

# **Wisconsin Council on Forestry**

## **Biennial Report**

### **2015-2016**

January 1, 2015 - December 31, 2016

The Council thanks the following for assistance in preparing this report: Julie Ballweg, Sally Dahir, Andrea Diss-Torrance, Sabina Dhungana, Becky Gray, Earl Gustafson, Kirsten Held, Allison Hellman, Kristen Lambert, Laura Lorentz, Kyoko Scanlon, Jeff Stagg, Andrew Stoltman and Amanda Swearingen.

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 assisted 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.

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## **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 31 immediately preceding the date of the report. This report also provides the status of the state's resources and forest industry as required by state statute.

This report is available at: <http://wisconsinforestry.org/councilpages/publications>

## **CHAIR'S INTRODUCTION**

Wisconsin's forests play a key role in providing Wisconsin with a renewable source of economic opportunity for both industry and recreation; all while ensuring and enhancing clean air, clean water, wildlife habitat and other social benefits. The Wisconsin Council on Forestry (Council) was created in July 2002 by State Statute 26.02, to advise the governor, legislature, the Department of Natural Resources, the Department of Commerce, and other state agencies on a vast range of forestry related issues and the effect those issues may have on the overall wellbeing of Wisconsin citizens and their forests. Since its creation the Council has given direction on a countless number of issues and will continue doing so well into the foreseeable future.

Serving on the Council, by appointment of the Governor, is an honor that represents a commitment of time, energy and willingness to address numerous challenges confronting Wisconsin's forests and forest owners. Council members are a very dedicated and diverse group of individuals engaged in discussion, bringing forth a variety of perspectives in order to generate solutions for the benefit of all forest users. Generating solutions is often stimulating work for the council, and it takes a great deal of support to track and follow through with resolutions.

The DNR Division of Forestry Staff is to be commended for their support of the Council. Their dedication providing reports such as those needed for work on the Dispute Resolution Process, to organizing information gathered from the Governors Forestry Economic Summit, and tasks including recording of meeting minutes helps make the Council's work a valuable asset for Wisconsin.

The Council also appreciates participation by a wide variety of other forest users and would like to thank those who served on special committees or attended Council meetings to provide input and information. The Council would like to extend a special thank you to Jessie Augustine for her assistance in development of the Dispute Resolution Process (DRP).

## **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)

<b>Member Name</b>	<b>Representing</b>
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R. Bruce Allison	Urban and community forestry
(vacant)	Labor unions affiliated with the forestry industry
Troy Brown	Lumber industry
Ken Zabel (2016)	Conservation education
Rep. Nick Milroy (2016)	Wisconsin Assembly
Matt Dallman	Nonprofit conservation organizations
Paul DeLong	Chief State Forester
James Hoppe	Pulp and paper industry
Sen. Janet Bewley (2016)	Wisconsin Senate
James Kerkman	Society of American Foresters
Rep. Jeffrey Mursau	Wisconsin Assembly
Kimberly Quast (2015) Ken Price (2016)	Forestry consultants
Mark Rickenbach	Forestry schools
Henry Schienebeck	Chair and Timber Producers Organization
Jane Severt	County forests
Tom Hittle	Forest products company that manages forest land
Paul Strong	U.S. Department of Agriculture
Sen. Tom Tiffany	Wisconsin Senate
Virgil Waugh	Industry that uses secondary wood
Richard Wedepohl	Non-industrial, private forest land

## 2015-2016 Council on Forestry Accomplishments

### Wisconsin Forest Practices Study

The FY2014-2015 Budget included funding for a Wisconsin's Forestry Practices Study (WFPS) of Wisconsin Department of Natural Resources (DNR) forestry and forest fire prevention practices. The funding for the Study is in the form of \$600,000 grant to the Great Lakes Timber Professionals (GLTPA) and Wisconsin County Forests Association (WCFA). GLTPA and WCFA selected the National Council for Air and Stream Improvement (NCASI) to serve as general contractor for this Study. NCASI is an independent, non-profit 501(c)(6) research institute formed in 1943 focusing on environmental and sustainability topics relevant to forest management and the manufacture of forest products.

The goal of the Study is obtain research results to guide decisions and policy development for investment in forest-based manufacturing in Wisconsin while ensuring the social and ecological benefits of forests remain viable for future generations.

At the beginning of the study, GLTPA and WCFA engaged the Council to assist with the overall project design and directions for research. In 2015 and 2016, the Council remained informed on the development of the project and reviewed the results of the research.

A WFPS subcommittee was formed and consisted of Council members. Research results/findings were presented to the Council in March of 2016. Research review committees were established to identify key findings. These three committees brought forward a list of recommendations to the Council. Council members identified recommendations to move forward. WFPS Implementation Committees were formed and led by Council members. Implementation committee work will be completed in early 2017.

### Economic Summit

Held on December 12-13, 2013 in Madison, Wisconsin, the Governor's Forestry Economic Summit brought together Wisconsin's most engaged and knowledgeable forest industry stakeholders to learn and share information from all sectors of the industry. From private and public forest management trends and concerns to participation in the global forest economy, the summit sought to address all facets of the forest industry today while preparing for and addressing future challenges and opportunities.

The Council's sub-committees have been working on the following topics from the summit:

- Workforce Development
- Private Forest Management
- Market Development
- Public Understanding

In June 2016, the Council decided to disband the workforce development committee, market development committee, and private forestry committees with the acknowledgment that important gains and accomplishments have been made and these continue to be a priority for the Council. The work by Don Peterson will be carrying forward many of the items from the market development committee. The Public Understanding committee and the Workforce Development committees will be combined and work to develop a core marketing message for general forestry promotion throughout the state.

## Deer

The Council continues to be concerned with the impact of deer population on the regeneration of Wisconsin's forests. In September 2016, the Council toured sites in Florence and Marinette Counties (see below) to hear about and see deer impacts. The Council heard presentations by the DNR, county foresters, and foresters from Huber Resources Corp. on research initiatives regarding deer impacts on Wisconsin forests. A Council committee was appointed to update its position paper on deer impacts. The position paper that was finalized in November 2016 and sent to the Governor, DNR, and legislators in 2017.

## Field Tours

### Urban Forestry Tour

On July 29, 2015, the Council on Forestry together with Wisconsin Urban Forestry Council toured urban wood processing and utilization sites. The groups visited Kettle Moraine Hardwoods in Hartford and then toured the urban wood utilization area in the Children's Learning Center. There was a discussion of the urban wood supply chain and AIA Urban Wood specifications at the Urban Wood Lab in Milwaukee. The tour finished by visiting the urban wood retail facility operated by Hoppe Tree Service.

### Deer Impacts Tour

On September 14, 2016, the Council toured Florence and Marinette Counties to learn about deer initiatives and see deer impacts. The council met with county representatives and private sector employees to explore the impacts on deer browsing and techniques that are currently used to increase regeneration. Council members shared their concerns for the economic and social impact that excessive deer browse may cause if the problem persists. Jane Severt shared her appreciation for those who were able to attend the tour and stressed the importance of finding a way to connect hunters and landowners and work to develop an understanding of what an appropriate deer population looks like. Ron Eckstein shared information on deer feeding habits that provided some insight into why populations are so disproportionate around the state. He also commented on a few studies that have been done regarding deer hunter expectations and how those expectations play a role in managing the deer population. Council members were in agreement that public education could go a long way and working together with deer hunters would be critical in making a change.

## Items on which the Council advised the Division of Forestry

### Dispute Resolution Process (DRP)

In early 2015, the Council began discussing a variety of models for a dispute resolution process that involves the DNR and either another forester or logger on privately owned forestlands that have a DNR responsibility. The Council and the Division of Forestry had concern over the current process and wanted to improve it. The Council's request to JFC to include this in the budget was not successful and the Division decided to move forward with developing a process until such time that a formal DRP could be created through legislation.

In July 2015, the Council developed the following guidelines for a DRP process for MFL and FCL (Forest Crop Law):

- Purpose of DRP: for use when disagreements relating to a DNR administered program on privately owned forestlands cannot be readily resolved between any of these sectors: DNR foresters, private sector foresters (cooperators and others), landowners and loggers.



- Administration of DRP: The Division of Forestry would manage the dispute resolution process and, as funds allow, pay for the expenses of the experts.
- Funding: There is currently funding outlined by the Department for “outreach to unengaged landowners” that will be used temporarily to fund this process.
- Process for program development: The Division, with review by the Council, formed a committee of representatives from several different organizations (e.g., WWOA, WCF, GLTPA, SAF) to provide guidance and develop operating policies and the criteria for selecting “forestry experts. (This committee’s sole purpose was to develop the guidance and operating procedures for the DRP.)

After receiving input and feedback from the Council, the proposed DRP went out for public comment and final approval by the Chief State Forester. Implementation of the DRP began in the fall of 2016 following the hire of an administrator for the program. The Council has been given updates on the implementation process. In 2016 the DRP was not utilized by any party having a disagreement with a DNR decision related to MFL or FCL.

### **Cutting Notice Process and MFL Legislation Implementation**

The 2015-2017 state budget stated the Department will no longer be responsible for approving cutting notices filed by Cooperating Foresters, as well as foresters accredited by the Society of American Foresters, Wisconsin Consulting Foresters and the Association of Consulting Foresters. The changes went into effect when the budget was signed in summer of 2015. The Department solicited assistance from stakeholders and the Council to identify and sort through issues affecting implementation. In addition, an internal Cutting Notice Advisory Team helped to identify and make DNR operational changes to the cutting notice procedures and the cutting notice itself.

### **Letters expressing support or concern**

The following is a list of letters sent by the Council to the Joint Committee on Finance regarding budget initiatives in the proposed 2015-2017 state budget:

1. Approval of cutting notices on MFL properties: The Council provided information for the JFC to better understand the effects of the proposed legislative change.
2. Knowles-Nelson Stewardship Program: The Council shared support for this program and suggested an exploration of alternative funding mechanisms for the program.
3. Urban Forestry Grant Program: The Council shared concerns over cutting the Urban Forestry Grant Program and expressed their opposition to proposed change to the statute.
4. Wisconsin Environmental Education Board (WEEB): The Council shared their support for forestry education in the state and opposed the elimination of the Board and its funding.
5. Council on Forestry Operations: The Council sent a letter requesting funding to support the Council’s operations with one of the main uses of funding going to a Dispute Resolution Process.

In late 2016, the Council began discussing the upcoming 2017-2019 budget process and decided to draft letters of support for the Stewardship program, the Master Logger Program, WEEB, and Council operations.

## 2015-2016 Report Content Required by State Statute

### 1. The magnitude, nature, and extent of the forest resources in Wisconsin

#### **Forest Resources**

Of Wisconsin's 35 million acres of land, 17 million acres are forested. Forest area in Wisconsin has been steadily increasing for decades due mainly to the conversion of marginal agricultural land back to forests. 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 2 million acres or about 5.8% of the total state land area.

#### ***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 4.3 million acres followed by maple-beech-birch with 3.8 million acres and aspen-birch with 2.9 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, eastern white pine, tamarack, black spruce, 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 23% (2.6 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 12% (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 (1.0 million 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 49% (2.8 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 (14%) compared to the north (9.1%). However, the

Northern Mixed Forest contains a larger acreage of this type (1.0 million acres compared to 797,299 acres in the south). Common species in this forest type are black ash, green ash, silver maple and red maple.

- About 10% (574,352 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 (703,506 acres) and aspen-birch (383,550 acres).

### ***Age class by forest type***

Most forests in Wisconsin are 41-80 years old. Approximately 12% are 20 years old or younger and 4.9% are more than 100 years of age. The forest types proportionally best represented in the younger age class are aspen, oak-hickory, and pine; the latter two predominantly associated with dry sites. The forest types proportionally best represented in the over 100 age classes are oak-hickory, maple-beech- birch and pines.

### ***Volume by species***

In 2016, there were 22.6 billion cubic feet of growing stock volume, of which 6.4 billion or 28% were conifer and 16.2 billion or 72% were hardwood. The highest volume softwood species were eastern white pine, red 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 2011 and 2016, average net annual growth exceeded harvests and other removals by almost 279 million cubic feet (mortality is taken into account when calculating net growth). Growing stock average annual mortality was 245 million cubic feet. During the period between inventories, average annual net growth was 581 million cubic feet. Average annual removals were 303 million cubic feet, about 52% of average net annual growth.

Along with net growth exceeding removals overall, net growth exceeded removals for the state's northern red oak 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, black and northern pin oak, and yellow birch. Growing stock average annual mortality exceeded average net annual growth for paper birch, elm, balsam fir, jack pine, black spruce, aspen, black and northern pin oak 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 not changed, the forest itself has. 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 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). 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 2016, the percentage had increased to 49%. However, forests more than 100 years old declined during the same period from 6% (887,000 acres in 1968) to 5.1% (865,293 acres in 2016) 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 57%).

Overall growing stock volume on Wisconsin timberland has increased steadily since the first forest inventory in 1936 (7.6 billion cubic feet) to the 2016 inventory (22.6 billion cubic feet). Between 1996 and 2016, overall growing stock volume in Wisconsin's forests has increased by almost 11%, over 2.0 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, yellow birch and jack pine volumes decreased between inventories.

Growing stock average net annual growth exceeded average annual removals between 2011 and 2016 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 all purposes of, black and northern pin oak, paper birch, elm and jack pine continue to exceed average net annual growth.

### **Urban Forest Resources**

According to Wisconsin DNR's definition of urban forest, the area encompassed by incorporated cities and villages, Wisconsin has about 2 million acres of urban forest or about 5.8% of the state's land area. This is a conservative number as it does not include developed areas of towns which are managed as urban forests. Pilot Wisconsin urban forest inventory and assessment studies were completed by the USDA Forest Service in 2002 and 2012. Using the Forest Service's more restrictive definition, the 2002 study classified 729,270 acres as "urban" which expanded to 932,877 acres in 2012.

The 2012 study reported Wisconsin urban areas contain 42.8 million trees, averaging 45.9 trees per acre with an estimated total structural/replacement value of \$19.3 billion.

The information derived from the 2002 and 2012 urban forest inventory projects has been extremely useful. However, the low number of sampling points, lack of focus on measuring urban canopy and limited study area has not met the increasing demand for timely, consistent, and reliable forest assessment and monitoring information for urban forests. Therefore, the Division of Forestry is implementing a continuous Urban Forest Assessment program (WisUFA). WisUFA has three main components: permanent Urban Forest Inventory and Analysis (Urban FIA) plots on all urban ownerships, a remotely sensed urban forest canopy measurement to be repeated on a five to ten year cycle, and a web-based geospatial data aggregation tool to collect and report on other existing data sources such as municipal street tree datasets. Analysis of these data will qualify and quantify the urban forest structure, condition and threats to the resource and establish the environmental, social and economic values and

products provided by the urban forests of the state. This program will increase capacity to provide timely data to our customers and track progress towards statewide strategic and performance goals.

In addition, Wisconsin is working with the USDA Forest Service FIA program to pilot an urban landowner survey, analogous to the National Woodland Owner Survey, in four Wisconsin cities. Focus groups were held in Wausau and Madison to refine the survey questions. A quantitative survey is to be distributed to residents of Madison, Milwaukee, Green Bay and Wausau in January of 2017. Resulting data and analyses will provide information on how urban residents think about and manage their surrounding urban trees and green spaces.

### **Forest Health**

Detection, monitoring, and management efforts continued regarding forest insects, diseases, and invasive plants that pose significant threats to the health of Wisconsin's forests. Highlighted below is the status of several key forest health issues.

### **Weather**

Stress from weather was low in 2015 and 2016: precipitation was ample in both years and temperatures were average to warmer than normal.

### **Emerald Ash Borer**

By the end of 2016, emerald ash borer (*Agrilus planipennis*, EAB) was found in 40 counties of Wisconsin (municipalities indicated in green, Fig A). This invasive beetle was consistently found across the southeastern counties and in the townships bordering the Mississippi River in the southwest. Elsewhere, populations still appeared to be scattered. Forty-two counties are quarantined (tinted yellow, Fig A). In addition to counties where the pest has been found, Iowa and Kewaunee Counties were also regulated as they were surrounded by the quarantine. Mortality of ash extensive enough to be mapped from the air was visible for the first time in 2015 in the far southeast, in western Ozaukee County and scattered along the Mississippi River from Buffalo to Crawford Counties. The area of mortality did not expand much in 2016 but a band of decline was mapped extending west from the southeastern core of mortality as far as Madison. Releases of specialist parasitoids continued in southeastern counties in 2015 and additional release sites were added in Green Bay and the Door Peninsula. In 2016, *Spathius galinae* was released for the first time in Wisconsin, joining *Tetrastichus planipennis* and *Oobius agrili* which have been released since 2011. In 2016, *Tetrastichus planipennis* was successfully recovered by DNR staff at three sites in Kenosha, Racine and Walworth Counties, in addition to the first release site in Ozaukee County, recovered in 2013.

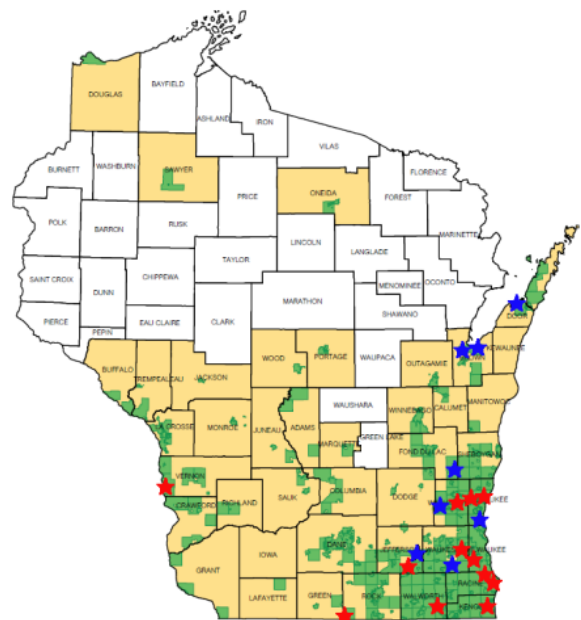


Figure A. 2016 Counties quarantined for EAB are shown in yellow and communities with EAB detections are shown in green. 2016 natural enemy wasp release sites are shown in blue. Releases done in previous years (2011-15) are shown in red.

## Gypsy Moth

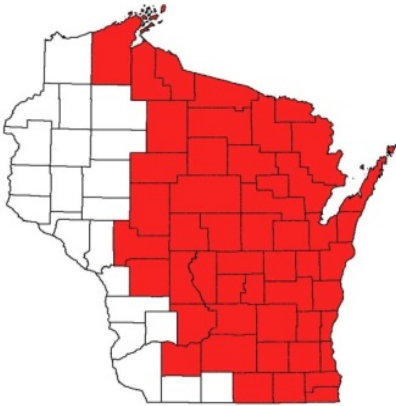


Figure B 2016 Counties quarantined for gypsy moth

Gypsy moth (*Lymantria dispar*) is established and quarantined in 50 counties of Wisconsin's 72 as of 2016 (Fig B). While this pest is widespread, populations have remained low in Wisconsin since 2011. In 2015 and 2016 only one acre in each year experienced defoliation by this pest. Adequate rainfall in these years favored introduced specialist diseases of gypsy moth, *Entomophaga maimaiga* and Nucleopolyhedrosis virus of gypsy moth. As would be expected, demand for the state suppression program for gypsy moth outbreaks was very low in both years: in 2015, one 41 acre site in Rock County was treated and in 2016, 18 acres in Rock County and 84 acres at Mirror Lake State Park in Sauk County were sprayed to prevent defoliation.

## Oak Wilt

By 2016 oak wilt (*Ceratocystis fagacearum*) was generally present in 47 counties, found in one or more sites in 14 counties and not found in 11 counties; six in the north and five in along the Lake Michigan shore line from the Door Peninsula south to Sheboygan County (Fig C). Oak wilt was detected in Price County for the first time in 2016. Management of oak wilt focuses on prevention as there is no practical treatment for forest trees and preventing underground spread through a stand by trenching is expensive. State, county, and private lands entered in the Managed Forest Law program must consider precautions to prevent overland transmission of oak wilt during harvests in oak stands. These oak harvesting guidelines were revised in 2016 allowing some flexibility in oak harvesting during the restricted period, based on stand-specific situations. In 2015, the department began a study to determine if oak wilt infections could be contained using herbicides to produce a break in the root grafts between infected and healthy trees. This study will take five years to complete and it is hoped it will provide an alternative option to trenching or uprooting trees for woodlot managers.

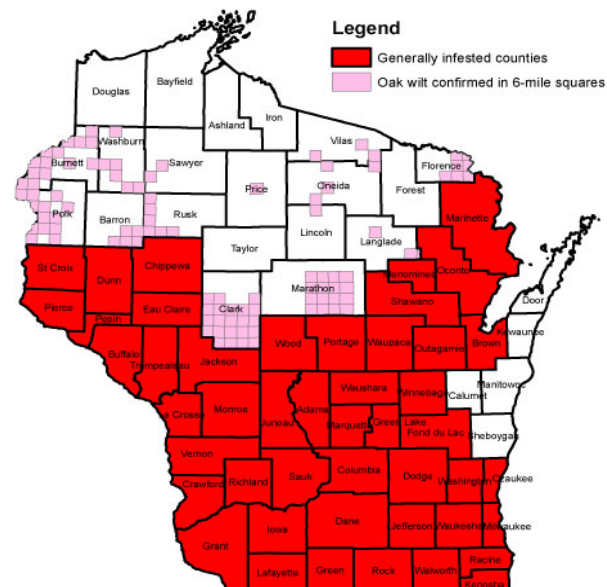


Figure C 2016 distribution of Oak wilt

### Heterobasidion Root Disease

Heterobasidion root disease (*Heterobasidion irregulare*, HRD), (formally known as annosum) one of the most destructive conifer diseases, was first detected in Wisconsin in 1993 in Adams County and has since been found in 27 counties (Figure D). The disease was found for the first time in Marathon County in 2015 and Sheboygan and Washington counties in 2016. Most infections in Wisconsin have been in red and white pine plantations. Management focuses on prevention of infection during thinning as it is very hard to control once in a stand. State land managers are required to consider infection risk and treatments to prevent infection during thinning are required if the stand is mostly pine, is within 25 miles of an existing infection, and is cut April – November. Private landowners are urged to do similarly.

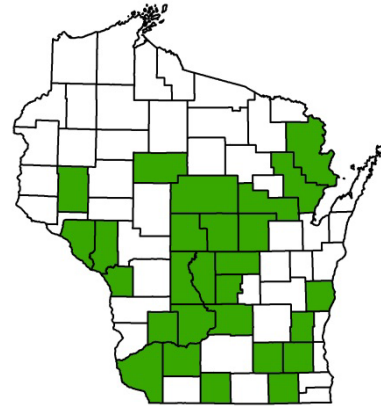


Figure D Wisconsin counties where HRD has been confirmed (Dec. 2016)

### Terrestrial Invasive Plants

Efforts to prevent the spread of terrestrial invasive plants continued through education and implementations of BMPs and Invasive Species Rule NR 40. Work continued on early detection and suppression of priority species, those that are especially damaging and not yet generally established. Inventories of invasive plants were done on many state properties and control applied to priority sites as resources allowed.

## 2. Current use of forest products and the benefits to the state

The predominant wood product produced in Wisconsin is roundwood for pulp and paper. Saw logs are second in prominence followed by a variety of other forest products including, composites, fuelwood, furniture, flooring, cabinets, molding and millwork, bio-fuels, posts, poles, and pilings. Hardwood species comprise nearly 80% of total roundwood production in Wisconsin.

The forest products industry in Wisconsin supports 64,896 jobs and generates \$24.7 billion in value to the state's economy. The pulp and paper sector is the largest employer with 31,372 jobs followed by sawmills and other wood products with 27,568 jobs. Further, these businesses generate \$173 million in direct taxes.

A steady flow of products from well managed 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 product industry creates high paying jobs. In all, the forest products industry contributes about \$3.7 billion per year in wages to Wisconsin's economy.

Other amenities provided by the forest are difficult to put a value on, but are significant. Forest-based recreationists annually spend approximately \$2 billion within Wisconsin communities. This spending stimulates the economy further and it is estimated that forest-based recreation is a \$5.5 billion dollar industry (WEDI, 2004). Clean water and air are among other benefits of healthy managed forests that are difficult to quantify.

Urban forests in Wisconsin provide myriad ecological, social and economic benefits. The 2012 urban forest assessment pilot estimates showed Wisconsin's urban forests annually remove 4,005 tons of air pollution valued at \$27.1 million, annually sequester 212,000 tons of carbon valued at \$15.1 million, store 4 million tons of carbon valued at \$285 million and annually provide residential energy savings valued at \$86.1 million. The structural value of the urban forest (the cost to replace the trees) is estimated at \$19.3 billion.

### 3. Projected future demand and benefits for forest products

The forest industry is still recovering from downfalls in the housing industry and the economic downturn of 2009. 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.

Although the pulp and paper markets continue to be challenged by the growing presence of new facilities in countries such as China and Brazil, it is important to realize that paper manufacturing is comprised of four basic types, or grades: Communications, Packaging, Specialty, and Tissue. Communications includes all manner of "ink on paper" uses for the product from copier paper to books to notebook paper to advertising and information purposes. Packaging paper are those that facilitate the safe, hygienic and appropriate delivery of all manner of products. Specialty grades include a myriad of targeted uses capturing the versatility of paper. And Tissue includes personal and institutional uses of tissue products, for both the home and away-from-home uses. Communications grades are being challenged by the digital revolution, but analysts and customers continue to rely on paper for a broad range of information-transfer purposes. Meanwhile, Packaging, Specialty and Tissue paper manufacturing are regularly reporting expanding markets and continued profitability.

It is reasonable to assume 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.

During 2008- 2009 economic recession the housing slump impacted sawmills and veneer plants in Wisconsin with some of the lowest lumber prices in recent history. In recent years demand for these



products has improved, and as a result, Wisconsin’s wood industries have experienced positive market impacts. Kitchen cabinets and flooring continue to provide steady markets to Wisconsin companies but these markets have still not fully recovered. Industrial wood products such as pallets, railroad ties, and crates continue to move products world-wide and as such provide a stable market for low grade wood products.

International markets offer increased potential for Wisconsin companies, particularly in the high end furniture sector. Nationally, the volume of hardwood lumber exports has increased by approximately 70% since 1999. International exports are increasing, and now total more than \$2.2 billion. The development of export opportunities to regions such as Southeast Asia and the Middle East, in addition to the growth of existing markets in China and North America, have contributed to this increase. Continued assistance by the state to help companies move into these foreign markets is needed to help Wisconsin family-owned businesses take advantage of these opportunities and capture wider markets for their product offerings.

Wisconsin has high quality hardwoods and a rich species mix that will continue to be in demand for solid wood products. For example, Basswood has grown in popularity as a solid choice for wooden blinds, Ash demand has increased in Asian markets and white oak remains a popular species in the European market. There are discussions about exploring opportunities for market growth and production of products such as mass timber products and thermally modified wood in Wisconsin to make industry more diverse and adaptable in an ever changing dynamic forest products market.

#### 4. Types of owners, forms of ownership and reasons for ownership

Ownership of the 17.1 million acres of rural forest land in Wisconsin:

<b>Public</b>	
National Forest	8.3%
Other federal	1.1%
State	7.0%
Local government	13.8%
<b>Private*</b>	
Tribal	2.4%
Misc. corporate	10.4%
Individuals/Families	57.0%

\*The Forest Inventory and Analysis (FIA) program has changed its tracking from previous years where “Forest Industry” is now narrowly defined as mills which also own forest land. This small acreage has been included in the “miscellaneous corporate” category.

In addition to rural forest lands, there are 2 million acres of urban forest in Wisconsin.

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

According to the 2016 Forest Inventory Analysis (FIA) and the 2011-2013 National Woodland Owners Survey (NWOS), approximately 414,000 private forest landowners hold an estimated 11.9 million acres

of forest land. When comparing these figures to previous inventories, it shows that the number of private forest landowners and the acreage of private forest land are both increasing. The private forest acreage increased in all survey units of Wisconsin since 2011 except in the northwestern and southwestern units.

Survey Unit	Acres of Private Forest Land		
	Year 2006	Year 2011	Year 2016
Northeastern	2,586,000	2,744,000	2,759,000
Northwestern	3,195,000	3,389,000	3,344,000
Central	2,432,000	2,594,000	2,614,000
Southwestern	1,944,000	2,039,000	2,034,000
Southeastern	962,000	1,104,000	1,134,000
State Total	11,119,000	11,870,000	11,885,000

The most recent NWOS data has focused on landowners who own 10 or more acres. As a result, the table below does not contain data for the 1-9 acre parcel size class; however, it is important to recognize that the previous NWOS survey showed that the 1-9 acre parcel size class had 54% of the landowners, but only about 8% of the acreage of individual “family forest” land. When looking at ownerships of 10 acres or larger, there is not such a stark contrast. In total, about 183,000 owners hold 9 million acres. The 20-49 acre size class has 42% of the landowners and 27% of the individual “family forest” acreage. The 10-19 acre size class has 29% of the landowners and 7% of the acreage. For family forest owners with 10 or more acres, the average parcel is 48.8 acres which has changed very little from previous NWOS surveys.

Family Forest Area and Owners by Size of Landholdings (10+ acres) in Wisconsin, 2013.				
Size of forest landholdings	Acres		Owners	
	Thousands	Percent	Thousands	Percent
10-19	636	7	52	29
20-49	2,393	27	76	42
50-99	2,291	25	33	18
100-199	2,113	23	16	9
200-499	1,145	13	4	2
500-999	356	4	< 1	< 1
1,000-4,999	76	< 1	< 1	< 1
Total	9,011	100	183	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 and sawmills 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

678,586 acres in Wisconsin's Forest Tax Law programs. Only 2.5% of that land is closed to public access.

To help maintain the integrity and traditional uses of industrial and other private forestlands, the federal Forest Legacy Program and the state Knowles-Nelson Stewardship Fund identify and protect environmentally important private forestlands threatened by conversion and promote the use of conservation easements to maintain outdoor recreation opportunities, wood products and wildlife habitat.

The recent purchase of conservation easements using funds from the federal Forest Legacy Program and the state Knowles-Nelson Stewardship Fund protected 37,401 acres of industrial forestlands. In Wisconsin, working forest conservation easements now protect nearly 260,000 acres; conservation values protected include critical wildlife habitat, lakes, rivers, and wetlands, along with providing public access for recreation activities.

### **Demographics of Wisconsin Individual Private Forest Landowners**

Information about the demographics, interests and management actions of family forest landowners in Wisconsin comes from the most recent USDA Forest Service National Woodland Owner Survey (NWOS). The most recent NWOS data on family forest landowners was collected from 2011-2013 and provides a snapshot of landowners who own 10 or more acres.

Family forest landowners in Wisconsin are older than the state's general population. With a large share of forest landowners retired, it follows that 37% of forest landowners are 65 years of age or older, compared to 15% of the general population. Forest landowners less than 45 years of age make up only 10% of all forest landowners, compared to 57% of the general population in Wisconsin.

In 2013, according to the US Census Bureau American Community Survey (<https://www.census.gov/content/dam/Census/library/publications/2014/acs/acsbr13-02.pdf>) the median household income in Wisconsin was \$51,467. Among family forest landowners, 42% had annual incomes between \$50,000 and \$99,000, while 21% had annual incomes greater than \$100,000. Family forest landowners tend to be well educated. Thirty-three percent have a bachelor's degree or higher with an additional 15% having an associate's degree and an additional 17% having some college education.

### **Reasons for Owning Forestland**

More than 77% of family forest landowners ranked *enjoying beauty or scenery* and *protecting or improving wildlife habitat* as important to very important reasons for why they own their woodland. In comparison, only 20% ranked *producing timber, such as logs or pulpwood* as important to very important. Landowners who prioritize timber production own over 2.9 million acres of forestland, while landowners who prioritize beauty and wildlife habitat own over 6.9 million acres of forestland.

### **Timber Harvesting**

Although many individual owners hold forestland for uses other than producing forest products, 63% of family forest owners have cut and/or removed trees for sale or personal use within the last five years, and nearly the same percentage intend to cut and/or remove trees in the next five years. These landowners hold over 6 million acres of forestland.

### **Forest Management Advice and Sources**

Twenty-two percent of family forest owners have received advice or information about managing their forestland in the last 5 years. Over 70% of those who received advice utilized the state forestry agency, compared with 9% from a federal agency. Forty-six percent received advice from a private consultant and 26% from a family member or friend. Fourteen percent received advice from another landowner and 4% received advice from others.

Family forest owners say they prefer to receive advice or information from written materials, such as brochures or publications, followed by talking to someone, having someone visit their land, and using the internet. Only 18% of family forest owners say they do not need or want advice or information.

Thirty-four percent of family forest owners who harvested timber consulted with a forester on the harvest.

Due to the increasing number of family forest landowners, there will likely be an increasing need for forest management assistance. In 2015 and 2016, WDNR and Cooperating Foresters made more than 6,500 initial (new) forest assistance contacts.

<b>Private Forest Management Assistance 2015 and 2016</b>				
	<b>DNR Foresters</b>		<b>Cooperating Foresters</b>	
	<b>Number</b>	<b>Acres</b>	<b>Number</b>	<b>Acres</b>
Comprehensive Managed Forest Law or Stewardship Plans	346	24,700	2,991	184,190
Number of Initial (New) Contacts	3,217		3,363	
Total Technical Service Contacts	9,784		10,199	

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 issues that family forest landowners are most concerned about for their woodlands are high property taxes (81%), trespassing or poaching (75%), keeping the land intact for future generations (74%), misuse of their forest, such as dumping (72%), and unwanted insects or diseases (68%).

## **5. Success of incentives to stimulate the development of forest resources**

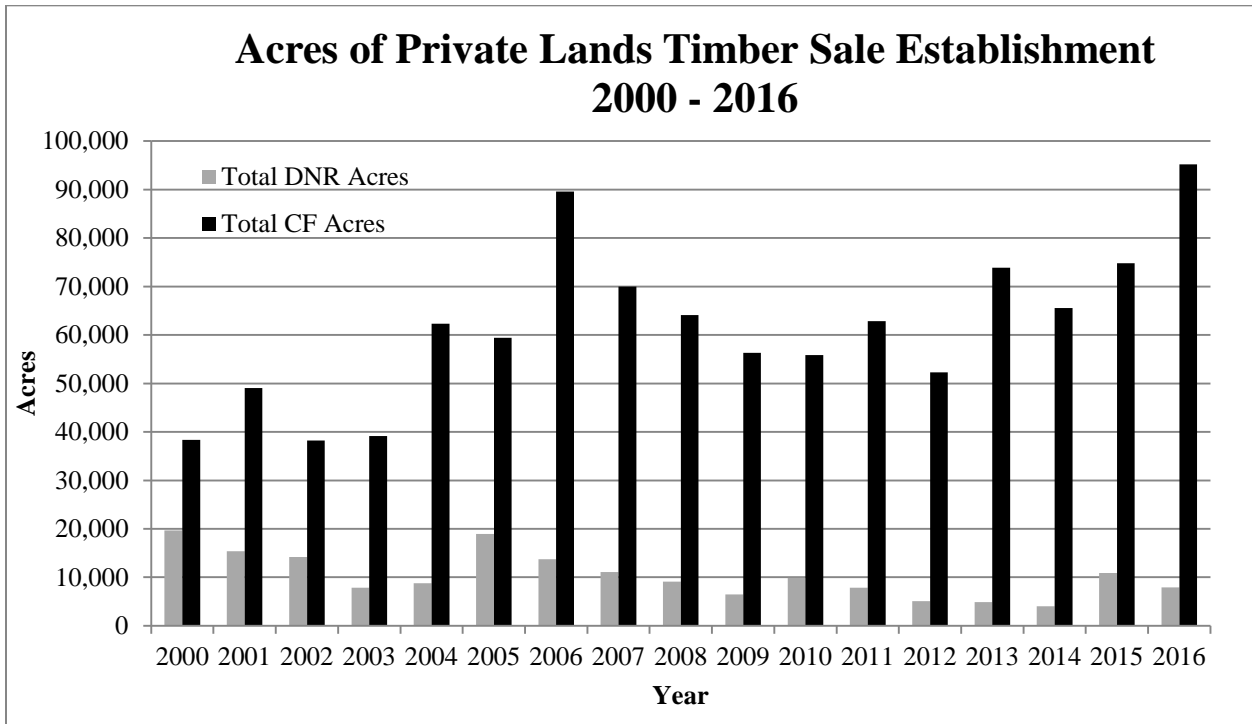
### **Technical Assistance**

Wisconsin Department of Natural Resources foresters are located in nearly every county of the state and serve to guide landowners in the practice of sustainable forestry. Throughout 2015 and 2016, DNR private lands foresters administered incentive programs (Managed Forest Law, Wisconsin Forest

Landowner Grant Program, etc.), and conducted outreach to landowners who have not received professional forestry assistance. DNR foresters direct landowners to the appropriate resources (e.g. a consulting forester for timber sale establishment or a certified plan writer) for developing a MFL plan.

Established in 1989, the Cooperating Forester program is a cooperative effort between the WDNR and private-sector consulting foresters aimed at encouraging the practice of sustainable forestry on private forestlands in Wisconsin through a referral process; the WDNR refers landowner requests for forestry assistance to Cooperating Foresters. There are currently over 200 private consulting firms and businesses (about 270 individual consulting foresters) participating in the Cooperating Forester program in Wisconsin.

Consulting foresters are independent contractors who make their living by charging a fee for the work they do. Private consulting foresters and industrial foresters voluntarily apply to participate, and must adhere to the terms and conditions in a Cooperating Forester Agreement. Cooperating Foresters are listed in a printed directory (printed annually) and also online on the Forestry Assistance Locator on the WDNR website (go to [dnr.wi.gov](http://dnr.wi.gov) and enter keywords 'forestry assistance locator'). To maintain Cooperating Forester status, Cooperators must also acquire ten hours of continuing education courses and file periodic reports with the WDNR.



**Forest Tax Law Programs**

Private forest landowners are encouraged to sustainably manage their woodlands through two property tax 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. It provides landowners with a significant property tax reduction. Lands entered into 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. Plans must be prepared either by a Certified Plan Writer (CPW) or a WDNR Forester if CPW services are unavailable. The CPW program has been very successful with 215 CPWs in 2016.

The MFL program continues to grow each year. As of 2016, the program includes 50,204 MFL entries covering 3,328,399 acres. Of those lands, 32.5% (1,081,628 acres) are open to public access. There are 832 entries in the FCL program comprising 125,846 acres. All lands in FCL are open to public hunting and fishing.

The number and acres of MFL withdrawals (voluntary, involuntary, and exempt) are as follows:

Effective Date	# of withdrawals	Acres
January 1, 2013	221	8,959
January 1, 2014	311	14,589
January 1, 2015	280	11,843
January 1, 2016	278	13,102
January 1, 2017	268	10,772

On January 1 annually, additional acres of new mandatory practices become available for loggers and contractors. These mandatory practices are largely commercial timber harvests and thinnings; however, they may also include tree planting, release, site preparation and other practices to ensure that trees are healthy and actively growing. DNR and Cooperating Foresters, loggers, and landowners work together to complete these mandatory management practices. The following chart shows the number of mandatory practices and acreage by year and the date the practice was originally scheduled for completion:

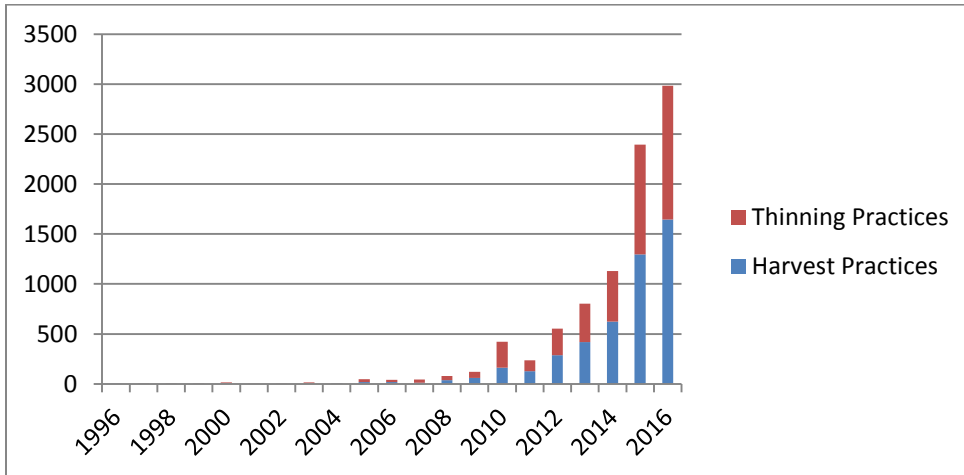
	Beginning Practices and Acreage		Remaining Practices and Acreage in 2016	
	Number	Acreage	Number	Acreage
<b>Pre-2007*</b>	7,870	102,113	115	1,788
<b>2007</b>	1,769	27,389	44	566
<b>2008</b>	3,321	49,772	79	1,144
<b>2009</b>	2,210	31,502	120	1,682
<b>2010</b>	6,236	98,283	421	6,291
<b>2011</b>	3,023	50,459	235	3,861
<b>2012</b>	4,009	58,180	554	8,815
<b>2013</b>	4,312	65,344	802	1,192
<b>2014</b>	4,428	69,043	1,130	17,135
<b>2015</b>	7,130	117,810	2,394	36,426
<b>2016</b>	4,515	74,374	2,982	47,582
<b>2017**</b>	4,983	81,786		

\*Mandatory practices prior to 2007 were scheduled before the current tracking system was developed. These practices may be corrected or updated over time.

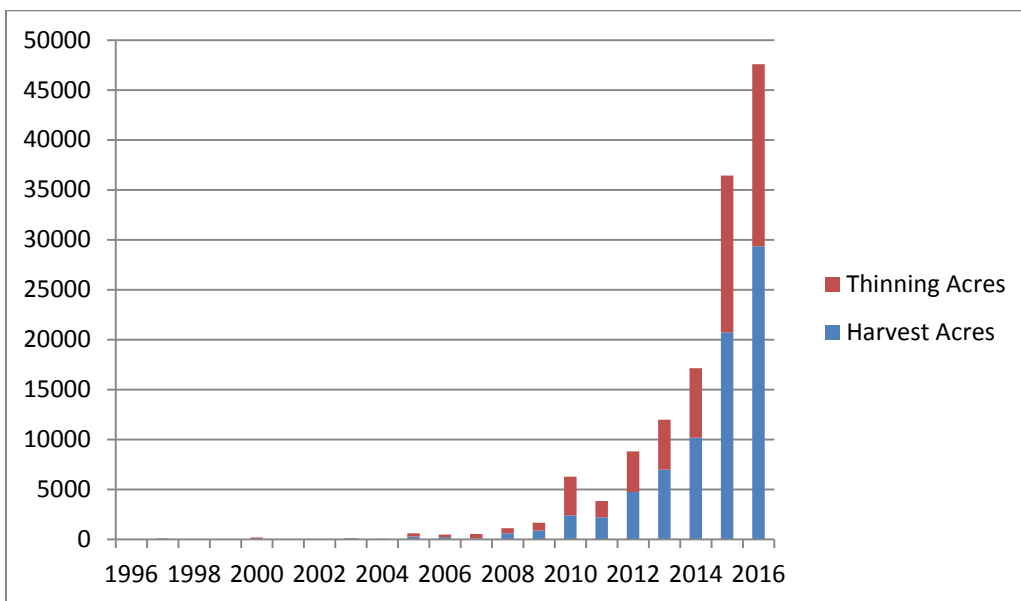
\*\*Mandatory practices which came due as of January 1, 2017.

The number of mandatory practices continues to rise as more lands are enrolled in the Managed Forest Law (MFL) program as shown in Figures 1 and 2.

**Figure 1: Number of scheduled mandatory practices as of 2016.**



**Figure 2: Acreage of scheduled mandatory practices as of 2016.**



**Wisconsin Forest Landowner Grant Program**

The Wisconsin Forest Landowner Grant Program (WFLGP) provides up to 50% cost-share for the preparation of management plans and the implementation of designated practices within those management plans. The allotment for fiscal years 2015 and 2016 was \$1.087 million each year for this state-run program. Maximum cost share is \$10,000 per year. Just over 2,100 practices were cost-shared in 2015 and 2016.

<b>Wisconsin Forest Landowner Grant Program</b>				
<b>Number of practices and dollars encumbered by practice for fiscal years 2015 and 2016</b>				
<i>(Dollars are based on the estimated cost for the practice at the time the application was approved and not actual amounts paid out to landowners.)</i>				
<b>Practice</b>	<b>2015</b>		<b>2016</b>	
	<b># of practices</b>	<b>Dollars</b>	<b># of practices</b>	<b>Dollars</b>
Stewardship plans and revisions	450	\$ 259,498	381	\$ 224,086
Undesirable species control	206	\$ 610,212	200	\$ 659,341
Site preparations	196	\$ 492,419	176	\$ 476,715
Tree plantings	135	\$ 385,089	110	\$ 274,612
Seedling protection	47	\$ 105,260	53	\$ 115,834
Crop tree release	25	\$ 49,294	30	\$ 59,079
Removals: insect & disease control	24	\$ 71,330	18	\$ 41,390
Fencing practices	18	\$ 48,425	21	\$ 58,268
Soil & water protection	12	\$ 30,858	4	\$ 3,814
Pruning projects	8	\$ 17,293	13	\$ 25,583
Direct seeding	5	\$ 7,485	4	\$ 8,797
Shrub plantings	4	\$ 6,473	4	\$ 11,294
<b>Total</b>	<b>1,130</b>	<b>\$2,083,636</b>	<b>1,014</b>	<b>\$1,958,810</b>

**Environmental Quality Incentive Program (EQIP)**

The Environmental Quality Incentive Program (EQIP), a federal program administered by the Natural Resources Conservation Service (NRCS), 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.

<b>EQIP practices in 2015 and 2016 on forest land in Wisconsin.</b>				
<b>EQIP Practices</b>	<b>2015</b>		<b>2016</b>	
	<b># contracts</b>	<b>Dollars</b>	<b># contracts</b>	<b>Dollars</b>
Forest Management Plans	52	\$ 57,529	65	\$ 77,066
Forest Stand Improvement	37	\$148,595	43	\$208,010
Tree/Shrub Site Preparation	21	\$ 36,936	20	\$ 13,452
Tree/Shrub Establishment	11	\$ 17,753	23	\$ 40,991
Forest Trails and Landings	4	\$ 15,562	16	\$ 57,960
Tree/Shrub Pruning	2	\$ 1,488	2	\$ 1,921



### **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. 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% 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 38,114 acres of conifers and/or hardwood trees newly established or re-enrolled (maintained) under CRP; 928 of these acres were enrolled in 2016.

The 2014 Farm Bill reduced the national enrollment cap for CRP from 32 million acres down to 24 million acres. This reduction has been met with increased interest enrolling and reenrolling lands due to a weak commodity market. CRP is currently very close to the national enrollment cap of 24 million acres. The last CRP General Signup (SU49) was completed in winter of 2015/2016 but resulted in very few offers being accepted due to a very high EBI (Environmental Benefits Index) score. FSA offices were actively trying and re-enrolling many eligible lands into the Highly Erodible Lands Initiative (HELI) signup until late March 2017 when the state acreage allocation was exhausted.

### **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. A total of \$1,047,631.43 was awarded for priority projects in 2015 and 2016. Priorities in 2015 and 2016 included consideration of a canopy approach, directing efforts to both public and private trees, and emerald ash borer (EAB) preparation (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).

The Urban Forestry grant program was oversubscribed in both of the last two years; a total of \$905,648.31, approximately 45.9% of eligible requests, went unmet in 2015 and 2016. This unmet request would be higher without the addition of performance-based, federal grant funds that were passed through in both years to supplement the typical annual allotment of state funds, \$524,600.

Grant funds are strategically disseminated based on levels of need. Applicants self-select for Regular or Start Up funding. The Regular grant (maximum \$25,000 award) assists communities in advancing their urban forestry management. The Start Up grant (maximum \$5,000 award) targets new or less developed urban forestry programs. Of the 130 proposed projects submitted in the last two years, the department awarded 19 Start Up grants and 49 Regular grants.

The Urban Forestry Catastrophic Storm emergency response 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. In 2016 there was a severe wind event where several

counties were declared in a state of emergency. The Village of Richfield received \$6,789.05 to help clear damaged trees.

## **6. Possible economic opportunities that may result from improved forest-product marketing and increased business dealing in or use of forest products**

Improved forest products marketing, new product testing and increased business dealing of forest products in Wisconsin could have significant economic opportunities. Bio-refining and emerging nano materials remain promising of emerging markets for the pulp and paper manufacturing segment in the state. Closer examination of these former waste streams suggests opportunities for useful chemical and fiber byproducts. Incorporating process improvement strategies into the wood manufacturing culture of Wisconsin wood users is also promising. Strategies such as LEAN manufacturing have been shown to increase efficiency and effectiveness for some mills.

The marketing of Wisconsin's forests as sustainable and certified serves to differentiate Wisconsin wood in both domestic and international markets. Promotional efforts to showcase the unique attributes of Wisconsin's wood resource are needed to position our value added wood products into wider markets. These qualities also stand to attract new businesses looking for stable and quality raw material resources for the products they produce.

New product opportunities hold promise as viable options, and it is important to not lose sight of traditional or established products opportunities. Mass timber products (e.g. cross-laminated timber) and nano-crystalline cellulose are products currently receiving wide attention. Special care should be provided, however, to ensure that important traditional uses of forest resources such as for pallets, pulp and paper products, and wood fuels remain viable and even grow where roundwood is underutilized.

Perhaps the two largest opportunities for market growth and business expansion reside in the global market landscape and the emerging wood products market segment. Continued efforts by WDNR staff and other forestry experts outside the agency are needed to assist producers in navigating the exporting process and also assist the industry in taking advantage of emerging forest product technologies. These efforts have been successful in past years and should continue to gain more momentum in the foreseeable future. The WDNR Forest Products Services Program provides direct assistance to interested companies in this regard.

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

Global markets and slowly recovering housing market have allowed many Wisconsin wood products producers to survive the recent economic downturn. The scale of these markets and the diversity of products demanded plays well to Wisconsin wood products. Continued efforts to assist industry with technical assistance, exporting needs and business plans are highly recommended.

To stay competitive, Wisconsin wood products producers must now become more creative than ever to develop and capture markets. Mass customization of products is one way to accomplish this, followed

by a second option to develop new and novel products and technology. Growth in new markets such as cross laminated timber or bio-refining will have a positive impact on the state’s local economy and will also create new job opportunities. Unified efforts to bring wood using and wood producing communities together to help promote wood use locally in the state is needed to better market Wisconsin’s wood products. Market expansion of pre-fabricated homes and crane mats into regional areas such as gas mining (housing needs) areas in the Dakotas could provide additional employment and manufacturing.

Wisconsin’s business environment remains a viable option for industries seeking sustainable, high quality material inputs. Entrepreneurs will find Wisconsin to be desirable for a host of reasons including tax and assistance attributes. It is important to strengthen the wood supply chain by linking producers and users with dependable transportation options including rail, trucks, and ships.

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

### **2015-2016 Legislation**

<http://www.legis.state.wi.us/>

Below is a summary of two bills that were passed into law during the 2015-2016 legislative session that will have an impact on forestry in Wisconsin or employees within the Division. A list of those bills that did not pass is also included below. Between the Assembly and Senate, a total of seven forestry related bills were introduced (companion bills not included).

Session	Assembly Bills Proposed	Assembly Bills Passed into law	Senate Bills Proposed	Senate Bills Passed into law
2005-06	23	11	4	1
2007-08	9	1	6	1
2009-10	25	5	15	4
2011-12	13	1	10	6
2013-14	18	6	16	6
2015-16	7	1	5	1

### **ASSEMBLY**

The Assembly considered 1026 bills during this session 7 of which impacted forestry in Wisconsin or the Division of Forestry. Of those, one had a companion bill that passed into law in the Senate. The following was passed into law in the Assembly:

#### **AB580 – Wisconsin [Act 171](#).**

The Act provides limited exceptions to statutory width and weight restrictions for certain types of logging equipment. The exceptions apply to skidders, forwarders, harvesters, and wheeled feller bunchers, if the equipment is operated for logging purposes for distances of a half mile or less on highways that are not part of the national system of interstate and defense highways. The equipment must also be operated at times other than in hours of darkness and, with respect to the exception from weight restrictions, the equipment must be operated unladen and on a highway that is not posted with a weight limitation.

With respect to vehicle width, prior law, retained by the Act, generally requires a person to obtain a permit to operate a vehicle having a total width greater than eight and a half feet. The Act allows a width of 12 feet for vehicles that satisfy the criteria described above.

**Assembly bills that did not pass:**

1. AB250 – (Companion to SB171) Eliminating inactive boards, councils, and commissions which included the Managed Forest Board.
2. AB436 – Reverses Mining Act and related changes to MFL.
3. AB548 – (Companion to SB632) Establishing a Wisconsin Conservation Corp. Program.
4. AB559 – Eliminating the restriction on leasing land enrolled in MFL.
5. AB561 – (Companion to SB434 which passed) Changes to MFL.
6. AB923 – Reimbursement of expenses for suppressing a forest fire.

**SENATE**

The Senate considered 804 bills during this session 5 of which impacted forestry in Wisconsin or the Division of Forestry. Of those, one had a companion bill that passed into law in the Assembly. The following was passed into law in the Senate:

**SB434** – Wisconsin [Act 358](#).

The Act makes several changes regarding Managed Forest Law (MFL) in Wisconsin, including: requiring the Department of Natural Resources (DNR) to distribute closed acreage fees of \$4.6 million in fiscal year 2017, \$6 million in fiscal year 2018, and \$7 million in fiscal year 2019 to municipalities in which closed MFL land is located; increasing minimum acreage from 10 to 20 acres for new enrollments in the program; requiring all MFL land designated as open be accessible to the public by foot, public road, or open land; increasing maximum acres that may be closed from 160 to 320 acres per enrollee per municipality; prohibiting new enrollments and renewals with any building or improvement on the parcel; repealing the yield and severance taxes on the value of harvested timber paid by Managed Forest Law and Forest Crop Law enrollees; authorizing an owner of MFL land to lease their land for recreational activity on the land; making an MFL order a contract between the state and the owner; and authorizing the DNR to provide an MFL owner a period of time to restore the productivity of MFL land following a natural disaster, meaning damage from fire, ice, snow, wind, flooding, insects, drought, or disease, before the owner must satisfy program requirements.

**Senate bills that did not pass:**

1. SB417 - (Companion to AB580 which passed) Width and weight limits of certain motor vehicles operated on a highway.
2. SB632 - (Companion to AB548) Establishing a Wisconsin Conservation Corp. Program.
3. SB655 - (Companion to AB923) Reimbursement of expenses for suppressing a forest fire.

**9. 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.**

### **Council on Forestry**

The Council will continue to work with forestry community members to develop future recommendations for staffing and funding needs based on information resulting from ongoing efforts such as Wisconsin Forest Practices Study and other council initiatives. At this time the council has no specific recommendations to report.

### **Division of Forestry**

Budget initiatives developed by the Division of Forestry and supported by the Natural Resources Board for inclusion in the 2017-2019 Agency Budget Proposal can be found in **Appendix A**. Since the development of budget initiatives by the Division is a separate process, the Council did not participate or advise in their development.

### **Federal Funding**

The Division of Forestry receives federal funding in the form of core grant awards from the US Forest Service. These are a relatively small portion of the division's overall funding, amounting to approximately \$1 million each fiscal year, or 2% of the total funding for division operations. These core grant awards are issued for the purposes of forest fire suppression, forest health, forest stewardship, and urban forestry.

In addition to the federal funding the division is the direct recipient of, there is also the cooperative agreement with the US Forest Service for Good Neighbor Authority. Unlike the core grant awards, this is not a direct funding mechanism, but rather an agreement where the division acts as the steward of revenues from timber sales on the Chequamegon-Nicolet National Forest (CNNF). The division then uses those revenues to pay the US Forest Service for bills of collection, offsets internal costs incurred by assisting with the timber sales, lapses funding back to the Forestry SEG account to repay the initial "seed money" granted by the Legislature, and will eventually use to initiate restoration projects on the CNNF.

Finally, the division acts as the pass-through agency for federal funding for Payments in-Lieu of Taxes and National Forest Income Aids. The former are moneys received from the federal government attributable to payments associated with national forest lands for distribution to towns, villages in cities in proportion to the level of municipal services provided by each. The latter are moneys received from the federal government for allotments to counties containing national forest lands, and designated for the benefit of school districts in such counties, and are distributed in proportion to the national forest acreage in each county as certified by the US Forest Service.

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

The one action item that came out of the "Forestry Education" breakout session at the Governor's Forestry Summit in Madison in December, 2013 was the need for a day-long Forestry Education Summit. Sustainable Resources Institute was awarded a 2014-2015 Wisconsin Environmental Education Board grant to conduct a Summit to bring together those individuals and organizations involved in forestry education to discuss past, present, and future efforts. A Forestry Education Summit organizational committee was formed with representatives from the Sustainable Resources Institute, LEAF, UW-Extension, Trees for Tomorrow, and Great Lakes Timber Professionals Association. The committee

identified key stakeholders to be invited to the Summit as well as topics, speakers, and the agenda. The Sustainable Resources Institute and LEAF conducted the Forestry Summit: “Focus on Careers in Forestry” on December 8, 2015 on the Boston School Forest in Plover. The following organizations were represented at the Summit:

- Boston School Forest
- DNR - Division of Forestry
- Florence County Economic Development
- Great Lakes Timber Professionals Association
- LEAF
- Nicolet College
- North Central Technical College
- Project Learning Tree
- Trees for Tomorrow
- UW-Extension
- UW-Madison
- UW-Stevens Point
- Wisconsin Consulting Foresters
- Wisconsin County Forests Association
- Wisconsin Urban Wood

The overarching goal of this project was to improve and expand forestry education on all levels, from K-12 to the general public, by providing educators an opportunity to discuss how they can more effectively accomplish the missions and goals of their respective entities. This was accomplished by educators sharing their current work with one another, learning about each other’s resources and needs, and developing consensus on how to move forestry education efforts forward.

Summit attendees identified needs and opportunities for future work during group break-out sessions. The highest needs identified by each break-out group are summarized below. Following those are the needs that were prioritized for future work, as well as project ideas and potential action items to move that work forward.

### **Identified Needs & Opportunities**

#### **Top Needs Identified by those working with K-12 Education:**

- Developing awareness of technology used in forest industry and developing curriculum around new technologies
- Up to date information about current forestry careers
- Provide information to administrators and teachers on how forestry careers fit into curriculum and other requirements

#### **Top Needs Identified by those working with Higher Education:**

- Increase awareness
- Students need to be engaged at pre-secondary education level
- Message that resource management is a good thing
- Provide a living wage

**Top Needs Identified by those working with the General Public:**

*Our Diversity is our strength and our weakness....*

- Educate the general public about Healthy Forests, Healthy Communities
- Need one person to manage this process
- Create a branding message
- Create a marketing plan

## Appendix A

### **Division of Forestry Budget Initiatives**

These are the forestry budget initiatives supported by the Natural Resources Board for inclusion in the 2017-2019 Agency Budget Proposal. Additional explanation for the request can be found in the Department of Natural Resources 2017-19 Biennial Budget Proposal on pages 105-148.

#### **Maintaining Base Forestry Operations**

The Department requests annual funding of \$78,500 to fund base operations costs associated with operating a new facility. These base costs include utilities (water, heat, and electric), rent, and LTE funding. Current operational budgets are not sufficient to cover the added infrastructure costs for newer, larger facilities. The request is for the following facilities:

- Ranger Stations (Prentice, Tomah, Plover, Oconto Falls, Medford) - \$25,000 annually
- Warm Storage Buildings (Barnes, Black River State Forest, Necedah, Waupaca, Poynette, Boscobel, Brule, Wausaukee, Friendship) - \$26,000 annually
- Wilson Nursery Storage - \$2,500 annually
- State Forest Headquarters – Flambeau River, Peshtigo River - \$25,000 annually

#### **Tractor Plow Operator Training**

The Department requests annual funding of \$100,000 to provide specific technical training for operators of heavy machinery, such as our tracked bulldozers and Type 4 engines that are assigned to our staff and are used for fire attack. This funding would be sufficient to send 10 staff each year to a specialized training center, where they could receive the required training and CDL.

#### **Forestry Field Data Recorders - Master Lease**

The Department requests one-time funding of \$76,900 in both FY 2018 and FY 2019 to make the final two years' worth of payments on an existing 4 year master lease for the purchase of field data recorders that Forestry staff use to gather data electronically and input into existing databases. In FY 2016, the division purchased 165 units with associated compatible software.

#### **Forestry Equipment - Master Lease**

The Department requests one-time funding of \$30,000 per year in FY 2018 and FY 2019 to make the final two years' worth of payments on an existing 4-year master lease for the purchase of 27 ruggedized computers that replaced existing devices in FY 2016. These devices are used by Forestry law enforcement officers to issue citations, check registrations and licenses, run warrants, and are an essential lifeline from a safety standpoint.

#### **Inter-Agency Type 2 Incident Management Team**

The Department requests funding of \$161,900 in FY 2018 and \$63,000 in FY 2019, to provide equipment and funding for the Type 2 IMT that is deployed to large, complex, all-hazard incidents statewide. The Governor's Homeland Security Council approved the creation of this team in 2013, and is a Department-wide supported effort. However, no funding was allocated at the agency or division levels to support this initiative. This funding will allow for the purchase of the necessary equipment, such as printers, copiers, fax machines, LAN devices, computers, telecom devices and office supplies.



### **Forest Fire Aerial Detection Supplement**

The Department requests annual funding of \$119,000 to supplement our aeronautics team, specifically for the aerial forest fire detection flights they conduct. In 2016, the Division of Forestry decommissioned its forest fire lookout towers due to safety concerns with their structural integrity. As a result, we now have increased the number of flight hours for forest fire detection each year to make up for the lack of the towers. This funding will allow for an additional 700 hours each year at an average of \$170/flight hour.

### **Firefighter Safety Equipment**

The Department requests one time funding of \$152,500 in FY 2018 and \$125,000 in FY 2019 to replace 500 fire shelters and 250 drip torches used by the Division of Forestry for fire suppression. The fire shelters we currently utilize have been made obsolete with the development of a new generation of shelters that better reflect radiant heat and trap breathable air, which increases the level of protection that our fire attack staff have available to them. The drip torches need to be replaced to comply with Federal DOT requirements for transporting flammable liquids.

### **Firefighter Radio Operations Funding**

The Department requests annual funding of \$434,200 to develop a consistent procurement and replacement schedule for the more than 800 radios that are used by staff in the Division of Forestry for law enforcement and wildfire suppression. This funding will negate the reliance on an ongoing master lease for the replacement of these radios.

### **2017-19 Statutory Language Proposals**

Additional explanation for the requests can be found in the Department of Natural Resources 2017-19 Biennial Budget Proposal on pages 149-157

### **Fire Suppression Billing**

The Department requests modification of s.26.14 of the statutes to exempt counties from the requirement to pay one-half of fire suppression expenses for instances when a 3<sup>rd</sup> party has been deemed to be responsible for a forest fire, and as prescribed under s. 26.14(9)(b), has already reimbursed the Department for 100% of the fire suppression expenses. Suggested language is as follows: 26.14(3)(a) "No county shall be billed under sub 4 for any amount due to the Department under sub 4 if the Department has previously collected the amounts under sub 9b."

### **Timber Sale Reporting Requirements**

The Department requests modification of s.28.11 of the statutes related to submitting a report of merchantable wood products cut on a county forest. The current requirement is that a report be submitted within 90 days of completion, but no more than two years after filing the cutting notice. It would be amended to require transmission of a report within 90 days of completion, but no more than five years after filing the cutting notice. This change from two years to five years for filing the cutting notice more closely reflects currently accepted timber sale contract lengths and reduces unnecessary county and department workload.

### **Timber Direct Sale Limit Increase**

The Department requests modification of ss.28.05, 28.11 and 28.22 of the statutes to increase the direct sale - sales without a competitive bidding process--amount for timber sales on public lands from \$3,000 to \$10,000 to better align them with current price structures. This direct sales limit was last revised in

1999. The intent for these three statutes is to mandate that an open and fair competitive bidding process be applied on our public land timber sales. The direct sale limit, currently \$3,000 of appraised value, allows managers to sell smaller amounts of timber directly to a contractor without advertising. In certain instances, being able to quickly work with a contractor is advantageous. They may have the availability or type of equipment that is a perfect match for a smaller timber sale, allowing timber to be sold when in other circumstances it may be less possible.

#### **Timber Sale Advertising Requirements**

The Department requests modification of ss.28.05, 28.11 and 28.22 of the statutes to remove the requirement for publishing notice of timber sales in an official newspaper having general circulation in that county that the timber is being sold. The revised statutes would offer an option to post on an official website or publish in a newspaper.