

FIELD NOTES



Rivers of Birds

The fall evening sky fills with murmurations, or massive flocks, of migrating starlings.

Image: Leonhard Lenz. From Wikimedia Commons. Used under Creative Commons 4.0.

Starling Murmurations: Rivers of Birds

BY EMMA RENEE COFFMAN '22, BFEC POST-BACCALAUREATE FELLOW

With classes beginning again, I can't help but reminisce about my back-to-school days as a teenager. After late nights of soccer practices and club meetings, the drive home through the country was always so breathtaking this time of year. Fall leaves, sunsets, and — perhaps the most memorable — a spectacular sight I could only describe as a river of birds.

I would always spot them over patches of trees, swooping and swirling in dizzying formations of easily thousands if not tens of thousands of silhouetted forms. Their shape together seemed so cohesive it looked more like a morphing splotch of black ink than a flock of birds, shifting and flowing against the backdrop of an evening sky.

The birds that put on these dazzling shows are European starlings, an invasive species initially native to Europe. They were first released in the U.S. in 1890 by a man who, according to a widely debated story, may have been trying to introduce to North America every bird mentioned in Shakespeare's works. Since then,

Continued inside

IN THIS ISSUE

PAGE 2 – Chimney Swifts

PAGE 3 – Fall Changes

PAGE 4 – Beech Leaf Disease

PAGE 5 – Salt in the Water

PAGE 6 – Programs and Events

these highly adaptable birds have spread across the continent, crowding out native cavity-nesting birds, damaging crops, and splattering streets and buildings with bird droppings. In short, they've really been ruffling some feathers.

Despite all this, I try to maintain a positive outlook on the birds — after all, it was not their fault they were introduced. I always lament the fact that so many invasive and destructive species are quite beautiful, and starlings are (for me) the epitome of this paradox. With sleek, shiny bodies, white-tipped feathers in winter, and dazzling iridescent purple and green plumages in the spring, starlings are truly a sight to behold.

What's really jaw-dropping about these birds is their unique flocking flight patterns like the ones I observed from my car all those years ago. What I called "rivers of birds" are actually known as murmurations, from the Latin word *murmuratio*, meaning murmuring or grumbling. Anyone who has stood near enough to the phenomenon would agree that this is a spot-on description for the raucous movement (and noise) of the birds. These noisy murmurations occur most often in the fall and early winter and again in early spring, usually around dusk as the birds return to a communal roosting spot for the night.

As mystifying as they appear, the cause of these murmurations is just as puzzling. The leading theory is that starlings

coalesce in this way to ward off predators like hawks and other birds of prey. It's easy to imagine how this strategy might work — it is extremely difficult to hunt down a single starling among thousands, especially when they are moving in such a disorienting fashion.

What I always found impressive was the fact that this effort seemed so coordinated. How can so many birds move together without crashing into one another? This is yet another mystery. But while we aren't certain about how this works, we do know that starlings have a tremendous ability to respond to one another's movements. Three-dimensional reconstructions of murmurations indicate that they may be moving in response to about seven of their neighbors, resulting in the collective flowing motion reminiscent of water. The result is something very much like a river of birds.

If you've never witnessed the starling murmurations, now is your chance. Get outside and look just over the trees or a large cornfield as the sun is starting to set. Some unspoken signal will rouse the birds, and they will all take flight together. Autumn skies are filled with delightful sights — stars at night, the harvest moon and so much more — but nothing really compares to the streams of birds flowing across the sky with a grace and fluidity to rival the Kokosing.

A Home for Chimney Swifts

BY NOELLE JORDAN, BFEC MANAGER

In a new partnership with the Owl Creek Conservancy, a chimney swift tower was installed on BFEC property in early September. Many thanks to Vicki Kauffman, her husband, Jeff Kauffman, and her father, Walt Kelling, who researched and built the tower. And, a special thanks to Shane McGuire of the BFEC and Derrick Laymon, Eli Norris, Jason Elliot and Dave McCoy of Kenyon's grounds crew who installed the chimney.

Chimney swifts are birds that nest in eastern North America, but their numbers have been declining in recent years as their traditional roosts have been destroyed. Before we started building chimneys, chimney swifts would roost in old, hollow trees. As these trees were removed from the landscape, the birds took up residence in chimneys. But now, with many folks capping their chimneys, these delightful birds are struggling to find roosting sites.

Chimney swifts cannot perch. Instead, they must cling to vertical walls when they land. The rough surfaces of chimneys and hollow trees are perfect for their feet to find purchase. Without hollow trees or chimneys, a man-made tower (built to specifications) will work just fine.

Through the summer, these acrobatic birds put on quite a display as the sun sets each night. They take flight, feeding on the wing and chattering to each other the entire time. They feed on flying insects of all sorts. We

should thank them for their service. Two adult swifts and their young can eat up to 12,000 insects in one day.

In the fall, they migrate to South America. During migration, large flocks will form at sunset. There are two chimneys at the Bladensburg Community Center that these birds use regularly. Kim Davidson, Owl Creek Trustee and Director of the Bladensburg Community Center, says that as the sun starts to set, a few scouts will show up. These scouts select the chimney that they will use that night, and then suddenly a huge flock will show up. They feed for a while, and then they all settle into the chimney for the evening. In the morning, the entire flock will leave to continue their journey to South America. And later that night, another flock will show up.

Chimney Swifts are protected by the Migratory Bird Treaty Act of 1916. If they have taken up residence in your chimney, it is against the law to remove their nests, eggs and the birds themselves. Be sure to close the damper to prevent them from entering your house, and at the end of the season, you should have your chimney cleaned.

A New Tower

The BFEC's new chimney swift tower rises above the Labyrinth Trail.

Image: Noelle Jordan



Cycles, Change and Obliquity

BY NOELLE JORDAN, BFEC MANAGER

In spring 2006, I found myself in Saco, Maine, teaching outdoor ecology classes at a residential outdoor school called the Ferry Beach Ecology School. The standard introductory lesson that we taught to every incoming group was called the ABC's of Ecology. The "A" stood for abiotic, the "B" for biotic, and the "C's" for cycles and change. During our staff training, I remember the executive director, Drew Dumsch (very dynamic and a little crazy), donning a ridiculous costume, picking up a guitar and singing an ecological spoof of David Bowie's song, "Changes." Memorable. And every year — in the fall and again in the spring — as the Earth moves in its orbit around the sun and the natural world changes drastically, I think of Drew, that song, the lesson and the Ferry Beach Ecology School.

I love autumn. It's been my favorite time of year since I can remember. I love most of the changes autumn brings: cooler days, lower humidity, the sunburned colors of rust and mustard, and the constant high-pitched whirrrrr of crickets. I initially welcome the shorter days. As it gets darker earlier, it feels like a great excuse to become quiet and settle in a little earlier each night. (By the time we hit the winter solstice, I'm over it, but that's another story.)

The annual rhythms of Earth's seasonal cycles, marked by the equinoxes and solstices, are comforting to me. The long, slow drum beats of time are the milestones that bring about the changes from one season to the next. These milestones deeply impact the everyday minutia of our lives — how we dress, the activities that we participate in, the produce that is available to us in the grocery store — and yet they pass with barely a notice from most folks. So today, I ask you to acknowledge with me the recently passed autumnal equinox (September 22, Eastern Time) and the upcoming winter solstice (December 21, Eastern Time).

Now, let's see how many of us are as smart as fifth graders.

Question: What causes the earth's seasonal changes?

Answer: The axial tilt of the earth.

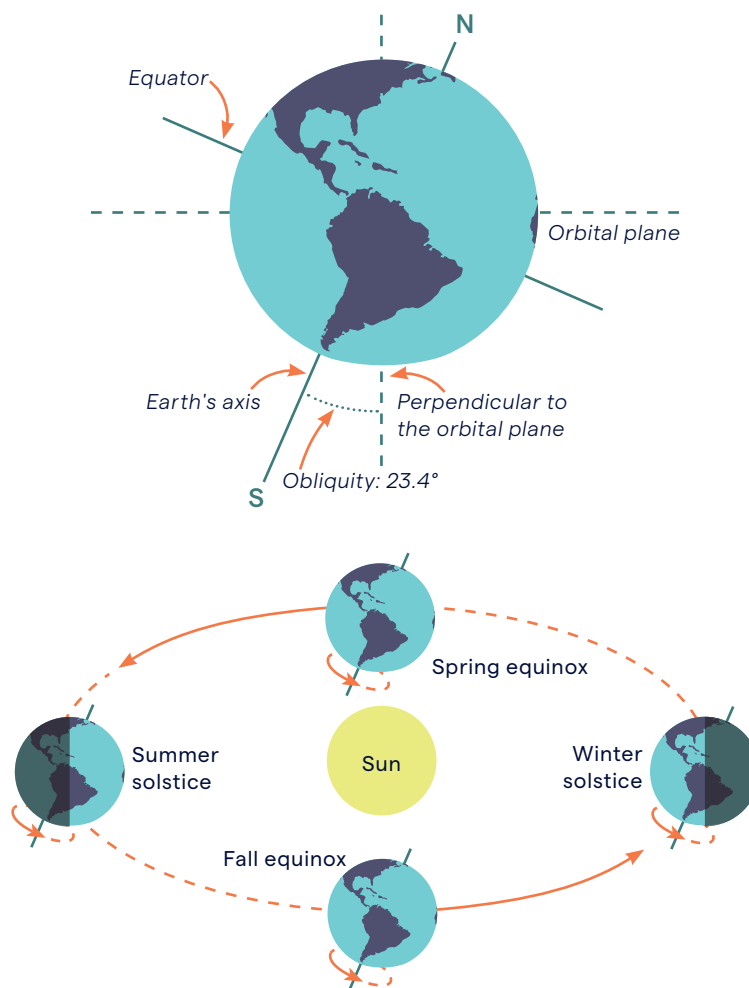
Did you get it right? Great! Now, here are a few more details for you.

The Earth spins on its axis, which is tilted at about 23.4 degrees (some sources say 23.5 degrees). This tilt is also referred to as Earth's obliquity — the amount of deviation between the axis and the planet's orbital plane. This spinning results in our day/night cycle. One spin happens in 24 hours.

As the Earth spins on this tilted axis, it also orbits around the sun. One year equals one complete trip around the sun. As it orbits, the Earth's orientation in space remains the same — the axis always points to the right, if you will (or to the left, depending on where you would be floating in outer space). Because of this tilt, at the solstice points, one hemisphere leans toward the sun resulting in summer in that hemisphere, while the other leans away from the sun resulting in winter in that hemisphere. At the equinox points, both hemispheres are in the same plane relative to the sun. Or in more accurate terms, these are the moments

when the Earth's rotation axis is directly perpendicular to the sun-Earth line, tilting neither toward nor away from the sun.

The language can be very confusing, but a picture is worth a thousand words:



Once the Earth passes the autumnal equinox point, we see lots of changes as the photoperiod (amount of daylight) gets shorter each day. Animals that migrate are already well on their way to their winter resorts. Other animals start seriously thinking about the many varied forms of torpor. Still others will squirrel away food so they can remain active through winter. Trees and shrubs will produce lots of nuts and berries. Then they will drop their leaves. Other plants complete their life cycle and die back. Pumpkins and apples ripen, and some humans will start to bake pies. In response to cooling temperatures, other humans will shake out their sweaters and start taking hand warmers to football games.

Ah, who doesn't love fall? Sing it with me now: "Ch- Ch- Ch- Changes!"

The Mystery of Beech Leaf Disease

BY SHANE MCGUIRE, BFEC LAND MANAGER/NATURALIST

Beech leaf disease (BLD) is a newly discovered disease that is attacking our native beech trees as well as European and ornamental beech trees. BLD was first discovered in northeast Ohio in 2012. Since then, scientists and researchers have been trying to solve the mystery of what exactly causes BLD and how it spreads. While much has been learned, there remain many uncertainties.

American Beech (*Fagus grandifolia*) are found throughout the eastern U.S. and Canada. In some areas, beech trees constitute up to 25 percent of the forest. These handsome trees have smooth silvery gray bark, grow up to 120 feet tall and live up to 400 years. They are important to wildlife for shelter, and they provide food in the fall for birds, bears and other wildlife.

BLD is thought to be caused by a foliar nematode, which is a microscopic worm-like organism. It is unclear exactly how the nematodes impact the leaves and buds of the trees, but recent research suggests that the nematodes carry a fungus and several bacteria species that may contribute to the disease. Infected leaves are noticeable as soon as they emerge in the spring. They appear to have dark green stripes, or they look puffy or curly, or they will have a withered appearance with a leathery texture.

During the growing season, infected leaves are unable to photosynthesize, and the leaves usually drop early from the tree. As the disease spreads throughout the tree — in about six to 10 years for a mature tree — the tree will eventually die. Younger trees may die in two to seven years.

BLD is spreading quickly. In 2012, it was known to be in one county in Ohio. Now, it is in eight different states and in Ontario, Canada. It is still unknown how the disease moves from tree to tree, and state to state.

At this time, there are no proven treatments for controlling BLD. Researchers are treating infected trees with nematicides to help deter the nematodes. If this treatment proves promis-

ing, it may be a solution for residential trees, but this type of treatment is not practical or cost-effective for entire forests.

How can you help? Start with some reading. The resources at the end of this article will be a great place to start. Then monitor your trees. The best time to do that is when the trees leaf out in the spring. BLD usually starts at the base of the crown and then works its way up to the top. Stand at the base of your tree and look up into the canopy. If you see any of the leaf characteristics mentioned above, your tree most likely has BLD. If you feel that your trees have BLD, report it to the Ohio Division of Forestry. The state forester for Area 7, which includes Knox County, is Katie Gerber. She can be reached at katherine.gerber@dnr.ohio.gov, or at 614-425-7767.

For more information

Ohio Department of Natural Resources
ohiodnr.gov

ODNR provides great information about BLD with additional links to free articles, webinars and more. Search for "beech leaf disease" for specific information.

New York State Department of Environmental Conservation
www.dec.ny.gov/lands/120589.html

The DEC provides photos for identifying BLD and many other ailments of beech trees.

Tree Health Survey app

You can download the Tree Health Survey app to your smartphone. It allows users to act as citizen scientists and upload data and photos to help track the spread of BLD. It includes a training module to learn how to identify beech trees and BLD symptoms.



Remembering a BFEC Pioneer

Phil Jordan, Kenyon President, 1975-1995

Philip Harding Jordan Jr. H'95, president of the College from 1975 until his retirement in 1995, was instrumental in establishing the Brown Family Environmental Center, which was founded as the Kenyon Center for Environmental Studies. He worked closely with Ray and Pat Heithaus, both biology faculty at the time, planning an outdoor laboratory for Kenyon students and a resource for the Knox County community. Everything that the BFEC is today is due in large part to Phil Jordan's support and vision. We honor him, his life and his accomplishments.

President Jordan died on Friday, July 22, 2022. A longtime resident of Chebeague Island, Maine, he had celebrated his 91st birthday in June.

Jordan's 20 years as Kenyon's head covered some of the most consequential times in the College's history. During his presidency, Kenyon consolidated its identity as a coeducational institution, took steps to diversify its faculty and student body and conducted its first comprehensive capital campaign. The College also added new academic options, joined in the creation of the North Coast Athletic Conference and resumed publication of the Kenyon Review.

Photo: Phil (right) and Sheila Jordan walk the grounds of the newly acquired BFEC with Ray and Pat Heithaus.

Salt in the Water?

BY JULIELLA HANKINSON, HIGH SCHOOL JUNIOR AND BFEC VOLUNTEER

As we prepare for the next snowy season, let's think about salt — particularly, road salt. Road salt is applied to our local roads in winter, causing snow to melt and clearing off the roads. However, only a certain amount of salt is needed to lower the freezing temperature and melt the snow. Many people are unaware of this and tend to use too much salt, sometimes until it is crunchy underfoot or large piles are left on the roadside. When this much salt is on the roads, the chemical reaction that melts the snow no longer happens because the reaction limit has been reached.

Eventually, after the salt is applied, it will rain. The rain washes the salt off the roads, into the storm water sewer system, and eventually into streams and rivers. Some salt may dissolve with the rain and be held in the soil to be washed into the waterways later. The accumulation of salt in our freshwater streams causes the aquatic wildlife to weaken or die, thereby threatening the entire aquatic ecosystem.

Research shows that the use of salt has increased since the 1990s, especially in urban areas. This increase is particularly problematic because these areas already tend to have high levels of chloride in the water. The addition of salt runoff makes chloride levels even higher. In fact, large cities have had instances of pools of dead fish floating at the surface after extremely high chloride readings.

Nearly a year's worth of testing of the chloride levels in Wolf Run Creek where it flows through BFEC property along the New Gambier Loop Trail has revealed some interesting data. Wolf Run Creek does not have toxic levels of chloride and seems to have low levels of chemical pollutants. However, from September 2021 through May 2022, testing revealed elevated levels of chloride, above the accepted normal level for freshwater. The results of one testing period that was conducted after road salt application showed increased chloride levels. A pattern that was noted as a result of regular

testing suggests that the amount of water in the stream impacts its chloride level. This in turn suggests that smaller bodies of water might show signs of a distressed ecosystem before larger bodies of water.

Salt is a great deicer, but these ecological impacts are serious. So what can we do about it? Is there anything that you and I can do to stop or minimize the amount of salt that gets into our local waterways?

For homeowners who use salt on their driveways, take advantage of these fall months to calculate exactly how much salt is needed for the square footage of your driveway. This will prevent excess salt from being applied. (It may also save you some money.) Only one quarter of a teaspoon is required per square foot, and pre-wetting the salt makes it more effective. If you see piles of salt pushed to the side of the road and can safely remove it, you can dispose of it or even keep it to use at a different time.

If you're willing to take more action, you can volunteer for organizations like the Izaak Walton League. The Winter Salt Watch program through the Izaak Walton League has volunteers in 25 different states testing salt levels. All data obtained from this research are reported to Water Reporter at waterreporter.org; the information is used to guide initiatives for healthy waterways.

Doing research on the effects of salting can help you decide how best to address the issue. Writing letters to your township, county and state governments can be helpful for raising awareness. And talking to business owners with wide sidewalks and large parking lots may make them more aware of the ecological damages caused by using too much road salt.

Road salt is necessary for our safety, and an alternate solution is needed before we can stop using it. But before you throw too much salt on your driveway, it's a good idea to understand how it works and how it affects our local ecology.

Juliella, or Ella as she is known by friends, is a homeschooled high school junior who has been a BFEC volunteer for one year. She also volunteers for ODNR and the Izaak Walton League as a stream quality monitor. As a result of her research on the effects of road salt, she was the recipient of the Ohio Stockholm Junior Water Prize from the Ohio Water Environment Association, the Ohio Water Environment Association Award, and additional recognition by the Ohio Academy of Science and the Izaak Walton League. She was invited to participate in the National Stockholm Junior Water Prize Competition held in June in Colorado.

Ella also volunteered at The Wilds helping to reintroduce American Burying Beetles and assisting with students in native habitats. She teaches a nature club to a group of students, preschool through sixth grade. She enjoys music, playing the piano, mandolin, ukulele, lap harp, lyre and guitar. And she likes watercolor and portrait drawing.

—Noelle Jordan

UPCOMING PROGRAMS AND EVENTS

Yoga in the Garden

EVERY TUESDAY AND THURSDAY THROUGH OCTOBER 27, 12:10 – 12:55 P.M.

Use your lunch break to de-stress with an outdoor yoga class. Bring your kids, grandkids, and friends. Open to all ages. Bring your mat or use ours. Free. *Meet in the BFEC garden (behind the white house).*

Paint Outside

EVERY TUESDAY THROUGH OCTOBER 18, 4 – 7:30 P.M.

These are informal gatherings with no instruction. Bring your own supplies, and meet other like-minded painters. Restrooms available in the Resource Center. These opportunities will be canceled in the event of inclement weather. *Meet at the picnic shelter.*

Himalayan Bowls and Chanting

OCTOBER 8, 10:30 – 11:30 A.M.

Allan Bazzoli M.D. will offer the sounds of 18 Himalayan singing bowls combined with harmonic chants from different cultures to immerse you in vibration and sound. Bazzoli will chant a blend of Native American sounds, the om chant (the universal chant), the dragon chant and the snow mountain chant. The one-hour program is limited to 12 participants. Half of the program's \$20 cost will fund a new flat screen television in the BFEC lecture room. Email or call now to reserve your spot: jordan2@kenyon.edu or 740-427-5052.

Fall Harvest Festival

OCTOBER 15, NOON – 4 P.M.

This free family event includes hayrides, live music, food trucks, children's activities, farm animals, a campfire, a cider press, pumpkin decorating, an art exhibit by plein air painters and much more. Join us!

Family Nature Quest: Bird, Butterfly, Eel

OCTOBER 22, 10:30 – 11:30 A.M.

Using the beautifully illustrated children's book "Bird, Butterfly, Eel" by James Prosek as our guide, we will follow the journey of three very different animals as they make their way south for the winter. We will make a trek ourselves across the many habitats of the BFEC to see what migratory animals live on the property. *Meet in the picnic pavilion.*

Family Nature Quest: Go with the Flow

OCTOBER 29, 10:30 – 11:30 A.M.

Winding, wide and watery — rivers are enchanting features of our natural world. For this Family Nature Quest, we'll spend some time by the Kokosing to learn what makes a river flow. We will then gather some riverbed materials and create a model of a river. *Meet in the picnic pavilion.*

Family Nature Quest: Leaf Hunt

NOVEMBER 5, 10:30 – 11:30 A.M.

With the fall season comes leaves of many colors, sizes and shapes. We will learn about what makes a leaf a leaf, the different parts of a leaf, and why they fall from trees. Then we will embark on a scavenger hunt to collect leaves for a fall bouquet. *Meet at the picnic pavilion.*



Fall Festivities

The changing of the season brings colorful celebrations to the BFEC, including the Fall Harvest Festival (Oct. 15), a family-friendly leaf hunt (Nov. 5) and a Holiday Wreath Workshop (Dec. 3).

Beaver Moon Night Hike

NOVEMBER 8, 8 P.M.

While we may be more familiar with the names "Harvest Moon" or "Blue Moon," November's full moon has a lesser-known name: the Beaver Moon. Join us on a hike in the moonlight along the River Trail to learn the storied history of these names and why a familiar semiaquatic mammal lent its own to our November moon. We'll also talk about the total lunar eclipse taking place early the next morning. *Meet in the canoe access parking lot on Laymon Road.*

Family Nature Quest: Ways to Play

NOVEMBER 12, 10:30 – 11:30 A.M.

Have you ever jumped in a pile of leaves? How about making leaf rubbings? Now's your chance for these and more seasonal ways to engage in Nature Play. Join us for some fall-time fun out on the BFEC property. Leaves and rakes will be provided.

Holiday Wreath Workshop

DECEMBER 3, 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; sign up now to save your seat. Call 740-427-5052 or email jordan2@kenyon.edu to register. Materials fee: \$20 for members, \$25 for non-members \$25.

Christmas Bird Count

DECEMBER 18

The Christmas Bird Count is a long-standing national initiative coordinated by the National Audubon Society. Help us count birds in different areas of Knox County. Volunteers are needed at home feeders and in the field. Call 740-427-5052 or email jordan2@kenyon.edu for more information.

DONORS AND VOLUNTEERS

SUMMER 2022

Kenyon provides financial support to the BFEC, but it is largely through the generosity of volunteers and donors that the center has been able to grow. We are indebted to the following individuals, groups, and businesses for recent donations of time, materials, and funding. If you would like to make a gift or volunteer for a project, please call the BFEC at 740-427-5050.

VOLUNTEERS

Drew Kerkhoff,
Kenyon faculty

Terri Hieronimus,
community member

Marianne Watkins,
high school student

Arianna Jackson

Ella Hankinson,
high school student

Bethany Hankinson,
community member

Dick Hall,
community member

Brian Miller,
community member

Bev Morse,
community member

Miriam Dean Otting,
community member

Sarah Goslee Reed,
community member

*And the following
Kenyon students:*

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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

Emma Coffman '22, *Post-Baccalaureate Fellow*
Jill Kerkhoff, *Facilities Coordinator and Office Administrator*
Shane McGuire, *Land Manager Naturalist*
Noelle Jordan, *Manager*

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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.**

name (first, middle, last)

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

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