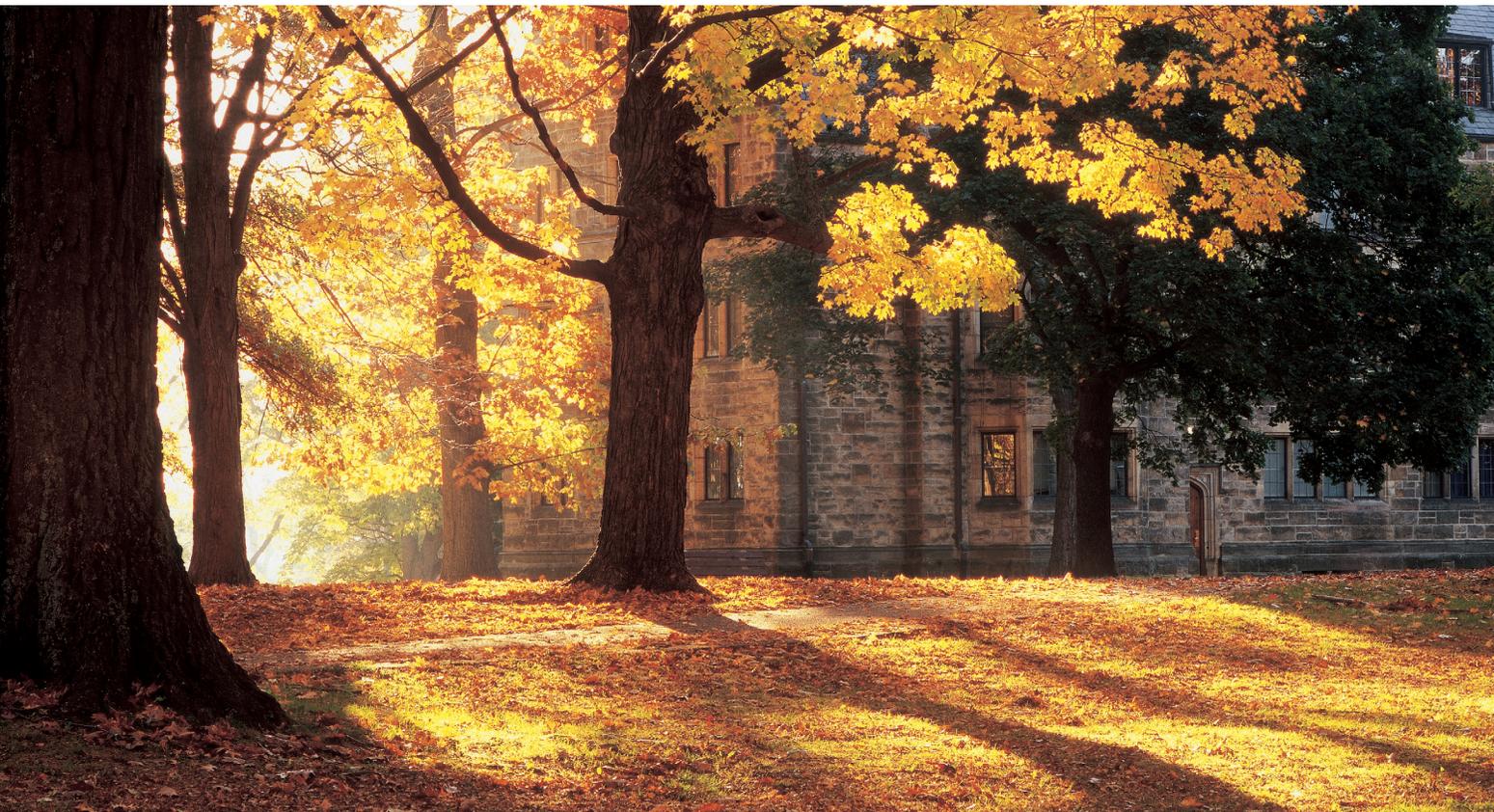


FIELD NOTES



TROUBLE IN LEAF-PEEPER PARADISE

by Mia Fox '19, BFEC Post-Baccalaureate Fellow

ONE OF THE GREATEST BOOKS I'VE EVER READ is the Farmer's Almanac. (For the purpose of this article, I won't get into the differences between the "New" and "Old" Almanacs. I'll leave that to the farmers.) Don't get me wrong; plenty of works challenge it, but if there is anything my English degree has taught me, it's that any book that weaves together the landscape ethic, treatment of flora and fauna, and long-term weather predictions belongs to a pedigree of its own. Put simply, reading the almanac is a wonderful time.

After flipping through the first dozen or so pages, you'll come to find that central to the publication is its long-term weather predictions and planting guidelines that tout, according to the authors, 85 percent accuracy. Though a study from the University of Illinois revealed this number to be 50 percent in actuality, disciples of the publication may be faced with a more tangible challenge to the accuracy of the weather and planting predictions — declining crop yields. The culprit? Climate change.

The United Nations International Panel on Climate Change (IPCC) report predicted an average 4 percent decline in global crop yields every decade going forward — that's hundreds of acres phasing out annually — due to drought, flooding, insect infestations and other symptoms of a warming planet. Despite the best intentions of the self-proclaimed "useful" almanac, our autumn cornucopias might start to look a little less like megaphones and more like sugar cones.

One thing, however, that both IPCC and the almanac do not address is the future of the linchpin of autumn — fall foliage. Yes, leaf-peepers, listen up. Our precious burgundies, ochres and orange hues are also being threatened by warming temperatures.

IN THIS ISSUE

Page 2 – A Slice of Pumpkin History

Page 3 – Turkey Talk

Page 4 – Upcoming Events and Programs

Page 6 – Final Footprints

Page 6 – Winter To-Do List

Page 7 – Summer Donors and Volunteers

Yes, if the food on our table is threatened by global warming, I'm sure few people will be pondering fall foliage displays. But for now, let's indulge in thinking about how global change might affect fall color. After all, if it is going to alter how we may see the hues of the world, we ought to know about it. What aspects of the changing climate could affect fall color? Here are just a few: higher temperatures, changes in precipitation, changes in competition, and many others. As you can see, lots of factors could disrupt fall color displays! Let's explore how they individually would work to alter leaf color.

To understand why increased temperatures influence leaf colors, we need to know some basic plant physiology. Trees respond to two main environmental factors with respect to fall foliage color: day length and temperature. Because day length changes at a consistent rate, it is a good proxy for changing seasons. As the day length gets shorter in the fall, trees start the programmed degradation of the green pigment that plants use to capture light, chlorophyll. This is called senescence. When the chlorophyll is gone, the underlying pigments that give rise to orange and yellow leaves (carotenoids and xanthophylls, respectively) show through. Yay! Color! As any true Ohioan knows, temperatures can vary greatly at any given time of the year. This is why trees use temperature only as a secondary cue. If the fall is cool, the chlorophyll breaks down faster, hastening the development

A SLICE OF PUMPKIN HISTORY

by Emma Renee Coffman '22

EVERY YEAR AS THE LEAVES BEGIN TO FALL, we see them all over — in our pies, in our homes and even in our lattes — pumpkins! But the bright orange squash that we know today has evolved over the centuries. The pumpkin has a history as rich and thick as a slice of pumpkin pie.

Over the centuries, the pumpkin has been known by many names, but it is thought to have originated from the Greek word *pepon*, which means “large melon.” Though it is commonly considered a vegetable, it is botanically classified as a fruit.

The oldest known domesticated pumpkin seeds date back to more than 7,500 years ago in the Oaxaca Highlands of modern-day Mexico. These pumpkins were much smaller, harder, and more bitter in taste. It wasn't until later, in North America, that they became one of the earliest crops grown for food, as their tough flesh helped them keep longer in the harsh colder months. Pie is the most common pumpkin dish, but pumpkin pie in its earliest form came about in the late 1800s when sweet milk was roasted over fire in carved-out pumpkin shells. Pumpkins were very popular with American colonists and were actually used in cooking as early as 1672, with a recipe published in John Josselyn's “New England's Rarities.” In early recipes like this one, pumpkin was served in savory dishes rather than desserts.

In addition to their love for delicious squash, early colonists brought something else with them to the New World: their legends. The jack-o'-lantern is a cultural icon recogniz-

of color. If it is warm, chlorophyll sticks around a bit longer, delaying the onset of fall color. Knowing this, we can naturally assume that if global warming results in warmer fall temperatures, fall colors could be delayed. Could we lose colors entirely? Probably not, but we may see extremely muted hues.

The biggest unknown in determining fall colors will be future tree distributions. Landscape ecologist Louis Iverson and his colleagues at the U.S. Forest Service in Ohio have generated maps of the present and predicted future distribution of major tree species in the area. Red spruce, black cherry and several species of oak — all common in regional forests — are predicted to migrate north into Canada, leaving few individuals in the U.S. By migrate, I mean produce seeds that are transported north each year. Trees, of course, don't uproot themselves and walk around. If only. Whether another species will step in to take their place is not something that can be determined. Plants tend to be picky about soil quality. If soils are unacceptable in new northern territory, that species may not survive.

I understand: dull fall foliage probably ranks low on the list of concerns about global change. But, hard-headed scientist I am, I argue that sparse or muted fall colors may, in the end, be the canary in the coal mine telling us that more subtle and consequential changes are occurring in our world. There's your weather prediction — no almanac needed.

able to almost any American today, but few know the story behind the jagged smile. The jack-o'-lantern derives from an old Christian Irish tale about a man called “Stingy Jack.” Jack was a troublemaker, and one day he tricked the devil himself into a trap. He offered the devil a deal: Jack would free the devil if the devil promised not to take Jack's soul after his death. The devil agreed and was freed from Jack's trap. When Jack died, he was rejected from heaven (the little trouble maker). When he went down to hell, the devil kept his promise and refused to take him. Instead, Jack was given a single glowing ember, which he still uses to guide him through the dark as he wanders aimlessly for eternity.

In the spirit of this story, many Irishmen carved out turnips, potatoes and gourds on All Hallow's Eve to ward off evil spirits. They were first called “Jack of the Lantern,” which eventually became “jack-o'-lanterns.” When this story found its way to the American colonies, the colonists realized the pumpkin was perfect for carving. Carving jack-o'-lanterns became a Halloween tradition, and the carved pumpkins are now typically recognized as a symbol for the scary season.

Whether it be a Thanksgiving treat or a Halloween decoration, the pumpkin will always stand as a reminder of America's long history of good food and storytelling. This year, if you haven't already, consider adding a slice of history to your table or front porch: go pick a pumpkin!

TURKEY TALK

by Jonah Dominguez '22

LET'S TALK TURKEY. I don't mean that in the sense of “we've got important business to discuss.” I mean, let's sit down and talk about the history of everyone's favorite Thanksgiving meal.

Turkeys are, in many ways, an American icon. They're associated with the Pilgrims and our origins as a country, the yearly pardoning of a turkey is one of the president's lighter duties, and I bet most of us have, at one time or another, used our outstretched hand to replicate one. I imagine those would be the first images that come to your mind when I ask, “What do you know about turkeys?” Perhaps you'll have a few facts about their general life or role in American culture, but, overall, turkey knowledge is likely lacking. So let's take a look back at the origins of human relationships with turkeys and how both the birds and their role in global societies have changed.

For an accurate history of our feathered friends, we have to turn the clock back to 300 B.C., to Mexico and the Aztecs. Recent studies have found turkey remains in Aztec and Mayan temples, and DNA records indicate that the species are almost identical to the wild turkeys that can be encountered today in North America. Many of the turkey bones discovered in Aztec sites were not eaten but rather buried in gravesites or used for ritual sacrifice, giving evidence to their cultural significance. Their remains were used in Mayan medicines, tools and instruments. That isn't to say that turkeys weren't eaten, but, much like today, their place in Aztec and Mayan society was more than just dining. They served as cultural, and apparently religious, icons.

When did the turkey come to occupy the role it does today in American culture? Well, that's a bit tricky to follow. The exact time the turkey made its way out of Central America is murky, at best. So, what do we know? The Spanish encountered turkeys in the new world, writing numerous texts describing Aztec and Mayan food, which included tamales made of turkey.

The Spanish then introduced the bird to Europe. In 1511, King Ferdinand of Spain ordered every ship sailing from the New World to Spain to “bring 10 turkeys, five male and five female.” By 1525, turkeys were selling out at European markets, although they largely were status symbols with only the wealthy being able to purchase a turkey for their Thanksgiving or Christmas meals. Because of their popularity in Europe, when the emigrants piled onto boats to sail to America, they brought their turkeys with them. They must have been quite surprised to see the native North American wild turkey running around everywhere.

Ben Franklin was believed to have advocated for the wild turkey to serve as the national emblem of his fledgling country. Contrary to popular belief, this story is actually a myth. In a letter that Franklin wrote to his daughter, he was critical of the bald eagle as the national bird, believing it to be “a Bird of bad moral Character,” while Franklin held the turkey in higher esteem, describing it to be “a little vain & silly, a Bird of Courage, [that] would not hesitate to attack a grenadier of the British guards who should presume to invade his farm yard with a red coat on.” In spite of this, he never advocated for it to be our national bird.

Wild turkeys are native to all of the eastern states in the U.S., and at the time of the colonial establishment in the U.S., wild turkey populations were quite large. These populations plummeted during the age of gunfire, and by the mid-19th century New England was devoid of wild turkeys. But our tasty turkey was saved from extinction by reintroduction efforts.

Thanksgiving was codified as a national holiday in 1863 by Abraham Lincoln, reportedly at the repeated urging of Sara Josepha Hale, the editor of the magazine *Godey's Lady Book*. By then, the turkey's reintroduction efforts were successful enough to allow the bird to be farmed both for profit and personal use. Turkeys could be served semi-regularly at Thanksgiving meals, affordable for both upper- and middle-class families.

American turkey breeding saw its final spike during the 1940s. Before then, the birds, while not uncommon, were still more expensive compared to their counterparts of today. During this time, the push to raise millions of birds caused the bifurcation of our domesticated turkey from the wild turkey as turkeys were selectively bred for an increased proportion of white meat to dark meat.

The history of the domesticated turkey is long and tangled, but turkeys have been around for a lot longer than most expect and have probably seen more of the world than most of us. Our modern perception of the turkey, revolving around our Thanksgiving feasts, is far different from the religious significance that the Aztec attributed to the bird, and even from Franklin's view of it as a “courageous bird.” In the years to come, who knows where the turkey's legacy will take it.





UPCOMING EVENTS AND PROGRAMS

Programs for All Ages

Nature Photography Contest

ACCEPTING SUBMISSIONS THROUGH OCTOBER 14

Submit your photo entries for the 22nd Annual Knox County Nature Photography Contest. Deadline to enter is October 14. The Resource Center is open Monday through Friday, 8 a.m.-4p.m. Entries will be displayed at the Fall Harvest Festival on October 19. For more details, visit bfec.kenyon.edu.

Outdoor Om: Yoga at the BFEC

EVERY WEDNESDAY THROUGH OCTOBER 30, 12:10 - 12:55 P.M.

Use your lunch break to de-stress with a free outdoor yoga class. Bring your kids, grandkids, friends, or anybody else. Open to all ages. Bring your own mat or use ours. *Meet in the BFEC garden (behind the farmhouse).*

Kokosing River Run (5K/10K)

OCTOBER 19, 9:30 A.M. (RACE START TIME)

Come get your feet dirty. Run or walk this 5K/10K trail race that will loop through BFEC's southern trail system. Register in advance at racepenguin.com. Go to "events," enter the date and then click on "Family Weekend Kokosing River Run." Registration on race day begins at 8:00 a.m., and the race begins at 9:30 a.m. Registration fee is \$20 for the 5K and \$30 for the 10K. Proceeds will go in part to Central Ohio Diabetes Association. Sponsored by Hillside Veterinary Clinic, Kenyon's Social Board, BFEC, and other community partners.

Fall Harvest Festival

OCTOBER 19, NOON - 4 P.M.

This free family event includes hay rides, live music, children's activities, farm animals, campfire, cider press, pumpkin decorating, the Knox County Nature Photography Contest show and much more. Join us!

Knox County Birders

OCTOBER 26, 9 A.M.

Learn more about birds and birding from members of the Knox County Birders. The group is open to everyone and meets monthly at various locations around Knox County. For more information, check the group's Facebook page (facebook.com/groups/650065608762589) or contact Judith Crouse at judithcrouse59@gmail.com. *Meet at the Laymon Road River Access parking lot.*

Forest Foray: Guided Hike

NOVEMBER 9, 2 P.M.

Join Dave Heithaus '99, Kenyon's director of green initiatives and former BFEC facilities director, to enjoy this moderately challenging hike. The hike passes Walker's Pond and includes parts of the New Gambier Loop, a section of the Bishop's Backbone Trail and the Corridor Trail. Heithaus will talk about the blood, sweat and tears that went into forging these trails. Approximately two miles. *Meet at Miller Observatory.*

Knox County Birders

NOVEMBER 23, 9 A.M.

Learn more about birds and birding from members of the Knox County Birders. The group is open to everyone and meets monthly at various locations around Knox County. For more information, check the group's Facebook page (facebook.com/groups/650065608762589) or contact Judith Crouse at judithcrouse59@gmail.com. *Meet at the Laymon Road River Access parking lot.*

Holiday Wreath Workshop

DECEMBER 7, 1-4 P.M.

Relax and celebrate the season while you create your very own holiday wreath. All materials will be provided. Space is limited; call now to save your seat. To register, call 740-427-5052 or email jordan2@kenyon.edu to register. Materials fee for Members \$20, Non-members \$25. *Meet at the BFEC Resource Center.*

Christmas Bird Count

DECEMBER 15, 7 A.M.-4 P.M.

The Christmas Bird Count is a long-standing national initiative. Help us count birds in different areas of Knox County. Volunteers are needed at home feeders and in the field. Lunch is provided at noon at the BFEC for all participants. Call 740-427-5052 or email jordan2@kenyon.edu to register.



Youth and Family Programs

Family Nature Quest: Squatch Watch

OCTOBER 5, 10:30 - 11:30 A.M.

The hunt is on for the elusive Sasquatch. We'll explore the BFEC property and talk about ways you can track animals (and mythical creatures) from footprints to scat. Then we'll create animal tracks to take home. If we're lucky we'll catch a glimpse of Bigfoot himself. *Meet at the picnic pavilion. In the event of inclement weather, program will be held in the Resource Center.*

ODNR-Approved Hunter Education Course

OCTOBER 9, 5:30 P.M. - 8:30 P.M., OCTOBER 10, 5:30 P.M. - 8:30 P.M.,

OCTOBER 12, 9 A.M. - 3 P.M.

This course for ages 16 and under covers conservation, safety, ethics, proper handling of shotguns and handguns, bow hunting gear, and more. When the course is complete, participants will be tested. A score of 75% or higher will pass and obtain ODNR hunting certification. Study materials and all necessary equipment, including firearms or archery equipment, will be provided. The course will take the entire three days to complete.

To register, go to ohiodnr.gov, select "take a course/hunter education." Under "instructor-led course" select "find a course." Follow the prompts to select "hunter education" and "classroom activity type." Type "43022" for zip code and then select BFEC as the location.

Bats, Bugs and Brownies

OCTOBER 12, 1 - 5:30 P.M.

Brownies will explore two different locations on Kenyon's beautiful campus while earning two badges during this fast-paced afternoon. All requirements for the Fair Play and Bugs badges will be completed, and everyone will leave with their new badges. While we can bring everyone indoors in the event of unsafe weather, we plan to be outside rain or shine. To register, go to www.gsoh.org/en/events-repository/2019/bats_bugs_and_browni.html.

Family Nature Quest: Scaredy Plants

OCTOBER 26, 10:30 - 11:30 A.M.

Things are getting spooky at the BFEC. Venture into the woods for a Halloween hike where we may encounter creepy critters and plants. Costumes and treat collection bags are encouraged. Be ready for a few family-friendly frights. *Meet at the Picnic Pavilion. In the event of inclement weather, program will be held in the Resource Center.*

FINAL FOOTPRINTS

Green Burial at Kokosing Nature Preserve

by Amy Henrickson, preserve steward

THE KOKOSING NATURE PRESERVE, created by the Philander Chase Conservancy in 2015, is the first and only green burial cemetery located in Central Ohio. Burials at Kokosing Nature Preserve take place using biodegradable burial containers, without the use of embalming or concrete vaults, and all in a beautiful, natural setting. Grave sites are permitted to return to their prairie or woodland state in the weeks and months following an interment service.

Individuals are increasingly choosing green burial for a host of reasons, but one of the top reasons given is an effort to make one's final footprint on this earth as small as possible. In his book "Grave Matters," author Mark Harris notes that a conventional 10-acre cemetery "contains enough coffin wood to construct more than 400 houses, 900-plus tons of casket steel and another 20,000 tons of vault concrete. To that add a volume of formalin sufficient to fill a small backyard swimming pool and untold gallons of pesticide and weed killer to keep the graveyard preternaturally green." This negative impact on the environment is eliminated by green burials, using what remains of our physical beings to perpetuate the natural cycle of life.

Kokosing Nature Preserve is located at 10620 Quarry Chapel Road and is open daily from dawn to dusk. Visitors are welcome and are encouraged to walk the paths and enjoy the beauty of the space. For more information email info@kokosingnaturepreserve.org or call 740-427-5040.



A WINTER TO-DO LIST

by Jess Dannery '22

AS FALL LEAVES BEGIN TO PAINT MIDDLE PATH and the days grow shorter, the Gambier community prepares for changing weather during the fall and winter months. During a recent conversation with a friend from California, my friend bemoaned her winter fate: "There's nothing to do in Ohio when it gets cold!" In response to my friend's desperation, I offer the following suggestions for a late fall and winter to-do list.

Practice your photography skills by taking pictures of the evolving fall and winter landscapes. Capture the vibrant fall leaves and the beauty of non-hibernating winter animals, like cardinals, blue jays and deer. And then submit those photos for the BFEC Nature Photography Contest. Submissions are due by October 14.

Take a walk with your friends, and use the backdrop of fall leaves or elegant snow for an impromptu photo shoot.

Use the BFEC's outdoor walking trails to remain active and get fresh air. The pine plantation is particularly beautiful when you can wander the rows of evergreens dusted with snow. When the snow gets deep, you can also ski or snowshoe on the BFEC trails.

Explore the art of fall and winter gardening. Fall crops like kale, swiss chard and radishes flourish in the colder temperatures. If you don't have space for a full garden, container gardening is easy. Vegetables, herbs and succulents will brighten your front stoop during the colder months.

Become a foodie. Enjoy the unique foods Ohio has to offer. Go apple picking, visit the farmers market for seasonal produce or enjoy locally produced Ohio maple syrup, including syrup made from trees on the BFEC's property. Baking apple crisp, making butternut squash soup, and enjoying maple syrup on pancake, or as a sweetener in your tea are culinary ways to experience Ohio's changing seasons. Take a day trip to Amish country and enjoy their amazing home cooking.

C'mon, friends! How many ideas can you come up with? There are many creative ways to enjoy Ohio during the colder months, as each season offers new opportunities to appreciate Ohio's beauty.

DONORS AND VOLUNTEERS *Summer 2019*

To our donors: Your generous support keeps our existing programs running and allows us to expand our reach into the community. Many humble thanks.

To our volunteers: Thanks for your back-breaking, knee-busting help during the heat and humidity of summer. We couldn't do it without you!

BENEFACTOR

Buffy and Bob Hallinan
Joe and Kimberlee Klesner
David and Kim Newell
Dennis O'Connell
Nicolas and Linda Penniman
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Andy Pearlman and Jaime Cohen
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VOLUNTEERS

Al-Ummah, 105 high school students from around the country

Colter Hoar, Franklin University intern and community member

Drew Kerkhoff, Kenyon faculty

Duncan Hardy, high school student and community member

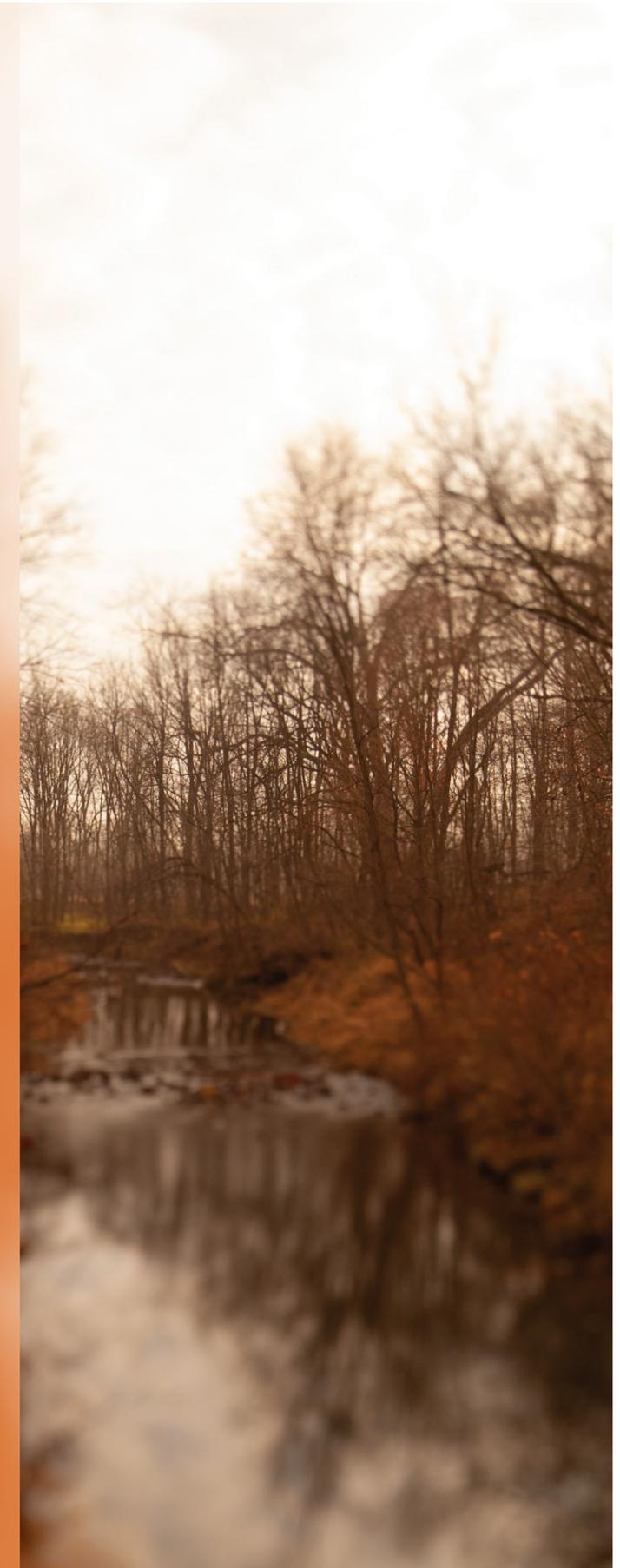
Emma Buehrer, high school student and community member

Emma Lawrence, high school student

Greg Gillen, Oberlin College intern and community member

Taylor Combs, Hocking College intern

Terri Heironimus, community member





Brown Family Environmental Center at Kenyon College

bfec.kenyon.edu | 740-427-5050

BROWN FAMILY ENVIRONMENTAL CENTER | 9781 LAYMON ROAD | GAMBIER, OH 43022-9623

OUR MISSION

The Brown Family Environmental Center exists to support the academic goals of Kenyon College, to provide opportunities for education and research, to engage Central Ohioans of all ages with nature, and to conserve the natural diversity of the Kokosing River valley.

OUR STAFF

Mia Fox '19, *Post Baccalaureate Fellow*

Jill Kerkhoff, *Facilities Coordinator and Office Administrator*

Shane McGuire, *Land Manager Naturalist*

Noelle Jordan, *Manager*

CONSIDER MAKING A GIFT

TO MAKE A GIFT, PLEASE FILL OUT THE INFORMATION BELOW, DETACH THE SHEET AND SEE MAILING INSTRUCTIONS.

There are many reasons to give, including the satisfaction of knowing you're a part of critical environmental education and conservation programs. Receive preferred access to workshops, a hard copy of our newsletters, and a discount on bird seed. **Use the form below to send your contribution today.**

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Membership level:

Student \$20 Individual \$35 Family \$50

Friend \$100 Patron \$250 Benefactor \$1000+

Amount enclosed: _____

My check, payable to Kenyon College, is enclosed

Please bill my ____ Visa or ____ Mastercard

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Your donation is tax deductible as allowed by law. The Brown Family Environmental Center at Kenyon College is a 501c(3) nonprofit organization.

Mail to: BFEC, P.O. Box 508, Gambier, Ohio 43022