	192.3	.0	2,586.9	4.2
Piscataquis	1,917.5	1,132.9	246.5	.4	3,297.3	3.7
Sagadahoc	145.8	76.3	4.6	.0	226.6	14.7
Somerset	1,745.4	1,148.7	237.7	.0	3,131.8	3.5
Waldo	285.1	266.8	45.9	.0	597.8	7.9
Washington	613.3	722.3	224.3	.9	1,560.7	5.1
York	577.1	309.4	16.0	.1	902.7	6.1
Total, all counties	12,939.1	9,750.6	1,698.0	2.2	24,389.9	1.3
SE	2.8	2.6	4.2	53.2	1.3	

Table A37. Net volume of growing-stock trees on timberland by county and stand-size class, Maine, 2003

(In millions of cubic feet)

Counties	Stand-size class				All classes	SE
	Saw-timber	Pole-timber	Sapling and seedling	Non-stocked		
Androscoggin	174.0	146.5	9.8	.0	330.2	12.2
Aroostook	2,402.4	1,551.3	402.4	.4	4,356.5	3.0
Cumberland	509.8	240.2	12.0	.0	762.0	6.5
Franklin	550.4	734.1	76.4	.0	1,360.9	5.6
Hancock	526.6	559.8	79.0	.0	1,165.4	6.4
Kennebec	327.6	238.7	24.8	.0	591.0	8.0
Knox	110.0	100.5	12.7	.0	223.2	15.3
Lincoln	243.4	131.6	11.5	.0	386.5	11.5
Oxford	1,150.3	849.4	43.5	.0	2,043.3	4.2
Penobscot	1,098.7	1,124.6	168.8	.0	2,392.1	4.3
Piscataquis	1,687.8	931.9	207.8	.4	2,827.9	4.2
Sagadahoc	131.8	70.0	4.4	.0	206.2	15.7
Somerset	1,657.0	1,077.2	225.1	.0	2,959.3	3.6
Waldo	250.8	246.3	40.0	.0	537.1	8.4
Washington	559.8	661.9	201.7	.0	1,423.4	5.3
York	550.7	282.0	15.5	.1	848.3	6.3
Total, all counties	11,931.0	8,946.2	1,535.4	.9	22,413.4	1.4
SE	2.8	2.7	4.4	56.9	1.4	

Table A38. Net volume of sawtimber trees on timberland by county and forest-type group, Maine, 2003

(In millions of board feet)

Counties	Forest-type group						
	White/ red pine	Spruce/ fir	Loblolly/ shortleaf	Pinyon- /Juniper	Exotic Softwoods	Oak/ pine	Oak/ hickory
Androscoggin	467.0	.0	.0	.0	.0	32.0	60.5
Aroostook	424.8	4,679.8	.0	.0	.0	.0	.0
Cumberland	750.1	.0	.0	.0	.0	443.0	221.5
Franklin	285.4	521.6	.0	.0	.0	.0	.0
Hancock	396.1	928.7	.0	.0	.0	10.4	79.6
Kennebec	455.8	76.2	.0	.0	.0	119.9	80.4
Knox	35.8	182.7	.0	.0	.0	44.0	25.2
Lincoln	458.3	58.5	.0	.0	.0	81.1	29.8
Oxford	1,298.6	339.4	.0	.0	.0	245.4	120.8
Penobscot	1,263.2	1,816.1	.0	.0	.0	45.5	81.1
Piscataquis	450.3	2,905.4	.0	.0	.0	15.8	42.0
Sagadahoc	97.6	151.0	.0	.0	.0	125.5	12.2
Somerset	554.1	2,000.5	.0	.0	.0	60.1	.0
Waldo	314.7	214.2	.0	.0	.0	33.7	92.0
Washington	742.5	1,214.5	.0	.0	.0	16.9	.0
York	1,004.5	.0	.0	.0	.0	320.0	206.8
Total, all counties	8,999.0	15,088.6	.0	.0	.0	1,593.1	1,052.0
SE	7.5	4.4	.0	.0	.0	16.1	17.2

Table A38. continued

(In millions of board feet)

Counties	Forest-type group							
	Oak/gum/ cypress	Elm/ash/ red maple	Northern hardwoods	Aspen/ birch	Exotic Hardwoods	Nonstocked	All groups	SE
Androscoggin	.0	8.1	257.9	41.0	.0	.0	866.5	19.0
Aroostook	.0	22.7	3,929.3	873.5	.0	.0	9,930.1	4.3
Cumberland	.0	29.9	564.8	51.2	.0	.0	2,060.4	9.0
Franklin	12.6	8.6	1,506.4	500.7	.0	.0	2,835.2	9.0
Hancock	.0	4.8	755.2	227.4	.0	.0	2,402.2	9.5
Kennebec	.0	27.8	543.8	101.3	.0	.0	1,405.2	11.9
Knox	.0	.0	137.6	22.3	.0	.0	447.7	20.5
Lincoln	.0	25.4	304.6	28.2	.0	.0	985.8	18.8
Oxford	.0	3.0	2,731.1	308.1	.0	.0	5,046.4	6.4
Penobscot	.0	87.4	1,368.2	411.8	.0	.0	5,073.3	6.6
Piscataquis	.0	44.5	3,180.0	364.8	.0	.0	7,002.7	5.5
Sagadahoc	6.8	10.7	85.0	.0	.0	.0	488.7	24.2
Somerset	.0	85.1	3,563.3	663.8	.0	.0	6,927.0	5.1
Waldo	.0	9.9	420.8	35.4	.0	.0	1,120.7	13.2
Washington	.0	13.5	535.3	101.1	.0	.0	2,623.8	7.9
York	.0	54.7	687.5	2.7	.0	.0	2,276.0	8.9
Total, all counties	19.3	435.9	20,570.7	3,733.1	.0	.0	51,491.7	2.0
SE	73.8	21.0	3.5	8.6	.0	.0	2.0	

Table A39. Net volume of sawtimber trees on timberland by county and stand-size class, Maine, 2003

(In millions of board feet)

Counties	Stand-size class				All classes	SE
	Saw-timber	Pole-timber	Sapling and seedling	Non-stocked		
Androscoggin	606.4	246.7	13.4	.0	866.5	19.0
Aroostook	7,070.8	2,255.1	604.2	.0	9,930.1	4.3
Cumberland	1,630.9	381.5	48.0	.0	2,060.4	9.0
Franklin	1,628.8	1,108.8	97.5	.0	2,835.2	9.0
Hancock	1,519.1	800.2	82.9	.0	2,402.2	9.5
Kennebec	1,017.2	333.4	54.1	.0	1,405.2	11.9
Knox	314.6	124.0	9.2	.0	447.7	20.5
Lincoln	820.7	160.1	5.0	.0	985.8	18.8
Oxford	3,602.8	1,370.7	72.9	.0	5,046.4	6.4
Penobscot	3,268.6	1,577.8	226.9	.0	5,073.3	6.6
Piscataquis	5,106.8	1,504.4	391.5	.0	7,002.7	5.5
Sagadahoc	393.1	91.8	3.8	.0	488.7	24.2
Somerset	4,931.2	1,566.7	429.1	.0	6,927.0	5.1
Waldo	710.9	369.5	40.3	.0	1,120.7	13.2
Washington	1,444.0	922.2	257.5	.0	2,623.8	7.9
York	1,787.3	469.9	18.8	.0	2,276.0	8.9
Total, all counties	35,853.9	13,282.6	2,354.9	.0	51,491.7	2.0
SE	3.1	3.3	6.7	.0	2.0	

Table A40. Biomass of all trees and shrubs on timberland, by county and class of material, Maine, 2003

(In thousands of dry tons)

Counties	Non-timber				Total trees and shrubs	SE
	Timber	Salvable dead trees	Saplings	Shrubs		
Androscoggin	11,780	104	1,740	66	13,690	10.1
Aroostook	144,862	2,288	42,361	2,672	192,184	2.2
Cumberland	26,974	332	2,524	110	29,940	5.7
Franklin	49,605	517	10,545	547	61,214	4.5
Hancock	40,363	1,370	8,896	396	51,025	5.1
Kennebec	22,804	180	3,938	143	27,065	6.7
Knox	7,519	186	1,610	44	9,359	12.6
Lincoln	13,278	214	2,153	58	15,703	8.2
Oxford	77,402	769	10,924	464	89,559	3.3
Penobscot	77,927	1,383	20,875	920	101,106	3.1
Piscataquis	95,601	1,498	24,329	1,025	122,453	3.2
Sagadahoc	7,888	67	970	32	8,958	10.9
Somerset	103,835	1,023	23,563	1,601	130,022	2.9
Waldo	19,962	383	3,969	127	24,442	6.7
Washington	46,742	936	19,360	1,272	68,311	3.6
York	30,804	252	4,280	159	35,495	5.4
Total, all counties	777,346	11,505	182,038	9,637	980,527	1.0
SE	1.3	4.1	1.6	4.1	1.0	

Table A41. Biomass of all timber on timberland, by county, class of timber, and component, Maine, 2003

(In thousands of dry tons)

Counties	Growing stock trees					Total timber	SE
	Growing stock	Branches	Foliage	Stump and roots	Cull trees		
Androscoggin	7,066	1,034	496	2,229	955	11,780	11.1
Aroostook	85,277	12,867	6,705	27,384	12,629	144,862	2.9
Cumberland	16,326	2,394	1,149	5,157	1,947	26,974	6.0
Franklin	30,608	4,319	1,967	9,637	3,073	49,605	5.4
Hancock	22,499	3,436	1,816	7,229	5,383	40,363	6.0
Kennebec	13,465	1,911	872	4,212	2,343	22,804	7.3
Knox	4,536	673	349	1,434	527	7,519	14.5
Lincoln	7,898	1,209	613	2,522	1,035	13,278	9.6
Oxford	46,217	6,508	2,933	14,447	7,297	77,402	3.8
Penobscot	45,411	6,977	3,690	14,700	7,149	77,927	3.8
Piscataquis	56,530	8,478	4,362	18,044	8,187	95,601	4.0
Sagadahoc	4,379	659	334	1,397	1,118	7,888	12.5
Somerset	63,068	9,011	4,263	19,874	7,619	103,835	3.7
Waldo	11,258	1,629	768	3,568	2,739	19,962	7.9
Washington	26,385	4,308	2,562	8,693	4,794	46,742	4.8
York	18,417	2,693	1,260	5,808	2,625	30,804	5.9
Total, all counties	459,340	68,109	34,139	146,335	69,424	777,346	1.3
SE	1.4	1.3	1.4	1.3	2.6	1.3	

Table A42. Biomass of softwood trees and evergreen shrubs on timberland, by county and class of material, Maine, 2003

(In thousands of dry tons)

Counties	Non-timber				Total trees and shrubs	SE
	Timber	Salvable dead trees	Saplings	Shrubs		
Androscoggin	4,848	92	491	0	5,431	15.7
Aroostook	64,785	1,247	25,969	37	92,038	3.4
Cumberland	11,003	215	949	12	12,179	9.5
Franklin	14,995	202	5,070	11	20,278	7.6
Hancock	19,641	765	5,765	9	26,181	6.8
Kennebec	7,856	67	1,541	1	9,466	11.3
Knox	3,441	150	850	5	4,446	16.2
Lincoln	6,686	168	1,076	3	7,933	12.1
Oxford	24,455	284	4,308	3	29,050	6.9
Penobscot	36,941	807	12,045	9	49,803	4.7
Piscataquis	43,034	836	13,334	8	57,212	4.8
Sagadahoc	3,697	47	406	3	4,152	20.3
Somerset	36,134	596	13,607	5	50,342	4.5
Waldo	7,466	234	2,051	0	9,751	10.3
Washington	28,587	685	11,745	31	41,049	4.8
York	12,196	131	1,362	17	13,706	9.2
Total, all counties	325,766	6,527	100,569	155	433,017	1.6
SE	1.9	5.4	2.3	14.7	1.6	

Table A43. Biomass of hardwood trees and deciduous shrubs on timberland by county and class of material, Maine, 2003

(In thousands of dry tons)

Counties	Non-timber				Total trees and shrubs	SE
	Timber	Salvable dead trees	Saplings	Shrubs		
Androscoggin	6,932	12	1,249	66	8,259	12.3
Aroostook	80,077	1,041	16,392	2,635	100,145	3.9
Cumberland	15,971	117	1,575	97	17,760	8.6
Franklin	34,610	316	5,474	536	40,936	6.1
Hancock	20,721	605	3,131	387	24,844	8.5
Kennebec	14,948	113	2,397	142	17,600	7.8
Knox	4,077	36	760	39	4,912	18.8
Lincoln	6,592	46	1,077	56	7,771	12.2
Oxford	52,946	485	6,616	461	60,509	4.8
Penobscot	40,986	576	8,829	911	51,303	4.8
Piscataquis	52,567	663	10,995	1,017	65,241	5.1
Sagadahoc	4,191	21	564	29	4,806	14.9
Somerset	67,701	427	9,956	1,596	79,680	4.8
Waldo	12,497	149	1,918	127	14,691	8.6
Washington	18,155	251	7,615	1,241	27,262	6.1
York	18,607	121	2,918	142	21,789	7.8
Total, all counties	451,580	4,978	81,469	9,483	547,509	1.6
SE	1.9	6.3	2.3	4.2	1.6	

Table A44. Biomass of softwood timber on timberland by county and component, Maine, 2003

(In thousands of dry tons)

Counties	Growing stock trees					Total timber	SE
	Growing stock	Branches	Foliage	Stump and roots	Cull trees		
Androscoggin	2,717	508	342	915	365	4,848	16.7
Aroostook	37,077	7,013	5,035	12,684	2,976	64,785	4.1
Cumberland	6,333	1,188	800	2,139	542	11,003	9.8
Franklin	8,807	1,657	1,186	2,995	350	14,995	9.0
Hancock	10,330	1,936	1,371	3,495	2,509	19,641	7.9
Kennebec	4,333	813	553	1,463	694	7,856	12.3
Knox	1,925	360	259	651	246	3,441	17.3
Lincoln	3,755	705	465	1,265	495	6,686	14.0
Oxford	14,050	2,621	1,805	4,725	1,255	24,455	7.6
Penobscot	20,854	3,929	2,794	7,100	2,264	36,941	5.7
Piscataquis	24,574	4,618	3,268	8,340	2,233	43,034	5.8
Sagadahoc	1,892	353	243	638	570	3,697	22.4
Somerset	20,849	3,912	2,808	7,074	1,491	36,134	5.3
Waldo	3,825	720	503	1,299	1,120	7,466	11.7
Washington	15,803	2,971	2,159	5,377	2,277	28,587	5.6
York	6,944	1,302	851	2,337	762	12,196	10.1
Total, all counties	184,069	34,606	24,443	62,497	20,152	325,766	1.9
SE	2.0	2.0	1.9	1.9	4.4	1.9	

Table A45. Biomass of hardwood timber on timberland by county cand component, Maine, 2003

(In thousands of dry tons)

Counties	Growing stock trees					Total timber	SE
	Growing stock	Branches	Foliage	Stump and roots	Cull trees		
Androscoggin	4,348	526	154	1,314	590	6,932	13.2
Aroostook	48,200	5,854	1,669	14,700	9,653	80,077	4.6
Cumberland	9,993	1,206	349	3,017	1,405	15,971	9.1
Franklin	21,802	2,662	781	6,642	2,723	34,610	7.0
Hancock	12,168	1,500	445	3,734	2,874	20,721	9.3
Kennebec	9,132	1,099	319	2,749	1,649	14,948	8.6
Knox	2,611	313	90	782	281	4,077	21.2
Lincoln	4,143	504	148	1,257	541	6,592	13.8
Oxford	32,167	3,887	1,128	9,722	6,041	52,946	5.3
Penobscot	24,557	3,048	897	7,600	4,884	40,986	5.5
Piscataquis	31,956	3,860	1,093	9,704	5,953	52,567	5.9
Sagadahoc	2,487	306	91	759	548	4,191	16.7
Somerset	42,219	5,099	1,455	12,800	6,128	67,701	5.5
Waldo	7,433	909	266	2,270	1,619	12,497	9.8
Washington	10,582	1,337	403	3,316	2,517	18,155	7.9
York	11,473	1,392	408	3,471	1,863	18,607	8.4
Total, all counties	275,271	33,503	9,697	83,837	49,272	451,580	1.9
SE	2.0	1.9	1.9	2.0	3.2	1.9	

Table A46. Biomass of growing stock on timberland by county and component, Maine, 2003

(In thousands of dry tons)

Counties	Growing stock			Total growing stock	SE
	Poletimber	Sawlog	Upper stem		
Androscoggin	2,969	3,490	607	7,066	11.6
Aroostook	38,019	39,640	7,617	85,277	3.0
Cumberland	6,289	8,476	1,561	16,326	6.5
Franklin	15,875	12,154	2,579	30,608	5.7
Hancock	11,692	9,128	1,678	22,499	6.5
Kennebec	6,081	6,223	1,161	13,465	7.8
Knox	2,186	1,982	368	4,536	15.3
Lincoln	3,354	3,935	609	7,898	10.4
Oxford	20,743	21,244	4,231	46,217	4.0
Penobscot	22,579	19,254	3,578	45,411	4.1
Piscataquis	23,628	27,712	5,190	56,530	4.1
Sagadahoc	1,964	2,047	367	4,379	14.1
Somerset	28,342	28,895	5,831	63,068	3.9
Waldo	5,548	4,785	925	11,258	8.8
Washington	14,802	9,866	1,717	26,385	5.2
York	7,697	9,133	1,587	18,417	6.2
Total, all counties	211,769	207,965	39,605	459,340	1.4
SE	1.3	1.9	2.0	1.4	

Table B1. Land area by land class, Maine, 1995[a]

(In thousands of acres)

Land class	Acres	SE
Timberland:		
Rural	17,014.6	.5
Urban	39.5	40.0
Total timberland	17,054.1	.5
Forested land:		
Productive reserved	253.9	15.8
Unproductive reserved	13.1	70.8
Other forest land[c]	370.2	12.1
Total forest land	17,691.3	.4
Nonforest land:		
Cropland	532.7	8.5
Pasture	169.2	18.4
Other	1,332.7	5.1
Noncensus water	25.6	46.0
Total nonforest land	2,060.1	3.1
Total land area[d]	19,751.4[b]	.0
SE	.0	

[a] In this and other tables, a zero indicates that the data are negligible or the condition was not encountered in the sample. A dash indicates that the condition is not possible under current Forest Service definitions.
[b] Rows and columns in all tables may not sum due to rounding.
[c] "Other forest land" formerly known as unproductive forest land.
[d] Source: 2000 United States Department of Commerce, Bureau of Census

Table B2. Land area by county and land class, Maine, 1995

(In thousands of acres)

Counties	Land class						All classes
	Timberland	Productive reserved	Unproductive reserved	Other forest	Total forest land	Nonforest land	
Androscoggin	203.3	.0	.0	6.7	210.0	91.0	301.0
Aroostook	3,750.4	25.1	.0	96.5	3,872.0	397.8	4,269.8
Cumberland	379.3	.0	.0	.0	379.3	155.5	534.7
Franklin	983.7	30.0	.0	19.1	1,032.9	53.7	1,086.6
Hancock	854.3	26.1	6.2	26.3	912.9	103.2	1,016.1
Kennebec	411.1	.0	.0	.0	411.1	144.2	555.3
Knox	169.9	.0	.0	.0	169.9	64.1	234.0
Lincoln	223.1	.0	.0	.0	223.1	68.8	291.8
Oxford	1,208.0	6.5	.0	.0	1,214.5	115.4	1,329.9
Penobscot	1,849.5	12.8	.0	66.3	1,928.5	244.7	2,173.3
Piscataquis	2,282.3	126.7	6.9	40.7	2,456.6	81.8	2,538.4
Sagadahoc	123.4	.0	.0	.0	123.4	39.1	162.5
Somerset	2,353.2	6.7	.0	29.0	2,388.9	124.0	2,513.0
Waldo	373.7	6.6	.0	.0	380.3	86.7	467.0
Washington	1,387.7	13.5	.0	85.6	1,486.7	157.1	1,643.8
York	501.4	.0	.0	.0	501.4	132.8	634.2
Total, all counties	17,054.1	253.9	13.1	370.2	17,691.3	2,060.1	19,751.4

Table B3. Area of timberland by forest type, forest-type group, and stand-size class, Maine, 1995

(In thousands of acres)

Forest type	Stand-size class				All classes	SE
	Saw-timber	Pole-timber	Sapling and seedling	Non-stocked		
Jack pine	.0	6.4	.0	.0	6.4	100.0
Red pine	6.6	21.4	6.4	.0	34.4	42.0
White pine	245.0	149.9	36.5	.0	431.5	11.9
White pine/hemlock	40.1	55.0	2.9	.0	97.9	25.2
Hemlock	152.8	223.7	26.7	.0	403.2	12.4
White/red pine group	444.6	456.5	72.4	.0	973.4	7.7
Balsam fir	356.7	1,499.1	1,162.4	.0	3,018.1	4.1
White spruce	29.6	48.3	56.6	.0	134.5	21.4
Red spruce	155.2	543.6	150.6	.0	849.4	8.4
Red spruce/balsam fir	192.4	769.2	512.0	.0	1,473.5	6.3
Black spruce	6.7	182.8	15.2	.0	204.7	17.6
Tamarack	.0	74.0	13.4	.0	87.4	27.1
Northern white-cedar	305.4	580.8	91.2	.0	977.4	7.4
Spruce/fir group	1,045.9	3,697.7	2,001.4	.0	6,745.0	2.2
Pitch pine	.0	6.7	.0	.0	6.7	100.0
Loblolly/shortleaf group	.0	6.7	.0	.0	6.7	100.0
Wh. pine/no.red oak/wh. ash	57.7	124.0	39.9	.0	221.6	17.1
Other oak/pine	.0	6.7	.0	.0	6.7	100.0
Oak/pine group	57.7	130.7	39.9	.0	228.3	16.9
White oak/red oak/hickory	.0	48.7	6.2	.0	55.0	35.5
Northern red oak	2.9	59.1	17.6	.0	79.5	29.4
Red maple/oak	.0	21.0	.0	.0	21.0	56.2
Mixed upland hardwoods	3.4	13.2	16.2	.0	32.8	42.2
Oak/hickory group	6.3	142.1	40.0	.0	188.3	18.5
Sweetbay/swamp tupelo/red mple	7.1	32.1	23.9	.0	63.1	31.8
Oak/gum/cypress group	7.1	32.1	23.9	.0	63.1	31.8

Table B3. continued

(In thousands of acres)

Forest type	Stand-size class				All classes	SE
	Saw-timber	Pole-timber	Sapling and seedling	Non-stocked		
Black ash/Amer. elm/red maple	13.2	120.3	62.5	.0	195.9	18.4
River birch/sycamore	.0	.0	58.8	.0	58.8	32.9
Willow	.0	6.6	28.9	.0	35.6	41.4
Sycamore/pecan/American elm	.0	33.6	6.7	.0	40.3	51.2
Sugarbrry/hackbrry/elm/gr.ash	.0	6.5	.0	.0	6.5	100.0
Silver maple/American elm	.0	6.6	.0	.0	6.6	100.0
Red maple(lowland)	19.9	99.6	46.7	.0	166.3	19.7
Elm/ash/red maple group	33.1	273.3	203.6	.0	510.0	11.4
Sugar maple/beech/yellow birch	646.3	2,960.6	1,870.9	.0	5,477.8	2.7
Black cherry	.0	5.3	13.2	.0	18.5	58.0
Cherry/ash/yellow poplar	23.0	153.1	93.6	.0	269.7	15.3
Hard maple/basswood	.0	6.6	22.9	.0	29.5	45.2
Red maple/uplands	37.3	208.8	120.8	.0	366.8	13.8
Northern hardwoods group	706.6	3,334.4	2,121.3	.0	6,162.4	2.4
Aspen	67.1	442.6	402.7	.0	912.4	8.1
Paper birch	15.4	427.8	569.7	.0	1,012.8	7.7
Gray birch	.0	7.5	.0	.0	7.5	100.0
Balsam poplar	.0	38.6	25.2	.0	63.8	31.5
Aspen/birch group	82.5	916.5	997.5	.0	1,996.5	5.3
Nonstocked	52.1	74.0	.0	54.3	180.4	17.7
All forest types	2,435.9	9,063.9	5,499.9	54.3	17,054.1	.5
SE	4.8	1.8	2.6	29.1	.5	

Table B4. Area of timberland by forest-type group and stocking class of all live trees, Maine, 1995

(In thousands of acres)

Forest-type group	Stocking class					All classes	SE
	Nonstocked	Poorly stocked	Moderately stocked	Fully stocked	Over-stocked		
White/red pine	.0	25.0	173.0	541.4	234.1	973.4	7.7
Spruce/fir	.0	209.9	1,596.4	3,635.6	1,303.1	6,745.0	2.2
Loblolly/shortleaf	.0	.0	.0	6.7	.0	6.7	100.0
Oak/pine	.0	.0	33.7	174.3	20.3	228.3	16.9
Oak/hickory	.0	11.8	25.3	103.9	47.3	188.3	18.5
Oak/gum/cypress	.0	6.6	6.8	26.0	23.8	63.1	31.8
Elm/ash/red maple	.0	37.9	107.9	279.5	84.7	510.0	11.4
Northern hardwoods	.0	166.9	974.9	3,412.8	1,607.7	6,162.4	2.4
Aspen/birch	.0	104.7	279.4	783.9	828.5	1,996.5	5.3
All type groups	.0	562.7	3,197.4	8,964.0	4,149.5	16,873.6	.5
Nonstocked	54.3	99.9	18.5	7.7	.0	180.4	17.7
All groups	54.3	662.6	3,215.9	8,971.7	4,149.5	17,054.1	.5
SE	29.1	9.4	4.0	1.9	3.4	.5	

Table B5. Number of live trees (1.0+ inches d.b.h.) on forest land by species and diameter class, Maine, 1995

(In thousands of trees)

Species group	Diameter class (inches at breast height)							
	1.0-2.9	3.0-4.9	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9
Balsam fir	3,710,157	761,202	273,411	119,196	43,519	12,985	3,463	775
Atlantic white-cedar	0	0	33	0	0	0	0	0
White spruce	141,176	64,073	24,860	16,383	8,105	5,041	2,164	1,083
Black spruce	185,767	68,746	33,924	14,668	6,129	2,026	628	164
Red spruce	658,944	239,825	154,983	113,097	67,866	35,735	14,847	6,670
Red pine	6,979	5,060	2,911	1,942	1,135	565	560	271
Pitch pine	398	1,167	167	451	412	391	321	166
Eastern white pine	164,311	72,868	43,340	30,560	22,808	17,724	13,490	8,862
Other yellow pines	2,644	1,493	1,840	194	35	0	0	0
Northern white-cedar	243,751	151,705	120,945	94,019	63,712	35,835	18,207	9,110
Eastern hemlock	202,585	85,174	48,981	38,845	27,965	16,841	10,546	5,081
Other softwoods	26,308	17,455	12,296	6,610	3,209	2,174	751	398
Total softwoods	5,343,021	1,468,769	717,690	435,964	244,896	129,317	64,978	32,580
Red maple	1,216,419	332,279	185,767	111,415	60,449	29,272	13,697	6,587
Sugar maple	381,466	107,849	53,903	38,529	27,514	17,970	11,850	6,484
Yellow birch	535,704	104,572	46,025	31,526	21,572	15,665	8,420	5,220
Paper birch	708,475	203,850	94,789	59,069	28,961	10,390	3,718	1,006
Hickory	0	0	31	0	37	0	0	0
American beech	547,541	148,865	76,184	44,231	26,206	13,069	7,008	3,240
White ash	169,807	44,510	19,855	12,705	6,522	3,771	1,793	880
Aspen	567,883	90,588	50,112	42,662	25,870	13,837	7,377	3,288
Black cherry	56,021	7,561	4,435	2,383	1,155	456	141	62
White oak	897	1,281	1,523	1,001	329	80	121	41
Northern red oak	86,484	34,519	21,299	15,244	9,263	5,480	2,886	2,359
Other white oaks	0	0	0	0	0	0	0	33
Other red oaks	2,522	785	787	699	508	255	210	0
American basswood	9,331	4,094	1,088	1,211	746	371	166	234
Elm	11,023	4,872	2,750	1,398	499	102	63	67
Other commercial hardwoods	83,335	35,068	13,552	4,927	1,950	1,239	563	299
Noncommercial hardwoods	1,326,292	198,448	47,572	10,502	2,085	528	190	139
Total hardwoods	5,703,200	1,319,141	619,673	377,502	213,665	112,485	58,205	29,941
Total, all species	11,046,220	2,787,910	1,337,363	813,466	458,562	241,802	123,183	62,521
SE	2.1	2.0	1.4	1.4	1.5	1.8	2.4	3.0

Table B5. continued

(In thousands of trees)

Species group	Diameter class (inches at breast height)						
	17.0-18.9	19.0-20.9	21.0-28.9	29.0+	Total 5.0+	All classes	SE
Balsam fir	67	33	0	0	453,451	4,924,810	3.2
Atlantic white-cedar	0	0	0	0	33	33	100.0
White spruce	511	131	255	0	58,532	263,781	12.9
Black spruce	33	0	0	0	57,571	312,084	15.3
Red spruce	2,149	687	356	0	396,388	1,295,157	4.7
Red pine	216	33	0	0	7,634	19,673	27.6
Pitch pine	67	0	0	0	1,976	3,541	48.3
Eastern white pine	6,812	3,914	5,768	415	153,695	390,874	8.5
Other yellow pines	0	0	0	0	2,068	6,206	70.6
Northern white-cedar	3,774	1,116	880	0	347,599	743,055	6.2
Eastern hemlock	2,338	1,111	1,134	0	152,843	440,602	6.4
Other softwoods	133	130	65	0	25,768	69,531	16.3
Total softwoods	16,103	7,156	8,459	415	1,657,558	8,469,347	2.4
Red maple	2,858	1,767	1,642	99	413,554	1,962,252	3.4
Sugar maple	3,650	2,608	3,857	167	166,532	655,848	5.5
Yellow birch	2,933	1,648	1,560	33	134,602	774,878	5.0
Paper birch	305	100	98	0	198,436	1,110,761	5.4
Hickory	0	0	0	0	67	67	71.0
American beech	1,237	583	157	0	171,916	868,321	5.4
White ash	269	118	273	0	46,187	260,504	8.0
Aspen	802	420	237	31	144,637	803,108	7.9
Black cherry	31	0	34	0	8,697	72,279	15.0
White oak	0	36	39	0	3,172	5,350	31.8
Northern red oak	775	656	714	0	58,677	179,680	10.6
Other white oaks	0	0	0	0	33	33	100.0
Other red oaks	78	0	0	0	2,538	5,845	41.4
American basswood	61	63	0	0	3,941	17,366	26.8
Elm	0	0	0	0	4,878	20,773	16.8
Other commercial hardwoods	164	32	67	0	22,793	141,196	13.8
Noncommercial hardwoods	39	0	0	0	61,055	1,585,795	4.4
Total hardwoods	13,203	8,032	8,679	330	1,441,716	8,464,057	2.1
Total, all species	29,306	15,188	17,137	745	3,099,274	16,933,404	1.6
SE	4.3	5.7	5.5	24.2	1.1	1.6	

Table B6. Number of live trees (5.0+ inches d.b.h.) on timberland by species and diameter class, Maine, 1995

(In thousands of trees)

Species group	Diameter class (inches at breast height)							
	1.0-2.9	3.0-4.9	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9
Balsam fir	3,672,680	750,546	269,533	117,760	43,009	12,761	3,400	741
Atlantic white-cedar	0	0	33	0	0	0	0	0
White spruce	136,822	61,743	24,036	15,862	7,795	4,749	2,130	1,083
Black spruce	97,353	52,555	32,923	14,601	6,096	2,026	628	164
Red spruce	634,376	231,454	150,266	109,816	66,065	34,358	13,814	6,243
Red pine	6,979	5,060	2,878	1,908	1,102	565	461	271
Pitch pine	398	1,167	167	451	412	391	321	166
Eastern white pine	164,311	70,913	42,973	29,960	22,511	17,624	13,324	8,795
Other yellow pines	403	0	1,529	163	35	0	0	0
Northern white-cedar	237,813	148,568	118,919	92,331	63,039	35,184	18,014	8,726
Eastern hemlock	200,092	82,657	48,713	38,741	27,895	16,809	10,482	5,047
Other softwoods	20,423	17,057	12,197	6,547	3,209	2,174	751	398
Total softwoods	5,171,650	1,421,720	704,168	428,141	241,168	126,641	63,326	31,635
Red maple	1,199,816	324,244	182,680	109,739	59,679	28,728	13,409	6,428
Sugar maple	380,706	105,421	53,134	38,209	27,231	17,624	11,660	6,425
Yellow birch	526,950	101,799	45,385	30,993	21,071	15,476	8,322	5,064
Paper birch	688,492	198,604	92,265	57,570	28,268	10,133	3,589	1,006
Hickory	0	0	31	0	37	0	0	0
American beech	534,970	146,111	74,580	43,871	25,848	12,933	6,740	3,240
White ash	169,807	44,510	19,746	12,678	6,522	3,737	1,732	880
Aspen	562,721	89,359	48,286	41,784	25,336	13,607	7,277	3,158
Black cherry	53,534	7,561	4,435	2,383	1,155	456	141	62
White oak	897	1,281	1,523	1,001	329	80	121	41
Northern red oak	85,647	34,112	20,892	15,108	9,128	5,414	2,858	2,331
Other white oaks	0	0	0	0	0	0	0	33
Other red oaks	2,522	785	787	699	508	255	210	0
American basswood	9,331	4,094	1,088	1,211	746	371	166	234
Elm	11,023	4,872	2,717	1,398	465	102	63	67
Other commercial hardwoods	80,581	30,414	12,428	4,539	1,783	1,106	529	265
Noncommercial hardwoods	1,291,155	193,475	47,005	10,410	2,085	528	190	139
Total hardwoods	5,598,152	1,286,643	606,985	371,592	210,191	110,549	57,009	29,375
Total, all species	10,769,802	2,708,362	1,311,152	799,733	451,359	237,191	120,335	61,010
SE	2.2	2.1	1.5	1.5	1.6	1.9	2.4	3.1

Table B6. continued

(In thousands of trees)

Species group	Diameter class (inches at breast height)						
	17.0-18.9	19.0-20.9	21.0-28.9	29.0+	Total 5.0+	All classes	SE
Balsam fir	67	0	0	0	447,272	4,870,498	3.2
Atlantic white-cedar	0	0	0	0	33	33	100.0
White spruce	511	131	221	0	56,518	255,082	13.3
Black spruce	33	0	0	0	56,471	206,380	17.0
Red spruce	2,051	654	356	0	383,624	1,249,454	4.8
Red pine	216	33	0	0	7,436	19,475	27.9
Pitch pine	67	0	0	0	1,976	3,541	48.3
Eastern white pine	6,678	3,816	5,607	415	151,704	386,928	8.6
Other yellow pines	0	0	0	0	1,726	2,130	75.6
Northern white-cedar	3,707	1,083	748	0	341,752	728,132	6.3
Eastern hemlock	2,338	1,081	1,134	0	152,239	434,989	6.5
Other softwoods	133	130	65	0	25,605	63,085	17.8
Total softwoods	15,803	6,928	8,131	415	1,626,357	8,219,727	2.4
Red maple	2,727	1,733	1,608	99	406,830	1,930,889	3.4
Sugar maple	3,650	2,546	3,828	167	164,473	650,600	5.5
Yellow birch	2,901	1,648	1,525	33	132,418	761,167	5.1
Paper birch	305	100	98	0	193,334	1,080,430	5.5
Hickory	0	0	0	0	67	67	71.0
American beech	1,207	583	157	0	169,159	850,240	5.4
White ash	269	118	273	0	45,957	260,275	8.0
Aspen	701	420	237	31	140,837	792,917	8.0
Black cherry	31	0	34	0	8,697	69,792	15.1
White oak	0	36	39	0	3,172	5,350	31.8
Northern red oak	742	656	714	0	57,845	177,605	10.7
Other white oaks	0	0	0	0	33	33	100.0
Other red oaks	78	0	0	0	2,538	5,845	41.4
American basswood	61	63	0	0	3,941	17,366	26.8
Elm	0	0	0	0	4,811	20,706	16.9
Other commercial hardwoods	164	32	33	0	20,880	131,875	14.2
Noncommercial hardwoods	39	0	0	0	60,395	1,545,026	4.5
Total hardwoods	12,876	7,936	8,547	330	1,415,390	8,300,184	2.1
Total, all species	28,679	14,864	16,678	745	3,041,747	16,519,911	1.6
SE	4.4	5.7	5.6	24.2	1.1	1.6	

Table B7. Number of growing-stock trees (5.0+ inches d.b.h.) on forest land by species and diameter class, Maine, 1995

(In thousands of trees)

Species group	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
Balsam fir	269,559	117,596	41,129	12,338	3,363	775	67
Atlantic white-cedar	33	0	0	0	0	0	0
White spruce	24,411	16,283	7,284	4,943	2,164	1,083	478
Black spruce	33,762	14,595	5,865	1,900	590	164	33
Red spruce	153,193	112,211	64,872	35,019	14,490	6,508	2,018
Red pine	2,616	1,909	1,103	565	560	271	216
Pitch pine	133	451	412	391	321	166	67
Eastern white pine	41,658	29,727	20,525	16,361	13,222	8,488	6,516
Other yellow pines	1,309	129	35	0	0	0	0
Northern white-cedar	109,599	84,496	47,655	28,047	14,283	6,881	3,099
Eastern hemlock	47,548	38,214	23,626	15,364	9,891	4,951	2,203
Other softwoods	11,799	6,313	3,046	2,076	687	360	133
Total softwoods	695,621	421,925	215,552	117,005	59,571	29,648	14,831
Red maple	169,581	103,493	55,974	23,640	10,784	5,171	2,051
Sugar maple	50,438	37,028	26,082	15,766	10,309	5,468	3,217
Yellow birch	42,016	28,771	20,075	11,562	6,304	3,908	2,219
Paper birch	91,386	56,778	27,877	9,399	3,355	849	239
Hickory	31	0	37	0	0	0	0
American beech	67,261	39,655	23,372	9,646	5,339	1,929	841
White ash	19,323	12,501	6,321	3,402	1,666	784	198
Aspen	49,454	41,786	25,055	13,448	7,116	2,987	769
Black cherry	3,539	1,866	884	322	66	35	31
White oak	1,486	1,001	293	80	80	41	0
Northern red oak	20,985	15,000	9,114	5,132	2,582	2,266	740
Other white oaks	0	0	0	0	0	33	0
Other red oaks	787	661	508	255	174	0	78
American basswood	1,019	1,146	609	371	166	234	27
Elm	2,556	1,398	499	102	63	0	0
Other hardwoods	29,209	8,192	2,171	881	466	199	66
Total hardwoods	549,070	349,276	198,873	94,007	48,471	23,905	10,477
Total, all species	1,244,691	771,202	414,425	211,011	108,042	53,552	25,308
SE	1.5	1.5	1.6	1.9	2.5	3.2	4.6

Table B7. continued

(In thousands of trees)

Species group	Diameter class (inches at breast height)				
	19.0-20.9	21.0-28.9	29.0+	All classes	SE
Balsam fir	33	0	0	444,861	3.0
Atlantic white-cedar	0	0	0	33	100.0
White spruce	131	255	0	57,031	6.8
Black spruce	0	0	0	56,910	13.3
Red spruce	687	324	0	389,321	3.9
Red pine	33	0	0	7,274	33.9
Pitch pine	0	0	0	1,942	59.1
Eastern white pine	3,776	5,183	370	145,827	6.9
Other yellow pines	0	0	0	1,473	59.6
Northern white-cedar	951	585	0	295,595	5.4
Eastern hemlock	1,016	1,026	0	143,841	5.7
Other softwoods	66	65	0	24,547	17.0
Total softwoods	6,695	7,439	370	1,568,656	1.9
Red maple	1,085	1,137	33	372,951	2.8
Sugar maple	2,054	3,003	66	153,430	4.7
Yellow birch	1,159	931	33	116,979	3.8
Paper birch	66	33	0	189,982	4.6
Hickory	0	0	0	67	71.0
American beech	321	33	0	148,398	5.2
White ash	118	202	0	44,515	7.9
Aspen	328	204	31	141,178	6.8
Black cherry	0	34	0	6,777	16.3
White oak	36	0	0	3,018	37.1
Northern red oak	624	579	0	57,023	8.2
Other white oaks	0	0	0	33	100.0
Other red oaks	0	0	0	2,464	35.2
American basswood	63	0	0	3,635	20.9
Elm	0	0	0	4,617	16.3
Other hardwoods	32	0	0	41,216	8.0
Total hardwoods	5,887	6,156	163	1,286,285	1.6
Total, all species	12,581	13,595	533	2,854,941	1.1
SE	6.2	6.0	26.3	1.1	

Table B8. Number of growing-stock trees (5.0+ inches d.b.h.) on timberland by species and diameter class, Maine, 1995

(In thousands of trees)

Species group	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
Balsam fir	265,778	116,161	40,618	12,147	3,300	741	67
Atlantic white-cedar	33	0	0	0	0	0	0
White spruce	23,621	15,762	7,001	4,651	2,130	1,083	478
Black spruce	32,794	14,529	5,832	1,900	590	164	33
Red spruce	148,477	108,931	63,167	33,643	13,457	6,081	1,919
Red pine	2,583	1,875	1,069	565	461	271	216
Pitch pine	133	451	412	391	321	166	67
Eastern white pine	41,292	29,127	20,261	16,262	13,055	8,421	6,382
Other yellow pines	998	98	35	0	0	0	0
Northern white-cedar	108,027	83,099	47,076	27,620	14,123	6,559	3,065
Eastern hemlock	47,312	38,109	23,556	15,364	9,856	4,918	2,203
Other softwoods	11,699	6,250	3,046	2,076	687	360	133
Total softwoods	682,747	414,393	212,075	114,619	57,981	28,765	14,565
Red maple	166,723	102,075	55,236	23,247	10,558	5,039	1,953
Sugar maple	49,769	36,709	25,888	15,566	10,152	5,438	3,217
Yellow birch	41,377	28,238	19,575	11,440	6,239	3,751	2,186
Paper birch	88,862	55,279	27,217	9,142	3,227	849	239
Hickory	31	0	37	0	0	0	0
American beech	65,788	39,393	23,143	9,545	5,169	1,929	811
White ash	19,215	12,474	6,321	3,369	1,639	784	198
Aspen	47,628	40,941	24,555	13,247	7,016	2,920	668
Black cherry	3,539	1,866	884	322	66	35	31
White oak	1,486	1,001	293	80	80	41	0
Northern red oak	20,579	14,864	8,980	5,065	2,555	2,266	707
Other white oaks	0	0	0	0	0	33	0
Other red oaks	787	661	508	255	174	0	78
American basswood	1,019	1,146	609	371	166	234	27
Elm	2,522	1,398	465	102	63	0	0
Other hardwoods	28,314	7,837	2,071	815	432	199	66
Total hardwoods	537,637	343,882	195,783	92,567	47,536	23,519	10,182
Total, all species	1,220,385	758,275	407,858	207,187	105,517	52,284	24,747
SE	1.5	1.5	1.6	2.0	2.5	3.3	4.7

Table B8. continued

(In thousands of trees)

Species group	Diameter class (inches at breast height)				
	19.0-20.9	21.0-28.9	29.0+	All classes	SE
Balsam fir	0	0	0	438,813	3.1
Atlantic white-cedar	0	0	0	33	100.0
White spruce	131	221	0	55,078	7.0
Black spruce	0	0	0	55,842	13.5
Red spruce	654	324	0	376,653	4.0
Red pine	33	0	0	7,075	34.8
Pitch pine	0	0	0	1,942	59.1
Eastern white pine	3,677	5,022	370	143,869	7.0
Other yellow pines	0	0	0	1,131	71.5
Northern white-cedar	918	487	0	290,974	5.5
Eastern hemlock	1,016	1,026	0	143,361	5.7
Other softwoods	66	65	0	24,384	17.2
Total softwoods	6,497	7,145	370	1,539,158	1.9
Red maple	1,085	1,103	33	367,053	2.9
Sugar maple	1,992	3,003	66	151,800	4.7
Yellow birch	1,159	896	33	114,894	3.9
Paper birch	66	33	0	184,913	4.7
Hickory	0	0	0	67	71.0
American beech	321	33	0	146,132	5.2
White ash	118	202	0	44,319	7.9
Aspen	328	204	31	137,538	6.9
Black cherry	0	34	0	6,777	16.3
White oak	36	0	0	3,018	37.1
Northern red oak	624	579	0	56,219	8.3
Other white oaks	0	0	0	33	100.0
Other red oaks	0	0	0	2,464	35.2
American basswood	63	0	0	3,635	20.9
Elm	0	0	0	4,550	16.4
Other hardwoods	32	0	0	39,767	8.1
Total hardwoods	5,824	6,087	163	1,263,181	1.7
Total, all species	12,321	13,233	533	2,802,339	1.2
SE	6.3	6.1	26.3	1.2	

Table B9. Number of live saplings on forest land by species and 1" diameter class, Maine, 1995

(In thousands of trees)

Species group	Diameter class (inches at breast height)				All classes	SE
	1.0-1.9	2.0-2.9	3.0-3.9	4.0-4.9		
Balsam fir	2,662,640	1,047,516	480,844	280,358	4,471,359	3.4
White spruce	91,409	49,767	33,608	30,465	205,249	15.9
Black spruce	105,015	80,752	38,411	30,335	254,513	17.6
Red spruce	447,535	211,409	134,772	105,054	898,769	6.1
Red pine	3,910	3,069	3,904	1,156	12,039	31.5
Pitch pine	398	0	382	784	1,565	50.0
Eastern white pine	98,242	66,069	45,001	27,867	237,179	12.2
Other yellow pines	1,867	777	373	1,120	4,137	90.8
Northern white-cedar	143,657	100,094	75,512	76,193	395,455	8.7
Eastern hemlock	140,194	62,391	46,430	38,744	287,759	8.1
Other softwoods	18,084	8,225	10,427	7,028	43,764	20.1
Total softwoods	3,712,952	1,630,069	869,666	599,103	6,811,789	2.8
Red maple	865,561	350,858	187,027	145,252	1,548,697	4.1
Sugar maple	259,666	121,800	69,399	38,450	489,315	6.7
Yellow birch	388,286	147,418	67,595	36,977	640,276	5.9
Paper birch	511,136	197,339	126,032	77,819	912,325	6.4
American beech	384,410	163,131	99,930	48,935	696,405	5.9
White ash	125,350	44,457	26,123	18,387	214,318	9.1
Aspen	419,195	148,688	58,601	31,987	658,471	9.4
Black cherry	46,090	9,930	4,741	2,820	63,582	16.3
White oak	433	464	433	848	2,178	44.1
Northern red oak	55,832	30,652	19,094	15,426	121,003	14.3
Other red oaks	2,522	0	392	392	3,307	52.9
American basswood	4,252	5,079	2,910	1,184	13,425	33.5
Elm	6,231	4,793	3,294	1,578	15,895	20.6
Other commercial hardwoods	54,979	28,356	21,163	13,905	118,403	15.7
Noncommercial hardwoods	1,010,919	315,373	137,912	60,536	1,524,740	4.6
Total hardwoods	4,134,862	1,568,337	824,645	494,496	7,022,341	2.5
Total, all species	7,847,814	3,198,406	1,694,311	1,093,599	13,834,130	1.9
SE	2.3	2.3	2.3	2.5	1.9	

Table B10. Number of live saplings on timberland by species and 1" diameter class, Maine, 1995

(In thousands of trees)

Species group	Diameter class (inches at breast height)				All classes	SE
	1.0-1.9	2.0-2.9	3.0-3.9	4.0-4.9		
Balsam fir	2,638,491	1,034,188	474,084	276,463	4,423,226	3.5
White spruce	88,194	48,628	31,665	30,078	198,565	16.4
Black spruce	55,054	42,299	26,034	26,521	149,909	20.5
Red spruce	431,839	202,537	130,331	101,123	865,830	6.2
Red pine	3,910	3,069	3,904	1,156	12,039	31.5
Pitch pine	398	0	382	784	1,565	50.0
Eastern white pine	98,242	66,069	43,447	27,465	235,224	12.3
Other yellow pines	0	403	0	0	403	100.0
Northern white-cedar	139,313	98,499	73,557	75,011	386,380	8.8
Eastern hemlock	138,121	61,971	46,010	36,647	282,749	8.2
Other softwoods	14,960	5,463	10,029	7,028	37,480	22.9
Total softwoods	3,608,522	1,563,128	839,444	582,276	6,593,370	2.9
Red maple	854,869	344,947	182,175	142,069	1,524,060	4.1
Sugar maple	259,263	121,443	67,811	37,610	486,127	6.7
Yellow birch	383,564	143,386	66,018	35,781	628,749	6.0
Paper birch	496,668	191,823	122,796	75,808	887,096	6.5
American beech	375,107	159,863	97,176	48,935	681,081	6.0
White ash	125,350	44,457	26,123	18,387	214,318	9.1
Aspen	415,603	147,117	57,779	31,579	652,079	9.4
Black cherry	43,603	9,930	4,741	2,820	61,095	16.4
White oak	433	464	433	848	2,178	44.1
Northern red oak	54,996	30,652	19,094	15,018	119,759	14.4
Other red oaks	2,522	0	392	392	3,307	52.9
American basswood	4,252	5,079	2,910	1,184	13,425	33.5
Elm	6,231	4,793	3,294	1,578	15,895	20.6
Other commercial hardwoods	52,997	27,584	18,062	12,352	110,995	16.1
Noncommercial hardwoods	986,003	305,152	134,044	59,431	1,484,630	4.6
Total hardwoods	4,061,460	1,536,691	802,848	483,794	6,884,794	2.5
Total, all species	7,669,982	3,099,820	1,642,292	1,066,070	13,478,164	1.9
SE	2.4	2.3	2.4	2.5	1.9	

Table B11. Net volume of all trees on timberland by class of timber and species group, Maine, 1995

(In millions of cubic feet)

Class of timber	Species group				All species	SE
	Pines	Other softwoods	Soft hardwoods	Hard hardwoods		
Growing-stock trees:						
Sawtimber size	1,964.5	5,524.0	1,091.8	3,260.4	11,840.8	1.9
Poletimber size	332.1	4,255.6	1,792.7	3,765.0	10,145.4	1.3
Total growing-stock trees	2,296.6	9,779.7	2,884.5	7,025.4	21,986.2	1.2
Rough trees:						
Sawtimber size	56.5	251.4	127.8	227.6	663.3	4.6
Poletimber size	5.5	25.6	53.8	132.2	217.1	4.4
Total rough trees	62.1	277.0	181.6	359.7	880.4	3.7
Rotten trees:						
Sawtimber size	9.4	77.1	51.9	121.7	260.1	5.5
Poletimber size	.4	10.6	17.0	23.4	51.4	5.5
Total rotten trees	9.8	87.7	68.9	145.1	311.5	4.8
Salvable dead[a] trees:						
Sawtimber size	7.7	133.8	17.0	49.8	208.2	7.1
Poletimber size	5.5	105.3	16.1	74.4	201.3	4.3
Total salvable dead trees	13.1	239.1	33.1	124.2	409.5	4.6
All classes	2,381.7	10,383.5	3,168.0	7,654.4	23,587.6	1.2
SE	6.3	2.1	2.8	2.1	1.2	

Table B12. Net volume of all live trees on forest land by species and diameter class, Maine, 1995

(In millions of cubic feet)

Species group	Diameter class (inches at breast height)										All classes	SE
	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29.0+		
Balsam fir	794.6	730.4	456.9	206.0	79.3	22.7	2.5	1.8	.0	.0	2,294.2	3.4
Atlantic white-cedar	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.1	100.0
White spruce	78.7	106.9	90.3	88.1	52.9	35.6	20.4	7.6	16.1	.0	496.5	7.7
Black spruce	117.8	97.9	68.4	32.7	12.7	5.5	1.3	.0	.0	.0	336.4	12.6
Red spruce	528.8	772.7	782.4	627.7	371.6	218.9	88.1	37.4	24.6	.0	3,452.2	3.9
Red pine	8.6	12.5	13.1	8.7	13.8	8.9	8.6	2.1	.0	.0	76.2	26.6
Pitch pine	.5	3.1	4.4	6.0	7.4	5.2	3.1	.0	.0	.0	29.8	65.0
Eastern white pine	127.5	187.5	235.3	282.9	310.9	270.3	262.6	193.7	376.5	54.2	2,301.4	6.3
Other yellow pines	3.8	.8	.4	.0	.0	.0	.0	.0	.0	.0	5.0	53.8
Northern white-cedar	291.3	431.2	479.2	392.8	272.5	177.3	97.9	38.0	36.7	.0	2,217.1	5.0
Eastern hemlock	134.1	216.9	264.4	241.4	213.8	135.8	80.5	46.0	67.8	.0	1,400.5	6.0
Other softwoods	33.7	37.5	33.2	34.4	15.5	11.1	5.0	3.5	3.9	.0	177.8	14.4
Total softwoods	2,119.4	2,597.4	2,428.0	1,920.7	1,350.4	891.2	570.1	330.1	525.7	54.2	12,787.0	2.0
Red maple	462.1	614.6	575.5	420.4	273.4	170.9	93.8	69.1	92.4	3.8	2,775.9	3.0
Sugar maple	149.2	229.9	284.1	281.4	254.0	187.4	135.4	118.5	234.1	15.2	1,889.1	4.8
Yellow birch	105.6	160.9	192.6	200.7	152.2	129.8	91.6	56.9	79.9	9.6	1,179.9	4.1
Paper birch	272.0	359.1	302.2	160.4	81.5	28.5	9.7	3.8	2.5	.0	1,219.8	4.5
Hickory	.1	.0	.4	.0	.0	.0	.0	.0	.0	.0	.5	85.5
American beech	168.9	231.5	239.6	176.4	132.7	69.4	33.3	18.1	3.5	.0	1,073.4	5.6
White ash	59.6	80.7	70.9	60.2	41.2	26.1	10.3	6.7	18.1	.0	373.8	8.2
Aspen	172.5	293.3	301.2	243.0	178.8	107.9	34.6	18.9	14.6	4.3	1,369.0	6.3
Black cherry	11.1	12.7	11.4	6.3	2.3	.9	1.2	.0	2.2	.0	48.1	19.5
White oak	3.7	5.0	2.8	1.0	1.7	1.0	.0	1.2	.7	.0	17.1	29.5
Northern red oak	58.3	87.9	90.3	83.0	59.5	66.1	29.6	30.4	40.1	.0	545.3	8.3
Other white oaks	.0	.0	.0	.0	.0	.8	.0	.0	.0	.0	.8	100.0
Other red oaks	2.3	4.0	4.8	4.0	3.8	.0	2.7	.0	.0	.0	21.8	35.7
American basswood	3.1	6.9	6.6	5.8	3.3	7.1	1.0	3.0	.0	.0	36.8	19.6
Elm	5.8	6.5	4.2	1.3	1.2	1.3	.0	.0	.0	.0	20.3	17.8
Other commercial hardwoods	35.8	27.4	16.8	14.3	11.6	6.1	4.7	1.7	.9	.0	119.2	11.8
Noncommercial hardwoods	93.8	41.5	13.9	3.8	.9	1.5	1.0	.0	.0	.0	156.6	6.3
Total hardwoods	1,604.0	2,161.7	2,117.3	1,662.1	1,198.2	805.0	448.9	328.2	488.9	33.0	10,847.4	1.7
Total, all species	3,723.3	4,759.1	4,545.3	3,582.8	2,548.6	1,696.2	1,019.0	658.4	1,014.6	87.2	23,634.4	1.2
SE	1.5	1.5	1.5	1.9	2.5	3.1	4.5	5.9	6.0	25.7	1.2	

Table B13. Net volume of all live trees on timberland by species and diameter class, Maine, 1995

(In millions of cubic feet)

Species group	Diameter class (inches at breast height)										All classes	SE
	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29.0+		
Balsam fir	783.6	721.6	452.0	202.7	77.9	21.8	2.5	.0	.0	.0	2,262.0	3.4
Atlantic white-cedar	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.1	100.0
White spruce	76.4	103.3	86.9	83.0	52.2	35.6	20.4	7.6	13.7	.0	479.0	7.9
Black spruce	114.6	97.4	68.0	32.7	12.7	5.5	1.3	.0	.0	.0	332.2	12.8
Red spruce	512.3	750.1	761.3	603.9	344.4	204.2	84.0	35.5	24.6	.0	3,320.3	3.9
Red pine	8.5	12.3	12.6	8.7	11.7	8.9	8.6	2.1	.0	.0	73.3	27.5
Pitch pine	.5	3.1	4.4	6.0	7.4	5.2	3.1	.0	.0	.0	29.8	65.0
Eastern white pine	126.5	183.9	232.3	281.0	306.2	268.0	256.6	188.3	364.7	54.2	2,261.7	6.4
Other yellow pines	2.7	.6	.4	.0	.0	.0	.0	.0	.0	.0	3.7	63.5
Northern white-cedar	287.3	424.8	473.9	387.0	269.9	170.8	96.0	36.7	31.0	.0	2,177.2	5.1
Eastern hemlock	133.4	216.3	263.8	241.0	212.7	135.3	80.5	45.5	67.8	.0	1,396.3	6.0
Other softwoods	33.4	37.3	33.2	34.4	15.5	11.1	5.0	3.5	3.9	.0	177.3	14.4
Total softwoods	2,079.2	2,550.7	2,388.8	1,880.4	1,310.6	866.2	558.0	319.1	505.7	54.2	12,512.9	2.0
Red maple	454.3	606.0	568.5	413.1	268.0	167.4	90.0	68.2	90.1	3.8	2,729.5	3.0
Sugar maple	147.3	227.9	281.6	276.6	251.2	186.2	135.4	115.4	233.6	15.2	1,870.5	4.9
Yellow birch	104.2	158.3	188.1	198.2	150.5	125.6	90.8	56.9	77.5	9.6	1,159.8	4.2
Paper birch	265.0	349.4	294.5	155.9	78.8	28.5	9.7	3.8	2.5	.0	1,188.1	4.5
Hickory	.1	.0	.4	.0	.0	.0	.0	.0	.0	.0	.5	85.5
American beech	165.3	229.8	237.2	174.7	127.5	69.4	32.3	18.1	3.5	.0	1,057.8	5.6
White ash	59.2	80.5	70.9	59.7	40.4	26.1	10.3	6.7	18.1	.0	371.9	8.3
Aspen	166.1	287.8	295.5	239.4	176.5	105.1	30.1	18.9	14.6	4.3	1,338.3	6.4
Black cherry	11.1	12.7	11.4	6.3	2.3	.9	1.2	.0	2.2	.0	48.1	19.5
White oak	3.7	5.0	2.8	1.0	1.7	1.0	.0	1.2	.7	.0	17.1	29.5
Northern red oak	57.0	87.1	89.1	82.2	58.9	65.4	28.1	30.4	40.1	.0	538.5	8.3
Other white oaks	.0	.0	.0	.0	.0	.8	.0	.0	.0	.0	.8	100.0
Other red oaks	2.3	4.0	4.8	4.0	3.8	.0	2.7	.0	.0	.0	21.8	35.7
American basswood	3.1	6.9	6.6	5.8	3.3	7.1	1.0	3.0	.0	.0	36.8	19.6
Elm	5.8	6.5	3.9	1.3	1.2	1.3	.0	.0	.0	.0	20.0	18.0
Other commercial hardwoods	33.4	25.6	15.2	13.0	10.8	5.5	4.7	1.7	.8	.0	110.6	12.2
Noncommercial hardwoods	92.7	41.2	13.9	3.8	.9	1.5	1.0	.0	.0	.0	155.2	6.4
Total hardwoods	1,570.7	2,128.7	2,084.7	1,635.0	1,175.8	792.0	437.3	324.4	483.7	33.0	10,665.2	1.8
Total, all species	3,649.9	4,679.4	4,473.5	3,515.4	2,486.4	1,658.2	995.3	643.5	989.4	87.2	23,178.1	1.2
SE	1.6	1.5	1.6	1.9	2.5	3.2	4.6	6.0	6.1	25.7	1.2	

Table B14. Net volume of growing-stock trees on timberland by species and stand-size class, Maine, 1995

(In millions of cubic feet)

Species group	Stand-size class				All classes	SE
	Saw-timber	Pole-timber	Sapling and seedling	Non-stocked		
Balsam fir	339.0	1,545.5	352.1	.2	2,236.8	3.4
Atlantic white-cedar	.0	.1	.0	.0	.1	100.0
White spruce	132.3	267.7	67.5	2.4	469.9	7.8
Black spruce	44.2	250.9	32.4	.5	328.0	12.7
Red spruce	738.2	2,115.7	423.5	.4	3,277.8	3.9
Red pine	17.1	51.0	4.5	.0	72.6	27.6
Pitch pine	6.2	22.7	.8	.0	29.7	64.9
Eastern white pine	982.8	973.8	231.6	2.8	2,191.0	6.4
Other yellow pines	.0	3.3	.0	.0	3.3	63.1
Northern white-cedar	663.6	1,011.9	284.9	1.3	1,961.8	5.2
Eastern hemlock	433.9	744.1	155.5	.0	1,333.5	6.1
Other softwoods	14.7	143.3	13.9	.0	171.8	14.6
Total softwoods	3,371.9	7,129.9	1,566.9	7.6	12,076.3	2.1
Red maple	375.1	1,792.9	346.7	1.1	2,515.8	3.1
Sugar maple	451.0	976.8	324.1	.0	1,751.9	5.0
Yellow birch	213.8	605.0	205.1	.0	1,023.8	4.4
Paper birch	101.1	936.1	120.1	.0	1,157.4	4.6
Hickory	.4	.1	.0	.0	.5	85.5
American beech	160.0	637.6	161.5	.6	959.7	5.8
White ash	50.9	262.3	45.0	.7	358.9	8.4
Aspen	85.7	1,107.7	125.6	.1	1,319.1	6.4
Black cherry	7.7	27.3	5.6	.0	40.6	18.8
White oak	1.4	14.3	.0	.0	15.8	30.3
Northern red oak	93.8	376.3	53.5	1.1	524.7	8.3
Other white oaks	.8	.0	.0	.0	.8	100.0
Other red oaks	3.9	17.4	.0	.0	21.3	36.5
American basswood	2.3	29.2	4.7	.0	36.2	19.8
Elm	3.8	12.3	2.5	.0	18.6	18.1
Other hardwoods	27.3	115.1	22.2	.2	164.8	8.4
Total hardwoods	1,578.9	6,910.5	1,416.6	4.0	9,909.9	1.8
Total, all species	4,950.8	14,040.4	2,983.4	11.6	21,986.2	1.2
SE	5.3	2.1	4.6	31.9	1.2	

Table B15. Net volume of growing-stock trees on forest land by species and diameter class, Maine, 1995

(In millions of cubic feet)

Species group	Diameter class (inches at breast height)										All classes	SE
	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29.0+		
Balsam fir	791.5	726.9	444.0	200.9	78.3	22.7	2.5	1.8	.0	.0	2,268.6	3.4
Atlantic white-cedar	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.1	100.0
White spruce	78.0	106.5	84.4	86.8	52.9	35.6	19.1	7.6	16.1	.0	487.1	7.6
Black spruce	117.6	97.7	66.4	31.1	12.3	5.5	1.3	.0	.0	.0	332.1	12.6
Red spruce	525.8	769.8	760.9	620.6	367.6	216.9	85.5	37.4	24.6	.0	3,409.0	3.9
Red pine	8.2	12.4	12.8	8.7	13.8	8.9	8.6	2.1	.0	.0	75.5	26.7
Pitch pine	.4	3.1	4.4	6.0	7.4	5.2	3.1	.0	.0	.0	29.7	64.9
Eastern white pine	124.8	185.2	219.4	269.6	308.1	261.5	258.5	189.2	362.3	52.0	2,230.5	6.4
Other yellow pines	3.5	.7	.4	.0	.0	.0	.0	.0	.0	.0	4.5	53.3
Northern white-cedar	284.1	419.3	400.0	347.0	242.5	153.6	88.7	34.9	27.8	.0	1,997.9	5.1
Eastern hemlock	132.6	215.9	234.3	227.5	205.8	133.0	78.3	43.9	65.3	.0	1,336.7	6.1
Other softwoods	33.2	36.7	32.4	33.3	14.5	10.5	5.0	2.7	3.9	.0	172.3	14.6
Total softwoods	2,099.8	2,574.2	2,259.4	1,831.5	1,303.2	853.4	550.7	319.6	500.0	52.0	12,343.9	2.0
Red maple	448.5	596.6	556.6	369.5	237.8	147.9	74.9	51.1	71.7	3.7	2,558.2	3.1
Sugar maple	145.6	226.5	277.2	259.7	234.7	167.7	128.5	105.2	213.2	9.9	1,768.1	4.9
Yellow birch	101.6	154.0	185.9	165.8	127.2	108.5	79.4	49.6	61.4	9.6	1,042.9	4.3
Paper birch	267.6	353.8	297.4	151.7	77.5	26.7	9.1	2.9	1.8	.0	1,188.7	4.5
Hickory	.1	.0	.4	.0	.0	.0	.0	.0	.0	.0	.5	85.5
American beech	161.3	221.0	229.7	148.3	115.1	54.0	28.8	13.0	1.6	.0	972.8	5.7
White ash	59.0	80.3	70.2	56.5	39.8	25.2	8.1	6.7	14.7	.0	360.5	8.3
Aspen	171.4	290.9	297.8	239.7	176.0	103.7	33.6	17.6	13.9	4.3	1,348.9	6.4
Black cherry	9.9	10.9	8.9	5.0	1.6	.9	1.2	.0	2.2	.0	40.6	18.8
White oak	3.6	5.0	2.6	1.0	1.4	1.0	.0	1.2	.0	.0	15.8	30.3
Northern red oak	57.9	87.1	89.5	79.1	56.3	63.9	29.6	29.8	37.6	.0	530.8	8.2
Other white oaks	.0	.0	.0	.0	.0	.8	.0	.0	.0	.0	.8	100.0
Other red oaks	2.3	3.9	4.8	4.0	3.5	.0	2.7	.0	.0	.0	21.3	36.5
American basswood	2.9	6.7	6.4	5.8	3.3	7.1	1.0	3.0	.0	.0	36.2	19.8
Elm	5.8	6.5	4.2	1.3	1.2	.0	.0	.0	.0	.0	18.9	17.8
Other hardwoods	74.7	44.2	21.1	13.2	10.0	5.4	1.8	1.7	.0	.0	172.0	8.2
Total hardwoods	1,512.2	2,087.4	2,052.7	1,500.6	1,085.3	712.6	398.7	281.8	418.1	27.6	10,077.1	1.8
Total, all species	3,612.1	4,661.6	4,312.1	3,332.1	2,388.5	1,566.1	949.4	601.4	918.1	79.6	22,421.0	1.2
SE	1.6	1.5	1.6	1.9	2.5	3.3	4.8	6.3	6.4	27.4	1.2	

Table B16. Net volume of growing-stock trees on timberland by species and diameter class, Maine, 1995

(In millions of cubic feet)

Species group	Diameter class (inches at breast height)										All classes	SE
	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29.0+		
Balsam fir	780.5	718.1	439.1	197.9	76.9	21.8	2.5	.0	.0	.0	2,236.8	3.4
Atlantic white-cedar	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.1	100.0
White spruce	75.8	102.9	81.2	81.7	52.2	35.6	19.1	7.6	13.7	.0	469.9	7.8
Black spruce	114.5	97.3	65.9	31.1	12.3	5.5	1.3	.0	.0	.0	328.0	12.7
Red spruce	509.4	747.2	740.4	596.7	340.4	202.2	81.4	35.5	24.6	.0	3,277.8	3.9
Red pine	8.2	12.2	12.4	8.7	11.7	8.9	8.6	2.1	.0	.0	72.6	27.6
Pitch pine	.4	3.1	4.4	6.0	7.4	5.2	3.1	.0	.0	.0	29.7	64.9
Eastern white pine	123.7	181.6	216.7	267.7	303.4	259.1	252.5	183.8	350.5	52.0	2,191.0	6.4
Other yellow pines	2.4	.5	.4	.0	.0	.0	.0	.0	.0	.0	3.3	63.1
Northern white-cedar	280.2	413.1	395.4	342.5	240.1	147.2	87.5	33.6	22.4	.0	1,961.8	5.2
Eastern hemlock	131.9	215.3	233.8	227.5	205.0	132.5	78.3	43.9	65.3	.0	1,333.5	6.1
Other softwoods	32.9	36.5	32.4	33.3	14.5	10.5	5.0	2.7	3.9	.0	171.8	14.6
Total softwoods	2,059.9	2,527.8	2,222.0	1,793.3	1,263.7	828.6	539.4	309.2	480.3	52.0	12,076.3	2.1
Red maple	440.8	588.4	549.7	363.4	232.8	144.9	71.4	51.1	69.4	3.7	2,515.8	3.1
Sugar maple	143.9	224.6	274.9	256.2	231.9	166.6	128.5	102.1	213.2	9.9	1,751.9	5.0
Yellow birch	100.3	151.4	181.4	163.9	125.7	104.3	78.5	49.6	59.0	9.6	1,023.8	4.4
Paper birch	260.6	344.2	290.0	147.2	74.8	26.7	9.1	2.9	1.8	.0	1,157.4	4.6
Hickory	.1	.0	.4	.0	.0	.0	.0	.0	.0	.0	.5	85.5
American beech	157.8	219.6	227.9	146.9	111.1	54.0	27.7	13.0	1.6	.0	959.7	5.8
White ash	58.6	80.2	70.2	56.0	39.3	25.2	8.1	6.7	14.7	.0	358.9	8.4
Aspen	165.0	285.4	292.2	236.3	173.7	101.5	29.1	17.6	13.9	4.3	1,319.1	6.4
Black cherry	9.9	10.9	8.9	5.0	1.6	.9	1.2	.0	2.2	.0	40.6	18.8
White oak	3.6	5.0	2.6	1.0	1.4	1.0	.0	1.2	.0	.0	15.8	30.3
Northern red oak	56.7	86.3	88.4	78.3	55.7	63.9	28.1	29.8	37.6	.0	524.7	8.3
Other white oaks	.0	.0	.0	.0	.0	.8	.0	.0	.0	.0	.8	100.0
Other red oaks	2.3	3.9	4.8	4.0	3.5	.0	2.7	.0	.0	.0	21.3	36.5
American basswood	2.9	6.7	6.4	5.8	3.3	7.1	1.0	3.0	.0	.0	36.2	19.8
Elm	5.7	6.5	3.9	1.3	1.2	.0	.0	.0	.0	.0	18.6	18.1
Other hardwoods	72.2	42.3	20.0	12.3	9.1	5.4	1.8	1.7	.0	.0	164.8	8.4
Total hardwoods	1,480.5	2,055.3	2,021.9	1,477.7	1,065.2	702.3	387.3	278.7	413.4	27.6	9,909.9	1.8
Total, all species	3,540.4	4,583.2	4,243.9	3,270.9	2,328.9	1,530.9	926.7	587.9	893.7	79.6	21,986.2	1.2
SE	1.6	1.5	1.6	2.0	2.6	3.3	4.8	6.4	6.5	27.4	1.2	

Table B17. Net volume of sawtimber trees on forest land by species and diameter class, Maine, 1995

(In millions of board feet)

Species group	Diameter class (inches at breast height)								All classes	SE
	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29.0+		
Balsam fir	1,737.6	879.0	365.0	107.2	12.3	9.4	.0	.0	3,110.6	5.6
White spruce	334.1	385.9	255.6	179.5	100.0	39.7	84.9	.0	1,379.6	9.8
Black spruce	250.3	132.4	55.2	26.5	6.7	.0	.0	.0	471.1	14.6
Red spruce	3,067.3	2,809.1	1,787.2	1,087.8	446.5	198.3	134.9	.0	9,531.1	4.6
Red pine	47.9	37.3	62.2	43.2	40.7	11.2	.0	.0	242.5	25.9
Pitch pine	15.8	24.4	31.2	22.6	14.8	.0	.0	.0	108.8	66.3
Eastern white pine	825.3	1,147.9	1,415.1	1,262.3	1,291.0	952.6	1,924.9	292.4	9,111.6	6.7
Other yellow pines	1.4	.0	.0	.0	.0	.0	.0	.0	1.4	100.0
Northern white-cedar	1,180.1	1,178.1	884.2	589.2	352.0	144.0	118.0	.0	4,445.5	5.7
Eastern hemlock	829.9	905.4	879.7	598.6	357.7	208.7	323.6	.0	4,103.6	6.8
Other softwoods	119.1	131.6	61.0	46.2	20.7	12.2	18.0	.0	408.8	16.9
Total softwoods	8,408.8	7,631.0	5,796.5	3,963.1	2,642.4	1,576.2	2,604.3	292.4	32,914.7	2.7
Red maple	.0	1,495.8	998.8	645.1	337.4	231.2	357.9	18.8	4,085.1	5.3
Sugar maple	.0	1,071.4	1,011.4	749.1	589.7	499.2	1,064.0	45.2	5,030.0	6.2
Yellow birch	.0	670.6	520.6	448.4	337.0	221.1	286.0	55.3	2,539.0	6.2
Paper birch	.0	641.7	332.9	111.1	40.7	14.6	7.9	.0	1,148.8	6.8
American beech	.0	637.7	516.8	252.3	139.1	64.5	6.2	.0	1,616.6	8.7
White ash	.0	235.7	169.7	107.5	35.7	29.2	63.8	.0	641.6	11.6
Aspen	.0	1,065.6	798.4	476.9	154.5	88.4	68.8	23.4	2,676.0	8.4
Black cherry	.0	21.0	7.5	1.9	5.5	.0	11.6	.0	47.6	36.4
White oak	.0	3.7	5.0	3.6	.0	5.8	.0	.0	18.1	46.1
Northern red oak	.0	298.2	220.6	266.9	126.5	132.5	171.2	.0	1,215.9	11.4
Other white oaks	.0	.0	.0	3.4	.0	.0	.0	.0	3.4	100.0
Other red oaks	.0	15.5	14.3	.0	9.7	.0	.0	.0	39.6	47.5
American basswood	.0	23.3	13.1	30.6	3.6	13.3	.0	.0	84.0	27.5
Elm	.0	5.2	4.1	.0	.0	.0	.0	.0	9.3	45.2
Other hardwoods	.0	53.3	40.7	23.9	6.8	7.2	.0	.0	131.9	18.6
Total hardwoods	.0	6,238.6	4,654.0	3,120.9	1,786.2	1,306.8	2,037.4	142.8	19,286.7	2.9
Total, all species	8,408.8	13,869.7	10,450.5	7,084.0	4,428.6	2,883.0	4,641.7	435.2	52,201.4	1.9
SE	2.6	2.0	2.6	3.3	4.9	6.4	6.4	27.4	1.9	

Table B18. Net volume of sawtimber trees on timberland by species and diameter class, Maine, 1995

(In millions of board feet)

Species group	Diameter class (inches at breast height)								All classes	SE
	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29.0+		
Balsam fir	1,719.2	867.5	358.3	102.3	12.3	.0	.0	.0	3,059.5	5.6
White spruce	321.5	363.9	252.4	179.5	100.0	39.7	72.1	.0	1,329.1	10.0
Black spruce	248.5	132.4	55.2	26.5	6.7	.0	.0	.0	469.3	14.6
Red spruce	2,984.6	2,702.0	1,654.6	1,013.0	424.2	188.2	134.9	.0	9,101.5	4.6
Red pine	46.2	37.3	53.4	43.2	40.7	11.2	.0	.0	232.1	26.8
Pitch pine	15.8	24.4	31.2	22.6	14.8	.0	.0	.0	108.8	66.3
Eastern white pine	815.4	1,139.7	1,393.3	1,250.1	1,259.4	924.0	1,861.4	292.4	8,935.7	6.8
Other yellow pines	1.4	.0	.0	.0	.0	.0	.0	.0	1.4	100.0
Northern white-cedar	1,166.6	1,163.0	876.0	566.0	346.9	138.3	96.2	.0	4,352.9	5.8
Eastern hemlock	828.3	905.4	875.4	596.0	357.7	208.7	323.6	.0	4,095.2	6.8
Other softwoods	119.1	131.6	61.0	46.2	20.7	12.2	18.0	.0	408.8	16.9
Total softwoods	8,266.5	7,467.1	5,610.9	3,845.5	2,583.5	1,522.4	2,506.2	292.4	32,094.4	2.7
Red maple	.0	1,470.3	977.4	630.3	321.2	231.2	348.1	18.8	3,997.4	5.4
Sugar maple	.0	1,056.3	1,000.8	745.4	589.7	484.2	1,064.0	45.2	4,985.5	6.2
Yellow birch	.0	662.7	514.5	430.4	333.3	221.1	273.3	55.3	2,490.5	6.3
Paper birch	.0	622.1	321.1	111.1	40.7	14.6	7.9	.0	1,117.6	6.9
American beech	.0	632.8	499.5	252.3	134.5	64.5	6.2	.0	1,589.7	8.8
White ash	.0	233.9	167.6	107.5	35.7	29.2	63.8	.0	637.7	11.7
Aspen	.0	1,051.5	788.8	468.0	134.7	88.4	68.8	23.4	2,623.5	8.4
Black cherry	.0	21.0	7.5	1.9	5.5	.0	11.6	.0	47.6	36.4
White oak	.0	3.7	5.0	3.6	.0	5.8	.0	.0	18.1	46.1
Northern red oak	.0	294.7	218.2	266.9	119.6	132.5	171.2	.0	1,203.1	11.5
Other white oaks	.0	.0	.0	3.4	.0	.0	.0	.0	3.4	100.0
Other red oaks	.0	15.5	14.3	.0	9.7	.0	.0	.0	39.6	47.5
American basswood	.0	23.3	13.1	30.6	3.6	13.3	.0	.0	84.0	27.5
Elm	.0	5.2	4.1	.0	.0	.0	.0	.0	9.3	45.2
Other hardwoods	.0	49.9	37.1	23.9	6.8	7.2	.0	.0	124.9	19.4
Total hardwoods	.0	6,142.9	4,568.8	3,075.4	1,735.0	1,291.9	2,014.9	142.8	18,971.7	2.9
Total, all species	8,266.5	13,610.0	10,179.7	6,920.9	4,318.5	2,814.3	4,521.1	435.2	51,066.1	1.9
SE	2.6	2.0	2.6	3.4	4.9	6.5	6.5	27.4	1.9	

Table C1. Land area by land class, Maine, 1982[a]

(In thousands of acres)

Land class	Acres	SE
Timberland:		
Rural	17,121.0	.5
Urban	2.0	.0
Total timberland	17,123.1	.5
Forested land:		
Productive reserved	290.3	17.7
Other forest land[c]	248.0	16.0
Total forest land	17,661.3	.3
Nonforest land:		
Cropland	827.4	7.2
Pasture	249.0	16.4
Other	887.1	7.6
Noncensus water	126.5	23.6
Total nonforest land	2,090.0	2.9
Total land area[d]	19,751.4[b]	.0
SE	.0	

[a] In this and other tables, a zero indicates that the data are negligible or the condition was not encountered in the sample. A dash indicates that the condition is not possible under current Forest Service definitions.
[b] Rows and columns in all tables may not sum due to rounding.
[c] "Other forest land" formerly known as unproductive forest land.
[d] Source: 2000 United States Department of Commerce, Bureau of Census.

Table C2. Land area by county and land class, Maine, 1982

(In thousands of acres)

Counties	Land class						All classes
	Timberland	Productive reserved	Unproductive reserved	Other forest	Total forest land	Nonforest land	
Androscoggin	210.9	.0	.0	3.3	214.2	86.8	301.0
Aroostook	3,741.4	32.0	.0	29.9	3,803.2	466.6	4,269.8
Cumberland	386.7	.0	.0	.0	386.7	148.0	534.7
Franklin	1,021.0	.0	.0	16.5	1,037.5	49.1	1,086.6
Hancock	843.7	20.3	.0	30.3	894.3	121.9	1,016.1
Kennebec	405.8	.0	.0	11.9	417.7	137.6	555.3
Knox	167.6	4.4	.0	.0	172.0	62.0	234.0
Lincoln	240.7	.0	.0	.0	240.7	51.1	291.8
Oxford	1,224.2	.0	.0	5.5	1,229.7	100.3	1,329.9
Penobscot	1,848.5	9.4	.0	66.7	1,924.6	248.7	2,173.3
Piscataquis	2,207.6	224.3	.0	15.7	2,447.5	90.9	2,538.4
Sagadahoc	113.4	.0	.0	3.2	116.6	45.9	162.5
Somerset	2,337.6	.0	.0	11.0	2,348.6	164.4	2,513.0
Waldo	368.4	.0	.0	9.2	377.7	89.4	467.0
Washington	1,499.7	.0	.0	44.8	1,544.5	99.3	1,643.8
York	505.9	.0	.0	.0	505.9	128.3	634.2
Total, all counties	17,123.1	290.3	.0	248.0	17,661.3	2,090.0	19,751.4

Table C3. Area of timberland by forest type, forest-type group, and stand-size class, Maine, 1982

(In thousands of acres)

Forest type	Stand-size class				All classes	SE
	Saw-timber	Pole-timber	Sapling and seedling	Non-stocked		
Red pine	10.4	9.5	.0	.0	19.8	70.8
White pine	339.8	170.9	23.4	.0	534.2	10.7
White pine/hemlock	71.8	43.1	.0	.0	114.9	20.8
Hemlock	382.2	249.9	.0	.0	632.1	11.2
White/red pine group	804.2	473.4	23.4	.0	1,301.0	7.0
Balsam fir	583.8	1,264.2	280.7	.0	2,128.7	6.2
White spruce	39.3	90.5	34.4	.0	164.1	23.8
Red spruce	453.5	955.3	20.6	.0	1,429.3	7.7
Red spruce/balsam fir	486.9	1,033.1	104.1	.0	1,624.0	7.3
Black spruce	.0	187.2	86.8	.0	274.0	18.5
Tamarack	8.8	26.5	30.2	.0	65.5	37.0
Northern white-cedar	511.5	499.3	20.0	.0	1,030.8	9.1
Spruce/fir group	2,083.7	4,056.1	576.8	.0	6,716.6	2.8
Pitch pine	4.1	.0	.0	.0	4.1	100.0
Loblolly/shortleaf group	4.1	.0	.0	.0	4.1	100.0
Wh. pine/no.red oak/wh. ash	53.5	142.9	25.8	.0	222.3	15.6
Other oak/pine	.0	3.8	.0	.0	3.8	100.0
Oak/pine group	53.5	146.8	25.8	.0	226.1	15.4
White oak/red oak/hickory	8.2	86.6	15.1	.0	109.8	25.2
Northern red oak	29.0	99.2	18.0	.0	146.2	19.2
Southern scrub oak	.0	.0	8.2	.0	8.2	70.7
Red maple/oak	.0	8.2	3.7	.0	11.8	57.8
Mixed upland hardwoods	.0	10.4	13.8	.0	24.2	61.2
Oak/hickory group	37.2	204.3	58.8	.0	300.3	14.1
Sweetbay/swamp tupelo/red mple	4.4	47.3	4.0	.0	55.7	32.4
Oak/gum/cypress group	4.4	47.3	4.0	.0	55.7	32.4

Table C3. continued

(In thousands of acres)

Forest type	Stand-size class				All classes	SE
	Saw-timber	Pole-timber	Sapling and seedling	Non-stocked		
Black ash/Amer. elm/red maple	13.4	173.4	.0	.0	186.8	22.4
River birch/sycamore	.0	10.8	63.2	.0	74.0	34.4
Willow	.0	.0	26.1	.0	26.1	53.7
Sycamore/pecan/American elm	.0	9.6	4.1	.0	13.7	76.2
Sugarbrry/hackbrry/elm/gr.ash	.0	.0	4.0	.0	4.0	100.0
Red maple(lowland)	30.7	169.8	22.8	.0	223.3	18.2
Elm/ash/red maple group	44.1	363.5	120.2	.0	527.8	12.3
Sugar maple/beech/yellow birch	2,034.2	2,566.8	465.4	.0	5,066.4	3.5
Black cherry	.0	9.4	33.7	.0	43.1	46.4
Cherry/ash/yellow poplar	14.4	32.5	30.1	.0	77.1	30.1
Hard maple/basswood	19.8	17.5	12.9	.0	50.2	40.4
Elm/ash/locust	.0	4.0	3.5	.0	7.5	70.9
Red maple/uplands	12.3	247.1	50.9	.0	310.3	15.8
Northern hardwoods group	2,080.8	2,877.3	596.5	.0	5,554.6	3.3
Aspen	131.0	799.7	302.4	.0	1,233.1	8.2
Paper birch	50.6	747.9	260.4	.0	1,058.9	9.1
Gray birch	.0	4.1	4.1	.0	8.2	70.7
Balsam poplar	.0	76.2	8.8	.0	84.9	31.3
Aspen/birch group	181.6	1,627.9	575.7	.0	2,385.2	5.7
Nonstocked	.0	.0	.0	51.7	51.7	40.4
All forest types	5,293.6	9,796.5	1,981.2	51.7	17,123.1	.5
SE	3.3	1.9	5.7	40.4	.5	

Table C4. Area of timberland by forest-type group and stocking class of all live trees, Maine, 1982

(In thousands of acres)

Forest-type group	Stocking class					All classes	SE
	Nonstocked	Poorly stocked	Moderately stocked	Fully stocked	Over-stocked		
White/red pine	.0	121.1	410.0	633.6	136.3	1,301.0	7.0
Spruce/fir	.0	708.8	2,327.6	3,398.2	282.0	6,716.6	2.8
Loblolly/shortleaf	.0	.0	4.1	.0	.0	4.1	100.0
Oak/pine	.0	40.2	107.8	74.5	3.7	226.1	15.4
Oak/hickory	.0	31.9	108.9	143.0	16.4	300.3	14.1
Oak/gum/cypress	.0	.0	8.0	43.6	4.1	55.7	32.4
Elm/ash/red maple	.0	106.1	202.0	203.2	16.5	527.8	12.3
Northern hardwoods	.0	307.1	1,668.9	3,111.2	467.5	5,554.6	3.3
Aspen/birch	.0	197.7	688.5	1,374.5	124.3	2,385.2	5.7
All type groups	.0	1,513.0	5,525.8	8,981.7	1,050.8	17,071.4	.5
Nonstocked	51.7	.0	.0	.0	.0	51.7	40.4
All groups	51.7	1,513.0	5,525.8	8,981.7	1,050.8	17,123.1	.5
SE	40.4	7.2	3.3	2.1	8.9	.5	

Table C5. Number of live trees (1.0+ inches d.b.h.) on forest land by species and diameter class, Maine, 1982

(In thousands of trees)

Species group	Diameter class (inches at breast height)							
	1.0-2.9	3.0-4.9	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9
Balsam fir	2,288,021	827,825	473,492	236,920	89,141	25,442	5,799	1,481
White spruce	63,056	81,590	43,678	24,197	12,169	4,914	1,895	617
Black spruce	141,653	89,987	57,690	21,457	8,372	1,892	922	114
Red spruce	576,037	335,504	280,118	184,636	98,432	47,574	21,888	8,042
Red pine	1,919	1,662	1,133	1,321	1,489	1,321	555	369
Pitch pine	0	829	210	455	336	151	171	49
Eastern white pine	138,772	72,615	46,955	31,013	22,487	16,236	10,550	7,198
Other yellow pines	4,049	0	0	120	64	0	0	0
Northern white-cedar	254,272	193,123	130,780	96,929	55,715	33,542	15,811	7,134
Eastern hemlock	147,911	97,851	68,093	45,008	28,413	18,574	9,313	5,277
Other softwoods	22,271	21,715	9,308	3,888	3,006	1,599	753	300
Total softwoods	3,637,962	1,722,702	1,111,456	645,945	319,627	151,246	67,659	30,582
Red maple	916,447	303,269	183,562	102,026	51,005	24,364	10,773	4,517
Sugar maple	333,996	96,839	54,806	38,602	22,036	14,350	9,232	5,121
Yellow birch	275,878	58,456	41,849	31,942	22,436	13,997	7,467	4,947
Paper birch	343,390	178,799	111,182	64,693	28,534	10,309	3,491	1,385
Hickory	831	0	29	0	0	0	0	0
American beech	512,029	128,477	67,951	38,678	23,781	13,896	7,874	4,110
White ash	74,730	28,005	13,460	10,396	6,108	2,629	1,081	475
Blackgum	0	0	29	0	0	0	16	0
Aspen	203,896	100,483	74,829	55,725	33,899	15,345	6,899	2,101
Black cherry	31,767	10,787	4,023	1,823	369	229	50	0
White oak	9,001	7,464	2,875	1,025	250	55	88	73
Northern red oak	69,422	35,003	20,279	13,496	6,765	4,249	2,205	1,151
Other red oaks	4,066	820	1,720	951	282	145	83	14
American basswood	7,278	0	772	492	245	277	84	81
Elm	10,554	6,298	2,542	1,593	432	245	412	69
Other commercial hardwoods	89,387	31,731	16,927	8,581	3,794	1,992	960	407
Noncommercial hardwoods	862,645	231,005	66,672	11,667	1,887	539	356	155
Total hardwoods	3,745,319	1,217,437	663,507	381,691	201,822	102,623	51,071	24,607
Total, all species	7,383,281	2,940,139	1,774,963	1,027,636	521,449	253,868	118,730	55,190
SE	2.8	3.1	1.6	1.5	1.6	1.8	2.4	3.2

Table C5. continued

(In thousands of trees)

Species group	Diameter class (inches at breast height)						
	17.0-18.9	19.0-20.9	21.0-28.9	29.0+	Total 5.0+	All classes	SE
Balsam fir	199	29	16	0	832,520	3,948,366	3.5
White spruce	234	93	40	0	87,837	232,484	10.7
Black spruce	24	28	0	0	90,499	322,140	17.6
Red spruce	3,386	1,183	835	0	646,095	1,557,636	5.1
Red pine	68	19	14	0	6,291	9,873	31.2
Pitch pine	10	0	0	0	1,382	2,211	43.4
Eastern white pine	4,425	2,635	3,496	398	145,393	356,779	8.2
Other yellow pines	0	0	0	0	184	4,233	95.8
Northern white-cedar	2,310	1,252	929	37	344,439	791,833	7.7
Eastern hemlock	1,721	1,061	1,138	8	178,607	424,369	7.7
Other softwoods	266	58	26	1	19,206	63,192	20.7
Total softwoods	12,643	6,359	6,494	443	2,352,453	7,713,117	2.5
Red maple	2,617	1,197	793	68	380,923	1,600,639	5.3
Sugar maple	3,682	2,792	2,852	129	153,603	584,439	7.5
Yellow birch	2,813	1,331	2,163	75	129,022	463,356	8.6
Paper birch	507	225	83	0	220,410	742,599	7.9
Hickory	0	0	0	0	29	859	96.7
American beech	1,584	455	392	0	158,722	799,229	9.1
White ash	203	162	118	1	34,633	137,368	12.3
Blackgum	0	0	0	0	44	44	73.2
Aspen	843	435	229	0	190,304	494,683	10.5
Black cherry	14	0	0	0	6,509	49,063	18.0
White oak	50	43	25	16	4,499	20,965	23.5
Northern red oak	534	324	302	11	49,316	153,741	10.0
Other red oaks	0	0	16	0	3,210	8,095	34.4
American basswood	88	38	3	0	2,082	9,360	48.1
Elm	141	18	85	33	5,570	22,423	25.5
Other commercial hardwoods	138	108	70	0	32,977	154,095	12.7
Noncommercial hardwoods	63	15	20	2	81,377	1,175,027	6.2
Total hardwoods	13,277	7,142	7,152	337	1,453,230	6,415,986	2.8
Total, all species	25,921	13,501	13,646	780	3,805,683	14,129,104	1.7
SE	4.2	5.5	5.4	18.2	1.1	1.7	

Table C6. Number of live trees (5.0+ inches d.b.h.) on timberland by species and diameter class, Maine, 1982

(In thousands of trees)

Species group	Diameter class (inches at breast height)							
	1.0-2.9	3.0-4.9	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9
Balsam fir	2,229,212	805,019	463,451	230,683	86,839	24,875	5,616	1,445
White spruce	58,820	77,868	42,863	23,907	11,793	4,839	1,895	617
Black spruce	104,076	82,347	56,256	21,190	7,777	1,799	886	114
Red spruce	537,182	312,305	271,912	179,283	94,750	45,841	21,038	7,649
Red pine	1,919	1,662	1,133	1,321	1,489	1,321	555	369
Pitch pine	0	829	210	455	336	151	171	49
Eastern white pine	136,869	71,028	46,669	30,830	22,459	16,236	10,515	7,161
Northern white-cedar	247,678	191,192	128,741	95,635	55,053	33,457	15,674	6,964
Eastern hemlock	143,745	97,851	67,555	44,863	28,413	18,485	9,241	5,221
Other softwoods	20,340	21,715	8,999	3,818	3,006	1,599	753	300
Total softwoods	3,479,841	1,661,817	1,087,791	631,986	311,917	148,604	66,345	29,889
Red maple	889,851	299,049	182,194	101,130	50,138	23,865	10,599	4,453
Sugar maple	327,642	96,839	54,261	38,394	21,819	14,049	9,085	5,084
Yellow birch	264,371	58,456	40,533	31,555	22,220	13,701	7,394	4,920
Paper birch	320,736	169,079	108,392	63,070	27,881	10,126	3,491	1,385
Hickory	831	0	29	0	0	0	0	0
American beech	509,946	128,477	67,292	38,375	23,490	13,663	7,767	4,011
White ash	74,730	28,005	13,460	10,396	6,108	2,629	1,081	475
Blackgum	0	0	29	0	0	0	16	0
Aspen	203,896	100,483	74,144	55,025	33,751	15,230	6,866	2,017
Black cherry	31,767	10,787	4,023	1,823	369	229	50	0
White oak	9,001	7,464	2,875	1,025	250	55	88	73
Northern red oak	69,422	35,003	20,279	13,496	6,765	4,214	2,170	1,151
Other red oaks	4,066	820	1,720	951	282	145	83	14
American basswood	7,278	0	772	492	245	277	84	81
Elm	10,554	6,298	2,542	1,593	432	245	412	69
Other commercial hardwoods	87,485	30,929	16,927	8,581	3,588	1,992	960	407
Noncommercial hardwoods	856,323	229,897	66,605	11,601	1,887	539	356	155
Total hardwoods	3,667,901	1,201,586	656,077	377,507	199,223	100,960	50,504	24,295
Total, all species	7,147,743	2,863,403	1,743,868	1,009,493	511,140	249,564	116,849	54,184
SE	2.8	3.2	1.6	1.5	1.6	1.9	2.4	3.2

Table C6. continued

(In thousands of trees)

Species group	Diameter class (inches at breast height)						
	17.0-18.9	19.0-20.9	21.0-28.9	29.0+	Total 5.0+	All classes	SE
Balsam fir	133	29	16	0	813,088	3,847,319	3.5
White spruce	234	64	40	0	86,252	222,939	11.0
Black spruce	24	28	0	0	88,075	274,498	18.1
Red spruce	3,082	1,164	735	0	625,455	1,474,942	5.2
Red pine	68	19	14	0	6,291	9,873	31.2
Pitch pine	10	0	0	0	1,382	2,211	43.4
Eastern white pine	4,389	2,446	3,471	391	144,567	352,465	8.3
Northern white-cedar	2,310	1,252	916	37	340,039	778,909	7.7
Eastern hemlock	1,721	1,044	1,138	8	177,690	419,286	7.7
Other softwoods	266	58	26	1	18,827	60,883	21.3
Total softwoods	12,238	6,104	6,357	436	2,301,667	7,443,325	2.5
Red maple	2,541	1,197	771	68	376,957	1,565,857	5.4
Sugar maple	3,609	2,685	2,823	129	151,939	576,420	7.6
Yellow birch	2,813	1,315	2,155	75	126,683	449,510	8.7
Paper birch	471	209	83	0	215,109	704,923	7.8
Hickory	0	0	0	0	29	859	96.7
American beech	1,584	438	392	0	157,011	795,435	9.1
White ash	203	162	118	1	34,633	137,368	12.3
Blackgum	0	0	0	0	44	44	73.2
Aspen	843	435	193	0	188,503	492,882	10.5
Black cherry	14	0	0	0	6,509	49,063	18.0
White oak	50	43	25	16	4,499	20,965	23.5
Northern red oak	534	324	302	11	49,247	153,672	10.1
Other red oaks	0	0	16	0	3,210	8,095	34.4
American basswood	88	38	3	0	2,082	9,360	48.1
Elm	141	18	85	33	5,570	22,423	25.5
Other commercial hardwoods	138	108	70	0	32,771	151,185	12.8
Noncommercial hardwoods	63	15	20	2	81,244	1,167,464	6.2
Total hardwoods	13,093	6,985	7,057	337	1,436,039	6,305,527	2.8
Total, all species	25,331	13,090	13,414	773	3,737,706	13,748,851	1.8
SE	4.3	5.5	5.4	18.3	1.2	1.8	

Table C7. Number of growing-stock trees (5.0+ inches d.b.h.) on forest land by species and diameter class, Maine, 1982

(In thousands of trees)

Species group	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
Balsam fir	388,812	213,156	84,335	24,187	5,388	1,339	180
White spruce	40,549	23,180	11,504	4,774	1,771	562	108
Black spruce	54,939	20,065	8,095	1,843	922	114	24
Red spruce	252,994	175,666	94,841	45,346	21,269	7,874	3,170
Red pine	1,035	1,008	1,282	1,195	539	295	68
Pitch pine	153	312	184	151	157	38	10
Eastern white pine	36,206	27,026	19,785	14,525	9,855	6,677	3,975
Other yellow pines	0	0	64	0	0	0	0
Northern white-cedar	95,290	72,958	42,424	25,136	12,046	5,227	1,565
Eastern hemlock	52,160	38,511	25,430	16,987	8,400	4,732	1,445
Other softwoods	7,092	2,971	2,472	1,553	618	286	266
Total softwoods	929,230	574,852	290,418	135,697	60,966	27,145	10,812
Red maple	134,911	78,473	39,964	18,603	7,811	3,127	1,759
Sugar maple	42,818	30,991	18,424	12,186	7,711	3,826	2,979
Yellow birch	31,735	25,462	17,807	10,596	5,721	3,726	1,623
Paper birch	98,273	57,902	25,587	9,417	2,839	1,144	393
Hickory	29	0	0	0	0	0	0
American beech	40,909	22,663	10,670	7,692	3,949	1,928	479
White ash	11,562	9,086	5,399	2,388	894	378	203
Blackgum	29	0	0	0	0	0	0
Aspen	62,378	48,501	29,796	13,957	5,925	2,075	633
Black cherry	1,927	996	310	155	33	0	14
White oak	1,662	937	250	55	73	63	0
Northern red oak	18,023	12,575	6,503	3,942	2,122	1,053	487
Other red oaks	1,448	894	253	145	83	14	0
American basswood	633	492	245	277	84	81	52
Elm	1,315	855	288	147	317	69	141
Other hardwoods	23,154	8,581	3,336	1,597	722	252	53
Total hardwoods	470,805	298,409	158,833	81,156	38,284	17,737	8,818
Total, all species	1,400,035	873,261	449,251	216,853	99,250	44,881	19,629
SE	1.9	1.7	1.7	2.0	2.6	3.4	4.8

Table C7. continued

(In thousands of trees)

Species group	Diameter class (inches at breast height)				
	19.0-20.9	21.0-28.9	29.0+	All classes	SE
Balsam fir	29	0	0	717,427	3.0
White spruce	93	40	0	82,582	7.3
Black spruce	28	0	0	86,030	13.0
Red spruce	1,129	707	0	602,996	4.0
Red pine	19	0	0	5,442	30.8
Pitch pine	0	0	0	1,005	33.5
Eastern white pine	2,274	2,748	291	123,361	6.5
Other yellow pines	0	0	0	64	100.0
Northern white-cedar	976	467	0	256,089	6.2
Eastern hemlock	898	831	8	149,403	6.5
Other softwoods	58	26	1	15,343	15.4
Total softwoods	5,504	4,819	300	2,039,742	2.0
Red maple	749	395	49	285,841	3.8
Sugar maple	1,875	1,899	79	122,790	6.3
Yellow birch	796	1,152	21	98,637	4.8
Paper birch	68	59	0	195,681	5.3
Hickory	0	0	0	29	100.0
American beech	109	147	0	88,547	7.7
White ash	98	106	0	30,114	10.7
Blackgum	0	0	0	29	100.0
Aspen	343	171	0	163,779	6.6
Black cherry	0	0	0	3,434	22.8
White oak	22	6	0	3,068	25.1
Northern red oak	268	248	6	45,228	8.1
Other red oaks	0	16	0	2,853	26.3
American basswood	38	0	0	1,903	26.4
Elm	18	85	33	3,269	20.1
Other hardwoods	91	34	0	37,822	9.3
Total hardwoods	4,476	4,317	189	1,083,025	2.2
Total, all species	9,980	9,137	488	3,122,767	1.3
SE	6.2	6.3	23.3	1.3	

Table C8. Number of growing-stock trees (5.0+ inches d.b.h.) on timberland by species and diameter class, Maine, 1982

(In thousands of trees)

Species group	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
Balsam fir	380,702	207,576	82,034	23,654	5,205	1,302	114
White spruce	39,945	22,891	11,127	4,699	1,771	562	108
Black spruce	53,581	19,861	7,533	1,750	886	114	24
Red spruce	245,834	170,735	91,223	43,614	20,420	7,480	2,866
Red pine	1,035	1,008	1,282	1,195	539	295	68
Pitch pine	153	312	184	151	157	38	10
Eastern white pine	35,958	26,843	19,756	14,525	9,820	6,640	3,939
Northern white-cedar	93,627	72,409	42,067	25,051	11,986	5,105	1,565
Eastern hemlock	51,622	38,437	25,430	16,898	8,328	4,676	1,445
Other softwoods	6,960	2,971	2,472	1,553	618	286	266
Total softwoods	909,418	563,043	283,109	133,089	59,730	26,499	10,406
Red maple	134,299	77,830	39,406	18,293	7,723	3,062	1,705
Sugar maple	42,417	30,783	18,279	11,885	7,565	3,789	2,907
Yellow birch	30,767	25,144	17,590	10,301	5,648	3,699	1,623
Paper birch	95,584	56,352	24,934	9,269	2,839	1,144	357
Hickory	29	0	0	0	0	0	0
American beech	40,764	22,663	10,670	7,495	3,913	1,855	479
White ash	11,562	9,086	5,399	2,388	894	378	203
Blackgum	29	0	0	0	0	0	0
Aspen	61,906	48,205	29,648	13,874	5,893	1,990	633
Black cherry	1,927	996	310	155	33	0	14
White oak	1,662	937	250	55	73	63	0
Northern red oak	18,023	12,575	6,503	3,907	2,087	1,053	487
Other red oaks	1,448	894	253	145	83	14	0
American basswood	633	492	245	277	84	81	52
Elm	1,315	855	288	147	317	69	141
Other hardwoods	23,088	8,515	3,130	1,597	722	252	53
Total hardwoods	465,454	295,330	156,907	79,789	37,873	17,451	8,656
Total, all species	1,374,871	858,373	440,017	212,878	97,604	43,950	19,062
SE	1.9	1.7	1.8	2.0	2.6	3.5	4.8

Table C9. Number of live saplings on forest land by species and 1" diameter class, Maine, 1982

(In thousands of trees)

Species group	Diameter class (inches at breast height)				All classes	SE
	1.0-1.9	2.0-2.9	3.0-3.9	4.0-4.9		
Balsam fir	1,472,900	815,121	518,341	309,484	3,115,846	4.2
White spruce	31,676	31,381	56,934	24,656	144,647	15.0
Black spruce	74,889	66,765	60,581	29,407	231,641	22.3
Red spruce	329,734	246,303	173,637	161,867	911,541	7.3
Red pine	1,919	0	831	831	3,581	62.7
Pitch pine	0	0	829	0	829	100.0
Eastern white pine	85,027	53,745	35,392	37,223	211,387	12.2
Other yellow pines	0	4,049	0	0	4,049	100.0
Northern white-cedar	111,247	143,025	105,081	88,042	447,395	11.0
Eastern hemlock	81,813	66,098	60,830	37,021	245,762	11.0
Other softwoods	15,303	6,968	11,347	10,368	43,987	26.5
Total softwoods	2,204,508	1,433,454	1,023,804	698,898	5,360,664	3.3
Red maple	636,870	279,577	186,750	116,519	1,219,716	6.7
Sugar maple	226,635	107,361	64,314	32,525	430,836	9.3
Yellow birch	200,054	75,824	27,899	30,556	334,334	11.6
Paper birch	205,171	138,218	103,329	75,470	522,189	10.7
Hickory	831	0	0	0	831	100.0
American beech	350,297	161,733	80,845	47,632	640,507	10.6
White ash	47,479	27,251	19,679	8,326	102,735	15.0
Aspen	143,093	60,802	48,628	51,855	304,379	16.0
Black cherry	23,505	8,262	5,823	4,964	42,554	20.5
White oak	3,236	5,765	4,153	3,311	16,466	27.8
Northern red oak	44,901	24,521	21,757	13,246	104,425	13.2
Other red oaks	2,493	1,573	0	820	4,885	47.0
American basswood	6,467	811	0	0	7,278	61.0
Elm	4,037	6,517	4,198	2,100	16,853	32.0
Other commercial hardwoods	49,987	39,401	16,604	15,127	121,118	14.9
Noncommercial hardwoods	580,219	282,426	154,383	76,622	1,093,650	6.5
Total hardwoods	2,525,277	1,220,043	738,363	479,074	4,962,756	3.4
Total, all species	4,729,784	2,653,497	1,762,167	1,177,972	10,323,420	2.3
SE	3.4	3.3	3.8	4.3	2.3	

Table C10. Number of live saplings on timberland by species and 1" diameter class, Maine, 1982

(In thousands of trees)

Species group	Diameter class (inches at breast height)				All classes	SE
	1.0-1.9	2.0-2.9	3.0-3.9	4.0-4.9		
Balsam fir	1,440,358	788,853	499,773	305,246	3,034,231	4.2
White spruce	31,676	27,144	55,246	22,622	136,688	15.7
Black spruce	56,613	47,463	52,940	29,407	186,423	23.6
Red spruce	303,583	233,599	156,695	155,610	849,487	7.5
Red pine	1,919	0	831	831	3,581	62.7
Pitch pine	0	0	829	0	829	100.0
Eastern white pine	83,125	53,745	33,805	37,223	207,897	12.4
Northern white-cedar	108,514	139,163	103,150	88,042	438,870	11.1
Eastern hemlock	79,730	64,015	60,830	37,021	241,596	11.0
Other softwoods	13,372	6,968	11,347	10,368	42,056	27.3
Total softwoods	2,118,891	1,360,950	975,448	686,369	5,141,658	3.3
Red maple	614,740	275,111	182,530	116,519	1,188,901	6.8
Sugar maple	220,281	107,361	64,314	32,525	424,481	9.4
Yellow birch	190,134	74,237	27,899	30,556	322,827	11.7
Paper birch	188,719	132,017	96,870	72,208	489,815	10.7
Hickory	831	0	0	0	831	100.0
American beech	348,213	161,733	80,845	47,632	638,423	10.6
White ash	47,479	27,251	19,679	8,326	102,735	15.0
Aspen	143,093	60,802	48,628	51,855	304,379	16.0
Black cherry	23,505	8,262	5,823	4,964	42,554	20.5
White oak	3,236	5,765	4,153	3,311	16,466	27.8
Northern red oak	44,901	24,521	21,757	13,246	104,425	13.2
Other red oaks	2,493	1,573	0	820	4,885	47.0
American basswood	6,467	811	0	0	7,278	61.0
Elm	4,037	6,517	4,198	2,100	16,853	32.0
Other commercial hardwoods	48,084	39,401	15,801	15,127	118,414	15.1
Noncommercial hardwoods	578,134	278,190	153,275	76,622	1,086,220	6.6
Total hardwoods	2,464,349	1,203,553	725,773	475,813	4,869,487	3.4
Total, all species	4,583,240	2,564,503	1,701,221	1,162,182	10,011,145	2.4
SE	3.5	3.3	3.9	4.4	2.4	

Table C11. Net volume of all trees on timberland by class of timber and species group, Maine, 1982

(In millions of cubic feet)

Class of timber	Species group				All species	SE
	Pines	Other softwoods	Soft hardwoods	Hard hardwoods		
Growing-stock trees:						
Sawtimber size	1,509.4	6,937.6	1,781.8	2,119.8	12,348.6	1.8
Poletimber size	313.4	6,413.8	3,428.9	1,604.5	11,760.5	1.5
Total growing-stock trees	1,822.9	13,351.3	5,210.7	3,724.2	24,109.1	1.2
Rough trees:						
Sawtimber size	108.7	246.7	134.8	229.2	719.4	4.3
Poletimber size	37.9	490.4	386.3	307.7	1,222.4	2.9
Total rough trees	146.6	737.1	521.1	536.9	1,941.7	2.6
Rotten trees:						
Sawtimber size	13.5	145.0	104.9	230.3	493.7	4.6
Poletimber size	6.2	158.1	135.5	104.9	404.6	4.3
Total rotten trees	19.7	303.1	240.4	335.1	898.3	3.4
Salvable dead[a] trees:						
Sawtimber size	3.7	175.8	26.7	31.4	237.5	6.3
Poletimber size	3.1	220.6	47.9	26.6	298.2	5.1
Total salvable dead trees	6.7	396.4	74.6	58.0	535.7	4.6
All classes	1,995.9	14,787.9	6,046.8	4,654.2	27,484.8	1.2
SE	5.7	2.1	2.7	3.6	1.2	

Table C12. Net volume of all live trees on forest land by species and diameter class, Maine, 1982

(In millions of cubic feet)

Species group	Diameter class (inches at breast height)										All classes	SE
	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29.0+		
Balsam fir	1,453.1	1,499.6	943.1	400.1	129.0	43.9	7.1	1.6	.6	.0	4,478.2	3.0
White spruce	140.8	166.5	141.1	84.6	43.9	19.4	8.0	4.9	2.7	.0	612.0	7.4
Black spruce	205.1	145.9	94.0	32.5	22.1	3.8	.9	1.5	.0	.0	505.8	12.2
Red spruce	998.1	1,301.4	1,160.6	832.8	542.1	266.5	140.7	58.1	52.3	.0	5,352.6	3.6
Red pine	4.5	8.4	16.8	22.3	12.6	10.3	2.5	.9	.3	.0	78.6	28.3
Pitch pine	.6	2.7	3.1	2.3	3.3	1.1	.3	.0	.0	.0	13.3	31.4
Eastern white pine	142.7	201.0	251.6	266.9	244.9	221.5	172.2	126.1	234.6	56.5	1,918.0	5.7
Other yellow pines	.0	.5	.7	.0	.0	.0	.0	.0	.0	.0	1.2	100.0
Northern white-cedar	337.1	473.0	444.3	387.2	261.7	153.6	58.0	41.8	34.0	1.4	2,192.1	5.5
Eastern hemlock	197.7	261.7	279.4	269.1	187.6	137.3	53.8	43.2	55.1	1.0	1,485.7	5.7
Other softwoods	26.0	21.7	29.6	23.7	14.6	8.2	9.6	3.0	1.2	.1	137.7	14.5
Total softwoods	3,505.7	4,082.4	3,364.3	2,321.4	1,461.8	865.7	453.0	281.0	380.9	59.0	16,775.3	1.9
Red maple	457.1	563.1	500.1	373.7	229.7	123.6	90.5	52.2	41.4	7.6	2,439.1	3.4
Sugar maple	159.1	235.5	242.3	244.9	218.9	156.8	148.8	135.2	186.0	18.1	1,745.6	5.8
Yellow birch	101.4	167.4	207.5	199.6	150.6	132.1	83.3	50.9	111.3	4.0	1,207.9	4.7
Paper birch	327.9	407.5	310.2	175.1	77.9	44.6	18.7	7.2	6.1	.0	1,375.3	4.7
Hickory	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.1	100.0
American beech	146.6	186.6	191.0	181.0	139.5	92.9	40.1	10.2	16.5	.0	1,004.4	6.8
White ash	42.6	67.3	68.7	47.5	25.7	16.1	10.4	7.7	10.7	.3	297.0	10.8
Aspen	252.8	393.1	410.0	284.2	177.4	76.6	34.8	24.4	14.7	.0	1,667.9	6.1
Black cherry	11.5	9.7	4.3	4.0	.8	.0	.5	.0	.0	.0	30.8	19.9
White oak	5.7	4.9	2.1	.8	1.4	2.1	1.0	1.1	.4	1.2	20.7	20.8
Northern red oak	54.6	81.0	69.3	68.8	51.4	34.4	20.6	15.9	20.3	1.8	418.1	8.0
Other red oaks	4.7	5.4	2.8	2.5	1.8	.5	.0	.0	1.2	.0	18.9	22.2
American basswood	2.4	3.6	3.2	5.4	2.3	2.9	3.5	1.9	.1	.0	25.2	31.6
Elm	5.7	6.4	4.4	2.6	7.2	1.9	4.8	.9	7.1	4.4	45.5	33.4
Other commercial hardwoods	47.1	50.1	39.1	29.7	19.9	11.8	4.4	6.2	3.4	.0	211.7	11.4
Noncommercial hardwoods	122.8	47.8	12.1	6.0	6.3	2.7	.8	.4	.3	.0	199.3	6.6
Total hardwoods	1,742.2	2,229.4	2,067.1	1,625.8	1,111.0	698.8	462.3	314.1	419.5	37.4	10,707.5	2.0
Total, all species	5,247.9	6,311.8	5,431.3	3,947.2	2,572.8	1,564.5	915.3	595.1	800.4	96.4	27,482.8	1.1
SE	1.7	1.6	1.6	1.9	2.5	3.3	4.5	5.8	6.0	20.4	1.1	

Table C13. Net volume of all live trees on timberland by species and diameter class, Maine, 1982

(In millions of cubic feet)

Species group	Diameter class (inches at breast height)										All classes	SE
	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29.0+		
Balsam fir	1,421.2	1,460.1	918.3	390.3	124.7	42.4	4.6	1.6	.6	.0	4,363.9	3.1
White spruce	138.5	164.7	136.5	83.3	43.9	19.4	8.0	3.4	2.7	.0	600.3	7.6
Black spruce	199.9	144.6	87.3	31.0	21.4	3.8	.9	1.5	.0	.0	490.2	12.5
Red spruce	967.4	1,262.2	1,116.1	802.0	520.3	253.4	127.1	57.4	46.0	.0	5,152.0	3.7
Red pine	4.5	8.4	16.8	22.3	12.6	10.3	2.5	.9	.3	.0	78.6	28.3
Pitch pine	.6	2.7	3.1	2.3	3.3	1.1	.3	.0	.0	.0	13.3	31.4
Eastern white pine	141.8	199.6	251.2	266.9	243.8	220.2	170.4	114.8	233.0	55.5	1,897.2	5.8
Northern white-cedar	331.6	468.4	440.0	386.1	259.8	149.9	58.0	41.8	33.3	1.4	2,170.4	5.6
Eastern hemlock	196.2	260.9	279.4	267.6	185.9	135.9	53.8	42.5	55.1	1.0	1,478.3	5.7
Other softwoods	25.1	21.4	29.6	23.7	14.6	8.2	9.6	3.0	1.2	.1	136.4	14.6
Total softwoods	3,426.9	3,992.9	3,278.3	2,275.5	1,430.2	844.6	435.1	266.9	372.2	58.0	16,380.7	2.0
Red maple	454.5	558.2	491.6	366.2	226.1	121.1	87.7	52.2	39.7	7.6	2,404.9	3.4
Sugar maple	157.9	234.1	240.3	239.8	215.0	155.8	145.7	130.6	184.8	18.1	1,722.2	5.9
Yellow birch	97.8	164.8	205.2	195.3	149.0	131.3	83.3	50.0	111.0	4.0	1,191.7	4.7
Paper birch	319.1	396.1	302.4	171.6	77.9	44.6	17.0	6.0	6.1	.0	1,340.8	4.8
Hickory	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.1	100.0
American beech	145.8	185.6	190.0	177.3	137.7	90.5	40.1	9.8	16.5	.0	993.4	6.8
White ash	42.6	67.3	68.7	47.5	25.7	16.1	10.4	7.7	10.7	.3	297.0	10.8
Aspen	250.7	388.8	408.1	282.3	176.4	73.5	34.8	24.4	13.2	.0	1,652.2	6.2
Black cherry	11.5	9.7	4.3	4.0	.8	.0	.5	.0	.0	.0	30.8	19.9
White oak	5.7	4.9	2.1	.8	1.4	2.1	1.0	1.1	.4	1.2	20.7	20.8
Northern red oak	54.6	81.0	69.3	68.3	50.7	34.4	20.6	15.9	20.3	1.8	416.8	8.0
Other red oaks	4.7	5.4	2.8	2.5	1.8	.5	.0	.0	1.2	.0	18.9	22.2
American basswood	2.4	3.6	3.2	5.4	2.3	2.9	3.5	1.9	.1	.0	25.2	31.6
Elm	5.7	6.4	4.4	2.6	7.2	1.9	4.8	.9	7.1	4.4	45.5	33.4
Other commercial hardwoods	47.1	50.1	36.7	29.7	19.9	11.8	4.4	6.2	3.4	.0	209.3	11.5
Noncommercial hardwoods	122.7	47.5	12.1	6.0	6.3	2.7	.8	.4	.3	.0	198.9	6.6
Total hardwoods	1,723.0	2,203.6	2,041.2	1,599.2	1,098.3	689.0	454.7	307.1	414.9	37.4	10,568.5	2.1
Total, all species	5,149.9	6,196.4	5,319.6	3,874.8	2,528.5	1,533.7	889.8	574.0	787.1	95.4	26,949.1	1.2
SE	1.8	1.6	1.7	2.0	2.5	3.3	4.5	5.8	6.0	20.5	1.2	

Table C14. Net volume of growing-stock trees on timberland by species and stand-size class, Maine, 1982

(In millions of cubic feet)

Species group	Stand-size class				All classes	SE
	Saw-timber	Pole-timber	Sapling and seedling	Non-stocked		
Balsam fir	1,493.8	2,436.8	79.9	.0	4,010.5	3.2
White spruce	198.8	355.4	23.2	.0	577.4	7.6
Black spruce	87.0	357.7	28.9	.0	473.6	12.4
Red spruce	2,033.5	2,882.5	61.0	.0	4,977.0	3.8
Red pine	23.9	45.3	2.4	.0	71.7	27.4
Pitch pine	6.4	3.7	.8	.0	10.9	34.7
Eastern white pine	844.8	857.9	37.6	.0	1,740.3	6.0
Northern white-cedar	918.3	876.3	41.2	.0	1,835.8	5.9
Eastern hemlock	726.9	611.6	15.5	.0	1,354.0	5.9
Other softwoods	28.1	76.7	18.1	.0	122.9	14.8
Total softwoods	6,361.7	8,503.9	308.6	.0	15,174.2	2.0
Red maple	590.2	1,377.3	43.8	.0	2,011.3	3.7
Sugar maple	967.4	520.0	9.4	.0	1,496.8	6.1
Yellow birch	551.7	429.9	14.4	.0	996.0	5.1
Paper birch	255.0	952.2	27.4	.0	1,234.6	4.9
Hickory	.1	.0	.0	.0	.1	100.0
American beech	364.7	296.1	5.5	.0	666.4	7.8
White ash	75.3	195.8	3.8	.0	275.0	11.2
Aspen	210.4	1,280.0	39.0	.0	1,529.4	6.3
Black cherry	3.1	16.7	.5	.0	20.3	22.3
White oak	5.4	9.9	.2	.0	15.6	22.4
Northern red oak	134.4	254.3	9.7	.0	398.4	8.1
Other red oaks	4.8	12.7	.6	.0	18.0	22.2
American basswood	11.1	12.9	.0	.0	24.0	32.9
Elm	22.9	15.2	.5	.0	38.6	38.4
Other hardwoods	63.3	141.6	5.5	.0	210.4	10.2
Total hardwoods	3,259.8	5,514.8	160.3	.0	8,935.0	2.2
Total, all species	9,621.5	14,018.7	468.9	.0	24,109.1	1.2
SE	3.7	2.5	8.6	.0	1.2	

Table C15. Net volume of growing-stock trees on forest land by species and diameter class, Maine, 1982

(In millions of cubic feet)

Species group	Diameter class (inches at breast height)										All classes	SE
	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29.0+		
Balsam fir	1,244.5	1,389.6	916.7	392.5	123.6	41.5	6.9	1.6	.0	.0	4,116.9	3.2
White spruce	134.9	161.7	136.1	83.3	42.0	18.3	4.4	4.9	2.7	.0	588.4	7.5
Black spruce	197.2	139.1	91.8	32.2	22.1	3.8	.9	1.5	.0	.0	488.6	12.1
Red spruce	925.6	1,259.5	1,136.2	812.7	534.8	263.5	134.9	56.5	46.9	.0	5,170.5	3.7
Red pine	4.2	7.1	14.9	20.8	12.4	9.0	2.5	.9	.0	.0	71.7	27.4
Pitch pine	.5	2.0	1.8	2.3	3.1	1.0	.3	.0	.0	.0	10.9	34.7
Eastern white pine	119.1	182.8	229.6	250.4	233.8	213.5	162.2	116.5	205.5	47.5	1,760.9	5.9
Other yellow pines	.0	.0	.7	.0	.0	.0	.0	.0	.0	.0	.7	100.0
Northern white-cedar	272.5	400.5	379.9	334.5	225.2	131.2	47.4	37.1	24.9	.0	1,853.1	5.8
Eastern hemlock	162.7	235.7	260.6	255.1	175.8	131.3	50.1	40.0	48.8	1.0	1,361.1	5.9
Other softwoods	21.1	17.9	25.9	23.2	13.0	8.1	9.6	3.0	1.2	.1	123.2	14.8
Total softwoods	3,082.3	3,795.9	3,194.2	2,206.9	1,385.7	821.2	419.3	261.9	330.1	48.6	15,546.1	2.0
Red maple	374.4	476.4	426.4	319.1	189.7	100.8	74.2	40.9	28.6	6.7	2,037.2	3.7
Sugar maple	135.0	204.3	215.9	221.3	195.4	132.6	136.4	108.5	157.9	11.4	1,518.8	6.0
Yellow birch	85.5	144.7	177.5	169.8	128.9	114.2	63.7	39.6	85.0	2.4	1,011.1	5.1
Paper birch	300.7	376.4	288.8	166.0	69.8	40.6	16.6	4.2	4.6	.0	1,267.5	4.9
Hickory	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.1	100.0
American beech	105.2	132.3	114.6	129.9	92.8	61.7	21.4	5.1	9.9	.0	672.9	7.7
White ash	37.9	62.4	64.9	45.1	23.9	14.5	10.4	5.9	9.8	.0	275.0	11.2
Aspen	225.0	362.3	377.1	270.4	164.7	76.4	30.4	22.2	14.0	.0	1,542.4	6.2
Black cherry	6.0	6.4	3.9	2.9	.6	.0	.5	.0	.0	.0	20.3	22.3
White oak	3.8	4.6	2.1	.8	1.3	1.9	.0	.8	.3	.0	15.6	22.4
Northern red oak	50.9	77.8	68.0	65.6	50.5	33.6	19.7	14.3	17.9	1.3	399.7	8.1
Other red oaks	4.2	5.2	2.6	2.5	1.8	.5	.0	.0	1.2	.0	18.0	22.2
American basswood	2.2	3.6	3.2	5.4	2.3	2.9	2.5	1.9	.0	.0	24.0	32.9
Elm	3.6	4.3	3.1	2.1	6.4	1.9	4.8	.9	7.1	4.4	38.6	38.4
Other hardwoods	61.3	51.7	37.1	27.1	17.6	8.5	2.1	5.6	2.2	.0	213.2	10.1
Total hardwoods	1,395.8	1,912.5	1,785.3	1,427.8	945.8	590.0	382.8	249.8	338.6	26.2	9,054.6	2.2
Total, all species	4,478.1	5,708.4	4,979.5	3,634.7	2,331.5	1,411.2	802.1	511.7	668.7	74.8	24,600.7	1.2
SE	1.9	1.7	1.7	2.0	2.6	3.5	4.9	6.4	6.7	24.2	1.2	

Table C16. Net volume of growing-stock trees on timberland by species and diameter class, Maine, 1982

(In millions of cubic feet)

Species group	Diameter class (inches at breast height)										All classes	SE
	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29.0+		
Balsam fir	1,217.4	1,352.9	891.9	383.1	119.3	40.0	4.4	1.6	.0	.0	4,010.5	3.2
White spruce	133.2	159.9	131.4	82.0	42.0	18.3	4.4	3.4	2.7	.0	577.4	7.6
Black spruce	192.3	137.9	85.2	30.7	21.4	3.8	.9	1.5	.0	.0	473.6	12.4
Red spruce	897.9	1,222.0	1,092.2	781.9	512.9	250.3	121.3	55.8	42.7	.0	4,977.0	3.8
Red pine	4.2	7.1	14.9	20.8	12.4	9.0	2.5	.9	.0	.0	71.7	27.4
Pitch pine	.5	2.0	1.8	2.3	3.1	1.0	.3	.0	.0	.0	10.9	34.7
Eastern white pine	118.3	181.4	229.3	250.4	232.7	212.2	160.5	105.2	203.9	46.5	1,740.3	6.0
Northern white-cedar	267.5	397.4	376.7	333.4	223.9	128.2	47.4	37.1	24.2	.0	1,835.8	5.9
Eastern hemlock	161.3	235.2	260.6	253.6	174.1	129.8	50.1	39.3	48.8	1.0	1,354.0	5.9
Other softwoods	20.8	17.9	25.9	23.2	13.0	8.1	9.6	3.0	1.2	.1	122.9	14.8
Total softwoods	3,013.4	3,713.7	3,110.0	2,161.3	1,354.7	800.8	401.3	247.7	323.5	47.6	15,174.2	2.0
Red maple	373.1	472.1	419.6	313.7	187.5	98.4	71.6	40.9	27.7	6.7	2,011.3	3.7
Sugar maple	134.0	202.9	214.2	216.2	191.4	131.6	133.4	104.7	157.0	11.4	1,496.8	6.1
Yellow birch	82.3	142.6	175.2	165.4	127.3	113.4	63.7	38.8	85.0	2.4	996.0	5.1
Paper birch	292.0	365.7	281.0	163.1	69.8	40.6	14.9	3.0	4.6	.0	1,234.6	4.9
Hickory	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.1	100.0
American beech	104.9	132.3	114.6	126.6	92.0	59.6	21.4	5.1	9.9	.0	666.4	7.8
White ash	37.9	62.4	64.9	45.1	23.9	14.5	10.4	5.9	9.8	.0	275.0	11.2
Aspen	223.2	360.0	375.3	268.7	163.8	73.2	30.4	22.2	12.5	.0	1,529.4	6.3
Black cherry	6.0	6.4	3.9	2.9	.6	.0	.5	.0	.0	.0	20.3	22.3
White oak	3.8	4.6	2.1	.8	1.3	1.9	.0	.8	.3	.0	15.6	22.4
Northern red oak	50.9	77.8	68.0	65.1	49.7	33.6	19.7	14.3	17.9	1.3	398.4	8.1
Other red oaks	4.2	5.2	2.6	2.5	1.8	.5	.0	.0	1.2	.0	18.0	22.2
American basswood	2.2	3.6	3.2	5.4	2.3	2.9	2.5	1.9	.0	.0	24.0	32.9
Elm	3.6	4.3	3.1	2.1	6.4	1.9	4.8	.9	7.1	4.4	38.6	38.4
Other hardwoods	61.1	51.5	34.7	27.1	17.6	8.5	2.1	5.6	2.2	.0	210.4	10.2
Total hardwoods	1,379.5	1,891.5	1,762.4	1,404.7	935.4	580.5	375.5	243.9	335.3	26.2	8,935.0	2.2
Total, all species	4,393.0	5,605.2	4,872.3	3,566.0	2,290.1	1,381.3	776.9	491.6	658.8	73.8	24,109.1	1.2
SE	2.0	1.7	1.8	2.1	2.6	3.5	4.9	6.4	6.7	24.5	1.2	

Table C17. Net volume of sawtimber trees on forest land by species and diameter class, Maine, 1982

(In millions of board feet)

Species group	Diameter class (inches at breast height)								All classes	SE
	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29.0+		
Balsam fir	3,410.9	1,652.4	551.6	192.0	31.9	7.2	.0	.0	5,846.0	4.6
White spruce	492.3	352.2	181.4	89.6	17.4	21.3	13.8	.0	1,168.0	9.0
Black spruce	334.0	138.3	100.9	18.3	4.2	7.5	.0	.0	603.2	17.0
Red spruce	4,369.4	3,550.2	2,507.8	1,271.7	675.9	283.1	231.8	.0	12,890.0	4.4
Red pine	51.5	81.9	51.3	37.5	11.2	4.5	.0	.0	238.0	26.9
Pitch pine	5.5	7.7	11.2	3.7	1.0	.0	.0	.0	29.2	35.5
Eastern white pine	782.3	984.7	992.3	953.4	731.9	546.9	1,006.6	230.3	6,228.6	6.2
Other yellow pines	2.5	.0	.0	.0	.0	.0	.0	.0	2.5	100.0
Northern white-cedar	1,076.6	1,092.3	790.5	476.1	176.4	135.2	95.5	.0	3,842.5	6.6
Eastern hemlock	843.4	938.6	691.3	541.4	217.5	167.8	215.4	5.1	3,620.5	6.3
Other softwoods	85.3	84.5	49.2	31.6	39.4	12.4	4.8	.4	307.7	18.0
Total softwoods	11,453.7	8,883.0	5,927.6	3,615.4	1,906.8	1,185.9	1,568.0	235.9	34,776.2	2.5
Red maple	.0	1,171.9	716.0	395.8	297.2	165.1	120.1	31.8	2,897.9	5.6
Sugar maple	.0	823.7	750.5	520.2	535.7	443.8	649.3	51.3	3,774.4	7.3
Yellow birch	.0	622.8	472.5	412.3	234.9	144.5	326.9	8.7	2,222.6	6.8
Paper birch	.0	644.5	275.0	160.4	60.5	16.5	18.9	.0	1,175.9	8.3
American beech	.0	502.9	371.6	248.8	86.3	20.6	36.0	.0	1,266.2	9.6
White ash	.0	181.1	97.5	60.7	45.5	25.3	45.1	.0	455.1	17.0
Aspen	.0	1,111.2	689.4	321.0	130.8	101.9	63.8	.0	2,418.1	8.5
Black cherry	.0	11.0	2.4	.0	1.9	.0	.0	.0	15.3	40.7
White oak	.0	2.7	4.3	7.5	.0	2.8	1.0	.0	18.3	48.7
Northern red oak	.0	230.7	184.0	129.9	75.5	56.2	75.9	7.0	759.2	10.8
Other red oaks	.0	8.5	6.8	2.1	.0	.0	5.0	.0	22.4	32.7
American basswood	.0	20.4	9.3	11.2	10.4	7.2	.0	.0	58.5	46.3
Elm	.0	5.2	24.0	6.8	18.5	4.2	36.3	23.7	118.7	59.4
Other hardwoods	.0	103.3	66.2	33.1	8.4	21.1	7.8	.0	239.9	16.9
Total hardwoods	.0	5,439.7	3,669.7	2,309.7	1,505.8	1,009.1	1,386.0	122.5	15,442.5	3.3
Total, all species	11,453.7	14,322.7	9,597.3	5,925.1	3,412.6	2,195.0	2,954.0	358.3	50,218.7	1.9
SE	2.5	2.1	2.7	3.6	5.1	6.6	6.9	24.8	1.9	

Table C18. Net volume of sawtimber trees on timberland by species and diameter class, Maine, 1982

(In millions of board feet)

Species group	Diameter class (inches at breast height)								All classes	SE
	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29.0+		
Balsam fir	3,319.9	1,611.8	530.9	184.4	20.0	7.2	.0	.0	5,674.3	4.6
White spruce	475.0	346.3	181.4	89.6	17.4	14.4	13.8	.0	1,137.8	9.2
Black spruce	308.4	132.0	97.7	18.3	4.2	7.5	.0	.0	568.0	17.7
Red spruce	4,200.0	3,416.9	2,405.1	1,206.6	607.6	280.1	209.8	.0	12,326.0	4.5
Red pine	51.5	81.9	51.3	37.5	11.2	4.5	.0	.0	238.0	26.9
Pitch pine	5.5	7.7	11.2	3.7	1.0	.0	.0	.0	29.2	35.5
Eastern white pine	780.8	984.7	986.8	947.2	723.0	488.8	998.9	224.8	6,135.0	6.2
Northern white-cedar	1,067.9	1,088.9	786.0	464.7	176.4	135.2	92.6	.0	3,811.7	6.7
Eastern hemlock	843.4	933.3	684.8	535.7	217.5	164.8	215.4	5.1	3,600.0	6.4
Other softwoods	85.3	84.5	49.2	31.6	39.4	12.4	4.8	.4	307.7	18.0
Total softwoods	11,137.8	8,688.0	5,784.5	3,519.2	1,817.6	1,114.9	1,535.4	230.3	33,827.7	2.5
Red maple	.0	1,152.2	707.2	385.6	287.0	165.1	116.1	31.8	2,845.0	5.7
Sugar maple	.0	806.3	736.0	516.5	525.4	430.6	645.8	51.3	3,711.8	7.4
Yellow birch	.0	607.3	466.4	409.6	234.9	141.5	326.9	8.7	2,195.3	6.9
Paper birch	.0	632.7	275.0	160.4	55.1	11.1	18.9	.0	1,153.2	8.4
American beech	.0	490.4	368.7	239.3	86.3	20.6	36.0	.0	1,241.3	9.7
White ash	.0	181.1	97.5	60.7	45.5	25.3	45.1	.0	455.1	17.0
Aspen	.0	1,104.6	685.2	307.2	130.8	101.9	55.6	.0	2,385.4	8.6
Black cherry	.0	11.0	2.4	.0	1.9	.0	.0	.0	15.3	40.7
White oak	.0	2.7	4.3	7.5	.0	2.8	1.0	.0	18.3	48.7
Northern red oak	.0	229.0	181.4	129.9	75.5	56.2	75.9	7.0	754.9	10.8
Other red oaks	.0	8.5	6.8	2.1	.0	.0	5.0	.0	22.4	32.7
American basswood	.0	20.4	9.3	11.2	10.4	7.2	.0	.0	58.5	46.3
Elm	.0	5.2	24.0	6.8	18.5	4.2	36.3	23.7	118.7	59.4
Other hardwoods	.0	103.3	66.2	33.1	8.4	21.1	7.8	.0	239.9	16.9
Total hardwoods	.0	5,354.7	3,630.3	2,269.8	1,479.8	987.6	1,370.4	122.5	15,215.1	3.3
Total, all species	11,137.8	14,042.7	9,414.8	5,789.0	3,297.4	2,102.5	2,905.8	352.8	49,042.9	1.9
SE	2.5	2.1	2.7	3.6	5.1	6.4	6.9	25.2	1.9	

McWilliams, William H.; Butler, Brett J.; Caldwell, Laurence E.; Griffith, Douglas M.; Hoppus, Michael L.; Laustsen, Kenneth M.; Lister, Andrew J.; Lister, Tonya W.; Metzler, Jacob W.; Morin, Randall S.; Sader, Steven A.; Stewart, Lucretia B.; Steinman, James R.; Westfall, James, A.; Williams, David A.; Whitman, Andrew, Woodall, Christopher W. 2005. **The forests of Maine: 2003**. Resour. Bull. NE-164. Newtown Square, PA: U.S. Department of Agriculture, Forest Service, Northeastern Research Station. 188 p.

In 1999, the Maine Forest Service and USDA Forest Service's Forest Inventory and Analysis program implemented a new system for inventorying and monitoring Maine's forests. The effects of the spruce budworm epidemic continue to affect the composition, structure, and distribution of Maine's forested ecosystems. The area of forest land in Maine has remained stable since the 1970's. Although relatively small acreages of forest are converted to other land uses, these conversions often remove highly valued forests such as white pine. The total inventory volume of live trees increased slightly, indicating the beginning of a response of Maine's forest to the tremendous devastation from spruce budworm.

Keywords: forest composition; forest vitality; sustainability; timber volume; ingrowth.

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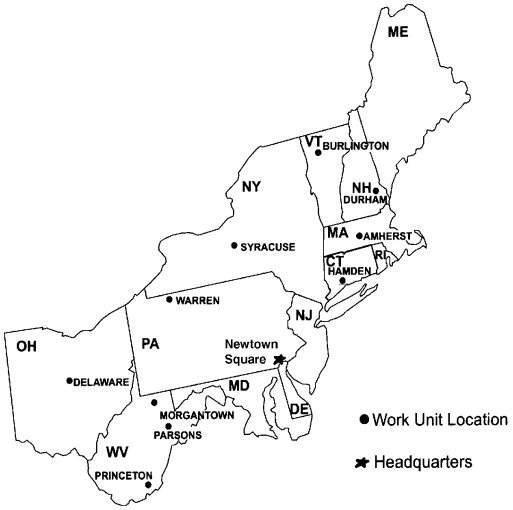

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