March 31, 2009

Dear Reader:

I'm pleased to present the 2006 Midcycle Report on Inventory and Growth of Maine's Forests. After the USFS published the five-year inventory report "The Forests of Maine" (RB-NE-164, September 2005), the MFS began to receive queries as to when we would be able to update that data and, more importantly, when we could provide more detailed information about the growth, removal, and mortality processes that influence the final inventory. This midcycle report addresses that stated need.

At first glance it would be easy to overlook the amount of work that went into generating this report. It is no exaggeration to state that it represents the culmination of several years of joint effort by many people within the Maine Forest Service and the FIA unit of the USDA Forest Service's Northern Research Station. I want to take this opportunity to express my personal appreciation to those many people mentioned in the Acknowledgement section of the report; their efforts were central to assuring the quality of the data, and the resultant assessments that are the core of this document.

- The plot data (2003 plots) represents 3 years of data collection by Maine Forest Service field crews (2004-2006);
- Each of these years USFS quality assurance crews remeasured and compared results from a subsample of the plots to assure that the data met national data quality standards and maintained spatial and temporal consistency;
- Each year's field data was aggregated and scrutinized by USFS data management staff at the Northern Research Station;
- The raw data for those three years' panels were then compiled independently by the MFS and USFS biometricians/statisticians to assure that there were no imbedded programming errors in the compilation routines; and
- When MFS and USFS biometricians finished debugging processes and agreed on compiled values, the MFS generated this report.

Beyond my appreciation for the dedication of the MFS and USFS staff who worked to make this report possible, I am also gratified and reassured by what the analyses show. Despite increased demands for raw materials from our various sawmills, pulp mills, pellet mills, biomass processors, and other wood-using industries, Maine's forests are growing more than is being harvested, and today Maine has 93% more standing timber than it did in the 1950's. Moreover, although a working forest landscape, Maine's forests continue to serve as a successful backdrop for our tourism and recreation industries. Along with their direct economic contributions, Maine's forests continue to provide watershed, environmental, wildlife, and amenity benefits. They remain a signature resource of that "quality of place" that makes Maine unique. Although they face increasing pressures from development and changing uses, exotic pests, and expanded markets for raw materials they are remarkably resilient, and, I believe, will have even greater value in the future than they have in the past. In addition to their value as the source of raw material for our existing forest products industry, consider what we are learning about forests' ability to mitigate climate change and help meet our energy needs.

The forest inventory program is a critical foundation component of the MFS's ability to monitor and manage the health and sustainability of our forests. Beyond that, it is important that reports such as this are valuable to you, our clientele. We welcome your thoughts on how future analyses on this might be refined. Moreover, where we have just completed collecting the full remeasurement of the inventory plots, the USFS will now begin working on their report on the complete resampling. If there are there are things you didn't see in this report that you would like to see in that report, this is an excellent time to let us know.

Again, I want to thank the many staff who made this report possible. I look forward to comments from you, our clients and cooperators.

Sincerely,

R. Alec Giffen
Director Maine Forest Service

2006 MID-CYCLE REPORT ON INVENTORY and GROWTH OF MAINE'S FORESTS

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2006 Mid-Cycle Report
On Inventory and Growth of Maine's Forests

Executive Summary

This mid-cycle report is based on a select series of 2,003 matched plots. The combined 3 years of data is strong enough to provide the following estimates:

- Maine remains 90% forested, and 97% of the forestland is productive timberland (Appendix A. Table 1). Nonetheless, this report estimates a net lost in timberland of 96,000 acres; 30,000 acres changed to forestland, and 66,000 acres became new non-forested land uses. The major losses occurred in the Eastern Megaregion (29,000 acres) and in the Southern Megaregion (26,000 acres).

- There has been significant increases in timberland acreage for the Corporate Investor owner class in three of the four megaregions (Appendix A. Tables 2A, 2B, and 2D) and Statewide (Table 2), with an overall increase of 2.4 million timberland acres.

- There have also been significant decreases in timberland acreage for the Forest Industry owner class in three of the four megaregions (Appendix A. Tables 2A, 2B, and 2D) and Statewide (Table 2), with an overall decrease of 2.7 million timberland acres.

- In 2006, Maine's forests had an estimated inventory of 285 million cords of merchantable wood (pulpwood quality or better); an increase of 11 million cords since the 2001 inventory estimate (Appendix C. Figure 3).

- Current pulpwood quality or better volume is estimated at an average of 16.5 cords per acre. This is a 0.8 cord per acre increase from 2001 (Appendix C. Figure 1).

- Since 2001, there have been no significant changes in growing stock net volume or sawtimber board foot volume in any species group, in any of the four megaregions, or statewide (Appendix A. Tables 19A, 19B, 19C, 19D, and 19. And Tables 27A, 27B, 27C, 27D, and 27).

- 79% of the timberland area is in desirable stocking classes (moderately stocked and fully stocked), a minor decrease of 2% from the 2001 estimate. (Appendix A. Table 10).

- The 2006 growth to harvest ratio for growing stock quality trees is 1.15, a substantial increase from the 2003 estimate of 0.97 (Appendix B. Table 29). Growth to harvest ratios, by megaregion, ranged from 1.0 for the eastern and northern, to 2.31 in southern, and 1.35 in the western.

- Tracking net change in individual species groups sees a comparable range. Balsam fir for the first time since 1971 has a positive net change, while the net change of spruces is still heavily influenced by harvest and is -0.02 cords/acre/year. Red maple continues its positive trend with a net change of 0.01 cord/acre/year, while the combination group of sugar maple/beech/yellow birch is impacted by mortality, quality degradation, and harvest; resulting in a -0.01 cords/acre/year net change (Appendix C. Figures 4 and 5).

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2006 MID-CYCLE REPORT ON INVENTORY AND GROWTH OF MAINE'S FORESTS

INTRODUCTION

The USDA Forest Service - Forest Inventory & Analysis, Northern Research Station is the continuing major source of state level forest inventory information for Maine. This program provides periodic information on a variety of parameters describing forests and forest use: area and type of forest; species, size, and health of trees; and rates of tree growth, mortality, and removals.

The USDA Forest Service conducted four periodic forest inventories in Maine (1954 - 1958, 1968 - 1970, 1980 - 1982, and 1994 - 1996). These efforts have been occasionally augmented by additional inventory efforts to address specific issues. Despite this level of monitoring, Maine faced contentious debates concerning sustainable forest management through the 1990's. The long period between these periodic inventories did not serve Maine's policy discussions well and contributed to a high degree of uncertainty about the state of the forest resource.

In response to customer needs, the USDA Forest Service - Forest Inventory & Analysis received a Congressional mandate (Public Law 105-185, The Agricultural Research, Extension, and Education Reform Act of 1998) to change the way they conduct forest inventories nationwide, including:

1) Change from a periodic to an annual forest inventory which measures 20% of all inventory plots in each state each year;
2) Develop consistency in the program across all forest lands;
3) Produce complete state reports at five-year intervals.

The 118th Maine Legislature authorized the Maine Forest Service to participate with the USDA Forest Service to implement an annual forest inventory (PL 1997 C.720). Maine was the first state in the Northeast to participate in this new inventory process and was the first state in the nation to convert to the new national core variables. In Maine, the annual inventory (panel) measures 20% of the plots every year. This report is the first to provide estimates based on the complete revisit and remeasurement of three of the five panels comprising Maine's sample.

Plots are located systematically across the state on all types of ownerships and land uses. As required by law, landowners are contacted for permission to access the plots. The USDA Forest Service - Forest Inventory and Analysis Unit maintains the list of exact plot locations. Plot location data is not released to any other group or individual.

The Maine Forest Service, with the cooperation and full support of the USDA Forest Service, produces a more enhanced interim report. This first mid-cycle report provides estimates of forest area; species, number, and size of trees; and volume based on the combined data collected in 2004, 2005, and 2006. It also contains for the first time, a complete set of regional assessments. It also contains a results and discussion section that extends far beyond what the USDA Forest Service issues as a core 2 – 4 page interim annual report for individual states.

The annual inventory system is structured to aggregate all previous panel datasets into a single moving average and representation. The goal after 2003 was to continue to aggregate into a moving average the most current five years of data. The reason the previous five years' inventory data (2002 – 2006) is not being presented is to be able to present a better estimate of growth and other change components. The opportunity exists to analyze a single year's data. The only reason to do so, would be to understand the immediate impact of a recent catastrophic event, i.e. 1938 Hurricane, 1998 Ice Storm, the Hemlock or Balsam Woolly Adelgid.

There are two major enhancements provided in producing this mid-cycle report:

- This report provides for the first time an extensive set of estimates for four megaregions. The megaregions are aggregations of existing FIA Units, the smallest area on which past estimates have been normally based. The regions were chosen for their similarity in forest types, management, and climatic conditions and are as follows:
    - Eastern megaregion – Hancock, Penobscot, and Washington Counties, all are separate FIA units,
    - Northern megaregion – Aroostook, Piscataquis, and Somerset Counties, all are separate FIA units,
    - Southern megaregion – Capital Region FIA unit (Kennebec, Knox, Lincoln, and Waldo Counties) and the Casco Bay Region FIA unit (Androscoggin, Cumberland, Sagadahoc, and York Counties), and
    - Western megaregion – Western FIA unit (Oxford and Franklin Counties).

- This report contains a more extensive estimate of components of change, i.e. growth, mortality, and removals over the intervening 5-year period, providing estimates on megaregions, species and owner classes.

LIMITATIONS OF COMBINED DATASET

The annual inventory is designed to measure 20% (one-fifth) of the inventory plots every year. Estimates of forest characteristics can be derived from each annual measurement; however, the relatively small annual sample, by itself, yields estimates with lower precision than an inventory that measures all plots in a short period (the periodic inventory).

A better approach for providing more precise estimates in the annual inventory is to use a moving average, combining the latest data with all previous years' data, i.e. 2001 data with the 1999 and 2000 data. The USDA Forest Service and the Maine Forest Service have chosen to utilize this method of aggregating datasets in their interim annual reporting of inventory results.

Data on forest area and inventory from the combined dataset are reported in the tables in Appendix A. The table numbers and titles correspond with the same numbered tables in the September 25, 2002 publication "Third Annual Inventory Report on Maine's Forests."

The 2006 combined inventory estimate is compared to the 2001 combined estimate using the 95% confidence limit as a statistical test of the estimated means. The 95% confidence limit is expressed as a range around the estimate of the mean. If the ranges for the two means (2001 and 2006) do not overlap, we are 95% certain that there is a statistically significant difference in the populations that were sampled to provide the estimates of those means. These statistically significant differences are noted where they occur in each of the tables in Appendix A.

Due to the reduced sample size of the combined data and as recommended by the USDA Forest Service – Forest Inventory & Analysis Unit, individual FIA unit estimates are not reported and some species level and diameter classes have been aggregated into groups.

SYNOPSIS OF KEY ESTIMATION PROCEDURES

- All estimates within this report are based on an acreage expansion using simple random sampling; all valid plots within a county are assigned the same number of acres. The previous 2003 report used a stratum-based weighting scheme where plots were assigned various acreage expansion values based on the number of plots within a given strata within a specific county.
- For inventory estimates of current conditions, data is from Panel #1, #2, and #3 collected over the period of 2004 – 2006 (2006).
- For inventory comparison purposes to detect significant differences, data used is from Panel #1, #2, and #3 collected over the period of 1999 – 2001 (2001).
- For estimates of change and growth it uses the actual recorded change in the data over the respective actual remeasurement period on a plot-to plot basis.
- The plot selection process focused first on identifying valid plots from each of the six measurement years (1999, 2000, 2001 and then 2004, 2005, and 2006). A valid plot contains some valid sample area that has not been coded as census water, hazardous area, or denied access. The previous data set (1999 – 2001) was then matched to the current dataset (2004 – 2006) and in order to be retained, a plot had to be valid at both measurement occasions. This selection process resulted in a sample size of 2,003 plots. Due to this selection process the estimates provided within and representing the previous data (2001) will not exactly match up with similar estimates published in the September 25, 2002 publication "Third Annual Inventory Report on Maine's Forests."
- Estimation areas
  - Eastern megaregion – Hancock, Penobscot, and Washington counties are combined (Table suffix "A")
  - Northern megaregion – Aroostook, Piscataquis, and Somerset counties are combined (Table suffix "B")
  - Southern megaregion – Capital Area (Kennebec, Knox, Lincoln, and Waldo counties) and Casco Bay Area (Androscoggin, Cumberland, Sagadahoc, and York counties) are combined (Table suffix "C")
  - Western megaregion – Western Area (Franklin and Oxford counties are combined) (Table suffix "D")
- If displayed, "NGO/Association" includes the combined owner classes of NGO, Association/Clubs, and Native Americans. If not displayed all three owner classes are then grouped into the Family Forest owner class.

RESULTS & DISCUSSION

TIMBERLAND AREA

- **The 2006 inventory report shows that forestland area and timberland area are undergoing minor changes** (Appendix A. Table 1A, 1B, 1C, 1D, and 1).

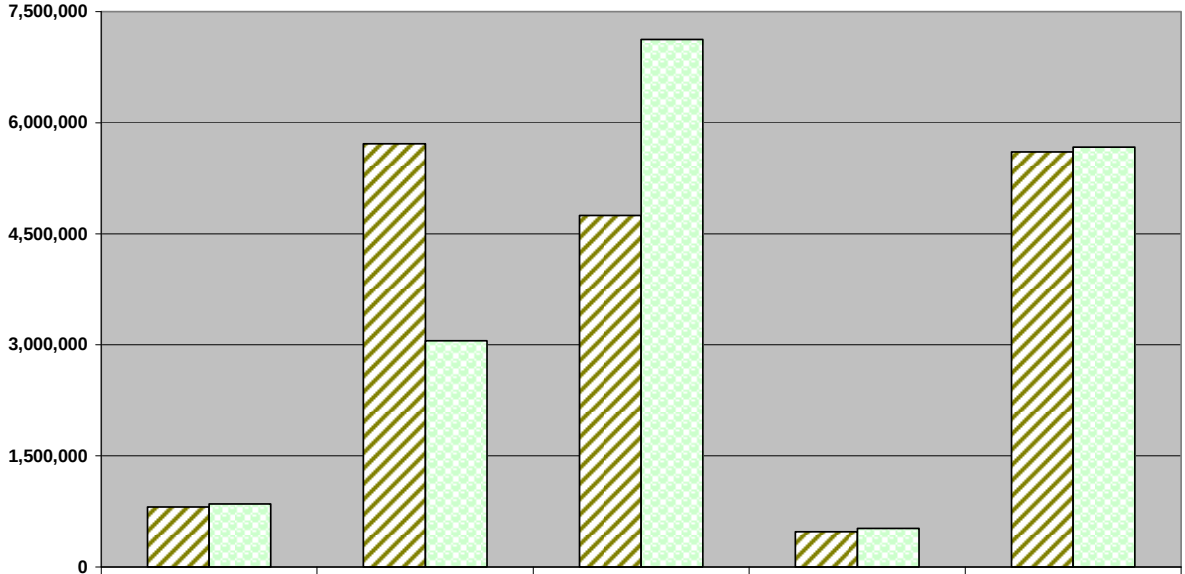
  The 2006 inventory is based on individual land area within counties as estimated by the 2000 census data. The total State of Maine land area is 19,751,394 acres as estimated by this Census. Timberland is now split into 3 unique land uses: Rural, Other Forestland, and Urban Forestland. As a proportion of its 2001 timberland estimate the Western megaregion had a 1.0% reduction and the Southern megaregion had a 0.9% reduction over the 5-year period. Statewide there was a 96,000 acre loss in timberland; 30,000 of that transitioned to a forestland land use, and 66,000 acres transitioned to some type of nonforest use.

- **Spruce-Fir and Maple/Beech/Birch are nearly equal and are the predominant forest types in the Eastern and Northern megaregions. In the Southern and Western megaregions, Maple/Beech/Birch is the predominant forest type. Statewide Maple/Beech/Birch continues to be the most common forest type group, with 7.3 million acres, followed by the Spruce-Fir group with 5.3 million acres. These two groups represent 73% of all timberland acreages, nearly identical to their 2001 representation of 72%** (Appendix A. Table 2)**.**

- **Since 2001, timberland acreage by owner class has seen significant changes; a 2.4 million acre increase in the Corporate Investor owner class and a corresponding 2.7 million acre decrease in the Forest Industry owner class** (Appendix A. Table 2). This identical ownership transition is reflected in the Eastern, Northern, and Western megaregions (Appendix A. Table 2A, 2B, and 2D).

  These net changes reflect a new distribution of land ownership and management. A slightly more detailed breakdown of owner class timberland acreage changes is provided by Figure 1.

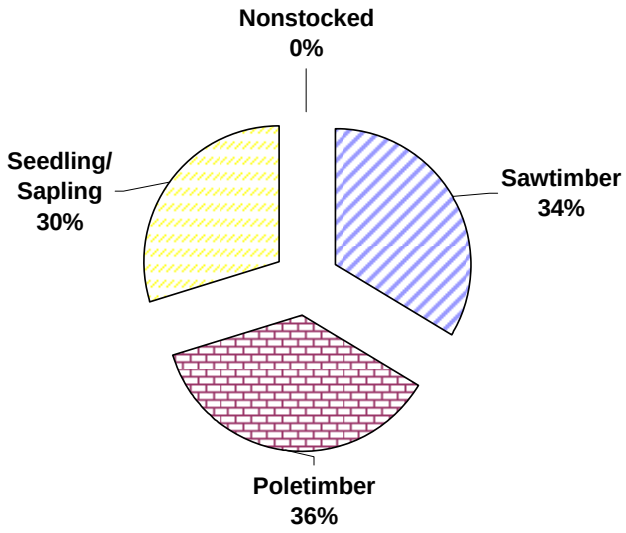
Figure 1. Change in timberland acreage, by owner grouping, data from Panels #1, #2, and #3, from 2001 to 2006



	Public Ownerships	Forest Industry	Corporate Investors	NGO's/ Associations	Family Forests
2001	814,088	5,716,177	4,747,145	472,403	5,602,335
2006	854,155	3,055,607	7,122,253	523,277	5,668,641

- **The all live stand class size distribution varies quite a bit by megaregion. The stand size class with plurality in the Eastern megaregion is poletimber (39%), in the Northern megaregion it is seedling/sapling (35%), for the Southern and Western Megaregion it is sawtimber (46% and 43% respectively). The statewide distribution is much more evenly spread as depicted in Figure 2. (Appendix A. Tables 6A, 6B, 6C, 6D, and 6).**

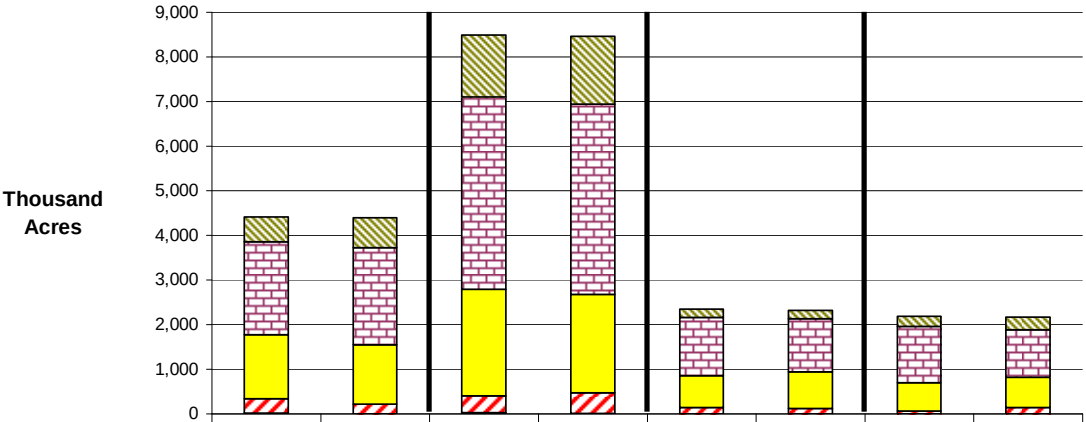
Figure 2. Statewide distribution of timberland acres, by Stand Size Class of All Live Trees (1.0" DBH and larger), 2006



- **The stocking class assignment, based on just growing stock trees, had minor acreage decreases in the moderately and fully stocked classes and a minor increase in the overstocked class The acreage of Moderately, Fully, and Overstocked Classes combined is identical in 2001 and 2006 at 89.4%** (Appendix A. Table 8).

- **While none of these are considered statistically significant, for all live trees (1.0" dbh and larger), the stocking class distribution across the megaregions changed as follows** (Appendix A. Table 10A, 10B, 10C, 10D and Figure 3-0).
  - Eastern – 33% decrease in poorly stocked and a 7% decrease in moderately stocked, with minor increases in fully and overstocked classes.
  - Northern – 22% increase in poorly stocked and a 9% increase in overstocked, with corresponding minor decreases in the moderately and fully stocked classes.
  - Southern – 18% decrease in poorly stocked and an 8% decrease in fully, these transitioned to 16% increase in moderately stocked.
  - Western – increases of 99% in poorly stocked, 21% in overstocked, and a 9% increase in moderately stocked. These changes are the result of a 15% decrease in the fully stocked class.

Figure 3-0. Comparison of timberland acreage, by stocking class of all live trees (1.0" DBH and larger), by megaregion, 2001 and 2006

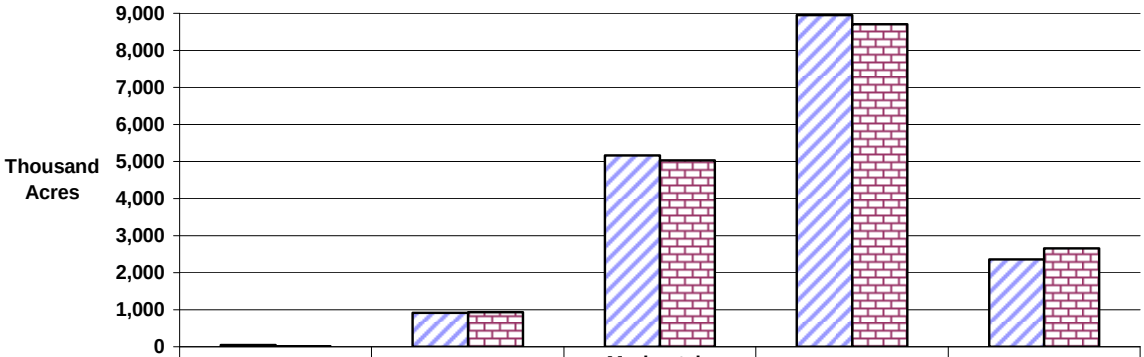


	Eastern 2001	Eastern 2006	Northern 2001	Northern 2006	Southern 2001	Southern 2006	Western 2001	Western 2006
Overstocked	558.2	664.5	1,390.0	1,514.3	188.3	193.2	228.6	276.5
Fully Stocked	2,077.5	2,183.4	4,310.9	4,261.5	1,298.9	1,189.8	1,262.8	1,068.8
Moderately Stocked	1,433.8	1,327.8	2,383.3	2,207.8	711.1	821.0	628.5	681.7
Poorly Stocked	322.2	216.5	376.8	460.5	143.8	118.0	69.0	137.2
Nonstocked	21.6	2.6	31.8	13.6	2.4	2.4	-	2.6

Megaregion

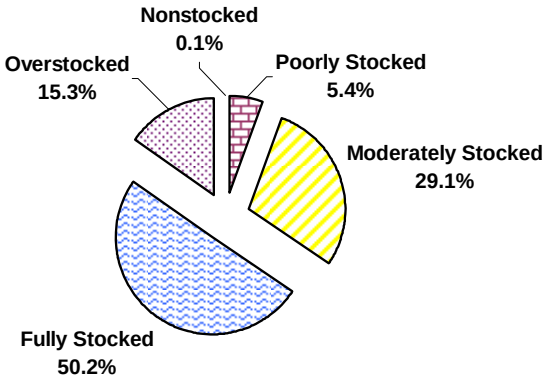
- **In 2006, 79% of timberland acres (13.7 million acres) were in desirable stocking classes (moderately and fully stocked), a 2% decrease from 2001** (Appendix A. Table 10, Figure 3-1, and Figure 3-2).

Figure 3-1. Statewide Distribution of Timberland area by Stocking Class of All Live Trees (1.0" Dbh and larger), 2001 and 2006



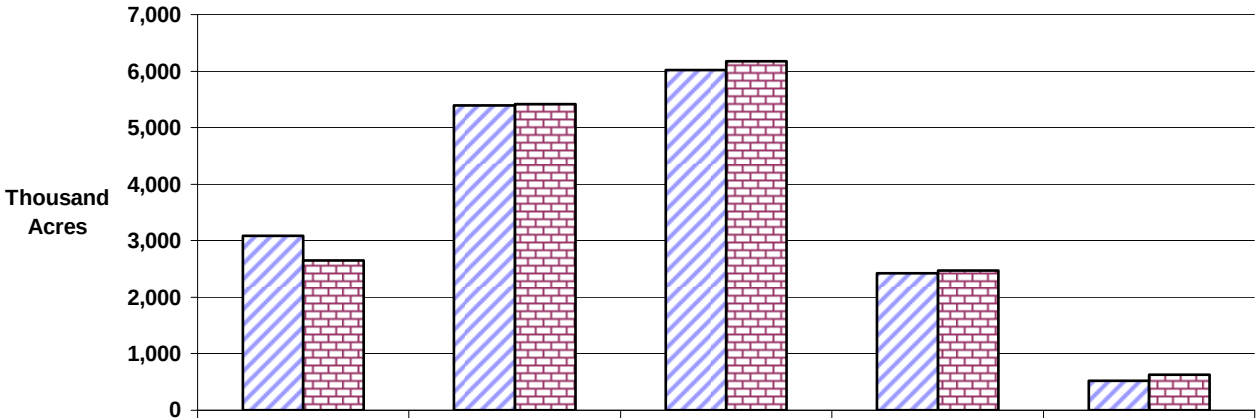
	Nonstocked	Poorly Stocked	Moderately Stocked	Fully Stocked	Overstocked
2001	55.8	911.8	5,156.7	8,950.1	2,365.0
2006	21.1	932.2	5,038.4	8,703.5	2,648.5

Figure 3-2. Statewide distribution of timberland area by Stocking Class of All Live Trees (1.0" DBH and larger), 2006



- Basal area can be used as a direct stocking assessment method, in contrast to the above stocking class assignments assigned by computer algorithms, so it may have more appeal and a broader understanding. Previous inventory reports have documented some substantial statewide gains in the Basal Area Class of 50 – 99 sq. ft. per acre. While none of these are statistically significant, over the 5-year period, notable megaregion changes are (Appendix A. Table 12A, 12B, 12C, and 12D):
  - Eastern – General decreases in the 0 – 49 and the 50 – 99 classes with general increases in the three classes of 100+
  - Northern – An 18% decrease in the 0 – 49 class that apparently grows into the 50 – 99 class which has an estimated 10% increase, since the other 3 classes have very minor shifts.
  - Southern – The 0 – 49 class has a 31% decrease with respective increases spread across the next three classes of 50 – 149.
  - Western – The 50 – 99 class has a decrease of 18% with apparent transitions to the 0 – 49 class (25% increase) and the 100 – 149 class (13% increase).
- The statewide distribution of timberland acreages within a basal area class in shown below in Figure 4. The only decrease (14%) occurs in the 0 – 49 class which indicates overall improved stocking across the period (Appendix A. Table 12 and Figure 4).

Figure 4. Statewide Distribution of Timberland area by Basal Area Class of All Live Trees (1.0" Dbh and larger), 2001 and 2006



	0 - 49	50 - 99	100 - 149	150 - 199	200+
2001	3,084.8	5,391.6	6,015.2	2,422.5	525.1
2006	2,647.6	5,416.6	6,174.7	2,475.4	629.4

NUMBER OF TREES

The Maine Forest Service has maintained the continued aggregation of some individual species into species groups, when reporting data on number of trees and volume. This is done intentionally to match the 2001 data, when this grouping approach was recommended by the USDA Forest Service to overcome the limitations of the then small sample size.

For the purposes of this report, "species group" and their specific inclusive species are defined in the glossary of inventory terminology (page 23):

For trees 5.0" dbh and larger, the 2006 inventory estimates that:

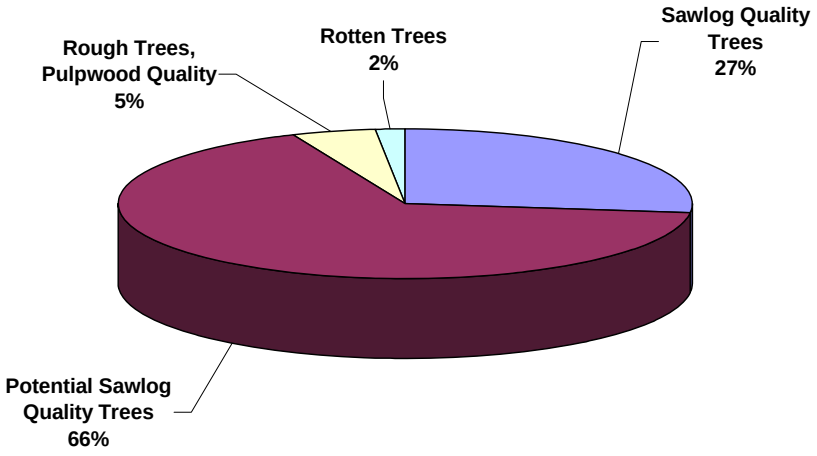
- **The most abundant live commercial tree species/species groups are (in descending order):**
  - **Eastern – Spruces, red maple, balsam fir, and northern white cedar**
  - **Northern – Balsam fir, spruces, sugar maple/beech/yellow birch, and northern white cedar**
  - **Southern – Red maple, eastern white pine, other commercial hardwoods (northern red oak), and hemlock**
  - **Western – Sugar maple/beech/yellow birch, intolerant hardwoods, balsam fir, and red maple**

  Statewide, balsam fir, spruces, sugar maple/beech/yellow birch, and red maple are the most abundant tree species. (Appendix A. Table 13A, 13B, 13C, 13D, and 13)

- **Since 2001, within each megaregion and statewide there are no significant differences in the number of growing stock trees in any species/species group, in any of the three diameter groupings,** (Appendix A. Table 14A, 14B, 14C, 14D, and 14).

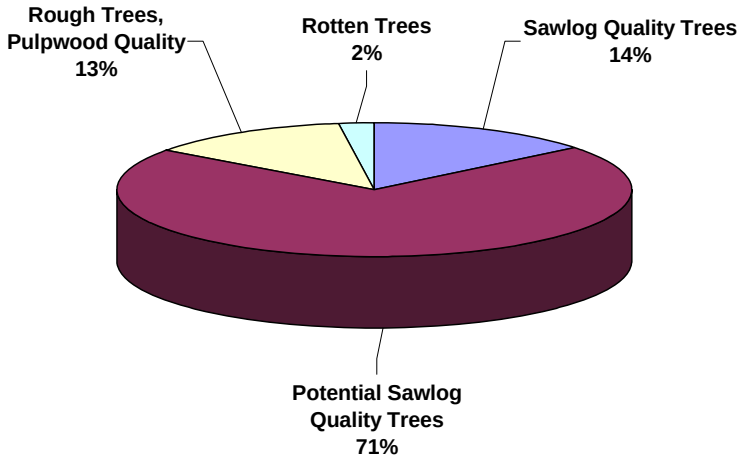
- **Tree Quality: 93% of live merchantable size softwood trees are either sawtimber or potential sawtimber trees. 85% of live merchantable size hardwood trees are either sawtimber or potential sawtimber trees** (Appendix A. Tables 13 and 14, Figures 5 – 1 and 5 – 2).

Figure 5 - 1. Statewide distribution of live merchantable size (5.0" dbh and larger) softwood trees, by Tree Class, 2006



- **Tree Quality: 98% of live merchantable size softwood trees (5.0" dbh and larger) are Pulpwood Quality or Better. 98% of live merchantable size hardwood trees are Pulpwood Quality or Better.** (Appendix A. Tables 13 and 14, and Figures 5 – 1 and 5 – 2)
-

Figure 5 - 2. Statewide distribution of live merchantable size (5.0" dbh and larger) Hardwood trees, by Tree Class, 2006



For all live trees 1.0" dbh and larger, the 2006 inventory estimates that:

- **The most abundant commercial tree species/species groups are (in descending order)**
  - **Eastern – Balsam fir, spruces, red maple, and sugar maple/beech/yellow birch**
  - **Northern – Balsam fir, spruces, sugar maple/beech/yellow birch, and red maple**
  - **Southern – Red maple, balsam fir, other commercial hardwoods, and sugar maple/beech/yellow birch**
  - **Western – Balsam Fir, sugar maple/beech/yellow birch, red maple, and intolerant hardwoods**

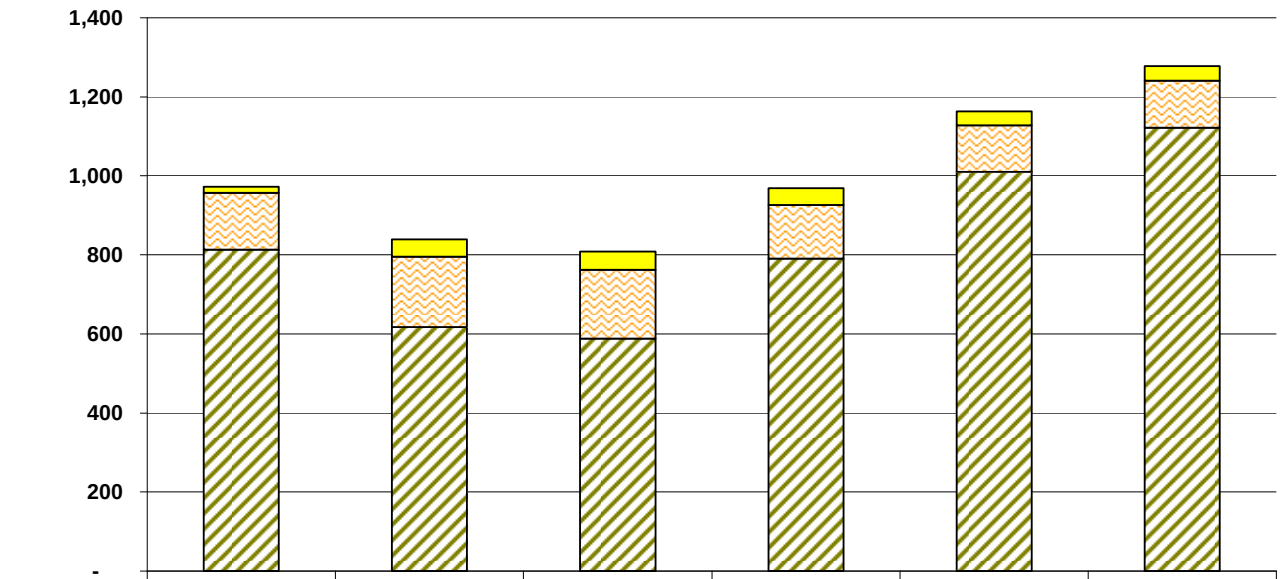
  Statewide - balsam fir, red maple, sugar maple/beech/birch, spruces, and intolerant hardwoods (Appendix A. Table 16A, 16B, 16C, 16D, and 16).

- **Since 2001, the largest increases in the number of live trees are (in descending order) balsam fir, spruces, and sugar maple/beech/yellow birch. Balsam fir has three times the increase of spruces** (Appendix A. Table 16).

- **Since 2001, the only species/species group to decrease in the number of live trees is intolerant hardwoods** (Appendix A. Table 16).

- **There is an estimated 13% increase in the number of all softwood trees and a 5% increase in the number of all hardwood trees, since 2001. These changes occur primarily in the sapling diameter class (1.0" - 4.9" dbh), with an estimated 11% increase on a per acre basis** (Appendix A. Table 16 and Figure 6).

Figure 6. Distribution of live trees per timberland acre by DBH grouping

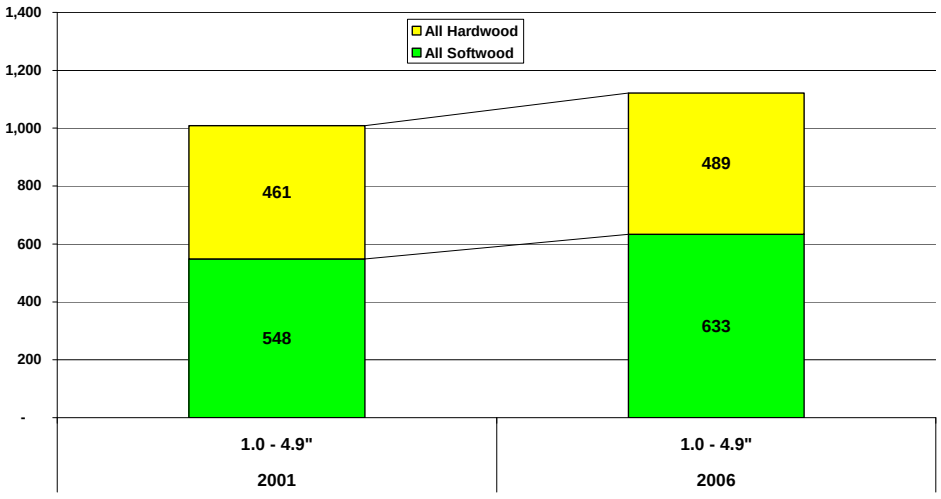


	1959 USDA Forest Service	1971 USDA Forest Service	1982 USDA Forest Service	1995 USDA Forest Service	2001 USDA Forest Service	2006 USDA Forest Service
Sawtimber	15	43	46	42	36	37
Poletimber	144	179	174	136	118	119
Saplings	813	617	589	790	1,009	1,122

Inventory Year

The dynamics occurring in saplings are primarily attributable to changes in the average per acre stocking of softwood species, representing 83% of the overall increase since 2001 (Figure 7 and Figure 8).

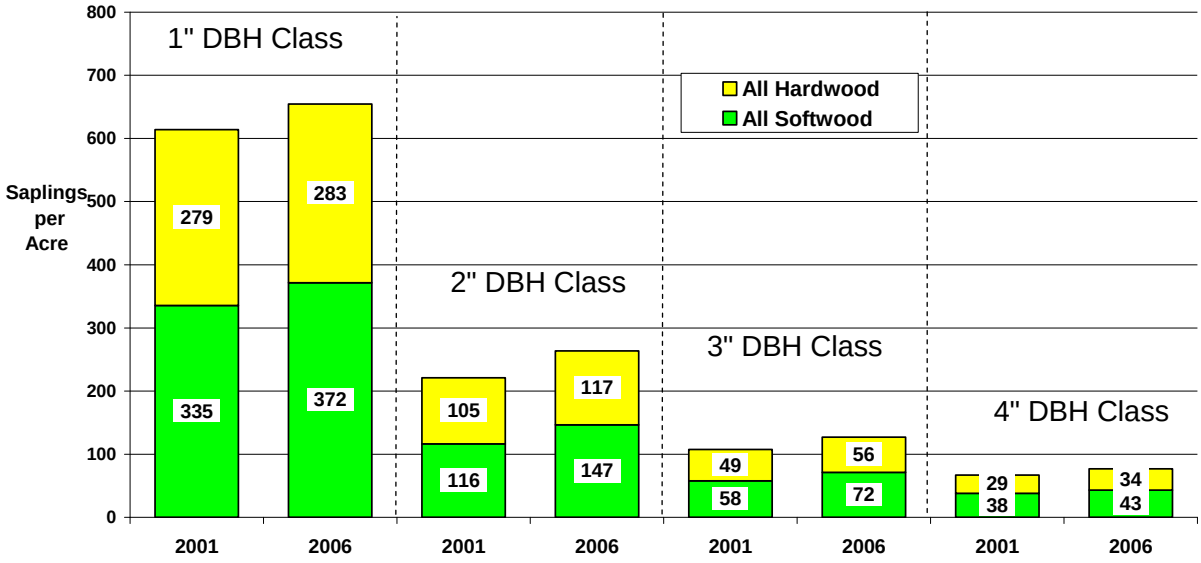
Figure 7. Statewide - hardwood and softwood saplings per acre, comparison between 2001 and the 2006 Inventory



- Examining by individual dbh class, most of the increased stocking occurs in the 2” dbh class (37%), followed by the 1” dbh class (35%) (Figure 8).

- Within all four dbh classes, softwood species represent the majority of the increase (Figure 8).

Figure 8. Statewide, change in live saplings per acre, 2001 and 2006, by softwood/hardwood groupings and by DBH class



- A regional assessment of sapling-sized trees is provided in Tables 16-1A through 16-1D, further delineating where the sapling increases are occurring.

  Northern megaregion estimates have significant increases in the 2” and 3” dbh class for both softwood species and all species (Table 16-1B).

  Statewide there is a significant increase in the 2” and 3” class for softwoods, for all species in the 2”, 3”, and 4” classes there are significant increases, and finally there is a significant increase in all sapling sized trees for all species (Table 16-1).

VOLUME

- **The following changes are estimated by comparing the 2001 growing stock volume estimate to the current 2006 growing stock volume estimate:**
  - Eastern – from 5,203 million cubic feet (MMCF) to 5,365 MMCF, a 3% increase
  - Northern – from 10,052 MMCF to 10,177 MMCF, a 1% increase
  - Southern – from 3,825 MMCF to 4,119 MMCF, a 8% increase
  - Western – from 3,128 MMCF to 3,309 MMCF, a 6% increase

  The statewide growing stock volume estimate is 22,209 MMCF in 2001 and is 22,970 MMCF in 2006, a 3% increase (Appendix A. Table 19A, 19B, 19C, 19D, and 19).

- **Between 2001 and the 2006 estimates there are no significant differences in the following volume estimates:**

  - **Growing stock volume for any species/species group, megaregion, or statewide** (Appendix A. Tables 19A, 19B, 19C, 19D, and 19).

  - **Any of the three diameter groupings, megaregion, or statewide** (Appendix A. Tables 19A, 19B, 19C, 19D, and 19).

  - **Volume estimates based on major forest type or stand size class, in any megaregion or statewide** (Appendix A. Tables 20A, 20B, 20C, 20D, and 20).

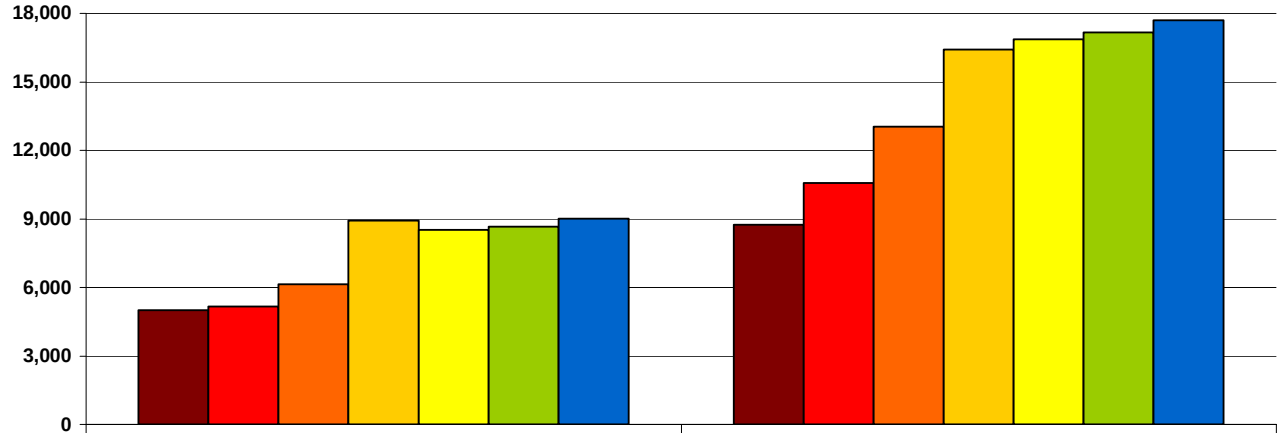
  - **Volume estimates based on species/species group or stand size class, in any megaregion or statewide** (Appendix A. Tables 20A, 20B, 20C, 20D, and 20).

  - **Any of the other volume estimates based on tree quality (All Live, Commercial Tree Species, Pulpwood Quality) for two major species groups and for 4 owner classes in any megaregion or statewide** (Appendix A. Tables 23A, 23B, 23C, 23D, and 23).

- **There are no significant changes in sawtimber volume (million board feet (MMBF)) between the 2001 and the 2006 estimates for any species/species group, diameter class grouping, or region**
  - Eastern – from 10,660 MMBF to 11,849 MMBF, a 11% increase
  - Northern – from 23,447 MMBF to 23,872 MMBF, a 2% increase
  - Southern – from 9,313 MMBF to 10,262 MMBF, a 10% increase
  - Western – from 7,041 MMBF to 7,738 MMBF, a 10% increase

  The Statewide sawtimber volume estimates went from 50,463 MMBF in 2001 to 53,721 MMBF in 2006, is a 6% increase. (Appendix A. Table 27A, 27B, 27C, 27D, and 27 and Figure 9.).

Figure 9. Sawtimber Inventory (million board feet) of White Pine and Major Hardwood Species (Red & Sugar Maple, Yellow & White Birch, Aspen, and N. Red Oak)



	White Pine	Major Hardwoods
1959	5,000	8,739
1971	5,157	10,581
1982	6,135	13,046
1995	8,936	16,418
2001	8,523	16,853
2003	8,663	17,168
2006	9,004	17,691

- **White pine and all hardwood species are assigned a tree grade of 1 – 5. Grading is partially based on a minimum DBH, length of grading section, clear cuttings, and cull deductions. FIA defines large sawtimber as being a minimum 15.0" DBH. Figure 10 displays the distribution of grade for 6 major species in 1995, 2001, and 2006. Grades 1 & 2 have either remained a consistent share or gained in their share over this period.**

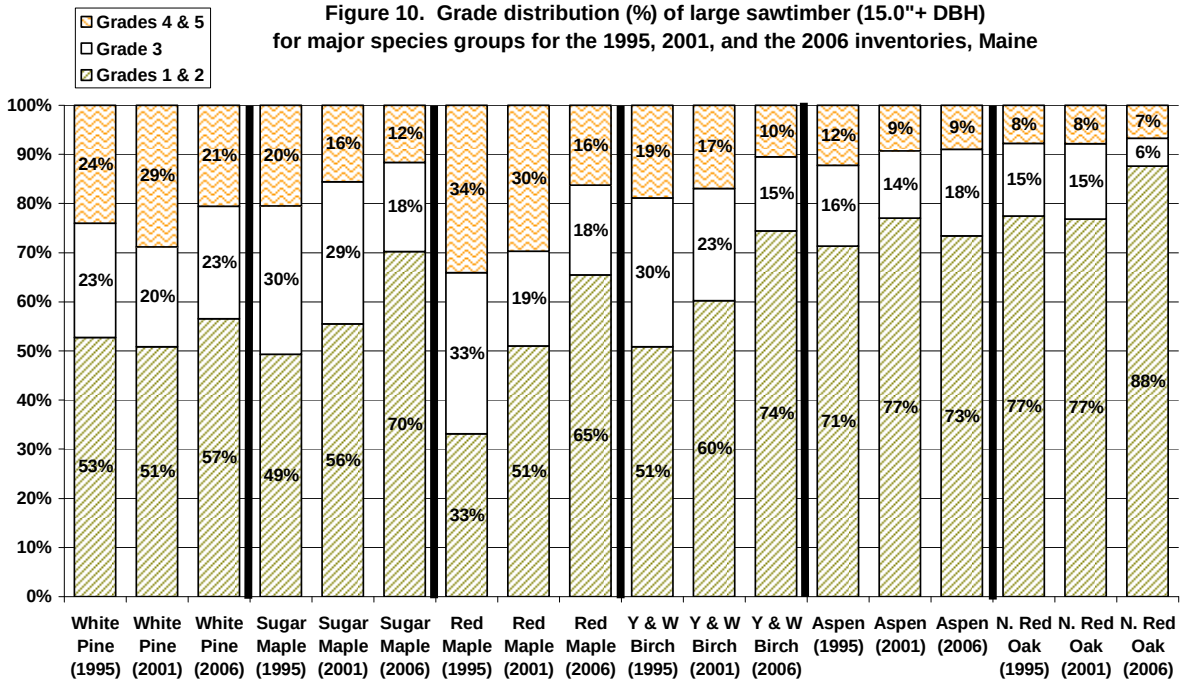


Figure 10. Grade distribution (%) of large sawtimber (15.0"+ DBH) for major species groups for the 1995, 2001, and the 2006 inventories, Maine

- **Pulpwood Quality or Better trees across the four megaregions range from 14.8 cords/acre in the Northern to 22.4 in the Southern, with a statewide average of 16.5 cords/acre. Statewide, this is a 0.8-cord/acre increase from the 2001 estimate. The gain occurs equally in softwood and hardwood species** (Appendix C. Figure 1).

- **All live volume can be split into four product classes (sawtimber, potential sawtimber, rough cull, and rotten cull). The average distribution of these volumes based on the 2006 owner class assignment varies considerably. Total live volume ranges from the Corporate Investors with a 14.5 cords/acre average to the Public Ownership class with an estimated average of 20.6 cords/acre** (Appendix C. Figure 2A).

- **Based on the owner class assignment at each inventory period, changes in all live volume and quality can be estimated and compared. The only owner class with no change in live volume over the period is the Corporate Investor owner class** (Appendix C. Figure 2B). **The percentage distribution of these tree quality categories is also compared** (Appendix C. Figure 2C).

- **The 2006 inventory estimate of pulpwood quality trees or better is 24,252 million cubic feet (285 million cords). This is a 4% increase in volume from the 2001 estimate of 23,310 million cubic feet (274 million cords)** (Appendix A. Table 23 and Appendix C. Figure 3).

GROWTH

Estimates of components of change provide detail on a number of issues relevant to the sustainability of Maine's forest resources. The usual growth, removals, and mortality (GRM) are only part of the full story that will be described.

For the first time since 1995, there is enough data for a robust analysis of change at several levels: including megaregion, species, statewide, and by owner class.

The growth to harvest ratio is usually the highest priority, providing insight on the recent balance and the resultant net change.

- Net change is the arithmetical difference between net growth and total removals; as used here if the calculated ratio is 1.00 or higher then growth exceeds removals for the period.
  - Eastern Region – net change ratio is essentially 1.00 (Appendix A. Table 29A and Appendix C. Figure 6)
    - The balsam fir ratio at 0.36 is attributable to levels of mortality and decrement
    - The 0.28 ratio for sugar maple/beech/yellow birch is due to mortality and cull decrement that nearly zero out net growth, before removals are accounted.
    - The ratio of 0.52 for the intolerant hardwoods of aspen and white birch is due to the levels of mortality and removals.
    - For this region, all commercial hardwoods have a ratio of 0.63 and all softwoods are at a 1.23 ratio.
  - Northern Region – net change ratio is essentially 1.00 (Appendix A. Table 29B and Appendix C. Figure 6).
    - Balsam fir has a ratio of 1.71 due to the offsetting impacts of ingrowth and mortality
    - The ratio of 0.63 for spruces is due to harvest levels relative to other components
    - Red maple has a ratio of 0.886 attributable to decrement and harvest
    - The tolerant hardwoods of sugar maple/beech/yellow birch also have a ratio of 0.66, levels of mortality, decrement and harvest all contribute.
    - For this megaregion, all commercial hardwoods have a ratio of 0.84 and all commercial softwoods have a 1.11 ratio.
  - Southern Region – has a 2.31 net change ratio (Appendix A. Table 29C and Appendix C. Figure 6).
    - Influencing the high ratio in this megaregion is white pine (1.27), hemlock (9.51), red maple (3.62), and other commercial hardwoods (northern red oak) at 8.55.
    - Due to levels of mortality being 184% higher than gross growth for balsam fir and 113% for intolerant hardwoods, the net change ratio for these two species groups is negative
    - All commercial hardwoods have a ratio of 3.14 and all commercial softwoods have a 1.57 ratio.
  - Western Region – the estimated ratio is 1.35 (Appendix A. Table 29D and Appendix C. Figure 6).
    - Balsam fir has mortality at 91% of gross growth, which provides a net change ratio that is negative.

        - Intolerant hardwoods have a ratio of 0.53, mostly attributable to a land use change to reserve status,
        - The net change ratios of 2.02 for red maple, spruces at 1.43, white pine at 1.73, and other commercial hardwoods (northern red oak) at 10.42 are the major contributors to this region's overall net change ratio of 1.35.
        - All commercial softwoods have a net change ratio of 1.42 and all commercial hardwoods have a ratio of 1.31, making this the only megaregion with a fairly even balance amongst these two major species groups.
    - Statewide – the overall estimated net change ratio is 1.15 (Appendix A. Table 29, Appendix C. Figures 4, 5, and 6)
        - For spruces, the ratio is 0.80 and is mostly attributable to removal levels.
        - The tolerant hardwoods, sugar maple/beech/yellow birch, have a net change ratio of 0.78 attributable to the combined influence of mortality, decrement, and removal.
        - White birch and aspen as the intolerant hardwood group have a combined ratio of 0.69 attributable to mortality, decrement, and removal levels.
        - The most promising net change ratios are white pine (1.69), hemlock (1.79), and other commercial hardwoods (4.44)
    - Owner class – these estimated components of change are based on the owner class assigned at the time of the 2004-2006 measurement (Appendix C. Figure 7).
        - Ingrowth is nearly identical across all owner classes
        - Accretion has two major groupings, with Public and NGO's being 0.50+ cords/acre/year and the Forest Industry and Corporate Investors around a 0.40 cords/acre/year estimate.
        - Mortality has a narrow band ranging from -0.17 to -0.20 cords/acre/year.
        - Net growth has a statewide average of 0.37 cords/acre/year, a slight improvement from the 2003 estimate of 0.35 cords/acre/year.
        - Total removals for the public owner class are inflated due to acreage moving to a reserve land use status, this estimate alone accounts for -0.21 cords/acre/year.
        - Only the owner class represented by the combined lands of NGO's, Associations, Native Americans, and Family Forests has a positive net change estimate of 0.17 cords/acre/year.
- All live volume by 2" DBH class – to try and gain a finer scale understanding of GRM, distribution charts for 4 species were developed by megaregion and statewide.
    - Balsam fir
        - Eastern megaregion had only a minor bump-up in the 6" class and obvious decreases in the 8" through 14" classes resulting in negative net volume change.
        - Northern megaregion has a very obvious increase in the 6" class representing new ingrowth and continued accretion in the 8" class, other classes are reflective of 2001, resulting in a positive net volume change

- Southern megaregion has large decreases in the 6” through 12” classes, creating a negative net volume change
- Western megaregion has similar 6” ingrowth and 8” accretion bumps like the northern megaregion, but has steady decreases across the 10 through 16” classes, which result in an overall negative net volume change.
- The statewide chart allows a longer trend picture, going back to 1982 and the impact of the spruce budworm and harvesting between the 1982 and 1995 inventories. For 2006, it is encouraging to see the 6” and 8” bump up in levels relative to 2001 and 1995

o Red maple
- Eastern megaregion has fairly steady bump-ups in the 6” through 16” classes, but net volume change hovered right near zero.
- Northern megaregion increases in the 6” through 12” classes were offset by decreases in the 14”+ classes, resulting in a negative net volume change.
- Southern megaregion has steady increases in all classes.
- Western megaregion has similar increases like the southern region region, resulting in a positive net volume change.
- The statewide chart with its longer trend picture shows the steady inventory increases that red maple volumes have made since 1982.

o American beech
- Eastern megaregion has volume reductions in the 6” and 10” classes, contributing to the negative net volume change.
- Northern megaregion has steady volume decreases across all 2006 DBH classes.
- A mixture of gains and losses across the DBH distribution for both the Southern and Western megaregions
- For statewide, the 6” and 8” classes are down from respective 1995 and 2001 volumes but still more than 1982. For all classes 10”+, the volumes are at all time lows.

o Intolerant hardwoods (paper birch and aspen)
- The slight increase in the 6” class for the Eastern megaregion is not enough to offset volume losses in the 8” – 12” classes, resulting in negative net volume change.
- In the Northern megaregion, a mix of minor increases and decreases results in a slightly positive net volume change.
- Generally decreases in the 6” through 18” classes produce a negative net volume change for both the Southern and Western megaregions.
- The statewide graph nicely displays the inventory reductions in net volume since 1982, with only a rebound in the 6” class since 2001.

CLOSING REMARKS:

The 2006 Mid-cycle report on inventory and growth is intended to provide up-to-date information on Maine's forest resources. The discussion on inventory explains what Maine's forests have in terms of acres, trees, and volume. The discussion of growth explains how some of these same values have changed over the period of 2001 to 2006.

Both of these discussions reveal little change; inventory estimates are stable, and growth has improved since 2003.

The 2009 State of the Forest report will build upon the data presented in this report and provide a more in-depth discussion of what it means.

The final needed piece to improve our understanding of Maine forest resources is a new modeling effort that would provide an outlook on future timber supply. This effort would need to be a much enhanced version of the 1998 publication "Timber Supply Outlook for Maine: 1995 – 2045," as the wood supply demands of newly-established and planned wood processing facilities, including pellet plants, biomass to energy facilities, and biorefineries could challenge Maine's efforts to ensure sustainable forest management, biodiversity conservation, water quality protection, and the protection of other important forest values.

ADDITIONAL INFORMATION:

http://www.fs.fed.us/ne/fia/

For the following links:

- To download, view, or print a copy(s) of the complete report from 2003
- To obtain description and data on forest fragmentation assessment using satellite data for the region and Maine
- To obtain an analysis on Maine's Urbanization and Urban Forest Land

http://www.maineforestservice.gov

Under the Current Publications bar, then under Forest Inventory reports, the following publications can be viewed and downloaded:

- Fourth Annual Inventory Report on Maine's Forests, Released October 16, 2003
- Charts from Fourth Annual Inventory Report on Maine's Forests
- Third Annual Inventory Report on Maine's Forests, Released September 25, 2002
- Charts from Third Annual Inventory Report on Maine's Forests
- Second Annual Inventory Report on Maine's Forests, Released September 6, 2001
- Charts from Second Annual Inventory Report on Maine's Forests
- Report of the 1999 Annual Inventory of Maine's Forests, Released October 24, 2000
- Charts from Report of the 1999 Annual Inventory of Maine's Forests

Glossary of Inventory Terminology

Accretion – The estimated net growth on surviving growing stock trees that were measured during the previous inventory (divided by the number of growing seasons between surveys to produce average annual accretion). Accretion does not include the growth on trees that were cut during the period, nor those trees that died. This component of change uses the incremental difference in the tree's merchantable volume between the two inventories. Negative accretion is possible, with a substantial reduction in merchantable height and/or a substantial increase in the cull defect percentage

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, and 1,000 Board Feet = 1 MBF.

Commercial Species – Tree species currently or prospectively suitable for industrial wood products; excludes species of typically small size, poor form, or inferior quality.

Diameter at Breast Height (dbh) – Is the diameter outside bark of a standing tree measured at 4 ½ feet above the ground.

Forestland – Land at least 10% stocked by forest trees of any size, or land that formerly had such a tree cover and is not currently developed for a non-forest use.

Gross Growth – Is the arithmetic sum of the Ingrowth and Accretion components of change.

Growing Stock Decrement – Includes growing stock trees in the previous inventory that are classified as rough or rotten in the current inventory (divided by the number of growing seasons between surveys to produce average annual growing stock decrement). This component of change uses the previous tree's merchantable volume.

Growing Stock Increment – Includes either 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 surveys to produce average annual growing stock increment). This component of change uses the current tree's merchantable volume.

Growing Stock Tree (or Growing Stock) – Is a classification of timber inventory that includes live trees of commercial species meeting specified standards of quality and vigor. Cull trees (rough and rotten trees) are excluded.

Growing Stock Volume – Net volume, in cubic feet, of growing stock trees 5.0 " dbh and larger from a 1-foot stump to a minimum 4.0" top diameter outside bark of the central stem, or to a point where the central stem breaks into limbs. Net volume equals gross volume discounted by cubic foot cull defect (%).

Harvest – Includes growing stock trees harvested or killed in logging, cultural operations (such as timber stand improvement) or land clearing on land that remains in timberland. This component of change uses the previous tree's merchantable volume.

Ingrowth – Includes growing stock trees that became 5.0" dbh or larger during the period between inventories (divided by the number of growing seasons between surveys to produce average annual ingrowth). This component of change uses the current tree's merchantable volume.

International ¼-inch rule – Is log rule formula for estimating the board-foot volume of logs. The mathematical formula is:

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

for 4-foot sections, where D = diameter outside 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 Use Ingrowth – Includes growing stock trees, 5.0" dbh and larger, that are growing on land that was reclassified from noncommercial forestland or nonforest land to timberland. This component of change uses the current tree's merchantable volume.

Land Use Removal – Includes growing stock trees, 5.0" dbh and larger, that are on land that was reclassified from timberland to noncommercial forestland or to nonforest land during the period between surveys. This component of change uses the previous tree's merchantable volume.

Land Use to Reserve – A type of removal that includes growing stock trees, 5.0" dbh and larger, that are on land that was reclassified from timberland to Productive Reserved Forestland or to Unproductive Reserved Forestland during the period between surveys. This component of change uses the previous tree's merchantable volume.

Mortality – Includes growing stock trees that die from natural causes before the current inventory (divided by the number of growing seasons between surveys to produce average annual mortality). This component of change uses the previous tree's merchantable volume.

Net Change – Is the difference between the current and previous inventory estimates of growing stock (divided by the number of growing seasons between surveys to produce average annual net change). It is the arithmetic sum of Net Growth minus Removals.

Net Growth – Is the resultant change from natural causes in growing stock during the period between surveys (divided by the number of growing seasons between the surveys to produce average annual net growth). It is the arithmetic sum of Gross Growth, minus Mortality, plus Growing Stock Increment, minus Growing Stock Decrement components of change.

Owner Class – Is a variable that classifies land into finer categories of ownership.

Public – is land owned by federal, state, municipal, or county government.
Forest Industry – is a corporate landownership by companies that operate wood-using plants.
Corporate Investors – a corporate land ownership by companies that do not operate wood-using plants.
NGO's – are non-governmental conservation/Natural Resource organizations (Examples – Nature Conservancy, Trust for Public Lands).
Associations/Clubs – are unincorporated bodies that own property (Examples – hunting clubs, recreation associations, 4H).
Native Americans – land within reservation boundary.
Family Forest – Land owned by individuals that do not operate wood-using plants.

Poletimber Tree – Is a tree that is at least 5.0" dbh, but smaller than sawtimber size trees.

Softwood Species: 5.0" – 8.9" dbh
Hardwood Species: 5.0" – 10.9" dbh

Potential Sawtimber (i.e. Sawlog Quality) Tree – A commercial tree species that is field coded as a growing stock tree but is below the minimum dbh for sawtimber (<9.0" for softwoods and <11.0" for hardwoods).

Pulpwood Quality Tree – A commercial tree species that is field coded as a growing stock tree or as a rough cull tree.

Total Removals – Represents the arithmetic sum of Harvest, Land Use Removal, and Land Use to Reserve components of change.

Rough Cull Tree – A live tree with less than 1/3 of its gross board foot volume coming from logs that meet size, soundness, and grade requirements; and more than ½ of the board foot cull is due to sound defects such as sweep, crook, etc. Or a live poletimber tree that prospectively will have less than 1/3 of its gross

board foot volume coming from logs that meet size, soundness, and grade requirements; and more than ½ of the prospective board foot cull is due to sound defects such as sweep, crook, etc.

Sapling Tree – Is a live tree with a 1.0" – 4.9" dbh.

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" diameter outside bark for softwoods and 9.0" diameter outside bark for hardwoods.

Sawtimber Tree (i.e. Sawlog Quality Tree) – Softwood trees that are at least 9.0" dbh **or** hardwood trees that are least 11.0" dbh, that contain at least 1 – 12 foot log **or** 2 – noncontiguous 8 foot logs, that meet minimum sawlog grade specifications. In addition, the tree must have 1/3 or more of its gross board foot volume as merchantable material.

Sawtimber Volume – Net volume, in board feet, by the International ¼-inch rule, of sawlogs in sawtimber trees. Net volume equals gross volume discounted by board foot cull defect (%), which accounts for deductions for rot, sweep, and other defects that affect the use of lumber.

Species Group – as used throughout the report in text, tables, and charts, species groups include the following species:

Group
Balsam Fir – balsam fir
Spruces – white spruce, red spruce, and black spruce
Eastern White Pine – eastern white pine
Northern White Cedar – northern white cedar
Hemlock – eastern hemlock
Other Miscellaneous Softwoods – these merchantable sized (5.0" dbh and larger) species were tallied – plantation larch, tamarack, norway spruce, jack pine, red pine, pitch pine, pond pine, scotch pine
Red Maple – red maple
Sugar Maple/Beech/Yellow Birch – sugar maple, american beech, and yellow birch
Intolerant Hardwoods – paper birch, cottonwood species, balsam poplar, eastern cottonwood, bigtooth aspen, quaking aspen
Other Miscellaneous Commercial Hardwoods – these merchantable sized (5.0" dbh and larger) species were: silver maple, norway maple, ohio buckeye, sweet birch, shagbark hickory, white ash, black ash, green ash, butternut, black cherry, white oak, scarlet oak, northern red oak, black oak, black willow, basswood species, american basswood, elm species, american elm
Noncommercial Hardwoods – these merchantable sized (5.0" dbh and larger) species were tallied: maple species, striped maple, mountain maple, serviceberry, gray birch, american hornbeam, apple species,

eastern hophornbeam, pin cherry, chokecherry, willow species, american mountain-ash
All Unknown Species – Tree Species-Unknown/Not Listed

Stand Size – A stand descriptor that indicates which size-class of trees constitutes the plurality of stocking in the stand. This variable is field assigned, and then is also calculated as part of the USDA Forest Service validation process. The calculated value is used to assign stand size classes in this report.

Large Diameter Stand Size Class is comprised of:
- o ≥ 10% stocking of trees of any size,
- o > 50% stocking of trees with diameters ≥ 5.0" dbh, and
- o Stocking of large diameter trees exceeds the stocking of medium diameter trees.

Medium Diameter Stand Size Class is comprised of:
- o ≥ 10% stocking of trees of any size,
- o > 50% stocking of trees with diameters ≥ 5.0" dbh, and
- o Stocking of medium diameter trees exceeds the stocking of large diameter tree.

Small Diameter Stand Size Class is comprised of:
- o ≥ 10% stocking of trees of any size, and
- o > 50% stocking of trees with diameters < 5.0" dbh.

Nonstocked Stand Size Class is comprised of:
- o < 10% stocking of trees of any size

Small Diameter Trees – Trees with a dbh range of 1.0" – 4.9"

Medium Diameter Trees – For softwood species, this is a tree with a dbh range of 5.0" – 8.9". For hardwood species, this is a tree with a dbh range of 5.0" – 10.9".

Large Diameter Trees – For softwood species, this is a tree with a 9.0" dbh and larger. For hardwood species, this is a tree with an 11.0" dbh and larger.

Stocking – The relative degree of occupancy of land by trees, measured as basal area or the number of trees in a stand, by size, age, or spacing; as compared to the basal area or number of trees required to fully utilize the growth potential of the land; that is, the stocking standard.

This variable is field assigned. In the USDA Forest Service data validation process, a national algorithm is used to calculate this variable. The calculated variable is used in this report.

The 5 stocking classes are:

Nonstocked	< 10% stocking
Poorly Stocked	≥ 10% Stocking and < 35% Stocking

Moderately Stocked	≥ 35% Stocking and < 60% Stocking
Fully Stocked	≥ 60% Stocking and < 100% Stocking
Overstocked	> 100% Stocking

Timberland – Forest that is producing or capable of producing crops of industrial wood and is not withdrawn from timber utilization by statute (Acadia National Park, Appalachian Trail Corridor) or administrative designation (Baxter State Park, Bureau of Parks & Lands Ecological Reserves) (Land withdrawn from timber utilization and placed into reserve must be publicly owned land).

Areas qualifying as timberland have the capability of producing in excess of 20 cubic feet per acre per year of industrial wood under management. Currently inaccessible and inoperable areas are included, except when the areas are small and unlikely to become suitable for the production of industrial wood in the foreseeable future.

Timberland may be nonstocked provided that neither any natural condition, nor any activity by humans, prevents or inhibits the establishment of tree seedlings.

Rural – Defines a subset of forestland, which is now grouped into Timberland. This category represents the historical and traditional acreages classified as Timberland in previous inventories, and has the identical definition.

Other Forestland – Defines a subset of forestland, which is now grouped into Timberland. It 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 Forestland is one acre and these strips of timber must have a crown width at least 120 feet wide. Some examples of land that could be classified as Other Forestland 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 themselves, and exhibit natural, undisturbed understories.*

Urban Forestland – Defines a subset of forestland, which is now grouped into Timberland and is land that except for its location would ordinarily be classified as timberland. This land is either 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 one acre; capable of producing at least 20 cubic feet per acre per year of industrial wood; is not developed for some use other than timber production; and is not reserved by a public agency.

It is extremely 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 their proximity to industrial facilities that are unfavorable to residential development. *Forested areas within city parks are not urban forestland; it may be Other Forestland, if the requirements are met. City Parks cannot be classified as Urban Forestland as it is currently defined.*