

# OHIO Woodlands, Water, & Wildlife

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## Be on the Lookout for Asian Jumping Worms

*Kayla I Perry, Assistant Professor of Forest Entomology  
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Earthworms are generally considered beneficial organisms that improve and maintain soil quality by mixing organic and mineral layers, creating pore space for air and water, cycling nutrients, and reducing compaction. However, most of the state of Ohio has no native earthworm species. Native earthworms are found only in the southeastern portion of the state that was unglaciated during the last ice age. European earthworms

such as common night crawlers have become ubiquitous throughout Ohio such that we forget they are indeed nonnative species!

Recently, a different group of earthworms have been reported in various parts of the state. Jumping worms, also known as crazy worms, snake worms, or Alabama jumpers, are native to eastern Asia. The common names describe their behavior and come from the quick thrashing snake-like movements made by the worms when disturbed. Although Asian jumping worms have been documented on the west and east coasts of North America for decades, they have recently been reported in the Midwestern US, including Ohio.

Although their jumping behavior can be used as



an identifying character, these worms are brown to gray in color, and adults have a smooth milky white band (clitellum) that circles and is flush with the body. The clitellum is the reproductive structure where the cocoons (eggs) are produced. Jumping worms produce small hardy cocoons in the late summer and fall, and it is this life stage that overwinters in the soil. Eggs hatch when surface soil temperatures warm, juveniles



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are found in the spring and early summer, with adults present in the late summer and fall.

Unlike European earthworms, Asian jumping worms belong to a different functional group. While European species mix soil layers by creating vertical burrows, jumping worms exist within the top layer of soil and feed on organic matter. This localized feeding and removal of organic material degrades soil quality by altering the structure, water retention, and nutrient availability for plants and animals. Their feeding activity leaves behind castings (or earthworm waste) that look like used coffee grounds. In forests, these changes in soil structure and quality can increase erosion, reduce habitat, and/or alter plant establishment and growth. Therefore, jumping worms have the potential to cause direct and indirect ecological impacts in forests.

At this time, we do not have any research-based control strategies that can effectively reduce populations in forest settings. Therefore, preventative stop-the-spread measures are essential. Jumping worms are easily spread through the movement of soil, compost, wood chips, and plants. The cocoons are easily transported in these materials, as well as on tools and shoes because of their small size and dark color. Stop the spread efforts are so important because movement of a single worm or cocoon can result in a new population. This can occur because jumping worms are parthenogenic, meaning they can self-fertilize and therefore, do not require a mate to reproduce. Do not purchase these worms for fishing bait or vermicomposting. Heat treatments or solarization of soil can be used for control on a small scale because the worms and their cocoons cannot survive prolonged exposure to high temperatures.

Research on the short- and long-term ecological effects of these worms in forests is ongoing, as well as work that investigates potential control strategies. Do your part and report any suspected jumping worm populations using the Great Lakes Early Detection Network App (GLEDN; <https://apps.bugwood.org/apps/gledn/>).

## Meet Dr. Kayla Perry New Forest Entomologist



I am an insect ecologist who studies how disturbances influence the structure and function of insect communities in natural and urban forests. I grew up in Ashtabula, Ohio, and received a B.S. in Biology from Baldwin-Wallace College. As an undergraduate, I

had the opportunity to participate in a research program (REU) at the Rocky Mountain Biological Laboratory where I studied ant-aphid interactions. I received my Ph.D. in Entomology from the Ohio State University where I studied the responses of ground-dwelling insect communities to disturbance in forests ecosystems. After graduation, I had several postdoctoral researcher positions focusing on urban insect ecology, invasive species, and insect decline, including at Kent State University. In August 2022, I became an Assistant Professor of Forest Entomology in the Department of Entomology at the Ohio State University where I have a split research, teaching, and extension appointment. My research program aims to understand how natural disturbances such as native insects and windstorms and human-induced disturbances such as invasive species, land use change, and climate change impact forest health and management. My taxonomic expertise includes ground- and soil-dwelling arthropod communities, particularly ground beetles (Coleoptera: Carabidae). As part of my extension appointment, I work with a variety of stakeholder groups interested in forest insect ecology and management in response to invasive forest pests. My teaching responsibilities include insect ecology, entomological techniques and data analysis, and the nature and practice of science.

**Welcome Kayla!**

## Wild Turkey in Ohio

Dylan Darter, School of Environment and Natural Resources

The wild turkey is a fascinating animal. The bird provokes a wide range of memories and emotions. You might think of the iconic gobbling that many yearn to hear, or that feeling of excitement upon seeing a hen with poults. For some the bird may bring back a childhood memory of finding feathers or tracks in the mud. No matter how you have interacted with a turkey,

In addition to the new regulations, a new study is underway that seeks to shed more light on the possible causes of the declining trend in turkey numbers.

The ongoing Ohio wild turkey project is a joint effort between the ODW and Ohio State University. Turkey reproduction and survival are the main focuses of the study. Current sites are in the vicinity of Waterloo Wildlife Area, Zaleski State Forest and Appalachian Hills Wildlife Area. The team will establish an updated nesting chronology for the state, determine survival

rates and causes of mortality. To do this, we capture turkey in the winter and early spring using rocket nets. After body measurements are taken, hens are outfitted with transmitters. These transmitters record GPS locations, activity data, and put out ultra-high frequency (UHF) radio waves for telemetry. Crews track the birds using a receiver and antenna tuned to the UHF waves, then download data from the transmitters using a base station. We download each bird's data at least twice a week during the nesting season. Data downloaded from these transmitters enables us to determine where and when the hens start to incubate. The median date of nest incubation is used by the ODW to set the start of spring turkey hunting. In using the median incubation date, we avoid taking males off



it is likely to have left an impression. One of the common ways to quantify turkey interactions is reported hunter harvests. This information is gathered and reported by the Ohio Division of Wildlife (ODW). In recent years, ODW observed a dip in these numbers, suggesting wild turkey abundance was declining. In response, ODW decreased the spring bag limit to one bird starting in spring 2022.





the landscape before they play their reproductive role. Researchers will also take vegetation measurements at nesting sites after the hen has moved on. If a nest is successful, teams conduct poult counts at 2- and 4-weeks post-hatch to track poult survival rates. The information gathered will help determine what habitat types that hens are using to nest in and raise their broods.

At the time of writing, the first nesting season is coming to an end. Even this early in the project, there have already been some interesting findings. Our average hen nested 2.1 miles from the site where they were trapped just a month or two prior. The longest distance from trap site to nest was 5.9 miles as the turkey flies. Approximately 96% of tracked hens attempted to nest at least once. With some birds reaching 3 attempts after prior nests failed. Of all nests detected 78% of them were first nest attempts, 15% second nests, and 7% were third attempts. Nesting attempts occurred well into the summer with the latest recorded incubation happening on June 24th. Most of the confirmed poults came from second attempts. Out of the hens that successfully raised broods 80% were adults. While checking on nests we realized that many nests were placed near some sort of corridor, such as a game trail, road or maintained path. As the study continues into its second year and more data is gathered, we will ultimately be able to determine the status of the wild turkey in Ohio with more certainty.

## **A New Pest for Your Radar: Elm Zigzag Sawfly** (*Aproceros leucopoda*)

Recently Kathleen Knight a researcher at the U.S. Department of Agriculture's Forest Service Northern Research Station in Delaware and northern Franklin County found the elm zigzag sawfly infesting a research plot of elm trees. After the initial discovery, a team with the U.S. Forest Service and the Ohio Department of Natural Resources (ODNR) Division of Forestry also conducted surveys. The results of the surveys showed that the species was also located on other nearby properties.

"Elm zigzag sawfly is an invasive insect native to Asia that was first found in Canada in 2020 and in multiple eastern U.S. states in 2021 and 2022," ODNR Division of Forestry, Forest Health Program Manager Tom Macy said. "This is the first detection of the species in Ohio."

While this pest can significantly defoliate elm trees, the impact of this species in forest and urban landscapes isn't well documented but is currently under active research.

Elm zigzag sawfly larva are typically one and a half inch long, they're light green and resemble caterpillars. The larvae feed solely on the leaves of elm trees, whether it's native or introduced. Most noticeably, the larvae create a unique zigzag pattern through the leaves as they feed.

Adults of this species are less likely to be observed but are small, shiny black, and winged.

"The Northern Research Station has conducted important research on Dutch elm disease-tolerant elm at the Delaware lab for several decades. Because we manage multiple acres of elm plantations and monitor them closely, we were able to detect this infestation of elm zigzag sawfly," Northern Research Station Ecologist Kathleen Knight said. "Northern Research Station scientists worked with the appropriate regulatory agencies to confirm the identification of the insect and identify infested areas."

There is extensive research on Dutch elm disease-tolerant elms at the Delaware lab. Because these plantations are heavily monitored the sawfly was discovered in early July. They were officially confirmed by the U.S. Department of Agriculture's Animal and Plant Health Inspection Service on July 21.

The species was officially confirmed in Franklin County on August 18.

If you find an elm zigzag sawfly or signs of their infestation, report them using the Great Lakes Early Detection Network (GLEDN) free app. Download the app at <http://go.osu.edu/GLEDN>.



Elm zigzag sawfly larvae. Photo credit - Tom Macy, Ohio DNR, Forestry, [Bugwood.org](http://Bugwood.org)



Elm zigzag sawfly pupae. Photo credit: Tom Macy, Ohio DNR, Division of Forestry, [Bugwood.org](http://Bugwood.org)



Elm zigzag sawfly larvae. Tom Macy, Ohio DNR, Division of Forestry, [Bugwood.org](http://Bugwood.org)

## A Few Thoughts on Forest Health

*Dr. Andy Londo, Extension Specialist – Silviculture*

Forest Health is an interesting term. It is defined by the Dictionary of Forestry as “The perceived condition of a forest derived from concerns about such factors as its age, structure, composition, function, vigor, presence of unusually levels of insects or disease, and resilience to disturbance”. I remember the old SAF bumper stickers that said “A Managed Forest is a Healthy Forest”. From my first day of Silviculture, I believed that proper forest management assured forest health. And I think for many years this was the case. Sustainable timber production, wildlife habitat, multiple use, and all other forest benefits were the by-products of sound forest management.

However, forest health has evolved into much more than just management and needs to be looked at more on a landscape level, rather than the traditional stand level. Changes in the forest products industry and in private land ownerships have fragmented our forests more than ever. This fragmentation has resulted in more landowners, each with their own land management, goals, ideas, and activities. Added to that are climate change and invasive species which all work together to create a perfect storm for forest health challenges.

It is important that landowners promote forest health on the forests of Ohio through the use of sound management practices. Whether that entails planting more trees, working to reduce our non-native invasive plant species or forest stand improvement practices we can all benefit from the effort. Ohio is 31% forested and 83% of that is privately owned. Ohio’s woodland owners play a critical role in the health of our forests across the landscape both today and into the future.

## Upcoming Programs

<b>October 13th</b>	Fascinating Woodland Fungi	OSU Mansfield
<b>October 16th</b>	Beginners Maple	Boone County KY Extension Office
<b>November 1st</b>	The Seen and Unseen Impacts of Invasive Insects	Warren County
<b>November 29th</b>	Living with Wildlife – Snakes, Vultures, & Canids – Oh, My!	Warren County
<b>December 8th</b>	Value Added Maple Products	Ashland University
<b>December 9th</b>	Ohio Maple Days	Ashland University

## Fall Webinars

<b>October 27</b>	Managing Forests for Bats
<b>December 1</b>	How Does Ohio Get So Many Non-Native Insects?



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