ONAPA NEWS

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INSIDE THIS ISSUE

Ohio's tropical fruit harvest is a fall feast

By Guy Denny

With autumn comes visions of the fall harvest, including pumpkins, gourds, apples and other traditional agricultural fruits and vegetables. To Native American Woodland Indians, the fall harvest meant gathering wild fruits, berries, nuts and wild game in preparation for the long winter months ahead.

Among the items harvested was the fruit of the common pawpaw (*Asimina triloba*), which occurs as a small tree along stream banks, on the lower slopes of moist ravines, and as an under-story species in rich, moist soils of mature woodlands. Its range is from New York, southern Ontario and Michigan, west to Nebraska and then south to Texas and Florida. It occurs in suitable habitat throughout our state, but is more abundant in southern Ohio.

Pawpaw photos by Guy Denny

Pawpaw fruit

Iroquois people, along with other Native Americans, would eat the fruit of the pawpaw raw. They would also mash the fruit and make small cakes, which they dried in the sun or over a fire so the cakes could be preserved and stored for future use. The dried fruit cakes were later soaked in water and then cooked as a sauce or mixed with corn bread. The fibrous inner bark of the pawpaw was reportedly used by Native American Indians as cordage to make strong ropes, string and even fish nets. The genus name *Asimina* comes from the original Algonquian name *assimin*, their name for this species of small tree that was so beneficial to them.

The pawpaw belongs to the custard-apple family (*Annonaceae*). Most of the two thousand or so members of the custard-apple family are truly tropical with only one, our common pawpaw (*A. triloba*), ranging so far north. It is winter hardy as far north as extreme southern Ontario, Canada. There are six species in the genus *Asimina* occurring in eastern North America including dwarf pawpaw (*A. parviflora*), which is a small shrub. All but *A. triloba* are shrubs of the Southeastern U.S. coastal region, primarily Alabama, Georgia, and Florida. Unlike the others, common pawpaw is actually a small tree that can grow larger but seldom grows higher than 20 feet with a diameter of less than six inches.

In the wild, pawpaw commonly spreads by root suckering to form understory thickets or clones rather than stand-alone individuals. These thickets, along with pawpaw's 10-12 inch long and characteristically large, drooping leaves situated at the end of the branches, gives this species a distinctively semi-tropical appearance. The crushed leaves have a distinct odor likened by some to the smell of green peppers or even kerosene. This is an easy way to quickly confirm the identity of pawpaw trees. The peculiar, reddish-purple to maroon flowers, about 1-to-1-1/2 inches in diameter, appear just as the leaves are emerging in early spring. The three-parted flowers have three outer sepals and six slightly recurved petals in two sets of three. The petals have a somewhat fleshy texture, with three larger outside petals and three smaller inner petals curled around a central ball of stamens and pistils. The specific epithet *triloba*, meaning "three-lobed," is in reference to the

(Continued on page 2)

Ohio's pawpaw

Continued from page 1

three-parted flowers. Pawpaws have an ancient lineage reportedly dating back some 75 million years ago when insect pollinators were just first appearing. The flowers are not fragrant but rather putrid. Beetles, one of the earliest pollinators to evolve, and now flies as well, are attracted to the flowers by smell and color. They are rewarded by an ample supply of pollen as well as specialized tissue produced at the base of the petals upon which they feast.

The fruit (or pawpaw) is actually a large, fleshy, oblong berry that somewhat resembles an irregular-shaped, 2-to-5 inch long stubby banana or pear. Some of the many other common names for this fruit include wild banana, false banana, poor man's banana, and custard apple, just to name a few. The thick skin is green at first, then turns from yellow to dark brown as it ripens in late September and early October before falling to the ground. Beneath the thick skin is a soft, whitish to yellowish sweet pulp containing one or two rows of dark brown, flattened, lima-beanlike seeds. The dry powdered seeds that contain insecticidal properties were reportedly formally applied to the heads of children to control head lice. This egg custard-like pulp tastes almost as sweet as it smells. Unlike the seeds that are toxic, the soft pulp is edible and very nutritious. Yet, the distinctive flavor is difficult to describe. It is so strong that some people do not like the flavor while others find it absolutely delicious. It is definitely an acquired taste. The fruits are best raw, but also can be cooked. Don't over indulge: eaten in large amounts, the fruits are known to act as a laxative.

Leaves and flowers of the pawpaw tree. The larva of the zebra swallowtail (*Eurytides marcellus*) will feed only on the leaves of the *Asimina triloba.*

Several cultivars of the common pawpaw have now been developed which produce much larger fruits than their wild counterparts. Canadian scientists have reported pawpaws to often be protogynous, which simply means the stigmas (female flower parts) are receptive to receive pollen before the pollen is released from the anthers (male flower parts) of the same flower. This is a mechanism among some species of plants to encourage out-crossing rather than self-pollinating. As a general rule, it is a good idea to plant more than one tree if you want to assure fruit production from a cultivated pawpaw, even though some trees have been known to self-pollinate.

Photo by Mike Mainhart

Fruit is tasty to both humans and forest critters

Extracts from the bark, leaves and seeds of pawpaw contain compounds that have been found to be insecticidal, that is, to act as an insecticide. Even deer tend not to graze on the pawpaw tree. Nevertheless, pawpaw leaves are the only larval food for the large-sized, strikingly beautiful, white-and-black-striped zebra swallowtail butterfly (*Eurytides marcellus*). The range of the zebra swallowtail is confined to the range of common pawpaw since the larva will feed on no other plants. Like its host plant, zebra swallowtails range northward, but are more frequently encountered in southern Ohio. The larva of the pawpaw sphinx moth (*Dolba hyoeus*) also feeds on the leaves of pawpaw.

The fully ripened fruit is often difficult to find since it is also relished by raccoons, opossums, foxes, birds and squirrels. It is best to gather the fruits while they are still greenish-yellow, before they are eaten by wildlife, and then set them aside for a few days to ripen to a dark brown. Let the fruit ripen in a safe place outside. At first, they have a heavy, sweet very pleasant fragrance which can permeate every room if left inside to ripen. The smell can soon become overbearing and somewhat offensive to a sensitive nose. Regardless, if you are not familiar with our native common pawpaw and its tasty fruits, it is time you become acquainted. You shouldn't have to go far to find a patch, especially if you live near a large stream with a wooded corridor.

'The Prophet' ever a source of fascination

By Guy Denny

To the early Greeks, the praying mantis was thought to possess supernatural powers. They called them prophets or diviners. The name "mantis" comes from the Greek word *manteos*, meaning "soothsayer." Early Muslims are said to have believed that the mantis prayed constantly with its face turned toward Mecca. The praying mantis has been and continues to be a source of fascination for humans to this day. Some even believe this special insect should be a protected species. Others think it is already protected. The fact is, it is not a protected species. As a matter of fact, it isn't even native to Ohio.

Most species of mantids, and there are many worldwide, are found in the tropical regions of the world. Although the Carolina mantid (*Stagmomantis carolina*) is a common North American species, it is essentially restricted to the southern United States west to Arizona.

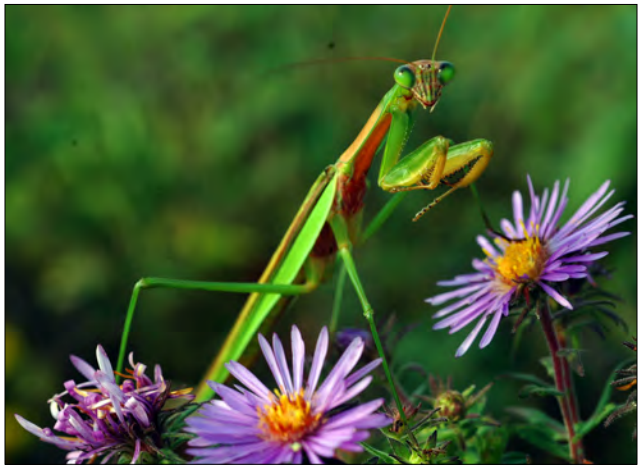
The only species of mantids commonly occurring in the northern part of our country are the European mantid (*Mantis religiosa*), a native of Europe, and the much larger Chinese mantid (*Tenodera aridifolia sinensis*). The European mantid has a distinctive black-ringed white spot on the inside of the foreleg which helps in its identification.

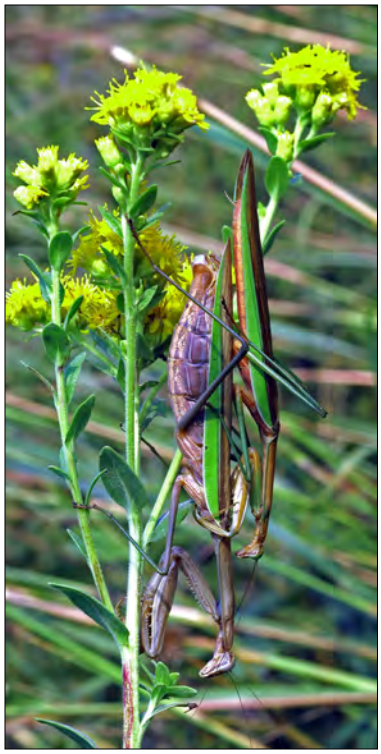
The Chinese mantid is the species of praying mantis most frequently encountered in Ohio. Specimens may be brown or green or some combination of the two colors. In 1896, it was introduced from China and Japan to the eastern United States to control garden pests. It has since become abundant and yet, unlike many such introduced species, has not become a pest itself. Instead, it is one of our most fascinating and beneficial insects.

The praying mantis is an efficient and effective predator. It typically lies in wait for prey with its oversized front legs held up-raised as if in prayer. These spiny forefeet lunge out with amazing speed and accuracy to grasp a variety of insect prey, both pests and beneficial insects. The victim is then held with the front legs and slowly eaten alive like one might casually eat an apple.

In Asia, Chinese mantids are sometimes kept as pets in small bamboo cages. They are also matched in competition against one another, just like fighting cock birds.

Keeping a praying mantis as a pet can be fun and educational. Not only can you watch your mantid, but it, in turn, will respond and watch you. Its distinctive large head will turn from side to side to follow your movements, something no other insect can do. It will readily drink out of a teaspoon and welcome choice insects you offer. The mantid has a huge appetite and will not hesitate to make a meal of another mantid placed in its cage. It also has the curious habit of washing its face after eating, just like a kitten.





The praying mantis is an effective predator, and was introduced from China to control garden pests. Though now abundant, it is not considered a pest itself.

(*Photos by Guy Denny*)

The female routinely kills and eats her mate after breeding in autumn, the time of year when mantids are fully grown and therefore most noticeable. She then deposits a froth-like egg case, containing hundreds of eggs, on the stems of weeds and branches of shrubs. This light brownish egg case dries to the hardness and texture of Styrofoam. With the approach of cold weather, she will die unless brought indoors and fed insects such as pet shop crickets.

The young overwinter in the egg case. If you discover an egg case in the fall or winter, don't bring it indoors or it will hatch prematurely and you will have small mantids, tiny versions of the adults, all over the house.

When the young emerge in spring, their first meal often consists of their smaller siblings. Early in life mantids are essentially defenseless and mortality is high. Only the most aggressive and fastest growing will survive, with only a few from each egg case ever surviving to adulthood. Nevertheless, that is sufficient to perpetuate the species so that we can have the pleasure of encountering praying mantids each late summer and fall in nearly every meadow we come upon.

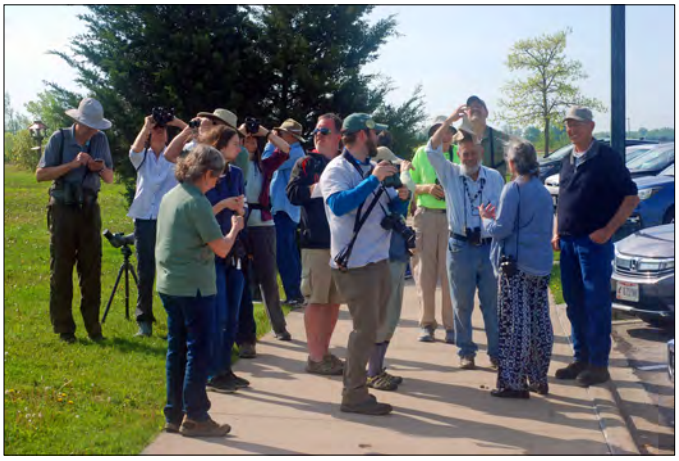
Let's review some of ONAPA's May-July field trips...

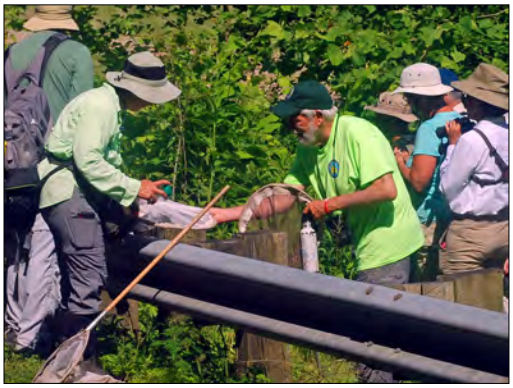
May

Lake Erie Shore Birds and Warblers:

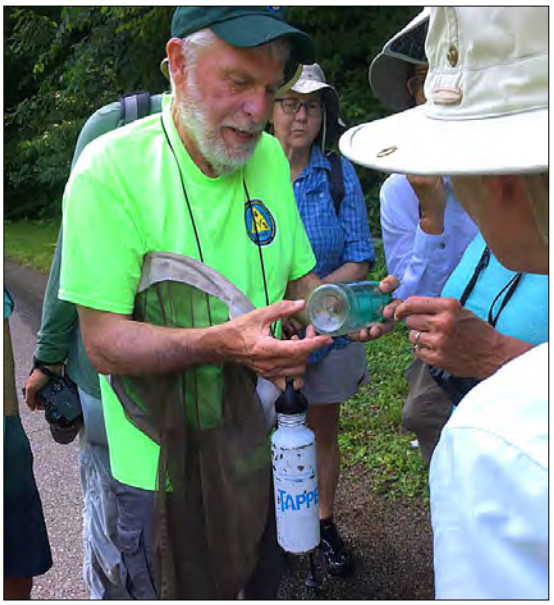
Field trip leader Jason Larson, expert birder and Director for Richland County Park District, led 26 participants on a most enjoyable excursion looking for shorebirds at Ottawa National Wildlife Refuge and Howard Marsh Metropark. In addition to the numerous birds seen, a highlight of the day was very good looks at several very rare black-necked stilts as well as yellow-headed blackbirds at Howard Marsh.

Unfortunately, it started to rain heavily upon arriving at Magee Marsh Wildlife Area right after having lunch at Jason's favorite restaurant that specializes in homemade pies, so we had to cut our day short. It was a fun day with lots to explore.

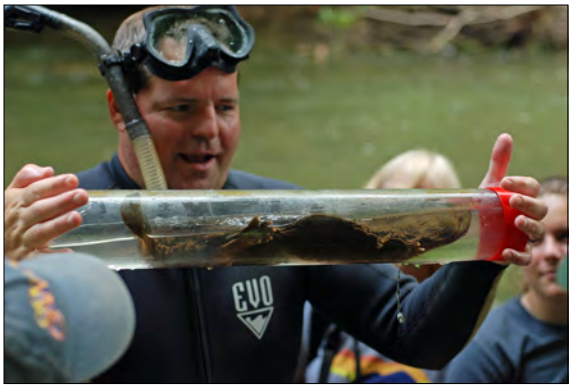




Top: Birders ready the long lenses near Lake Erie. Judy Semroc and Larry Roche examine odonata capture (right). Photos by Guy Denny.



At the Clear Fork Jan Kennedy focused on Larry Roche and (right) the Clear Fork.



Left: Greg Lipps examines a hellbender salamander.

Next page, top: Matthew Smith describes the Beaver Creek system. Photos by Guy Denny.

June

Dragonflies and Damselflies of the Clear Fork of the Mohican River:

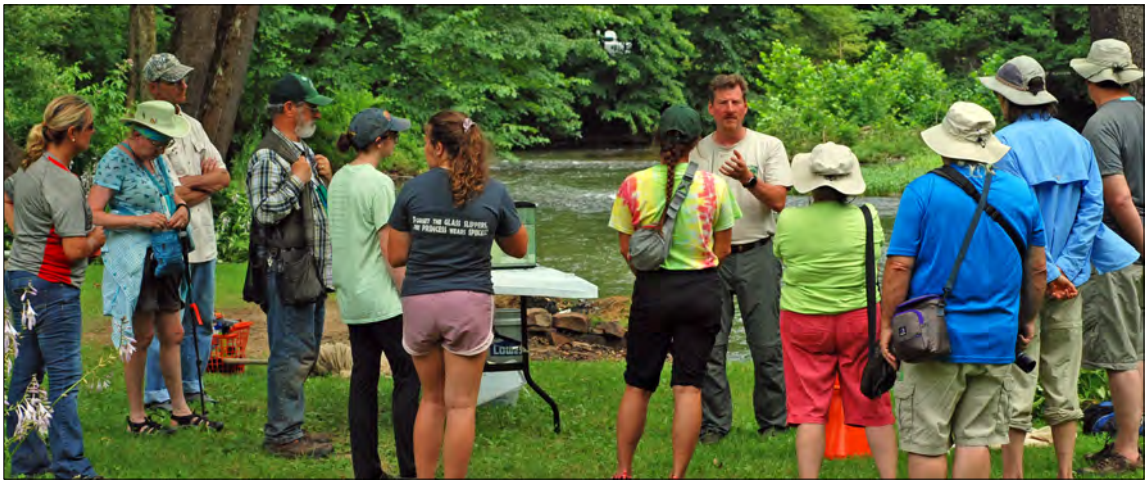
Trip leaders Judy Semroc and Larry Roche, both outstanding naturalists and dragonfly/damselfly experts with the Cleveland Museum of Natural History, led 25 participants on a dragonfly and damselfly tour of the Mohican River Area. Even though water levels were too high and fast for us to wade in the Clear Fork, we did get to see and identify numerous species of damselflies along the shore.

After having a picnic lunch next to Mohican State Park's famous covered bridge in the Mohican Valley, the group was able to wade one of the shallow cool tributaries of the Clear Fork, where among other exciting finds, participants got good looks at the eastern least clubtail and gray petaltail dragonflies. In all, participants had the opportunity to see and learn about quite a variety of river dwelling odonates.

July

Exploring Stream Life of Little Beaver Creek:

The primary leader for this field trip was Matthew Smith, ODNR Northeast Ohio Assistant Regional Scenic River Manager. Matthew enlisted the help from fellow biologists Brian Zimmerman, co-author of the newly released ***A Naturalist's Guide to the Fishes of Ohio*** and Greg Lipps, one of the foremost herpetologists in Ohio and the state's leading expert



...and get August-September trips on our calendar

Saturday, August 24: ***"On the Hunt for Ohio Spiders"*** with field trip leader Dr. Richard Bradley. Meet at 11:00 am at Denny's Prairie in Knox County west of Fredericktown, Ohio.

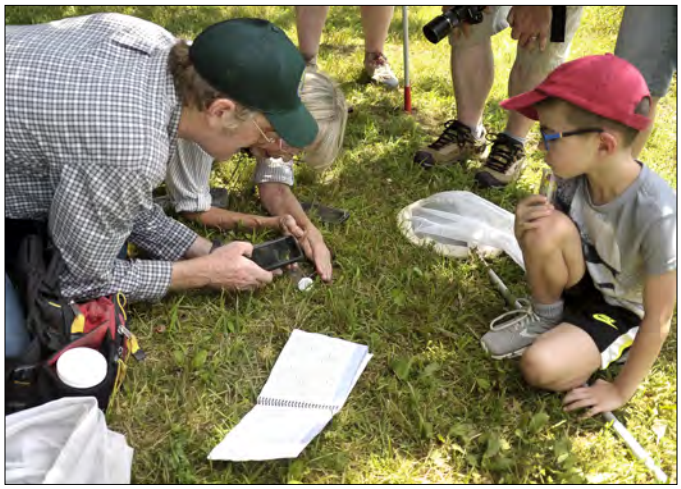
Saturday, August 31: ***"Mosses of a Limestone Woodland."*** Meet at 10:00 am at Indian Mounds Reserve in Greene County with field trip leader Dr. Robert Klips.

Tuesday, September 10: ***"A Visit to the New Addition to the Lakeside Daisy Preserve."*** Meet at the Lakeside Daisy State Nature Preserve on Alexander Pike at 10:30 am with field trip leaders Jennifer Windus and Guy Denny.

You must register to participate: email guydenny@centurylink.net with your name and cell phone number. More information on 2019 field trips is available at: www.ONAPA.org/onapa-field-trips.

on our rare hellbender salamanders.

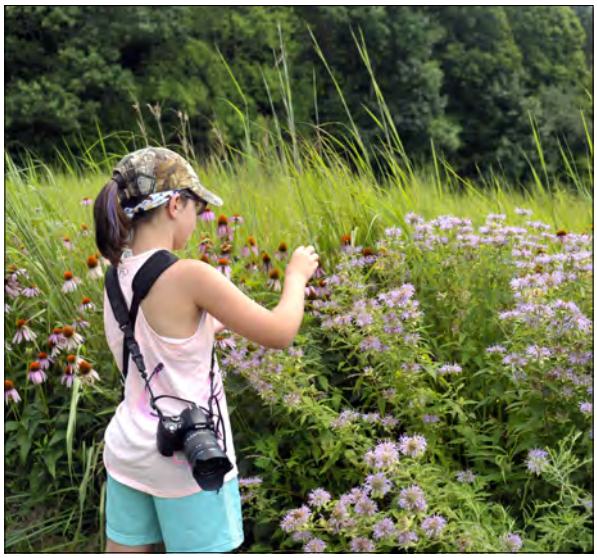
Participants had the opportunity to wade the river to catch and learn about the macroinvertebrates and rare fishes of the Beaver Creek system. Perhaps the highlight of this field trip was when Gregg Lipps retrieved a hellbender from the creek and gave everyone the opportunity to get an "up-close and personal look" at a live hellbender. Some folks even got to feel what a hellbender feels like.



Above: Even the expert (Dr. Randy Mitchell) must verify the cuckoo bee capture.
Right: Releasing a bee after inspection.
Photos by Terry Duncan.

Bumble Bees of a Central Ohio Prairie:

Our field trip leader was Dr. Randy Mitchell, Professor of Biology at Akron University and a leading expert on bumble bee identification as well as a passionate teacher and enthusiastic field trip leader. Some 24 participants converged on Denny's Prairie in Knox County, which was in full bloom, to learn how to live-catch and identify bumble bees without getting stung in the process. Among the several different species captured and identified were five species of bumble bees including a very uncommon, lemon-yellow cuckoo bumble bee. The weather was great and everyone had a fun day in the prairie learning about pollinators as well as the prairie plants to which pollinators are attracted.



In 2019, three stewardship assistants helping ONAPA in the field

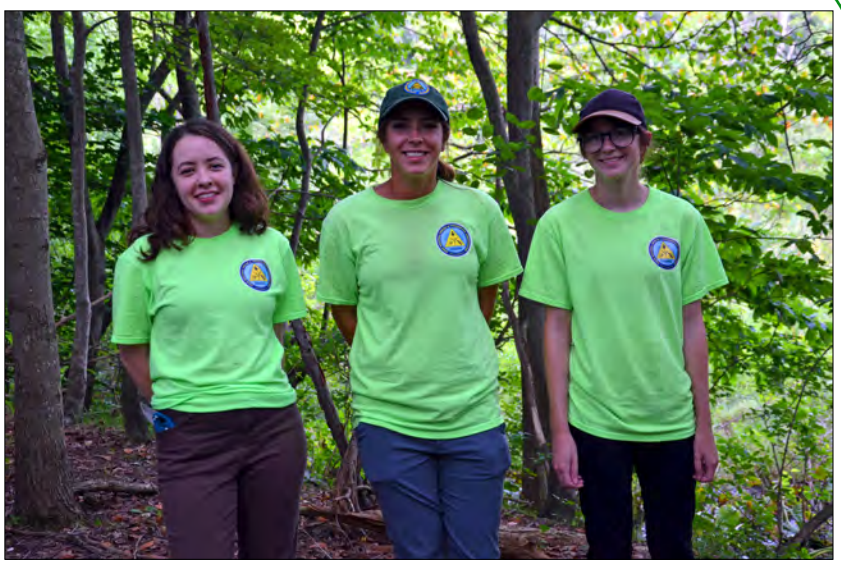


Photo by Jennifer Windus

Left to right: Mariola Castrejon, Valerie Sasak and Olivia Jinnings are this year's stewardship assistants helping with our various stewardship projects.

By Jennifer Windus

ONAPA is happy to have three well-qualified stewardship assistants this year to help with stewardship projects and rare plant surveys in nature preserves and natural areas.

We interviewed four applicants and chose Valerie Sasak, Olivia Jinnings, and Mariola Castrejon.

Valerie was an ONAPA stewardship assistant last year, having recently graduated from Cleveland State University. We decided to bring her back again to help with the transition to new stewardship assistants and it is working very well. Valerie worked for Cleveland Metro Parks over the winter until early June and is now also working part-time for the Cleveland Museum of Natural History with the preserve management crew.

Olivia graduated from Bowling Green State University in May with a Bachelor of Science in Biology. Mariola has a Bachelor of Science in Environmental Biology from Beloit College in Wisconsin. She works as an associate curator at the Arabidopsis Biological Resource Center at The Ohio State University and is also working on her Master's degree at OSU. Both Olivia and Mariola are interested in working in the field of restoration ecology. They are getting excellent experience with stewardship activities in the preserves, as well as rare plant surveys.

We are off to another wonderful season of stewardship, working with Division of Natural Areas and Preserves managers, as well as The Nature Conservancy, Cedar Bog and other partners in Ohio. Valerie and Olivia will be on contract with ONAPA through November.

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Stewardship projects vital part of ONAPA mission to preserve Ohio's natural heritage

By Jennifer Windus

ONAPA stewardship projects are one of the most important activities we conduct, both for the valuable work conducted on preserves to manage high-quality habitats, as well as the volunteer effort that has now involved over 150 volunteers around the state.

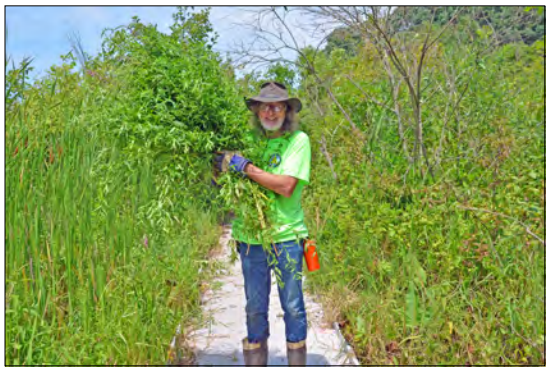


Photo by Jennifer Windus

Veteran steward Tim Lavy hauls purple loosestrife out of Jackson bog.

Now in our fourth year with stewardship assistants, we advertise at least 20 stewardship projects each year to conduct habitat management in the Division of Natural Areas and Preserves nature preserves and other natural areas. ONAPA volunteers work under the direction of Jennifer Windus and Tim Snyder, in cooperation with DNAP preserve managers, to control invasive plants and woody species invading bogs, fens, prairies, woodlands, savannas, and other unique plant communities.

DNAP staff and trained ONAPA volunteers selectively apply herbicides to invasive plants to ensure they are controlled.

Each stewardship project includes a short hike or tour in the preserve to see the significant features of the preserve. Projects generally start at 10 or 10:30 am and go until 3 or 3:30 pm, with a break for lunch. Tools and gloves are provided. After participating in at least two stewardship projects, volunteers earn an ONAPA t-shirt!

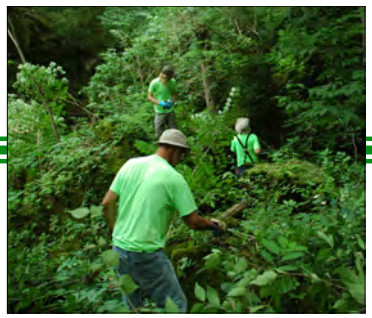
We are proud to see many lime green t-shirts on our projects now. Project descriptions can be found on the ONAPA website at www.onapa.org/volunteer. Please register on the website so we know how many people to plan for at each site.

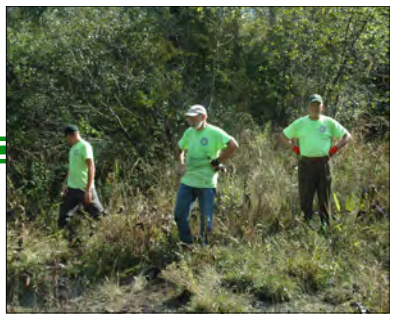
We hope you will consider joining us as we always have a great time saving the best of Ohio's natural areas!

(Jennifer Windus is the ONAPA Vice President and Stewardship Project Coordinator. She also manages the Stewardship Assistant program.)

Stewardship projects need your help

DAY	DATE	TIME	PRESERVE/ NATURAL AREA	COUNTY	REGION	PROJECT TYPE
Wed	August 28	10:30 AM -3:30 PM	Kiser Lake Fen	Champaign	W	Cattail /woody species control
Sat	September 7	10:30 AM -3:30 PM	Gallagher Fen	Clark	W	Woody species control
Thur	September 12	10:30 AM -3:30 PM	Myersville Fen	Summit	E	Woody species control
Wed	September 25	10 AM -3 PM	Cranberry Bog	Licking	E	Woody species control In bog meadows
Tues	October 8	10:30 AM -3:30 PM	Karlo Fen	Summit	E	Woody species control
Sat	October 19	10 AM -3 PM	Brinkhaven Oak Barrens	Holmes	E	Woody species control
Wed	November 6	10 AM -3 PM	Medway PFO Site	Clark	W	Woody species control
Tues	November 19	10:30 AM -3:30 PM	Whipple Preserve	Adams	S	Cedar removal on new parcel





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