



UNIVERSITY OF MOUNT UNION HUSTON-BRUMBAUGH NATURE CENTER



2021-2022 Fiscal Year Report

Huston-Brumbaugh Nature Center

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Cover photo: Nature Center site manager Mike Greiner and Linda Montgomery's grandson Owen Crider cut the ceremonial ribbon at the interpretive sign open house in March 2022.



Fall landscape viewed from the observation tower at the North Woods.

The Year at a Glance

Community Programs and Events

Number of programs: 50

Number of events: 22

Total attendance for programs and events: 876

University of Mount Union Events

Number of UMU events: 81

School & Organization Programs

Number of pre-K-5 groups: 10

Number of 6-8 and 9-12 groups: 3

Number of homeschool groups: 2

Number of community groups: 8

Total number of programs: 40

Total attendance for school and organization programs: 1,270

Service Projects

Number of projects: 3

Student Research Projects

Number of student projects: 8

Volunteers

Number of volunteers: 77

Number of volunteer hours: 672.5

Projects Completed

New signage on exterior of the Visitors Center

Six new benches installed on the trail system

Ten new interpretive signs installed on the trail system

New split rail fencing at pond, honeybee yard, and Oak Trail overlook

Finished two new bridges initiated by Engineering capstone project

Solar-powered aerator installed in east pond

New path lighting installed on the west side of the Visitors Center



Canoeing with the Nature Center at Deer Creek Reservoir, Alliance, OH in September 2021.



Students observing birds in Dr. Wu's BIO 141 lab in November 2021.

Overview

This report summarizes the operations and outreach activities of the John T. Huston - Dr. John D. Brumbaugh Nature Center. The Nature Center facilitates activities in three main areas: education, research, and recreation. Educational programs are presented to school groups and the community, focusing on local natural and cultural resources present on the Nature Center property. Educational and recreational opportunities are also provided through the Nature Center's indoor exhibits, interpretive signage, and trails.

Along with programs and activities, the Nature Center staff are involved in academic support of Mount Union's students, conducting and supporting research, volunteer recruitment and retention, facilitating service projects, and the maintenance and improvement of the Nature Center's facilities and grounds.



One of several new signs outside the entrance of the Visitors Center.

Staffing

The Nature Center staff included four full-time, on-site staff positions: Horticultural and Facility Coordinator, Cali Granger; Site Manager, Mike Greiner; Community Outreach & Volunteer Coordinator, Bonnie Twaddle; and Program Manager, Adam Zorn. The on-site staff were complimented by three full-time, on-campus staff and faculty positions: Sustainability and Campus Outreach Coordinator, Jamie Greiner, Nature Center Director, R. Chris Stanton, and Nature Center Assistant Director, Lin Wu. Mount Union student employees during the fiscal year were Emily Maroni, Michael Shields, and Emily Becker.

Volunteers

Nature Center volunteers assist in a variety of ways that support the maintenance of a beautiful facility and grounds and high-quality educational programs. Seventy-seven people donated their time and talents to support the Nature Center's mission over the past fiscal year accounting for at least 672.5 hours of service.

Volunteer service in support of facilities and grounds maintenance cover a wide variety of tasks. Litter control, invasive plant removal, and Adopt-a-Trail volunteers are an important component of the Nature Center's trail maintenance efforts. Four miles of trail do not maintain themselves, so these folks are an important part of keeping the trails clear of obstructions, removing invasive plants that impact habitats, and keeping the trails free of waste from the occasional litter bug. Several cultivated gardens and flowerbeds are maintained with the assistance of volunteers to keep these areas looking attractive to visitors and wildlife alike.

Program volunteers take on many roles too. Volunteers help with special events like the Holiday Open house and facilitate special interest programs like acoustic music jams and fiber arts gatherings which diversifies the audiences attracted to the Nature Center. Many of the formal education programs facilitated for school-aged audiences are possible thanks to dedicated volunteers passionate about helping students learn. Volunteer trail guides and Children's Hands-on Gardening volunteers are required to enable Nature Center staff to accommodate dozens of children on a field trip to the Nature Center and maintain a high-quality learning experience.



Volunteer Trail Guide Rick Blessing leads an exploration of the Nature Center's barnyard in May 2022.

We are very thankful for the time and talent of each of our volunteers.

Service Projects

Eagle Scout project: stairs on Beech Trail (July 2021). Eagle Scout candidate Cory Miner from Troop 15 in Louisville replaced the washed-out stairs that connect Beech Trail to Succession Trail. Several weekends of work with scouts and volunteers completed the timber constructed stairs. They were backfilled with gravel making the climb out of the Succession Trail valley safer and sturdier.



Wood and stone stairs installed on the Beech Trail enhance visitor access and mitigate erosion.

APO garden clean-up: Alpha Phi Omega, a student service organization at the University of Mount Union, assisted with the fall and spring maintenance of the Bird Observatory Garden (October 2021 & April 2022).

Eagle Scout project: dahlia beds (April 2022). Eagle Scout Alaina Schluneker from Troop 50 in Alliance constructed new dahlia flower beds along the fence line in the Children's Garden. The project created a designated location for the dahlia display and better places the dahlias in view of visitors compared to their previous location.

Education Programs & Events

Community Programs and Events

Seventy-two community education programs and events were facilitated by Nature Center staff. The majority of programs offered were focused on wildlife, plants, and other natural resource topics. Other program topics included gardening, self-care, and maple sugaring. A “birdability” walk was co-facilitated with Canton Audubon Society to increase awareness of access to the outdoors for persons with mobility issues utilizing the improved trail surfaces of the Nature Center’s Huston Farm Loop. The Nature Center’s electric utility corridor was the center of attention for a workshop co-hosted with Stark Soil & Water. A series of spring bird walks was facilitated by Nature Center staff in partnership with Stark Parks for the 8th year on the Nickelplate Trail in Louisville, OH.



Program manager Adam Zorn leads a group of paddlers on an exploration of Deer Creek Reservoir in October 2021.

Educational and recreational events facilitated or hosted by the Nature Center included a variety of citizen science events like the Great Backyard Bird Count and bioblitzes, summer research showcase highlighting Mount Union student research, 20th annual photography contest, acoustic music jams, and 5th annual holiday celebration open house. Several canoe trips to local reservoirs were also facilitated using the small fleet of Nature Center canoes.

Community programs and events are promoted through a newsletter published and distributed three times each year to approximately 1,800 postal addresses and over 1,000 email addresses. Additional promotions include UMU Today emails, flyers, and social media.

Though the attendance numbers have nearly doubled versus the previous fiscal year, the 2021-2022 attendance figure is only two-thirds of the 5-year average prior to the COVID-19 pandemic. A good portion of the past fiscal year included mask requirements for indoor programs and modified event arrangements to encourage social distancing. We are hopeful that some events in the 2022-2023 fiscal year will return to their usual arrangement and that attendance figures will return to the average as well.



Free ornaments created during the Holiday Open House in December 2021.

School and Organization Programs

A total of 40 educational programs were facilitated by Nature Center staff to support the curriculum of local school districts, homeschool groups, and other organizations. Students from Alliance City Schools, Marlinton, West Branch, United Local, Salem City Schools, Regina Coeli School, and Small World Montessori School represented ten pre-K to 5th grade school groups. Programs were facilitated via guided walk to cover grade-level appropriate science content such as seasons, habitats, life cycles, food chains/webs, symbiotic relationships, and erosion.

Alliance City Schools 3rd and 4th grade students participated in the 18th year of the Children's Hands-on Gardening program series. Students make four visits - two as 3rd graders and two as 4th graders - to see the processes of germination, plant growth, pollination, harvesting, and decomposition across one growing season. The curriculum aligns with current science and math standards for 3rd and 4th grade.

The homeschool co-op at Alliance Friends Church requested two programs - one on Ohio's natural history in the fall of 2021 and a guided hike in March 2022. Their guided hike also coincides with the annual photography contest gallery so that the students can view the gallery and vote for their favorite photos.

Unusual, but welcomed, requests for a program came from the 6th grade at Lisbon Middle School and the Environmental Science class at Salem Senior High School. Middle and high school program requests are rare, but relished, opportunities to work with older students to cover more advanced topics. Lisbon Middle School participated in a variety of activities focused on pollinators after spending most of the school year learning about and conducting in-class projects related to pollinating insects. The students from Salem were provided with an extended guided walk that touched on a variety of topics such as forest succession, invasive species, watersheds, tree/plant identification, and generally fielding questions from the inquisitive students.

In addition to schools, several community organizations requested programs for their members. Three garden clubs, one Brownie troop, First Baptist Church of Alliance, Stark County Master Gardeners, Ohio Certified Volunteer Naturalists, and Mount Union Women received programs facilitated by Nature Center staff.

The 2021-2022 fiscal year saw participant numbers double over the previous year. The attendance figures are still far below the 5-year average (approx. 3,800) prior to the COVID-19 pandemic. As school districts continue to adjust to health and safety protocols and staffing shortages, we are hopeful that more schools will again consider the Nature Center for educational and experiential field trips as they did prior to March 2020.



Marlinton students explore pollinators on a field trip at the Nature Center.

UMU Events

Nature Center staff participated in campus events or hosted University groups throughout the fiscal year. A total of 81 University of Mount Union activities were recorded. A large portion of those activities were facilities reservations by 15 different offices/departments/academic programs and 5 different student groups. A variety of classes were facilitated using Nature Center facilities and/or the property including Dr. McElhinney's FYS class, Dr. Tascone's poetry class, ENV 190, BIO 399, BIO 240, BIO 141, and two Engineering courses.

In addition to on-site events, the Nature Center staff participated in Preview, RaiderFest, and helped facilitate several Green Raiders events on campus.

Research

Brumbaugh Scholars Projects

The John T. Huston - Dr. John D. Brumbaugh Nature Center allocates resources from the Brumbaugh Endowment to foster summer research and scholarly activities among students, staff, and faculty that are related to the mission of the Nature Center, which is to "provide and support opportunities for enjoying and learning about our natural and cultural heritage." Three projects were selected for support in the summer of 2021. Project results were shared in a showcase event held at the Nature Center in October 2021.

2021 Brumbaugh Scholars projects:

- Emily Becker: "Terrestrial and Aquatic Mollusk Survey of the Huston-Brumbaugh Nature Center, Stark County, Ohio"
- Ryland Black: "The Search to Document Returning Bobcats (*Lynx rufus*) Using Trail Cameras at the Huston-Brumbaugh Nature Center"
- Alejandra Twiss: "Comparing the effectiveness of an organic herbicide and a synthetic herbicide on a historically traditional agriculture field"



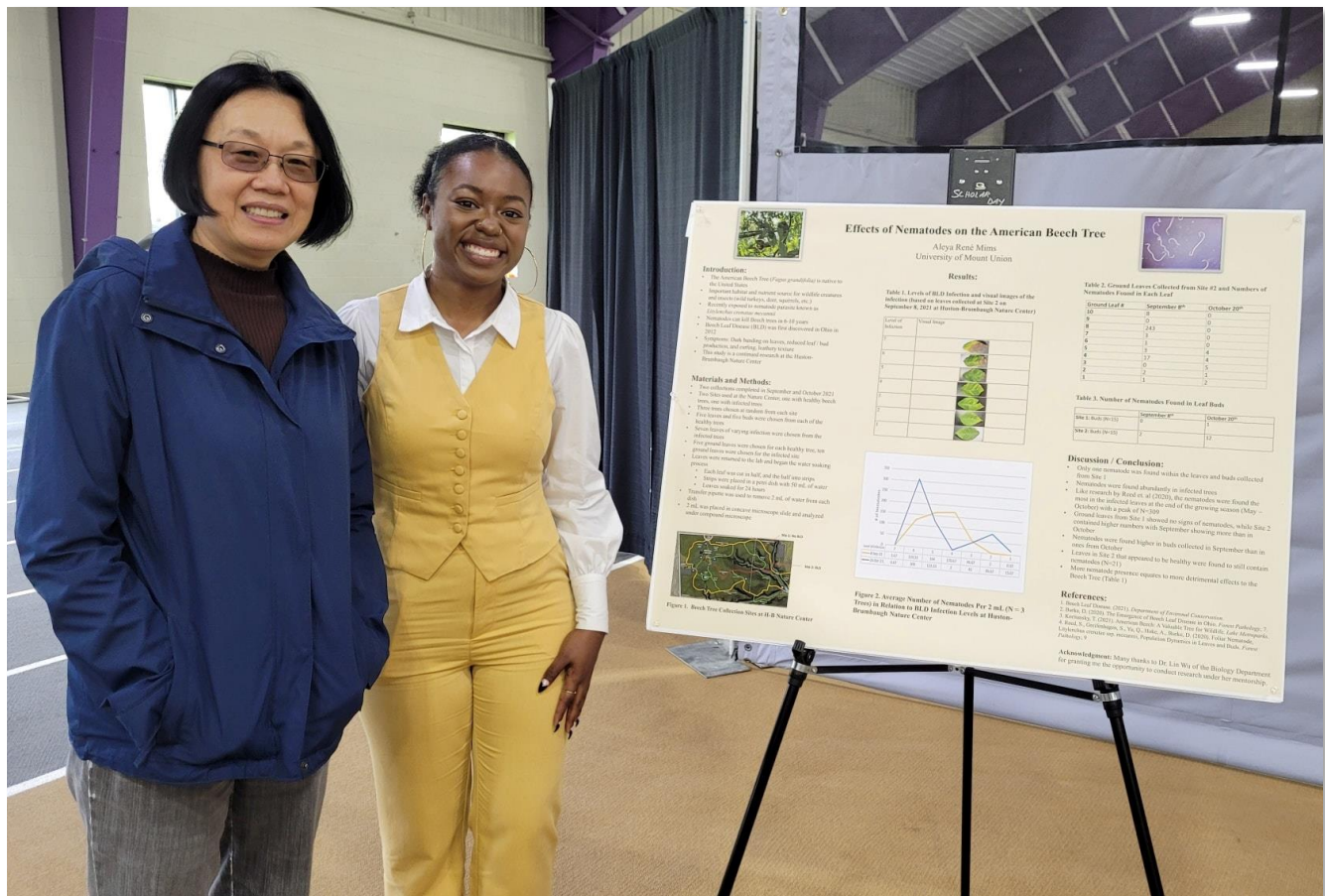
Emily Becker '23 presents her research at the Summer Research Showcase in October 2021.

Additional Student Research

In addition to the Brumbaugh Scholars program, several students traditionally use the Nature Center for BIO 405 projects and other academic research during the academic year. During the 2021-2022 year the following students completed research at the Nature Center:

- Ryland Black: “Camera trapping at the Huston-Brumbaugh Nature Center - the effects of human activity on the use of trails by wildlife and the search for returning bobcats (*Lynx rufus*)”
- Mason Conn and Hannah Vodicka: “Analyzing the genetics of nematodes in Beech Leaf Disease”
- Aleya Mims: “Effects of nematodes on the American Beech trees”
- Jade O. Tomlinson: “Fall 2021 Snake Survey at the Huston-Brumbaugh Nature Center (Stark Co., OH)”

Ryland, Emily, and Aleya were selected to present their research on Scholar Day in April 2022.



Aleya Mims '22 and her mentor Dr. Lin Wu at the Mount Union's SCHOLAR Day in April 2022.

Visitor Services

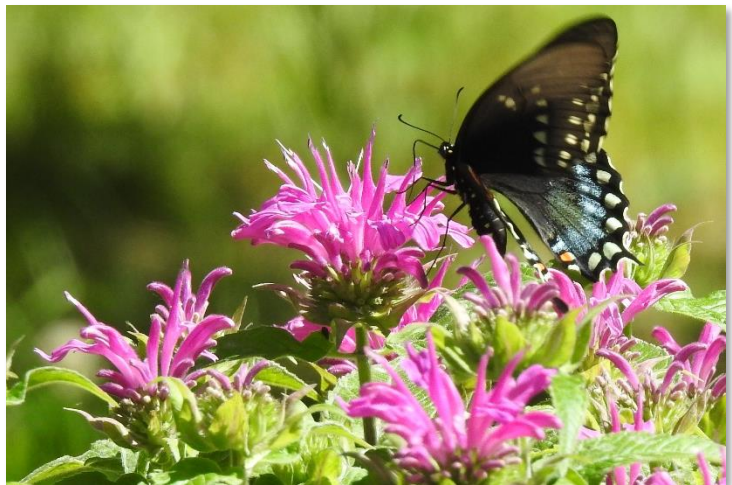
Visitors Center

The Visitors Center is open to the public and staffed all throughout the year. Summer hours are in place from April through October (9am to 4pm on Tuesday through Friday, 1pm to 5pm on Saturday and Sunday). Winter hours are in place from November through March (9am to 4pm on Tuesday through Friday, 1pm to 5pm on Sunday). The Visitors Center is closed to the public on Mondays, but staff is present to answer phone calls, work on projects, and prepare for the coming week.

The Visitors Center is the hub of activities for visitors and program participants. Just over nine hundred non-program/event visitors entered the facility on weekend days during the last fiscal year. Many enter to view the informational displays, watch wildlife in the bird observatory, ask questions of the staff, and/or use the restrooms/drinking fountain. The reception desk is stocked with Nature Center newsletters, trail maps, and other educational materials.

Gardens

Gardening projects and improvements were made in several areas around the Visitors Center and grounds. Over at the North Woods section of the property, dahlia flower beds in the Children's Garden area were moved to the southwest corner of the fence line to make them more visible and easier for the public to enjoy. The Children's Garden incorporated square foot gardening to the raised vegetable beds and successional plantings of



A Spicebush Swallowtail feeds on beebalm flowers outside the Visitors Center in May 2022.

vegetables to provide more produce for the Hands-on Children's Garden Program. Alliance City Schools 4th graders harvest and take home the produce they pick. The Children's Garden also incorporated companion planting in vegetable gardens to encourage healthy plants, increase pollinators, and encourage natural enemies that provide safe pest control.

Also in the North Woods section, a large patch of sunflowers was created to add pollinator habitat and a destination for the public. Plants are expected to be in full bloom near the end of September 2022. Plant holding beds were developed to house plants that are moved and stored so that the plants can be used in a more suitable location later, saving materials and money for future garden improvements.

At the Visitors Center, the number of pollinator plants were increased in the formal flower beds around the perimeter of the building and in the bird garden and butterfly garden. A lot of

regular maintenance and cleanup of formal beds was performed to maintain the appearance of the gardens near the parking lot and around the Visitors Center.

Trails

The Nature Center maintains nearly four miles of trails for visitors, schools, and University classes to explore. A lot of work goes into maintaining the trail system annually to provide access to the facilities and grounds. Fallen trees are cleared in a timely manner, vegetation is trimmed back from the trails throughout the growing season, trail surfaces are maintained to alleviate erosion or excessively muddy areas, and bridges and boardwalks are under constant repair.

Ten new interpretive signs were a noticeable addition to the trail system this past year. Design work for the signage began in the previous fiscal year and carried through the first part of the 2021-2022 fiscal year. Development of the signs was funded by donations from the friends and family of Linda Montgomery. Linda joined the Mount Union community in 1995 as a member of the Physical Plant staff, serving first as a housekeeper and then moving into a coordinator role. At the time of her retirement, she was serving as the administrative assistant in the University of Mount Union's Dewald Chapel. Donations in Linda's honor also afforded the purchase of four new benches for the trail system. Three were installed at the pond and one at the vernal pool.

After significant manufacturing delays, the signs were delivered in late fall and installed in December 2021. Linda's family assisted Nature Center staff with the installation of signage along the trails. An open house event was held in March 2022 to officially dedicate the signs and recognize the Montgomery family and friends for their generous donations.



One of ten new interpretive signs to enhance visitor engagement and education on the Huston Farm Loop.

Stewardship Activities

Bird Surveys

Bird life at the Nature Center is documented annually during a variety of citizen science-based collection projects. Birds are active all year round and are frequently analyzed as indicators of environmental health in terrestrial ecosystems because of their role as seed dispersers, insect predators, and the various ecological niches they occupy in food webs.

Each year, the Nature Center staff documents bird species nesting in monitored nest boxes throughout the property using Project NestWatch protocols. Species readily attracted to bird feeders are counted and documented during the winter-long Project FeederWatch season (November through April) and the four-day Great Backyard Bird Count (President's Day weekend in February). Each count has been conducted for several years representing annual trends at the Nature Center and contributing to a larger dataset across the United States. Visitors are invited and encouraged to join Nature Center staff in data collection during the aforementioned collection periods.

Other bird observations are submitted to eBird, one of the world's largest biodiversity-related science projects with more than 100 million bird observations contributed annually by participants around the world. Nature Center staff and visitors alike contribute to the eBird database annually and documented 120 species of birds at the Nature Center during the 2021-2022 fiscal year.



Rose-breasted Grosbeak observed through the bird observatory windows in April 2022.

Butterfly Survey

A butterfly transect was created along the First Energy utility right-of-way that traverses the Nature Center property. The habitat under the utility lines was rehabilitated several years ago to incorporate a couple dozen species of wildflowers and other plants that benefit pollinators like bees and butterflies. Bee surveys have been conducted in the past and a butterfly survey was initiated in June 2021 and carried through the warm months of the 2021-2022 fiscal year.

Twenty-one species of butterflies and three other genera were identified during surveys from June through August 2021. From June through July 2022, fifteen species of butterflies and four other genera were identified during surveys. Summer 2022 data collection is ongoing and will be completed in August/September.

Beech Leaf Disease Survey

Beech Leaf Disease (BLD) is an emerging and, to date, unidentified affliction of American Beech trees in Ohio and adjacent states. Students and faculty at the University have initiated research projects related to this subject, but none have been developed to track the disease long-term. A long-term monitoring program was created using existing long-term forest study plots. Surveillance of BLD within the established study plots will add an additional layer of data for future exploration as the Nature Center's forest is changed by BLD and the resulting tree mortality.

Snapshot USA

Founded in 2019 as the first nationwide mammal survey, Snapshot USA aims to capture the diversity of mammals across the continental U.S. to inform conservation efforts. The Nature Center was one of the original project participants and participated for the third consecutive year in September and October 2021. The novel datasets in 2019 and 2020 generated by Snapshot participants have been published in *Ecology* and the 2021 dataset is currently in review prior to publication. All contributors are listed as co-authors on the data paper.

The Nature Center's portion of the Snapshot dataset was collected from thirteen locations around the main preserve and the adjacent research reserve using ten motion-activated wildlife cameras. Each camera is activated by the presence of wildlife activity and begins to record photos in five-image photo bursts. Once activity has ceased, the camera returns to standby mode until triggered again. There were 12 species of wild mammals, some unidentified small mammals, a few species of birds, domestic pets, and humans detected by cameras from September 1 through October 31. As in year's past, White-tailed deer, Northern raccoon, and Eastern fox squirrel were the top mammals recorded across all cameras sites.

iNaturalist

The Nature Center has been using iNaturalist to document the wide array of flora and fauna residing on the property since 2016. The iNaturalist database has a dedicated website (inaturalist.org) and app (iNaturalist on Apple and Android) to upload photographic observations and audio recordings. An artificial intelligence component of the data upload process can assist users with specimen identification, and observations are verified by other iNaturalist users, many who are experts in their fields of study. Anyone with a free iNaturalist account can contribute observations making it one of the easiest citizen science data-gathering projects to participate in.

The Huston-Brumbaugh Nature Center Biodiversity Project collected 897 observations from 38 observers accounting for 463 species of organisms documented on the property from July 1, 2021 to June 30, 2022. Since April of 2016, the Project has collected 5,243 observations from 151 observers who cataloged 983 species of organisms at the Nature Center. Utilization of the app and website by staff, faculty incorporating it into learning opportunities, and promoting the functionality and ease of use to the public should continue to yield new discoveries of organisms residing at the Nature Center.

What Others Have Said in FY 2021-2022...

Google Reviews

The Nature Center's Google listing has a 4.8 star rating from 204 reviews. Here is what some reviewers had to say about their experience in the last fiscal year:

"We like going here for the trails and to see the farm animals. Also the small maze they have is also pretty cool. If you get a chance, go when the education center is open, or even one of their educational events."

"Came in the spring and wildflowers everywhere!!"

"Fantastic trails and (indoor) bird observatory."

"The nature center staff puts on great programs. Fantastic trails that are well maintained. Friendly and helpful staff. A must see bird room."



Nodding Ladies' Tresses, a native orchid, growing at the Nature Center.

Nature Center Visitor Survey

Visitors are welcome to complete an anonymous survey about their visit. Survey respondents (127 total) have given an average of 4.9 stars to their overall experience when visiting. Forty-three reviews were recorded in the past fiscal year. Survey comments are optional. Here are comments from some respondents about their experiences in the last fiscal year:

"Glad that you do activities. Sorry that I seem to miss all of them. Keep having them everyone appreciates these. Only went on one night walk and it was great. The guide was very nice and answered ALL questions nicely. This was such a great time told so many people about it."

"Thanks for the greatly improved signage marking the trails!"

"Signage and condition of trails has definitely improved over the past couple years!!"

"Absolutely love the Nature Center. All the activities and programs. I especially like the workshops where we get to make something. And also like the workshops that are about interesting topics- taking care of environment, how to look for specific species of animals, plants, etc."

"Keep the trails at a "rustic" level. Don't "improve" them too much or they will lose their appeal for those of us that come for the natural feel and experience. Fixing some of the wet

areas on the trails has been good. There are places on trails that could benefit from some water bars or other diversions to minimize erosion in the future.”

“We have been walking the trails for over 15 years...my younger children have grown up at the trail. Even at 16 & 17 they still enjoy visiting and seeing new things. Thank you.”

“I always enjoy my time at your center. I wish it was closer to me so I could enjoy it even more. Unfortunately, it takes me 40 minutes to get to you. However, I always make sure I clear my whole day so I can spend as much time as possible with you!!”

“It is always great to have new trails if possible.”

“Alan & I loved coming even though it was not close to home.”

“When I need to escape the structure of college with its perfectly manicured lawns and deadlines and expectations, the Nature Center is a place of refuge. Thank you.”

“I volunteer and find the staff very friendly. It's a beautiful area with great trails.”

“It's always peaceful walking the trails. My dog loves it here.”

“This is my most favorite place in the world. I'm sad that I moved to North Canton and don't get to visit quite as often as I used to when I lived in Louisville.”

“My family LOVES the Nature Center. We have attended various programs and were always very pleased. I love that the history is posted on the corn crib, we love the bridges and trails. I recommend it to everyone!”

“We like the trails because they mostly remain in a "primitive" condition.”

“I love the vernal pool! The tadpoles are so fun to watch! I'm eagerly awaiting to see them get their legs, haha. I really enjoy visiting and walking/hiking the trails.”



Wood Frog tadpoles in the vernal pool in April 2022.