

Maine State Forest Assessment and Strategies

Executive Summary



DEPARTMENT OF CONSERVATION
Maine Forest Service
Forest Policy & Management Division

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Maine State Forest Assessment and Strategies: Executive Summary

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The full Assessment and Strategies document is also available on line.

Executive Summary

Introduction

The 2010 State Forest Assessment and Strategy is a keystone of MFS's continuing efforts to inform Maine citizens about the condition of and trends in Maine's forests and forest economy. It draws from a long history of strategic thinking on the issue of how to address Maine's most important forestry issues. Pursuant to state and federal legislative direction, the report addresses a number of topics, including, but not limited to: criteria and indicators of forest sustainability, threats and opportunities, priority forest areas, and strategies and resources needed to address threats to the state's forest resources.

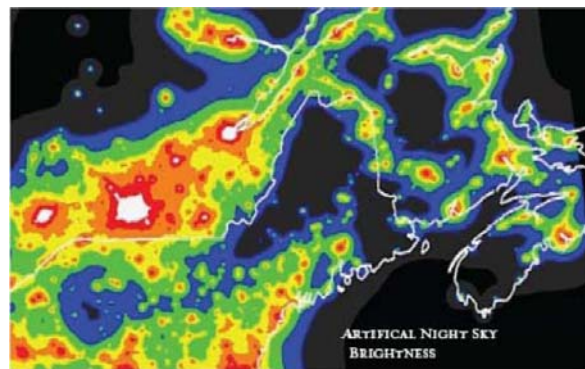
Beyond this, the 2008 Farm Bill requires states to complete state forest assessments and resource strategies as a condition of receiving federal funds to support state forestry programs.

This is a living set of strategies that will change as new challenges and opportunities arise. While the underlying issues remain the same, some of the approaches to problems outlined here did not exist a year ago and may be supplanted by a better idea a year from now. This is as it should be. Further, please note that to say this agenda is very ambitious is an understatement of the first order. The resources needed to carry out the strategies described below far exceed those currently available; and beyond resources, some of the strategies outlined below will require changes in both state and federal law, as well as the support of a host of other parties not currently so disposed. This is then more accurately described a statement of what should be done over the long-term, rather than what can be done in the short term. Further, a number of these strategies can not be implemented by the state of Maine single-handedly (e.g., making long-term silviculture profitable requires changes to federal law); therefore, Maine must remain actively involved with the USDA Forest Service, other federal agencies, National Association of State Foresters, and the Northeastern Area Association of State Foresters to be successful.

The Significance of Maine's Forests

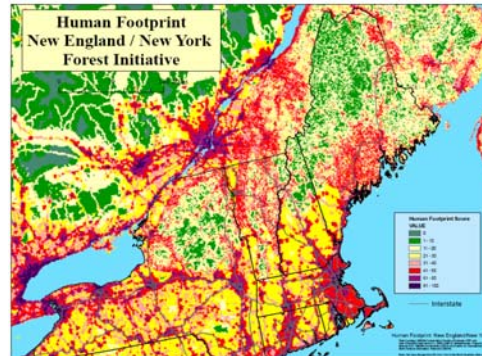
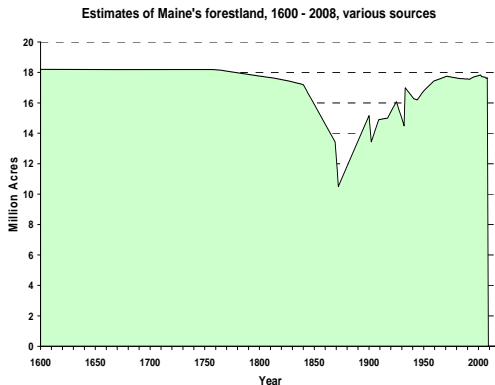
Several things distinguish Maine's forests from others in the eastern U.S. Individually, these features are significant. In combination, they make Maine's forests unique.

- Maine has the largest contiguous block of undeveloped forestland east of the Mississippi: This includes approximately 10.5 million acres of unorganized territory which remain largely undeveloped forestland, most of which is actively managed for timber production.
- The resilience of our forest ecosystems: Maine's forests have



SOURCE: The World Atlas of the Artificial Night Sky Brightness

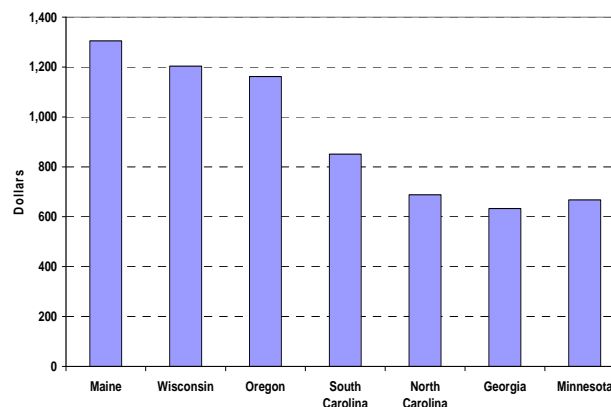
been harvested for wood products for over 200 years, yet 90% of the state remains forested - the highest percentage in the country. Analysis of historical records indicates that Maine's forests have approximately two-thirds of the stocking that they did at the time when commercial harvesting began. Further, with few exceptions, Maine has largely maintained its forest biodiversity.



- The diversity of Maine's forests: Maine has 39 species of commercial tree species - this contrasts with other major timber producing regions which are dependent on just a few species for most of their timber.
- The dominance of private ownership of forestland: 95% of Maine's forests are privately owned, one of the highest percentages in the country.
- The diversity and significance of our forest resources beyond timber: In addition to a diverse timber resource, Maine's forests support many public resources, including 6,000 lakes and ponds and 32,000 miles of rivers and streams and abundant fish and wildlife resources. For example, Maine provides approximately 97% of wild brook trout populations in the lower 48 states living in lakes and ponds.
- The strength and diversity of Maine's forest products industry, which contributes over \$4 billion to the state's economy and either directly or indirectly supports more than 50,000 jobs: Maine is second only to Wisconsin in paper production and has over 200 sawmills.

Maine's Commercial Tree Species	
Hardwood (25)	Softwood (14)
Red Maple	Balsam Fir
Sugar Maple	Plantation Larch
Ohio Buckeye	Tamarack
Yellow Birch	Norway Spruce
Sweet Birch	White Spruce
Paper Birch	Black Spruce
Shagbark Hickory	Red Spruce
American Beech	Jack Pine
White Ash	Red Pine
Black Ash	Pitch Pine
Green Ash	Eastern White Pine
Butternut	Scotch Pine
Balsam Poplar	Northern White Cedar
Eastern Cottonwood	Hemlock
Bigtooth Aspen	
Swamp Cottonwood	
Quaking Aspen	
Black Cherry	
White Oak	
Swamp White Oak	
Scarlet Oak	
Northern Red Oak	
Black Oak	
American Basswood	
American Elm	

Forest Products Industry GDP per Capita, 2007

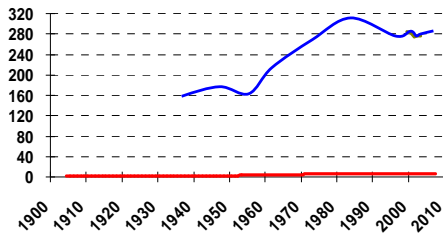


Source: Johnson, J. 2010. Economic importance of Maine's forest products industry. <http://www.forest2market.com/f2m/us/f2m1/pressroom/releases/NAFO>

One county - Somerset - produces more maple syrup than any other in the country. Maine's forests produce many other products, from Christmas wreaths to veneer. Maine's forest products industry accounts for approximately half of the output of the four-state region of northern New England and New York. Even in today's tough economy, Maine's forest landowners have markets - somewhere - for every tree they harvest.

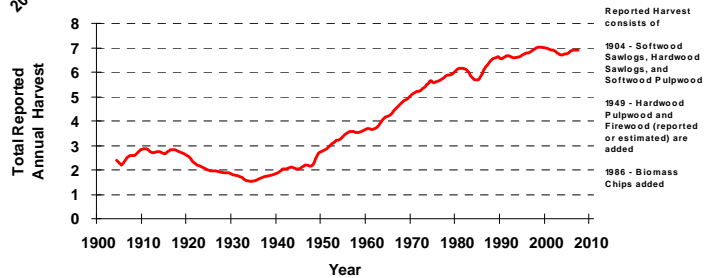
- A long history of multiple-use management on private land and a tradition of free public access to private land: This tradition dates to colonial times and is established in Maine common law for access to Great Ponds, navigable waters, and the coast. It is the basis for a robust forest based tourist economy, which contributes millions of dollars to the state's economy each year.
- The special connection Maine citizens have with our forests: This heritage includes traditions of both consumptive and non-consumptive use. Maine people care about the forests and how they are managed. This includes a history of management that has sustained these resources, values and uses. They are not here by accident. For example, over the last 50 years, forest managers in Maine have simultaneously both more than doubled harvest and almost doubled standing volume.

Comparing periodic pulpwood inventory estimates to total reported annual harvest (million cords) and displayed as a 5 year trailing average



Reported harvest consists of:
 1904 - Softwood Sawlogs, Hardwood Sawlogs, and Softwood Pulpwood
 1949 - Hardwood Pulpwood and Firewood (reported or estimated) are added
 1986 - Biomass chips added

Total reported annual harvest (million cords) displayed as a 5 year trailing average



Reported Harvest consists of:
 1904 - Softwood Sawlogs, Hardwood Sawlogs, and Softwood Pulpwood
 1949 - Hardwood Pulpwood and Firewood (reported or estimated) are added
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Maine's Forest Condition¹

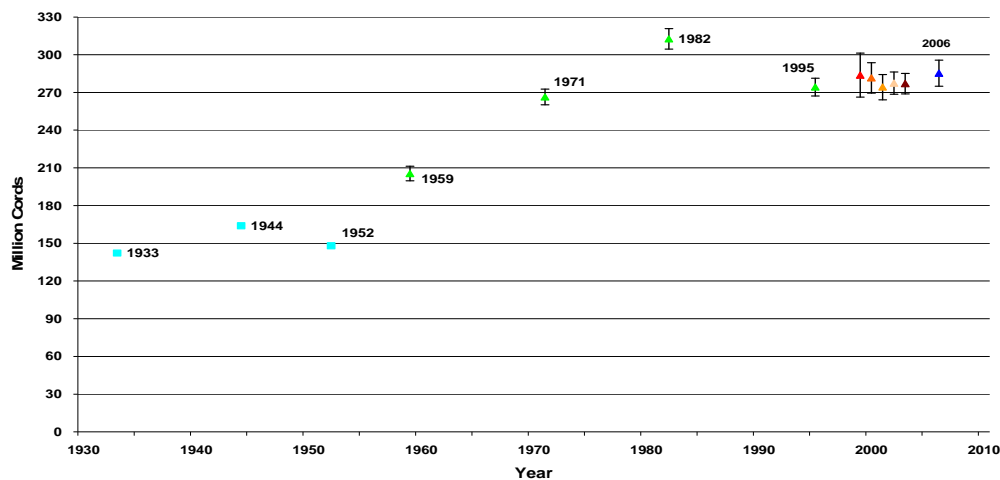
"...the forests of Maine are an exemplar globally of what sustainable systems look like..." Roger Milliken, Chairman of the Board, The Nature Conservancy, Maine Public Broadcasting Network, June 4, 2009

Maine's forest support over 17,000 species of wildlife. Many, e.g., cold water fisheries, moose and lynx, are notable and among the best in the nation - see section on the significance of Maine's forests for more on this topic.

Maine's pulpwood quality inventory (chart below) is now estimated at 285 million cords - 93% more than the 148 million cords estimated in the equivalent 1952 pulpwood inventory.

Harvesting has been stable for the last decade at around 500,000 acres per year, with a total harvest of nearly 15 million green ton equivalents per year. Over the last five years, growth of merchantable trees at 0.37 cords per acre per year has exceeded harvest at 0.32 cords per acre per year; however, Maine's forests have the potential to grow 0.5 cords per acre per year under improved management, and some intensively managed lands can and do produce more.

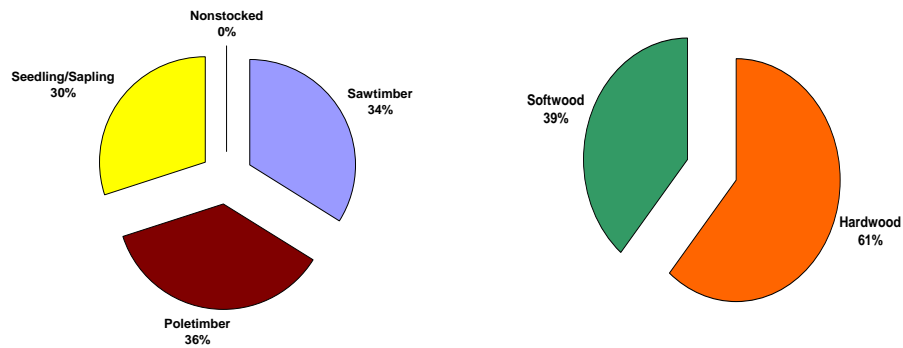
Beyond increasing the intensity of management, the Maine Forest Service expects growth to increase over the next decade as more stands recover from the spruce budworm epidemic and reach merchantable size classes.



¹ Data and charts supplied by Kenneth Laustsen, MFS Biometrician.

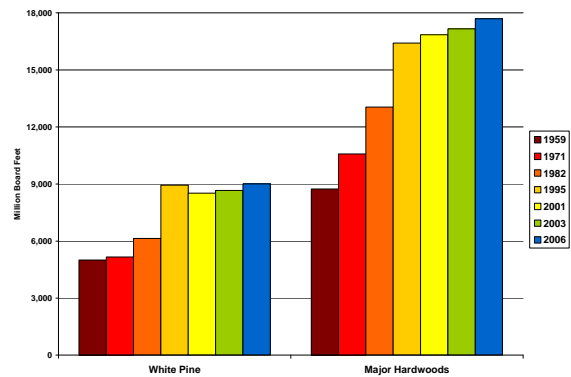
Partial harvest methods dominate forest management, accounting for just over 50% of harvest acreage. Shelterwood harvesting accounts for 46% of harvest acreage. Clearcutting now accounts for less than 5% of harvest acreage, a significant decline over the last two decades.

The forest type composition of Maine’s forest is 39% softwood types and 61% hardwood types. Maine’s forest stands are roughly evenly divided between sawtimber, poletimber and seedlings/sapling size stands (charts).



With the exception of spruce-fir, and beech, the sawtimber volumes of major species have steadily increased over the years (chart).

Spruce and fir were hit very hard by a spruce budworm outbreak in the 1970’s and 1980’s and the regenerated stands are just now growing back to merchantable size classes.



MFS continues to monitor the development of young stands resulting from the combined impacts of the 1970 - 1990 Spruce Budworm Epidemic and extensive salvage harvesting. Over the last 8 years of data collection under the annualized inventory design, annual estimates of ingrowth (new merchantable trees) have improved from 1.53 million cords in 1999 to 1.99 million cords in 2006. If current trends continue, ingrowth is expected to increase to 2.2 - 2.3 million cords per year in 2010.

America’s beech has been hard hit by bark disease which is killing beech across its range.



Maine's Forest Based Economy

Maine has a highly diverse forest industry cluster (a mix of mutually supportive manufacturing facilities). Maine's forest products cluster provides markets for waste products from manufacturing facilities, as well as high-grade material. Landowners have markets for everything they harvest, from the lowest grades of wood that go to biomass generation to dimension lumber and high end furniture stock. This diversity of markets allows sustainable management rather than harvesting only high quality trees, "high grading," which over time degrades the quality of stands and the genetic character of the trees.



Harvesting has stabilized at approximately 500,000 acres per year, with a total harvest of just over 6 million cords per year being reported by MFS. Using FIA data sources for just growing stock quality trees, for the 2001 - 2006 period, net growth is estimated to be 0.37 cords per acre per year, while just harvest removals are estimated at 0.30 cords per acre per year, and all removals are estimated at 0.32 cords per acre per year.

Despite a very challenging global situation, Maine is still the #2 paper producing state in the U.S.; further, despite the housing slump of the last couple of years, Maine's lumber production from over 200 sawmills has more than doubled since the mid-1970's.



Old Town Fuel & Fiber

The forest products industry is still a key player in the state's economy. In 2007, the forest products industry directly supported 24,000 jobs, \$1.4 billion in earnings, and contributed \$1.8 billion to Maine's GDP. Including indirect and induced effects, the forest products industry supported 55,000 jobs (6.7%), \$3.1 billion in earnings (9.9%), and contributed \$4.3 billion to Maine's GDP (8.9%) (Levert, 2009).

Forest products account for 28% of the state's manufacturing GDP (Bureau of Economic Analysis, 2007) and 28% of the state's exports (Maine International Trade Center, 2009).

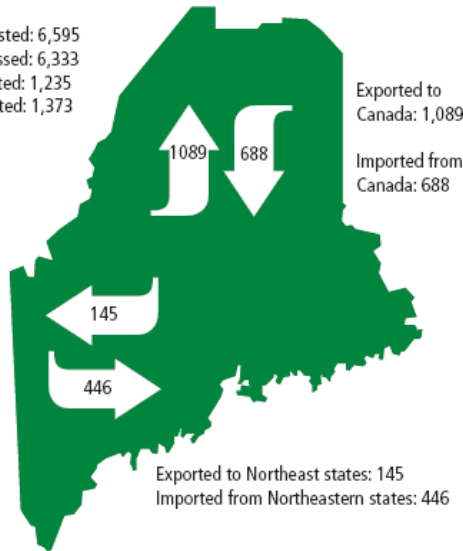
Maine is also a major player in the regional forest products industry. In 2005, Maine produced over ½ of the wood output and processed over 60% of the wood volume of the four-state region that includes New Hampshire, Vermont, and New

York. Maine's forest products industry accounted for 40% of the value of shipments in this same region (Northeast State Foresters Association, 2007).

Maine 2005

All units are in 1000 cords

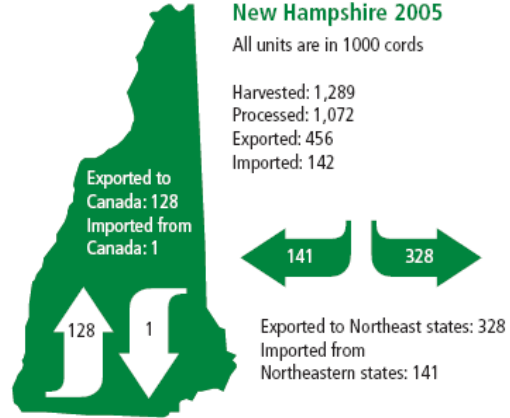
Harvested: 6,595
 Processed: 6,333
 Exported: 1,235
 Imported: 1,373



New Hampshire 2005

All units are in 1000 cords

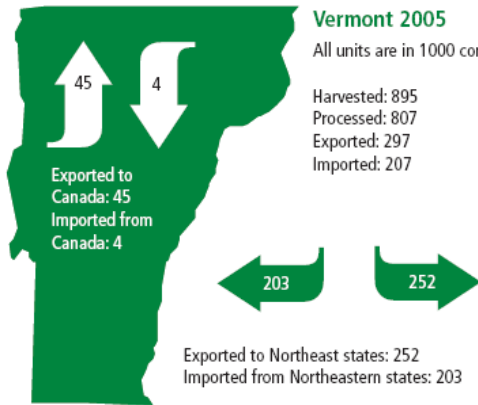
Harvested: 1,289
 Processed: 1,072
 Exported: 456
 Imported: 142



Vermont 2005

All units are in 1000 cords

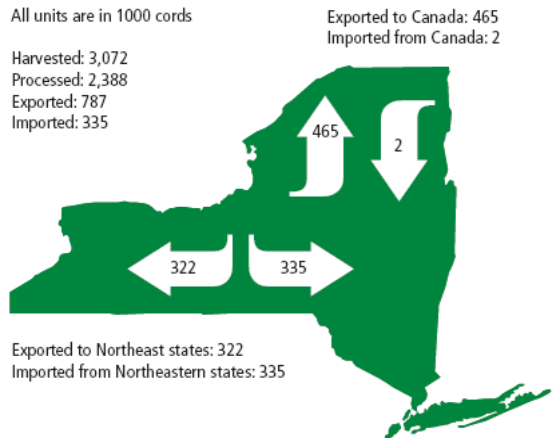
Harvested: 895
 Processed: 807
 Exported: 297
 Imported: 207



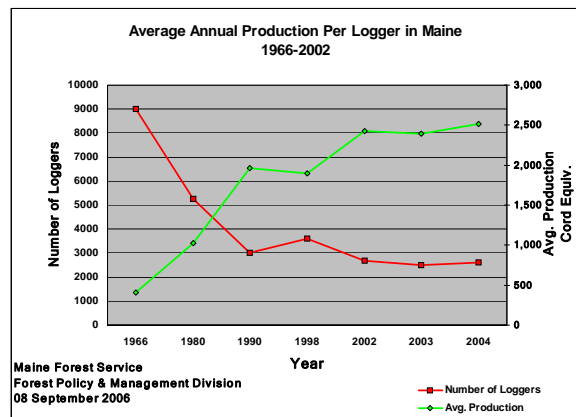
New York 2005

All units are in 1000 cords

Harvested: 3,072
 Processed: 2,388
 Exported: 787
 Imported: 335



Employment in the forest products industry has declined steadily, as mills and harvesting technology become more efficient. While employment is down, worker productivity, average wage, and capital expenditures have all increased. This is the natural evolution of a mature industry going through transition and taking steps to remain competitive in the global marketplace.



Forest based recreation also makes significant contributions to the state's economy, particularly in rural areas. Surveys show that people spend well over \$1 billion annually on forest-based recreation activities in Maine (Boyle et al., 1988 and 1990; Northeast State Foresters Association, 2007; US Department of the Interior, Fish and Wildlife Service and US Department of Commerce, US Census Bureau, 2008).

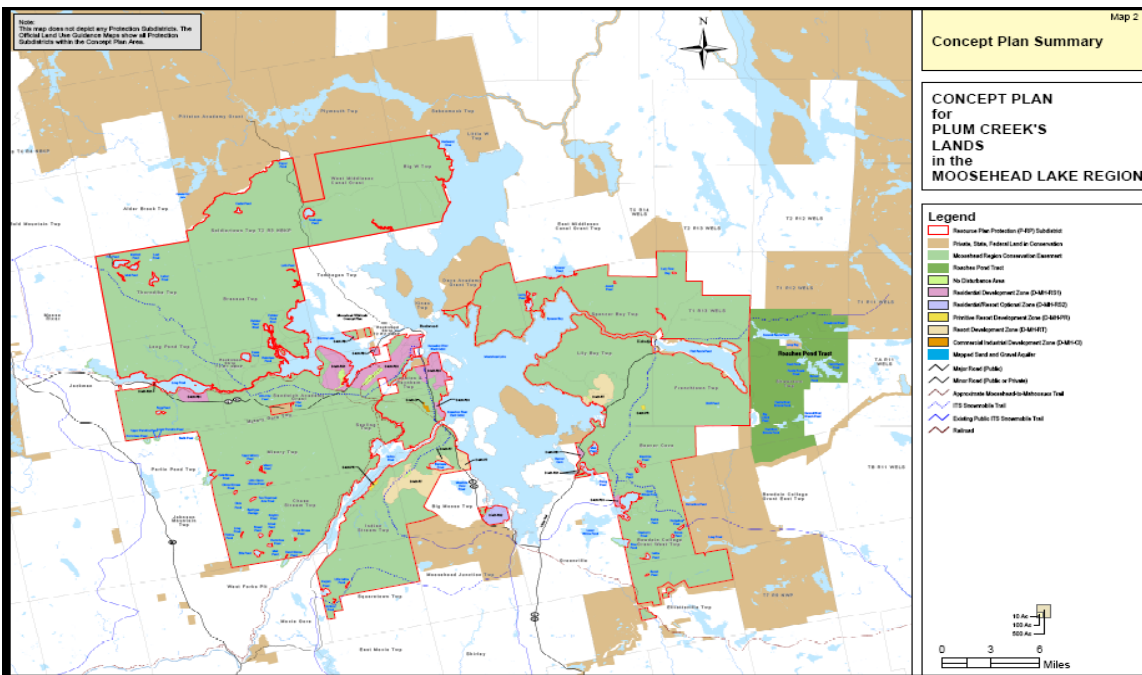


Source: Maine Office of Tourism.

Challenges

Maine's forests, its landowners, and its industry all face both significant challenges and opportunities as we look to the future. MFS has identified several critical and interrelated challenges that are key to the future of our forests:

- Keeping our forests as forests for the long-term - this is fundamentally important given public attitudes, current land ownership, limits on funding, and the importance of the forest products industry. In large part, this means maintaining a sustainably managed, economically viable working forest land base. This is critical, not only to rural economies and Maine's forest products industry, but also to providing the large contiguous habitats needed to allow forests to adapt a changing climate and to maintaining the many public values provided by Maine's privately-held forests. For example, the habitat for many wildlife species is dependent upon active management.



- Conversion of forest land to development and parcelization. Over the period of 1995-2007, Maine lost nearly 80,000 acres of forestland, a 0.4% reduction over this period. This may be an important tipping point as the acreage of forestland in Maine has been increasing or stable for the previous 100 years. In addition, forest ownerships are being broken up into smaller parcels. Parcelization makes good forest management less likely and more difficult, even if the land remains forested. Parcelization and forest land conversion are significant issues, particularly in southern and central Maine.
- Information from a federal survey indicates that many small family landowners intend to sell or subdivide their land and that 27% are over 65 years old. Thus, the future of Maine's family forest lands is far from certain.
- Inadequate returns from long term forest management. The financial returns on long term forest management do not justify either retaining forest land, if other uses (e.g., development) are possible, or practicing long-term silviculture. Research at the Penobscot Experimental Forest indicates that the present value of stands managed for long-term value is about half that of stands subjected to diameter limit cutting, even though this practice diminishes the long-term productivity of the land. This fact also leads to stands which lack the complex multi-storied structure and late successional components needed by some forms of wildlife.

The results of 50 years of selection management on the Penobscot Experimental Forest



This stand was managed selectively with light harvests every 20 years. The financial return from this management (measured as the net present value of all income and costs) is approximately \$534. (Photo: John Brissette, Northeastern Research Station)

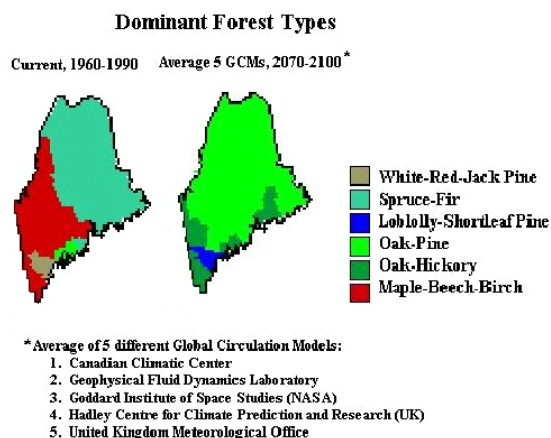
The results of 50 years of diameter limit cutting on the Penobscot Experimental Forest



This stand was managed using a diameter limit (all trees above a given diameter were harvested). The financial return from this management was \$976 (net present value). (Photo: John Brissette, Northeastern Research Station)

- Maintaining and improving the long-term viability of the forest based economy. The state has experienced the loss of mills, declining industry employment, fewer loggers, and consequent impacts on forest-based communities. At the same time, overall production has been maintained - Maine excels in some sectors, and the industry has significant opportunities.

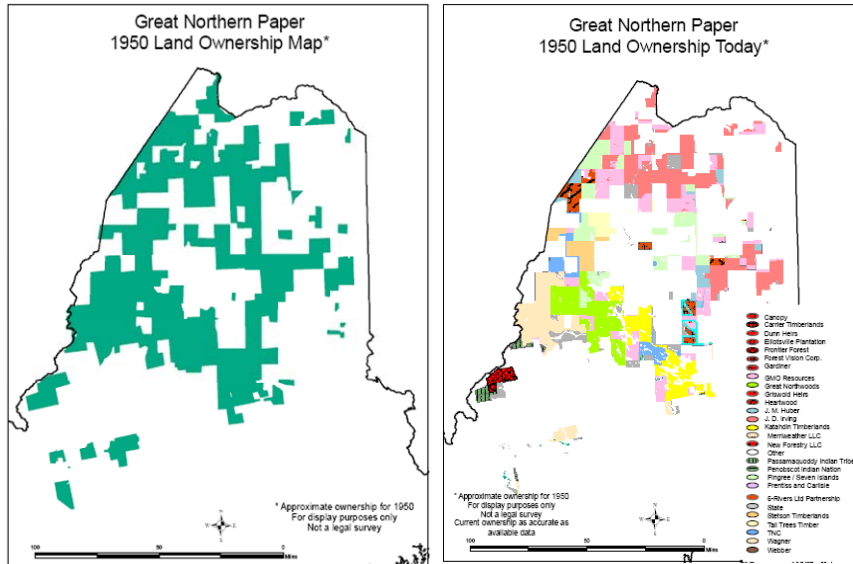
- Insect and disease threats. A number of exotic insects and diseases, some established, some not yet here, threaten significant components of Maine's forests. Existing threats include beech bark disease, balsam woolly adelgid, browntail moth, and hemlock woolly adelgid. Potential threats include sudden oak death, Asian longhorned beetle and emerald ash borer.
- Adequacy of wildlife habitats in the future. Research done at the University of Maine suggests that current harvesting practices may not be laying the basis for the habitat needed by many of Maine's wildlife species, and that species that need late successional forests are particularly challenged.
- Climate change. Consensus models of changes in climate predict that over the next 100 years, Maine's climate will change from one best suited to northern hardwoods and spruce-fir to one best suited to oak and pine. This will stress Maine's existing forests and could lead to dramatic changes.
- Underlying a number of these challenges is the fact that the returns from timber management are inadequate to justify investments in silviculture and that landowners are expected to provide, but are not financially rewarded for the many public benefits their lands provide.



Opportunities

Maine's forest landowners and the forest products industry also have a number of significant opportunities. These include:

- Changes in ownership present both opportunities and challenges. Maine has experienced significant changes in who owns the forest since the mid-1990's. Most of Maine's large industrial forest landowners have exited the scene, replaced by a mix of corporate structures collectively known as timberland investment management organizations, or TIMO's.



- Investor-owners now hold at least 3.75 million acres in Maine. This presents opportunities for unprecedented large-scale land conservation efforts as many of these landowners are interested in selling conservation easements, but absent such purchases there are also public concerns about the future of these large blocks of forest land; that is, will they remain as large unfragmented ownerships, will they remain undeveloped, will they be actively managed, and will they continue to be available for traditional public access?
- Capitalizing on Maine's reputation for sustainable management to distinguish Maine's forest products industry in the global marketplace. Maine has one of the largest percentages of certified land and possibly the largest percentage of certified harvests conducted of any state in the nation. These facts can be used to create a special niche for Maine's forest products among consumers who value sustainability - as demand for such products is growing. This will require Maine to remain a leader in certification and addressing forest environmental issues, such as maintaining forest biodiversity.
- Increasing productivity. With improved management, Maine's forests have the potential to produce considerably more timber per acre while maintaining other forest values. On average, it should be possible to increase the productivity of Maine's forestland by approximately half over current levels while simultaneously diversifying Maine's forest products industry to be a leader in new products such as biofuels and those from biorefinery technology. With increases in fossil fuel prices, the opportunity exists to replace traditional sources of fuels and chemical feedstocks with wood and wood wastes.
- Interest in piloting new approaches to stewardship. Because of the large ownership patterns in Maine which make assembling landscape scale areas more feasible, and because of the interest of Maine landowners, Maine

provides a propitious testing ground for new approaches to rewarding landowners for exemplary management which enhances public benefits.

Priority Landscape Areas

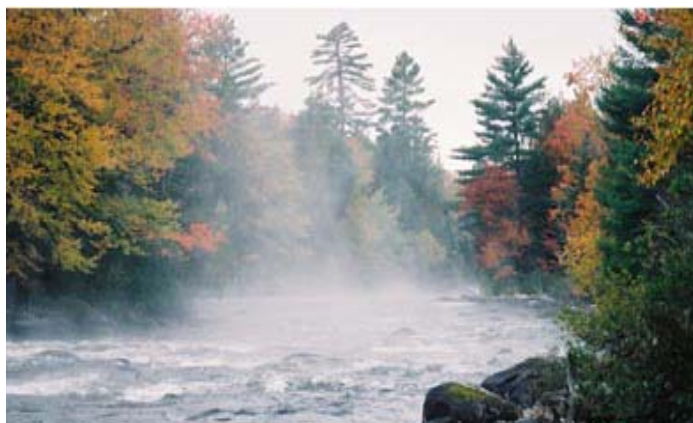
The 2008 Farm Bill requires that state assessments include “any areas or regions of [a] state that are a priority...” Final joint guidance from the USDA Forest Service and the National Association of State Foresters (Redesign Implementation Committee, 2008) further states that assessments should “[d]elineate priority rural and urban forest landscape areas to be addressed by the state resource strategy. States can also identify linkages between terrestrial and aquatic habitat, as appropriate.”

Although the USDA Forest Service expects states to base the identification of priority landscape areas largely on geospatial analysis, a strong case can be made that qualitative, non-spatial data can inform such a process as well as, or even better than the compilation of spatial data layers assigned arbitrary or subjective values. For example, exotic pest occurrences can flare up almost anywhere in the state, depending on the type of pest and the host species affected. The issue of intergenerational transfer transcends arbitrary boundaries; it is happening across the state, even in the largest family ownerships.

The federal guidance to the states considers prioritization essential to maximizing the benefits of federal funds. Unfortunately, this guidance fails to recognize that state forestry and landowner assistance programs are established *in law* to serve all of the people of a state. State forestry agencies cannot choose who benefits from their programs and who does not based on where they live or own forest land.

In Maine’s case, it is hard to identify what is not a priority landscape area. Consider the following facts:

1. Maine is a net importer of wood.
2. Maine’s forest products industry provides markets not only for Maine forest landowners but for landowners across the region whose states and provinces lack the diversity of markets that Maine still has.
3. The proximity of most land in Maine to some form of water: rivers, streams, ponds, lakes, and wetlands.
4. Wildlife do not recognize ownership boundaries.
5. The important contributions that the interconnected network of family forests in southern Maine and forest lands throughout Maine make to the state’s quality of life.



A strong case can be made that *every acre* of forest land in Maine is important for some purpose, provides some form of public benefit, and is therefore a priority. The goal of no net loss of forest land, while laudable, is unrealistic. However, considering the economic importance of forests alone, Maine cannot afford to walk away from efforts to conserve forest lands in any part of the state.

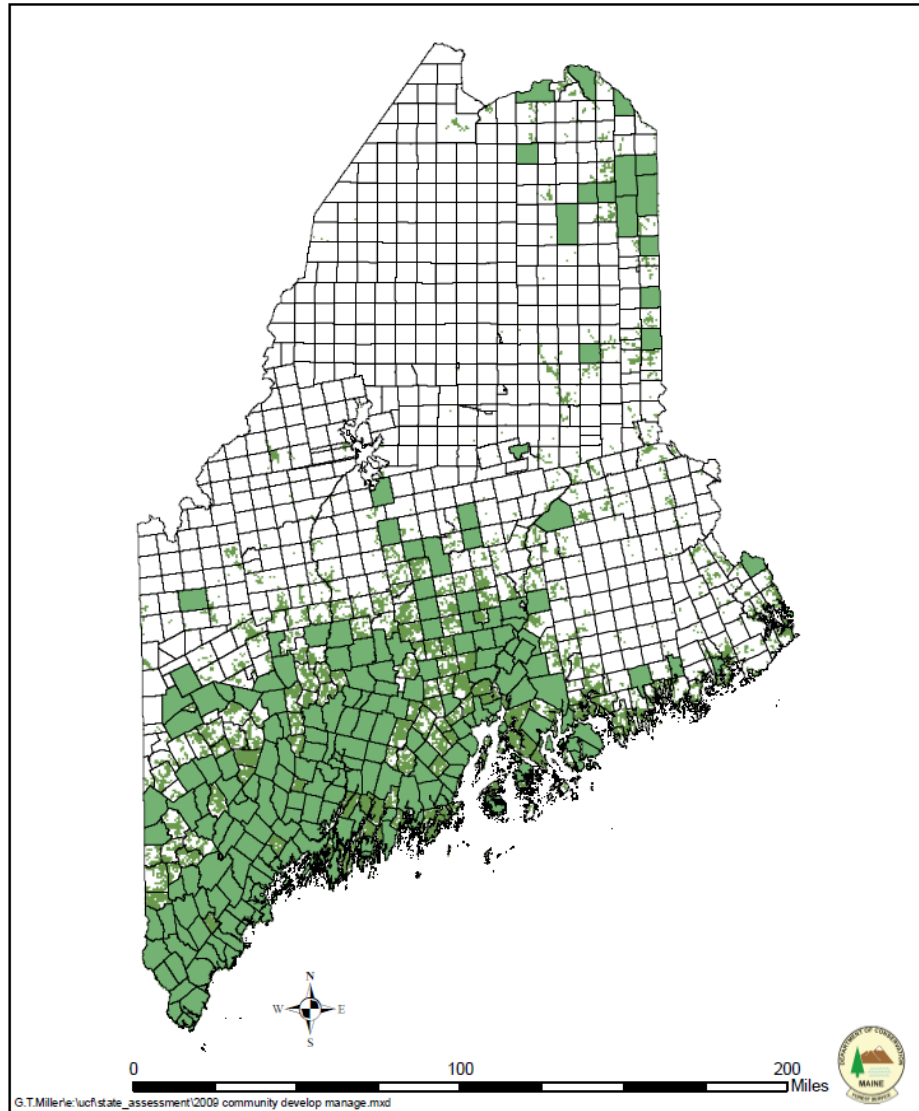
Nonetheless, in keeping with the federal guidance, Maine has identified priority landscape areas. These areas are further classified by four types:

1. Urban trees and forests
2. Family forests
3. Rural/large parcels; and,
4. Important natural resources.

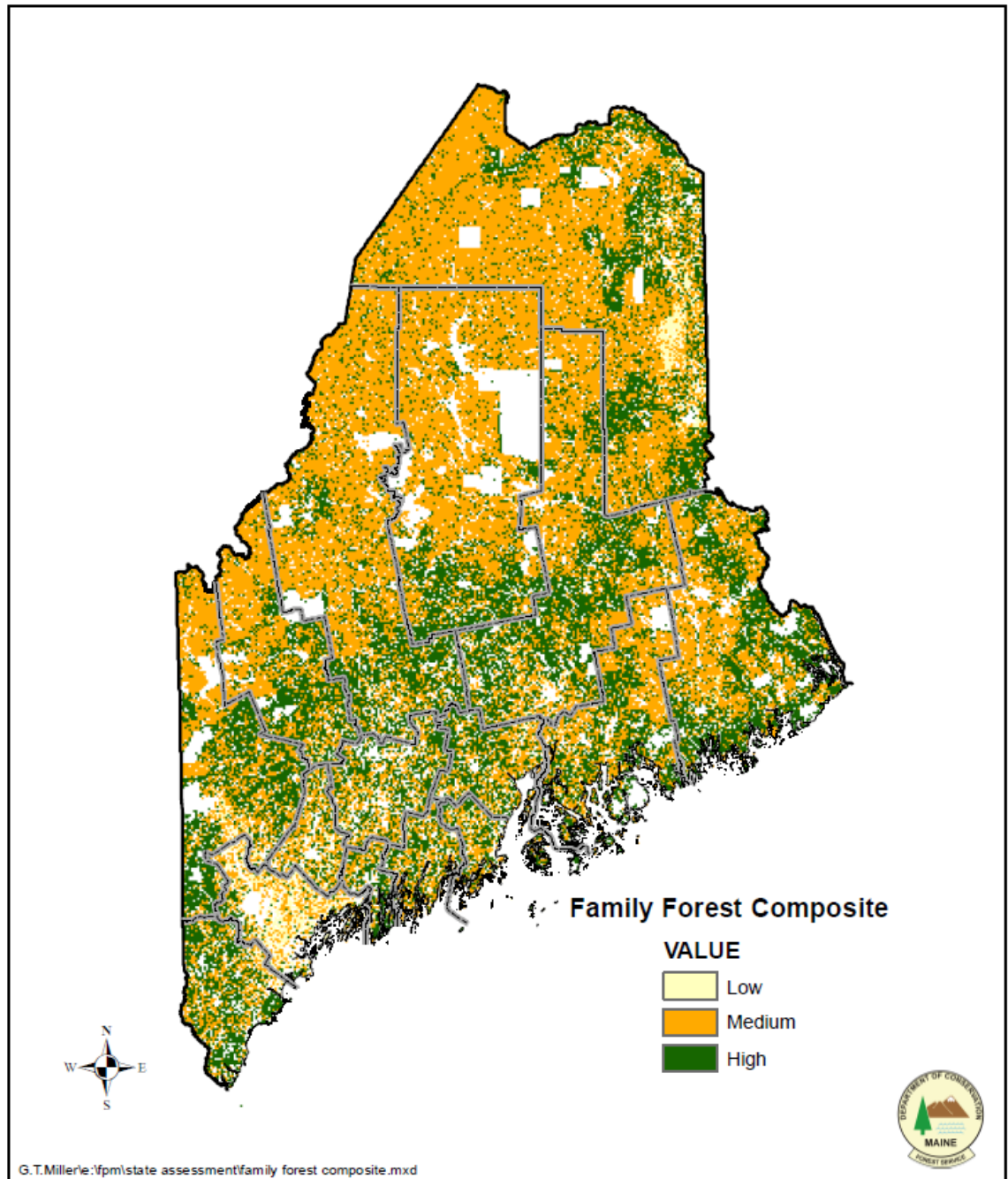
In addition, Maine has identified one multi-state area, commonly known as “the Northern Forest.” Conservation of the Northern Forest has been the subject of much discussion and multi-state cooperation over the last 20 years, beginning with the Northern Forest Lands Study and Northern Forest Lands Council, and continuing to the present under the aegis of the Conservation Lands Committee of the New England Governors Conference.

Priority Forest Areas

Urban Forests

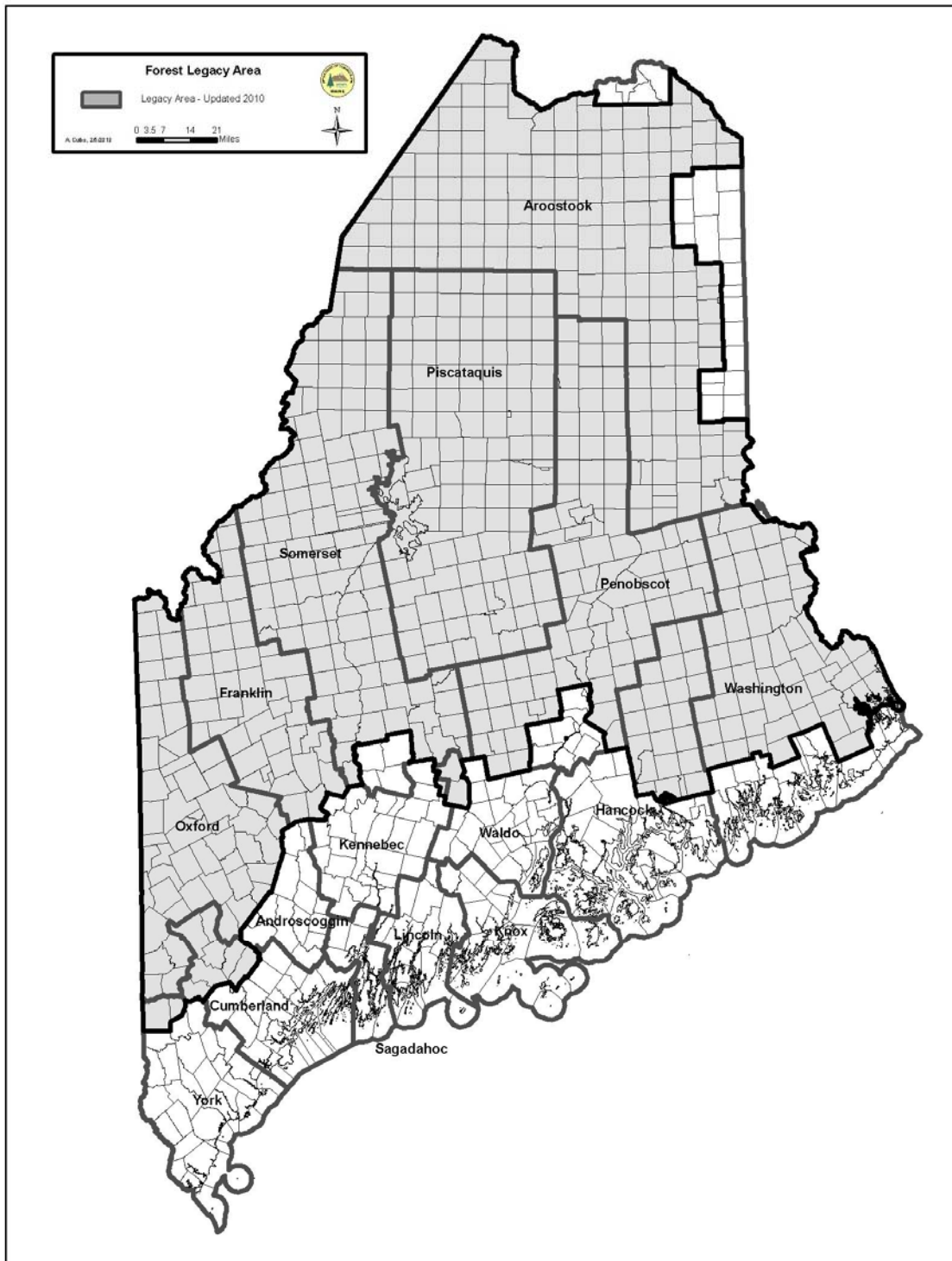


2. Family Forests²

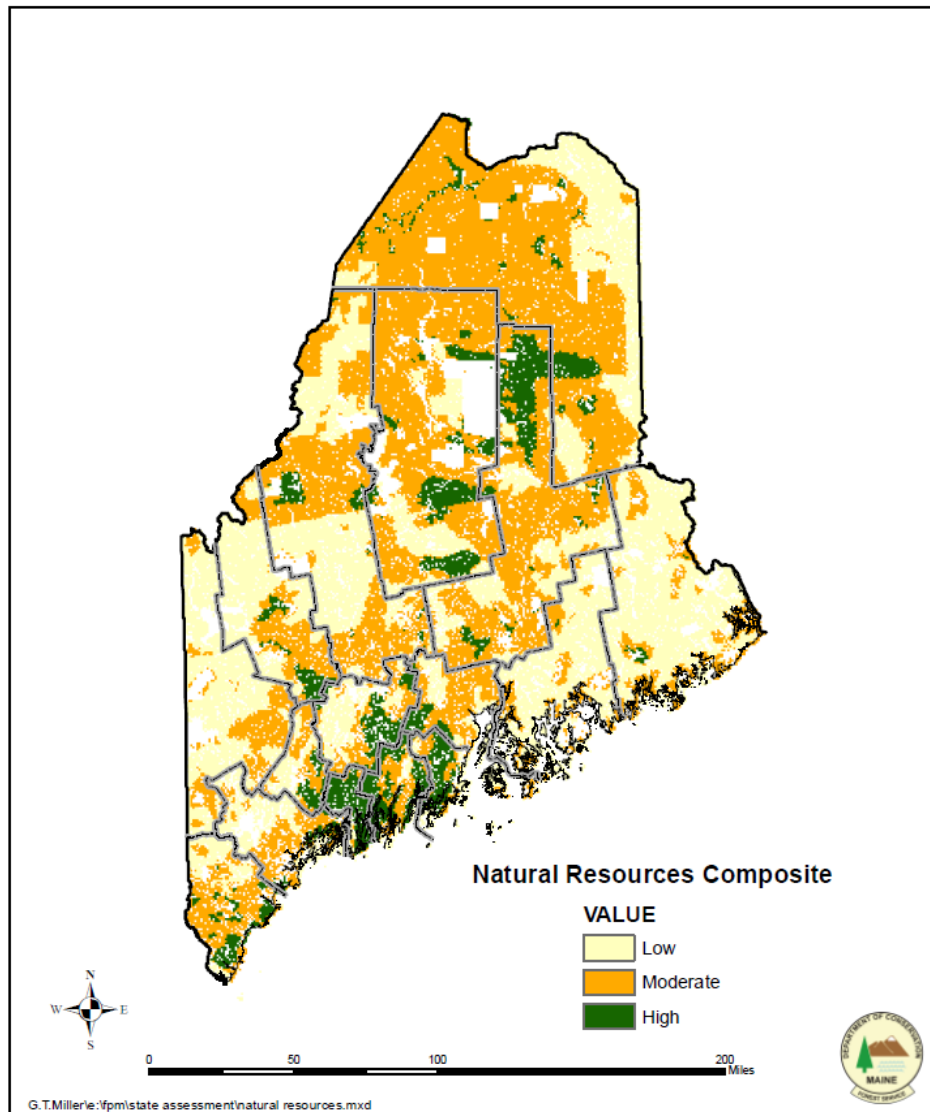


² This map presents a composite of the following resource values: forest land; major public roads; wetlands; riparian areas; proximity to public lands; clean water; development pressure; and, wildlife and natural community Focus Areas.

3. Rural/large parcels (Forest Legacy AON)



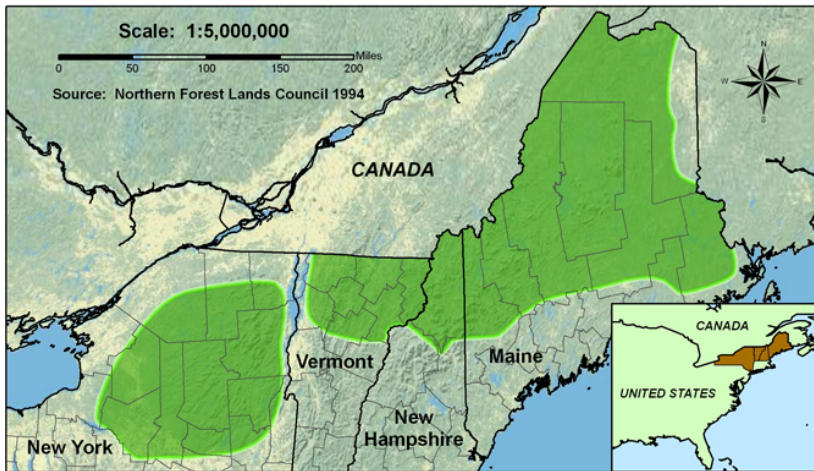
4. Priority Natural Resources³



³ This map presents a composite of the following resource values: eastern Brook Trout; wildlife and natural areas Focus Areas; Canada lynx; NRCS Conservation Priority Areas; and, DEP impaired watersheds.

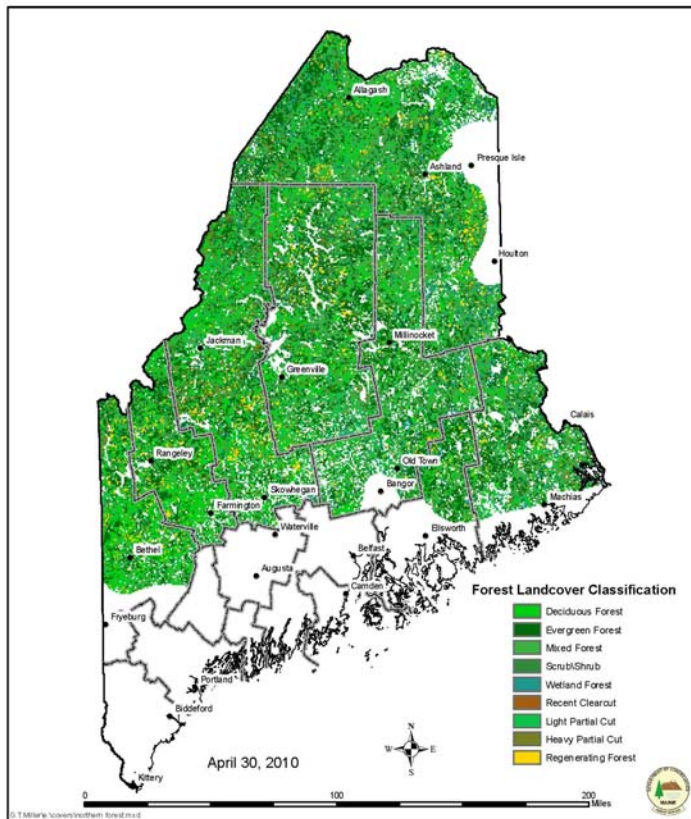
5. Multi state area - Northern Forest Lands

The Northern Forest of New England and New York



Map published at: <http://www.nsrcforest.org/about.html#map>.

The Northern Forest of Maine



State strategies for dealing with issues and challenges, and capitalizing on opportunities

Introduction

Maine's statewide forest strategy outlines long-term efforts to address priority landscapes identified in the forest resource assessment as well as the national themes and their associated management objectives. The strategies outlined below are meant to provide a long-term, comprehensive, and coordinated approach to guide actions and investments of resources over the next five years. It is organized by major theme and drawn from the issues, threats, and opportunities identified in Chapter 4.

A combination of threats and opportunities were considered when developing the following list of seven key forest goals/themes for Maine:

State Goal/Theme 1: Keeping forests as forests

State Goal/Theme 2: Improving and diversifying markets

State Goal/Theme 3: Protecting forests from harm

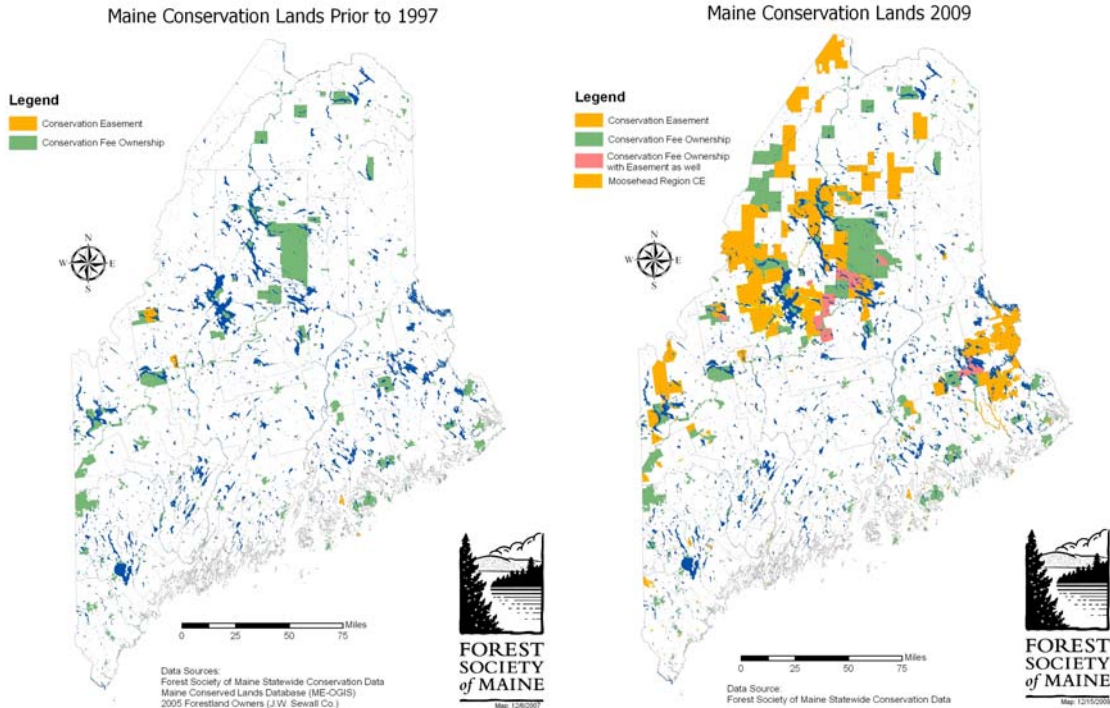
State Goal/Theme 4: Maintaining healthy trees and woodlands in urban and community areas

State Goal/Theme 5: Maintaining the capacity of the Maine Forest Service as an institution to serve the citizens of Maine

State Goal/Theme 6: Increasing the environmental literacy of Maine citizens

State Goal/Theme 7: Maintaining and enhancing forest biodiversity

As stated earlier, this is a living set of strategies that will change as new challenges and opportunities arise. While the underlying issues remain the same, some of the approaches to problems outlined here did not exist a year ago and may be supplanted by a better idea a year from now. This is as it should be. Further, please note that to say this agenda is very ambitious is an understatement of the first order. The resources needed to carry out the strategies described below far exceed those currently available; and beyond resources, some of the strategies outlined below will require changes in both state and federal law, as well as the support of a host of other parties not currently so disposed. This is then more accurately described a statement of what should be done over the long-term, rather than what can be done in the short term. Further, a number of these strategies cannot be implemented by the state of Maine single-handedly (e.g., making long-term silviculture profitable will require changes to federal law); therefore, Maine must remain actively involved with the USDA Forest Service, other federal agencies, National Association of State Foresters, and the Northeastern Area Association of State Foresters to be successful.



State Goal/Theme 1: Keeping forests as forests

Strategies

Achieving this goal has been and continues to be a major policy focus for the MFS. Efforts are underway to establish a new more creative and robust partnership among federal and state agencies, philanthropic organizations and private parties to maintain the “Maine Woods” (see materials on Keeping Maine’s Forests). This has been a broad stakeholder effort that has been underway since 2008.

Beyond this, ongoing activities related to this goal include:

- Continuing efforts to establish working forest conservation easements.
- Providing information, technical assistance, and financial assistance to family forest owners interested in maintaining and improving their forest land holdings.
- Providing information, technical assistance, and financial assistance to municipalities interested in maintaining and improving their urban and community forest resources.



- Providing forest protection services to minimize the risks and damages from insect, disease, fire, wind, and other destructive agents.
- Continuing to support a stable Tree Growth Tax Law program for current use valuation of managed forest lands.
- Continuing to support and advocate for state and federal tax policies that support long-term ownership of and investment in forest lands.
- Finding ways to change the economic equation to favor long-term ownership and management of forest land.

This effort contributes to a number of the national objectives, including:

- Conserving working forest lands
- Protecting forests from threats
- Enhancing public benefits from trees and forests

These efforts also contribute to meeting all of the USDA Forest Service Northeastern Area's criteria for sustainability.

A number of measure(s) of success have been established, e.g., the number of high priority forest ecosystems and landscapes which are maintained as forest for the long-term.

State Goal/Theme 2: Improving and diversifying markets

Strategies

This goal has also been a major policy focus for state government. Reports entitled the “*Future Forest Economy Report*” and “*Efforts to Maintain and Diversify Forest Markets in Maine - the State of Maine’s Forest Products Industry and Why*” explain the planning and implementation undertaken to achieve this goal. As explained earlier, Maine has a very diverse forest products industry cluster and has put a great deal of effort into maintaining this industry. These efforts are important, both for the fact that diverse markets allow the practice of sustainable forest management (it allows managers to avoid high grading), and the benefits it provides to rural economies. Specific activities in support of this goal include:

- Improving the relationship between Maine’s forest products industry and state government.
- Continuing to provide a high-level state staff member who has credibility with the forest products industry and relationships with all state agencies and is responsible for coordination of efforts to address issues within the forest products manufacturing sector.
- Working to create public policy consistency and predictability.
- Promoting research, development and commercialization of bio-based products.
- Encouraging a public - private partnership to encourage shared training, creative thinking, business development and improved operations management for sawmills and wood product manufacturers.
- Encouraging firms which are part of the forest products industry to work together to develop entrepreneurial networks, share information, and learn about emerging opportunities.
- Working to develop a marketing campaign that highlights the environmental and other benefits of Maine forest products, and use this to help distinguish Maine products in a global marketplace.
- Supporting the Maine Congressional delegation’s effort to obtain a permanent federal weight limit exemption for Maine’s currently non-exempt Interstate highways.

This effort contributes to a number of the national objectives, including:

- Conserving working forest lands
- Protecting forests from harm
- Enhancing public benefits from trees and forests

These efforts also contribute to meeting all of the USDA Forest Service Northeastern Area’s criteria for sustainability.

A number of measure(s) of success have been established, e.g., the number of jobs (direct, indirect, and induced) sustained or maintained annually due to investments in the forest products industry.

State Goal/Theme 3: Protecting forests from harm

Strategies

Achieving this goal has been and continues to be a major operational effort for the MFS. It involves a wide variety of efforts, including:

- Supporting efforts to reduce atmospheric greenhouse gas levels, and hence, the damage to forests.
- Promoting efforts to allow forests to adapt to climate change - e.g.,:
 - Maintaining large contiguous areas as forests
 - Reducing other stressors
 - Encouraging species suited to future climates
- Maintaining effective and proactive water quality protection programs.
- Maintaining effective and proactive fire prevention and suppression programs.
- Maintaining effective and proactive forest health programs.
- Encouraging proactive efforts at the municipal level to maintain healthy urban and community forests.

This effort contributes to a number of the national objectives, including:

- Conserving working forest lands
- Protecting forests from threats
- Enhancing public benefits from trees and forests

These efforts also contribute to meeting all of the USDA Forest Service Northeastern Area's criteria for sustainability.

A number of measure(s) of success have been established, e.g., total number of fires kept to less than 1,000 and acres burned kept to less than 3,500 annually.

State Goal/Theme 4: Maintaining healthy trees and woodlands in urban and community areas

Strategies

In concert with community partners, Maine has a very active program to maintain and enhance urban and community forests. These efforts include:

- Encouraging proactive efforts at municipal level to maintain healthy urban and community forests.
- Providing information, technical and financial assistance to municipalities.
- Encouraging municipalities and others to reduce the impacts of land use change, fragmentation and urbanization of forest landscapes.
- Encouraging municipalities and others to manage and restore trees and forests to mitigate and adapt to climate change.
- Building and enhancing partnerships that increase the effectiveness of state urban forestry programming, and improve Maine's urban and community forests.

This effort contributes to a number of the national objectives, including:

- Conserving working forest lands
- Protecting forests from harm
- Enhancing public benefits from trees and forests

These efforts also contribute to meeting all of the USDA Forest Service Northeastern Area's criteria for sustainability.

A number of measure(s) of success have been established, e.g., number of communities and percent of population served by a managing program, as defined in the Community Accomplishment Reporting System (CARS).

State Goal/Theme 5: Maintaining the capacity of the Maine Forest Service as an institution to serve the citizens of Maine

Strategies

Achieving the other goals articulated requires maintaining an effective MFS. This involves:

- Advocating for effective levels of staffing, programs, and services.
- Upgrading the MFS capabilities to stay in front of the challenges, e.g., improving predictive capacity regarding future timber supplies.
- Maintaining the capacity of the MFS equipment to successfully implement its programs, e.g., the capacity of our firefighting equipment.
- Continuing to track and highlight success stories.
- Reaching out to non-governmental entities for sponsorship and funding for programs and events.
- Marketing a line of products such as Tree ID/"Big Tree" flash cards, calendars, placemats, etc, following up on success of the Forest Trees of Maine Centennial Edition.

This effort contributes to a number of the national objectives, including:

- Conserving working forest lands
- Protecting forests from harm
- Enhancing public benefits from trees and forests

These efforts also contribute to meeting all of the USDA Forest Service Northeastern Area's criteria for sustainability.

A number of measure(s) of success have been established, e.g., MFS at least retains its current level of staffing, services, and programs during each biennial budget period.

State Goal/Theme 6: Increasing the environmental literacy of Maine citizens

Strategies

Success in meeting these goals requires an informed and supportive public.

Activities involve:

- Creating and distributing this resource assessment and other similar publications.
- Updating the strategic plan for Maine's Conservation Education Program, covering 2010 - 2015. This plan will act as the guide for MFS statewide educational programs.
- Assisting Maine Project Learning TREE Executive Committee to secure stable funding sources, provide presence on executive committee, conduct facilitator training, and act as workshop facilitators.
- Expanding capacity building efforts to increase effectiveness of collaborating organizations. Focus on the use of adult learning concepts and effective teaching techniques.
- Conducting Woody Biomass Retention Guidelines workshops for loggers, foresters, natural resource managers, and family forest landowners. This will be accomplished through extensive collaboration with organizations across the state.
- Participating with the development and writing the Maine Environmental Literacy Plan. MFS is one of four primary organizations responsible for the effort.
- Conducting training with Cooperative Extension on Women and the Woods program.
- Conducting at least six Forester Institutes for Maine Licensed Foresters.
- Participating in public and private school forest field days.
- Continuing sponsorship of Southern and Northern Maine Water Festivals for approximately 1,800 4th, 5th and 6th graders at each event.
- Supporting and conducting K-12 teacher workshops on forest-related issues conducted across Maine.
- Providing a bridge between the formal education system, Maine Environmental Educators and forestry-related professionals.
- Continuing developing new partnerships for program delivery, technology transfer, and information exchange by reaching beyond our traditional partnership base.
- Continuing to increase national and regional level partnerships for fresh perspectives and more effective education impact while working to strengthen existing conservation education networks.

- Continuing to identify and reach new audiences while maintaining our traditional audience base.

This effort contributes to a number of the national objectives, including:

- Conserving working forest lands
- Protecting forests from harm
- Enhancing public benefits from trees and forests

These efforts also contribute to meeting all of the USDA Forest Service Northeastern Area's criteria for sustainability.

A number of measure(s) of success have been established, e.g., number of people (measured in person days) engaged in environmental stewardship activities as part of a MFS program.⁴

⁴ This will include information on landowners who have attended education programs, as well as people attending trainings, workshops, or volunteering as captured by other programs, like Urban and Community Forestry, Forest Health, and others.

State Goal/Theme 7: Maintaining and enhancing forest biodiversity

Strategies

The strategies articulated for Goals 1-3 go a long way to maintaining and enhancing biodiversity - e.g., keeping forest as forests is fundamentally important to their biodiversity. Likewise, protecting them from damaging agents helps to protect native plants and animals as well. As explained earlier, maintaining diverse and robust markets allows for - but does not guarantee - management that avoids destructive high grading and provides the diversity of habitats needed by Maine wildlife. However, more is needed to insure that these habitats are provided. These include:



- Supporting research that addresses this issue.
- Monitoring the conditions in Maine's forests as regards biodiversity.
- Providing advice and training to landowners and land managers on best practices to conserve biodiversity.
- Assisting in the development of markets for ecosystem services that can reward landowners for maintaining biodiversity.
- Developing new approaches to stewardship programs that could be more effective in protecting biodiversity (e.g., having federal agencies pool resources to reward landowners who manage to provide the full range of habitats needed by wildlife).
- Pursuing development of a model for Outcome Based Forestry agreements with landowners authorized as experimental programs by the Maine Legislature.

These efforts also contribute to meeting all of the USDA Forest Service Northeastern Area's criteria for sustainability.

A number of measure(s) of success have been established, e.g., population trends of Maine's forest wildlife.

USDA Forest Service programs that support the strategies

Forest Stewardship

Urban and Community Forestry

Forest Health - Cooperative Lands

State Fire Assistance

Volunteer Fire Assistance

Partners

Family forest owners

Owners of large forested tracts

Consulting foresters

Loggers

Land trusts

Land for Maine's Future Board

Natural Resources Conservation Service

USDA Forest Service

Real estate brokers

Tax assessors

Forest products industry

University of Maine

Maine Congressional delegation

Maine Legislature

Conservation groups

Native American Tribes

Academia

Municipalities and municipal officials

Viles Arboretum

Project Canopy Leadership Team

Maine Arborist Association

Maine Department of Agriculture, Food, and Rural Resources

Maine Department of Transportation

State Planning Office

Maine Department of Economic and Community Development

Maine Department of Environmental Protection

Maine Municipal Association

University of Maine Cooperative Extension

Utilities

Local volunteer organizations, such as trails committees

Maine citizens

Maine Department of Education

Maine Department of Labor

Maine Vocational Forestry Programs

University of Maine Cooperative Extension

Maine TREE Foundation

Small Woodland Owners Association of Maine

Natural Resources Conservation Service

Logger certification and training programs

Maine Environmental Education Association and other environmental education NGO's

Maine Audubon Society

Sustainable Forestry Initiative

Trust to Conserve Northeast
Forestlands

Department of Inland Fisheries and
Wildlife

Maine Natural Areas Program

Manomet Center for Conservation
Sciences

Project SHARE

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