



# Ohio Invasive Plants Council

Newsletter • Fall 2017



## PRESIDENT'S CORNER

OIPC just hosted two excellent workshops in cooperation with Gorman Nature Center in Mansfield and Columbus Recreation & Parks at the Park of Roses. Both were great opportunities to improve awareness of invasive plants and promote the use of alternatives when replacing invasives in landscapes. Attendees learned about invasive plants and their alternatives and had an opportunity to purchase some of the alternatives at the workshops. See the article in this issue for more information and photos from the workshops!

If you are looking for opportunities to help control invasive plants in natural areas, one way is to participate in the Ohio Natural Areas & Preserves Association's Stewardship Projects. See the ONAPA website at [www.onapa.org](http://www.onapa.org) for more information on the 2017 projects.

In September, I had the opportunity to present a talk in Bowling Green about OIPC, ONAPA and invasive plants for the Bowling Green Parks and Recreation Foundation at Simpson Garden Park. An article written by BG Independent News highlighting the talk can be found at [bgindependentmedia.org](http://bgindependentmedia.org). As always, we look forward to working with any of our partners to plan educational efforts. If you have any upcoming events where OIPC may participate by providing a speaker, please let us

know (see our website to contact any of our Board members).

If you would like to host an invasive plant workshop, contact us as we are looking for locations for 2018. Help us spread the word about invasive plants and visit our website at [www.oipc.info](http://www.oipc.info) frequently! If you need a plant identified or are looking for more information, just contact us through our website and we will respond.

*Jennifer L. Windus,  
OIPC President & ODNR (retired)*

The Ohio Department of Agriculture (ODA) will be filing the draft invasive plant rules with JCARR this month (October). The public hearing for final comments will be on November 30th at the ODA office in Reynoldsburg. The updated rules can be found at: [www.ohioagriculture.gov](http://www.ohioagriculture.gov). You can also watch for any updates on the Rule Watch website. We will post any further updates on our website as they become available.

## OIPC IS SEEKING APPLICATIONS FOR RESEARCH GRANTS!

OIPC is soliciting applications for our Invasive Plants Research Grants. This grants program funds research projects on invasive plants in Ohio for amounts up to \$1,000. Projects conducted by land managers, undergraduate or graduate students, or amateur botanists are welcomed. Proposals from land managers, especially those that demonstrate practical applications of research in the field, are particularly encouraged. We are hoping to fund research/monitoring projects which document effective control methods for Ohio invasive plants, as well as those which address questions that the OIPC Invasive Plant Assessment Team is trying to answer.

We will consider any research/monitoring project on invasive plants in Ohio, however we have two areas of emphasis for the upcoming grants:

- (1) Research on management methods for invasive plants in Ohio (especially lesser celandine, Japanese knotweed, or Japanese stiltgrass).
- (2) Research on topics that will facilitate completion of Invasive Plant Assessments by the OIPC Invasive Plant Assessment Team. For the current list of these questions, see [oipc.info/research-questions](http://oipc.info/research-questions). When the grant evaluation team reviews grant proposals, extra points are given for proposals which address these questions.

More details about this opportunity can be found at [oipc.info](http://oipc.info). **Applications are due no later than December 1, 2017.**

*Jean H. Burns, OIPC Research Chair, Case Western Reserve University*

## THE BONNIE AND CLYDE OF INVASIVE SPECIES: Impacts of Garlic Mustard and Invasive Earthworms on Forest Ecosystems

Invasive earthworms are found throughout the Great Lakes region. Roughly 11,000 years ago, northeast Ohio experienced a glaciation event, and with that, all of the native earthworms were extirpated from the region. Since then humans have colonized the area and through purposeful, or accidental methods, have brought with them many different species of invasive earthworms. Many peoples' initial thoughts are: "How are earthworms invasive when they are beneficial for my garden or for my field?" While earthworms may be beneficial in gardens, invasive earthworms have a detrimental effect on Ohio forest ecosystems. Invasive earthworms have been described as ecosystem engineers due to the cascade of changes that occur within forests once they invade. A few of these changes include reduction of the leaf litter and organic layer of soils, the reduction of plant community diversity



*Fig. 1. (Left) A typical understory plant community in a forest not yet invaded by earthworms. (Right) The remnants of a forest understory after an earthworm invasion. Photo Credit: Great Lakes Worm Watch*

in the forest understory (Fig. 1), and an increase of nutrient cycling in forest soils<sup>1</sup>. However, whether and how invasive earthworms interact with invasive plants is largely unknown.

We proposed that garlic mustard (*Allaria petiolata*) might interact with invasive earthworms. Garlic Mustard (*Allaria petiolata*) has long been considered an invasive species; there have been many studies examining the effects these plants have on forest communities.

One reason garlic mustard is considered so problematic is its ability to outcompete native species and create monocultures within the forest understory in a relatively short amount of time. Garlic mustard is so effective at outcompeting other species because of the allelopathic chemicals it secretes into the soil. These chemicals act as a poison that suppresses other plants' ability to grow. Because invasive earthworms (*Lumbricus terrestris*) feed by pulling leaf litter down into the soil and garlic mustard leaves contain poisonous allelochemicals, we hypothesized that garlic mustard might be more damaging in the presence of these invasive earthworms.

We tested this idea with a potted experiment using the native spring ephemeral mayapple (*Podophyllum peltatum*) as our focal species. We then had treatments that included the presence or absence of earthworms, garlic mustard, and activated carbon (Fig. 2). We included this activated carbon treatment to absorb the

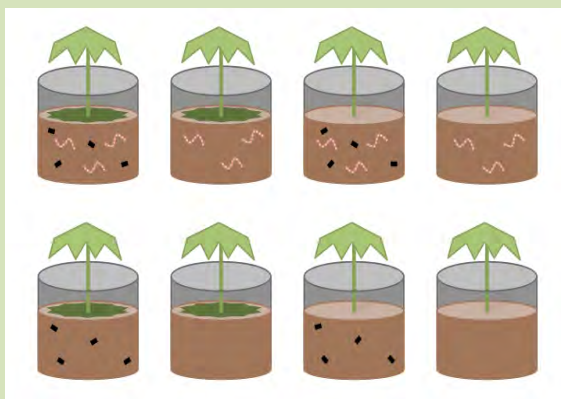


Fig. 2. Diagram of the pots showing all of the treatment combinations.

allelopathic chemicals secreted by the garlic mustard leaves, which should reduce the negative effects of garlic mustard. Invasive earthworms pulled garlic mustard leaves down into the soil (Fig. 3), consistent with our hypothesis. However, contrary to an allelopathic effect, we found a significant reduction of mayapple biomass in the pots where all three treatments were present. We believe that the

stress from just one or a couple of the treatments is not enough to cause any significant suppression in mayapple performance, however when all three are present we see these differences. These two important invaders: garlic mustard and invasive earthworms, are more damaging together than either is alone, but only in some soils. At least in some environmental contexts, these results



Fig. 3. The pot on left contains both earthworms and garlic mustard leaves, while the pot on the right only has garlic mustard leaves.

could be important for management; earthworms are difficult to control, but garlic mustard can be mechanically removed. Removing garlic mustard would also reduce the negative effects of invasive earthworms, suggesting unexpected benefits of removing this invasive plant.

Colin G. Cope, Case Western Reserve University & 2016 OIPC Grant Recipient

**References:** Bohlen, P. J., Groffman, P. M., Fahey, T. J., Fisk, M. C., Suárez, E., Pelletier, D. M., Fahey, R. T. 2004. Ecosystem Consequences of Exotic Earthworm Invasion of North Temperate Forests. *Ecosystems* 7:1 pp 1-12.

**ALTERNATIVE PLANT HIGHLIGHT:  
Bottlebrush Buckeye (*Aesculus parviflora*)**

Bottlebrush Buckeye is a highly recommended landscape alternative plant for Asian bush honeysuckles. This small tree, or large shrub, can be recognized by its palmately compound leaves, usually 5 to 7 leaflets, similar to most *Aesculus* species. The big difference is that the leaves do not suffer from a list of diseases that affect the others. The plant is usually 8 to 12' tall and 8 to 15' wide. It can attain a height of 20' if located in a fertile site. This plant flourishes as a multi-stem understory plant, but can survive in full sun. The plant suckers with quite a few upright stems, giving it a very good natural flow. The leaves are dark green in the summer and are most often bright yellow in the fall, depending on the growing conditions.



The showy, white flowers with red anthers form a panicle that is 8 to 12" long and 2 to 4 " wide that bloom in July. The multiple panicles rise straight up, appearing like candles from a distance. When in flower, the plant is a show stopper and a great food source for pollinators. Nurseries typically sell the plant in small containers. Once established in the garden it can become rather large, but it can be rejuvenated by trimming back to the ground in the winter. It is tolerant of moist, but not wet soils. It is also rabbit and deer tolerant.

Bottlebrush Buckeye is native to Alabama, Georgia and northern Florida. However, it is hardy in the north to zone 5. In some areas, it



is sometimes called Dwarf Horse Chestnut. If you have the space, this small tree or large shrub is a worthy addition to your landscape.

*Mark Shelton, OIPC Board & Willoway Nurseries Inc.*

**OIPC INVASIVE PLANT WORKSHOPS  
AT GORMAN NATURE CENTER  
AND PARK OF ROSES**

OIPC partnered with Gorman Nature Center and Columbus Recreation & Parks to offer two successful workshops this summer. The first workshop was held on August 29<sup>th</sup> at Gorman Nature Center in Mansfield, in



cooperation with the Richland County Park District. This workshop was attended by 36 people and

focused on identification of invasive plants, control techniques, and alternatives to invasive plants. Speakers included Jennifer Windus, Kyle Bailey (land manager for Richland Co. PD), and Peter Lowe (The Dawes Arboretum). After the presentations, the group took a field trip at Gorman Nature Center to see some of the



invasive plant control efforts there. Alternatives to invasive plants were available for sale by The Dawes Arboretum and Natives in Harmony.

The second workshop was held at the Park of Roses in Columbus on September 14<sup>th</sup>, in cooperation with Columbus Recreation & Parks. The workshop was attended by 46 people and also focused on invasive plant identification and control techniques, and alternative plants.



Speakers included Jennifer Windus, Marylouise Bohannon (Columbus Recreation & Parks), and David Listerman (Listerman & Associates). There was a field trip in the afternoon to see some of the invasive plant control efforts in the Park of Roses. Alternatives to invasive plants

were available for sale by The Dawes Arboretum.

Both workshops attracted new people including homeowners and landowners, Master Gardeners, and land managers. The workshops focused on replacing invasive plants with alternative species, using the new OIPC brochure as the primary resource. We look forward to offering similar workshops in different parts of the state in 2018.

*Jennifer Windus,  
OIPC President and ODNR (retired)*

### **CONTROLLING JAPANESE BARBERRY (*Berberis thunbergii*)**

I remember the day vividly...I was driving around Oak Openings Preserve Metropark, scouting for the usual early spring invasive shrubs such as honeysuckle, privet, and autumn olive and feeling the typical love-hate relationship that I think most land managers have with spring. I was amazed by the beauty of the spring ephemerals popping through the leaf-covered forest floor, but at the same time wondering what the forest floor may have looked like before invasive plants. While marveling at the intensity of the fresh growth of a recently burned prairie, my eyes were drawn to a dense patch of green in the distance. The green was not in a typical place such as an edge or disturbed habitat, instead it was far into a mature woodland in a headwater ravine. My brain raced through a list of possible native plants that could be this green so early in the spring. Nothing was making any sense. "Ugh" I thought, "this has to be invasive". I jumped out of my truck and made my way to the infestation. At about 20 feet away, I knew what it was, Japanese barberry, the landscape plant that the New England states had been warning us about. I spent the next week scouting the 3,600-acre

park and was stunned at the density and sizes of the infestations found. Because most of the previous restoration efforts in the park were



*A Japanese barberry infestation at Metroparks Toledo, Oak Openings Preserve. Photo: LaRae Sprow*

focused on prairie, oak savanna restoration and edge habitats, this invader of the deep forest was taking hold completely unchecked.

Japanese barberry (*Berberis thunbergii*), native to Japan, is a widely used landscape shrub that was first introduced to the United States sometime in the late 1800s. Japanese barberry is a spiny, arching shrub with bright red berries and small spatulate leaves. It can grow 2–6' in height. It has been widely promoted as an ornamental plant, prized for its resistance to deer browse and versatility in sun, soil, and moisture requirements. Essentially it can grow anywhere, requires little to no care, and with many cultivars, landscapers can purchase an extensive variety of color hues. It is one of the few invasives that can easily thrive in the dense forest, where light availability is low. When it grows in the woods, it is usually reverts to the



*(Above) Some examples of the color variations in the dozens of available Japanese barberry cultivars. (Below) Japanese barberry with abundant bright red fruit. Photos: The Dawes Arboretum*



green foliage. It can also grow in seeps, ravines, along streams, rocky ridges, abandoned pastures, and prairies.

Some studies in Connecticut are linking Japanese barberry to increases in the spread of Lyme disease. Higher densities of deer ticks and white-footed mice are found under barberry in comparison to the numbers found under native shrubs. A barberry shrub's density, early leaf-out time, and spiny branches make it an ideal environment for mice to avoid predators. The increased moisture under a barberry shrub also increase the success rate of tick larvae. Mice are a larval host of ticks looking for a first blood meal. When ticks feed from mice carrying the bacteria that causes Lyme disease, 95% of those

ticks become infected. Research at the University of Connecticut's Research Forest found that forested areas where barberry is unchecked had 120 infected ticks/acre. In forests where barberry was being managed but was still present, there were 40 infected ticks/acre. Only 10 infected ticks/acre were found in forests where there was no barberry present. When barberry is being controlled, fewer ticks and mice are present and Lyme disease infection rates drop. If this research doesn't make someone want to dig barberry out of their landscape or support the control of barberry in natural areas, I don't know what will!

Like any invasive species management plan, after initial assessment, we came up with a strategy to begin control. We decided to initially target control in oak woodlands and high quality seeps and streambanks. We used foliar herbicide applications of 1.5% aquatic glyphosate in areas next to water and 1.5 – 2% Triclopyr 3A applications in upland habitats. In the first year, we controlled Japanese barberry in over 30 acres. Since it is difficult to know the effectiveness of invasive plant control efforts until the following growing season, we anxiously awaited the next spring. When we visited our previous year's work, we were excited to see the effectiveness of the foliar herbicide treatments. Very few of the shrubs survived and we saw very little re-sprouting at the base. This was good news. Barberry is easy to kill! After doing a prescribed burn in one of our woodland habitats containing small patches of barberry, we also realized that when barberry gets enough heat, it is one of the few invasive shrubs that you can actually kill, rather than just top kill, with fire...more good news! Because it does not tolerate fire, some people have used a 10-20 second blast of heat from propane torches to kill barberry as an alternative to using herbicide. This can be a great management practice in highly sensitive areas and in areas where the density is low. Barberry shrubs can also be dug

or even pulled, depending on the soils, when the plants are small.



*A dead Japanese barberry shrub the following growing season after effective foliar herbicide treatments of glyphosate or Triclopyr 3A.*

*Photo: LaRae Sprow*

Since that first year of control efforts, we have now completed over 700 acres of Japanese barberry control. This is definitely not a plant to ignore if you are finding it in your habitats. Considering the effectiveness of treatment methods and the negative environmental and human health impacts, control treatments are time and money well spent.

*LaRae Sprow, OIPC Board & Metroparks Toledo*

## **INFECTED INVASIVE CALLERY PEAR TREES IN PENNSYLVANIA**

While on a recent trip to Philadelphia, I noticed something strange on several Callery pear trees (*Pyrus calleryana*) planted next to my hotel in the middle of the city. Many of the small fruit on these trees seemed to have sprouted white and orange stringy hairs resembling small

bags of exploding worms. Never one to bypass an interesting scientific quandary, I quickly returned with my camera and a “sampling container” (a clean cup courtesy of the local Starbucks). To the entertainment of passing motorists, I jumped up and down repeatedly to collect leaf and fruit samples from the tall trees. Upon returning to the modern hotel with my precious treasure hoard hidden in my pockets so as not to offend the staid doorman, I sat down with my computer to excitedly query



Photo: Theresa M. Culley

the internet. After searching for "parasitized Callery pear fruit" and scrolling through many images, I finally found a match! The offender in this case was not an extraterrestrial body snatcher or some repulsive worm-like invader, but the native cedar-quince rust fungus *Gymnosporangium clavipes*.

I quickly learned that this rust fungus is usually found on cypress, junipers and other evergreens but will sometimes spread to neighboring hawthorn, flowering quince, apple, crabapple, pear and serviceberry. In pears, it is usually limited to infection of the fruit. The earliest example I could find of this fungus infecting Callery pear was 2009 in the state of Delaware where it was reported on ‘Bradford’ and ‘Redspire’ cultivars. Interestingly, I have not seen this rust on any pears in Southwestern Ohio, despite my near-compulsion of looking for fruit on every Callery pear tree I happen to walk by. In addition, no one knows the effects of this rust infection – does it damage and weaken the

fruit, preventing seeds from forming or is it just a minor detriment to the plant? Is it simply an anomaly limited to a neighboring state or is it the start of a new means of natural control of invasive pear?

To help answer this paradox, we now need you! If you see infected fruit of Callery pear in any area of Ohio (including on cultivars of any type - such as ‘Bradford’, ‘Cleveland Select’, and ‘Aristocrat’), please contact me by email (theresa.culley@uc.edu) or phone (513-556-9705) with location information and any available photos. Based on your information, I'll report back in a future newsletter if this rust also infects Callery pear trees in Ohio.

*Theresa M. Culley, OIPC Plant List Assessment Team Chair & University of Cincinnati, Department of Biological Sciences*

## ALTERNATIVES FOR INVASIVE PLANTS IN OHIO A Guide for Landscaping and Habitat Restoration

The Ohio Invasive Plants Council (OIPC) partnered with Dawes Arboretum and the Ohio Nursery and Landscape Association (ONLA) to develop a new brochure this year which describes 15 invasive plants and provides suggestions of 3-4 alternatives to plant in their place.



The recommended alternatives are good choices for replacing invasives in landscaping, as well as adjacent natural habitat, such as woods, grasslands, and wetlands.



While we have a limited quantity of brochures, we want to make them available for any relevant invasive plant workshops or presentations, suitable conferences and events, and other landscaping or gardening programs. If you wish to obtain brochures, send your request to our website at [www.oipc.info](http://www.oipc.info). The brochure can also be downloaded from our website as a PDF. If you request more than 25 brochures, we ask that you make a donation to help cover our mailing costs and contribute to reprinting the brochure.

*Jennifer Windus,  
OIPC President and ODNR (retired)*

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