

# Wisconsin Council on Forestry Biennial Report

January 1, 2007 – December 31, 2008

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This biennial report is required by state statute 26.02(2). The purpose is for the Council on Forestry to report on the status of the state's forest resources and forestry industry as detailed in § 26.02(2) (a) 1-10. Additionally, the Council chose to report on its accomplishments during the time period covered by this report.

The Council is staffed by the Wisconsin Department of Natural Resources – Division of Forestry (WDNR). This report was primarily written by DNR staff, with review and approval by the Council at its meeting on March 18, 2010.

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## EXECUTIVE SUMMARY

The Wisconsin Council on Forestry is a board appointed by the Governor and comprised of individuals representing the diverse forest stakeholders. Wisconsin State Statute 26.02 created the Council on Forestry with a charge to advise the Governor, the Legislature, the Department of Natural Resources, the Department of Commerce, and other state agencies, as determined to be appropriate by the council, on the varied aspects of forestry in this state. The Council is required to prepare a biennial report on the status of the state's forest resources and forestry industry. This report is prepared in odd-numbered years for distribution to the governor and the appropriate standing committees of the state legislature. It covers the 24-month period ending on December 31<sup>st</sup> immediately preceding the date of the report.

During 2007 and 2008, the Council on Forestry focused on several issues that affected the ability of our forests to provide the full range of social, economic and ecological benefits not only today, but for those who follow. This report highlights that work. It also reports on the status of the state's resources and forest industry as required by state statute. The report is available electronically at <http://council.wisconsinforestry.org/publications.php>.

### **Council on Forestry Accomplishments**

The Council's work focused on seven salient issues facing Wisconsin's forests: measuring sustainable forestry, best management for invasive species, recreational leasing of MFL lands, tree planting, prioritizing forestry research needs, the harvest and use of woody biomass, deer management, and private forest certification expansion. The Council also advised the Governor and Legislature on multiple legislative proposals and supported many initiatives such as the development of Wisconsin's Sustainability Framework and certification of the Managed Forest Law program.

### **State Forest Resources**

Highlighted here are descriptions of the state's forest resources and key trends or changes that occurred in the time period of this report. (These topics are discussed in depth in the report.)

- Wisconsin's forest resource is changing. Some noticeable trends include: hardwood succession is very apparent and overall growing stock volume has increased.
- Urban forests annually provide over \$64 million in carbon sequestration, air pollution mitigation, and energy savings. Urban areas comprised about 5% of the total land in Wisconsin; a growing component of forests in Wisconsin.
- Emerald Ash Borer is a threat to the health of Wisconsin's forests. EAB threatens 5.2 million urban trees—20% of the entire resource. Multiple state and federal partners are working together to prevent the spread of this insect.
- The Certified Plan Writer (CPW) program has been very successful since its inception with 97 CPWs. Plan writing services are now available to most people in the state.
- In 2007, direct employment in the forest industry was 68,846, down from 72,603 in 2005. Secondary forest industry such as furniture manufacturers have seen large market declines.

- Wisconsin is moving forward on new economic opportunities for the forest industry with initiatives such as bio-refining by pulp mills and the use of woody biomass for fuel.
- In an effort to identify which Wisconsin communities are at greatest risk from wildfire, the Division of Forestry conducted a statewide assessment in 2007. The Communities at Risk Assessment will be used to prioritize education, preparedness, and fuels reduction projects.
- The Department of Natural Resources purchased a site from Milwaukee County that includes about 47 acres of woodlands for a proposed forest science center. Funding is needed for site development costs as well as further support for ongoing operating costs.
- Deer herbivory is increasing in Wisconsin forests causing economic losses by reducing tree survival and growth, and altering species and age class composition. The continued overabundance of deer can directly threaten the future of sustainable forestry.

## **CHAIR'S INTRODUCTION**

Forests serve a crucial role in the quality of life we enjoy. Wisconsin's economic, ecological and social well-being is closely linked to the diverse benefits we depend on daily from our forests. To make sure our forests – and the recreation and forest products industries that depend on them – remain healthy and vigorous, the Wisconsin Council on Forest has focused on several initiatives focused on the future sustainability of forests in Wisconsin, including best management practices for invasive species, woody biomass and the impact of deer on forests.

This report highlights the accomplishments of the work on these and other initiatives as well as providing a closer look at Wisconsin's forest resources and industry. The Council is dedicated to helping chart the course for sustainable management of today's forests to ensure they not only meet the current needs, but also those of future generations. I hope you enjoy reading this overview of our efforts.

Service on the Council represents a commitment of time and energy and my sincere thanks are extended to the members for their energetic involvement and willingness to address the challenging issues facing Wisconsin's forests today. I also offer my thanks to others in the forestry community who assist the Council and work tirelessly to improve and protect our forests, including Division of Forestry staff who provide staff support for the Council.

Sincerely,  
Fred Souba, Jr.

## **COUNCIL CHARGE**

The Wisconsin Council on Forestry was created by State Statute 26.02 in July 2002 to advise the governor, legislature, Department of Natural Resources, Department of Commerce, and other state agencies on a host of forestry issues in the state, including:

1. Protection of forests from fire, insects, and disease
2. The practice of sustainable forestry, as defined in s. 28.04 (1) (e)
3. Reforestation and forestry genetics
4. Management and protection of urban forests
5. Public knowledge and awareness of forestry issues
6. Forestry research
7. Economic development and employment in the forestry industry
8. Marketing and use of forest products
9. Legislation affecting management of Wisconsin's forest lands
10. Staffing and funding needs for forestry programs conducted by the state



## COUNCIL MEMBERS (During the term of this report)

Name	Organization
Michael Bolton	United Steel Workers
Senator Roger Breske	Wisconsin State Senate
Dennis Brown	Wisconsin Professional Loggers Association
Troy Brown	Kretz Lumber
Leon Church	Sweetwood Builders, Inc.
Fred Clark	Clark Forestry
Paul DeLong	Wisconsin DNR
Representative Donald Friske	Wisconsin State Assembly
James Heerey	Barron County Woodland Owners Association
Jeanne Higgins	United States Forest Service
James Hoppe	Packaging Corporation of America
William Horvath	Wisconsin Woodland Owners Association
Rep. Mary Hubler	Wisconsin State Assembly
Mary Jean Huston	The Nature Conservancy
Senator Bob Jauch	Wisconsin State Senate
Colette Matthews	Wisconsin County Forests Association
Ken Ottman	Wisconsin Urban Forestry Council
Robert Rogers	Wisconsin Society of American Foresters
Jane Severt	Wisconsin County Forests Association
Fred Souba	NewPage Corporation
Jeffrey Stier	University of Wisconsin
Senator Kathleen Vinehout	Wisconsin State Senate
William Ward	Proctor & Gamble

## 2007-2008 Council on Forestry Accomplishments

### Wisconsin Forest Sustainability Framework

To assess the actions of Wisconsin's Statewide Forest Plan, and to determine if the state's forests are being managed sustainably, the Wisconsin Department of Natural Resources (WDNR) adopted the Criteria and Indicators (C&I) program developed by the U.S. Forest Service Northeastern Area State & Private Forestry. This system of criteria and indicators was used to develop *Wisconsin's Forest Sustainability Framework*.

The Council was active in the development of the Framework through an Advisory Committee that recommended a Wisconsin set of criteria, indicators, and metrics; provided advice and suggestions to the Chair; and acted as a sounding board for ideas and proposals. After developing an initial draft in August 2007, the report went through expert, tribal, and public review. The final Framework was released in December 2007 and consists of nineteen measurable indicators of sustainable forestry across seven different criteria:

- 1) Conservation of Biological Diversity
- 2) Maintenance of Productive Capacity of Forest Ecosystems
- 3) Maintenance of Forest Ecosystem Health and Vitality
- 4) Conservation and Maintenance of Soil and Water Resources
- 5) Maintenance of Forest Contributions to Global Carbon Cycles
- 6) Socioeconomic Benefits of Forests and their Ecosystem Services
- 7) Legal and Institutional Framework for Forest Conservation and Sustainable Management

The Framework will be updated from time to time as new data sources emerge and metrics become obsolete. The Advisory Committee found that data did not exist to address several of the indicators. To help eliminate these gaps, a subset of Committee members identified the following eight priority items that they encouraged the Council to advance:

1. Delineate conservation and management lands.
2. Continue urban forest assessment.
3. Create models that analyze stand structure.
4. Increase frequency of WISCLAND.
5. Implement systematic monitoring specific to the Natural Heritage Index.
6. Create a common database for invasive plants.
7. Describe legal framework of forestry.
8. Reframe Framework toward environmental services.

At its December 18, 2007 meeting, the Council accepted *Wisconsin's Forest Sustainability Framework* and adopted it as Wisconsin's system of criteria and indicators. They will be reviewed and updated as necessary every ten years.

### Recommendations and Report of the Forestry Invasives Leadership Team

At its March 17, 2008 meeting, the Council received a status report from the Forestry Invasives Leadership Team (FILT) on each of its four Best Management Practices (BMPs) efforts, or "tracks" The first three tracks are being funded in part by grants from the U.S. Forest Service.

#### Track 1 – Forestry BMPs for Invasive Species:

This track had an active, well-represented advisory committee and technical team that drafted BMPs. The final elements of the BMP manual were completed during June 2008. Public listening sessions and stakeholder meetings were held in August 2008 to get input and build support. The Advisory Committee planned to meet in February 2009 to discuss the necessary changes to the manual based on public input and ultimately finalize the manual for adoption by the Council in March 2009.

#### Track 2 –Recreational Forest User BMPs for Invasive Species:

The Advisory Committee, made up of recreational users, met over the course of 2007 and 2008 with lead staff support from the DNR Bureau of Parks. The Committee finalized the chapter headings of the manual (referred to as “spokes,” which include each recreation audience) in 2008. Each spoke team developed BMPs that were then tentatively approved by the Committee in July 2008. The manual was completed by the end of 2008 with the public input period set for February 2009 and adoption by the Council in September 2009.

#### Track 3 – Urban Forestry BMPs for Invasive Species:

An Advisory Committee to discuss urban forestry BMPs formed in 2008. The DNR Urban Forestry Program provided lead staff support. By the end of 2008 the Committee had identified chapters and work had begun on several of those chapters. Chapters are expected to be finished by 2009.

#### Track 4 – Utility and Transportation Right-of-Way BMPS for Invasive Species:

An advisory committee to work on this track was formed in 2008. By the end of 2008, the Committee had identified chapters and begun work on several chapters. Due to proposed invasive species legislation, BMPs may need to be revised or rewritten. A complete manual is expected by the end of 2009.

At its March 17, 2008 meeting, the Council accepted the report, as well as the following recommendations of the FILT:

- That the Wisconsin Council on Forestry and the Governor’s Council on Invasive Species co-sponsor the Recreational User BMPs.
- That the Governor’s Council on Invasive Species and the Wisconsin Council on Forestry co-sponsor the Invasive Species Awareness Month for recreational users in June 2009
- That the Wisconsin Council on Forestry continue to sponsor the Right-of-Way BMP effort as long as the effort remains voluntary. If stakeholders involved desire BMPs to become Standard Operating Procedures to support Invasive Species Rules, FILT recommended that the Council on Forestry step aside from sponsorship, and allow other partners to take over the effort.

#### Forestry BMPs for Invasive Species

A draft set of Forestry BMPs for invasive species was approved by the Council on June 17, 2008. The approved draft was taken through public comment and listening session processes between August 5th and September 5th. The main concerns were workload, cost of implementation, post-activity monitoring, and voluntary versus mandatory adoption. Major comments received concerned MFL implications, certification implications, implementation, and education and training.

The finalized version of *Wisconsin's Forestry Best Management Practices for Invasive Species* is scheduled to go before the Council for approval in March 2009. Pending approval, the first step in implementation will be training.

### Solicitation of Public Input on Wisconsin's Recreation BMPs for Invasive Species

On December 16, 2008 the Council voted unanimously to approve the Recreation BMPs, entitled *Wisconsin's Recreation Best Management Practices for Invasive Species*, going out for public comment. This non-technical set of BMPs was written from the vantage-point of the forest recreation user, and contains guidelines unique to seven groups, or "spokes" of recreation:

1. Animal-based Recreation
2. Bicycle Recreation
3. Camping Recreation
4. Hunter, Trapper and Angler Recreation
5. Motorized Recreation
6. Pedestrian Recreation
7. Land Management (for use by managers of recreational land)

It also contains twelve foundational "universal" guidelines common to all types of recreational activity:

1. Learn to recognize invasive species common to the areas where you enjoy outdoor recreational activities.
2. Wear clothing and footwear that are not "seed-friendly."
3. Inspect and clean hair, clothing, footwear and gear for soils, seeds, plant parts, or invertebrates before and after recreating.
4. Prior to moving equipment, vehicles and trailers onto and off an activity area, spray, scrape or brush soil and debris from exterior surfaces to the extent practical.
5. Inspect and remove soil, plant parts and seeds from the coat and feet of animals and their clothing/gear before and after recreating.
6. Properly dispose of soil, seeds, plant parts or invertebrates found during inspection and cleaning.
7. Stay on designated trails, roads, and other developed areas.
8. When off trail, avoid areas that appear to be infested with invasive species.
9. Report infestations of invasive species to the appropriate land manager or property owner.
10. Volunteer to help control invasive species.
11. When feasible, incorporate invasive species prevention into planning for special events.
12. Spread the word to help educate others about invasive species and their effects on our environment, economy, and recreational opportunities.

### Recommendations of the Managed Forest Law Task Group Report

The Managed Forest Law (MFL) Task Group was formed at the December 2007 Council meeting to assess potential impacts of the prohibition of recreational leasing of MFL lands. At the June 2008 Council meeting, the task group was charged with reviewing MFL information and reporting back to the Council with recommendations for actions that would demonstrate the benefits of the MFL Program.

The Task Group surveyed industrial forest landowners, individual non-industrial non-affiliated forest landowners, and private non-industrial forest landowners on their reaction to the leasing prohibition. The results, showing that landowners generally did not support the MFL leasing prohibition, were published in a report titled *Reaction of Private Forest Landowners to a Recent Change in Law that Prohibits*

*Leasing Land Enrolled in MFL*

([http://council.wisconsinforestry.org/pdf/MFL\\_TaskGroupReport\\_ExecSum.pdf](http://council.wisconsinforestry.org/pdf/MFL_TaskGroupReport_ExecSum.pdf)).

In response to the findings of this report, the Task Group made the following recommendations to the Council at its December 2008 meeting:

1. That the Legislature create a Legislative Council Study to review the application of MFL in light of current needs for managing private forest lands sustainably for a variety of goods and services, both traditional and emerging. If the Legislature elects not to create a Council Study, it recommends that the Natural Resources Board initiate such a study.
2. That the Division of Forestry, either alone or with suitable partners, develop a one-page fact sheet that legislators could use to demonstrate the value of the MFL program to their constituents.

The Council approved and agreed to forward the recommendations of the MFL Task Group.

#### Million Dollar Bonding Request for Tree Planting in DNR Budget

At its September 2008 meeting, the Natural Resources Board passed a motion to include an additional one million dollar bonding request for tree planting within the larger DNR budget. At its December 2008 meeting, the Council on Forestry resolved to recommend to the Governor that he include the million dollar tree planting proposal in his budget for the WDNR Division of Forestry.

#### Research Priorities

In 2006, the Council accepted a report developed by the Task Force on Forestry Research. This report included a recommendation that the Division of Forestry work with the UW to develop a forestry research grant program supported with DNR funds. The College of Agriculture and Life Sciences (CALs) worked with DNR to target a pilot project using UW McIntire-Stennis appropriation funds.

At its September 2007 meeting, the Council endorsed proceeding with the proposed Division of Forestry and CALs collaborative pilot project, and passed a motion to recommend that CALs pursue the following topical areas for research:

- 1) Economics and applied silvicultural practices in the presence of invasive plant species.
- 2) Wisconsin's role in the certified wood market.

#### Woody Biomass Harvest Guidelines

At its June 2007 meeting, the Council charged the Woody Biomass Task Force with the development of guidelines for woody biomass harvesting. Working with a technical team, advisory committee of stakeholders and subcommittee of forest soils experts, the team developed guidelines over the course of 2007 and 2008. The final guidelines went through public and expert review.

Guidelines generally emphasize the importance of sustainability in harvest. Guidelines include:

##### General Guidelines:

- Retain and limit disturbance to down coarse woody debris already present, except on skid trails and landings.
- Retain down fine woody debris on site following harvest.

- Do not remove the forest litter layer, stumps, and/or root systems.

#### Site Specific Guidelines:

- Protect and sustainably manage species of greatest conservation need and sensitive ecosystems.
- For complete salvage operations following severe disturbance implemented on areas greater than 10 acres under one ownership that include the harvest of fine woody material, retain at least 5% of unsalvaged patches at least 0.1 acres in size.
- Do not harvest fine woody material on shallow soils.
- Do not harvest fine woody material on dry nutrient-poor sandy soils.
- Do not harvest fine woody material on soils classified as dysic Histosols (wetland soils with at least 16 inches of organic material that are nutrient-poor with a low pH).

In December 2008, the Council accepted the final *Wisconsin's Forestland Woody Biomass Harvesting Guidelines*. It also requested that DNR engage stakeholders in the development of an implementation plan, and present it at the March 2009 meeting.

#### Deer Impacts on Forests

Recognizing that forest management and deer management are inextricably linked, the Council formed a Task Force on Deer to research and develop a statement of why deer management is important to forestry in Wisconsin, and to develop steps for moving the issue forward.

The Task Force on Deer prepared a position paper, *Deer Herbivory in Wisconsin Forests* (<http://council.wisconsinforestry.org/pdf/deer/DeerPositionPaper.pdf>). The paper describes the deer herd in Wisconsin being above recommended levels, resulting in a browse level that negatively impacts the biodiversity and regeneration of our forests and threatening the sustainability of both forest ecosystems and forest products into the future.

In February 2007, the Task Force on Deer sent a letter (<http://council.wisconsinforestry.org/pdf/deer/DeerImpactsGovLtr.pdf>) to the Governor and Legislature communicating:

- 1) the Council's support of the DNR's management efforts to bring deer numbers down and encourage even lower levels of deer herbivory,
- 2) its concern that deer herbivory is a serious problem that, if not addressed, will affect the sustainability of forestry in Wisconsin, and
- 3) that DNR will gather existing research and statistical data relative to the impact of deer on trees and identify where information is available and where it is lacking.

#### Private Forest Certification Expansion

In 2005, The MFL program was certified under the American Forest Foundation's Tree Farm Group Program. Although scoping assessments were completed for both Tree Farm and FSC certification, FSC certification was not pursued due to budget constraints. In recent years, however, the demand for FSC certification has grown among manufacturers, mills, and wood product customers. The DNR sought direction from the Council on Forestry on whether to expand certification of MFL lands to include FSC certification. In June, 2007, the Council recommended that the DNR proceed to conduct a full FSC assessment of the Managed Forest Law in the coming fiscal year.

### Woody Biomass Task Force

In 2004 the Council formed a Woody Biomass Task Force to determine what role Wisconsin forests would play in woody biomass utilization to meet a growing demand for energy and fuel.

In October 2007, the Council sent the Governor and relevant legislative committees its *Recommended Policy through Legislation to Encourage the Production and Utilization of Woody Biomass*. This document contained recommendations for legislative changes to increase Wisconsin's production and utilization of woody biomass while preserving important forest resources.

Recommendations from the report:

1. Suggested policies related to the production and utilization of woody biomass to increase Wisconsin's energy independence and reduce reliance on fossil fuels for inclusion in the State Energy Policy contained in Wisconsin State Statute 1.12.
2. Provided definitions to be included in the State Energy Policy contained in Wisconsin State Statute 1.12(1).
3. Suggested amendments to the Managed Forest Law (MFL).
4. Directed University of Wisconsin System Board of Regents to create a Sustainable Forestry and Research Center that would:
  - a. Conduct research on technology for the uses of wood and fiber, including the use of woody biomass in thermal energy production for homes and industry.
  - b. Conduct research on the production of bio fuels and bio chemicals related to woody biomass.
  - c. Conduct research on short rotation woody vegetation including but not limited to poplar, willow, and other fast growing species for the production of energy.
  - d. Conduct an outreach and education program through University Extension in cooperation with the Department of Natural Resources.
5. Directed the University of Wisconsin System Board of Regents to create an outreach and education program through UW-Extension. This program will educate landowners about production of woody biomass through sustainable forest management, identify barriers to removing woody biomass from private lands, and educate forest landowners about these barriers.
6. Directed the DNR to take action on recommendations to recover more construction and demolition debris and other sources of wood waste as described in the final report of the Governor's Task Force on Waste Materials and Recovery and Disposal (December 2006).

In addition, two Council members served on the Biomass Commodity Exchange Advisory Committee, established in late 2007 to assess the viability of establishing such an exchange in Wisconsin. Its work was ongoing throughout 2008.



## SUMMARY PER STATE STATUTE 26.02

### **I. The magnitude, nature, and extent of the forest resources in this state.**

Of Wisconsin's 35 million acres of land, about 16 million acres are forested. Forest area in Wisconsin has been steadily increasing for decades. In 1996, there were 15,963,019 acres of forest and in 2007 there were 16,407,970 acres. This is mostly due to the conversion of marginal agricultural land back to forests. Currently, forests cover over 47% of the total land area of the state. Urban forests, the trees and green space in communities and other built areas, cover an additional 1.8 million acres or about 5.1% of the total state land area.

#### Forest Resources

##### Acres of forest land by forest type

The most abundant forest types in Wisconsin are hardwood forest types. Maple-beech-birch, aspen- birch, and oak-hickory forest types are the most common. Maple-beech-birch accounts for 4.5 million acres, followed by oak-hickory with 3.5 million acres, and aspen-birch with over 3.2 million acres. While most of Wisconsin's forests are hardwood types, there are also significant softwood types occupying large areas, especially in the north. Red pine, northern white cedar, black spruce, jack pine, and tamarack are the most common conifer forest types.

##### Species composition by forest type

The maple-beech-birch forest type is the most common forest type in the northern part of the state and the state as a whole. A predominance of sugar maple and basswood characterize this type. Red maple, northern red oak, quaking aspen, white ash, hemlock, yellow birch, and paper birch are also common. Maple-beech-birch supports a variety of understory plants and animals.

Second to maple-basswood in the northern part of the state is the aspen-birch forest type. Just less than 3.0 million acres of the Northern Mixed Forest region are aspen-birch. Common tree species in this forest type include quaking aspen, bigtooth aspen, paper birch, red maple and balsam fir.

The Northern Mixed Forest is distinguished primarily by the prevalence of conifers. The most common conifer forest type is spruce-fir. Spruce-fir forests are fairly diverse and can occur in many moisture regimes. They are the most common wet forests in the north, and often surround and blend into bogs. Common tree species in spruce-fir forests include northern white-cedar, tamarack, black spruce, balsam fir, and white spruce.

Nine percent (1.1 million acres) of the Northern Mixed Forest in Wisconsin is pine forest type. Red pine, eastern white pine, and jack pine are the common pine species that occur in Wisconsin. Forest character can vary from jack pine barrens, to red pine plantations, to thick stands of young white pine, to old growth stands with pines hundreds of years old. Other than pines, common associates of pine forests are eastern hemlock, red maple, quaking aspen, sugar maple and balsam fir.

The most common forest type in the Southern Broadleaf Forest is oak-hickory (2.4 million acres). It represents about 53% of the forests in the southern part of Wisconsin. Dominant tree species in oak-hickory forests include northern red oak, white oak, black oak, red maple, burr oak, shagbark hickory, and northern pin oak.

About 17% (728,000 acres) of the forests in the Southern Broadleaf Forest are maple-beech-birch forest type. Species composition is similar to the northern maple-basswood forest, with sugar maple and basswood being the dominant species. However, the amount of hemlock is decreased, yellow birch and quaking aspen and the increased occurrence of oaks as compared to the northern maple-basswood forests.

The soft maple-ash forest type generally is a lowland type that makes up a higher percentage of the southern than northern forests. However, the Northern Mixed Forest contains a larger net acreage of soft maple-ash forest type. Common species in this forest type are black ash, green ash, silver maple, and red maple. Other forest types of note in southern Wisconsin are aspen-birch and white-red-jack pine.

#### Age class by forest type

Most forests in Wisconsin are 40-80 years old. Approximately 10% of the forests are under 20 years of age, and 4% over 100 years of age. The forest types proportionally best represented in the younger age classes are aspen, pine, and oak-pine; the latter two predominantly associated with dry sites. The forest types proportionally best represented in the over 100 age classes are spruce-fir, pine, and oak-hickory.

#### Volume by species

In 2008, there were 24.5 billion cubic feet of growing stock volume, of which 6.1 billion were conifer, and 18.4 billion were hardwood. The highest volume softwood species were white pine, red pine, and Northern white-cedar. The highest volume hardwood species were sugar maple, red maple, quaking aspen and northern red oak.

#### Growth, removals, mortality volume by species

In Wisconsin, our forests are growing at a rate that significantly exceeds harvest. Between 2003 and 2008, average net annual growth<sup>1</sup> exceeded harvests and other removals by almost 259 million cubic feet. Growing stock average annual mortality<sup>2</sup> was 204 million cubic feet. During the period between inventories, average net annual growth was 586 million cubic feet. Average annual removals were 327 million cubic feet, about 56% of average net annual growth.

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<sup>1</sup> Mortality is taken into account when calculating net growth.

<sup>2</sup> Definition of growing stock average annual mortality: The average cubic foot volume of sound wood in growing-stock trees that died in one year from causes other than as a result of logging or other removals (i.e. land clearing, timber stand improvement, standing volume on land classified originally as timberland but later designated as reserved from timber harvesting, etc.). Average annual mortality is the average for the years between inventories.

Along with net growth exceeding removals overall, net growth exceeded removals for the state's oaks (except black oak), maples, basswood, ashes, white and red pines, and white spruce. Paper birch, jack pine, black oak, quaking aspen, balsam poplar, black spruce, and balsam fir removals exceeded net growth between inventories. Growing stock average annual mortality exceeded average net annual growth for paper birch, balsam fir, American elm, jack pine, slippery elm, eastern hophornbeam, and pin cherry. For all other species net growth exceeded mortality.

### Changes in trends

Most of the major trends in Wisconsin forests have remained relatively constant since periodic inventories by the Forest Service began in 1936. Although trends have remained relatively constant, the forest itself has not. Areas and relative proportion of various forest types have changed significantly over the last 70 years. Hardwood succession is very apparent. Since the first official statewide forest inventory in 1936, aspen-birch forest area has decreased steadily, although it is still much more common than at the beginning of the Cutover. The Cutover was the period of intense timber harvest in the Lake States, lasting about 40 years, from 1880–1920. Since 1936, maple-basswood, soft maple-ash, and oak-hickory forests have increased just as steadily. Conifer forest area has remained roughly constant over the last 70 years.

Wisconsin forests have increased in age over the past 40 years. In 1968, only 34% of the forests in Wisconsin were over 50 years old. By 2008, the percentage over 50 years had increased to 58%. However, forests over 100 years old declined during the same time period from 6% to 3% of total forest land.

Most forest types followed the same pattern as total forest land. The exceptions were the soft maple-ash, balsam fir-white spruce and white pine forest types which remained virtually unchanged during this time period. The percentage of black spruce forest type over 50 years old increased more than any other forest type over the past 40 years (38% to 76%).

Overall growing stock volume on Wisconsin timberland has increased steadily since the first forest inventory in 1936 (7.6 billion cubic feet) to the 2007 inventory (20.8 billion cubic feet). Between 1996 and 2007, overall growing stock volume in Wisconsin's forests has increased by over 10%—about 2 billion cubic feet. Along with this overall increase, the state's maples, oaks (except Northern red oak), ashes, and white and red pines are some of the commercially important species whose growing stock volume increased. Aspen, northern red oak, balsam fir and jack pine volumes decreased between inventories.

Growing stock average net annual growth exceeded average annual removals between 2004 and 2008 for most major species groups. This is virtually unchanged from the previous inventory period between 2000 and 2003, when removals exceeded growth for jack pine, paper birch, and bigtooth aspen. Paper birch and jack pine average annual removals continue to exceed average net annual growth.

### Urban Forests

There are several competing definitions of “urban forest.” The USDA Forest Service defines it as areas where the population density is greater than 500 people/mi<sup>2</sup>. The 2000 Census Bureau defines urban areas as census blocks with at least 1000 people/mi<sup>2</sup> and surrounding census blocks with at least 500 people/mi<sup>2</sup>. In Wisconsin, the extent of the urban forest is defined as 2000 census urban areas and any additional area encompassed by the political boundaries of cities and villages. Most communities also have undeveloped land within their boundaries. This land is included in the delineation of the urban forest because it is either managed as urban forest, as in the case of parks and open space, or development is expected in the long term. Using this definition, Wisconsin has 1.8 million acres of urban forest or about 5.1% of the total land area of the state. A 2002 Urban Forest Inventory and Analysis (UFIA) pilot study reported Wisconsin urban areas contain 26.9 million trees, averaging 36.9 trees per acre with an estimated total structural/replacement value of \$10.9 billion.

The data was collected through a WI-DNR contract with the University of Wisconsin-Stevens Point and will be used to establish the sampling boundaries of a statewide urban forest assessment. Results of the state program will then be applied to establish a national urban forest inventory and assessment. Wisconsin’s state urban forestry coordinator serves on the national task force charged with this responsibility.

### Forest Health

Our forests are generally in good health, though problems do exist in certain areas. The biggest threat to forest health over the past two years has been the introduction of the emerald ash borer (EAB) to the state. EAB was first found in Wisconsin in 2008. Since then, it has been confirmed in two counties—Washington and Ozaukee. The DNR, along with other state and federal partners have maintained an active surveillance program using traps, tree monitoring, and biosurveillance to detect new infestations. A public campaign program including the EAB toolkit (<http://dnr.wi.gov/forestry/uf/eab/>), an EAB Website ([emeraldashborer.wi.gov](http://emeraldashborer.wi.gov)) and other outreach materials aim to keep the public and landowners informed and help slow or prevent the spread of EAB.

Other exotic and invasive pests such as the hemlock woolly adelgid and beech bark disease are posing a significant threat to the health of ash, hemlock and beech and the forest ecosystems they inhabit and the biodiversity within those ecosystems.

Flooding in June 2008 harmed forests throughout southern Wisconsin. The worst mortality occurred to regeneration both in the Sauk County Community Forest where red and white pine saplings were affected and in Pine Island State Wildlife Area (Caledonia Township in Columbia County) where hardwood regeneration was killed. In addition, individual tree mortality occurred in parts of Spring Green which had persistent elevated water tables. This however, was restricted to the most severely saturated sites. Occasional tree uprooting or tipping also occurred in other parts of the flooded area when water rushed down valleys and small streams.

### Urban Forest Threats

Threats to the urban forest come from a variety of sources including people and nature (biotic and abiotic). A fundamental appreciation for the urban forest and its associated benefits is essential for maintaining a healthy/productive resource. Support is needed at all levels, ranging from high ranking elected officials to individual property owners, in order to realize the full potential of urban forests.

First and foremost is a general lack of awareness of the urban forest. All too often the trees within a community can be taken for granted. Current urban forest benefit models can quantify the realized monetary benefits associated with urban trees, improving their standing to one of green infrastructure rather than a cultural amenity. These benefits can amount to millions of dollars annually as a result of carbon storage and sequestration, air pollution removal, storm water reduction, and energy savings.

Diseases, insects, wildlife, and weather pose current and future threats to the urban forest. Gypsy moth and emerald ash borer are the most notorious pests at this time; however other pests such as the Asian long-horned beetle are potential new pests that, if introduced, could have significant impact. The emerald ash borer threatens over 5.2 million urban trees—20% of the entire resource.

Finally, the most important long-term threat to the urban forest is lack of research—biological, ecological, social, and economic. Without this on-going study, communities will not have the tools to manage the urban forest ecosystem into the future.

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## **II. The current use in this state for forest products and the benefits that these forest products provide to the state.**

Wisconsin forests yielded a total of 414.2 million cubic feet of roundwood in 2007, up from 408.6 million cubic feet in 2002. Hardwood species comprise the vast majority (79.2%) of total roundwood production in Wisconsin, a proportion that has been stable over the last decade. Over half (52.8%) of all roundwood produced in Wisconsin (for both hardwood and softwood species) in 2007 is pulpwood destined for paper and paperboard production. For all species in 2007, sawlogs were second-most prevalent (24.1% of all roundwood), followed in descending order of production by composite products, fuelwood, miscellaneous products, and post, poles, & pilings.

The demand for products from Wisconsin's forests has grown slightly each year, though some species like red pine have seen reduced use due to changes in demand by the paper industry while other species have seen increased demand. According to 2007 data, direct employment for the forest industry was 68,846. This is down from 72,603 in 2005. Employment in Wisconsin's forest industry has declined since 2000, paralleling a slowdown in the global economy. Employment in pulp and paper industries, secondary forest industries (furniture and fixtures), and other forest product industries have all dropped. The furniture market segment has seen significant decline while the kitchen cabinet and architectural wood working segments seem to be growing. The value of shipments has decreased from a 1995 high of 26.8 billion to 20.5 billion by 2006. Wisconsin forest product companies are changing to meet the competition from a global marketplace.

This steady flow of products, besides helping to manage the forests, provides for a strong economy through the direct jobs that exist in the forest product industry. The timber production industry provides for primary, secondary and reconstituted wood products. Wisconsin's forest products industries comprise 13.8% of the value added in all manufacturing sectors.

Wisconsin's forest product industry creates high paying jobs. Average wages for forest industry jobs are \$44,000 annually, compared to the state average of \$36,000. In all, the forest products industry contributes about \$3.1 billion per year in wages to the Wisconsin economy.

The other amenities provided by the forest are difficult to put a value on, but are significant. On an annual basis, forest-based recreationists spent approximately \$2.5 billion within Wisconsin communities (Marcouiller and Mace, 1999). This spending stimulates the economy further and it is estimated that forest-based recreation is a \$5.5 billion dollar industry (WEDI, 2004).

Urban forests in Wisconsin provide myriad ecological, social and economic benefits. In a recent urban forest assessment piloted by the USDA Forest Service and WI- DNR, estimates show Wisconsin's urban forests annually remove 6,400 metric tons of air pollution valued at \$36.3 million, annually sequester 119,000 metric tons of carbon valued at \$2.4 million and annually reduce building energy use by \$9.6 million. The structural value of the urban forest (the cost to replace the trees) was estimated at \$10.9 billion. In addition, a recent study by the Wisconsin Agricultural Statistics Service released in 2004 showed that the "Green Industry" (the production, installation and maintenance of landscape trees, shrubs, sod, flowers, etc.) contributed \$2.6 billion to the state's economy.

### **III. The projected future demand for forest products and the projected benefits that these forest products will provide to the state in the future.**

The forest industry has often been referred to as a spider web of inter-dependencies; therefore, projecting the future is difficult. In Wisconsin, the pulp and paper industry is the largest sector within all forest industries. It accounts for approximately two-thirds of the output in value and raw material consumption. Paper demand has historically grown with the growth of population, but has followed a five year up and down cycle as new plants come on line, capacity exceeds demand, and demand catches back up to production and the cycle starts over again.

It can reasonably be expected that the demand for paper will grow in the world, but determining the supply source is a greater question. If the domestic suppliers can stay competitive in the global marketplace, they should survive. Demand has been growing for the high quality paper that Wisconsin produces. China, who has been a net importer of fine writing paper, has begun to export fine writing paper, which has generated increased competition for Wisconsin's paper industry.

There are concerns that the paper industry in Wisconsin has not been investing enough capital to keep their plants efficient and competitive in global markets. This is changing as more recently we have seen significant investment in infrastructure by the industry. It will take an active role by the government to make sure that the long term direction of this industry is growth and not decline. If the paper industry remains competitive in global markets, it should be able to grow and provide markets for Wisconsin wood. The transition of the paper industry to bio-refining and producing non-paper products like ethanol, hydrogen, acetic acid, and others will be key to the long term survival of the pulping industry in today's global market.

The housing slump has impacted sawmills and veneer plants in Wisconsin with some of the lowest prices in recent history. Many of the firms realize the need to export their product in order to make up for the decline. Kitchen cabinets and flooring continue to provide solid markets to Wisconsin companies. The remodeling portion of the market has remained stable. Home building trends are cyclical and once the correction is over, home building will resurge. Manufacturing sectors have continued to create the need for pallets and therefore lumber prices have been stable.

International markets offer increased potential for Wisconsin companies, particularly in the high end furniture sector. Current limits on hardwood exports from Russia to China have opened markets. European markets also appear to be opening up. Continued assistance by the state to help companies move into these markets is needed to help Wisconsin family-owned business take advantage of these opportunities.

As furniture production has moved off-shore, the demand for hardwood lumber from the kitchen cabinet industry has provided one of the stabilizing forces in the market. The flooring and kitchen cabinet markets are projected to grow. This should provide a good market for Wisconsin mills unless significant competition starts from off-shore producers. The cyclical nature of these markets will continue to occur. Some producers are looking to export some of their products such as lumber, doors, windows, and logs to diversify their customer base. Wisconsin has high quality hardwood that will continue to be in demand for solid wood products.

#### IV. The types of owners and forms of ownership that apply to forests in this state, including the reasons why persons own forest land.

##### Wisconsin Forest Ownership

##### Wisconsin Forest Ownership (16.7 Million Acres)

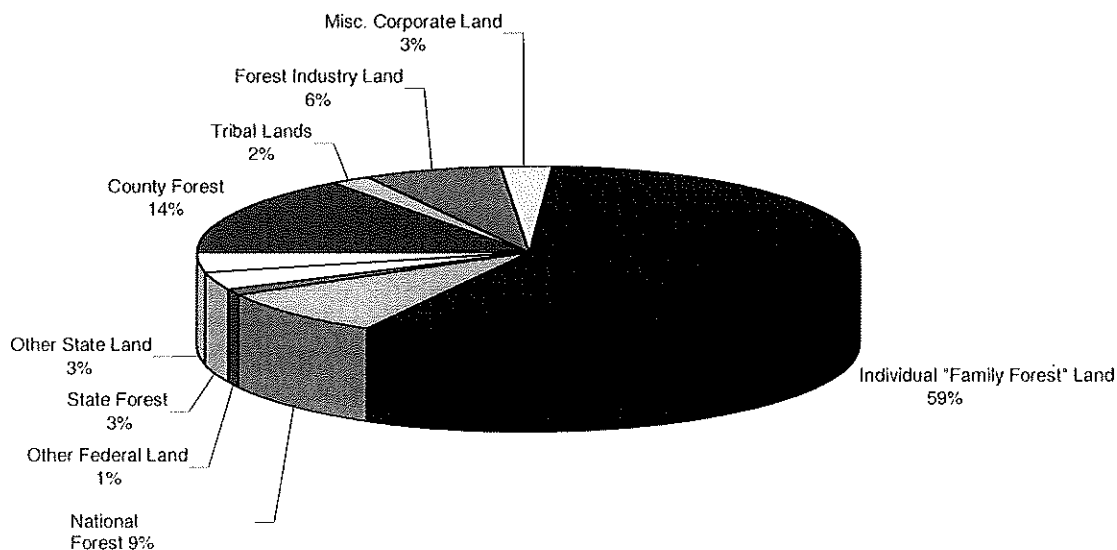


Figure 1. Wisconsin Forest Ownership, 2008

Of approximately 16.7 million rural forested acres in Wisconsin, 59% are in individual, "family forest" ownership. The rest are county forest, 14%; national forest, 9%; State Forests, 3%; other state land, 3%; private forest industry land, 6%; miscellaneous private corporation land, 2%; tribal land, 2%; and other federal land, 1%. In addition to rural forestlands, there are 1.8 million acres of urban forest in Wisconsin.

##### Number of Private Owners and Parcel Size

According to the 2006 Forest Inventory Analysis (FIA) and National Woodland Owners Survey (NWOS), more than 362,000 private forest landowners hold an estimated 11.1 million acres of forestland. This is a 38% increase over the number of private landowners reported in the 1997 NWOS. This is almost double the 20% increase in landowners observed in the previous ten-year time period dating back to 1984.



Based on the 2006 reports, private forest landownership is well distributed throughout the state, although parcel sizes tend to be significantly smaller in the more populous areas (Figure 2). Statewide, the 1-9 acre parcel size class has 50% of the landowners, but only about 4.7% of the forestland (Figure 3). About 186,000 owners hold the 10.6 million acre balance. The overall average parcel is about 30 acres in size for all private owners. For private landowners with 10 or more acres, the average parcel is 55 acres. These parcel sizes represent a significant decrease from parcel sizes in 1997 (41 acres and 61 acres, respectively).

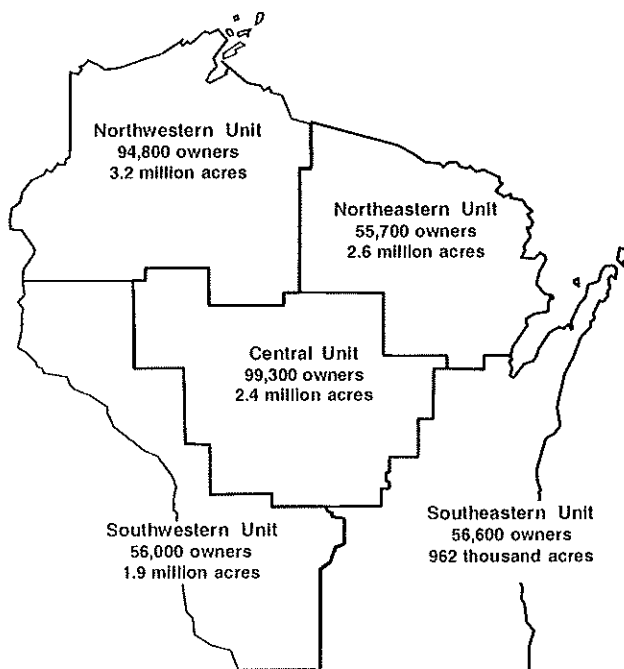


Figure 2. Distribution of private forestland owners and acres owned between forest survey units, 2006.

Owners and Acres by Unit				
Unit	Owners		Acres	
	Thousand	Percent	Thousand	Percent
Northeastern	55.7	15	2,586.0	23
Northwestern	94.8	26	3,194.5	29
Central	99.3	27	2,431.7	22
Southwestern	56.0	15	1,943.5	17
Southeastern	55.6	16	961.7	9
State total	362.4	100	11,117.5	100

Table 1. Estimated number of private forestland owners and acres owned by unit, Wisconsin, 2006

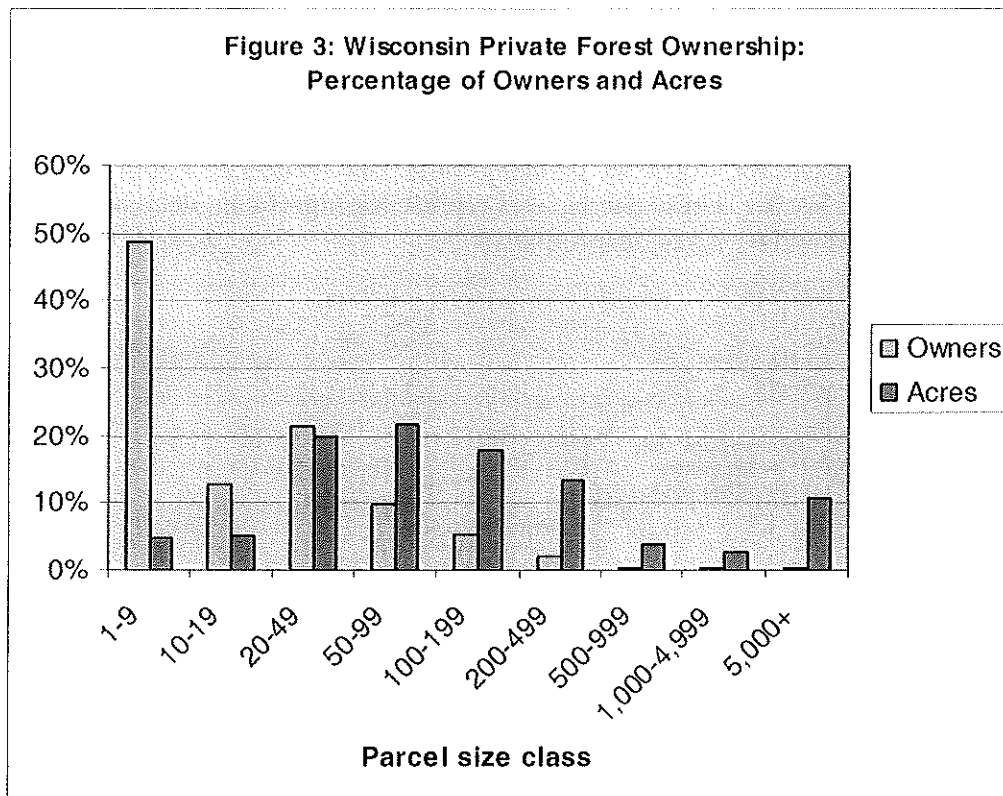


Figure 3. Wisconsin private forest ownership: percentage of owners and acres

### Forest Industry Ownership

A growing trend in forest industry ownership is the transferring of woodland as global corporations realign or divest their land holdings. Lands once held by paper companies are increasingly held by Timberland Investment Management Organizations (TIMO) and Real Estate Investment Trusts (REIT). These ownership types typically sell portions of their land base to maintain higher returns on investment than timber management can provide. Since January 2003, approximately 161,000 acres have been sold to small private landowners or public agencies. Forest industry and investor groups now hold 846,439 acres in Wisconsin's Forest Tax Law programs. Of that land, only 3% (25,676 acres) is closed to public access.

As part of the 1990 Farm Bill, Congress created the Forest Legacy Program to identify and protect environmentally important private forestlands threatened with conversion to nonforest uses, such as subdivision for residential or commercial development. To help maintain the integrity and traditional uses of private forest-lands, the Forest Legacy Program promotes the use of conservation easements. Wisconsin Forest Legacy conservation easements currently protect approximately 62,000 acres of industrial forest lands from development, with another 25,000 acres funded but not completed. The Forest Legacy program has also funded conservation easements on approximately 1,100 acres of family-owned forestland in the Baraboo Hills and Holy Hills projects.

### Demographics of Wisconsin Individual Private Forest Landowners

Individual private (family) forest landowners are employed in a variety of occupations. Twenty percent are white-collar workers, 20 percent blue-collar workers, and 6 percent farmers. However, the most distinguishing factor about individual owners is that almost 40 percent of them are retired. Collectively, retired owners hold over one-third of all private forestland in Wisconsin. Retired owners have taken the place of farmers as the predominant forestland holders because farmers have been divesting their holdings. For example, in 1956, farmers owned 6.4 million acres of forestland in Wisconsin. By 1997, farmer-owned forestland had declined to 1.5 million acres and in 2006 farmers owned less than 900,000 acres of forestland. Approximately 55 percent of family forest landowners reside within one mile of their forestland.

Family forest landowners are older than the general population. With a large share of forest landowners retired, it follows that 30 percent are 65 years of age or older, whereas only 13 percent of the general population is 65 or older. Forest landowners less than 44 years of age make up only 13 percent of all owners.

Wisconsin's family forest landowners have higher household incomes than the state's general population. In 2008, the median household income in Wisconsin was \$52,103. In 2006 (the year of the survey), 56 percent of the family forest landowners who answered the survey question about income had annual incomes between \$50,000 and \$99,000. Fifteen percent had incomes greater than \$100,000.

### Reasons for Owning Forestland

The two primary reasons people own forestland are aesthetic enjoyment and because the land is part of their primary or secondary residence. Almost two-thirds of all individual owners ranked these reasons as important or very important reasons. Only 25 percent of all individual owners hold forestland primarily for timber production. However, those holding forestland for timber production own over two million acres of forestland. Benefits landowners say they derive from owning forestland correspond closely to reasons for owning forestland. Recreation and aesthetic enjoyment are the primary benefits received from owning forestland.

### Timber Harvesting

Although many individual owners hold forestland for uses other than producing forest products, 51 percent of family forest owners have harvested timber from their land. About one-fourth of all harvesters removed timber because they thought it was "mature" or to improve the quality of remaining trees. Almost one-fifth harvested timber for personal use, mostly as fuel wood.

About 10 percent of family forest owners holding 30 percent of family forest land intend to harvest timber in the next 5 years. Approximately one-third intend to harvest firewood. Thirty-six percent, holding 25 percent of the family forest land, say they have no activities planned.

### Forest Management Advice and Sources

Twenty-three percent of all family forest owners have received professional forestry advice in managing their forestland. Seeking assistance is strongly related to and influenced by tract size. As the size of holding increases, owners are more likely to use assistance as shown below:

Size of holding (acres)	Sought assistance (percent of owners)
1-9	15
10-49	22
50-99	43
100-499	58

Nearly 50 percent of those who received advice utilized the state forestry agency. Fifteen to twenty percent received advice from university extension, a federal agency, another landowner, a private consultant, or a logger.

Less than one-quarter of family forest owners who harvested timber consulted with a forester on the harvest. Similar to management advice received by all family forest owners, consulting with a forester on a timber harvest is strongly related to the size of the forest holding. As the size of the tract increases a landowner is more likely to consult a forester when harvesting timber.

Size of holding (acres)	Consulted forester on timber harvest (percent of owners)
1-9	4
10-49	29
50-99	42
100-499	50

Due to the increasing number of family forest landowners, there will likely be an increasing need for forest management assistance. In 2007 and 2008, WI-DNR and Cooperating Foresters made over 8,000 initial (new) forest assistance calls.

Private Forest Management Assistance 2007 & 2008	DNR Foresters	Cooperating Foresters
Comprehensive Managed Forest Law or Stewardship Plans	3,781 (number)	1,462 (number)
	227,458 acres	96,046 acres
Total Technical Service Contacts	24,509	8,307

Non-profit educational organizations including Wisconsin Woodland Owners Association and Wisconsin Family Forests provide a variety of learning opportunities for private forest owners and others interested in managing Wisconsin's woodlands. Through field days, meetings, workshops and various partnerships these organizations help foster and encourage the wise use and management of Wisconsin's woodlands.

## Forest Recreation

Over 50 percent of individual owners use their forestland for recreation. This is not surprising, as recreation is an important reason for owning forestland. Individual private owners tend to limit public use of their forestland; only 13 percent of all individual owners make their forestland available for public recreation. Owners with larger tracts are more likely to permit public access to their forestland than are owners with smaller tracts. Almost 40 percent of all individual private forestland is posted.

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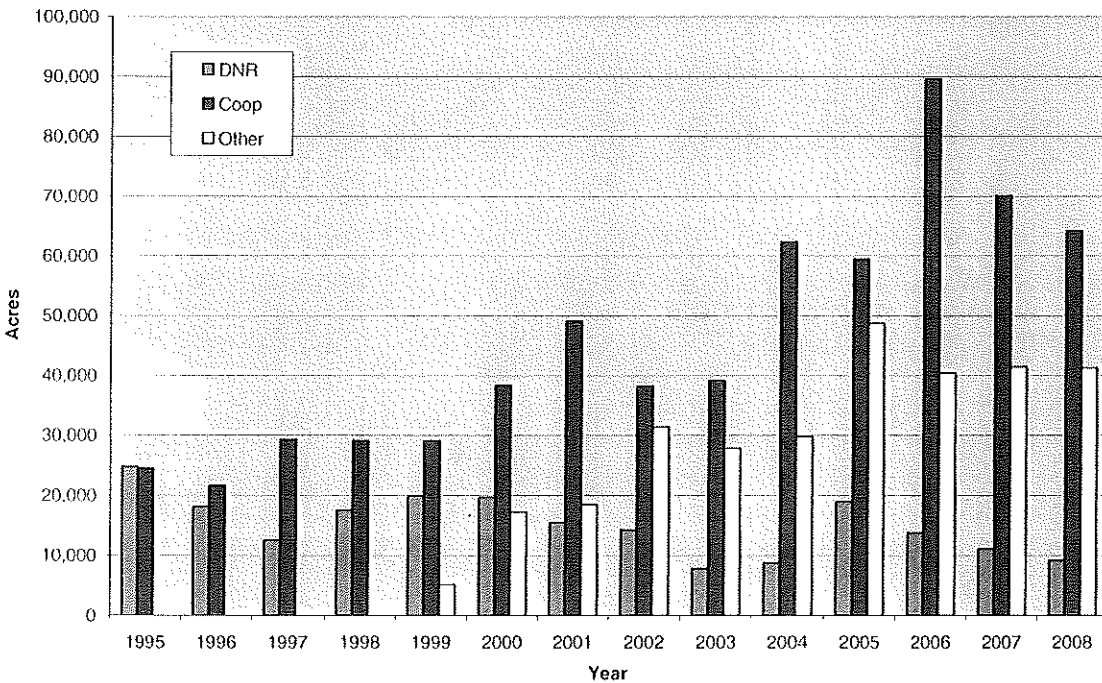
## V. The success of existing incentives that are offered to stimulate the development of forest resources.

### Technical Assistance

Wisconsin Department of Natural Resources foresters are located in nearly every county of the state to motivate and guide landowners to practice sustainable forestry. The free knowledge and assistance they provide can be the motivation for a landowner to sustainably manage their woods. The majority of WDNR foresters' workload is administration of incentive programs. WDNR foresters only establish sales if private consulting foresters decline to provide the service.

There are about 200 private consulting foresters and industrial foresters from 125 firms who offer services to private landowners in Wisconsin. Consulting foresters are independent contractors who make their living by charging a fee for the work they do. The WDNR Division of Forestry began the Cooperating Forester program in 1989. Private consulting foresters and industrial foresters voluntarily apply to participate. Cooperating Foresters are listed in a directory (<http://dnr.wi.gov/forestry/private/assist/>) and receive referrals from WDNR foresters. In return, Cooperating Foresters must comply with WDNR standards and rules when giving forest management advice. Cooperating Foresters must also attend continuing education courses and file periodic reports with the WDNR. In 2007 and 2008, Cooperating foresters and other WDNR approved foresters established on average 92% of all timber sales.

**Acreage of Wisconsin NIPF Timber Sales Established by  
DNR and Cooperating Foresters and Others  
1995-2008**



## Forest Tax Laws

Today about 42,845 landowners, owning more than 2.99 million acres, are enrolled in the two existing forest tax law programs: Forest Crop Law (FCL) and Managed Forest Law (MFL). The FCL program closed to new enrollment in 1986, after the Managed Forest Law program replaced both FCL and the former Woodland Tax Law.

In 1985, the Wisconsin State Legislature enacted the Managed Forest Law (MFL) program to allow Wisconsin landowners to be recognized for their forest stewardship efforts and qualify for a reduced tax burden because of the public benefits provided by well-managed forests. The MFL Program is widely recognized as a model program for addressing landowners' interests while promoting the public benefits of sustainable forestry. Lands entered under the forest tax laws are required to have written management plans that landowners must follow. Management plans can address harvesting and thinning timber, tree planting, erosion control, and wildlife management. These plans must be prepared either by a certified plan writer or a WDNR Forester.

The MFL program, which provides a significant property tax reduction and technical forestry guidance, is the primary forest stewardship incentive offered to Wisconsin landowners. As of 2008, the program includes 42,845 MFL Orders of Designation. The agreements cover 2,274,638 acres. Of those lands, 39% (1.7 million acres) were open to public access. Current enrollment in the FCL is about 1,554 FCL contracts with about 137,780 acres. FCL renewal is not permitted, but a landowner may roll the land into the MFL program.

2005 Wisconsin Act 25 made modifications to the Managed Forest Law regarding who prepares management plans for the MFL program. For the May 15 petition deadline, a Certified Plan Writer (CPW) must prepare the management plan. For the July 1 petition deadline, petitions will be placed on a referral list, which will be made available to the CPWs, for 60 days. If a CPW makes an offer to the landowner to prepare the plan, the WDNR will not prepare the management plan. If a landowner does not receive an offer within 60 days, the WDNR may agree to prepare the plan. Offers will be reported to the WDNR by the CPW.

The CPW program has been very successful since its inception with 97 CPW. Plan writing services are now available to most people in the state and WDNR foresters write very few new MFL management plans. In recent years the department has generally written fewer than 15 plans per year, with some years as little as 2 plans. The list of Certified Plan Writers can be found at [http://dnr.wi.gov/forestry/ftax/cpw\\_list\\_public.pdf](http://dnr.wi.gov/forestry/ftax/cpw_list_public.pdf).

## Wisconsin Forest Landowner Grant Program

Wisconsin Forest Landowner Grant Program (WFLGP), a state program administered by the WDNR Division of Forestry, provides up to 50% cost-share for the preparation of management plans and the implementation of designated practices. Wisconsin's annual allotment for 2007 was \$1.65 million for this state-run cost share program. The maximum cost share that can be earned is \$10,000 per year.

Cost sharing is available for: plan preparation, tree planting, timber stand improvement, soil and water protection, fencing, wildlife practices, fisheries practices, buffer establishment, threatened and endangered species protection, and historic and aesthetic enhancement.

For 2007, WFLGP funded the following projects.

- 249 stewardship plans and revisions  
(\$117,000)
- 256 site preparations (\$256,000)
- 295 tree plantings (\$280,000)
- 8 shrub plantings (\$1,400)
- 5 fencing practices (\$3,300)
- 348 undesirable species control (\$310,000)
- 20 landowners' tree shelters (\$10,000)
- 9 pruning projects (\$7,800)
- 85 crop tree releases (\$74,000)
- 4 vine removal (\$808)
- 2 road layout and design (\$1,900)
- 5 erosion control measures (\$2,000)
- 23 native grass establishments (\$7,300)
- 11 wetland restorations (\$25,000)
- 3 removals of fire hazard materials (\$2,300)
- 2 wildlife openings (\$3,000)
- 4 direct seedlings (\$3,000)
- 3 removals insect and disease control  
(\$2,000)

#### Environmental Quality Incentive Program (EQIP)

Environmental Quality Incentive Program (EQIP) is a federal program administered by the Natural Resources Conservation Service (NRCS) with NRCS and the WDNR Division of Forestry as technical agencies. It provides up to 75% cost share. At least 65% of dollars available are allocated to priority areas, the remainder is available statewide. The maximum cost shares set by the federal government is currently \$10,000 annually; \$50,000 per contract. Cost sharing is available for: tree planting, ecosystem management, erosion control (on agricultural land), agricultural waste management and stream buffers.

#### Conservation Reserve Enhancement Program

The Conservation Reserve Enhancement Program (CREP) is a voluntary land retirement program that helps agricultural producers protect environmentally sensitive land, decrease erosion, restore wildlife habitat, and safeguard ground and surface water program. It is administered by the Farm Services Agency (FSA) with Natural Resources Conservation Service (NRCS) and WDNR



providing technical expertise. This annual payment program is based on bids submitted by the landowner. The program provides 50% cost-share for cover establishment. In 2007, CREP funded 763 acres of riparian buffers and 203 acres of wetland restorations.

CREP contracts require a 10- to 15-year commitment to keep lands out of agricultural production. CREP provides payments to participants who offer eligible land. A federal annual rental rate, including an FSA state committee-determined maintenance incentive payment, is offered, plus cost-share of up to 50 percent of the eligible costs to install the practice. Further, the program generally offers a sign-up incentive for participants to install specific practices.

### Urban Forestry Grants

The urban forestry grant program provides 50-50 cost-share funds to Wisconsin cities, villages, towns, counties, tribal governments, and 501(c) (3) nonprofit organizations to improve their ability to manage their urban trees. In 2007 and 2008, projects that prepared communities for emerald ash borer (EAB) were given priority. These include conducting inventories, assessing community impact of EAB, developing EAB readiness plans, removing high risk ash, planting a diversity of non-ash species and providing EAB staff training or public outreach. Other types of projects funded include: developing urban forest management plans, urban forestry training and public outreach, tree maintenance, celebrating Arbor Day, and other projects specific to a community's urban forest needs.

Over the past two years, the department has given out 98 grants to cities, villages, towns, counties, tribes, and nonprofit organizations throughout the state totaling almost \$1.13 million. Of those grants, 68 had an EAB component, totaling \$777,473. This has helped communities prepare for and respond to EAB, which was first found in Wisconsin in 2008.

In 2007, Governor Doyle signed Wisconsin Act 13 into law, which established the Wisconsin Urban Forestry Catastrophic Storm Grant program. This program provides match-free grants up to \$50,000 to remove, repair, and replace urban trees damaged in storms where the governor has declared a state of emergency. These grants now allow the DNR to respond immediately to communities that have suffered catastrophic storm damage to their urban forests. The first grants of this new program were provided as a result of the January 2008 tornado in Kenosha County.

Urban forestry grants not only improve management, but also create public-private partnerships that stimulate the commercial and non-government sector. In addition to EAB readiness, the grant program has played a significant role in helping Wisconsin communities achieve the national recognition of Tree City USA, ranking Wisconsin third in the nation with 174 Tree City USAs.

### References:

- Wisconsin Department of Natural Resources, Division of Forestry. Forest Tax Laws website: <http://dnr.wi.gov/forestry/ftax/index.htm>
- Wisconsin Department of Natural Resources, Division of Forestry. Certified Plan Writer website: <http://dnr.wi.gov/forestry/ftax/cpw.htm>

## **VI. The possible economic opportunities that may result if improved forest-product marketing, and increased business dealing in or use of forest products, occurs in this state.**

Economic opportunities that may result from improved forest marketing or increased business dealing in the use of Wisconsin's forest products are varied. In the pulp and paper industry, bio-refining may allow pulp mills to develop other products as part of their processing process. This would then add to the revenue stream, improving their competitive picture in the global economy. The use of biomass for fuel may help mills to lower their cost of operation as the technology for removing biomass from the land improves. These industries are constantly looking for new products and processes to remain profitable.

The development of new products and the increasing acceptance of nontraditional materials and methods have the potential to help in the management of the forest. For example, with the reduced use of red pine for paper, this species may be used to produce structural lumber—a new opportunity for companies. New ways of managing may promote healthy forests and new markets as well. The introduction of cable yarding systems to Wisconsin may increase the availability of hardwood timber in difficult to manage areas with steep terrain. Technical staff from the WDNR and University of Wisconsin will be needed to develop and implement these types of efforts. Just as in business, there is a need to constantly encourage new products in order to maintain markets and thus enable sustainable management of the forest.

There are significant opportunities for Wisconsin forest product companies in the global economy. However, many of the state's companies are small to medium with no international experience and limited capability for global market research and development. To diversify and strengthen these companies, assistance is needed in market identification and in development of international market skills through technical assistance. Targeted trade missions organized for the forest industry have been successful in introducing companies to markets and in helping managers become comfortable in international sales. These efforts should be expanded to meet the increasing need for companies to do business internationally.

## **VII. Recommendations for increasing the economic development of the forestry industry and employment in the forestry industry.**

### Forest Product Export Program

The marketplace for Wisconsin forest products has become a global marketplace. Wisconsin's primary wood processing industry has not reduced in size in the last three years, while value added (i.e. secondary) manufacturers have declined by more than 50% over the same period. The lack of decline in the primary wood processing industry is directly related to companies increasing their global sales. Similar global market development has not occurred in the secondary wood processing industry. Previous trade missions were funded by federal grants, but federal grant funding that supported past market development has been eliminated.

With the increased importance of exporting in order to maintain markets, a formal program should be developed and funded to allow for trade missions and market development to be done on a regular basis. Market development, which includes identification and introduction of the forest products industry to foreign markets, is important due to the limited management structure of many Wisconsin forest product companies. These companies do not have the resources to hire international business experts on staff. WDNR Division of Forestry staff provided this service through finding an occasional grant to fund the effort. Providing for the continuity of this effort is important and will require future funding.

### Biomass

The biomass area offers the potential to provide markets for forest materials not traditionally used. However, care needs to be exercised so use of forest materials for biomass does not overtake other uses that have higher value, such as pulp and paper. Further care needs to be taken to ensure the long-term sustainability of the forest when excess biomass is harvested.

The technology involved with producing ethanol from cellulose is rapidly developing and will create markets for material currently under-utilized. The potential for adding bio-refining at pulp mills is excellent. The biomass industry has typically been the lowest valued use of the forest. This is changing as the cost of fossil fuels increases and uses of biomass is becoming more competitive with pulp and paper. The major push to develop cellulosic ethanol will bring this technology into production soon. This will help the pulp and paper industry by providing another product from their facilities. The stand alone ethanol plant using cellulose as a feed stock will change the demand on the forest and the structure of the industry by creating demand for material not currently used.

The creation of a "Fuel for Schools" program provides schools the opportunity to reduce fuel costs by displacing natural gas, electricity, or oil consumption by using the residual wood of a nearby wood processing plant. This also holds potential for other applications as removal technology lowers the costs of accessing the residuals left in the woods. Supporting wood pellet use in public institutions would keep expenditures for fuel costs in local businesses, which may help the rural economy create markets for locally available material.

### Education

The work force that is available to an industry plays a role in their success. Currently there is a shortage of loggers and skilled woods workers. The average age of logging contractors in Wisconsin, according to the Wisconsin Professional Logger association, is 52.

Wisconsin's WoodLinks program has recognized there are many loggers who will retire in the next decade and is developing specific logging programs for schools in northern Wisconsin to train the future forestry work force. The WoodLinks program connects the forest industry to technical education programs in high schools. Wisconsin has been a leader in the implementation of the WoodLinks program with over 34 schools now in the program. There is a need for a permanent statewide WoodLinks coordinator to organize the interaction of schools and the forest industry. The Wisconsin WoodLinks now has 501(c)(3) status, allowing them to

compete for grants and develop stable funding for the program. The WoodLinks coordinator has been very successful in providing direction to the program. Continuity is needed for this program to succeed.

With the shortage of forest workers, there is a need for a technical college program to help prepare workers for successful employment in this field. Current forest industry equipment is becoming increasingly sophisticated to operate. Timber processors used in the woods can take up to three months of training to be able to run and several years to become proficient. The lack of skilled operators is limiting expansion of this industry. A technical college program that introduces woods workers to forestry, surveying, safety procedures, conventional harvesting, and automated harvesting would help prepare workers to gain employment in the forest industry. The WoodLinks program plays an important role in introducing high school students to opportunities in this area. A limited attempt at this sort of program has begun at North Central Technical College in Wausau with an introductory training program.

There are currently wood techniques programs at the technical colleges. They provide needed training and manpower for both the primary and secondary forest product industries. The continued support of this effort through adequate funding is import to maintaining the strength of this industry.

#### References:

- Center for Technology Transfer. 2004. Wisconsin's Forest Products Industry Business Climate Status Report 2004. Available online:  
<http://www.cleantechpartners.org/uploads/images/pdf/BusinessClimateStatusRptRevised.pdf>

### **VIII. The effect of state and local governmental laws and policy on forestry management and the location of markets for forest products.**

Wisconsin statutes, administrative codes, local ordinances, and policy making create the framework and the environment in which public and private forest managers function. These state and local laws and policies have a continual impact on forest management and, as one potential result, the location of markets for forest products.

The 2007-2008 legislative session was relatively light overall and as a result only two forestry related bills were passed into law. Below is a brief summary of the legislation that was deliberated and signed into law between 2007 and 2008.

1) Act 13 (AB 36) – Grants for catastrophic damage caused to urban forests. This law provides the Department with the authority to award grants to counties, cities, village, towns, nonprofit organizations, and federally recognized Indian tribes or bands that apply for the grants for the costs of removing, saving, and replacing trees that have been damaged by catastrophic storm events in urban areas. To be eligible for a grant under this subsection, the damage must have occurred in an area for which the governor has designated a state of emergency due to a catastrophic storm event.

2) Act 16 (AB 414 & SB209) – Allows annual or consecutive month permits for vehicles or combinations of vehicles transporting loads near the Wisconsin–Michigan border. Act 16 authorizes the Wisconsin Department of Transportation to issue annual or consecutive month permits for the transportation on a vehicle or combination of vehicles of loads exceeding statutory length or weight limitations over any class of highway for a distance not to exceed 11 miles from the Michigan–Wisconsin state line, except that a vehicle or combination of vehicles transporting exclusively peeled or unpeeled forest products cut crosswise, wood chips, or forestry biomass may operate under such a permit anywhere upon USH 2 in Iron County or Ashland County or upon USH 2 in Bayfield County from the Ashland County line through Hart Lake Road if the vehicle or combination of vehicles is traveling between this state and Michigan and does not violate length or established weight limitations.

A few noteworthy topics that were debated but not passed were:

- 1) Creating an exemption allowing wind turbines on MFL lands
- 2) Establishing exemptions which would allow owners of lumber to have such lumber milled for use in the construction of their own homes

## **IX. Recommendations as to staffing and funding needs for forestry programs and other conservation programs related to forestry that are conducted by the state to support and enhance the development of forest resources.**

The recommendations contained within this section are drawn from program studies completed by the Division of Forestry in which staffing and funding needs were identified. Since not all programs in the Division of Forestry have recently undergone a study, this list of recommendations is not comprehensive and does not address all the staffing and funding needs of the Division, nor other conservation programs that enhance the development of forest resources.

### Communities at Risk

In an effort to identify which Wisconsin communities are at greatest risk from wildfire, the Division of forestry conducted a statewide Communities at Risk Assessment in 2007. The study involved a GIS model that incorporated level of hazard, proximity to wildland urban interface, and ignition risk. This assessment will be used to prioritize education, preparedness and fuels reduction projects, Firewise Communities, and the development of Community Wildfire Protection Plans.

### Forestry Law Enforcement

The needs assessment of the Wisconsin Forestry Law Enforcement Program within the Wisconsin Department of Natural Resources provided insights into the forestry law enforcement program and detailed recommendations on the future direction for the program. This study was conducted by the Forestry Law Enforcement Study Committee at the request of the Division of Forestry Leadership Team in December, 2005.

The information collected by the team, through personal interviews and focus groups with forestry program members and internal and external partners, painted an accurate picture of where the forestry law enforcement program is today. The Forestry Law Enforcement Study Committee put forward a litany of recommendations to address needs within the forestry law enforcement

program. These recommendations encompass broad areas of safety, workload, policy, personnel, training, attitude, and education for forest fire, forest management, and recreational law enforcement. The Forestry Leadership Team made the commitment to address these recommendations and is looking forward to moving the forestry law enforcement program forward.

Some of the key recommendations from this law enforcement study that will chart the course for the future of the Division of Forestry and the law enforcement program include:

- The development, in conjunction with other natural resources law enforcement bureaus, of a Department of Justice accredited natural resources law enforcement training academy for state personnel to attend and become certified natural resource law enforcement officers.
- The concept of forestry law enforcement investigators to accomplish the complex and time consuming forest fire, arson, MFL, and timber theft investigations.
- The concept of each administrative area having a designated credentialed, law enforcement expert, including the cooperative fire protection areas.
- The appointment of the Bureau of Forest Protection as the lead for recreation law enforcement issues on the state forests.
- The development of a Forestry Law Enforcement Handbook to provide guidance and policies to our law enforcement programs.
- Increased staffing of recreational law enforcement on the state forests to address the issues that arise with increased recreational users and the diverse recreational opportunities provided on these properties.
- The development of a forestry law enforcement database to permit the collection and analysis of our law enforcement program.
- The development of a new forestry classification specification to address the uniqueness of the northern state forest law enforcement positions.

These recommendations and others contained within the study document will position the forestry law enforcement program to address issues in the future.

The report may be requested from the WDNR Division of Forestry, Bureau of Forest Protection Director, Trenten Marty (Trent.Marty@wisconsin.gov)

### Urban Forestry Program

In 2007, the Wisconsin Urban Forestry Council presented the WDNR Secretary and the State Forester with its report on the state of urban forestry in Wisconsin. This report was based on two USDA Forest Service pilot urban forest assessments, a needs analysis by the urban forestry program and an issue analysis by the Urban Forestry Council. The report identified five critical issues, four strategic directions, and thirteen specific funding and staffing recommendations. This report was endorsed and adopted by the Wisconsin Council on Forestry in December 2007.

The critical issues the Council identified were:

- Federal budget cuts threaten urban forest management.
- Emerald ash borer threatens 5.2 million urban ash trees, 20% of the entire resource.
- Our tree canopy cover is only 14% compared to the desired 40% and lacks species diversity.
- Wisconsin's urban forests annually provide over \$64 million in environmental services which could be an effective tool to help address climate change and energy independence.
- Wisconsin's urban forestry grant program is not meeting the state's needs.

The Council identified four strategic directions to address the critical issues:

- Manage the trees we have.
- Plant more trees.
- Increase biodiversity.
- Facilitate partnerships and collaboration.

The Council made specific funding and staffing recommendations to DNR to address its role in these critical issues and strategic directions.

- Convert existing unsustainable, federally funded LTE staff to state-funded full-time staff.
- Provide additional staff to expand partnership building capability and urban forest health expertise.
- Increase the urban forestry grant program to provide necessary incentives to local governments and nonprofits.
- Institute a continuous urban forest inventory and canopy analysis to set resource goals, identify new threats, measure initiative results, and quantify benefits to the public.
- Provide additional annual funding for contracts and cooperative agreements with private and public partners to provide technical assistance, outreach, education, and research.

The recommendations included \$1,470,100 in grants, \$300,000 in contracts, \$215,000 in cooperative agreements and 8.5 new staff positions costing \$605,000. Budget items covering these recommendations were submitted by staff to the DNR Forestry Leadership Team, but as of December 31, 2008, the 09-11 budget development was still in progress.

For additional detailed information see: *Wisconsin Urban Forestry Council 2007 Report* at: <http://dnr.wi.gov/forestry/UI/council/pdf/UFAAnnualReport07.pdf>

### Information Technology (IT)

IT is one of the largest emerging tools in sustainable forest management. It permeates every aspect of the forestry program from the first contact a landowner has with the WDNR Website, through the myriad systems like GIS, GPS units and satellites that manage and provide data on our forest resources to the desktop computer – now such a fundamental part of the daily life of nearly every forester.

Some of the technological changes facing forestry include:

- The increasing use of the Internet for access to data, as a mechanism to serve forestry applications and information to multiple users, and as an important tool for communication with internal staff and external partners.
  - o The Division of Forestry's online presence is increasingly important as a primary means of communication. However, while it is a technology solution that the

Division must embrace to be aligned with current business practices, there is no base funding in place to support IT staffing for this activity.

- o The Wisconsin Council on Forestry in 2006 agreed to adopt wisconsinforestry.org as its website, to communicate its activities and to foster communication and cooperation with and among forestry's publics and partners. To date, this site has been developed and supported by Division of Forestry staff. Additional staffing to support this site is needed.
  
- The Division of Forestry embarked on a seven-year project (2006-2013) to develop a forestry public and private land management system that will meet the needs of the Division and its external partners. The new system, Wisconsin Forestry Inventory and Reporting System (WisFIRS) will leverage many aspects of the Division's existing forestry systems, incorporate current technologies and databases, and expand to cover essential forestry practices that are not currently automated. WisFIRS is a web-based system that will primarily run on the Department's intranet. In order to accommodate the Division's partners, portions of the system will be available for use externally. One of the key goals of this project is the integration of geographical information throughout the system. Three of the Division's current land management data systems are being redesigned and integrated as part of this effort.
  - o RECON/Timber Sale (Public Lands)
  - o Managed Forest Law (MFL) (Private Tax Law Lands)
  - o PlanTrac (Private Tax Law Lands)

The Division of Forestry has attempted through the biennial budget process, with limited success, to fund \$1.15 million of unmet needs in the IT program, including a structural deficit in the budget line that is used to replace staff computers as they age. Additional funding needs to support the WisFIRS project are projected at \$1.4 million for completion and \$150,000 per year to maintain the system.

#### Forestry Communication and Education

The forthcoming forestry science center to be located near Milwaukee (details later in this report) will be a key strategy for bringing the sustainable forestry message to urban residents who, as surveys show, do not recognize the ecological, social and economic value of forests in Wisconsin. WDNR has acquired the land for the center and spending authority for \$160,000 of ongoing funding through the biennial budget process. This funding level is only minimally sufficient to support current stages of organizational development and project planning. Ultimately, this ongoing funding will support a small portion of the annual operating expenses of the facility such as programming, staffing, exhibit development, property and facility maintenance, and supplies and services. If additional ongoing planning and operations funding can not be secured through the biennial budget process, the balance of operating costs will need to be funded by private donations and the center's revenue streams once it is operational. While the intent is that the building construction will be funded through capital development, a substantial investment is needed before that for site planning and preparation.

#### Forest Health Program

A statewide study of the Wisconsin Forest Health Program (WFHP) was completed and



approved by the Forestry Leadership Team in March 2006. The Forest Health Program study also consisted of an Invasive Plants Program Feasibility study that looked at the feasibility of establishing an invasive plants program within the Forest Health Program. The study was in part the result of recommendations by the Governor's Council on Forestry task group on invasive species and the Wisconsin Council on Invasive Species.

The study concluded in part that WFHP is both anticipatory and forward looking, in that its success relies on a cooperative relationship among its members and cooperating agencies, with the WI- DNR acquiring/providing additional expertise as necessary, and that this relationship bolsters the overall efficiency with which WFHP can address forest health problems. This cooperative arrangement provides WFHP members with access to expertise otherwise outside the scope of their respective agencies, which in turn helps them deliver services more efficiently, yet in a manner consistent with the statutory authorities under which they operate. The study identified the need for an additional FTE to handle forest health related issues in the southern third of the state.

The invasive plant study recommended that the Forestry Division proceed with developing an invasive plants program. A new program began in 2007 through the decision to reallocate .75 FTE as an invasive plants coordinator, and because of funding received in the 2005-2007 biennial budget. The study recommended a range of alternatives the Forestry Division could implement. At a minimum level (Alternative 'A'), the study recommended action at the local level. Over the longer term, the most comprehensive alternative (Alternative 'B') is desirable because it includes a research component for new biocontrols and silvicultural methods that are seen as essential to the long-term success of our efforts against invasive plants.

Alternative 'A' assumed that a .25 FTE would be identified to complete the .75 FTE invasive plants coordinator position and also requested the equivalent of .5 FTE per region for a total of 2.5 FTE at a cost of approximately \$260,000. Additional funding for monitoring, early detection, eradication, and control activities would be appropriate at this level at a cost of about \$500,000.

Alternative 'B' would require an equivalent of a full 1.0 FTE per region for a total of 5 FTE at a cost of approximately \$555,000. In addition to the activities listed above, research would be appropriate at this level. Total cost for this program would be approximately \$3 million.

#### *Emerald Ash Borer*

The biggest development in forest health over the course of 2007-2008 was the discovery of emerald ash borer (EAB) in Wisconsin. The insect was first discovered in the state in 2008 and has since been found at two locations—Washington and Ozaukee counties. The forest health program, along with the urban forestry program and other partners are taking active steps to slow or prevent the spread of EAB and educate the public on the dangers of EAB. Several monitoring efforts including tree monitoring, surveys, and biosurveillance are helping staff detect any new infestations. Education and outreach campaigns have stressed the importance of not transporting firewood. A new website, [emeraldashborer.wi.gov](http://emeraldashborer.wi.gov) has been established to update the public on the status of EAB and to provide educational resources. An EAB toolkit was also developed.

## **X. Recommendations as to the need to increase the public's knowledge and awareness of forestry issues.**

Following is an overview of existing forestry communication and education programs in Wisconsin. While the current efforts outlined below represent outstanding efforts to share forestry information and reconnect students, residents and visitors with the forest resource, all of them are under funded. See Section IX for recommendations to help ease the funding challenges these programs face.

Wisconsin DNR conducted a social research study in 2000 to determine Wisconsin residents' perceptions and attitudes towards their forests, including their understanding of and concern for environmental and forestry issues and their views on forest dependency and management.

Results of this survey indicated a shared concern among respondents for Wisconsin's forests, and a belief that forests primarily serve as contributors to the environment. Forests were far more recognized for their environmental importance than their importance to the economy, or as a means for jobs and income. The survey indicated that many respondents are not well educated about forestry issues. Many respondents express a concern that the use of trees today jeopardizes their future availability.

According to the survey, the public is open to increased government involvement in forest management and believes that forests should be protected through human efforts. Given this belief, and the trust that the public shares in the WDNR as a source of information on environmental issues, the research analysis concluded that the WDNR is in an excellent position to, through a comprehensive strategy, educate the public about forests and sustainable forestry concepts.

A cross-tabulation of the data between Milwaukee and the other counties was also conducted as the original focus group research had shown a marked difference in the level of awareness between Milwaukee residents and the rest of the state. Both research efforts emphasized the need for extra effort to help residents in the Greater Milwaukee area connect with the forest resource and its statewide importance.

### Milwaukee Forestry Center

Because many people living in Southeastern Wisconsin depend upon and benefit from forests in ways they do not understand, the Council and WDNR – Division of Forestry are laying the groundwork for an educational facility in Milwaukee County. The facility will focus on delivering the win-win message of sustainable forest management to this population that shows the lowest level of connection with our forests and lowest level of appreciation for the key role that forests play in the economy of the area and in our daily lives.

Wisconsin DNR arranged the purchase of a site from Milwaukee County that includes about 47 acres of forest plus an open space for the proposed building. This site (located in Wauwatosa) maintains valuable urban green space and provides a unique opportunity for a demonstration forest right in the heart of the largest urban population in Wisconsin.

The vision for this proposed facility and the associated woodlands is to reconnect learners of all

ages with Wisconsin's forest resource. Through hands-on exhibits and both indoor and outdoor experiences, visitors to the facility will learn about the myriad ways their lives are enriched by forests every day and the impact of their lives on the forest as well. The facility will also introduce the wide range of jobs available in forestry-related fields and help recruit youth for professional and skilled forestry jobs available in Southeast Wisconsin and throughout the state. An important focus of this facility will be groups of school children, providing a valuable field trip destination for the more than 250 schools serving over 150,000 students located within a 50-mile radius of the site. But, in addition to meeting the K-12 educational needs, it will also attract visitors of all ages and from all walks of life.

Steps taken during 2007-2008 to advance this project include initial work on an interpretive plan, hiring a museum planning consultant to guide a strategic planning process and planning for a Founding Board of Directors to focus on organizational development during a one-year term of office.

#### LEAF – Wisconsin's K-12 Forestry Education Program

The mission of the Wisconsin K-12 Forestry Education Program – known as LEAF (Learning, Experiences and Activities in Forestry) – is to initiate and facilitate the development, dissemination, implementation and evaluation of forestry education in Wisconsin schools. LEAF is funded by a surcharge on tree seedlings sold at DNR nurseries.

Since its inception in 2002, the LEAF program has made tremendous progress in documenting forestry concepts that Wisconsin K-12 students should learn, developing a "Wisconsin focused" K-12 forestry education lesson guide and providing teachers professional development in forestry education. This curriculum utilizes a unit-based approach with lessons building upon one another to provide connectivity in the student's educational experience.

In the past two years, LEAF has piloted and produced two supplementary classroom resources—a Wildland Fire lesson guide and an Urban Forest lesson guide. Introduced on the heels of the Cottonville fire, the wildland fire supplement provides teachers a venue to build required student skill sets, while using wildland fire as a real-life, interesting context. The urban forest supplement focuses on the forests that most of our population lives in and makes broader connections to rural forests of the state.

The LEAF Program coordinates the Wisconsin's School Forest Program. Over the past two years, the LEAF program has worked towards a requirement that school forests have both a site based education plan and an active management plan in place in order to receive funding from the Wisconsin Environmental Education Board Grants Program. To date, LEAF has helped 77 schools work on completing an education plan for their forest and connect with local foresters to update their management plan.

The LEAF Program continues to provide professional development and in-services for educators and school districts on the use of the LEAF materials. Currently over 2000 educators have been trained in the use of the LEAF materials and over 336,500 visits have been made to the LEAF website. Program priorities include providing additional services and digital resources for teachers and schools involved in the program and additional educational consulting services for developing school forest programs.

The LEAF program has also focused on building partnerships with forest landowners, forest managers, nature centers and other organizations to support forestry education goals. Visit the LEAF Website ([www.uwsp.edu/cnr/leaf](http://www.uwsp.edu/cnr/leaf)) to learn more about the impressive accomplishments of this program.

#### Wisconsin Environmental Education Board

Wisconsin Environmental Education Board (WEEB) grants are a keystone to forestry education efforts in Wisconsin. Since 1998, \$200,000 from the forestry account has annually gone to WEEB to fund forestry education projects at a grassroots level. With the passage of the 2001-2003 biennial budget, an additional allotment of \$200,000 was provided. The WEEB board designated that these grant dollars support work on school forests. Both the general forestry and school forest grants support forestry education locally throughout the state.

#### Basin Education Program

The Basin Education Program was established to design and provide educational programs and other services in areas delineated by the state's major river basins. At the core of this effort is a network of educators whose task is to encourage local partnerships and provide educational and technical support to stakeholders.

Four of these 15 statewide educators are funded by the state's forestry program and focus on forestry concerns and adult learning. The main target audiences for their forestry education efforts are non-industrial private forest (NIPF) landowners and forestry professionals (loggers and foresters). The goals are to help these groups become informed decision makers and manage forests in a responsible manner.

In September 2006 a special effort was launched to reach "unengaged" NIPF woodland owners (those with limited or no contact with Wisconsin Department of Natural Resources foresters or other forestry professionals, no formal management plans and no membership in woodland organizations) through the "Learn about Your Land" class series. Over the past two years, the "Learn about Your Land" series has reached over 2500 unengaged woodland owners throughout the state. The Basin Education Program has also piloted various webinar sessions, making information more accessible to woodland owners and forestry professionals. Work continues on special programs targeting landowners involved with the Managed Forest Law program that have fallen behind in their practices; with communities in the fire-prone regions of the state, and on issues related to forest health.

For more information about Wisconsin's Basin Education Program and UW-Extension forestry outreach, visit <http://basineducation.uwex.edu/> and <http://woodlandinfo.org>

#### Wisconsin Forest Resource Education Alliance

During 2007 and 2008, the Wisconsin Forest Resource Education Alliance (WFREA) produced radio spots on sustainable forestry and facilitated a collaborative, capacity-building conference on Wisconsin K-12 forestry education.

### Naturalists

Naturalists play an important role in helping residents and visitors better understand our natural resources. In particular, the northern State Forests offer an untapped goldmine of opportunities to reconnect people with Wisconsin's forests.

### Other Forestry Education

Wisconsin also has a rich network of nature centers that help connect residents with our forests and other natural resources. Two organizations in particular focus on forestry education – Trees For Tomorrow in Eagle River and Seno Woodland Education Center near Burlington.

Trees For Tomorrow (TFT) is an independent, nonprofit natural resource specialty school which uses a combination of field studies and classroom presentations to teach conservation values as well as demonstrate the benefits of contemporary resource management.

The Seno Woodland Education Center is 131 acres of forest, fields, prairie and wetlands located in southeast Wisconsin's rolling kettle moraine country. The Wisconsin Woodland Owners Association Foundation manages the property to 1) provide educational opportunities for educators, students, landowners and the general public, and, 2) demonstrate sustainable management of forest and related resources.

