

A photograph of two men in a lush green field of wildflowers. The man on the left is wearing a blue button-down shirt and khaki pants, gesturing with his hands as if explaining something. The man on the right is wearing a blue t-shirt and khaki pants, looking towards the first man. The background is a dense line of green trees.

SPRING/SUMMER 2022

OUR OHIO NATURE

Prairie Preservation

PRESERVING THE GRASSLANDS OF SOUTHERN OHIO

For thousands of years, the prairies in southern Ohio thrived. Historic fire and grazing by large ungulates like bison and elk helped stave off succession, a natural process whereby a grassland becomes a forest as woody species overtake native grasses and wildflowers.

Defined as permanent grasslands with few or no woody plants, prairies thrive on natural disturbances. On the surface, habitat disturbance sounds like the very thing an organization like The Nature Conservancy is trying to avoid. After all, we aim to protect and preserve plants, wildlife, and the land and water on which they depend. But for some habitats, disturbance is critical.

For Mike Hall, Appalachian forest manager at TNC, mimicking the natural disturbances of the xeric limestone prairies at the Edge of Appalachia Preserve System is crucial to maintaining the habitat and the many species that depend on it. “Up until about 1930, fires occurred here every three to five years, as determined by TNC staff analyzing fire scars in the 1980s on the preserve. Since then, fires have dropped significantly in their frequency to the point of no longer being a common disturbance event on the landscape.”

Without disturbance, southern Ohio’s E. Lucy Braun Lynx Prairie Preserve would succumb to succession. As one of the last remnants of

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Director's Message



Have you ever heard the saying that someone “couldn’t see the forest for the trees”? This phrase can take on a very literal meaning at The Nature Conservancy, where our mission is to protect the lands and waters on which all life depends.

As an organization working in 76 countries, we have committed to contributing as much as possible to the global 30x30 initiative that aims to protect 30 percent of forest and water habitats by 2030. This means conserving vast areas of land, waters and oceans, and calls for broad and high-level programs that extend beyond any one ecosystem, state or country. Protection at this huge scale—much bigger than a forest—is essential to stemming biodiversity loss and

conserving the carbon stored in these important habitats.

At the same time, we recognize that embedded within these ecosystems are incredibly beautiful, priceless and unique species that are threatened with extinction. And saving these species, like the rare prairie plants, mammals, birds and reptiles featured in this issue, takes attention to details that are often smaller than a tree. Whether it is understanding and approximating the fire or other disturbances that these species require to survive, detecting and treating tiny but lethal insects, or moving animals so that their genes can be spread, our teams are doing what it takes.

As you read this issue, keep in mind this dichotomy of large systemic solutions and species-specific management. Both are essential, and new legislation like the Infrastructure Investment and Jobs Act and the associated Great Lakes Restoration Initiative makes it much easier to save species.

Thank you for your support that allows us to keep our eyes on our forests, and the trees.

IN MEMORIAM **Jeremy Felland**

We are deeply saddened over the passing of Jeremy Felland. Jeremy served on the Ohio Chapter board of trustees, first as treasurer and later an Honorary Life Trustee. He leaves behind a legacy of conservation impact. With degrees in botany and conservation, Jeremy worked as a park naturalist in Indiana and Toledo, Ohio before becoming the first director of The Wilderness Center in Stark County. His commitment to conservation was woven throughout his service to and participation in many Stark and Wayne County organizations. Jeremy will be sorely missed.

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PRAIRIE PRESERVATION

CONTINUED FROM COVER

natural prairie in the state, Lynx Prairie represents the cornerstone of conservation for TNC in Ohio. The name of the preserve honors Dr. Emma Lucy Braun, preeminent plant biologist, who advocated for the protection of a 42-acre parcel of land more than 60 years ago. With her help, the newly formed chapter of TNC purchased the prairie. Under the care of TNC and our partner, Cincinnati Museum Center, the 42-acre parcel has blossomed into the 20,000-acre Richard and Lucile Durrell Edge of Appalachia Preserve System that we care for today.

Lynx Prairie is considered a globally rare habitat. Open areas called barrens, or cedar glades, dot the otherwise forested landscape. Despite their name, these barrens are anything but bare. Little bluestem (*Schizachyrium scoparium*) and Indian grass (*Sorghastrum nutans*) dominate the grassland community, along with a rich diversity of wildlife-supporting flora that grow in the shallow soils overlying dolomitic bedrock.

During summer months, visitors might be lucky enough to spot rare plants like crested coralroot orchid (*Hexalectris spicata*), ear-leaved false foxglove (*Agalinis auriculata*) and wood lily (*Lilium philadelphicum*) along with dozens of Ohio's 130 species of butterflies, including great spangled fritillaries (*Speyeria cybele*) and a diversity of swallowtails (subfamily Papilioninae). But the prairie habitat might look a bit different this summer, as Edge of Appalachia staff work to remove woody plants that threaten the habitats with advancing succession.

"Some of the prairie openings are so thin-soiled that tree encroachment would continue to be very limited without disturbance," says Hall, "but there are other areas that were once open and have since become shrublands." These shrubby areas are a focal point of recent conservation efforts to maintain the open habitat.

Using a variety of manual, mechanical and selective chemical control methods, staff are mimicking natural disturbance patterns to ensure that the rare prairie habitat continues to thrive. Removing large trees and shrubs ensures that sunlight can reach native grasses and the bountiful blooms that light up the prairie with color each summer. While this work can be labor

intensive and slow, TNC staff were excited to introduce a forestry mulcher to the mix of management techniques late last year.

"While we've used this type of equipment before in deeper soiled grasslands with great results, this is the first time we've used a mulcher inside of thin-soiled, xeric limestone prairie-dominated areas," Hall notes, "and we're optimistic results will be similar." What would have taken more than a month with four staff working daily in the field can now be completed in just a week with one person. "TNC's capacity to manage our grasslands, prairies and some of our forests has greatly increased."

Unlike with manual removal of woody plants, the mulcher allows staff to simultaneously remove, mulch and scatter the trees and shrubs that are choking the prairie plants, making quick work of otherwise intensive management methods. Staff are optimistic that their efforts will help mimic the disturbances seen historically in the prairies and ensure that these rare systems continue to support the diversity of plants and animals that depend on them.

➔ **PLAN YOUR VISIT** to Lynx Prairie at nature.org/lynxprairie.

Creature Feature

ANIMALS WE'RE WORKING TO PROTECT

Understanding where plants and animals persist today is a critical part of The Nature Conservancy's work to ensure that they have the future habitat they need to thrive in a changing climate. These are just a few examples of the species-focused research efforts underway at some of our Ohio preserves.

Timber Rattlesnake

ENDANGERED IN OHIO



While the Edge of Appalachia (EOA) Preserve boasts ideal habitat for timber rattlesnakes (*Crotalus horridus*), few have been observed or reported in the 50 years since staff started working in the area. This species originally inhabited 24 of Ohio's 88 counties, but deforestation, loss

of den sites and hunting have driven populations down to just a few pockets in eight counties in the southern part of the state.

In 2019, EOA staff began assisting local researchers John and Vince Howard, with support and guidance from state herpetologist Doug Wynn, in defining and supporting research on timber rattlesnake populations in Adams County. The research attempts to locate the snakes within the EOA preserve, learn more about den sites and better understand how native snake species share this habitat.

Using fitted telemetry devices to monitor common snake species like gray rat snakes (*Pantherophis spiloides*), eastern copperheads (*Agkistrodon contortrix*), and northern black racers (*Coluber constrictor constrictor*) has been successful in helping

to locate den sites of timber rattlesnakes, since snakes are known to share dens. Placing cameras above known dens has helped inform which species, and how many, are using the site. Research has confirmed multiple new den sites and confirmed additional timber rattlesnakes entering and exiting some of these dens in spring and fall.

The information gained from this research has been encouraging. Staff have learned that southern Ohio's protected lands support a greater number of timber rattlesnakes than was originally known or expected. As research continues, staff hope to better understand the density and range of these timber rattlesnake populations, which will inform land protection efforts on priority acquisitions to support them.

Massasauga Rattlesnake

ENDANGERED IN OHIO, FEDERALLY THREATENED

The Massasauga rattlesnake (*Sistrurus catenatus*) is a focal point of recent conservation efforts at northeast Ohio's Morgan Swamp Preserve. Thanks to a grant from the Great Lakes Fish and Wildlife Restoration Act Program, conservation staff are working to restore connectivity between early successional habitats that the reptiles need to thrive.

Massasauga rattlesnakes live in wet meadows historically maintained by beaver activity that kept the meadows wet and open. But with beavers gone from the area today, the snake's habitat is at risk from woody species overtaking the meadows.

To combat this, staff are resetting the clock on succession by cutting down trees in the meadows, removing invasive plants and planting native grasses on 400 acres. Of particular importance is reconnecting populations of snakes that have become genetically isolated due to habitat fragmentation. Restoring habitat for the Massasauga rattlesnake is expected to benefit other species as well, including bobolink and sandhill cranes.

Northeast Ohio Conservation Staff Work to Restore Populations of an Endangered Snake

Henslow's Sparrow

SPECIES OF CONCERN IN THE MIDWEST



In Ohio, populations of Henslow's sparrow (*Centronyx henslowii*) are limited to native grassland and prairie habitats within the Edge of Appalachia Preserve. While the preserve is largely forested, its embedded prairies and grasslands are an important

part of TNC's management goals for supporting greater species diversity. Research shows that populations of grassland birds have seen significant decline in recent years due to habitat loss. But TNC and research partners from the Cincinnati Museum Center are working to change that.

Goals of this research include gathering data that will inform management decisions on nesting habitat of grassland birds, documenting the current status of grassland bird populations within managed grassland areas and documenting any changes in grassland bird populations over the course of this multiple-year study. Using mist nests, researchers capture birds like the Henslow's sparrow, eastern meadowlark and other grassland species in June and July after young have fledged.

Captured birds are fitted with numbered bands to facilitate tracking of individuals from one year to the next.

Twenty bird species, including Henslow's sparrows, were successfully netted and banded during the 2020 season. The 2021 results included a total of 12 bird species with a slight increase in the number of Henslow's sparrows and some recapture of birds banded the previous year. These early results suggest that some grassland areas of the preserve support healthy populations of Henslow's sparrow and that current habitat management methods—which includes strategic mowing of the grasslands—are working. Research is planned to continue in summer 2022.

Allegheny Woodrat

ENDANGERED IN OHIO

The Allegheny woodrat (*Neotoma magister*) is a small brownish-gray rat that lives in rocky areas around mountain ridges and cliffs. The only remaining populations in Ohio occur in Adams County at The Nature Conservancy's Edge of Appalachia Preserve and adjoining properties.

Current research on Allegheny woodrat populations is helping to build on existing knowledge of where woodrat populations are and what threats may be affecting them, as well as exploring the genetic diversity within Ohio's population of the pack rat. TNC staff and dedicated volunteers are assisting researchers in surveying for woodrat populations in the preserve and adjoining privately owned land.

These surveys include inspecting habitat to determine whether the sites are infected with raccoon roundworm, a parasite that

is lethal to the Allegheny woodrat. The parasite is found in raccoon scat, which can be transmitted to the woodrats through their collection of seeds that occur in the scat. Lab analysis of collected scat can help determine the incidence of the parasite and inform the Ohio Division of Wildlife where to disperse baits that de-worm the raccoons, which will ultimately help the woodrats.

TNC and Cincinnati Museum Center staff are also surveying woodrat populations through live capturing and ear tagging, as well as genetic testing. Their research has found that localized populations are inbred, a factor that further threatens the future of the endangered mammal in Ohio. To diversify the genetic pool, Ohio Division of Wildlife and partnering organizations are collaborating on an interstate effort



to bring new populations of woodrat to Ohio while relocating some of our local population to neighboring states.

Identifying Allegheny woodrat habitat on private lands and working to secure some level of protection on those lands are additional goals of this research. Acquiring habitat and protecting it from development or disturbance is another means of supporting this endangered species.



TO LEARN MORE about the species we're working to protect, visit [nature.org/ohioendangered](https://www.nature.org/ohioendangered).

Conservation Highlights

SAVING A KEYSTONE SPECIES

One need only take a few steps inside an eastern hemlock forest to see—and feel—the benefits afforded by these evergreen giants. Shaded by dense canopy coverage, the understory of eastern hemlock-dominated forests offers distinct habitat for species that thrive in the cooler microclimate created by the trees.

“Hemlock forests provide extremely high ecological benefits to cold water streams and other sensitive habitats like those found at Morgan Swamp,” says Derrick Cooper, Grand River restoration coordinator for The Nature Conservancy in Ohio.

Losing the hemlocks would cause intense degradation of water quality due to the warming effect that would result from loss of canopy cover. This warming would cause a chain reaction effect on the ecological communities that hemlocks support. As water warms, it loses the ability to carry dissolved oxygen, making it difficult for some aquatic insects and fish to thrive. If insect and fish populations decline, so too would the predators that depend on them for food.

Morgan Swamp is home to one of the few remaining hemlock–yellow birch swamp forests in Ohio, all of which reside in the Grand River Lowlands, a vast wetland system that occurs throughout northern Trumbull and southern Ashtabula Counties. Eastern hemlocks (*Tsuga canadensis*) are a keystone species in these systems, meaning the fate of the entire ecosystem relies on their presence. Hemlocks create climate-controlled environments suited for a variety of plants and wildlife.

But hemlocks, and the streams and species they support, are at risk. Two invasive pests threaten the future of hemlocks in Ohio.

Despite their small size, the hemlock woolly adelgid (*Adelges tsugae*) and elongate hemlock scale (*Fiorinia externa* Ferris) can pack a punch, especially when both are present on the same tree. Often described as resembling the tip of a cotton swab, hemlock woolly adelgid (HWA) causes leaf damage, crown loss and eventual mortality of hemlocks by feeding at the base of needles and sucking nutrients from the tree stem. Elongate hemlock scale (EHS) harms hemlocks by sucking nutrients from the needles, causing discoloration, stunted growth and thinning as trees drop damaged needles.



With notable damage in the Great Smoky Mountains and along the Blue Ridge Parkway, HWA has already devastated parts of the eastern United States, killing millions of hemlocks since its arrival to the country in the 1920s. But TNC staff and partners are working to change the fate of northeast Ohio’s hemlock forests.

Thanks to Great Lakes Restoration Initiative funding through the United States Department of Agriculture Division of Forestry, TNC is working alongside partner organizations to survey and treat hemlocks for HWA and EHS throughout northeast Ohio. Collectively, staff and partners have surveyed nearly 3,000 acres of hemlocks and treated 460 acres for the pests, exceeding the total acreage of the expected survey area.

Like most conservation efforts, this project will continue for several years through the dedication of staff and partners as they focus on treating the affected trees to protect the forest.

➔ **TO LEARN MORE** about Morgan Swamp visit [nature.org/morganswamp](https://www.nature.org/morganswamp)

TNC would like to **THANK OUR PARTNERS** who have provided funding or in-kind donations to help survey and treat hemlocks throughout northeast Ohio

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Geauga Park District	National Park Service
Holden Forests and Gardens	Ohio Department of Natural Resources,
Lake Erie Allegheny Partnership (LEAP)	Division of Forestry
	Summit Metro Parks

A Win for Nature and People

CONGRESS PASSES THE INFRASTRUCTURE INVESTMENT AND JOBS ACT

The Nature Conservancy is celebrating the bipartisan passage of monumental legislation that is promised to help address the impacts of climate change through investments in clean energy, transportation and natural infrastructure. Last fall, the U.S. Senate (69-30) and U.S. House (228-206) voted to pass the \$1.2-trillion Infrastructure Investment and Jobs Act (IIJA), which will help Ohio—and the nation—by investing in people, communities and nature.

“The Infrastructure Investment and Jobs Act will provide continued funding and increased investments in critical programs like the Great Lakes Restoration Initiative (GLRI) and additional support for resilience and infrastructure that supports and improves the health and safety of our communities and natural habitats,” says Amy Holtshouse, director of conservation for TNC in Ohio.

Started in 2010, GLRI was created to accelerate efforts to protect and restore the largest freshwater system in the world—the Great Lakes. Funding from the program helps control invasive species, protect and restore native habitat for fish and wildlife, eliminate harmful algal blooms and ensure clean drinking water and outdoor recreational opportunities for local communities.

“Our work to advocate for policies like IIJA is rooted in the very fabric of our mission. Over 80 percent of the provisions TNC requested for inclusion in this bill remained in the final version, illustrating that conservation unites people and political parties. We have not made this kind of an investment in our nation’s infrastructure since the New Deal—nearly a century ago. And by incorporating the need for cleaner air and water and more resilient natural areas alongside the need to upgrade our nation’s infrastructure, we can create a future that allows people and nature to thrive together.”

—TRACY FREEMAN, *Director of Government Relations*

Passage of the IIJA will provide an additional \$1 billion in GLRI funding, which TNC expects will help support a variety of restoration projects, adding to the already-impressive portfolio of GLRI-funded projects in the northern part of the state.

Since 2010, TNC has used GLRI funding to:

- Protect and restore more than 15,000 acres in the Western Lake Erie Basin through invasive species management, habitat restoration and reestablishment of natural water flow.
- Reduce sediment and nutrients in the Maumee River—an important tributary to Lake Erie—through education and outreach and the implementation of nutrient management plans and best management practices on over 19,000 acres of agricultural lands.
- Conserve and restore globally rare habitats, including wet prairies and oak savannas on over 3,000 acres in the Oak Openings Region of northwest Ohio and southeast Michigan.
- Control invasive species on over 3,000 acres in the Central Lake Erie Basin within the Grand and Ashtabula River watersheds.

Funding from the Infrastructure Investment and Jobs Act is also expected to:



Build a network of EV charging stations to facilitate long-distance travel and provide convenient charging options.



Improve sustainable transportation options for millions of Americans by investing in public transit and renewable energy.



Repair and rebuild roads and bridges with a focus on climate change mitigation, resilience, equity and safety for all users, including cyclists and pedestrians.



Create significant investments in social equity, including access to clean drinking water and broadband internet for historically disadvantaged communities.






Invest in natural infrastructure that will help reduce the risk of natural disasters like storms, flooding, drought and wildfire.

SPRING/SUMMER 2022

OUR OHIO NATURE






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*Sandhill
Crane
Wetlands*
NOW OPEN!

Restoration work at Kitty Todd Nature Preserve's newest acquisition—Sandhill Crane Wetlands—is complete, and the wetlands are now open to the public. The 280-acre property will help protect water quality and restore wildlife habitat for state-endangered species like sandhill cranes.

PLAN YOUR VISIT TODAY at nature.org/kittytodd.