



Ohio Invasive Plants Council

Newsletter • Jan 2017



President's Corner

We hope you all had a happy holiday season! 2016 was a successful year for OIPC with many exciting accomplishments; we are already planning for more

in 2017.

OIPC, in cooperation with The Dawes Arboretum and the Ohio Nursery and Landscape Association, created a new brochure which focuses on planting alternatives for 15 invasive plants. The brochure is just back from the printer and will be available for distribution soon. Visit the OIPC website for more information on the new brochure.

The 2017 OIPC Annual Meeting will be held on February 23rd at Highbanks Metro Park in Lewis Center. The agenda is being finalized, but we plan to include presentations about Cooperative Weed Management Areas in Ohio, The Nature Conservancy's efforts in invasive plant control, and OIPC accomplishments. Registration begins on the OIPC website this month. We look forward to seeing you there!

OIPC received six (6) small research grant proposals which are under review now. We are excited to fund new research on invasive plants, particularly ones that address assessment team questions and invasive plant management techniques.

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 for more information, particularly on what great work was done in 2016 on

state nature preserves. Projects are being planned now for 2017 and will begin in March.

As always, we look forward to working with any of our partners to plan educational efforts to improve awareness of the threats of invasive plants in Ohio. 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, let us know as we are looking for locations for 2017. Help us spread the word about invasive plants and visit our website at www.oipc.info frequently!

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

OIPC Annual Meeting: February 23, 2017

Join us for our annual meeting to be held at the Highbanks Metro Park Nature Center in Lewis Center, Ohio! Registration will be available soon through our website, www.oipc.info. Registration is free, or choose the boxed lunch option for \$12. We will be learning about invasive plant management efforts throughout the state, sharing 2016 OIPC accomplishments, and electing new board members. This is a great opportunity to learn more about invasive plants as well as meet and mingle with various professionals, academics and other interested individuals.

Mount Saint John and the Marianist Environmental Education Center: Restoring Connections of Land and People

Mount Saint John (MSJ) in Beavercreek, Ohio, has seen many changes over the past century. The formational home for the Society of Mary, MSJ was a working farm from 1910 through the mid-1960s with orchards, a dairy herd, chicken coops and agricultural fields. Then much of the property sat idle until the construction of I-675 in 1985 when sand and gravel was mined from the glacial esker that bisected the property. Under the stewardship of Marianist Brother and plant physiologist, Don Geiger, SM., the newly-exposed hillside and borrow pit were hydro-seeded with tall grass prairie seeds. Bro. Don had spent his career teaching at the University of Dayton and welcomed the new challenges of the emerging field of ecological restoration.

Seedlings of tallgrass prairie plants were slow to establish in the nutrient poor glacial deposit, but fortunately so were weeds. The nutrient rich edges of the tallgrass prairie borrow pit are the greatest management challenges, with undesirable goldenrods, dewberry and invasive woody species. Ongoing management includes prescribed burns, which aid in preventing woody plant invasion and reducing prairie thatch.



After establishing the prairie, Bro. Don founded the Marianist Environmental Education Center (MEEC) to continue the restoration of Mount St. John and to protect, conserve and reestablish functions lost through decades of habitat disturbance. Attention soon turned to the second-growth oak-hickory

woodlands, which were inundated with dense stands of the non-native, invasive shrub Amur honeysuckle. Bro. Don's University of Dayton lab was able to track how fall foliar application of glyphosate kills Amur



honeysuckle by effectively starving the leaf buds in spring (foreground of above photo). His application technique has been used extensively within the MSJ woodland and beyond. As the honeysuckle has been removed, we've needed to keep garlic mustard in check while re-establishing a diversity of upland sedges and native forbs.

The woodland features a small fen that had been tiled. After normal hydrology was re-established, we took a close look at its plant diversity and discovered that the sweet flag population was the European variety, *Acorus calamus*, not the very similar native,



A. americanus. The introduced sweet flag's competitive advantage is in its horizontal vegetative rhizome spread (see photo above). It is a sterile triploid with a prominent, raised midvein. The native produces seeds and the midvein is more or less

equally raised with the other parallel veins, resulting in a smoother leaf surface. The small European population was hand dug and removed.

Establishing a native plant nursery allowed MEEC to preserve nearly 300 native local genotype species for the wide range of habitats. Native shrubs grown from seeds and root and shoot cuttings have been planted along the vulnerable edges of the woodland to slow the reinvasion of honeysuckle. Forbs, grasses and sedges have been raised for seed to hand broadcast into openings where invasive species have been cleared.

Today, the Marianist ministries of MSJ welcome the local public community through its programming, retreats and masses. For many, the highlights of the 150 acre property are the natural areas with trails winding through woodland, fen, prairie and old field meadows.

Like other landholding religious communities, the Marianists are challenged by dwindling community numbers and resources to care for the land. Motivated by the desire to preserve the natural areas that are a much-loved, integral part of the property, the Marianists are setting aside 67 acres of woodland, wetland and prairie in a conservation easement with the Tecumseh Land Trust. Today and into the future, visitors will observe the beauty of native Ohio habitats and witness the Marianists' efforts in advancing the integrity of creation. To learn more about MEEC and their restoration and research efforts, visit their website at <http://meec.udayton.edu>.

Michele Banker, OIPC Board & Marianist Environmental Education Center

Garden Summit Discusses How Public Gardens Can Help With Invasive Plant Control

The garden summit, titled "Plants on the Move: How Public Gardens Can Help Control Invasive Plants" was a two-day event held at The Morton Arboretum in Lisle, Illinois, on Nov. 10-11. It attracted more than fifty attendees representing North America. Participants heard a variety of presentations the first day, beginning with a remarkable talk by Kay Havens of the Chicago Botanic Garden on "The Role of Public Gardens in Addressing the Problem of Invasive Plants: Honoring Sarah Reichard's Legacy". Theresa Culley also talked about how the information from public gardens can be helpful for researchers, especially regarding ornamental cultivars. The first day wrapped up with a tour of the Morton Arboretum grounds where staff showed the participants examples of problematic plants, such as Amur corktree, which appears to be dioecious although some plants suddenly begin producing fruits as they age. The second day consisted of several presentations and break-out sessions allowing workshop attendees to develop



concrete plans to promote communication among gardens. Several work groups were created that will continue to work on this project in the months to come.

Theresa Culley, OIPC Plant Assessment Team & University of Cincinnati

'Buttonbush' *Cephalanthus occidentalis*:

A Native Landscaping Shrub

Cephalanthus is a genus of deciduous flowering plants in the Rubiaceae family. Buttonbush is native to North America ranging from Nova Scotia to Florida and as far west as California. It is most often listed as growing in climate zones 5 to 9.



Buttonbush has showy white flowers that bloom late spring through early summer. The fragrant and spherical-shaped flower cluster, with its projected styles, has a distinct pincushion appearance. The flower clusters develop into rounded seed heads that persist into winter. The seed heads start out dark maroon and turn almost black, offering winter interest. In the summer buttonbush has very nice, shiny green foliage; the fall color is inconsistent.

This is a great pollinator plant, attracting bees, butterflies and hummingbirds. When planted near water, buttonbush can be a nesting site for waterfowl and other birds.

Buttonbush likes moist sandy, loamy or alluvial soils. It prefers a soil pH in the neutral to slightly acidic range. It thrives in bogs, wetlands and river or pond banks and can be a great addition to a rain garden. Where it is growing naturally, it forms dense stands that can help stabilize the soil. The plant height ranges from 5 to 12 feet and the width is from 4 to 8 feet. It can tolerate full sun to part shade. In the wild, this shrub can sometimes be found as a small tree and it grows throughout Ohio in wet areas.

Mark Shelton, OIPC Board & Willoway Nurseries

NEW BROCHURE AVAILABLE! Alternatives for Invasive Plants in Ohio – A Guide for Landscaping and Habitat Restoration



This exciting new OIPC brochure on alternatives to invasive plants will be available for distribution this month! The brochure was completed with funding from The Columbus Foundation in cooperation with The Dawes Arboretum and the Ohio Nursery & Landscape Association. For more details about availability visit www.oipc.info

Responses of Individuals and Communities to Invasion by Burning Bush, *Euonymus alatus*

I have loved puzzles my entire life, the more difficult and convoluted the better. I decided early on that I wanted to study nature, and it follows naturally that I decided to pursue a career in community ecology where I can investigate a large and difficult puzzle – how organisms in nature are connected to one another and to their abiotic environment. The puzzle of community ecology is made more complex by invasive species. The invasion of non-native plants into our native ecosystems has the potential to alter ecological dynamics across multiple trophic levels from individual to community scale. *Euonymus alatus* (burning bush) and *Euonymus europaeus* (spindle tree) are two horticulturally important, non-native plants that occur in natural areas in North America. Burning bush is one of the top ten shrubs sold in the U.S. Although these two species are listed



Burning bush (*Euonymus alatus*) infestation at the Athens Conservancy's Blair Preserve in Athens County, Ohio

as invasive in a few states, their impacts on native environments are not well understood. *Euonymus atropurpureus* (eastern wahoo) provides a native control with which to compare environmental impacts of its non-native relatives. This group of organisms provides us with a great system to examine how invasive plants may alter herbivore and predator abundance and community composition.

This summer, Marie Johnson (a Master's student in the lab), Dr. Don Cipollini (my advisor), and I set out to evaluate the interaction of non-native *Euonymus*

species with herbivores. To do this, we measured field herbivory rates on each of these species. We found that herbivores removed only 1 – 2% of the leaf area of spindle tree and burning bush, which was one eighth of that removed from the native eastern wahoo. Next, we examined the laboratory performance of a model generalist herbivore, *Hyphantria cunea* (fall webworm). Fall webworm is a broad generalist of woody species whose silken tent webs can be commonly observed on native black cherry and redbud during the summer months. In our field studies, webworm was never observed using either non-native species, but it was observed eating eastern wahoo. However, webworm fed, grew, and pupated at similar rates on spindle tree and eastern wahoo, while exhibiting poor growth and survival on burning bush. Low herbivory rates and poor herbivore survival suggest that non-native *Euonymus* species can escape or resist native herbivores, which may contribute to their invasive success. In turn, invasion of these plant species may contribute to reduced herbivore abundance and diversity in invaded areas.

In addition to altering interactions with herbivores, invasive plants can have major impacts on native vegetation and can drastically alter the structure of forest ecosystems. These structural changes have the potential to drastically alter predator assemblages, including spiders. Spiders are incredibly important for proper ecosystem function. They are both predators and prey and therefore are simultaneously important regulators of insect populations and a preferred food source for birds. We examined if invasion by burning bush impacted shrub-dwelling spider assemblages and identified possible drivers of the observed alterations. Spiders were more abundant and diverse in native plant dominated areas, which may be due to lower branch densities than those observed in burning bush dominated areas. Killing burning bush with herbicide while leaving the stems standing resulted in the recovery of spider abundance and richness. This was likely because the modified architecture more closely resembled that of the native vegetation. The invasion of a non-native plant can alter a predator community through alterations in vegetation

structure. These changes to spider assemblages may have cascading trophic impacts due to their unique position in food webs.

As this research indicates, the impacts of non-native plants on native ecosystems can be far-reaching and unexpected. The inability of insect herbivores to use non-natives as a food source can increase the



Spiders build a variety of web types that each requires specific vegetation scaffolding. Invasive plants can alter vegetation structure and therefore the ability of spiders to build their webs.

(Top: *N. radiata*, Linyphiidae: sheet weaver; Bottom: *A. pennsylvanica*, Agelenidae: funnel web weaver; Photos: E.J. Roberson)



invasiveness of non-native plants while negatively impacting the success of herbivore species. Alterations to vegetation structure can affect predator assemblages, leading to impacts that cascade throughout the food web. Although this complex puzzle is far from being solved, in studying non-native plants, it is important to fully consider impacts spanning from the individual to community level and from the herbivore to predator trophic level.

Elizabeth J. Roberson, Environmental Sciences PhD Candidate, Wright State University

Editor's note: Ms. Roberson's research was supported, in part, by a small research grant from OIPC.

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