BUR OAK LAND TRUST protects and conserves natural areas to enrich and engage current and future generations.

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President’s Column
by Ken Lowder

LOOKING BACK, 2018 has been a wonderfully successful year for the Trust. We are on track to receive our national reaccreditation early in 2019. The application process has proceeded very smoothly thanks to Board Secretary Steve Schomberg and Executive Director Tammy Wright.

The Trust applied for and has received a planning grant to allow us to host an AmeriCorps team in 2020. We hired Brooke Flattery as our contract Grant Manager, who will assist in this planning effort. The AmeriCorps grant will allow the Trust to significantly increase conservation efforts on our properties. There will also be a marketing component, which will help us educate the community about the Trust and the importance of land protection and conservation.

In terms of land protection, earlier this year we acquired by donation a one-hundred-acre property in Washington County. In addition, we recently closed on our fourteenth conservation easement – a beautiful property in Jones County.

Halfway through the year, Property Stewardship Specialist Seth Somerville left us, but within a short time we were happy to welcome Jason Taylor. Jason has already proven to be an extremely talented, hard-working asset to our staff.

Our capital campaign has been a great success, and we will be making the final payment soon toward the acquisition of the Big Grove Addition. This is a forty-acre parcel which adjoins our original Big Grove Preserve.

The Board has also gone through the process of renewing our strategic plan for the next five years, with some very ambitious goals. Upon fulfilling our plan, Bur Oak Land Trust will have become not just a local organization but will also have regional influence. It will certainly require all hands on deck going forward.

All of this would not be possible without the continued support of our loyal community and our dedicated staff. Thanks so much for your help as we look forward to a successful 2019.
Executive Director’s Report
by Tammy Wright

HAPPY NEW YEAR! Now that we have forty years under our belt, we’re moving forward and here are a few ways that you can help!

Do you have a connection with a local business? We are always looking to partner with locally owned businesses, assisting them in bringing in business while generating income for our organization. We appreciate our local libraries, banks, and businesses sharing their display spaces with us. Know somewhere Bur Oak Land Trust should or could place brochures or our display? Please tell us. We do not want to be the best kept secret around. We need you to assist us in getting our name out and sharing our mission to protect and conserve natural areas to enrich and engage current and future generations.

Volunteer for a committee – several opportunities are available: Development, Finance, Governance and Audit, Land Acquisition and Protection, Property Stewardship, Publicity, along with an occasional position on an ad hoc committee formed to plan an event such as “Under a Cider Moon . . . a Celebration of Autumn” or personnel and/or reaccreditation committees as needed.

The 12th annual, “Under a Cider Moon . . . a Celebration of Autumn” October 6 was amazing. Thank you to those who made it possible and we would love to have more support as we plan our 13th event.

Our contract grant writer, Maureen Marron has made it possible for Bur Oak Land Trust to secure an AmeriCorps State Grant. This is an organization-changing move that has forced us to learn a lot. We welcome Brooke Flattery to our team as our contract Grant Manager and look forward to her successful AmeriCorps State Grant application, which will allow us to hire the equivalent of 10 full-time AmeriCorps members this fall. It’s going to be a great year!

You can assist Bur Oak Land Trust in many ways. Yes, writing checks is one way. Others include bringing your used ink cartridges to one of our events or to the office; taking your items to Stuff, Etc., and crediting them to Bur Oak Land Trust’s account; sharing this copy of Heritage environmental journal with a friend; shopping Amazon Smile (name the trust as your non-profit), and, of course, volunteering your time, talent, and treasure. Please know that we appreciate anything that you do. We can’t do it alone. WE NEED YOU!

Facing page: Dirty Face Creek at Belgum Grove, photo by Bob Rude. Turkey Creek prairie burn with Chad Swope, photo by Tamra Elliott. Front cover: Prairie planting in the snow, photo by Seth Somerville. Back cover: Pancake ice, photo by Carl Kurtz. Above: Dark-eyed junco, photo by Melissa Serenda.

Property Steward’s Report
by Jason Taylor

AFTER CAPTURING A PHOTO of an American badger on a trail camera recently, I had a good excuse to learn more about the behavior and habitat requirements of Taxidea taxus. I have never seen a badger in Iowa, as they are a species, like bobcat, that seemingly live in the shadows whenever humans are present. I was fascinated to learn that the home range of the badger varies wildly depending on the season. One study by Sargeant and Warner found that a female badger’s home range was 1,790 acres in the summer, 131 acres in the fall, and 5 acres in the winter. I’m sure this mimics the seasonal “home range” of many lowans as well, with an unfortunate decrease in outside enjoyment by many over the winter months.

I have never been a winter sports enthusiast, but walking in a wooded area after a recent snowfall is one of the most serene environments I have experienced. The snow muffles sound in a manner similar to an anechoic chamber, making each footstep through the crusty snowpack seem like an unnecessary intrusion. The landscape takes on a monochromatic palette similar to an Ansel Adams print, with any deviation from white or brown drawing your eye. I feel more present, more connected to the landscape and its occupants while traversing in the snow, albeit while bundled up and never too far away from the warmth of a vehicle or structure.

Another advantage to trekking in the snow is that animal trails, normally unseen, are apparent to even the most amateur tracker. Lon Drake once showed a series of photos from his property in an environmental science class where he reconstructed the story of a rabbit being hunted by an owl. The photos were only of tracks, but once he pointed out how the rabbit’s tracks spread out as it started running, where the owl’s wings brushed the snow as it grasped for the rabbit, and how the rabbit skidded as it made a sharp turn to avoid the talons, it was as obvious as if I had witnessed it myself. It certainly made me want to discover more stories in the snow.

Winter is also a good time to work on brush clearing and invasive species removal. Honeysuckle leaves stay green and on the bush well after most native species’ foliage have dropped in the fall, allowing for easy identification from afar. While multiflora rose thorns are no less sharp, there is a certain satisfaction from cutting the canes and tossing them on a burning pile. If there is snow on the ground, and the area you are in allows it, creating a large pile and burning material as you cut provides a quick and easy way to dispose of brush. The ground beneath these piles can become sterilized, so you don’t want to create too many of them, but I have found that butterflies love to use the ashly, burned areas as puddling grounds in the summer.

If you haven’t yet taken an opportunity in this new year to explore the winter landscape of Iowa, I encourage you to do so.
**Exploring an Alternative Strategy for Water Quality Monitoring**

by Chris Jones

TRACKING WATER QUALITY PROGRESS provides a window into the effectiveness of conservation practices. Poor water quality indicates that we are not producing crops and animal protein in a sustainable way. One important water quality indicator is nitrate, a compound of nitrogen, and an EPA-regulated drinking water contaminant, primarily because it is a health risk to infants. Iowa streams have some of the highest nitrate concentrations in North America because of the high intensity agriculture conducted on much of the state’s land area. Nutrients like nitrate and phosphorous can result in algae blooms in lakes and rivers that reduce biodiversity and make the water unsuitable for swimming and other recreation. On a larger scale, nitrate from Iowa is a significant contributor to the dead zone in the Gulf of Mexico, which is caused by algae blooms exploiting high nitrate water and then dying and consuming oxygen. This reduces the level of dissolved oxygen in the water and creates a hypoxic zone that is unsuitable for fish, shrimp, and other aquatic organisms. Iowa is now working to reduce the state’s contributions of nitrate to the Mississippi River to reduce the Gulf of Mexico dead zone.

Agriculture drives much of Iowa’s economic activity, and if that is to continue, farmers, scientists, and policymakers must devise strategies that facilitate production in a sustainable way that minimizes stressors on our water quality resources. But water quality monitoring can be expensive and time consuming, and test results are often not available until weeks following the sampling. Generating credible data often is difficult.

University of Iowa scientists Chris Jones, Keith Schilling, and Ibrahim Demir recently completed a National Science Foundation (NSF) funded project to explore an alternative strategy for water quality monitoring: crowdsourcing data generation with a recently-developed smartphone app. The user of the app dips test strips in a stream; the strips change color based on the level of nitrate exposure. The strip is then placed on a reference sheet, a photo is taken with the smartphone camera, and the app uses the photo to quantify the nitrate level to a tenth of a milligram. The app gives users a more precise reading than is possible with the human eye and downloads the data to the Deltares website and the University of Iowa’s Water Quality Information System (http://iwqis.iowawis.org/app/) with the GIS coordinates of the sample included. Anyone visiting the websites can immediately see results of samples that have been measured.

The three researchers conceived the idea two years ago, when scientists from Deltares, a Dutch water and subsurface research institute, visited IIHR—Hydroscience & Engineering (IIHR) at UI. The visiting researchers demonstrated their nitrate app on water samples from the Iowa and Des Moines Rivers. Jones and Schilling thought the app had tremendous potential for fieldwork and wrote a proposal based on the tool for an EAGER grant (Early-Concept Grants For Exploratory Research) from NSF.

After being awarded the nearly $90,000 grant, Jones and Schilling began recruiting volunteers at Clear Creek and Middle Cedar Watershed Management Authority meetings to field test the app, and results were compared to those generated by traditional methods in a certified testing laboratory. Volunteers were encouraged to develop their own “water monitoring plan” to sample and measure stream nitrate in these eastern Iowa watersheds. About 500 samples were collected and tested with the app by the volunteers—a database that would have cost $200,000 to amass using conventional methods. Even though the project has now ended, the scientists will continue to evaluate the data along with the benefits and limitations of crowdsourcing data.

Many people in Iowa are interested in water quality and want to contribute time and energy in helping find solutions. However, many of those same people have a perception that you have to have formal training to be a scientist. The researchers here say that is helpful, but the main requirement to doing good science is curiosity. This project helped everyday folks participate in science in a meaningful way and make contributions toward finding solutions to Iowa’s challenging water quality problems.

Chris Jones is a Research Engineer at IIHR-Hydroscience and Engineering at the University of Iowa. He is also an avid angler and birder, and blogs about agriculture and water quality at: https://www.iihr.uiowa.edu/cjones/sample-page/.

Above photo Mikael Mulugeta, IIHR staff; below photo Turkey Creek at Turkey Creek Nature Preserve
Autumn Olive Most (Un)Wanted

- Forms dense thickets of shrubs
- Fixes nitrogen in soil, which can disrupt native species that require infertile conditions
- Occupies fencerows, old pastures, ditches, prairies, and forest edges
- Features simple and alternate leaves, with a dark green upper surface and distinctive silvery lower surface

Stop the spread!
Seedlings can be pulled, larger shrubs should be cut and have a 20% glyphosate solution applied to the stump.

Qualified Charitable Distributions

IF YOU HAVE CHARITIES you would like to support, pretax money saved in an IRA can be an ideal charitable donation. You may be eligible for a qualified charitable distribution if you are 70.5 or older, have an IRA, and would like to gift up to $100,000 to a qualified charity, tax free. Required minimum distribution (RMD) rules apply beginning at age 70.5 and rather than passing assets to a beneficiary—who will likely pay taxes when the inherited IRA is distributed—you can give these assets to a charity by taking a qualified charitable distribution. A qualified charitable distribution will count toward satisfying your required minimum distribution, and neither you nor the charity will have to pay income taxes. This charitable distribution is a great way to benefit Bur Oak Land Trust and reduce the taxes you pay and these distribution can be made yearly. Because standard deductions have increased starting in 2018, many will see no tax benefit from a regular charitable contribution, but qualified charitable distributions do have a tax benefit because a qualified charitable distribution is not included in your adjusted gross income (AGI). Talk to your financial advisor today to discuss making a qualified charitable distribution.

Protecting and conserving... for future generations!
THE AIR HAD A CRISP, fall-like quality to it the first Saturday of April last year. At Big Grove Preserve’s trailhead, my fellow volunteers and I shifted our weight from one foot to the other, rubbing our hands together and zipping up extra layers for warmth. After each grabbing a pair of gloves from the Bur Oak Land Trust stash, we picked up metal fence posts from a pile and headed along the trail towards the pasture, so beginning the work day.

After winding through the not-yet-blooming woods, across streams, and past the picnic bench, we crested a hill. In the bright morning light, one, then two, then four or more deer peered up from their breakfast and stood rigid in the grass, ears pricked. As we got closer they leapt into the air, the baby blue sky and tan winter-dried grasses of the pasture providing little camouflage from their potential predators. Their earth-toned bodies were alert from ears to tail, and they leapt like ballerinas, muscles powerfully propelling them towards forested shelter and away from us. I gasped. We continued forward, watching for several more seconds in silence as the herd sprung across the field.

Seeing animals up close during a workday is a special treat that helps remind me of the impact Bur Oak Land Trust has on the Iowa City area’s wildlife. While deer in Iowa roam the corn and soybean fields for 78% of their sustenance, they are most at home in the forest. This is where they can hide from predators, where they feel safe enough to birth and raise fawns, and where they can round out the rest of their diet with woody browse from trees and plants. According to the Department of Natural Resources (DNR), Iowa has lower deer densities than surrounding states because of our state’s limited timber habitat. Wooded habitat like that at Bur Oak Land Trust’s properties is especially important for deer during the winter, when cover is limited elsewhere.

Beyond Bur Oak Land Trust, I recommend a few other places attractive to deer in the Iowa City area. I have seen several in the Oakland Cemetery in Iowa City. There, you may see one of the creatures wind around tombstones like water parted by rocks in a stream, as I saw a large buck do this May. State parks, such as Lake Macbride in Solon, are also good deer habitat. Hiking along the wooded trails, you could find yourself in a staring contest with one. Last June I came within three yards of a doe as she crossed the paved road to the raptor center. Wapsipinicon State Park is also ideal deer habitat, containing both woods and pasture. While there in late June, I spotted a fawn who skidded out onto the trail in front of me, forehooves straight out in front. You might also spot a doe bounding through brush along the riverbank.

Deer have always had a mystical quality to them. Whenever I see one frozen in the woods, I pause and adopt a similar stance, each of us hoping the other won’t move. For a split second we share a glance of curiosity, until one of us loses the staring contest and moves along.

Beck O’Brien is a budding environmental conservationist studying sustainability, journalism, and sociology at the University of Iowa.

White-tailed buck photo by Carl Kurtz.

Prairie Preview XXXVI: "UI Wild: Connecting Iowans with the Wild for a Generation" - March 5th at the Clarion Highlander

JOIN BUR OAK LAND TRUST for a free event: “UI Wild: Connecting Iowans with the Wild for a Generation,” presented by the University of Iowa Outdoor Recreation & Education Associate Director, Dave Conrads, who will focus on how to connect young people to nature. University of Iowa Wildlife Camps, School of the Wild, Iowa Raptor Project, and Macbride Nature Recreation Area will host a panel question and answer session after the presentation. Local conservation exhibitors will be on hand. To be an event sponsor, contact info@buroaklandtrust.org.
WHEN YOU THINK OF BEES in winter, perhaps you imagine the well-known scene of a colony of non-native honeybees: a boxy wooden hive painted white housing a humming cluster of workers surrounding their queen.

But that is just one strategy; the many species of native bees found along the Greenway employ a variety of techniques for ensuring their offspring can carry on through our harsh, bitterly cold winter months.

Leafcutter bees (*Megachile sp.*) build nests in hollows and holes above ground. A female will chew circles out of leaves or petals, which she will carry to her chosen tube and use to line individual chambers. She will provision each chamber with a supply of pollen and nectar and lay a single egg per chamber. This egg may hatch prior to winter, but the larva remains in the chamber, devouring the pollen and developing into a prepupa, in which it spends the winter before completing its development and emerging as an adult in the summer.

*Agapostemon sp.*, including metallic green sweat bees, will normally nest in the ground. The female will excavate a tunnel and lay a single egg in each of several branches within the tunnel. The eggs are laid and hatched within a single summer (sometimes two generations per summer); females will mate at the end of the season and sequester themselves underground, waiting until the following spring to emerge and lay their eggs. Males will, alas, die at the end of the season.

In contrast to these mostly solitary species, bumblebees (*Bombus sp.*) are social and will form more complex colonies surrounding a single queen. A queen bumblebee will spend the winter underground after mating (again, the unfortunate males will die before winter). When she emerges in the spring she will scout a nest site and provision it with pollen before laying eggs together in a single batch, which she will care for as they develop into a generation of workers.

The queen bumblebee will continue laying eggs throughout the summer, with the earlier generation of workers helping take over foraging and caring for their younger siblings. At the end of the season the queen will lay eggs that will develop into males, who will find and mate with queens from other colonies, and new queens, which will be responsible for overwintering after mating and founding new colonies the following year. When the temperature drops, the remaining workers in the original colony will die, along with the founding queen.

Melissa Serenda lives on the south side of Iowa City, where she enjoys spending time on the nearby Sycamore Greenway. She blogs Sycamore Greenway Friends and shares her blogs with Bur Oak Land Trust.

Photo of bumblebee (far) and leafcutter bee (near) by Melissa Serenda.

Explorer Passports Inspire Kids to Get Outside

HAVE YOU EVER STOPPED by an interpretive sign because the design caught your eye – and then stayed and read the whole sign because the information captured your interest? That’s what we hope you will experience with Bur Oak Land Trust’s new interpretive signs. These signs have been installed at seven of Bur Oak Land Trust’s properties. The purpose? To encourage curious explorers to learn and experience nature by heading out onto the land. A companion to these signs is our Bur Oak Land Trust Explorer Passport, funded by Hills Bank and Trust, with the opportunity to complete a rubbing taken from the signs and rubbed on the passport pages. Once a passport is completed, take it to Hills Bank to open an account – where Hills Bank will deposit $5.00. If you have an account already, they will deposit $5.00 into that account. Hills Bank will also make a $5.00 donation to Bur Oak Land Trust for every completed Explorer Passport that they receive. Thank you Hills Bank for this great partnership and for investing in our future generations and in conservation!

Jack and Cady Grimes holding their Explorer Passports.
Bur Oak Land Trust
P.O. Box 2523
Iowa City IA 52244-2523

Protect, preserve, restore . . . it’s all about the trust.

Please share this copy of Heritage with your friends and family!