

Monroe County Invasive Species Working Group Strategic Management Plan for a Cooperative Invasive Species Management Area (CISMA)

Last update: May 23, 2018

Ratified: July 19, 2020

INTRODUCTION

Monroe County Invasive Species Working Group (MCISWG) The MCISWG is a collective group of state and federal agencies, municipalities, tribes, nonprofits, community organizations, and individuals who have come together to manage invasive species. Participation in the MCISWG is voluntary.

PURPOSE and BACKGROUND

Monroe County Invasive Species Working Group wishes to be adaptive in its approach to its goals. As new research, national priorities, or regional threats may come in the future, the **MCISWG** Management Plan may modify its methods to accommodate these changes.

1. The Monroe County Invasive Species Working Group is committed to enhancing the success of an Invasive Species Management Program.
2. The Monroe County Invasive Species Working Group is committed to enhancing the potential for success of an Invasive Species Management Program in the region by encouraging sharing of resources, information, expertise, and effort on a willing and cooperative basis on both public and private lands and waters
3. The Monroe County Invasive Species Working Group will rank invasive species management priority efforts as follows:
 1. PREVENTION of new introductions via EDUCATION;
 2. CONTROL of new invaders or new infestations; and
 3. CONTAINMENT and management of established stands.
4. The Monroe County Invasive Species Working Group commits to these activities and association for five years from the most recent signing of the Memorandum of Understanding (MOU).

This MOU will become effective upon signature of each of the Interested Parties and fully effective upon the first date shown. The Steering Committee (SC) will review the MOU every five years from the effective date.

MCISWG Partners

The *MCISWG* recognizes the importance of cooperation among all stakeholders. Two categories of participants are included in the MOU. Interested Parties are those entities where official policy dictates a legal review of the MOU document. "Informal Participants" are those partners who chose to participate, but on a less formal level. Regardless of

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status, all parties are encouraged to participate. The *MCISWG* will focus its efforts to include the widest audience possible in its Annual Work Plan. The *MCISWG* will also actively recruit new participants in its activities and target non-participatory portions of the community in education and outreach activities. See Appendix A for a current list of partners.

Partner Roles and Responsibilities

- All interested parties are encouraged to sign a Memorandum of Understanding (MOU) signatory page as a Signatory or as an informal cooperator to become a part of the Monroe County Invasive Species Working Group and actively participate in the *MCISWG*. Additional parties may, and are encouraged to, be added to the Working Group at any time. All signatories will be notified of any additional party and will be given 30 days after the notification to determine if there is a conflict of interest. If a conflict of interest is identified, the signatory may choose to withdraw from the MOU. If the signatory does not choose to withdraw, then the additional party with the conflict of interest may not be added to the MOU.

A **Chair** and **Vice Chair** will be nominated and an Annual Operating Plan will be developed to outline projects and goals for that year. The SC will be composed of no more than **one representative per Interested Party**. SC members have voting rights and need to maintain active involvement. The agency/organization representative can be substituted at any time. The SC chair or vice-chair has the power to call for a formal vote on any matter.

Funding and Administration

Funding is anticipated to be primarily through competitive grants and gifts. Funds will be administered through the Monroe County Land Conservation Department (LCD), but technical and fiscal reporting materials will be the responsibility of the technical contact of each grant. It is their responsibility to provide this material to the LCD representative in an accurate and timely manner to meet all fiscal responsibilities.

MCISWG Geographic Description

Location: The *MCISWG* is geographically defined as the lands and waters within the geopolitical boundaries of Monroe County, Wisconsin.

Monroe County

Location, Size, and Population: Monroe County population 45,549 (2015) is 581,300 acres in size, including 185,800 Acres of cropland, 3,654 Acres of Cranberries, 273,000 Acres of Woodland, 56,000 Acres of Wetlands. The largest cities are Sparta and Tomah with populations of approximately 9500 each.

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Unique Landowners of Monroe County:

Fort McCoy Military Installation

Military training began on a portion of what is now Fort McCoy in 1909. In 1941, the last major land purchase occurred bringing the land area of the installation to just under 60,000 acres. Fort McCoy serves as a Total Force Training Center that annually supports the year round training of over 140,000 reserve and active component US military personnel from all branches of the armed services. Fort McCoy's Mission Statement is "Underpin readiness of the force by serving as a training center and a support site for power projection missions." Fort McCoy supports power projection missions responsible for deploying military forces in support of contingency operations for war and overseas contingency missions in support of Combatant Commanders. The mosaic of natural communities found on Fort McCoy and climate extremes ranging from warm summers to cold winters provides the military with a variety of realistic training scenarios.

The Natural Resources Branch, under the Directorate of Public Works, manages the installation's natural resources. This includes an Invasive Species Management Program which was established in the early-1990s when leafy spurge was discovered on the installation. There are currently over 40 species of invasive plants that have been documented on the installation.

Ho-Chunk Nation

The Ho-Chunk Nation is unique from most other Native American tribes in that it does not have one large contiguous reservation. Nation lands include approximately 15,000 acres spread over 23 counties of Wisconsin, Minnesota and Illinois. Tribal land ownership in Monroe Co. includes almost 1,500 acres with roughly 432 acres held in fee-simple by the Nation and the remaining 1,066 acres held in Trust by the United States for the benefit of the Nation or the People (individual trust allotments). Land-use varies widely on tribal lands in Monroe Co. including areas developed for residential, institutional and commercial use. In addition, a substantial amount of the land is maintained for agriculture, conservation (wetland, forestry, prairie) and cultural use in Wisconsin.

State Natural Areas

State natural areas (SNAs) protect outstanding examples of Wisconsin's native landscape of natural communities, significant geological formations and archeological sites. Encompassing nearly 400,000 acres, Wisconsin's 687 natural areas are valuable for research and educational use, the preservation of genetic and biological diversity and for providing benchmarks for determining the impact of use on managed lands. They also provide some of the last refuges for rare plants and animals.

Monroe County has 8 SNA's

La Crosse River Trail Prairies

Eureka Maple Woods

Fort McCoy Barrens

Clear Creek

Silver Creek

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Mill Bluff
Portland Maples
Sand Creek Pines

For more information

<http://dnr.wi.gov/topic/Lands/NaturalAreas/county.html#Monroe>

Land Use and Trends: The numbers of confined dairy operations, cash grain crop acres and rural, non-farm residences are all increasing. In general, absentee landowners are increasing, making private land management difficult.

Agriculture

The primary land use in Monroe County is agriculture, with dairy farming being the dominant type. The driftless area is home to many conservation practices on cropped fields such as contour farming, grassed waterways and dams. Cranberry operations comprise a large portion of the landscape in the northeast part of the county.

For more information about local agriculture, see <https://monroe.uwex.edu/agriculture/>.

For additional information about local cranberry agriculture, see <http://www.wiscran.org/>.

Forestry

Forestry is the second largest industry in Wisconsin with mixed softwoods and hardwood forests. According to The WI DNR the Forest economy in the county is worth over \$22 million. There are 296,849 acres of Forestland. 225,482 Acres are in Private ownership. 71,367 Acres are Public of which the Monroe County forest is 7,280 acres.

<http://dnr.wi.gov/topic/forestbusinesses/factsheets.html>

Tourism and Recreation

Birding, cycling <http://www.monroetrails.com/trail-maps/>, snowmobiling, canoeing, skiing, snowshoeing, angling, hunting, horseback, four-wheeler riding and rambling are just a few outdoor activities that have a potential to spread invasive species.

Nonmetallic mining

Monroe County has a rich history of non-metallic mining.

Monroe Co. Non-metallic Mining Summary 40 Active Mines (33 Rock, 7 Industrial Sand)

Rock 424 Active Acres

Industrial Sand 773 Active Acres

Active Acres = Acres currently being mined.

<http://www.co.monroe.wi.us/departments/land-conservation/nonmetallic-mining-reclamation-plans/>

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Ecological Landscapes

The Ecological Landscapes of Wisconsin (updated 2016). See Appendix B for local Ecological Landscape information or <http://dnr.wi.gov/topic/landscapes/Book.html> for information on other areas of the state.

Water

There are approximately 6,600 acres of water in Monroe Co. All of the major drainage ways in Monroe County have their headwaters within the county, with the exception of the Black River in the northwestern corner. The La Crosse and Little La Crosse Rivers drain much of the west-central part of Monroe County. The La Crosse flows southwest. The Little La Crosse flows north until it merges with the La Crosse River a few miles southwest of Sparta. Sand Creek, Clear Creek, and Big Creek drain the northwestern part of the county and flow into the Black River. Sand Creek and Clear Creek leave the county before joining the Black River. Much of the eastern part of the county is drained by the Lemonweir and Little Lemonweir Rivers. They merge beyond the county border. The Baraboo River and Seymour Creek drain the southeastern corner of the county. They also merge beyond the county border. The Kickapoo River drains the south-central part of the county and flows south. Coon Creek drains the southwestern corner of the county. See <https://dnr.wi.gov/topic/watersheds/> for watershed and basin information.

Soils of Monroe County

The official reference for soil information and data resides at <https://websoilsurvey.sc.egov.usda.gov>. Hard copy soil survey books can still be found locally and contain valuable historic information about the county, but the soil maps and tables are no longer official. Collectively the staff of the Natural Resources Conservation Service (NRCS) and the Monroe County Land Conservation Department (LCD) refers to the soil data and interpretations when conducting an inventory of resources on a site, and for planning options to improve degraded resources. The official software for estimating sheet and rill soil loss also utilizes the most current soil information.

There are 60,700 Acres of ‘Prime Farmland’ in the county.

Additional information about Wisconsin soils and state-wide soil resources, visit the Wisconsin NRCS Soils Webpage at <https://www.nrcs.usda.gov/wps/portal/nrcs/main/wi/soils/>.

For information about best management practices to reduce the spread of invasive species see <https://dnr.wi.gov/topic/Invasives/bmp.html>

OBJECTIVES.

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Main objectives:

- To identify the locations of invasive species throughout the area for cooperative and comprehensive management efforts.
- To educate the populace of prevention and early detection measures.
- To use an integrated approach to manage current infestations.
- To seek funding opportunities to support MCISWG partnership activity.
- Create a funded MCISWG coordinator position to the county.

Objective: To identify the locations of invasive species throughout the area for cooperative and comprehensive management efforts.

A. Mapping

Invasive species in the county will be mapped using existing methods including Great Lakes Early Detection Network (GLEDN). Ensure a complete record of requested data.

Instructions for submitting data can be found at

<https://bugwoodcloud.org/mura/mipn/assets/File/GLEDN-App-Guide.pdf>

Submitted data can be viewed on the “sister” site EDDMaps using this link:

<https://www.mipn.org/edrr/>

B. Surveys

There may be some targeted surveys undertaken, such as a roadside survey by contracted personnel, or by LCD staff and interns. One example would be adding invasive species mapping to the annual Monroe County LCD Transect Survey to track spread of targeted species or new invasions. The Mapping protocols above will be followed.

Objective: To educate the public about the prevention and early detection measures.

A. Awareness, education, and training programs

Education is essential to the success of the MCISWG. The MCISWG will develop and distribute information in many forms to educate the general public and provide specific information to target audiences about the impacts of invasive plants and their roles and responsibilities.

The MCISWG will work with partners to promote educational and training activities to:

- Develop a **Tabletop Display**, posters, buttons, pamphlets, calendars, booklets, and newsletters to further build local awareness in the community.
- Provide accurate, detailed and updated information on the MCISWG’s website and social media pages. <https://monroe.uwex.edu/agriculture/monroe-county-invasive-species-workgroup/>

B. Prevention and early detection programs

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While citizens may be environmentally aware, they may not be conscientious of how human activities spread invasive species. Prevention measures in communities can dramatically curtail the expansion of infestations.

The MCISWG will work to educate the public through outreach events and media platforms.

Objective: To adopt practical and convenient reporting and monitoring system to track treatment of invasive species.

A. Reporting system

The MCISWG will review (software) options for developing and implementing a monitoring and evaluation process.

Objective: To use an integrated approach to manage current infestations.

A. Long-term management objectives for invasive species

Using an integrated approach, the MCISWG will outline an invasive species management plan for priority species of concern for the MCISWG area which includes:

- Manual and mechanical.
- Chemical
- Biocontrol
- Grazing
- Cultural.

Management Methods

Manual and mechanical. Manual and mechanical techniques such as pulling, cutting, or otherwise stressing plants can be used to control some invasive plants, particularly if the population is relatively small. In some cases, this may be the only effective control technique. These techniques can be extremely specific, minimizing damage to desirable plants and animals, but they are generally very laborious and time intensive. Manual treatments must typically be administered several times to prevent a weed from re-establishing. During the course of treatment, laborers and equipment may severely trample vegetation and disturb the soil, providing suitable conditions for re-invasion of the same or other invasive species.

Manual and mechanical techniques are generally favored if the infestation is small or if a large pool of volunteer labor is available. Manual control is also frequently used in combination with other techniques. For example, shrubs may be pulled and cut (manual treatment) and re-sprouts and seedlings may be treated with herbicides (chemical treatment) or fire (cultural alternative) several weeks or months later.

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Chemical. In some instances, herbicide application is the only practical way to control an invasive species due to the physiology of the plant or the extent of infestation. Although chemical controls (i.e., herbicides) are an effective means of controlling unwanted vegetation, they may also have the most adverse consequences. The risk of using an herbicide must be weighed against the negative impact of the invasive species on the area of concern, and the effectiveness of chemical control should be compared to other control methods. Wherever possible spot applications will be used versus a broadcast application. There are several techniques which focus a minimal amount of pesticide to the target species- examples include wick applicators, basal and cut stump treatments.

Many herbicides contain the same active ingredients but are designed for either terrestrial or aquatic applications. Prior to using an herbicide, it is critical to research product effectiveness against the target plant, product guidelines and legal constraints for its use. An herbicide must be registered for use in the state where plant control will take place. It is also important to read the entire label prior to mixing and application. Information on the proper use of an herbicide, including procedures related to the rate and timing of application, transportation, storage, cleanup, and emergency situations, must be followed at all times.

Biocontrol. Biological control (biocontrol for short) is the use of animals, fungi, or other microbes to feed upon, parasitize or otherwise stress a targeted pest species. Successful biocontrol programs significantly reduce the abundance of the pest or prevent the damage caused by the pest (e.g. by preventing it from feeding on valued crops). Biocontrol is often seen as a progressive and environmentally friendly way to control pest organisms. Biocontrol leaves no chemical residues that might harm humans or other organisms and, when successful, can provide essentially permanent, widespread control with a very favorable cost-benefit ratio.

Biological control is one of the few tools proven effective in controlling widespread invasive plants. However, because ecosystems are complex it is important to consider the effects on all the other organisms within the community, not just the pest and biological control agent. For example, gall flies imported to control spotted knapweed, a noxious weed in western North America, supported enhanced populations of deer mice, which can carry hantavirus to humans.

It is also important to check permitting requirements for the release of biocontrols (USDA-APHIS and possibly USFWS)

Grazing. There are contractors working in the area with herds of goats trained to graze on weed species such as buckthorn. The method involves careful management of animal numbers and movable fencing. Well managed grazing with cows or sheep or poultry can also significantly reduce invasive plant infestations, however there is a learning curve and not all plants are good for all classes of livestock, and some may even be toxic.

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Cultural. Cultural control involves the use of methods such as flooding, smothering (covering with light barrier), controlled prescribed fires, or the use of cover vegetation to reduce the impact of invasive species. The feasibility of such methods is related to the size of the infestation, the location and the regulatory and permitting processes for flooding and burning. The use of cultural methods is best suited to small scale applications, such as local homeowners or small businesses through the use of non-invasive plantings (eg aggressive natives), mulch and solarization.

Midwest Invasive Plant Network's (MIPN) Invasive plant database is a great resource to get current information and a ranking on the effectiveness of different treatments:
<https://mipncontroldatabase.wisc.edu/>

Objective: To seek funding opportunities to support MCISWG activities

A. Funding

Funding opportunities will be reviewed on an annual basis with proposals being drafted and reviewed openly by the *MCISWG SC*. Funding is anticipated to be primarily through competitive grants and gifts.

The type and availability of funding opportunities is constantly changing. A resource for State and Federal funding can be found on the Federal invasive species website.

<https://www.invasivespeciesinfo.gov/toolkit/grants.shtml>

or through the Midwest Invasive Plant Network site:

<https://www.mipn.org/Grants/>

B. Funding Administration and Collection

Funds will be administered through the Monroe County Land Conservation Department (LCD).

- 1) For each grant the MCISWG is awarded, a copy of the approved grant application will be sent to:
Monroe County Land Conservation Department
Sparta, WI
- 2) LCD will develop a non-lapsing expense and revenue account to manage grant or other funding sources to carry out the SC objectives.
- 3) The technical contact from the SC will oversee activities and insure that grant criteria are being met.
- 4) All technical and fiscal reporting materials (progress reports, copies of receipts, in-kind & match tracking) will be the responsibility of the technical contact.
- 5) The technical contact must provide these materials to the LCD representative in an accurate and timely manner to meet all fiscal responsibilities.

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- 6) All reports and deliverables required by the grant will be the responsibility of the technical contact.
- 7) LCD will submit periodic and a final reimbursement request per the particular grants only upon receipt of all products and deliverables required by the grant.
- 8) The LCD will be responsible for the payment of services and/or materials provided.

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LITERATURE CITED and RECOMMENDED FOR FURTHER READING

Czarapata, E.J. 2005. Invasive Plants of the Upper Midwest: An Illustrated Guide to Their Identification and Control. University of Wisconsin Press, Madison.

University of Wisconsin Herbarium. 2006. Web site: www.botany.wisc.edu/wisflora
Accessed 24 August 2006.

U.S. Census Bureau. 2005a. GCT-T1. 2005 population estimates. Population Estimates Program, U.S. Census Bureau. Accessed 18 August 2006 online at: www.census.gov

U.S. Census Bureau. 2005b. Table 4: Annual estimates of the population for incorporated places in Wisconsin, listed alphabetically: April 1, 2000 to July 1, 2004 (SUB-EST2004-04-55). Population Division, U.S. Census Bureau. Release Date: June 30, 2005. Accessed 18 August 2006 online at: www.census.gov

The Ecological Landscapes of Wisconsin (updated 2016)
<http://dnr.wi.gov/topic/landscapes/Book.html>

WISCONSIN CH. NR 40 INVASIVE SPECIES (general)
<http://dnr.wi.gov/topic/Invasives/>

Complete list:
<http://dnr.wi.gov/topic/Invasives/classification.html>

Invasive Species Interim Performance Report

Prepared by the DNR's Invasive Species Team

July 1, 2016 – June 30, 2017

<http://dnr.wi.gov/topic/Invasives/documents/ISLegReport2017.pdf>

The WI DNR Forest Health Annual Report contains useful and up to date information on invasive species management and (on page 16 Invasive Plant Suppression)
<https://dnr.wi.gov/topic/ForestHealth/documents/AnnualReport2017.pdf>

Emerald Ash Borer Includes YouTube videos by the Emerald Ash Borer University
<http://www.emeraldashborer.info/eabu.php>

Biological Control

<https://www.fs.fed.us/research/invasive-species/control/biological.php>

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Appendix A

Partners

Monroe County Land Conservation Dept.
NRCS Natural Resources Conservation Service
UW Cooperative Extension
Wisconsin Department of Natural Resources
Monroe County Highway Department
Wisconsin Towns Association District 2
Department of the Army Fort McCoy
Center for Environmental Management, Colorado State University
City of Sparta
City of Tomah
Ho-Chunk

Cooperators:

Ben Johnston
Joey Esterline
Howard Garves
Jeff Garves?
Dan Rasmussen
Chris Barlow
Tim Steele
Bernie Arena

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Appendix B Ecological Landscapes

The NE portion of the county is part of the 'Central Sand Plains' This ecological landscape formed in and around what was once Glacial Lake Wisconsin, which at its highest stage contained glacial meltwater that covered over 1.1 million acres. Soils are primarily sands, including lacustrine deposits, glacial outwash, and material eroded from the underlying sandstone bedrock. Organic soils are common in the extensive poorly drained peatlands. Sandstone mesas, buttes, pinnacles, and cliffs were created by wind, wave, and ice action in and around Glacial Lake Wisconsin, and the catastrophic drainage of Glacial Lake Wisconsin carved spectacular sandstone gorges in some parts of the ecological landscape. No other part of Wisconsin has similar geological features

The *historical vegetation* of this area included some of Wisconsin's most extensive wetlands, especially within and on the margins of the old glacial lakebed. Silts and clays on the lake's bottom impeded drainage in many places. Large areas of bog, fen, sedge meadow, muskeg, and conifer swamp comprised the prevalent wetland vegetation. On the uplands there were extensive areas of pine and oak forests. Areas that burned frequently were vegetated with pine barrens, oak barrens, and sand prairie. Limited areas of more mesic hemlock hardwood forest were present, usually around the ecological landscape's edges.

The South East and west portion of the County falls in the 'Western Coulees and Ridges'

The Western Coulees and Ridges Ecological Landscape in southwestern and west central Wisconsin is characterized by its lack of glacial features. It is part of the region called the "Driftless Area" because it lacks glacial deposits known as "drift" (although glacial outwash materials do occur in river valleys). The topography is unique in the state due to the long periods of erosion that have created dissected ridges, steep-sided valleys, and extensive stream networks with *dendritic drainage patterns*. The Western Coulees and Ridges Ecological Landscape is more forested than the rest of southern Wisconsin soils and are mostly silt loams (loess) and sandy loams over dolomite and sandstone bedrock.

Historical vegetation consisted of southern hardwood forests of several major types, oak savanna, and prairie, with extensive floodplain forests, sedge meadows, and marshes along the major rivers. With Euro-American settlement, most of the more level lands on ridge tops and in valley bottoms was cleared of native vegetation and converted to agricultural uses. The steep slopes between valley bottom and ridge top, unsuitable for raising crops, either remained in forest or grew up into oak- or maple-dominated forests after the wildfires that were common before Euro-American settlement were suppressed. Current vegetation is a mix of

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forest (the largest land cover component, at over 40%), agriculture, and grassland (mostly nonnative), with wetlands restricted almost entirely to the river valleys. The primary forest cover is oak-hickory (51%) dominated by oak species (*Quercus* spp.) and shagbark hickory (*Carya ovata*). Maple-basswood forests (28%), dominated by sugar maple (*Acer saccharum*), American basswood (*Tilia americana*), and red maple (*Acer rubrum*), are common in areas that were not subjected to repeated wildfires prior to Euro-American settlement. Bottomland hardwoods (10%) are common and restricted to the valley bottoms of the larger rivers and are dominated by silver maple (*Acer saccharinum*), ashes (*Fraxinus* spp.), elms (*Ulmus* spp.), and eastern cottonwood (*Populus deltoides*). Coniferous forests are not extensive and include the so-called **relict** conifer stands of eastern white pine (*Pinus strobus*), red pine (*Pinus resinosa*), and (rarely) jack pine (*Pinus banksiana*) on dry sites and mesic stands of eastern hemlock (*Tsuga canadensis*) and yellow birch (*Betula alleghaniensis*) on steep slopes with cool, moist microclimates. In a few locations, there are lowland forests dominated by tamarack (*Larix laricina*) in valleys, though many, if not most, of these are now in serious decline.

Forest Insects and Diseases

Current list, add rest to appendix.

Conifers, including red, eastern white, and jack pines, can be affected by annosum root rot, which is caused by the fungus *Heterobasidion annosum* and often occurs in plantations. Red pines are also subject to pocket mortality, caused by a complex of insects and the fungal species *Leptographium terrebrantis* and *L. procerum*. Pocket mortality is more common in southern Wisconsin than in the north, possibly because trees are stressed by climate conditions that are less than ideal for this species. Red pine is also susceptible to Diplodia pine blight fungus (*Diplodia pinea*) and pine sawfly (*Neodiprion* spp., *Diprion* spp.). White pine blister rust is an introduced fungal disease caused by *Cronartium ribicola*, which is most severe in low-lying areas. Jack pine budworm is a native insect whose infestations can cause large-scale mortality of mature jack pine, setting up fuel conditions for catastrophic fire.

Tamarack is attacked by a variety of insect pests that can occasionally kill large stands of tamarack forest. These include eastern larch beetle, larch sawfly, and the nonnative larch casebearer (*Coleophora laricella*).

Oaks can be attacked by several organisms. Gypsy moth, (*Lymantria dispar*) a nonnative insect, is becoming established and will periodically affect oak and aspen forests. Dry conditions (due to site characteristics or drought) that exist in parts of the county can facilitate gypsy moth population growth, leading to relatively faster rates of spread and more frequent outbreaks after establishment. The two-lined chestnut borer (*Agrilus bilineatus*) is a bark boring insect that attacks oaks. Oak wilt is a vascular disease caused by the native fungus *Ceratocystis fagacearum*. Aspens can be impacted by forest tent caterpillar (*Malacosoma disstria*), aspen heart rot fungus (*Phellinus tremulae*), and aspen Hypoxylon canker fungus (*Hypoxylon mammatum*). Dutch elm disease is caused by the fungus *Ophiostoma ulmi*, which is transmitted by two species of bark beetles or by root grafting. American elm is more seriously affected than other elm species, but all of our native elms are somewhat susceptible, as is the nonnative Siberian elm (*Ulmus pumila*). American elm has essentially been eliminated as a component of the forest overstory but

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is still a significant part of the subcanopy, sapling, and seedling layers. Its life span is typically now about 30 years before it succumbs to Dutch elm disease. The loss of American elm as a **supercanopy** or dominant tree has impacts on associated wildlife species, such as Wood Duck (*Aix sponsa*). Dutch elm disease, along with subsequent invasion by reed canary grass as the canopy is opened (which can prevent tree seedling establishment), are factors currently encountered in bottomland forests. Dutch elm disease and reed canary grass have altered several major forest types in the Western Coulees and Ridges (e.g., Floodplain Forest and Southern Hardwood Swamp). The emerald ash borer is an exotic insect native to Asia. This extremely serious forest pest was first discovered in the state near the Milwaukee River in Ozaukee and Washington counties in 2008 and has been confirmed in many Wisconsin counties including Monroe. Affected counties have been placed under quarantine to limit the inadvertent spread of the emerald ash borer, which may be present in ash nursery stock, ash firewood and timber, or other articles that could spread emerald ash borer into other parts of Wisconsin or other states. Attempts to contain infestations in Michigan through destroying ash trees in areas where emerald ash borer were found have not been successful, perhaps because the insect was well established before it was discovered and treated. The emerald ash borer typically kills a tree within one to three years. Emerald ash borer has also been shown to feed on some shrub species such as privets (*Ligustrum* spp.) and lilacs (*Syringa* spp.) in greenhouse tests, but it is still unknown as to whether shrub availability will contribute to its spread under field conditions. The known extent of emerald ash borer infestations in Wisconsin is likely to change over time. Consult the Wisconsin emerald ash borer website for the most up-to-date information about the presence of emerald ash borer in Wisconsin.

<http://datcpservices.wisconsin.gov/eab/index.jsp>

More information about these forest diseases and insect pests of forest trees can be found at the Wisconsin DNR's forest health web page

<http://dnr.wi.gov/topic/ForestHealth/> and at the U.S. Forest Service Northeastern Area forest health <https://www.fs.fed.us/foresthealth/>

Appendix C

WISCONSIN CH. NR 40 INVASIVE SPECIES LIST

EFFECTIVE LISTING DATE

September 1, 2009 ^A

June 1, 2011 ^B

May 1, 2015 ^C

ALGAE AND CYANOBACTERIA

PROHIBITED CATEGORY:

1. *Caulerpa taxifolia* (Killer algae)^c
2. *Cylindrospermopsis raciborskii* (Cylindro, cyanobacteria)^A
3. *Didymosphenia geminata* (Didymo or rock snot)^A except in Lake Superior
4. *Nitellopsis obtusa* (Starry stonewort, alga)^A
5. *Prymnesium parvum* (Golden alga)^A

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6. Stigonematales spp. (Novel cyanobacterial epiphyte of the order Stigonematales linked with avian vacuolar)^A

7. *Ulva* species (including species previously known as *Enteromorpha* species)^A

RESTRICTED CATEGORY:

None.

PLANTS

PROHIBITED CATEGORY:

1. *Achyranthes japonica* (Japanese chaff flower)^c
2. *Akebia quinata* (Fiveleaf akebia or Chocolate vine)^c
3. *Ampelopsis brevipedunculata* (Porcelain berry)^A including the variegated cultivar
4. *Arundo donax* (Giant reed)^c
5. *Azolla pinnata* (Mosquito fern)^c
6. *Berberis vulgaris* (Common barberry)^c
7. *Cabomba caroliniana* (Fanwort, Carolina fanwort)^A
8. *Cardamine impatiens* (Narrow leaf bittercress)^c
9. *Celastrus loeseneri* (Asian loeseneri bittersweet)^c
10. *Centaurea diffusa* (Diffuse knapweed)^c
11. *Centaurea repens* (Russian knapweed)^c
12. *Centaurea solstitialis* (Yellow star thistle)^A
13. *Crassula helmsii* (Australian swamp crop or New Zealand pygmyweed)^A
14. *Cytisus scoparius* (Scotch broom)^A
15. *Digitalis lanata* (Grecian foxglove)^c
16. *Dioscorea batatas* or *Dioscorea polystacha* (Chinese yam)^c
17. *Dioscorea oppositifolia* (Indian yam)^A
18. *Egeria densa* (Brazilian waterweed or wide-leaf anacharis)^A
19. *Eichhornia azurea* (Anchored water hyacinth)^c
20. *Eichhornia crassipes* (Water hyacinth, floating)^c
21. *Fallopia sachalinensis* or *Polygonum sachalinense* (Giant knotweed)^A

22. *Fallopia x bohemicum* or *F. x bohémica* or *Polygonum x bohémicum* (Bohemian knotweed)^c
23. *Glossostigma cleistanthum* (Mudmat)^c
24. *Heracleum mantegazzianum* (Giant hogweed)^A
25. *Hydrilla verticillata* (Hydrilla)^A
26. *Hydrocharis morsus-ranae* (European frogbit)^A
27. *Hydrocotyle ranunculoides* (Floating marsh pennywort)^c
28. *Hygrophila polysperma* (Indian Swampweed)^c
29. *Impatiens glandulifera* (Policeman's helmet)^c
30. *Ipomoea aquatica* (Water spinach, swamp morning-glory)^c
31. *Lagarosiphon major* (Oxygen-weed, African elodea or African waterweed)^A
32. *Lepidium latifolium* (Perennial or broadleaved pepperweed)^A
33. *Lespedeza cuneata* or *Lespedeza sericea* (Sericea or Chinese lespedeza)^A
34. *Limnophila sessiliflora* (Asian marshweed)^c
35. *Lonicera japonica* (Japanese honeysuckle)^A
36. *Lythrum virgatum* (Wanded loosestrife)^c
37. *Microstegium vimineum* (Japanese stilt grass)^A
38. *Myriophyllum aquaticum* (Parrot feather)^A
39. *Najas minor* (Brittle naiad, or lesser, bushy, slender, spiny or minor naiad or waternymph)^A

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40. *Nelumbo nucifera* (Sacred Lotus)c
41. *Nymphoides peltata* (Yellow floating heart)^A
42. *Oenanthe javanica* (Java waterdropwort or Vietnamese parsley)c
43. *Oplismenus hirtellus* ssp. *undulatifolius* (Wavy leaf basket grass)c
44. *Ottelia alismoides* (Ducklettuce)c
45. *Paulownia tomentosa* (Princess tree)^A
46. *Petasites hybridus* (Butterfly dock)c
47. *Phellodendron amurense* (Amur Cork Tree)c except male cultivars and seedling rootstock
48. *Pistia stratiotes* (Water lettuce)c
49. *Polygonum perfoliatum* or *Persicaria perfoliata* (Mile-a-minute vine)^A
50. *Pueraria montana* or *P. lobata* (Kudzu)^A
51. *Quercus acutissima* (Sawtooth oak)^A
52. *Ranunculus ficaria* (Lesser celandine)c
53. *Rubus armeniacus* (Himalayan blackberry)c
54. *Rubus phoenicolasius* (Wineberry or wine raspberry)^A
55. *Sagittaria sagittifolia* (Hawaii arrowhead)c
56. *Salvinia herzogii* (Giant Salvinia)c
57. *Salvinia molesta* (Giant salvinia)c
58. *Sorghum halepense* (Johnsongrass)c
59. *Stratiotes aloides* (Water Soldiers)c
60. *Taeniatherum caput-medusae* (Medusahead)c
61. *Torilis arvensis* (Spreading hedgeparsley)^A
62. *Trapa natans* (Water chestnut)^A
63. *Tussilago farfara* (Colt's foot)c
64. *Typha domingensis* (Southern cattail)c
65. *Typha laxmannii* (Graceful cattail)c
66. *Vincetoxicum rossicum* or *Cynanchum rossicum* (Pale or European swallow-wort)^A
67. *Wisteria floribunda* (Japanese wisteria)c
68. *Wisteria sinensis* (Chinese wisteria)c

PROHIBITED/RESTRICTED CATEGORY:

1. *Anthriscus sylvestris* (Wild chervil)^A restricted in Adams, Barron, Chippewa, Crawford, Columbia, Dane, Dodge, Dunn, Fond du Lac, Grant, Green, Green Lake, Iowa, Jefferson, Juneau, Kenosha, Lacrosse, Lafayette, Marquette, Milwaukee, Monroe, Ozaukee, Polk, Racine, Richland, Rock, Sauk, Sheboygan, Taylor, Vernon, Walworth, Waukesha, and Washington counties; prohibited elsewhere – Updated county list in 2015
2. *Bunias orientalis* (Hill mustard)^A restricted in Dane, Grant, Green, Iowa, Lafayette, and Rock counties; prohibited elsewhere – Updated county list in 2015
3. *Cirsium palustre* (European marsh thistle)^A restricted in Ashland, Bayfield, Chippewa, Clark, Door, Florence, Forest, Iron, Langlade, Lincoln, Marathon, Marinette, Menominee, Oconto, Oneida, Price, Rusk, Sawyer, Shawano, Taylor and Vilas counties; prohibited elsewhere – Updated county list in 2015
4. *Conium maculatum* (Poison hemlock)^A restricted in Buffalo, Crawford, Dane, Grant, Green, Iowa, Jefferson, Kenosha, La Crosse, Lafayette, Milwaukee, Monroe, Ozaukee, Racine, Richland, Rock, Sauk, Sheboygan, Trempealeau, Vernon, Walworth, and Waukesha counties; prohibited elsewhere – Updated county list in 2015
5. *Epilobium hirsutum* (Hairy willow herb)^A restricted in Brown, Calumet, Door, Kenosha, Kewaunee, and Manitowoc counties; prohibited elsewhere – Updated county list in 2015
6. *Glyceria maxima* (Tall or reed mannagrass)^A restricted in Brown, Calumet, Columbia, Dane, Dodge, Door, Fond du Lac, Green, Jefferson, Kenosha, Kewaunee, Manitowoc, Milwaukee, Outagamie, Ozaukee, Racine, Rock, Sheboygan, Walworth, Washington, Waukesha and Winnebago counties; prohibited elsewhere – Updated county list in 2015

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7. *Humulus japonicus* (Japanese hops)^A restricted in Buffalo, Crawford, Dane, Grant, Green, Iowa, Jackson, La Crosse, Lafayette, Monroe, Pepin, Richland, Sauk, Trempealeau, and Vernon counties; prohibited elsewhere – Updated county list in 2015
8. *Leymus arenarius* or *Elymus arenarius* (Lyme grass or sand ryegrass)^A restricted in Door, Kenosha, Kewaunee, Manitowoc, Milwaukee, Ozaukee, Racine, and Sheboygan counties; prohibited elsewhere – Updated county list in 2015
9. *Linaria dalmatica* (Dalmatian toadflax)^C restricted in Juneau and Bayfield counties; prohibited elsewhere
10. *Lonicera maackii* (Amur honeysuckle)^A restricted in Adams, Brown, Buffalo, Calumet, Columbia, Crawford, Dane, Dodge, Fond du Lac, Grant, Green, Green Lake, Iowa, Jefferson, Juneau, Kenosha, Kewaunee, La Crosse, Lafayette, Manitowoc, Marquette, Milwaukee, Monroe, Outagamie, Ozaukee, Racine, Richland, Rock, Sauk, Sheboygan, Vernon, Walworth, Washington, Waukesha, Waupaca, Waushara and Winnebago counties; prohibited elsewhere – Updated county list in 2015
11. *Phragmites australis* non-native ecotype (Phragmites or Common reed non-native ecotype)^A restricted in Brown, Calumet, Columbia, Dane, Dodge, Door, Florence, Fond du Lac, Forest, Green Lake, Jefferson, Kenosha, Kewaunee, Langlade, Manitowoc, Marathon, Marinette, Marquette, Menominee, Milwaukee, Oconto, Outagamie, Ozaukee, Portage, Racine, Rock, Shawano, Sheboygan, Walworth, Washington, Waukesha, Waupaca, Waushara, and Winnebago counties; prohibited elsewhere - Moved to Prohibited/Restricted from Restricted in 2015
12. *Solidago sempervirens* (Seaside goldenrod)^C restricted in Kenosha, Milwaukee and Racine counties; prohibited elsewhere
13. *Torilis japonica* (Japanese hedgeparsley or erect hedgeparsley)^A restricted in Adams, Brown, Calumet, Columbia, Crawford, Dane, Dodge, Door, Fond du Lac, Grant, Green, Green Lake, Iowa, Jefferson, Juneau, Kenosha, Kewaunee, La Crosse, Lafayette, Langlade, Manitowoc, Marathon, Marinette, Marquette, Menominee, Milwaukee, Monroe, Oconto, Outagamie, Ozaukee, Portage, Racine, Richland, Rock, Sauk, Shawano, Sheboygan, Vernon, Walworth, Washington, Waukesha, Waupaca, Waushara, and Winnebago counties; prohibited elsewhere – Updated county list in 2015
14. *Vincetoxicum nigrum* or *Cynanchum louiseae* (Black or Louise's swallow-wort)^A restricted in Columbia, Crawford, Dane, Grant, Green, Iowa, Jefferson, Juneau, Kenosha, La Crosse, Lafayette, Milwaukee, Monroe, Racine, Richland, Rock, Sauk, Vernon, Walworth and Waukesha counties; prohibited elsewhere

RESTRICTED CATEGORY:

1. *Acer tataricum* subsp. *ginnala* (Amur maple)^C *except all cultivars
2. *Aegopodium podagraria* (Bishop's goutweed)^C
3. *Ailanthus altissima* (Tree of heaven)^A
4. *Alliaria petiolata* (Garlic mustard)^A
5. *Alnus glutinosa* (Black alder)^C *except all cultivars and hybrids
6. *Artemisia absinthium* (Wormwood)^C
7. *Berberis thunbergii* (Japanese barberry)^C *This restriction only applies to the parent type, the variety *atropurpurea*, the hybrid of *B. thunbergii* x *B. koreana*, and the following cultivars. *Berberis thunbergii* cultivars: Sparkle, 'Anderson' Lustre Green™, Erecta, 'Bailgreen' Jade Carousel®, Angel Wings, Painter's Palette, Inermis ('Thornless'), Pow Wow, Golden Ring, Kellersis, Kobold, 'JN Variegated' Stardust™ and Antares. Variety *atropurpurea* cultivars: Marshall Upright ('Erecta'), Crimson Velvet, 'Bailtwo' Burgundy Carousel®, Red Rocket, 'Monomb' Cherry Bomb™, 'Bailone' Ruby Carousel®, JN Redleaf, Rose Glow and Silver Mile. Hybrid of *B. thunbergii* x *B. koreana* cultivars: Tara and 'Bailsel' Golden Carousel®
8. *Butomus umbellatus* (Flowering rush)^A
9. *Campanula rapunculoides* (Creeping bellflower)^A
10. *Caragana arborescens* (Siberian peashrub)^C *except the cultivars *Lorbergii*, *Pendula*, and *Walkerii*
11. *Carduus acanthoides* (Plumeless thistle)^A

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12. *Carduus nutans* (Musk thistle or Nodding thistle)^A
13. *Celastrus orbiculatus* (Oriental bittersweet)^A
14. *Centaurea biebersteinii*, *Centaurea maculosa*
Centaurea stoebe (Spotted knapweed)^A
15. *Centaurea jacea* (Brown knapweed)^C
16. *Centaurea nigra* (Black knapweed)^C
17. *Centaurea nigrescens* (Tyrol knapweed)^C
18. *Chelidonium majus* (Celandine)^A - Moved to Restricted from Prohibited/Restricted in 2015
19. *Cirsium arvense* (Canada thistle)^A
20. *Coronilla varia* (Crown vetch)^C
21. *Cynoglossum officinale* (Hound's tongue)^A
22. *Dipsacus laciniatus* (Cut-leaved teasel)^A
23. *Dipsacus sylvestris* or *Dipsacus fullonum* (Common teasel)^A
24. *Elaeagnus angustifolia* (Russian olive)^A
25. *Elaeagnus umbellata* (Autumn olive)^A
26. *Epipactis helleborine* (Helleborine orchid)^A
27. *Euonymus alatus* (Burning bush)^C *including the cultivar 'Nordine' and excluding all other cultivars
28. *Euphorbia cyparissias* (Cypress spurge)^A
29. *Euphorbia esula* (Leafy spurge)^A
30. *Fallopia japonica* or *Polygonum cuspidatum* (Japanese knotweed)^A
31. *Filipendula ulmaria* (Queen of the meadow)^C
32. *Galeopsis tetrahit* (Hemp nettle, brittlestem hemp nettle)^A
33. *Galium mollugo* (White bedstraw)^C
34. *Hesperis matronalis* (Dame's rocket)^A
35. *Impatiens balfourii* (Balfour's touch-me-not)^C
36. *Iris pseudacorus* (Yellow iris)^C
37. *Knautia arvensis* (Field scabiosa)^C
38. *Lonicera morrowii* (Morrow's honeysuckle)^A
39. *Lonicera tatarica* (Tartarian honeysuckle)^A
40. *Lonicera x bella* (Bell's or showy bush honeysuckle)^A
41. *Lysimachia nummularia* or *L. nummelaria* (Moneywort)^A *except the cultivar Aurea and yellow and gold leaf forms
42. *Lysimachia vulgaris* (Garden yellow loosestrife)^C
43. *Lythrum salicaria* (Purple loosestrife)^A
44. *Morus alba* (White mulberry)^C *except male cultivars
45. *Myosotis scorpioides* (Aquatic forget-me-not)^C
46. *Myosotis sylvatica* or *M. sylvaticum* (Woodland forget-me-not)^C
47. *Myriophyllum spicatum* (Eurasian watermilfoil)^A
48. *Najas marina* (Spiny naiad)^C
49. *Pastinaca sativa* (Wild parsnip)^A *except for the garden vegetable form
50. *Phalaris arundinacea* var. *picta* (ribbon grass or gardener's garters and other ornamental variegated varieties and cultivars)^C *this restriction does not include the parent type - reed canary grass.
51. *Pimpinella saxifraga* (Scarlet pimpernel or Burnet saxifrage)^C
52. *Populus alba* (White poplar)^C
53. *Potamogeton crispus* (Curly-leaf pondweed)^A
54. *Rhamnus cathartica* (Common buckthorn)^A
55. *Rhamnus frangula* or *Frangula alnus* (Glossy buckthorn)^A *including the Columnaris (tall hedge) cultivar but excluding the cultivars *Asplenifolia* and *Fineline* (Ron Williams)
56. *Robinia hispida* (Rose acacia or Bristly locust)^C
57. *Robinia pseudoacacia* (Black locust)^C *except all cultivars
58. *Rosa multiflora* (Multiflora rose)^A
59. *Tanacetum vulgare* (Tansy)^A *except the cultivars *Aureum* and *Crispum*

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- 60. *Typha angustifolia* (Narrow-leaf cattail)^A
- 61. *Typha x glauca* (Hybrid cattail)^A
- 62. *Ulmus pumila* (Siberian elm)^c *except hybrids and individuals used as rootstock
- 63. *Valeriana officinalis* (Garden heliotrope or Valerian)^c

Phase-out: Restricted only plants located in Wisconsin prior to their effective listing date may be transported, transferred, and introduced without a permit for a period not to exceed 3 years for herbaceous plants and woody vines, or 5 years for trees and shrubs, from their effective listing date.

FISH AND CRAYFISH

PROHIBITED CATEGORY:

- 1. Channidae (Snakehead family)^A including *Channa argus* (Northern snakehead) , *Channa bleheri* (Rainbow snakehead), *Channa gachua* (Dwarf snakehead), *Channa maculata* (Blotched snakehead), *Channa marulius* (Bullseye snakehead), *Channa punctata* (Spotted snakehead), and *Channa striata* (Chevron snakehead)
- 2. *Ctenopharyngodon idella* (Grass carp)^A
- 3. *Cyprinella lutrensis* (Red shiner)^A
- 4. *Hypophthalmichthys molitrix* (Silver carp)^A
- 5. *Hypophthalmichthys nobilis* (Bighead carp)^A
- 6. *Mylopharyngodon piceus* (Black carp)^A
- 7. *Sander lucioperca* (Zander)^A
- 8. *Scardinius erythrophthalmus* (Rudd)^A
- 9. *Tinca tinca* (Tench)^A
- 10. All other nonnative fish and nonnative crayfish except:
 - a. Established nonnative fish species and established nonnative crayfish species
 - b. Nonnative viable fish species in the aquarium trade
 - c. Nonnative fish species in the aquaculture industry
 - d. Nonviable fish species
 - e. Genetically modified fish species

RESTRICTED CATEGORY:

- 1. Established nonnative fish species and established nonnative crayfish species
 - a. *Alosa pseudoharengus* (Alewife)^A
 - b. *Cyprinus carpio* (Common carp)^A
 - c. *Gambusia affinis* (Western mosquitofish)^A - Moved to Restricted from Prohibited in 2015
 - d. *Gambusia holbrooki* (Eastern mosquitofish)^A - Moved to Restricted from Prohibited in 2015
 - e. *Gasterosteus aculeatus* (Three-spine stickleback)^A
 - f. *Gymnocephalus cernuus* (Ruffe)^A
 - g. *Morone americana* (White perch)^A
 - h. *Neogobius melanostomus* (Round goby)^A
 - i. *Orconectes rusticus* (Rusty crayfish)^A
 - j. *Osmerus mordax* (Rainbow smelt)^A
 - k. *Petromyzon marinus* (Sea lamprey)^A
 - l. *Proterorhinus marmoratus* (Tubenose Goby)^A
- 2. Nonnative viable fish species in the aquarium trade
 - a. *Acipenser ruthenus* (Sterlet)^A
 - b. *Carassius auratus* (Goldfish)^A
 - c. *Cyprinus carpio* (Koi carp)^A
 - d. *Leuciscus idus* (Ide)^A
 - e. *Misgurnus anguillicaudatus* (Weather loach)^A
 - f. *Myxocyprinus asiaticus* (Chinese hi-fin banded shark)^A
 - g. *Rhodeus* spp. (Bitterling)^A
- 3. Nonnative fish species in the aquaculture industry

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- a. *Lepomis microlophus* (Redear sunfish)^A
- b. *Oncorhynchus gorbusha* (Pink salmon)^A
- c. *Oncorhynchus kisutch* (Coho salmon)^A
- d. *Oncorhynchus mykiss* (Rainbow trout)^A
- e. *Oncorhynchus tshawytscha* (Chinook salmon)^A
- f. *Salmo salar* (Atlantic salmon)^A
- g. *Salmo trutta* (Brown trout)^A
- h. *Salvelinus alpinus* (Arctic char)^A
- i. *Salvelinus fontinalis* x *Salmo trutta* (Tiger trout)^A
- j. *Tilapia* spp. (Tilapia)^A
4. Nonviable fish species
5. Viable genetically modified native and nonnative fish species.

AQUATIC INVERTEBRATES EXCEPT CRAYFISH

PROHIBITED CATEGORY:

1. *Bithynia tentaculata* (Faucet snail)^A
2. *Bythotrephes cederstroemi* (Spiny water flea)^A
3. *Cercopagis pengoi* (Fishhook water flea)^A
4. *Corbicula fluminea* (Asian clam)^A
5. *Daphnia lumholtzi* (Water flea)^A
6. *Dikerogammarus villosus* (Killer Shrimp)^c
7. *Dreissena rostriformis* (Quagga mussel)^A
8. *Eriocheir sinensi* (Chinese mitten crabs)^A
9. *Hemimysis anomala* (Bloody shrimp)^A
10. *Limnoperna fortunei* (Golden mussel)^c
11. *Melanoides tuberculata* (Malaysian trumpet snail)^c
12. *Potamopyrgus antipodarum* (New Zealand mud snail)^A

RESTRICTED CATEGORY:

1. *Cipangopaludina chinensis* (Chinese mystery snail)^A
2. *Cipangopaludina japonica* (Japanese trapdoor snail or Japanese mystery snail)^c
3. *Dreissena polymorpha* (Zebra mussel)^A
4. *Valvata piscinalis* (European valve snail)^c
5. *Viviparus georgianus* (Banded mystery snail)^c

TERRESTRIAL INVERTEBRATES AND PLANT DISEASE-CAUSING MICROORGANISMS

PROHIBITED CATEGORY:

1. *Adelges tsugae* (Hemlock woolly adelgid)^A
2. *Anoplophora glabripennis* (Asian longhorned beetle)^A
3. *Dendroctonus ponderosae* (Mountain Pine Beetle)^c
4. *Geosmithia morbida* (Thousand cankers disease of walnut)^c
5. *Lymantria dispar* (Asian race)^A (Asian Gypsy moth)^A
6. *Phytophthora ramorum* (Sudden oak death pathogen)^A
7. *Pityophthorus juglandis* (Walnut twig beetle)^c

RESTRICTED CATEGORY:

1. *Agrilus planipennis* (Emerald ash borer)^A - Moved to Restricted from Prohibited in 2015
2. *Amyntas* or *Amyntus* species (Jumping worm)^A - Moved to Restricted from Prohibited in 2015
3. *Lymantria dispar* (European Gypsy moth)^A

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Cryptococcus fagisuga (Scale associated with beech bark disease)^A - removed from ch. NR 40 on May 1, 2015

TERRESTRIAL AND AQUATIC VERTEBRATES EXCEPT FISH

PROHIBITED CATEGORY:

1. *Myiopsitta monachus* (Monk or Quaker parakeet or parrot)^A
2. *Myocastor coypus* (Nutria)^C
3. *Sus domestica* (Feral domestic swine)^A
4. *Sus scrofa* (Russian boar & other wild swine)^A

RESTRICTED CATEGORY:

None.

Trachemys scripta elegans (Red-eared slider with a carapace (top shell) length of less than 4 inches)^A - removed from ch. NR 40 on May 1, 2015

FUNGUS

PROHIBITED CATEGORY:

6. *Pseudogymnoascus destructans* (White-nose syndrome fungal pathogen)^B

RESTRICTED CATEGORY:

None.

For a more interactive list: <http://dnr.wi.gov/topic/Invasives/classification.html>