Wisconsin Council on Forestry Biennial Report

January 1, 2011 - December 31, 2012

The Council thanks the following Division of Forestry staff for their assistance in preparing this report: Jolene Ackerman, Sally Dahir, Rebecca Diebel, Ron Gropp, Carmen Hardin, Kirsten Held, Allison Hellman, Mark Heyde, Steve Hubbard, Brad Hutnik, Bob Mather, Terrisa Mulder, Kathy Nelson, Carol Nielsen, Janel Pike, Nicole Potvin, Dick Rideout, Kyoko Scanlon, Joe Schwantes, Olivia Shanahan, and Kristen Tomaszewski.

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 § 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 written by DNR staff, with review and approval by the Council at its meeting on March 19, 2013.

EXECUTIVE SUMMARY

The Wisconsin Council on Forestry is a board appointed by the Governor and comprised of individuals representing the state's 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 (now Wisconsin Economic Development Corporation), 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 31st immediately preceding the date of the report.

During 2011 and 2012, the Council on Forestry focused on several issues affecting the ability of our forests to provide the full range of social, economic and ecological benefits not only today, but for the future. The following are some highlights of the Council's efforts:

The Council formed a Timber Supply Sub-Committee to investigate the timber supply in Wisconsin. The committee found all public lands combined show a gradual increase in timber production during the period 2005- 2010. Saw timber volume/acre held steady for non-tax law lands between 2005 and 2009 before showing a slight decrease in 2010. Tax law lands show a slightly different trend over the same period – increasing from 2005-2007 before decreasing slightly in 2008. Importantly, tax law lands show a significant increase in saw timber sales from 2010 to 2011. Lastly, the steadiest decline in timber removals occurred on Federal Lands.

In 2011 the Council offered a forest tour to give legislators awareness and an understanding of issues the forestry community is faced with daily. Four legislators attended along with ten others. The tour began with discussions about important issues faced by Wisconsin's forest industry and continued with a tour of the Kretz Lumber facilities. The tour then visited an active logging site on the Langlade County Forest where issues loggers face were discussed and an overview of county forest operations was received.

In early 2012, the Council created a task force to investigate the current state of forestry education in Wisconsin. The Council asked the task force to explore and develop a framework addressing the possibilities and parameters of a forestry education center/cooperative in Wisconsin. In 2013, the task force will continue their work to recommend options for the Council to consider.

Forest Certification and Biomass Harvesting Guidelines were two issues which the Council chose to review to determine whether or not changes were warranted. A steering committee was formed to guide the review of the public investment in forest certification and Council approved a process to review the Biomass Harvesting Guidelines in light of new research, implementation experience and economic considerations.

This report also provides 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.

CHAIR'S INTRODUCTION

Wisconsin's forests play a fundamental role maintaining the economic, ecological and social wellbeing all Wisconsin citizens have come to expect and enjoy. The forest resource provides an abundance of benefits such as recreational opportunities like hiking, hunting, fishing and camping to name of few. Forests also supply a renewable source of raw material for products like paper, building materials, and biomass for energy. And last but not least, forests play an enormous role providing ecological necessities such as clean water, clean air, wildlife habitat and ecosystem services.

The Wisconsin Council on Forestry was created in July 2002 to advise the governor, legislature, Department of Natural Resources, Department of Commerce and other state agencies as deemed appropriate by the Council, on all topics as they affect the forests of Wisconsin. Work done by the Council is directed at ensuring forests retain their capacity to endure for today and well in to the future for coming generations. This report highlights accomplishments during 2011-2012 and will also provide a closer look at Wisconsin's forest resource and industry.

Being a Council member represents a commitment of time, energy and willingness to tackle the countless challenges facing Wisconsin's forests. It is truly an honor to be associated with such a dedicated and diverse group of individuals uniting together for the benefit of all. With this report we would also like to give special thanks to Immediate Past Council Chair Fred Souba who served the Council from 2003 through March of 2011. His exemplary, well-run meetings set a high standard of productivity from the Council and the forestry community sincerely appreciates his leadership in that role. Finally the Council would like to thank all those, including DNR Division of Forestry staff, who provide information and support to the Council. Your thoughts, information and input are greatly appreciated!

Sincerely,
Henry Schienebeck

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 § 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	Member Type
Allison, R. Bruce●	Represents the interests of persons engaged in urban and community forestry
Bolton, MichaelΘ	Represents the interests of persons who are members of labor unions affiliated with the forest industry
Brown, TroyΔ	Lumber Industry representative
Champeau, Randy●	Conservation Education Representative
Church, LeonΘ	Lumber industry representative
Clark, Rep. FredΔ	Assembly representative
Dallman, MattΔ	Represents nonprofit conservation organizations
DeLong, PaulΔ	Chief State Forester
Hoppe, JamesΔ	Represents the paper and pulp industry
Horvath, WilliamΘ	Represents non-industrial, private forest land
Jauch, Sen. BobΘ	Senate representative
Kerkman, James●	Represents the interests of persons who are members of the Society of American Foresters
Mursau, Rep. Jeffrey●	Assembly rep
Ottman, KennethΘ	Represents the interests of persons engages in urban and community forests
Quast, Kimberly●	Forestry Consultant
Rickenbach, Mark●	School of Forestry Representative
Rogers, RobertΘ	Represents the interests of persons who are members of the Society of American Foresters
Schienebeck, Henry●	Chair, and Timber Producers Organization Representative
Severt, JaneΔ	County forest representative
Sherman, Mark●	Represents forest products company that manages forest land
Souba, FredΘ	Represents forest products company
Strong, PaulΔ	Federal Department of Agriculture Representative
Vinehout, Sen. KathleenΘ	Senate representative
Waugh, Virgil●	Represents the interests of persons engaged in an industry that uses secondary wood
Wedepohl, Richard●	Represents non-industrial, private forest land

Δ Served during entire biennium
● Appointed in 2011 or 2012
Θ Served until June of 2011

2011-2012 Council on Forestry Accomplishments

Managed Forest Law

On May 4, 2011, the Joint Legislative Council considered the report of the Special Committee on Review of the Managed Forest Land Program. Recommendations included draft legislation, which were later written into 2011 Senate Bill 161 and 2011 Assembly Bill 402. Hearings were held on the proposed legislation; however the bills did not pass before the session closed.

Each of these bills would have modernized the MFL program, including the following provisions:

- **Creating Forest Enterprise Areas (FEAs)** – Local municipalities and counties are able to designate FEAs and encourage forestry as a land use. Monies are returned back to municipalities and counties for each acre of MFL lands within the FEAs for promotional and management activities.
- **Creating a managed forest land board of review** – A review board is created to review silvicultural decisions made by WDNR. Landowners who disagree with a silvicultural decision can present their findings to the review board, which provides the Chief State Forester with a recommendation for consideration. The review board is made up of several interests both within and outside of the Department of Natural Resources.
- **Establishing annual allowable timber harvests** – Large landowners are required to establish an annual allowable harvest to provide an even flow of timber to forest markets. Large landowners who are third party certified would be exempt from the requirement.
- **Creating group enrollments for small landowners** – Small landowners who create a forest management group could develop a group management plan to reduce costs and improve the ability to manage timber.
- **Allowing lands to be added to pre-2005 MFL entries** – Additional lands could be added to MFL Orders that were enrolled from 1987 through 2004 without the need to withdraw and re-designate the lands under the 2005 and later tax rates.
- **Allowing MFL lands to be leased for recreational activities** – Lands enrolled in MFL would be granted the ability to be leased for recreational activities.
- **Changing the tax rate calculations for open and closed MFL lands** – Allows for landowners to pay the higher of the MFL open and closed tax rates based on the statewide average, or 5% (open to public recreation) or 25% (closed to public recreation) of the tax rates established in the local taxation district. This provision would allow local municipalities to receive more money from landowners for lands being enrolled in the MFL program.
- **Changing the allocation of MFL closed acreage fees** – Closed acreage fees would be shared between the local municipality, county and DNR. Counties would be required to use the money for acquiring lands for public recreation or resource management.

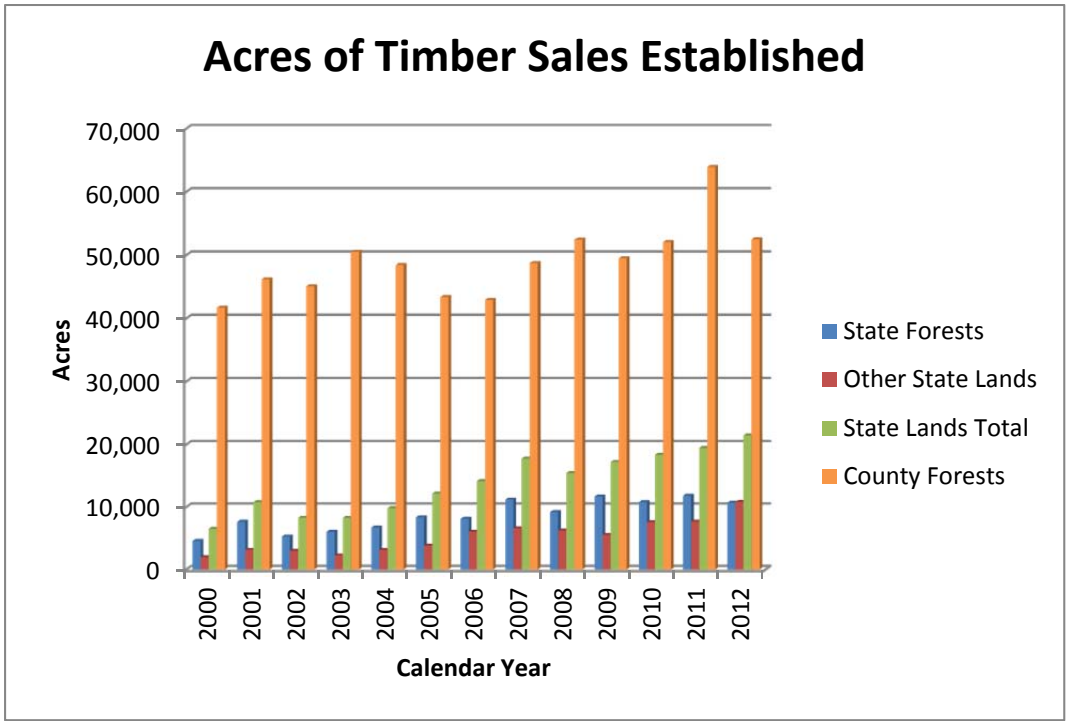
Backlog mandatory practices on lands enrolled in the Managed Forest Law program are continually being reduced as DNR and cooperating foresters, loggers and landowners work together to get sales established. In 2002, there were 11,637 backlog practices for 202,587 acres. As of January 2013, there are 3,246 backlog practices for 47,988 acres for reductions of 70% in backlogged practices and 75% in backlogged acreage. Annually an additional 65,000 to 75,000 acres of new practices are added to the mandatory practice list.

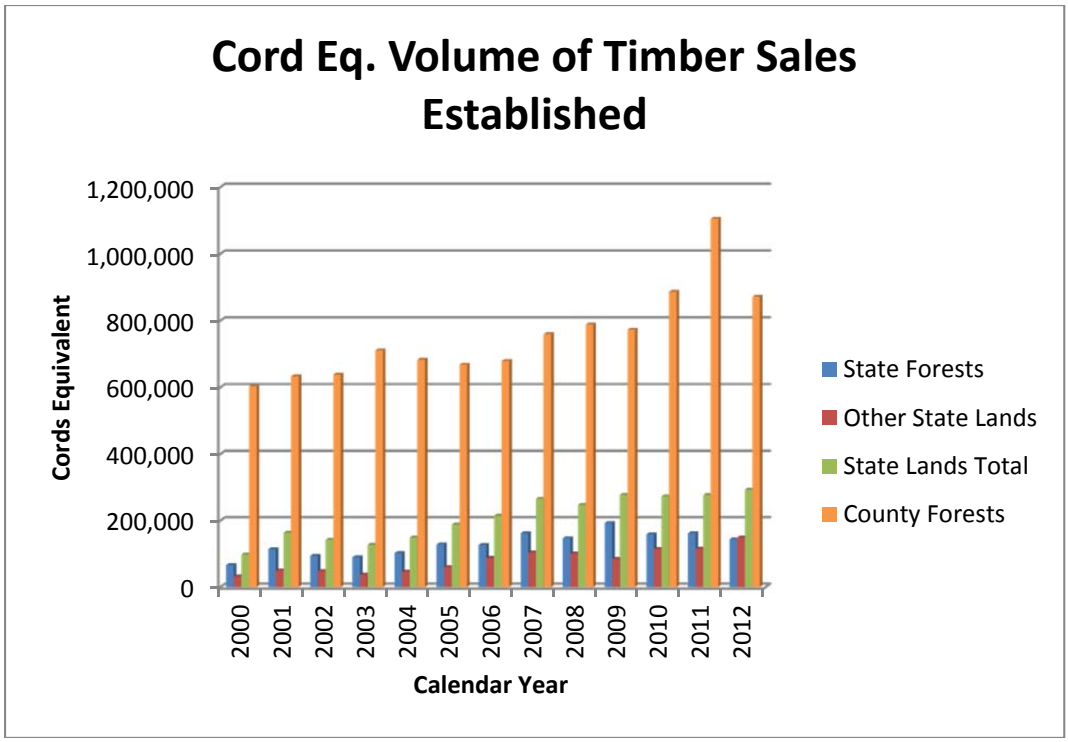
Wisconsin's Public Lands Timber Supply

The Council's Timber Supply Sub-Committee was developed to investigate the timber supply in Wisconsin and was specifically charged with identify timber production gaps that exist from all landowner groups, providing data regarding trends in timber supply, identifying land use gaps occurring over time, providing numbers to support the identification of land use gaps, and to report the findings to the Council on Forestry.

The Timber Supply Sub-Committee presented a progress report on timber supply in Wisconsin to the Council in June of 2012.The major findings included:
1) Considering removals on Wisconsin public lands (by percent), all public lands combined show a gradual increase during the period 2005- 2010. County lands showed the highest percentage of removals followed by state and federal lands respectively.
2) Reported removals for Wisconsin state lands show a sharp increase beginning in 2008. The sub-committee indicated that legislative action likely contributed to this increase in timber sales on state lands.
3) Sawtimber volume/acre held steady for non-tax law lands between 2005 and 2009 before showing a slight decrease in 2010. Tax law lands show a slightly different trend over the same period- increasing from 2005-2007 before decreasing slightly in 2008. Tax law lands show an increase in sawtimber sales from 2010 to 2011.
4) The steadiest decline in timber removals occurred on Federal Lands.

Below are graphs of established timber sale acreage and estimated cord equivalent volumes established on county forests and DNR managed state lands for the period 2000-2012.





White-tailed Deer in Wisconsin – Impacts on Forest Ecology and Management

Deer herbivory is pervasive in Wisconsin's forests. Where overabundant, deer are causing detrimental impacts to forest regeneration and quality, and to biological diversity. Deer herbivory causes economic losses by reducing tree survival and growth, and altering species and age class composition. If deer are managed at high population levels, they can directly threaten the future of sustainable forestry in Wisconsin.

During 2011 through 2012, deer impacts on forest ecology and management continued as a major initiative for the Council. The Council advocated sustainable integrated deer and forest management. The Council's internet site was maintained to provide information and advocacy on this issue and the Council's position statement on deer management was re-examined and reaffirmed. A letter reiterating concerns about impacts of deer on forest sustainability and the Deer Trustee's Report was sent to WDNR Secretary Cathy Stepp in May 2012. The Council reviewed the Interim Report of Findings and Council members attended town meetings held around the state.

2011 Legislative Tour

Historically, the Council has offered forestry tours to give legislators awareness and an understanding of issues that the forestry community is faced with daily. Former Council Chair Souba appointed a subcommittee consisting of Jane Severt, Henry Schienebeck, Earl Gustafson (Wisconsin Paper Council) and Troy Brown to work with John DuPlissis (University of Wisconsin – Stevens Point) toward the goal of hosting a legislative tour in the fall of 2011. The tour was held on November 7, 2011 on the grounds of Kretz Lumber in Langlade County and the Langlade County Forest.

Four legislators (Senator Jim Holperin and Representatives Jeffrey Mursau, Tom Tiffany, and Karl Van Roy) were in attendance, along with ten others. The tour began with discussions about:

- Current state of the paper and lumber industries;
- Role converter mills play;

- Promotion of manufacturing as a viable career choice in schools;
- Challenges of obtaining capital for expansions;
- Regulatory reasons facilities are not locating here;
- Short supply of logs;
- Negative impact of the depressed housing market on lumber mills;
- Hardwood lumber and international markets;
- Transportation issues making markets hard to access; and
- Issues with DNR staff in certain parts of the state.

On a tour of the Kretz facilities, the group heard about forest certification and the demand they see for it at Kretz. They continued with a visit to an active logging site on the Langlade County Forest, where legislators had a chance to talk with Tim Jacobs, owner of Tim Jacobs Logging, about issues he faces in daily operations. Steve Jackson, Langlade County Forest Administrator, provided an overview of Langlade County Forest operations, highlighting county forest certification and the challenges presented by the increasing recreational use of county forest land. Discussions also included proposed legislative changes to Wisconsin's Managed Forest Law (MFL) Program, including PILT payments to towns for MFL lands.

The Council subcommittee would like to see tours continued on an annual basis to keep legislators abreast of current forestry issues.

Forest certification

In 2012 the Council approved a review of the public investment in forest certification and formed a steering committee. The final report is targeted for June 2013.

Biomass Harvesting Guidelines

In 2012, the Council approved a process to review the Biomass Harvesting Guidelines in light of new research, implementation experience and economic considerations. Implementation of the guidelines began in 2010 on state and county lands, and in 2011 on lands in the MFL Program. A Biomass Harvesting Guidelines Advisory Committee, comprised of interested stakeholders, will begin the review in early 2013 with recommendations expected in September 2013.

Annosum root rot treatment

Annosum root rot is a fungal disease that causes a decay of the roots and lower stem, attacks the cambium, and kills infected trees. In Wisconsin, the disease is most commonly found in red pine plantations, some of which were prematurely clearcut due to damage from the disease. An application of Borax-based fungicides on freshly cut stumps is proven effective in preventing the spread of this disease; however the treatment requires additional cost.

The Division of Forestry is developing a risk-based guide for fungicide treatment to prevent annosum root rot. The goal of the guide is to balance future health of the pine resource with the ability to efficiently harvest the existing resource. In May 2012, a proposed guide was developed by the annosum root rot committee, consisting of representatives from public and private sectors, and submitted to the Division of Forestry for its consideration on state lands. The proposal was revised based on written comments from the public and partners after a series of public/partner listening sessions in June 2012. The issues and options were presented to the Council in September 2012 for their recommendations.

The Council provided the Division with their individual feedback/recommendations on each of the following items: timing of implementation, distance, winter treatment, targeted host(s), and density of targeted host(s) in a stand. Based on feedback from the Council and others in the forestry community, the

Division made a decision to implement treatment exemption from 12/1/2012 to 3/31/2013 on state lands where fungicide applications were included in a timber sale prospectus. The Council is scheduled to discuss other issues in the proposed guide during their January 2013 meeting to provide the Division with their collective recommendations.

Education

In early 2012, the Council created a task force to investigate the current state of forestry education in Wisconsin. The task force met and discussed what education activities and initiatives organizations and agencies are conducting. After assessing the current state they identified gaps and discussed mechanisms for filling those gaps. The Council asked the task force to explore and develop a framework that would address the possibilities and parameters of a forestry education center/cooperative in Wisconsin. In 2013, the task force will continue their work to recommend options for the Council to consider.

Division of Forestry Strategic Direction and Business Plan

In May 2011, the Division of Forestry finalized their Strategic Direction which maps out a path for DNR to take over the next five years to address the challenges DNR is best suited to tackle. The Strategic Direction is the culmination of three years of work undertaken to assess and plan how to address major issues, threats and opportunities involving the forests of Wisconsin. The Council provided input and comments throughout the process and also helped shape the Statewide Forest Assessment and Statewide Forest Strategy, the foundation for the Strategic Direction.

During the spring of 2012, Division of Forestry staff worked in collaboration with the Council to ask their customers and partners what they would like to see achieved by the Strategic Direction. Council members were tasked with leading work groups assembled to represent each of the Division's core programs. The effort resulted in the development of "business plans" that outlined priority outcomes for the Division of Forestry's major programs. The business plans, finalized after the June 21, 2012 Council meeting, can be found on the DNR's Strategic Direction Operations Plan webpage.

SUMMARY PER STATE STATUTE 26.02

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

Of Wisconsin's 35 million acres of land, almost 17 million acres are forested. Forest area in Wisconsin has been steadily increasing for decades. In 1996, there were 15,962,292 acres of forest and in 2011, there were 16,979,969 acres. This is mostly due to the conversion of marginal agricultural land back to forest. Currently forests cover 49% 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. Oak hickory, maple-beech-birch and aspen-birch forest types are the most common. Oak-hickory accounts for 4.2 million acres followed by maple-beech-birch with 3.7 million acres and aspen-birch with 3.1 million acres. While most of Wisconsin's forests are hardwood types, there are also significant softwood types occupying large areas, especially in the north and central parts of the state. Red pine, black spruce, eastern white pine, tamarack, northern white-cedar and jack pine are the most common conifer forest types.

Species composition by forest type

- The maple-beech-birch forest type is the most common type in the northern part of the state accounting for 29% of all forestland in the region. A predominance of hard and soft maples and basswood characterize this type. Northern red oak, white ash, eastern hemlock, yellow birch and quaking aspen are also common. Maple-beech-birch supports a variety of understory plants and animals.
- Second to maple-beech-birch in the northern part of the state is the aspen-birch forest type. About 24% (2.7 million acres) of the Northern Mixed Forest region is in 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 in large part by the prevalence of conifers. The most common conifer forest type is spruce-fir accounting for 11% (1.3 million acres) of the Northern Mixed Forest. 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 (968,000 acres) of the Northern Mixed Forest in Wisconsin is pine forest type. Red pine, eastern white pine and jack pine are the most common species that occur in Wisconsin. Forest character can vary from jack pine barrens to red pine plantations and from thick stands of young white pine to old growth stands with pines several hundred 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. It represents about 51% (2.7 million acres) of the forests in the southern part of the state. Dominant tree species in oak-hickory forests include northern red oak, red maple, white oak, northern pin oak, black oak, basswood, shagbark hickory and bur oak.
- The elm-ash-cottonwood forest type generally is a lowland type that makes up a slightly higher percentage of the southern forests (11.7%) compared to the north (10.0%). However, the Northern Mixed Forest contains a larger acreage of this type (1.1 million acres compared to 633,000 acres in the south). Common species in this forest type are black ash, green ash, silver maple and red maple.

- About 10% (524,000 acres) of the forestland in the Southern Broadleaf Forest is in the maple-beech-birch forest type. Species composition is similar to the northern maple-beech-birch forest with sugar maple and basswood being the dominant species. However, there is less hemlock, yellow birch and quaking aspen and an increased occurrence of oaks in the south compared to the northern forests. Other forest types of note in southern Wisconsin are white-red-jack pine (622,000 acres) and aspen-birch (401,000 acres).

Age class by forest type
Most forests in Wisconsin are 41-80 years old. Approximately 13% are 20 years old or younger and 4% are over 100 years of age. The forest types proportionally best represented in the younger age class are aspen, oak-pine, and pine; the latter two predominantly associated with dry sites. The forest types proportionally best represented in the over 100 age classes are pines, spruce-fir and oak-hickory.

Volume by species
In 2011, there were 21.4 billion cubic feet of growing stock volume, of which 5.8 billion or 27% were conifer and 15.6 billion or 73% were hardwood. The highest volume softwood species were red pine, eastern white pine and northern white-cedar. The highest volume hardwood species were sugar maple, red maple, northern red oak and quaking aspen.

Growth, removals, mortality volume by species
In Wisconsin, our forests are growing at a rate that significantly exceeds harvest. Between 2007 and 2011, average net annual growth exceeds harvests and other removals by almost 253 million cubic feet (mortality is taken into account when calculating net growth). Growing stock average annual mortality[1] was 232 million cubic feet. During the period between inventories, average annual net growth was 564 million cubic feet. Average annual removals were 311 million cubic feet, about 55% of average net annual growth.

Along with net growth exceeding removals overall, net growth exceeded removals for the state's red and white oaks, white and red pine, hemlock, ash, red and sugar maple, spruce and balsam fir. Removals exceeded growth for paper birch, elm, jack pine, aspen, and yellow birch. Growing stock average annual mortality exceeded average net annual growth for paper birch, elm, balsam fir, jack pine, aspen, and yellow birch.

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, elm-ash-cottonwood, and oak-hickory forests have increased just as steadily. Conifer forest area has increased at roughly the same pace as total stocked forest area in the state over the last 70 years (18% of total stocked forestland).

[1] 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.

Wisconsin forests have increased in age over the past 40 years. In 1968, only 23% of the forests in Wisconsin were over 60 years old. By 2011, the percentage had increased to 45%. However, forests over 100 years old declined during the same period from 6% to 4% of total forest land.

Most forest types followed the same pattern as total forest land. The exceptions were the elm-ash-cottonwood and white pine forest types which have each maintained about the same percentage of total forest land over 60 years during this time period. The percentage of black spruce forest type over 60 years old increased more than any other forest type over the past 40 years (18% to 52%).

Overall growing stock volume on Wisconsin timberland has increased steadily since the first forest inventory in 1936 (7.6 billion cubic feet) to the 2011 inventory (21.4 billion cubic feet). Between 1996 and 2011, overall growing stock volume in Wisconsin's forests has increased by almost 16%, over 2.9 billion cubic feet. Along with this overall increase, the state's maples, oaks (except black oak), ashes and white and red pines are some of the commercially important species whose growing stock volume increased. Paper birch, aspen, balsam fir and jack pine volumes decreased between inventories.

Growing stock average net annual growth exceeded average annual removals between 2007 and 2011 for most major species groups. This is virtually unchanged from the previous inventory done between 2002 and 2006, when removals exceeded growth for jack pine, paper birch and bigtooth aspen. Average annual removals for paper birch, aspen and jack pine 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/square mile. The 2000 Census Bureau defines urban areas as census blocks with at least 1000 people/square mile and surrounding census blocks with at least 500 people/square mile. 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. In 2012, data was collected for a second statewide urban forest inventory to assess the changes in composition and value over the last 10 years. This information will be available for the 2013-14 report.

Forest Health

Detection and management efforts continued to fight against major forest insects, diseases, and invasive plants that pose significant threats to the health of Wisconsin's forests. In 2012, emerald ash borer (EAB) was found in four additional counties (Rock, Trempealeau, Walworth and Waukesha), bringing the number of known-infested counties to 13. The pest was detected on DNR properties for the first time at Richard Bong State Recreation Area and Perrot State Park. There has been a dramatic increase in the number of communities where EAB has been detected. In 2011 and 2012, natural enemies of EAB were released in select infested areas in Wisconsin to help reduce EAB populations.

Populations of gypsy moth remained low in most of Wisconsin following large caterpillar mortality in 2010. There was no visible defoliation in 2011 and approximately 14,500 acres of defoliation in far northern Wisconsin in 2012. The gypsy moth suppression program treated 2,885 acres in 2011 and 190 acres in 2012. In 2012, oak wilt was confirmed for the first time in Lincoln, Sawyer and Vilas counties. Oak wilt is now detected in 58 of Wisconsin's 72 counties, and kills many oak trees in both urban and

forest settings every year. Surveys confirmed that beech scale, the insect associated with beech bark disease is present throughout most of the range of American beech in Wisconsin. Despite the widespread distribution of the beech scale, high populations of the insect and mortality of beech due to beech bark disease is limited to Door County.

Drought was a major environmental issue statewide in 2012. Even the northern tier of counties, which experienced flooding in June, were considered abnormally dry by October. Conditions were made worse by extreme heat across the state, especially in March and July. Mortality of newly planted seedlings was observed widely.

Fight against the spread of terrestrial invasive plants continued through education and implementations of BMPs and Invasive Species Rule NR 40. The "Field Guide to Invasive Plants in Wisconsin" was completed in 2012. Firewood is a major pathway for the accidental introduction of wood-borne invasive pests and diseases of trees. WI DNR regulates firewood that may enter state lands. Regulations, together with education efforts have helped increase public awareness toward limiting the movement of firewood.

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 that urban trees comprise a forest. All too often the trees within a community can be taken for granted. However, collectively public and private trees form a canopy over the entire community. Current urban forest benefit models can quantify the realized monetary benefits associated with this canopy, improving the standing of urban trees 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 and weather along with human development and construction activities pose current and future threats to the urban forest. Gypsy moth and emerald ash borer are the most notorious pests at this time with the emerald ash borer threatening to destroy over 5.2 million urban trees—20% of the entire resource. However other pests such as the Asian long-horned beetle, thousand canker disease or sudden oak death are potential new threats and, if introduced, could have significant impact. Weather extremes of wind, drought and snow caused considerable damage to urban forests in 2011 and 2012. Prevention, mitigation and restoration will be significant challenges in the future should the trend towards more extreme events continue.

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.

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

The removal of all tree species on Wisconsin's timberlands approached 322 million cubic feet in 2009. Of this, 65% was roundwood for pulp and paper production. Saw logs accounted for 30%, and the remainder was distributed across a variety of other forest products including, composite products,

fuelwood, miscellaneous products, and post, poles, and pilings. Factors such as the decline in housing starts during the period 2004 and 2009 and the economic downturn contributed to the reduced amount of material harvested from previous periods. Hardwood species comprise the vast majority (79.2%) of total roundwood production in Wisconsin, a proportion that has been stable over the last decade.

Demand for products from Wisconsin's forests grew slightly each year until 2006. In recent years pulpwood demand in Wisconsin has declined by 1/3 to 2.2 million cords and based on national statistics it is estimated that saw timber and veneer demand declined by 50% in 2008. According to 2011 data, direct employment for the forest industry was 52,484 and is down from 65,694 in 2008. 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 grew until 2006 when they started to decline as a result of the recession. The value of shipments has decreased from a 1995 high of $26.8 billion to $19.8 billion in 2011. Wisconsin forest product companies are changing to meet the competition from a global marketplace.

A 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 15.2% of all manufacturing sectors.

Wisconsin's forest product industry creates high paying jobs. In all, the forest products industry contributes about $2.6 billion per year in wages to the Wisconsin economy.

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 2002 urban forest assessment piloted by the USDA Forest Service and WI- DNR, estimates showed 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. Analysis of data collected in a 2012 statewide inventory will be available for the 2013-14 report to show changes in value since 2002.

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 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 lumber 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. However, this market has also been severely impacted by the recession. The remodeling portion of the market has also declined. Home building trends are cyclical and once the correction is over, home building levels may return to more normal levels. Manufacturing sectors have continued to create the need for pallets. As a result, lumber prices for pallet lumber have provided needed market demand for sawmills during the recession.

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. Those sawmills and veneer plants that are exporting have been doing better during the recession than those that are trying to exist solely on domestic markets. Continued assistance by the state to help companies move into these foreign markets is needed to help Wisconsin family-owned business take advantage of these opportunities and recover from the recession.

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 when housing markets have returned to more normal levels. 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

Ownership of the 16.9 million acres of rural forest land in Wisconsin is:

Public

National Forest	8%
Other federal	1%
State	7%
County	14%

Private

Tribal	2%
Forest industry	4%
Misc. corporate	7%
Individuals/Families	57%

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 2011 Forest Inventory Analysis (FIA) and National Woodland Owners Survey (NWOS), more than 380,000 private forest landowners hold an estimated 11.8 million acres of forestland. This is a 5% increase over the number of private landowners reported in the 2006 NWOS. While this is only a 5 year trend is does appear on track for an increase that is significantly less than the 38% increase in the 10 year period from 1997 to 2006. The private forest acreage is well-distributed throughout the state with each survey unit showing an increase in the amount of private forest land.

Survey Unit	Acres of Private Forest Land	
	Year 2006	Year 2011
Northeastern	2,586,000	2,744,000
Northwestern	3,195,000	3,389,000
Central	2,432,000	2,594,000
Southwestern	1,944,000	2,039,000
Southeastern	962,000	1,104,000
State Total	11,119,000	11,870,000

Statewide, the 1-9 acre parcel size class has 54% of the landowners, but only about 8% of the 9.3 million acres of individual "family forest" land (see table below). About 175,000 owners hold the 8.5 million acre balance. The overall average parcel is about 24.4 acres in size for all family forest owners. For family forest owners with 10 or more acres, the average parcel is 48.7 acres. These parcel sizes have changed very little from parcel sizes in 2006 which were 25.8 and 48.6 respectively.

Family Forest Area and Owners by Size of Landholding in Wisconsin, 2011.				
Size of forest landholdings	**Acres**		**Owners**	
	Thousands	*Percent*	*Thousands*	*Percent*
1-9	766	8	205	54
10-19	618	7	51	13
20-49	2,298	25	73	19
50-99	2,150	23	31	8
100-199	2002	22	16	4
200-499	1063	11	4	1
500-999	321	3	<1	<1
1,000-4,999	74	1	<1	<1
Total	9,292	100	380	100

Forest Industry Ownership

Forest industry and other companies own 12% of Wisconsin's forests (Perry et. al.). 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. Forest industry and investor groups now hold 772,311 acres in Wisconsin's Forest Tax Law programs. Only 3.5% of that land is closed to public access.

To help maintain the integrity and traditional uses of industrial and other private forestlands, the Forest Legacy Program identifies and protects environmentally important private forestlands threatened by conversion. To help maintain the integrity and traditional uses, such as forest management for outdoor recreation, wood products, and wildlife habitat on private forestlands, the Forest Legacy Program promotes the use of conservation easements. Forest Legacy Program conservation easements acquired in 2011 and 2012 protected 65,205 acres of industrial forestlands, which include the Chippewa Flowage Forest, Brule-St. Croix Legacy Forest Part 1, and Futurewood projects. This brings the program's total to 199,170 protected acres. Also in 2012, the 18,179-acre Chippewa Flowage Forest received the Habitat Management and Partnership Award from Wings Across the Americas, a program of the US Forest Service, which recognized the project's collaborative efforts to protect critical habitat for butterfly and bird species.

Demographics of Wisconsin Individual Private Forest Landowners

Family forest landowners are older than the general population. With a large share of forest landowners retired, it follows that 43 percent are 65 years of age or older, whereas only 14 percent of the general population is 65 or older. Forest landowners less than 45 years of age make up only 5 percent of all owners.

Forty-five percent of Wisconsin's family forest landowners reported household incomes lower than the state's general population. The median household income in Wisconsin (2011) was $52,374. In 2011 (the year of the survey), 36 percent of the family forest landowners who answered the survey question about income had annual incomes between $50,000 and $99,000 and 19 percent had incomes greater than $100,000.

Family forest owners tend to be well educated. Thirty percent have a bachelor's degree or higher with additional 8% having associates degrees and an additional 25% with some college education.

Reasons for Owning Forestland

More than 80 percent of all individual owners ranked aesthetic enjoyment and protecting or improving wildlife habitat as important or very important reasons they owned forest land. Only 12 percent of all individual owners hold forestland primarily for timber production. However, those holding forestland for timber production own over 2.7 million acres of forestland.

Timber Harvesting

Although many individual owners hold forestland for uses other than producing forest products, almost three-quarters of family forest owners have harvested or removed timber from their land sometime during their ownership. Over half have done so within the last five years. About 50 percent of family forest owners intend to harvest or remove trees for sale in the next five years.

Forest Management Advice and Sources

Fifteen percent of family forest owners have received professional forestry advice in managing their forestland in the last 5 years. Seeking assistance seems to be related to and influenced by tract size. The average size of holding increases 2 to 3 times for owners who receive advice compared to owners who did not receive advice.

Nearly 64 percent of those who received advice utilized the state forestry agency. An almost equal number of family forest owners received advice from private consultants (28%) and family member or friend (29%). Seventeen percent received advice from another landowner and seven percent received advice from others. The preferred method of receiving advice is from written materials, such as brochures or publications, followed by internet, talking to someone and a visit on their land. Fifteen percent of all family forest owners feel they do not need or want advice.

Approximately 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. The average size of a tract increased by 2 to 3 times for those that consulted a forester compared to those who did not.

Due to the increasing number of family forest landowners, there will likely be an increasing need for forest management assistance. In 2011 and 2012, DNR and Cooperating Foresters made more than 6,500 initial (new) forest assistance calls.

Private Forest Management Assistance 2011 and 2012		**DNR Foresters**	**Cooperating Foresters**
Comprehensive Managed Forest Law or Stewardship Plans	Number:	957	2,736
	Acres:	53,641	171,139
Number of Initial (New) Contacts		4,464	2,042
Total Technical Service Contacts		17,858	8,006

University of Wisconsin Extension and non-profit educational organizations including Wisconsin Woodland Owners Association, Wisconsin Tree Farm Committee 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.

Concerns for Their Forests

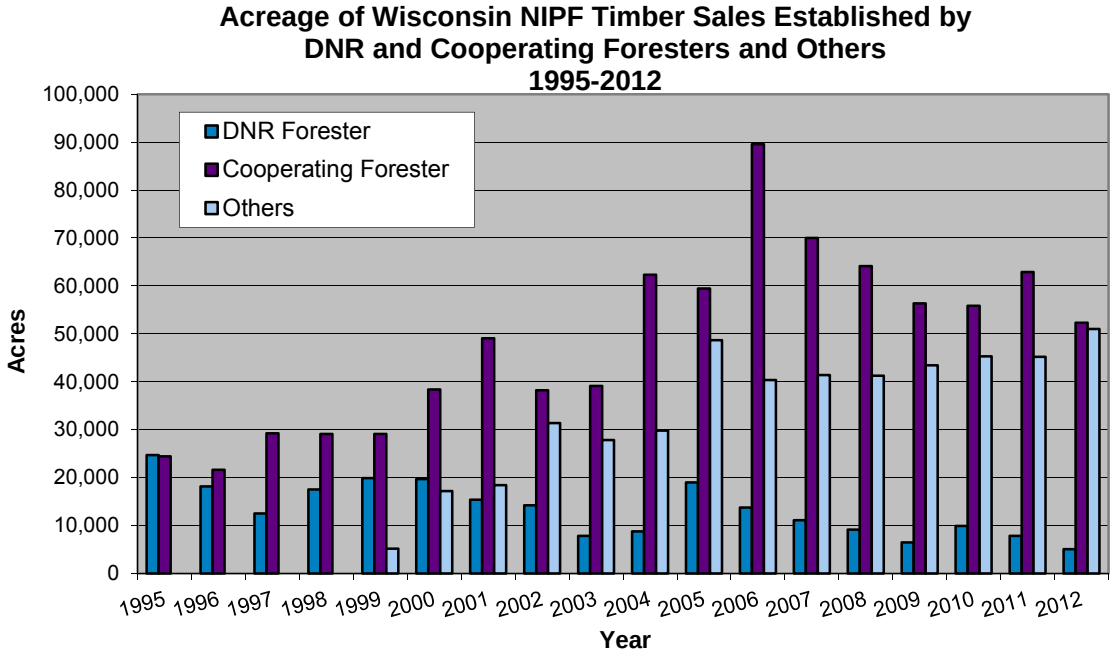
The top five topics that family forest owners are most concerned about for their woodlands are damage from animals, development, global climate change, damage or noise from off-road vehicles and drought or lack of water. The topic of high property tax ranked next to last just above other miscellaneous concerns.

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, though DNR foresters do conduct outreach to landowners who do not receive professional assistance in an effort to increase the amount of private land that is sustainably managed. WDNR foresters only establish sales if private consulting foresters decline to provide the service.

In 2012 there were over 230 private consulting foresters and industrial foresters from 167 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 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 2011 and 2012, over 90% of all timber sales were either established by Cooperating foresters or established by others and then approved by WDNR foresters.



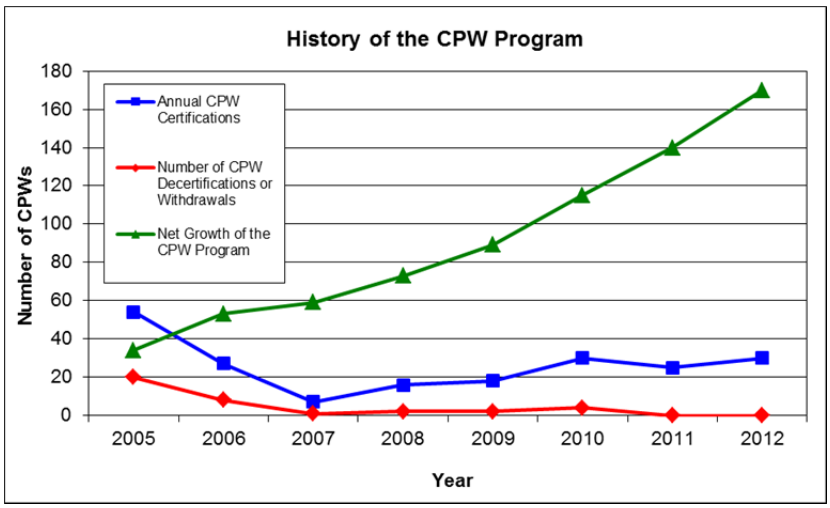
Forest Tax Laws

Private forest landowners are encouraged to sustainably manage their woodlands through two incentive programs, the Managed Forest Law (MFL) and the Forest Crop Law (FCL). The FCL program closed to new enrollments in 1985 after the Wisconsin State Legislature enacted the MFL program.

The MFL program is widely recognized as a model program for addressing landowners' interests while promoting the public benefits of sustainable forestry. The MFL program provides landowners with a significant property tax reduction and technical forestry assistance. Lands entered under MFL are required to have written management plans that landowners must follow. Management plans address harvesting and thinning timber, tree planting, erosion control, and wildlife and aesthetic management. These plans must be prepared either by a certified plan writer or a WDNR Forester.

The MFL program continues to grow at a rate of about 2% each year. As of 2012, the program includes 47,269 MFL entries covering 3,185,061.398 acres. Of those lands, 35% (1,119,375.372 acres) are open to public access. Enrollment in the FCL program is 1,182 entries with 178,989.184 acres. All lands in FCL are open to public hunting and fishing. FCL renewal is not permitted, but landowners may enroll their lands into the MFL program. In 2011 the first MFL landowners who enrolled into the program in 1987 for 25 years re-enrolled lands back into the MFL program. The number of applications increased over 1000 applications from the recent past.

The certified plan writer (CPW) program has been very successful since its inception with 170 CPWs by the end of 2012. Roughly 30 to 40 students attend the annual training course to become certified.



DNR created an interactive web mapping tool to make it easier for the public to locate lands enrolled as MFL-Open and FCL. This web mapping tool was a huge success with the public and allowed more people to become aware of the MFL and FCL programs. The web tool went live on October 30, 2012.

The number of MFL landowners who requested a change in their open or closed lands tax status increased over 200% percent from 2011 to 2012. Although some people requested changes in their tax status from closed to open, the vast majority of landowners requested that their tax status be changed from open to closed. The net result is that an additional 5,359.85 acres are closed to public recreation. While DNR does not track the reason why landowners request a change in tax status, 84% of the requests were submitted between November 1, 2012 and December 1, 2012, compared with 69% of the requests being submitted during the same time frame in 2011. Since most requests to change tax status occur before the deadline of December 1, it is noteworthy that the number of requests increased so dramatically in 2012.

Wisconsin Forest Landowner Grant Program

Wisconsin Forest Landowner Grant Program provides up to 50% cost-share for the preparation of management plans and the implementation of designated practices. The allotment for 2011 and 2012 was $1.087 million each year for this state-run program. Maximum cost share is $10,000 per year. Almost 3,300 practices (plan preparation, tree planting, timber stand improvement and forest health) were funded in 2011 and 2012.

Wisconsin Forest Landowner Grant Program
Number of grants and dollars encumbered by practice for fiscal years 2011 and 2012.
(Dollars are based on the estimated cost for the practice at the time the application was approved.)

	2011		2012	
Group Title	Grants	Dollars	Grants	Dollars
Stewardship plans and revisions	992	$514,141	832	$436,685
Undesirable species control	245	$259,431	256	$219,646
Site preparations	190	$200,834	184	$207,494
Tree plantings	186	$201,231	189	$167,106
Vine removals	52	$57,586	46	$49,992
Native grass and forb establishments	18	$13,065	13	$9,359
Pruning projects	15	$5,366	8	$3,420
Tree shelters practices	11	$7,967	6	$5,626
Direct seedings	6	$1,518	7	$1,330
Shrub plantings	5	$1,819	2	$1,250
Crop tree release	3	$7,500	7	$2,165
Fencing practices	3	$3,326	2	$2,350
Removals: insect & disease control	1	$2,200		
Habitat improvement projects			1	$338
Removals: fire hazard material			1	$250
Totals	1727	$1,275,982	1554	$1,107,010

Environmental Quality Incentive Program (EQIP)

Environmental Quality Incentive Program, a federal program administered by the Natural Resources Conservation Service (NRCS) with NRCS and the WDNR Division of Forestry as technical agencies, provides up to 75% cost share and can cover practices to be implemented over a 10 year period. Cost sharing is available for forestry practices such as conservation activity plans, tree planting, forest stand improvement, forest trails and landings and erosion control.

EQIP practices in 2011 and 2012 on forest land in Wisconsin

	2011	2012
EQIP Practices	# units	# units
Tree/Shrub Site Preparation (ac)	3	0
Tree/Shrub Establishment (ac)	265	168
Forest Stand Improvement (ac)	1,137	810
Tree/Shrub Pruning (ac)	30	19
Access Control (ac)	129	29
Access Road (ft)	6,492	3,758
Forest Trails and Landings	4,610	66,751
Forest Management Plans (no)	17	52
Fence	6,735	1,158

Conservation Reserve Program

The Conservation Reserve Program (CRP) 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.

CRP contracts require a 10- to 15-year commitment to keep lands out of agricultural production. CRP 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. As contracts expire FSA has provided for opportunities to re-enroll the acreage and maintain the practice initially installed if requirements are met.

Currently there are 70,848 acres of conifers and/or hardwood trees newly established or re-enrolled (maintained) under CRP; 2,060 of these acres were enrolled in 2012.

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 the community urban forest resource. In 2011 and 2012, priority was given to projects that prepared communities for emerald ash borer (EAB) (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). Of the $1,161,446 used to fund 2011 and 2012 grants projects, nearly half went towards those projects with an EAB component.

The program provides two levels of funding: Regular and Start Up. The Regular grant has a maximum $25,000 award and assists communities in advancing their urban forestry management. The Start Up grant award has a maximum $5,000 award and targets new or less developed urban forestry programs. Of the 136 proposed projects submitted in the last two years, the department awarded 28 Start Up grants totaling $103,762 and 74 Regular grants totaling $1,057,684. The program was oversubscribed by over half a million dollars in 2011-2012.

Established in 2007 by Wisconsin Act 13 the Urban Forestry Catastrophic Storm grant program allows rapid deployment of urban forestry grant funds without a required match to communities that have suffered storm damage in a Governor-declared state of emergency. This special application of grant funds was utilized for the second time when two northwestern municipalities received grants totaling $61,147 to remove and replace trees damaged in a July 2011 catastrophic windstorm.

Urban forestry grants not only improve management, but also create public-private partnerships that stimulate the commercial and non-government sector. The grants have funded projects during which communities hire small local businesses. The grant program has played a significant role in helping Wisconsin communities achieve the national recognition of Tree City USA. Wisconsin is regularly ranked as a national leader and reached 183 Tree City USAs during 2011.

In addition to positive impact on Wisconsin's business economy, the grants can lead to reprioritization of funding within municipalities. A 2011 grant-funded inventory and management plan for Prairie du Chien resulted in a $30,000 forestry budget and the hiring of a municipal forester. The city previously had no designated forestry budget.

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 dealings 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 in turn add to the revenue stream, improving their competitive picture in the global economy. Through the use of lean manufacturing principals, continuous process improvement techniques, and targeting middle to upscale markets, Wisconsin's secondary forest products industry may be able to bolster its market share and increase profitability. Furniture manufacturing represents one such industry segment poised to capitalize on these opportunities. Previous loss of this segment to global competition may be reversing as transportation logistics in shipping are changing. Growing Wisconsin's furniture industry represents an avenue to compete with foreign manufacturing through improved service, delivery, and specialization. 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 forests-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. As in most businesses, there is a need to constantly encourage new products in order to maintain markets and thus enable sustainable management of the forest. Most recently, nano-crystalline cellulose has emerged as a potentially large multi-product, multi-market material. Pilot scale operations are poised to bring these offerings to commercial scales in the near future.

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's forest products has become global in scale. Wisconsin's primary wood processing industry has not declined as much as it would have during the recession, due to the companies that export products. Increased global sales and markets have buffered many primary wood processing industry companies. Global market development has not occurred as significantly in the secondary wood

processing industry. Trade missions have historically been funded by federal grants. Most recently, there has been funding for business development missions in India and China.

With the increased importance of exporting to sustain product outlets and 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 or staff. WDNR Division of Forestry staff provided this service through partnerships with other agencies (primarily DATCP) and finding occasional grants to fund these efforts. Providing for the continuity of this effort is important and will require future funding.

Biomass

Woody biomass 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. The major push to develop cellulosic ethanol may bring this technology into production soon. This will help the pulp and paper industry by providing another product offering 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 down in local businesses, which may help the rural economy create markets for locally available material. Currently, the relatively low price of natural gas creates hardships for woody biomass to compete on price in a majority of cases.

Logger and Wood Industry Worker 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 Great Lakes Timber Professionals 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 very successful program has begun at North Central Technical College in Antigo with an introductory training program.

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

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

Below is a summary of bills passed during the 2011-2012 legislative session that have an impact on forestry in Wisconsin or employees within the Wisconsin DNR-Division of Forestry.

AB 48 – Wisconsin Act 95 - This law requires DNR to make available, for a fee, a written directory of all land acquired under both stewardship programs (stewardship land) that is open to the public. Also, DNR must make available a list of all stewardship land acquired before October 27, 2007, for which public access has been prohibited or restricted and the reasons for the prohibition or restriction. For stewardship land acquired on or after that date, current law requires landowners to post signs that notify the public which activities are permitted, restricted, and prohibited on the land.

SB15 – Wisconsin Act 29 - This law repealed the statutory provisions of the biennial budget act relating to the collection and analysis of traffic stop information and requires that, if the development of a traffic stop information system has already commenced, this system development must terminate on the effective date of the bill.

SB136 – Wisconsin Act 107 - This bill created a vacant land disclosure report, similar to the real estate condition report, on which the owner of the property must disclose certain conditions of the property of which the owner is aware. For example, the owner must disclose whether he or she is aware of underground storage tanks on the property; of any planned public improvements that may result in special assessments; of any significant odor, noise, water intrusion, or other irritants coming from neighboring property; of any burial sites or archeological artifacts on the property; of whether the property is connected to electricity, cable, municipal water and sewer, telephone service, or natural gas; or of whether the land is in a certified farmland preservation zoning district or subject to a farmland preservation agreement. The property to which the vacant land disclosure report applies is property that does not include any buildings.

SB222 – Wisconsin Act 55 - This bill allows DOT to issue overweight permits for vehicles or vehicle combinations (vehicles) that have six or more axles and that are transporting sealed loads. The bill defines a "sealed load" as a container or vehicle, being transported in international trade that has been sealed with a tamper-evident seal. The permit does not authorize the operation of any vehicle at a maximum gross weight in excess of 90,000 pounds. Permit applications must be made electronically to DOT utilizing an electronic process prescribed by DOT.

SB322 – Wisconsin Act 117 - Under current law, DOT may issue annual or consecutive month permits for the transportation of raw forest products in vehicle combinations having a gross weight not exceeding 98,000 pounds if the vehicle combination has six or more axles and meets other criteria (RS permit). "Raw forest products" includes logs, poles, cordwood, wood chips, sawdust, and pulpwood. Under this bill, an RS permit issued by DOT may not contain any condition or limitation imposed by DOT in connection with the thawing of frozen highways that are not state trunk highways or connecting highways, except that the operation of the vehicle combination under the RS permit is subject to posted weight limits on these local highways.

SB422 – Wisconsin Act 243 - This bill increases the generally applicable overall length limit for vehicle combinations from 65 feet to 70 feet. However, the Department of Transportation (DOT) may, by rule, establish exceptions to this general length limit with respect to specific types of vehicles or designated highways.

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 below are drawn from budget requests completed by the Division of Forestry in which staffing and/or funding needs were identified or where anticipated reductions in federal funding will cause significant impacts to programming. 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.

Public Safety Psychological Testing and Background Checks

The Division of Forestry will employ approximately 25 full time law enforcement officers over the next few years. Why conduct in-depth background checks and require psychological testing of these officers?

1. This would align the Forestry Division with other DNR LE branches (i.e. wardens and parks) as well as other Wisconsin LE agencies.
2. It adds to the level of professionalism within DNR.
3. This could reduce potential liability to the DNR if the officer acted inappropriately or outside their scope of authority while on duty, and hopefully prevent DNR from hiring someone that would have the propensity to do this in the future.
4. The Wisconsin legislature has been contemplating mandatory psychological evaluations for all LE officers statewide. This could include existing officers if they have not previously been psychologically tested. The DNR could potentially save money by completing the psychological testing during the hiring process, thereby reducing the potential for officers to be disqualified after an investment has been made in training costs and time.
5. Several officers that get hired full time by the DNR start their careers in different DNR branches. For example, several wardens start their careers by working on our Northern State Forests either in a full time capacity or as an LTE. By requiring the background investigation and psychological testing at the start of their career, it would be more efficient. This could also prevent any officer that works for one branch not being qualified to work for another branch. Potential liability concerns come into play with this also.

Emergency Vehicle Fleet Operational Costs

A request to increase the fleet operations budget by $153,000 per year was based on the fact that the emergency vehicle portion of forestry's fleet has been operating as a structural deficit within the program

since 2007. Although there have been fleet increases in previous biennia, those increase were based on operating costs of the entire fleet. The emergency vehicles that forestry operates (which make up the majority of forestry's fleet) have a higher than average operations cost as compared to more traditional vehicles in the fleet. Thus when an increase has been made in the past it has been disproportionately low as compared to the operations cost for the emergency vehicles. This request accounts for the deficit created by the higher than average operations cost for these vehicles. It is intended to "make up" for the shortfalls that have been building as the operational costs of these vehicles have been greater that the increases allotted. The Division's 2012 Strategic Direction made an attempt to solve the problem by reducing some emergency vehicles but did not resolve the full issue, resulting in the on-going deficit.

Forestry Radio Master Lease Payments

The Federal Communications Commission (FCC) mandated all VHF radio communications move to narrow band effective January 1, 2013. Concurrently the State Interoperability Executive Council recommended and is developing of a statewide digital trunking infrastructure that is P25 compliant. As a part of the 09-11 biennial budget, the Division of Forestry was authorized and allocated funding for the first two years of a six year master lease to upgrade our mobile and portable radios. In the 11-13 biennial budget funding was allocated for master lease payments in years 3 and 4 of the agreement. Currently, funding is needed for master lease payments in years 5 and 6.

Forest Health Program

Federal forest health grant for core activities and forest health monitoring contributes significantly to the ability of the Wisconsin forest health program to provide services for forest managers to reduce or prevent impacts of pests and diseases. This federal grant supports damage surveys, pest population monitoring and predicting, and control technology transfer among other functions that help industrial, private and public landowners sustain productivity of their forests. Maintaining federal support at current levels is crucial to maintaining these services to forest landowners and the forest industry.

Emerald Ash Borer

Funding available to USDA APHIS and WI DATCP to conduct EAB detection surveys in Wisconsin decreased dramatically in 2012 and DATCP expects no support from APHIS for detection and regulation in 2013. Populations of EAB are increasing in the southeastern part of the state and along the Mississippi River. The DNR forest health program is responding with increased outreach and education to communities and forest landowners to make them aware of methods to detect and monitor for this pest, and also recommendations on methods to manage ash mortality and other impacts on communities and forests. No additional staffing or funding is necessary at this time to achieve these goals, only maintenance at current support levels and staffing. The DNR forest health program is also actively introducing natural enemies of EAB which we receive from APHIS rearing facilities. Our ability to make these introductions is dependent on the federal government maintaining support for this rearing program at current levels.

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

In addition to the Council task force created in 2012 to investigate the current state of forestry education in Wisconsin, the Division of Forestry also launched a study of their communication and education work in 2012. The assessment phases of both studies were completed in 2012 with work on the next steps continuing in 2013. Recommendations from the studies will be ready for the 2013-2014 Council report.