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Fall 2017

Michigan Invasive Species Workshops for Grades 3-8 Teachers/Informal Educators:

Achieving Michigan Science Standards using Invasive Species Lessons in your Classroom

Workshop Dates & Locations (select one):

Fri., Oct. 6th ~ Mount Pleasant (MAEOE Conference at CMU; 9am - noon)

Fri., Oct. 13th ~ Marquette (NMU Seaborg Center; 8:30 am - 3:30 pm)

Sat., Nov. 4th ~ Saginaw (Gilbertson Hall, SVSU; 8:30 am - 3:30 pm)

Wed., Nov. 8th ~ Ada (Roselle Park; 8:30 am - 3:30 pm)

FREE workshop includes:

- Lunch & classroom materials
- \$150 stipend/sub pay for participants
- 6 SCECHs (pending for 6 hr. workshops;
3 SCECHs for MAEOE conference workshop)

Workshop participants may earn:

- \$200 per lesson developed (optional).
- \$300 to make presentations and/or write articles for educational publications and conferences.

To Register, go to <http://sun.science.wayne.edu/~jram/MISGPworkshopRegistration.html>

Questions? Contact Joan Chadde jchadde@mtu.edu or (906) 487-3341



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Invasive species—a threat to the Great Lakes

Seemingly harmless but careless actions by ordinary citizens have led to new and harmful invasions by non-native species and the spread of disease to native species. While many invasive species in the Great Lakes arrived by ballast water which the general public can't directly do much about, public education can decrease the spread of invasive species, prevent new introductions through pet and other commercial routes, and detect new invaders even before scientists discover them.

By interfacing workshop content with Michigan Science Standards, these workshops will assist teachers in achieving their curricular goals while potentially preventing new invasions and their spread. The pictured species are a few that people were primarily responsible for introducing into our environment and whose spread or further damage in Michigan might be prevented.



Native to China and Korea, the **Northern Snakehead** was likely introduced by recreational or aquaculture fish enthusiasts wanting access to them in the USA. Now present in Maryland, Ohio, possibly elsewhere, but not yet in Michigan. This carnivorous air-breathing fish can survive out of water for several days. They are voracious predators of native fish and may also carry disease that affects fish populations.

This beautiful aquatic plant, known as **Brazilian elodea**, was a favorite for teaching about plant growth and photosynthesis. BUT NO LONGER! Its invasive behavior caused it to be prohibited in Michigan. Instead, native elodea species can be used just as well. Fragments of these plants are spread by waterfowl and boats, where their thick growth can form dense mats that choke out native aquatic plants and hinder swimming, fishing, and other water activities.



Native to the lower Mississippi and Gulf Coast, the **red swamp crayfish** is on Michigan's invasive species watch list. Grown in aquaculture, kept as pets, and used in scientific research, these pests are hosts for parasites and diseases. With a diverse diet of plants, insects, fish and amphibians if released into the environment, they compete with native crayfish and other species for food and habitat.



Originally from Asia, **goldfish** are common ornamental fish that people have intentionally released into the environment. In fact, goldfish releases have been reported in every U.S. state except Alaska. With the capability of spawning several hundred thousand eggs per year, goldfish have the potential to crowd out native fish and compete with them for food.

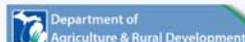
African clawed frogs are native to the southeastern portion of sub-Saharan Africa. The albino variety is often sold as pets, and requires permits in some states. When released into the wild, these frogs adapt well and devastate native populations of frogs and other animals by eating their young. African clawed frogs may be a carrier and the initial source of an infectious fungus that has reduced amphibian populations throughout the world.



Parrot feather watermilfoil (also known as Brazilian watermilfoil) is native to South America. Found in lakes, ponds, slow streams and mudflats, this ornamental plant grows rapidly and spreads by small pieces breaking off and rooting elsewhere. These plants are on the Michigan watch list. To prevent spread, boats should be inspected and washed before moving from one water body to another. Photo by Andre Karwath.



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