

Michigan
Invasive Species Program

2018
Annual Report





Invasive Species Steering Committee Members

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Preface

Michigan's Invasive Species Program is a joint effort of the Michigan departments of Agriculture and Rural Development (MDARD), Environmental Quality (DEQ) and Natural Resources (DNR). The report highlights the program's goals and accomplishments regarding invasive species prevention, management and outreach; the status of prohibited and restricted species in Michigan; and recommendations for the furtherance of Michigan's Invasive Species Program.

This report is produced by the departments and submitted by the DNR in compliance with Michigan's Natural Resources and Environmental Protection Act (NREPA), 1994 PA 451, MCL 324.41323 and by the DEQ in compliance with NREPA 324.3104(3).

Timeframe

This report covers the activities of fiscal year 2018:

October 1, 2017 through September 30, 2018.

Goals

As defined by the Invasive Species Program Charter signed by department directors in January 2015, the program has four goals:

1. **Prevent** new invasive species introduction into Michigan.
2. **Limit** the dispersal of established invasive species populations throughout Michigan.
3. **Develop** a statewide interagency invasive species Early Detection and Response Program to address new invasions.
4. **Manage** and control invasive species to minimize harmful environmental, economic and public health effects resulting from established populations.

The following highlights represent achievements toward the Michigan Invasive Species Program's goals, through the efforts of state staff, grantees and the program's many federal, state, local and university collaborators.



Japanese Knotweed



Heath snail

// The state of Michigan defines “invasive species” as those that are not native and whose introduction causes harm, or is likely to cause harm to Michigan's economy, environment, or human health. //



Invasive Species Program Overview

Michigan's economy and ecosystems experience significant negative impacts from plants, animals and pathogens that don't belong here. These unwelcome guests are invasive species. The economic effects of invasive species include significant consequences to property values, tourism, recreation, utilities and industry. Ecological impacts of invasive species include reduction of native species, habitat degradation and altered food webs. Some species can even threaten public health. While the invasive species present in the state already cause substantial harm, the state's land and water are constantly threatened by the introduction of new invasive species.

Michigan's Natural Resources and Environmental Protection Act, 1994 PA 451, Part 413 outlines the roles and responsibilities of state departments in relation to prohibiting and restricting invasive species. In 2014, Michigan's governor and the Legislature designated \$5 million in ongoing funding, beginning in fiscal year 2015, to manage the impact of invasive species. This support substantially enhanced Michigan's Invasive Species Program for aquatic organisms and initiated a formal program for terrestrial species. This support also initiated the Michigan Invasive Species Grant Program, providing \$3.6 million in awards annually to agencies, universities and non-profit organizations to assist with prevention, detection, eradication and control of aquatic and terrestrial invasive species.

Michigan's Invasive Species Program is a joint effort of Michigan's departments of Agriculture and Rural Development (MDARD), Environmental Quality (DEQ) and Natural Resources (DNR). The departments share responsibility for invasive species policy, legislation, regulation, education, monitoring, assessment, management and control.

The Invasive Species Steering Committee, representing these departments and the Office of the Great Lakes, provides oversight and guidance for the Aquatic Invasive Species (AIS) and Terrestrial Invasive Species (TIS) Core Teams in alignment with the priorities of the administration and the department directors. The AIS and TIS Core Teams communicate internally and externally to ensure a cohesive program.

The AIS and TIS Core Teams develop projects and make recommendations to the Invasive Species Steering Committee based on AIS and TIS priorities. The AIS Core Team implements Michigan's Aquatic Invasive Species State Management Plan through both internal and collaborative activities and projects. The TIS Core Team implements Michigan's Terrestrial Invasive Species State Management Plan to guide efforts in prevention, detection and control in collaboration with local, state and federal partners.



Phragmites

Michigan's Invasive Species Program is a joint effort of Michigan's departments of Agriculture and Rural Development, Environmental Quality and Natural Resources.



PREVENTION

GOAL 1

Prevent new invasive species introductions into Michigan

Prevention is the most effective step in managing invasive species. Prevention involves both keeping unwanted organisms out of Michigan and stopping the spread of newly introduced species. Michigan's Invasive Species Program targets pathways that can bring invasive species into the state and those which can move them from place to place.

Intercepting invasive organisms in trade



Red swamp crayfish

Though native to southern states, red swamp crayfish are prohibited in Michigan. These crayfish compete aggressively with native species for food and habitat. Red swamp crayfish were likely introduced to areas of Michigan by releases of crayfish purchased for cooking or bait. In 2018, more than 2,000 pounds of live red swamp crayfish were seized by DNR conservation officers after customs officers at the U.S. – Canadian border denied Canadian entry to a commercial hauler transporting red swamp crayfish. Assisted by customs officials, DNR conservation officers stopped the truck in Michigan and obtained 55 bags of live crayfish – the largest aquatic invasive species seizure by the Michigan DNR. In a separate effort, DNR Law Enforcement Division (LED) followed up on a tip that live red swamp crayfish were available for purchase at an Asian market in Ypsilanti. An undercover officer from the Special Investigative Unit of LED was eventually able to purchase 27 pounds of live red swamp crayfish, resulting in charges being filed against the market's operator.

Preventing tree pests and diseases



Twenty nursery inspectors with MDARD annually inspect perennial plants, trees and shrubbery at nurseries and nursery dealers to assure they are pest-free. One target is hemlock woolly adelgid (HWA) – a tiny, invasive insect that feeds on sap from hemlock trees. These insects can kill needles, shoots and branches - slowing growth and causing tree death within four to ten years. Because HWA likely was introduced to Michigan from infested tree stock, regulations require special procedures to assure HWA is not spread via this pathway. If a business is receiving a shipment of hemlock from out-of-state, an MDARD inspection is arranged to assure there are no signs of HWA before the stock is sold. In the HWA quarantine area of Allegan, Ottawa, Muskegon and Oceana counties, over 20 firms have enrolled in a special HWA Nursery Program using enhanced recordkeeping, inspections, scouting and treatments by trained employees so that pest-free hemlock nursery stock can be moved through quarantine boundaries.

Hemlock woolly adelgid

Promoting safe firewood



Through support of the Michigan Invasive Species Grant Program, Michigan State University hosted the National Firewood Workshop in Frankenmuth in June 2018. The two-day event was designed for industry professionals from across the U.S., from roadside vendors to interstate producers. Industry leaders demonstrated new technologies in processing and kiln-drying, with a focus on minimizing the spread of invasive tree pests and diseases through heat-treatment of firewood. Heat treating wood to USDA specifications – attaining a core temperature of 140 degrees Fahrenheit for at least 60 minutes – kills pests and pathogens including Asian longhorned beetle larvae and oak wilt. The workshop was the first step in a broader assessment of Michigan's firewood supply chain that will help to promote safe firewood handling and marketing practices.

Supporting innovation



The Great Lakes Invasive Carp Challenge, which concluded in March 2018, selected ten solutions to be pursued as potential technologies for preventing the movement of bighead, silver and black carp into the Great Lakes. The global search for ideas garnered over 350 entries from 27 different countries and awarded nearly \$700,000 in prizes. The winning ideas included a wall of painful cavitation bubbles as a deterrent, a retrofitting of lock engineering for a velocity barrier, a lock treatment concept and a visual process to select and trap carp moving through an area. DNR staff are working with federal labs and other interested parties and agencies to continue to advance many of these ideas to feasibility testing. To date, there is no evidence of

live bighead, silver or black carp in the Great Lakes or Michigan's waters. Michigan continues to work with the Asian Carp Regional Coordinating Committee to advance control technologies to deter invasive carp from moving upstream into the Great Lakes, including the installation of new deterrent technologies at the Brandon Road Lock and Dam, located 27 miles southwest of Chicago, IL.



Local Firewood

GOAL 2

LIMIT DISPERSAL

Limit the dispersal of established invasive species populations throughout Michigan

People who work or play in areas where invasive species are already established can unknowingly aid in their spread to new areas. Arming these audiences with information to identify the invaders they encounter and to take steps to avoid carrying "hitchhikers" to new locations will have important long-term effects in reducing invasive species populations.

Angling for awareness



New Zealand mudsnails

DNR LED field conservation officers are taking the lead in contacting anglers on trout streams to help reduce the spread of New Zealand mudsnails, known to be present in the Au Sable, Pere Marquette, Manistee and Boardman rivers. In 2018, over 140 rivers, streams and creeks were patrolled, and officers surveyed 1,060 stream users to determine their knowledge of New Zealand mudsnails as well as their awareness and use of effective decontamination practices to prevent the spread of these invasive snails. While many anglers did not know about the issue, officers discovered that some of the river guide outfitters were very much aware of the threat and were actively attempting to educate their clientele. LED will continue to contact anglers and distribute literature to further educate the public and this user group.

Walking the talk

The North Country Cooperative Invasive Species Management Area (CISMA) is working to slow the spread of invasive species along the North Country Trail and other parks and recreational trail systems in their service area. Knowing that off-road vehicles, pets and even hikers themselves can unknowingly spread invasive plant seeds, the CISMA installed signs and boot brush stations and even hosted information booths at trailheads to encourage visitors to clean their gear and pets before leaving. Where invasive plants were discovered along trails, signs were erected to help users identify the plants and, in the case of wild parsnip, understand the danger of encountering the plant's noxious sap. The CISMA was able to treat invasive plants on over 36 acres along trail ways to help prevent future spread.

Understanding oak wilt



The Arboricultural Society of Michigan collaborated with a variety of partners to spread the word about oak wilt to green industry professionals, K-12 schools, homeowners and Master Gardeners throughout Michigan. With support from the Michigan Invasive Species Grant Program (MISGP), partners developed programs for students to understand the impact of oak wilt on forests and urban areas and provided homeowners in affected areas with keys to identify and report the disease. Master Gardeners, who volunteer to respond to citizen queries at regional MSU Extension offices, were provided training and guides to assist clients in properly identifying oak wilt and locating treatment resources. An Oak Wilt Identification and Management Qualification course was developed to help tree care professionals correctly identify and report oak wilt infections and properly manage infested areas by trenching root systems and treating nearby trees to prevent the disease's spread.

Oak wilt

SLIME in the classroom



In 2017, the Department of Natural Resources began a partnership with the Great Lakes Fishery Commission to bring invasive sea lamprey into Michigan classrooms. As an extension of the Salmon in the Classroom program, the Sea Lamprey in Michigan Education (SLIME) program began with a pilot of four classrooms. After classes release their Chinook salmon in the spring, they receive two live sea lamprey for their aquariums. Teachers get a short training and an education guide on how to use the lamprey to teach students about the complex relationships between invasive species and our Great Lakes ecosystem. At the end of the two-week program, teachers humanely euthanize and properly dispose of their specimens. Some even choose to use the lamprey in a dissection lab. The SLIME program expanded to 25 teachers in 2018 and will be offered to over 40 in 2019.

Blitzing for AIS awareness



In conjunction with Michigan's Aquatic Invasive Species Awareness Week, the fifth annual AIS Landing Blitz, an outreach event for boaters, was held June 30-July 8, 2018, at boat landings around the state. The DEQ partnered with local volunteers as well as the departments of Natural Resources and Agriculture and Rural Development to assist boaters in learning how to prevent the spread of these harmful species and comply with current aquatic invasive species-related laws. Volunteers and conservation organizations held blitzes at 88 sites, educating 7,000 boaters on how removing aquatic plants and organisms from boats and gear, draining stored water and cleaning or drying gear sufficiently between uses can help prevent the spread of invasive species that adversely affect recreation and habitat in Michigan's waterways.

Mobile Boat Wash



Since 2014, the DEQ has partnered with Michigan State University and the U.S. Forest Service to deliver face-to-face outreach and boat washing for aquatic invasive species decontamination at boat ramps, fishing tournaments and other events around the state using student field crews and two DEQ-owned mobile boat wash units. During 2018, the partnership washed more than 549 boats during 52 separate events and reached more than 2,580 boaters and anglers around the state with AIS prevention messaging. Partners and local hosts have included many lake associations, local municipalities, CISMAs and other organizations.

Quagga mussel



GOAL 3

EARLY DETECTION AND RESPONSE

Develop a statewide interagency invasive species Early Detection and Response Program to address new invasions

Successful early detection and response to new infestations requires widespread monitoring efforts, rapid communication and well-prepared personnel to respond. A statewide approach involves coordinated efforts among agencies, Cooperative Invasive Species Management Areas (CISMAs), industry professionals, researchers and citizens to detect, report, verify and treat emerging invasive species issues.

Protecting Michigan's hemlock resource



Hemlock woolly adelgid

Michigan's Hemlock Woolly Adelgid Coordinating Committee is working to significantly slow the spread and locally eradicate the invasive tree pest to ensure eastern hemlock remains viable in Michigan. In 2018, collaborators including DNR, MDARD, West Michigan Cisma and The Nature Conservancy surveyed hundreds of acres and treated nearly 7,000 infested hemlocks on private lands and over 5,000 trees at seven state parks in the nearshore area of eastern Lake Michigan. Certain insecticides are successful in treating hemlock woolly adelgid if used correctly. Without treatment, infested trees can die within four to 10 years. Public and private lands in infestation zones are being surveyed and treated with grant funds from the Great Lakes Restoration Initiative,

U.S. Forest Service and the Michigan Invasive Species Grant Program. Other land owners and managers within the affected counties of Ottawa, Allegan, Muskegon and Oceana are being asked to inspect hemlocks for signs of infestation and follow MSU Extension guidelines for treatment.

Addressing watch list aquatic plants



Parrot feather

Aquatic invasive plants such as parrot feather, yellow floating heart, European frog-bit and water lettuce have been detected in scattered locations across the state. These plants may be intentionally planted, transferred by recreational boats, escaped from ornamental ponds or dumped from home aquariums into rivers, lakes and streams. The state's aquatic invasive plant early detection and response initiative, led by the DEQ's Water Resources Division (WRD), uses early detection and response principles to assess the risk posed by an invading plant, review response options and, if feasible, plan and implement a response tailored to the situation. In 2018, WRD received 20 reports of watch list aquatic plant detections. Of these, seven were confirmed and included parrot feather, water lettuce, yellow floating heart and European frog-bit.

Overall, 23 ongoing or new response efforts were coordinated with local stakeholders, resulting in 90 acres of treatment. More than 1,500 pounds of European frog-bit were manually removed from Reeds and Fisk lakes in Grand Rapids in an ongoing effort to eradicate the plant from its westernmost location in the U.S.

Targeting grass carp

Unlike other Asian carp species, grass carp are currently found in the Great Lakes. Individuals capable of reproducing have been captured in lakes Erie and Ontario. The Lake Erie Committee, which consists of resource agency staff from the states and provinces surrounding Lake Erie, supported by the work of research institutions, continues to make strides toward the long-range goal of eradicating grass carp in the basin. With funds from a Michigan Invasive Species Program grant, Michigan State University is working with the committee to study the effectiveness of various fishing gear for sampling and removing grass carp. The university is also heading a study of grass carp movement, using telemetry to track tagged "Judas" fish to understand behaviors and activity patterns. These and other studies inform the committee's structured decision-making process, directing efforts based on emerging data. The telemetry study helps target locations, and the gear study directs processes to optimize grass carp removal efforts. In 2018, planned response actions coupled with efforts by commercial fishers and recreational bowfishers resulted in the capture of 57 grass carp. The grass carp's scarcity in commercial nets (12 total) is a probable indication of a small population within the basin.



Grass carp

Exotic Aquatic Plant Watch

The DEQ-funded Exotic Aquatic Plant Watch (EAPW) component of the Cooperative Lakes Monitoring Program is an opportunity for volunteer citizens, lake associations and others to be "early detectors." The EAPW empowers volunteers with free training on how to identify, locate and report invasive plants that pose the highest risk to Michigan's inland lakes. At least 96 Michigan lakes are enrolled in the EAPW program with a total of 43 reporting invasive species data in 2018, the highest total ever.

Hydrilla



Flowering rush



European frogbit



GOAL 4

MINIMIZE HARMFUL EFFECTS

Manage and control invasive species to minimize harmful environmental, economic and public health effects resulting from established populations

Established or widespread infestations can change the make-up of whole ecosystems. The negative effects on native plant and animal populations include displacement, diminishing food and habitat, and species reduction. The recreational value of lakes, dunes and forests is degraded by the presence of invasive species. Invasive species are also taking a toll on Michigan's fisheries, agriculture and timber industries. Both large-scale management efforts and innovative treatment methods are needed to manage invasive species populations in the state.

Protecting a global treasure



The Three Shores CISMA, DNR Wildlife Division and The Nature Conservancy worked together to survey over 600 acres in the Maxton Plains on Drummond Island to determine treatment needs for spotted knapweed, which had been discovered in the alvar region. Alvar is a globally rare ecosystem characterized by thin soils over limestone bedrock, sometimes appearing like paved concrete pads, and is home to many rare species. The Maxton Plains supports one of the largest examples of alvar in the world, and much of the alvar is located on state-owned land. After assessing locations of knapweed, garlic mustard and other invasive species, the crew returned for a week of management including both herbicide and manual removal of species on over 35 acres of important conservation area.

Fighting European frog-bit



Researchers at Loyola and Boise State universities, in partnership with the Sault Ste. Marie Tribe of Chippewa Indians and CISMAs in the Upper Peninsula, are studying several aspects of detecting and managing European frog-bit. In treatment plots at the Munuscong Wildlife Management Area, where the invasive frog-bit is interspersed among invasive cattails (typha), the team compared various management techniques including herbicide treatments, hand harvesting frog-bit and cutting typha above and below the waterline. Preliminary results show that while herbicide was largely ineffective in reducing European frog-bit, removing typha below the waterline exposed the invasive frog-bit to wave action, resulting in a reduction of frog-bit – information that will be helpful in managing invasions in other Great Lakes coastal marshes. This project, funded

by the Michigan Invasive Species Grant Program, is part of a broader suite of projects addressing this problematic plant.

Improving lake management options

Eurasian watermilfoil, an invasive plant found in many of Michigan's inland lakes, has several hybrids that respond differently to herbicide treatment. Supported by funding from a Michigan Invasive Species Program grant, researchers with Montana, Grand Valley and Michigan state universities are studying how these genetically different plants are distributed in 50 Michigan

lakes and how each genotype responds to several different herbicides. Citizen scientists in Michigan's Cooperative Lakes Monitoring Program are working with the team and have contributed Eurasian milfoil samples from several lakes. The resulting information will help lake managers determine the most efficient and cost-effective management options based on the hybrid species they are treating.

Helping the piping plover

Piping
plover



Staff from the Seney National Wildlife Refuge and members of the Whitefish Point Joint Committee contacted the Three Shores Cisma after noticing the spread of spotted knapweed from roadside areas into the boardwalk system at Whitefish Point. The historic landmark is a popular tourist location, and its beaches are among the few areas in Michigan considered critical habitat for the piping plover, a federally listed endangered bird species. Seeing the potential problem with knapweed, white sweet clover, bull thistle and other invasive plants moving from the boardwalks to the beach, partners including the U.S. Fish and Wildlife Service, the DNR and Michigan Audubon worked with the Cisma to develop and initiate a management plan to treat species in sensitive areas. The Cisma established monitoring plots to measure project success and will return over the next several years to continue management.

Finding success in managing feral swine

Several years of coordinated efforts among DNR, USDA-APHIS Wildlife Services, Michigan State University and the University of Michigan-Flint have resulted in a significant decline in feral swine reports throughout Michigan. Intensive monitoring efforts including tracking, helicopter surveillance and the use of "Judas pigs" fitted with transmitting collars, as well as a focused removal project have contributed to this true success story in the battle against invasive species. As feral swine numbers have been reduced, monitoring has shifted to public reports to the DNR website, direct contacts from the public and communication with reliable sources within areas known to have past feral swine activity. Reports indicate a reduction in feral swine range from 72 counties to only 12 counties. The DNR now surveys all hunters who register a deer to get information on feral swine sightings and evidence of feral swine activity they have noticed in the last year. A database of all reports is compiled weekly and forwarded to USDA-APHIS Wildlife Services for follow-up.



Feral swine

Spotlight

Cooperative Invasive Species Management Areas (CISMAs)

In 2018, the Michigan Invasive Species Grant Program reached the milestone of providing Cooperative Invasive Species Management Area (CISMA) services to all 83 counties in Michigan. CISMAs are groups of non-profit and government agencies, businesses and volunteers that have come together to tackle the issue of invasive species in their regions. CISMAs can offer a range of services including information on preventing, identifying, reporting and managing invasive species. While some CISMAs have been around for over a decade, others have just gotten started, and still others are reorganizing into smaller units to better serve their communities.

The CISMA model coordinates partner efforts and shares resources to reduce costs and increase capacity for invasive species outreach, monitoring and treatment to support established regional conservation efforts. Partners work together to understand and prioritize regional issues and evaluate results to assure the highest level of success.

Tribal partnerships

In August 2018, CAKE CISMA and the Little Traverse Bay Bands of Odawa Indians partnered in a week-long survey of the Beaver Island archipelago, mapping and treating invasive plants including Japanese knotweed, glossy buckthorn and garlic mustard in isolated spots across several islands. A second visit in October included treatment of a small number of invasive phragmites infestations. This ongoing collaboration between the CISMA, tribe and Beaver Island residents supports broader restoration and biodiversity protection efforts on these important islands.

The Keweenaw Bay Indian Community's Natural Resources Department has partnered with Keweenaw Invasive Species Management Area (KISMA) for joint projects targeting invasive species across Keweenaw, Houghton and Baraga counties. The Natural Resources Department staff includes licensed chemical applicators, and KISMA brings survey skills and trained boat wash staff to address invasive species on both land and water. One shared target is Japanese barberry, which competes for habitat with ginger root, used as both a spice and a natural heart medicine. The invasive barberry is being removed and replaced with native wild ginger in forested areas.

In early July 2018, the Gun Lake Tribe, BCK CISMA and Gun Lake Protective Association co-hosted a landing blitz to raise awareness of aquatic invasive species, reaching out to over 150 boaters with the "Clean Boats, Clean Waters" message. The Gun Lake Tribe is an active partner in managing invasive species, completing a Great Lakes Restoration Initiative project providing engineering and cost estimates to install boat washes at Yankee Springs State Park and Gun Lake County Park. In 2018, the tribe secured additional funds to install a boat wash at the state park, a heavily-used access to Gun Lake.

Working with municipalities

Black swallow-wort was identified in areas across the Village of Kingsley in Grand Traverse County after it was first noticed in a butterfly garden at Kingsley Branch Library. The invasive vine, a relative of native milkweeds, can attract monarch butterflies to lay their eggs, but caterpillars will die shortly after hatching and eating this poisonous plant. Working with the village, the Northwest Michigan Invasive Species Network offered assistance to affected private landowners and assisted the village in treating the plant on public lands. Follow-up treatments are planned for 2019.

In Emmet County, the CAKE CISMA coordinated with the City of Petoskey's Parks and Recreation Department to survey and treat a severe infestation



Japanese
barberry



Black
swallow-wort

of black swallow-wort in Petoskey's Bear River Valley Recreation Area and surrounding neighborhoods. The city worked with the Cisma to reach out to affected homeowners to encourage their participation in treating the invasive vine. The Cisma provided a 50% cost share for treatment on both private and public lands and was able to complete treatment on nearly half of the infested sites in 2018.

The Northeast Michigan Cisma undertook efforts this year with Tawas City in Iosco County to complete an inventory of the Tawas River and treat all invasive phragmites along the river within city limits. The Cisma also continued its program with the City of Harrisville (Alcona County) to inventory and treat all giant knotweed within city limits. In both cases, the cities assisted with landowner permissions and notifications where needed, improving the levels of participation on private lands.

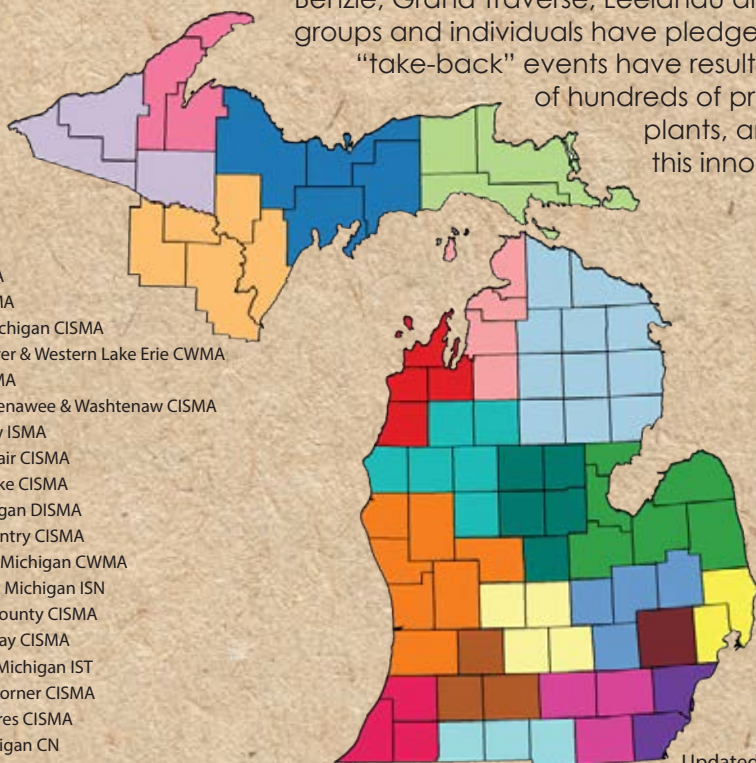
A citizen's concern about Japanese knotweed brought together the Village of Mattawan in Van Buren County and the Southwest by Southwest Corner Cisma to complete a 33-mile road survey of the village, which identified over a dozen infested locations. The village's Department of Public Works has agreed to treat areas in road rights of way, while the Cisma will work with landowners to manage infestations on private land.

Going Beyond Beauty

Go Beyond Beauty is a voluntary program developed by the Northwest Michigan Invasive Species Network to encourage local gardening professionals to reduce the introduction of invasive ornamental plants by removing them from inventory. Local nurseries and landscapers make a commitment to stop the sale and use of these plants, and they often go a step further by encouraging the use of native plants as alternative options. Because approximately 50% of invasive plants arrive through horticulture, these committed businesses make a huge impact. In the program area of Benzie, Grand Traverse, Leelanau and Manistee counties, over 40 businesses, groups and individuals have pledged to "Go Beyond Beauty." Sponsored "take-back" events have resulted in the removal and proper disposal of hundreds of previously-landscaped Japanese barberry plants, and those numbers continue to grow with this innovative program.

Legend

- BCK Cisma
- CAKE Cisma
- Central Michigan Cisma
- Detroit River & Western Lake Erie CWMA
- GILLS Cisma
- Jackson, Lenawee & Washtenaw Cisma
- Keweenaw ISMA
- Lake St. Clair Cisma
- Lake to Lake Cisma
- Mid-Michigan DISMA
- North Country Cisma
- Northeast Michigan CWMA
- Northwest Michigan ISN
- Oakland County Cisma
- Saginaw Bay Cisma
- Southern Michigan IST
- SW x SW Corner Cisma
- Three Shores Cisma
- West Michigan CN
- Western Peninsula IC
- Wild Rivers ISC



Note: Cismas include CNs, CWMAs, ICs, ISMAs, ISNs and ISTs.

CN: Conservation Network
 CWMA: Cooperative Weed Management Area
 IC: Invasives Coalition
 ISC: Invasive Species Coalition
 ISMA: Invasive Species Management Area
 ISN: Invasive Species Network
 IST: Invasive Species Team

For more information on your local Cisma, visit the Michigan Invasive Species Coalition's website at michiganinvasives.org

Updated January 16, 2019 Michigan Invasive Species Coalition

Program Outcomes

The following outcomes were established to direct the use of state funding for the Michigan Invasive Species Program.

- Establishing Cooperative Invasive Species Management Areas (CISMAs) to ensure statewide coverage.
- Responding to 90 early detection sites.
- Providing outreach to 750,000 citizens to enlist them in detecting and responding to emerging invasive species before they become established.
- Managing and controlling 6,000 acres for terrestrial and aquatic invasive species.

	CISMA statewide coverage by county	Early detection responses	Outreach impressions	Control acres
Program Goal	83	90	750,000	6,000
2015	65	355	1,495,800	8,369
2016	77	175	5,037,627	8,710
2017	77	194	5,090,658	9,370
2018	83	58	4,274,867	9,410



European frogbit

Himalayan balsam



Starry stonewort

Michigan's Prohibited, Restricted and Problematic Species

Michigan laws limit the import, sale and possession of 55 prohibited and restricted species including plants, animals, fish, mollusks and crayfish. A current list is provided at the end of this report. If a species is prohibited or restricted, it is unlawful to possess, introduce, import, sell or offer that species for sale as a live organism, except with a valid permit.

Michigan's Natural Resources Commission, in consultation with MDARD, or the Commission of Agriculture and Rural Development, in consultation with the DNR, may add to the list of prohibited and restricted species.

The term "prohibited" is used for species that are not widely distributed in the state. Often, management or control techniques for prohibited species are not available. The term "restricted" is applied to species that are established in the state. Management and control practices are usually available for restricted species.

Scientific Permits Issued in 2018 for Prohibited or Restricted Species

The issuance of permits for the possession of prohibited or restricted species is provided by NREPA Part 413 for MDARD (for plants and insects) and the DNR (for fish or any other species) following an application and review process. Table 1 summarizes the 46 permits that were granted to partner agencies, universities and other entities such as consulting firms, zoos, nature centers and other educational institutions in 2018.

Table 1 – Prohibited and Restricted Species Permits Issued in 2018

Species	Status	Number of Permits Issued	Pemittees
Rusty crayfish	Restricted	10	9 universities, 1 other
Zebra mussels	Restricted	8	4 universities, 1 partner, 3 other
Quagga mussels	Restricted	9	7 universities, 1 partner, 1 other
Round goby	Prohibited	7	3 universities, 1 partner, 3 other
New Zealand mudsnails	Prohibited	1	1 university
Red swamp crayfish	Prohibited	3	2 universities, 1 other
Terrestrial and aquatic plants	Prohibited or restricted	7 new, 1 renewal	1 university, 5 partner, 2 other

Status of Michigan's Prohibited, Restricted

The current distribution of prohibited and restricted species in Michigan, based on best available knowledge, is provided in Appendix A. Some of these species are not yet known to be present within the state, while others have been present in certain parts of the state for decades, causing significant, ongoing management and control costs. In cases where distribution is listed as absent, this may mean a species is truly not present at all in Michigan or that no confirmed detections have been made.

Detection and/or specific management actions occurred in 2018 for the prohibited, restricted or other problematic species listed below:

Emerald ash borer



MDARD announced the repeal of Michigan's Emerald Ash Borer quarantine, effective October 1, 2018. The quarantine had restricted movement of ash wood in most forms and hardwood firewood from the Lower Peninsula to the Upper Peninsula and from infested to non-infested counties in the Upper Peninsula. By 2018, emerald ash borer had been confirmed in all but four Michigan counties and was detected in 34 states. Lifting the quarantine relieves a regulatory burden from Michigan firewood and wood products industries. The USDA currently is reviewing comments on a proposed rule to remove domestic quarantine regulations for emerald ash borer. If domestic quarantine regulations are removed, funding previously used for quarantine enforcement will be directed to research and deployment of biological control agents. MDARD continues to support the "Don't Move Firewood" campaign, as firewood can carry other pests and diseases such as oak wilt to new areas.

Red swamp crayfish



Red swamp crayfish were first detected in Michigan at Sunset Lake in Vicksburg and in multiple private ponds in the Novi and Farmington Hills areas in July 2017. DNR Fisheries Division staff is working with researchers from MSU, the U.S. Geological Survey and Auburn University to use traps and experimental chemical treatments to remove this species from infested areas. Site surveys continue to evaluate distributions of this highly invasive crayfish. To date, control actions have removed over 20,000 red swamp crayfish, but the response team is still working to achieve the challenging goal of eradication.

and Other Problematic Species

Japanese stiltgrass

After an initial detection in 2017, Japanese stiltgrass has been found in areas of Washtenaw, Van Buren and Lenawee counties on private and public lands. The invasive grass takes hold in areas of disturbed soil along banks, roadways and woods and quickly blankets the soil, leaving little room for native plants and trees to sprout. CISMAs, local partners and the DNR are collaborating on surveys, hand-pulling and chemical treatment. While significant progress has been made in removing the grass from several parcels of private land in Washtenaw County, new survey efforts have found additional locations downstream of these initial detections, including areas of public land. Partners are working together to develop a monitoring and treatment plan for the 2019 field season.

Spotted lanternfly



Spotted lanternfly, a plant-hopper native to China and India, has been added to the state's invasive species watch list due to the threats it poses to agriculture and the environment. Already found in Delaware, New Jersey and Virginia, spotted lanternfly is spreading through eastern Pennsylvania. Nymphs (immature insects) and adults suck sap from stems and leaves of more than 70 plants and crops including grapes, apples, hops, walnuts and other hardwood trees.

Japanese chaff flower

Japanese chaff flower, a plant from East Asia, has been added to the state's invasive species watch list. Not yet known to be in Michigan, this plant can displace native plants by forming large, dense stands in floodplains, forested wetlands and disturbed habitat. It currently is found along the Ohio and Big Sandy rivers, reaching counties in nine states including Illinois, Indiana and Ohio.

Thousand cankers disease of walnut

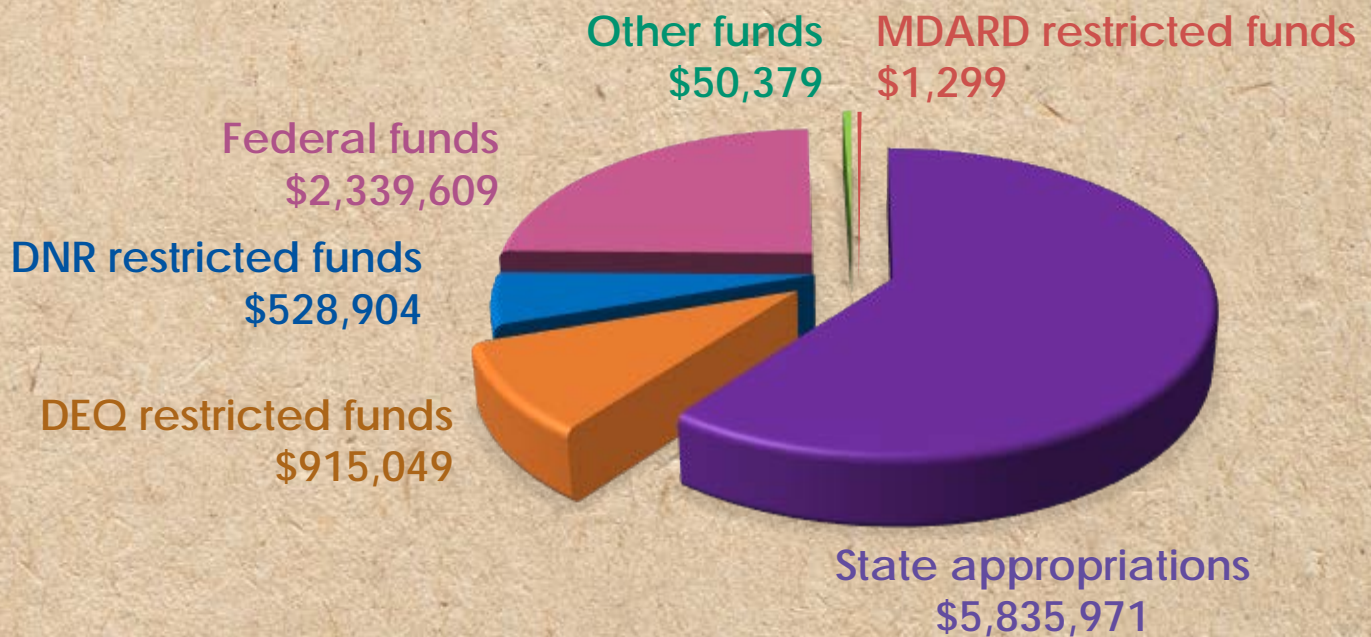
In January 2018, MDARD published a revision of the state's Thousand Cankers Disease of Walnut Quarantine to better protect the state's walnut trees. The quarantine generally prohibits the shipment of walnut nursery stock, certain walnut timber products and hardwood firewood into Michigan from infested states. Walnut furniture, veneer, kiln-dried walnut lumber without bark and walnut nuts and nutmeats are exempt. The revised quarantine includes an updated list of regulated areas and a new treatment provision for walnut timber products with bark attached, including hardwood firewood, when those products originate from infested states.

Additions or Deletions to Michigan's Prohibited and Restricted

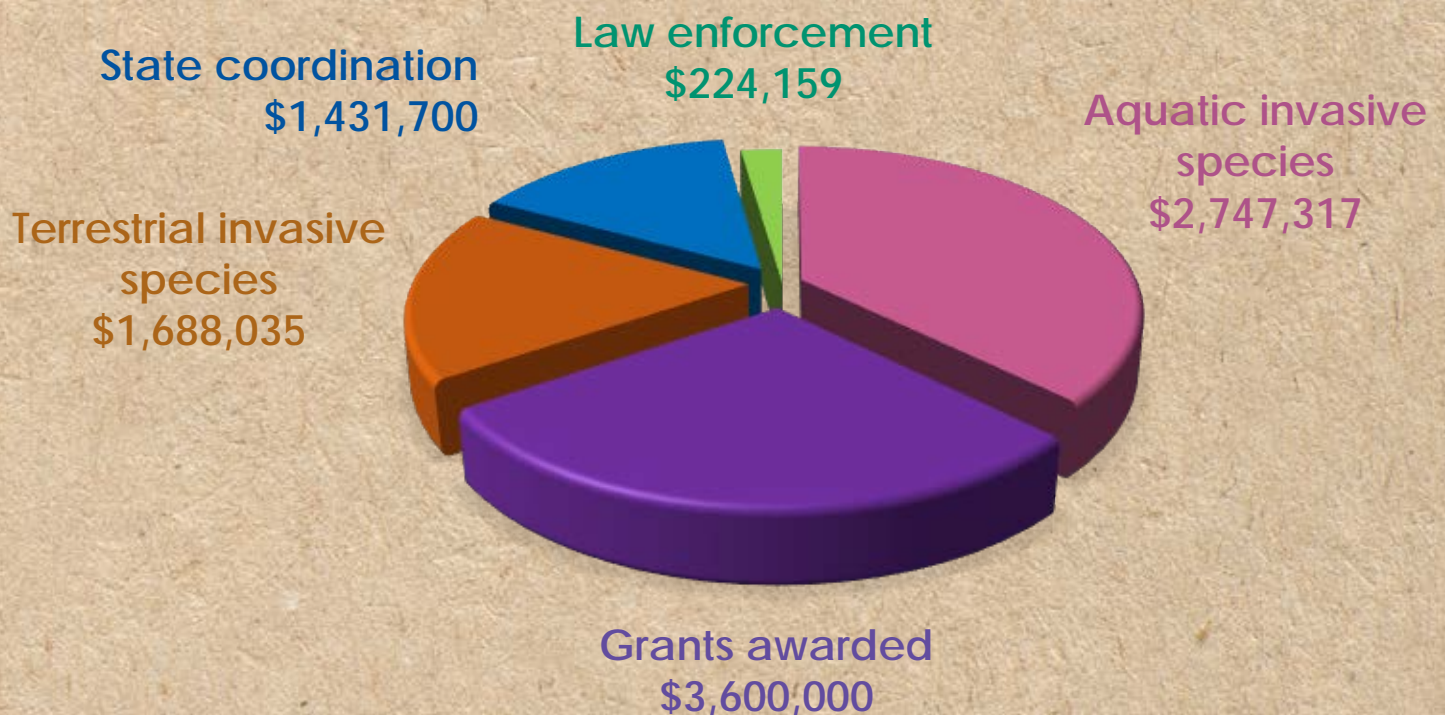
There were no changes to Michigan's Prohibited and Restricted Species lists in 2018

Program Finances – Fiscal Year 2018

Funding – \$9,671,211



Expenditure by Program area – \$9,671,211



Public Act 537 of 2014

Public Act 537 of 2014 became effective on April 1, 2015, requiring the DNR to develop a permitted aquatic species list to support Michigan's existing laws preventing new introductions of invasive species. This legislation requires a review of all aquatic plants and animals to determine if they should be permitted for possession or trade within the state. For consultation on this new legislation, 30 key industry and government representatives were invited to a workshop hosted by the DNR and MDARD. There was consensus among industry and government representatives that the laws pertaining to the permitted species list could be improved. The initial estimate of the number of aquatic species currently in trade in Michigan is approximately 20,000.

In 2018, industry and government representatives worked with legislators to modify laws regulating the organism in trade industry while maintaining important protections and prevention mechanisms. The resulting Public Act 451 of 2018 repeals the requirement to develop a permitted species list and instead requires registration for selling, offering to sell, or possessing for the purpose of selling or offering to sell a live, nonnative aquatic species. PA 451 of 2018 was passed by the state house and senate during the final session of 2018 and signed by the governor in December 2018. The law will take effect on March 21, 2019.

Bighead carp



Oak wilt



Heath snail



Water lettuce

Recommendations

Proposals regarding legislation and funding to carry out and otherwise further the purposes of Michigan's Natural Resources and Environmental Protection Act, 1994 PA 451, Part 413, MCL 324.41323 include:

Recommendation:

Continue funding and support of Michigan's Invasive Species Program, pursue base funding for Cooperative Invasive Species Management Areas (CISMAs), and establish an invasive species urgent response fund.

Continued support of Michigan's Invasive Species Program. Each year, metrics for outreach, response, and control are met or exceeded, and annual requests for funding are sometimes more than triple the funding available. The program has made great strides in using state funding to leverage additional federal funding, leading to success in Phragmites control, grass carp eradication efforts, and response to hemlock woolly adelgid.

Base funding for Cooperative Invasive Species Management Areas. The State has met the original goal of providing grass roots support for invasive species prevention, detection and management through local and regional CISMAs. Experience from the last five years has proven that base funding to support continuity in programming and service provides the best assurance of success. Approximately half of the Invasive Species General Fund Appropriation of \$3.6 million for grants supports CISMAs. If an alternative, sustainable funding mechanism was available to support the CISMAs, more grant funds would be available to provide on the ground treatment and to pursue development of more efficient approaches for treating and managing invasive species.

Urgent response funds. The Quality of Life departments currently lack stable funding to support emergency response to invasive species. Quick access to a stable source of funding would enable coordinated, short term-response actions while long-term solutions are planned. An ideal invasive species response fund would be available to all three Quality of Life departments and would be applied strictly to immediate responses to contain or eradicate high-threat species while long-term funding is sought.

Recommendation:

Support more stringent regulations regarding the movement of potentially infested and diseased wood to protect Michigan's forest and landscape resources from the spread of oak wilt and other devastating pests and diseases.

Michigan currently has an interior quarantine for hemlock woolly adelgid and exterior quarantines for thousand cankers disease and balsam woolly adelgid. Encouraging compliance with these quarantines is critical to the future of Michigan's forests and landscape trees. Expanding the channels of communication about these regulations to include all levels of law enforcement as well as tourism information networks will encourage broader compliance.

PA 451
OF 1994

Recommendation:

Continue to work with industries to identify, report, and manage invasive species causing harm to Michigan's resources and the industries that rely on them.

Forest professionals, lake managers, agricultural operators and recreational outfitters are among those who have a stake in the health of Michigan's natural resources. Their daily activities put them in key positions to identify, report, and in some cases, manage invasive species populations. Sharing information with industry leaders and associations regarding identification and reporting tools, best management practices and emerging research can expand the reach and effectiveness of the state's invasive species program.

Recommendation:

Increase assistance for identification and treatment of invasive species on private lands.

Michigan's Natural Resources and Environmental Protection Act, 1994 PA 451, Part 413 provides penalties for transporting or possessing prohibited or restricted species but does not prevent maintaining or cultivating invasive species on private lands, even if the species are spreading onto neighboring properties. Attempts by CISMAs and state park and state forest managers to eradicate invasive species populations are sometimes thwarted by neighboring private landowners' unwillingness to treat populations along property lines or those that may easily spread to adjacent properties. Raising awareness about invasive species and the harm they cause has encouraged some landowners to appropriately manage infestations. Providing more assistance in treatment, including low-cost or no-cost options, may also encourage better management.



Appendix A – Species Listed as Prohibited or Restricted under Part 413

Plants

Species	Part 413 Status	Distribution in Michigan	Comments
African oxygen weed (<i>Lagarosiphon major</i>)	Prohibited	Absent	
Autumn olive (<i>Elaeagnus umbellata</i>)	Prohibited	Widespread	Common and widespread throughout Southern Lower Peninsula, widespread elsewhere statewide.
Brazilian waterweed (<i>Egeria densa</i>)	Prohibited	Absent	Isolated populations in IL, IN, MN and OH.
Curly leaf pondweed (<i>Potamogeton crispus</i>)	Restricted	Widespread	Common, especially in the Lower Peninsula.
Cylindro (<i>Cylindropermopsis raciborskii</i>)	Prohibited	Isolated	Recorded in several drowned river mouths in the Lake Michigan Basin.
Eurasian watermilfoil (<i>Myriophyllum spicatum</i>)	Restricted	Widespread	Common, especially in the Lower Peninsula.
European frogbit (<i>Hydrocharis morsusraeanae</i>)	Prohibited	Locally abundant	Locally abundant in SE Lower Peninsula coastline; isolated populations along the Lake Huron shoreline and in Kent, Alpena, and Oakland counties.
Fanwort (<i>Cabomba caroliniana</i>)	Prohibited	Locally abundant	Locally abundant in Lower Peninsula; present in IL, IN, OH and ONT.
Flowering rush (<i>Butomus umbellatus</i>)	Restricted	Locally abundant	Common in southeast Michigan, both inland and coastal; also identified in IN, IL, MN, OH, WI and ONT.
Giant hogweed (<i>Heracleum mantegazzianum</i>)	Prohibited	Isolated	Patchy distribution throughout the Lower Peninsula and western Upper Peninsula; some occurrences have been controlled.
Giant salvinia (<i>Salvinia molesta</i> , <i>auriculata</i> , <i>biloba</i> or <i>herzogii</i>)	Prohibited	Absent	
Hydrilla (<i>Hydrilla verticillata</i>)	Prohibited	Absent	Isolated populations in IN, WI and OH.
Japanese knotweed (<i>Fallopia japonica</i>)	Prohibited	Widespread	Patchy distribution throughout Lower and Upper Peninsulas
Parrot feather (<i>Myriophyllum aquaticum</i>)	Prohibited	Isolated	Active management of isolated populations in Wayne, Washtenaw, Calhoun, Clinton, and Jackson Counties; isolated populations in IL, IN, NY, OH and PA.
Phragmites or common reed (<i>Phragmites australis</i>)	Restricted	Widespread	Common and established in coastal and inland areas of southern Lower Peninsula; somewhat less abundant from south to north; common in western UP.
Purple loosestrife (<i>Lythrum salicaria</i>)	Restricted	Widespread	Biological control is reducing population statewide.
Starry stonewort (<i>Nitellopsis obtusa</i>)	Prohibited	Locally abundant	Recorded in over one hundred inland waterbodies, mostly in Lower Peninsula.
Water chestnut (<i>Trapa natans</i>)	Prohibited	Absent	Observations in NY, PA and ONT.

Crustaceans

Rusty crayfish (<i>Orconectes rusticus</i>)	Restricted	Widespread	Widespread and established in Great Lakes and inland waters.
Red swamp crayfish (<i>Procambarus clarkii</i>)	Prohibited	Isolated	Isolated population in Sunset Lake in Vicksburg, Michigan. Other isolated populations exist in private waters near Novi and Farmington Hills, Michigan.

Crustaceans *continued*

Species	Part 413 Status	Distribution in Michigan	Comments
Yabby (<i>Cherax destructor</i>)	Prohibited	Absent	

Fish

Bighead carp (<i>Hypophthalmichthys nobilis</i>)	Prohibited	Absent	
Bitterling (<i>Rhodeus sericeus</i>)	Prohibited	Absent	
Black carp (<i>Mylopharyngodon piceus</i>)	Prohibited	Absent	
Eurasian ruffe (<i>Gymnocephalus cernuus</i>)	Prohibited	Locally abundant	Patchy distribution in Great Lakes; absent in inland waters.
Grass carp (<i>Ctenopharyngodon idellus</i>)	Prohibited	Isolated	Limited natural reproduction in Ohio waters of Lake Erie and isolated detections have been reported in the St. Joseph and Kalamazoo rivers and Paw Paw Lake.
Ide (<i>Leuciscus idus</i>)	Prohibited	Absent	
Japanese weatherfish (<i>Misgurnus anguillicaudatus</i>)	Prohibited	Isolated	Single breeding population in the Shiawassee River.
Round goby (<i>Neogobius melanostomus</i>)	Prohibited	Widespread	Widespread and established in Lakes Michigan, Huron and Erie; isolated collection in Lake Superior near Marquette; isolated but established populations in inland waters.
Rudd (<i>Scardinius erythrophthalmus</i>)	Prohibited	Absent	Isolated collections on the Ontario side of Lake St. Clair.
Silver carp (<i>Hypophthalmichthys molitrix</i>)	Prohibited	Absent	
Any fish from the snakehead family (<i>Channidae</i>)	Prohibited	Absent	
Stone moroko (<i>Pseudorasbora parva</i>)	Prohibited	Absent	
Tench (<i>Tinca tinca</i>)	Prohibited	Absent	

Mollusks

Brown garden snail (<i>Helix aspersa</i>)	Prohibited	Absent	Two Michigan detections in the past - both eradicated.
Carthusian snail (<i>Monacha cartusiana</i>)	Prohibited	Locally abundant	Wayne County
Giant African snail (<i>Achatina fulica</i>)	Prohibited	Absent	
Girdled snail (<i>Hygromia cinctella</i>)	Prohibited	Locally abundant	Wayne County
Heath snail (<i>Xerolenta obvia</i>)	Prohibited	Locally abundant	Lapeer County/SE MI

Mollusks *continued*

Species	Part 413 Status	Distribution in Michigan	Comments
New Zealand mudsnail (<i>Potamopyrgus antipodarum</i>)	Prohibited	Isolated	Established in Lake Ontario and Lake Erie and present in Lake Superior. Established populations in the Pere Marquette, Au Sable, Manistee and Boardman Rivers.
Golden mussel (<i>Limnoperna fortunei</i>)	Prohibited	Absent	
Wrinkled dune snail (<i>Candidula intersecta</i>)	Prohibited	Locally Abundant	Wayne County
Quagga mussel (<i>Dreissena bugensis</i>)	Restricted	Widespread	Found in all of the Great Lakes, although limited in Lake Superior; isolated inland occurrences in the Great Lakes basin.
Zebra mussel (<i>Dreissena polymorpha</i>)	Restricted	Widespread	Widespread in inland and Great Lakes waters of the Lower Peninsula; patchy distribution in inland waters of the Upper Peninsula and Lake Superior.

Mammals

Feral Swine (<i>Sus scrofa Linnaeus</i>)	Prohibited	Locally Abundant	Historically, feral swine have been reported in 72 of 83 counties, however; occurrences are presently limited to localized areas in 10-12 counties. Locally abundant in the central Upper Peninsula. Management has reduced occurrences in the Lower Peninsula.
Nutria (<i>Myocastor coypus</i>)	Prohibited	Absent	Farmed in Michigan in the 1930's.

Birds

Eurasian collared dove (<i>Streptopelia decaocto</i>)	Prohibited	Isolated	First observed in Michigan in 2002, has since been documented in Kalamazoo, Traverse, Berrien, Alger and Mason counties.
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Insects

Asian longhorned beetle (<i>Anoplophora glabripennis</i>)	Prohibited	Absent	Not detected in Michigan; ALB infestations currently active in NY, MA, OH and Ontario; ALB eradicated from IL and NJ.
Emerald ash borer (<i>Agrilus planipennis</i>)	Prohibited	Widespread	Widespread throughout the Lower Peninsula; isolated or patchy distribution across Upper Peninsula.



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