

WINTER 2025

# IOWA NATURAL HERITAGE

Protecting and restoring Iowa's land, water and wildlife.



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Frost is one of nature's many phenomena that transforms the outside world. Take a moment to appreciate the uniqueness of this natural wonder.

### INHF Land Acknowledgement:

As a land trust it is important for us to continuously acknowledge and understand the full scope of history that has brought us to reside on, protect and steward this land. The land between two rivers is home to many indigenous people, historically and today. We acknowledge the value of indigenous communities and work to honor them on the land.



#### ON THE COVER

Eastern Screech Owls (*Megascops asio*), like the one pictured on the cover, prefer to nest in empty tree cavities. Screech Owls can commonly be found in towns, and their small stature and whinny song make them a fun find any time of year!

Photo by Justin Rogers



Protecting and restoring Iowa's land, water and wildlife.

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## Iowans want more conservation

As we look back on our accomplishments of 2024 and chart a course for the year ahead, it is clear to me that all the great conservation work we have done together with landowners, private partners and public partners is a direct result of the amazing support from people like you. It may seem like another platitude, but it is true. Iowa simply would not have the parks, trails and wildlife areas we do today without you!



JOE MCGOVERN  
President

However, we all know there is much more to be done, and Iowans have shown time and again how supportive they are for good conservation measures. Remember in 2010 when 63% of statewide voters approved the constitutional amendment establishing the Natural Resources and Outdoor Recreation Trust Fund? Was that an anomaly? I don't think so, and other conservation ballot initiatives supported conservation initiatives since 2008:

- \$20 million bond referendum in 2008 by Johnson County voters - 61% approval
- \$50 million bond referendum in 2012 by Polk County voters - 72%
- \$1.3 million bond referendum in 2016 by Adams County voters - 73%
- \$65 million bond referendum in 2021 by Polk County voters - 81%

**Bond funds from the 2008 referendum** were used at Johnson County Conservation's F.W. Kent Park. The funds were used for a lake restoration and project focusing on improved water quality, which covered 45% of the total project cost. *Photo by Kristen Morrow, Johnson County Conservation*

All of this while Iowans wait for the legislature to act on funding the Trust Fund. At INHF, we see even more Iowans making conservation happen on their own land. In this issue, we share the story of Mann Wetlands in Marshall County, which is a great example of public-private partnership with landowners, INHF and county conservation to protect wildlife habitat while improving the water quality of the Iowa River. It brings us great joy to be a part of these types of projects, whether its protecting the family farm, preserving a remnant prairie or helping to expand a local park.

Iowans want more conservation, and when given the chance — whether at the ballot box or at the State Capitol — they will say so. The people of this state deserve clean water, healthy soil and ample opportunities for outdoor recreation. At INHF, we will continue to do everything we can to improve the quality of life for all Iowans through our advocacy work and partnering to provide more parks, trails and wildlife areas.

We are so grateful to have your support. We simply could not do our work without you. Thank you!

The vanity license plate on their full-size SUV read “IMINAHURRY”.

It apparently was a badge of honor for that vehicle owner to always be busy and on the run. Perhaps this describes too many of us in this multitasking, technology-bombarded world.

But there is an antidote to this stressful mindset. Nature can provide the balance we seek. And for Iowans, we can enjoy the bounty of four seasons, each with distinct gifts, to adjust our daily cadence.

A way to more fully experience the nourishing elements of each season is to thoughtfully consider what meaningful harbingers the natural world provides. I look forward to seeing the spring ephemerals graciously carpeting the woodlands, a kingfisher nosediving from a tree limb for a tasty summer meal in the lake water below and the brilliant leafy cascade of fall colors. What resonates with you?

Winter naturally offers time to reflect on our role in this complex interwoven web of life and nature and how we can help sustain it. As we notice the first snowflakes, we can ponder the miracle that each is unique. Even in the flurry of a snowstorm, each has its own characteristics, just like each of us. Soon, it will be time to once again hear the gentle reassurance of cross-country skis swooshing through the snow.

With the blessing of experiencing the grandparent season in my life, I can see marvels through the delight of my grandchildren’s eyes. “Do you like snow, Gram?” our 3-year-old grandson asked. “Absolutely!” And our conversation immediately shifted to making snow angels and discovering animal tracks in new-fallen snow.

Soon, the deep, resonating calls of the great horned owls during mating season remind us that the wonder of the next life cycle is beginning as the winter begins to wane.

— JAN LOVELL  
INHF Board of Directors



Fresh snowfall, endless possibilities. Explore Eastern Iowa’s Otter Creek in any season to enjoy hiking, fishing and more. Photo by Brian Gibbs, Illustrations by Jordan McDowell, Graphic Design Intern

## Celebrate Iowa's Outdoors Day on March 20

Share what you love about Iowa's outdoors at a new event at the Iowa State Capitol — Celebrate Iowa's Outdoors Day. Connect with legislators, partners and allies, and meet other Iowans passionate about protecting spaces for outdoor recreation, water quality and wildlife habitat. The day will feature fun, interactive displays and engaging speakers — all focused on celebrating Iowa's outdoors.

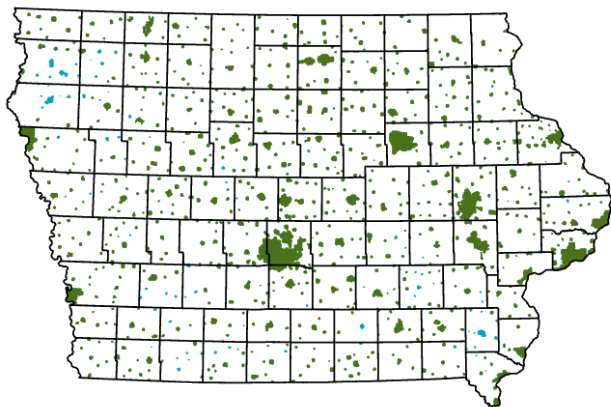
### A Milestone: more than 200,000 acres conserved

When Daisy Iowa Whitham donated her family's Jefferson County woodland to Iowa Natural Heritage Foundation in 1980, it marked an important milestone. These were the first acres protected by a young organization, founded just a year earlier. Over the next 44+ years, INHF has completed more than 1,500 individual protection projects. We have worked with countless people like Daisy who cared about the future of their land and wanted to partner with an organization that could be their "eyes to the future."

INHF just hit another big milestone. Since our founding in 1979, we've helped protect 200,000 acres across Iowa. That land area is about the equivalent of:

- The city limits of Kansas City, Missouri
- A mile-wide swath between the Missouri River in Sioux City and Mississippi River in Dubuque
- 151,515 football fields
- Nearly 75% of Rocky Mountain National Park

These aren't just any acres. Each of these acres has a story of partnership, passion and dedication. These are prairies, woodlands, rivers and wetlands. These are places for current and future generations to play outside in whatever ways they enjoy. These are historic and cultural sites preserved from development. These are spaces that clean our water and retain our soil. These are family farms preserved as open space. These are homes for sensitive plant and wildlife species. These are resilient landscapes. This milestone represents A LOT of good conservation work. It's worth celebrating!



In the map to the left, all cities in green are within 10 miles of an INHF protection project that is now open to the public. That is a lot of people enjoying the land, water and wildlife whose protection is made possible by your support.

At the same time, it's a good reminder that there's more to do. Those 200,000 protected acres are also the

equivalent of **.56% of Iowa's total land area** — 36 million acres. There are more places in need of protection.

Thank you for helping us do what we do. We're looking forward to the next milestone in preserving Iowa's natural heritage.

## UPCOMING EVENTS

### JANUARY 25

Iowa Bike Expo

*Des Moines*

Visit our booth to learn about trail projects and upcoming events at the annual Iowa Bike Expo.

### FEBRUARY 22

Loess Hills Workday

*Moorhead*

Join INHF for a volunteer workday to help the native hill prairie thrive. Volunteers will manually remove brush and non-native plants with handtools. Registration required.

### MARCH 13

Gift to Iowa's Future Day

*Des Moines*

INHF staff, board and supporters will go to the Capital to honor and thank those who've donated land in the past year.

### MARCH 15

Loess Hills Workday

*Ida County*

Join INHF for our first workday in Ida County. Volunteers will use hand tools (handsaws or loppers) to manually cut invasive or unwanted brush. Registration required.

### MARCH 20

Celebrate Iowa's Outdoors Day

*Des Moines*

Meet us at the Capital for a chance to network with legislators, partners and allies. The day will feature fun displays and engaging speakers — all focused on celebrating Iowa's outdoors. Registration required.

### MARCH 29

Wildcat Bluff Addition Dedication

*Benton*

Join INHF and our partners at Benton County Conservation Board for a celebration to open an addition to Wildcat Bluff Recreation Area.

**For more event information and registration, visit [www.inhf.org/events](http://www.inhf.org/events)**



**This trout stream** bisects a newly protected property in Mitchell County. Mitchell County Conservation now owns the 61 acres of woodland near Osage. Photo by Ross Baxter, INHF

## Newly protected areas

### Appanoose County

204 acres of perennial grasses, woodlands and small streams near Seymour in Appanoose County. Protects natural features, limits subdivision, development and other threats to open space, while preserving agricultural land uses like haying and grazing. *(Conservation easement donated by David Stamps)*

### Monroe County

92 acres of grassland, ponds, and oak woodland and savanna near Marysville in Monroe County. Blends working lands, wildlife habitat and open space. Positively impacts the water quality of the North Cedar Creek and Des Moines River watershed while providing habitat for many wildlife species. *(Agricultural land easement partially donated by Daniel and Angela DeCook and grant funding provided by the Natural Resources Conservation Service)*

### Monroe County

318 acres of grassland with mixed woodlands and a small creek near Marysville in Monroe County. Protects expansive and diverse systems — both natural and agricultural — as open space. Perennial vegetation positively impacts the water quality of the North Cedar Creek and Des Moines River watershed while providing habitat for many wildlife species. *(Agricultural land easement partially donated by Michael DeCook and grant funding provided by the Natural Resources Conservation Service)*

### Polk County

84 acres of restorable land in Granger, a rapidly growing area of Polk County. Wetland, prairie and streambank restoration will off-set environmental impacts from development within the Beaver Creek watershed. *(Conservation easement granted by David Albright)*

### Emmet County

77 acres of grassland and hay ground near Wallingford in Emmet County. Contains a restorable wetland basin that will provide habitat for migrating and nesting waterfowl, upland bird species, amphibians and more while filtering nutrients from the watershed. Located within a Prairie Pothole Joint Venture priority area, which are regions recognized as important for wetland habitat. *(Proposed public partner ownership)*

### Mitchell County

61 acres of woodland near Osage in Mitchell County. The riparian woodland consists of basswood, silver maple, hackberry and burr oak, providing habitat for wildlife and maintaining water quality benefits to Burr Oak Creek, a trout stream which bisects the property. *(Owned and managed by Mitchell County Conservation)*

### Clarke & Madison counties

422 acres adjacent to existing public land near Lorimor in Madison and Clarke counties. Features over 180 acres of woodland, more than 160 acres of grassland and additional restorable acres that will provide critical habitat for bird species such as Henslow's Sparrow, Eastern Meadowlark and Bobwhite. Preserves the site's water quality benefits, builds on outdoor recreation opportunities and safeguards the area from development. This is a collaborative protection project with Pheasants Forever. *(Proposed public partner ownership)*

### Guthrie County

117 acres of woodland along the Middle Raccoon River near Yale in Guthrie County. A diverse mix of tree species provides quality habitat for wildlife such as Wild Turkey, mink and white-tailed deer. Located within the Raccoon River Savanna Bird Conservation Area, indicating an importance to resident and migrating bird species like American Woodcock and Yellow-billed Cuckoo. *(Proposed public partner ownership)*

## Land transfers to public partners

### Dodge Wildlife Area

40 acres of woodland west of Dunlap in Harrison County. Recognizing the mature stands of bur oak, black walnut, bitternut hickory and basswood provide ample habitat and outdoor recreation opportunities, the landowners wished to see the property become a public space for all to enjoy. *(Owned and managed by Harrison County Conservation)*

### Rubio Access WMA Addition

55-acre addition featuring grassland and woodland on the border of Keokuk and Washington counties. Expands and connects wildlife habitat on the south side of the South Skunk River, securing soil and improving water quality. *(Owned and managed by the Iowa DNR)*

### Nahant Marsh Addition

60-acre addition to Nahant Marsh along the Mississippi River in Scott County. Protection and restoration of this property prevents sediment from entering the marsh and improves the overall health of the Nahant Marsh system. *(Owned and managed by Nahant Marsh Education Center)*

### Falcon Springs WMA Addition

9-acre addition to existing public land near Decorah. Preserves and expands upland and woodland habitat, including for the federally endangered rusty-patched bumble bee. *(Owned and managed by the Iowa DNR)*

# ALLURE NEAR ALBION

## The benefits of time spent outdoors

BY ERICA PLACE  
Communications and Outreach Manager | [erplace@inhf.org](mailto:erplace@inhf.org)

The open space and quiet water along Highway 330 south of Albion are undoubtedly noticeable to passersby. With the town still close in the rearview mirror and the road starting to curve off to the west as it dips down into the Iowa River valley, the view opens to a picturesque horizon.

“I can honestly say it’s the most beautiful part of my commute,” says Emily Herring, Director of Marshall County Conservation (MCC).

Herring, who started at MCC as a naturalist, had driven by the property every day for years with a suspicion it would hold wonders for summer campers searching for aquatic insects. Birders, scanning for the lanky frames of Sandhill Cranes as they rounded the bend in the highway, longed for a chance to explore what else might be hiding in the soggy depressions. And hunters, pursuing game across the road at Timmons Grove, wondered what quarry was concealed in the grasses and woodlands just downstream along the Iowa River.

The allure the property held for onlookers was a cherished reality for the Mann family, who had owned the 144 acres since 1972. Its mixed habitat, river frontage and remnant wetlands were a playground for Clarence and Sharon Mann’s three sons; Lawrence, Merle and Arlis.

“For many years we had a wood burning furnace, so we spent a lot of time in the timber gathering firewood,” remembers Lawrence. “It was fun doing that because the timber was so peaceful. And there was usually at least one wet spot [in the field]; I definitely remember muskrats and how they would build houses.”

While the property held natural wonders, it was also an important part of the Mann family’s livelihood. The ground was cropped and grazed by cattle, but it wasn’t always easy to support the family with land that was routinely wet. More than 85% of the property falls within the two-year floodplain.

“I remember planting, harvesting and having cows and calves in the field where it was too wet for crops,” says Lawrence.

Some parts of the property, like the north section that contains a large wetland basin, were so impossibly wet that attempts to drain it were unsuccessful.

“We all need to do our part to save everything we can for future generations.”

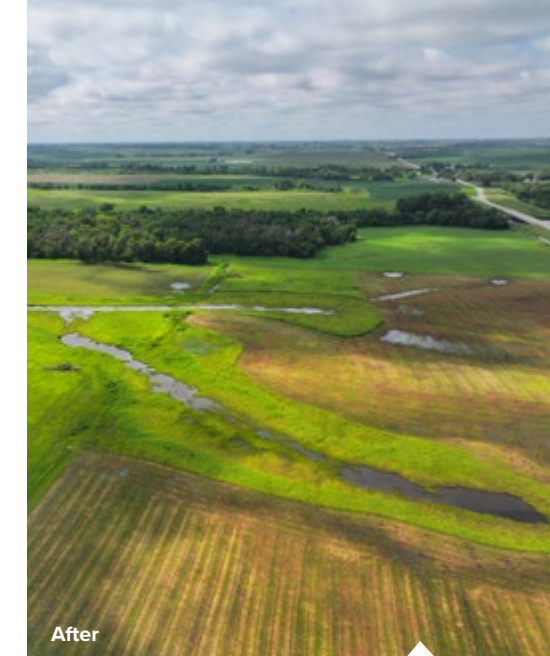
— LAWRENCE MANN



Before



During



After

“There are fewer than 20 wetlands left in Marshall County, including those that have been reconstructed,” explains Herring. “That makes every single wetland incredibly precious, especially remnant ones like on the Mann property.”

The conservation and recreation value of his family’s land was not lost on Lawrence. He, his dad and brothers wondered the best future for the property. Following their father’s passing in 2019, the brothers continued their pursuit to make the land available to the public so that more people could enjoy outdoor experiences and build their own memories. It would be a meaningful way to honor their parents’ legacy.

“I want future generations to have a place to enjoy the outdoors,” says Lawrence. “I’m excited to take my own grandchildren there and tell them that is where I grew up.”

MCC knew this area would help meet the growing outdoor recreation demands of Marshall County residents and visitors as well as a critical opportunity to protect sensitive natural resources. The property even offered the chance for a future trailhead and shelter for users of the in-progress Iowa River’s Edge Trail, which follows the discontinued railroad corridor that passes through the northeast corner of the Mann property. Everyone agreed that the area ticked all the boxes for making a great county park. But in a county with limited funding for protecting or enhancing natural areas, it was uncertain how the land purchase would be possible. MCC sought the help of INHF, who was able to purchase the property in 2021 and hold it while MCC searched for funding.

While Herring and others worked to garner

support, the owners of the neighboring 71-acre CRP field to the west learned of the Mann family’s decision. They were also willing to sell, extending this new county park all the way to the highway. In addition to opening the doors for even more outdoor recreation and holistic habitat restoration, the two properties together would make a more compelling case for certain funding sources.

“We went from a medium-size fundraising project to a very large one!” Emily laughs. “We’re grateful that INHF’s involvement meant we had some time.”

MCC applied for a REAP (Resource Enhancement and Protection) grant, knowing the funding program’s limited and diminishing resources has steep competition. Many of the same applications are submitted year after year, trapped in a cycle of worthy projects exceeding available public dollars. In recent years, the Iowa legislature has appropriated only 60% of the statutorily authorized REAP funding level, resulting in only \$893,000 available for the county grants program in 2022. Twelve projects were submitted by counties around the state that year — \$4.9 million in unmet needs.

“We were hopeful,” remembers Herring. “But we knew it wasn’t a guarantee.”

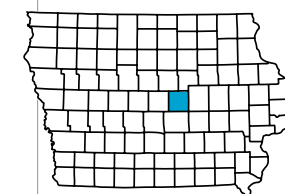
When the surprising news came in that this top-ranked project would receive the entire available REAP balance, MCC was over the moon. The grant put them well within reach of their once lofty goal.

“This just would not have been possible without REAP,” Herring says. “Period.”

The remaining balance was handled by a long list of private donors, including the

**Aerial photos of Mann Wetlands** show the progress of restoring a wetland. In the photo on the far left before restoration, depressions in the field are apparent. After restoration, water pools in some of those historic wetlands. Photos by INHF staff

### Mann Wetlands Marshall County



**LAND:** 216 acres of mixed habitat along the Iowa River

**SPECIAL FEATURES:** Extensive prairie and wetland restoration, protection in the Iowa River greenbelt, potential future trailhead site for Iowa River’s Edge Trail

**PARTNERS:** REAP, Pheasants Forever, Mann Family, INHF, USFWS, Iowa DNR, and private donors including Philip Tetzloff and Linda Holvik, Ken Watt, David Watt and Cathy Watt.



Clarence and Sharon Mann's land was a playground for their family growing up and will now be a place of play and discovery for all Iowan's to enjoy. The family gathered at a dedication for the property this summer. Photos provided by Lawrence Mann and Robert Maharry, Times Republican

Marshall-Tama County Pheasants Forever Chapter. Steve Armstrong, who has been a member of PF for more than 30 years, felt that supporting this project was a 'no brainer' for the chapter.

"Every land acquisition project MCC has come to the Marshall-Tama County PF Chapter with, we've always helped," Armstrong explains. "Marshall County doesn't have a lot [of public land], and private ground is hard to get onto. The public needs more places to get outside."

While Armstrong is certain there are pheasants calling this place home, he says the chapter is motivated by much more than that.

"People assume PF chapters are focused on hunting, hunting, hunting. That's just not true. We're in the business of public access. These places benefit more than just hunters; we buy ground for everybody."

The Marshall-Tama County PF Chapter gave \$20,000 to the project and, under Armstrong's urging, another \$20,000 was raised by other county chapters for a total of \$40,000. Coupled with donations from other individuals and organizations, MCC was able to meet the more than \$1.1 million purchase price without using any of the county's general fund. INHF transferred the 216-acre property, now known as Mann Wetlands, to MCC at the end of 2022.

With the seemingly impossible fundraising effort behind them and Mann Wetlands finally under MCC's management, attention turned to restoration.

"This property flooded 21 times in the last 14 years," Herring recalls. "Its best use is clearly in a natural state. It wants to be a wetland."

There were other indicators that this land should return to a wetland complex. Surveys revealed the presence of hydrophytic (water loving) vegetation and hydric soils, a special type of soil consistent with a history of saturation and flooding. Decades of aerial imagery showing a pattern of standing water was further confirmation that excavating the

historic wetlands would be a successful and sustainable future for the property. Using monarch butterfly and pollinator conservation grant funds from the National Fish and Wildlife Foundation, crop fields adjacent to the wetlands could be seeded back to native prairie.

Herring enlisted the help of Drew DiAllesandro, Iowa Private Lands Coordinator with the U.S. Fish and Wildlife Service, to provide expertise and cost sharing through the Partners for Fish and Wildlife Program he administers. Guided by references like aerial imagery, soil samples and the existing wetland on the northeast part of the property, DiAllesandro determined the location and depth of the new basins.

"Post-restoration aerial photos show the site was holding water at a time when it should be," says DiAllesandro. "A common misconception is that wetlands need to have standing water all the time. This is not true. Wetlands, including the wetlands at this site, go through cycles of being saturated with water and then drying out. That process helps facilitate wetland plant diversity and increases the diversity of wildlife habitat."

Though the restored wetlands and prairie are in their infancy, Highway 330 travelers (and future IRET trail users) already have an even more fantastic view to enjoy. The wetland basins are holding water and wildlife, and the prairie has already offered its blooms to hungry pollinators and eager eyes. Herring's summer camp visions and the hopes of birders, hunters and other outdoor enthusiasts are now possible.

"When my dad moved to assisted living and we were trying to figure out what to do with the land, I approached him with the idea of creating a county park out of his property near the river," remembers Lawrence. "He was excited about the possibility but, unfortunately passed away before he could see it come to fruition. He would be so excited to see this with his name on it. And mom would be super pleased; she loved being out in nature. I'm thrilled we could create a legacy for them. We all need to do our part to save everything we can for future generations." 🌿

# RCPP aims to protect Iowa's grasslands

BY JOE JAYJACK  
External Affairs Director | [jjayjack@inhf.org](mailto:jjayjack@inhf.org)

Iowa Natural Heritage Foundation is embarking on a partnership with a goal to protect and restore Iowa's dwindling grasslands at a landscape scale. The USDA's Natural Resources Conservation Service (NRCS) has dedicated \$23 million toward grassland protection and restoration in 40 counties in western and southern Iowa over the next five years, with an emphasis on the Loess Hills landform and remnant and restored prairie. INHF, The Nature Conservancy and the Iowa Department of Natural Resources will help to administer the Regional Conservation Partnership Program (RCPP).

"This is a big undertaking, but it's a chance to scale up the protection and restoration work INHF is already doing, and it will help a lot of landowners achieve their conservation goals," said Senior Land Protection Facilitator

Heather Jobst, who is leading the project for INHF. INHF and partners will work collaboratively with willing landowners with a goal to restore 10,000 acres of grassland and permanently protect 8,000 acres through voluntary conservation easements.

## RESTORATION

Landowners interested in grassland restoration on their property can work with their local Iowa DNR private lands biologist to determine if the program would be a good fit and, if so, submit an application.

The restoration work will focus on removing encroaching brush and trees and the development or establishment of native grassland habitat with special consideration for lands protected by a conservation easement. The goals for this work include:

- Protecting water quality by restoring perennial grass systems, improving groundwater infiltration and reducing flooding risk.
- Helping grazers thrive by implementing conservation practices with proven benefits for pasture quality and extreme weather resilience.
- Protecting wildlife habitat by providing refuge for many threatened species in Iowa, including grassland and upland bird species.

INHF will receive bids from and handle payment to contractors for the restoration work, and landowners have to agree to maintain improvements for at least 10 years.

## PROTECTION

Landowners interested in permanently protecting their grassland can work with INHF or The Nature Conservancy in Iowa to establish conservation easements on their grasslands, preserving them in perpetuity.

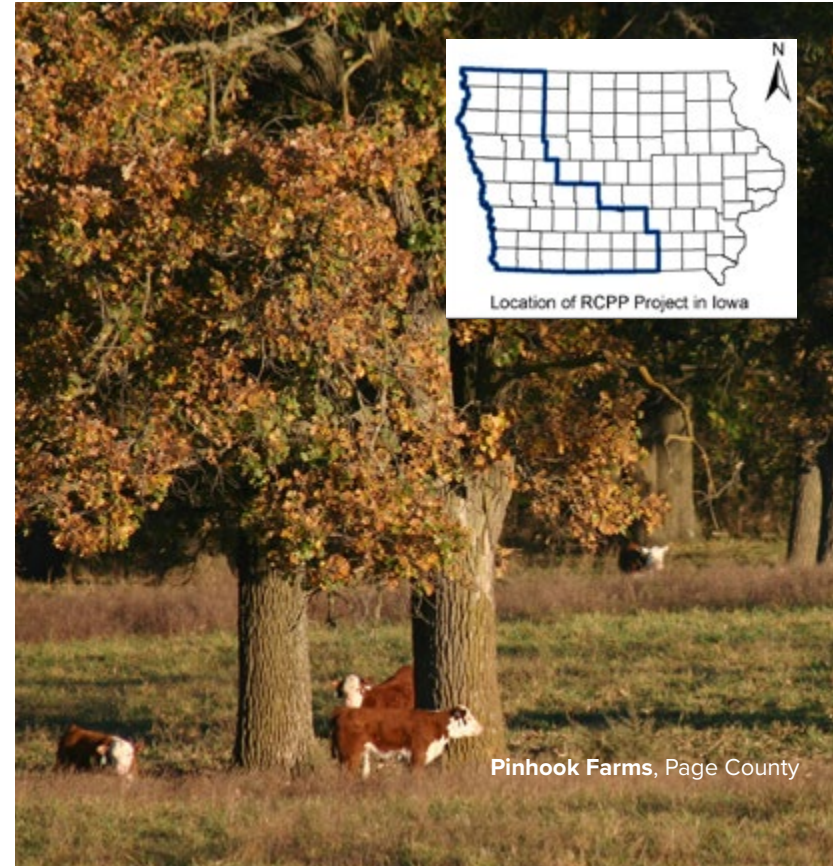
The easement would focus on the management of grassland habitat to provide conservation benefits and the protection of agricultural uses, including grazing.

The value of the easement is determined by the difference in the appraised value of the land before and after the easement is in place. Through the RCPP program, landowners will receive 50 percent of the easement value as a one-time cash payment coupled with state and federal tax benefits.

While this is a new type of easement, it will work similarly to Agricultural Land Easements (ALE), which INHF has been doing for years in cooperation with NRCS and landowners.

In 2019, Seth Watkins worked with INHF to establish an ALE on Pinhook Farm, his property in Page County.

"The easement keeps us from asking too much of the land," Watkins said. "When our farms are ecologically sound, that's where we'll have sustained profitability." 🌿



Pinhook Farms, Page County

# WRITTEN IN THE RINGS

*What Eastern redcedars can tell us  
about Iowa's climate history*

BY CLARA WODNY  
Communications Intern | [cwodny@inhf.org](mailto:cwodny@inhf.org)

When you think of Eastern redcedars (*Juniperus virginiana*), what feelings come to mind? Many, especially those with prairies or pastures to manage, associate the species with a sense of annoyance and frustration due to their tendency to quickly spread into areas where they are not wanted, crowding out other species in the process. However, these trees have incredible stories to tell if we're willing to shift perspectives and view them with the awe and respect they deserve.

Every native species, including redcedar, has an ecological niche. That is, they have evolved to thrive under certain conditions and fill a specific role in the ecosystem. Despite their bad reputation, Eastern redcedars have been here all along — they are among the oldest living things in Iowa. Before labeling them as unequivocally “invasive,” it is important to understand how our changing land stewardship philosophies and practices have affected the natural world.

Eastern redcedars are incredibly tolerant of a wide variety of growing environments, including extremes of drought, temperature, wind and soil conditions, making them capable of living in some of the harshest places on the landscape. In short, they are — and always have been — able to grow almost anywhere.

In contrast to oaks, redcedars have thin bark that provides little insulation to the living tissue and wide spreading branches that make them susceptible to fire. Historically, redcedars have thrived on cliffsides, riverbanks and rocky bluffs — places where they were sheltered from passing prairie fires. However, while the landscape used to be covered in prairie and maintained with fire, it is now largely maintained by plows and machinery. Because they are no longer being culled by fire, the trees spread into more open areas, like prairies

and pastures, and serve as a visible reminder of the interconnected impacts of our choices when it comes to land management.

“We've spent a long time thinking that the social and environmental systems of our world are separate,” says Evan Larson, a professor and chair in the University of Wisconsin-Platteville's Department of Environmental Sciences & Society. “And it's becoming very clear that simply is not the case.”

Lucky for us, redcedars are steadfast observers that physically respond to their environment, storing accurate and detailed records of their experiences in their trunks. This information is encoded as tree rings, with each ring representing one particular year. The science of dating trees and interpreting past events based on the analysis of tree rings is called dendrochronology.

Stories are written into tree rings in their own language, and dendrochronologists are skilled translators. This is certainly true of Evan Larson, his colleague James Riser and their team of undergraduate students at the University of Wisconsin-Platteville, who are currently engaged in a three-year study dedicated to expanding understanding of past drought and rain patterns across Iowa and the Great Plains. This study aims to produce a Great Plains drought reconstruction that spans the past 1,000 years, filling a noticeable gap in previous research. Funded by the National Science Foundation, their research is headquartered at UW-Platteville's Tree-Ring, Earth, and Environmental Sciences Laboratory (TREES Lab). Projects completed through the TREES Lab are specifically designed to provide opportunities for undergraduate students to engage in authentic, meaningful research as part of their education.

Before beginning to analyze tree-ring data, dendrochronologists need to obtain core

samples from both living and dead redcedars in the region. When choosing which trees to sample, they seek out the ones that have lived for several hundred years and are able to provide the longest record. If you assume that means they're looking for the biggest, tallest trees, you're in for a surprise.

“I don't care about the big, straight trees,” says Riser. “It's the gnarly, twisted, weathered ones that have an amazing record and story to tell, compared to younger trees with wide rings that haven't experienced as much hardship.”

When working with living trees, dendrochronologists use a special tool called an increment borer to extract a core sample — about the size of a pencil — that will cause no harm to the tree. Trees that are already dead don't require as much care, as full medallions are able to be extracted from the trunk with a saw. Still, the researchers remain conscious of protecting the landscape and do their best to source from areas that will contain the most information in the least obtrusive way.

So, where do they find these trees?

At one point in time, most stony outcrops, overlooks and bluffs would have supported a pocket of old eastern redcedar trees. On Iowa's prairie landscapes, trees were relatively rare — and timber resources so valuable — that nearly everything was cut for use. As a result, most bluff sites today host living cedars that have only sprung up in the last 150 years. However, not all is lost — these younger trees shade old, gray, weathered stumps that persist as reminders of the trees that lived there before.

Many of these stumps were already hundreds of years old when they were cut down in the 1800s. While these stumps are still able to provide valuable data, they present distinct challenges to dendrochronologists:

how do they determine when the stumps were cut? How can the rings of long-dead trees provide information about the complex relationship between climate and tree growth? How can the memories of these trees, now stumps that contain hundreds of rings, be translated into a more complete understanding of our shared climate history?

One particular site included in this study, Heritage Valley, holds the key to answering many of these questions: truly ancient, still living redcedars.

Heritage Valley, a nearly 1,200-acre property in Allamakee County, was purchased by INHF in 2007 with the assistance of over a thousand donors. Heritage Valley boasts some of the oldest trees in the area — the ancient ridge-top trees provide rare examples of living trees whose lives span 450 years or more, which means they can provide the necessary connection between this generation and the generation of stumps found at many other sites.

“There is no good reason to think you'll find trees in Iowa older than this,” says Riser.

The hillsides at Heritage Valley face southwest and are elevated far above the moisture of the river valley, creating dry and exposed conditions. This causes the trees to be extremely sensitive to even subtle changes in precipitation and temperature, making them ideal recorders of the site's climate history as they feel and embody years of harsh conditions and drought more clearly.

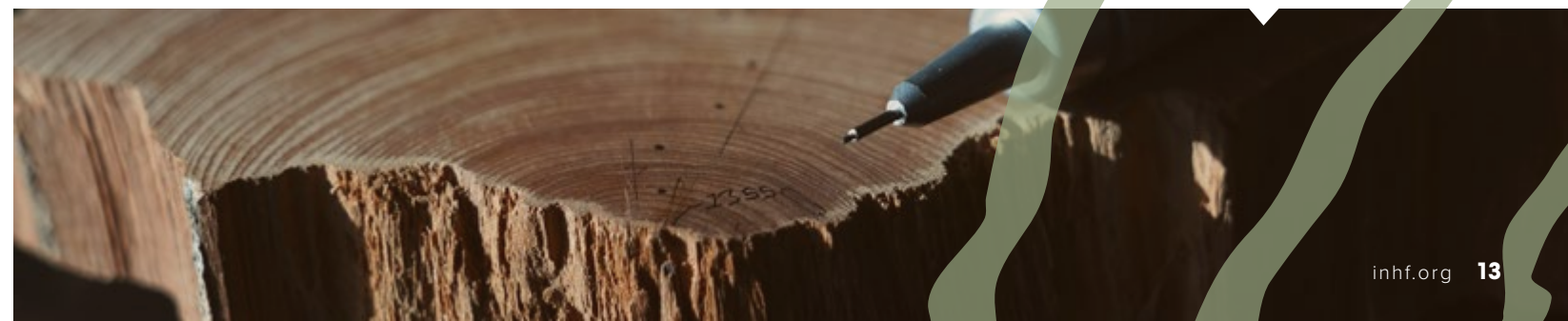
Once a tree has been sampled, the team is able to visually estimate how many rings are present and get an idea of the type of data it will provide. Still, there is always room for surprises during the process of analysis.

When samples enter the lab, they must



**In search of the most twisted, weathered trees,** INHF senior land stewardship director, Brian Fankhauser, and UW-Platteville's TREES Lab's Dr. James Riser explore the gorgeous bluffs of Heritage Valley, near Decorah. *Photos by Sydney Algreen-Hunter, INHF*

**This dead eastern redcedar cross section shows** centuries worth of data in one small medallion sample. It is the oldest sample found at Heritage Valley, dating back to CE 1355! *Photo by UW-Platteville's TREES Lab*





**Look closely** near the middle of this cross section to see a ring that seemingly disappears into another. This is why it's important to crossdate tree-ring samples, especially cedars, and not just count the rings. *Photo by UW-Platteville's TREES Lab*

be sanded to a high polish with 400-600 grit sandpaper before the official dating and analysis can begin. This often reveals exciting treasures, such as unexpected tree-rings that are mere fractions of a millimeter in width.

Larson recalls early on in this project when they took several samples at Turkey River Mounds State Preserve along the Mississippi; though satisfied, Larson and Riser were slightly underwhelmed. Visual estimations in the field indicated the best sample only contained about 200 rings. The samples sat in the lab, unprepared, for months until a particularly ambitious student decided to sand each of them. The sample with the estimated 200 rings ended up including over 470 rings, dating all the way back to the 1300s.

You might be wondering how exactly they know that the tree was alive in the 1300s, despite being dead for over a century. This is determined using a process called cross-dating.

The fact that tree growth is so heavily intertwined with environmental conditions means that you can tell exactly what kind of conditions a tree experienced in any given year by looking at the size and colors of the ring. In most cases, trees of a particular species in the same region will experience similar climate conditions, therefore forming rings that are comparable in width to their neighbors each year. As conditions change from year to year, so too do the width of tree rings across a region.

Given enough time, these year-to-year changes create a pattern that is as distinct as a fingerprint. By matching this temporal fingerprint from the samples collected from dead trees to those of living trees, such as the ancient redcedars at Heritage Valley, dendrochronologists can build a timeline. This comparison and cross-referencing across samples enables Larson, Riser and their

students to assign the exact year of formation to each ring in each sample with absolute precision.

The cross-dating process begins with the bark of living trees, which represents the current year. Working backwards from the bark, dendrochronologists can then identify and count the rings, assigning each one to a specific year. Once this original timeline is established, they are then able to take a piece of deadwood, match up its rings with some of the living tree rings, and assign them to a year as well. After determining where the dead wood overlaps with the living wood, dendrochronologists can keep working backwards, stretching the chronology further and further back in time.

Rings are defined by the color of the wood. At the beginning of each year, trees grow lighter colored earlywood made of bigger cells with thinner cell walls. As tree growth slows down and the tree starts to prepare for dormancy, the wood becomes gradually darker, with smaller cells and thicker cell walls packed closer together. The actual period of dormancy, during winter, is an invisible line between the smaller cells of latewood from the previous year and the wide cells of the earlywood of the following year. No cells are formed during dormancy.

When redcedars experience optimal conditions they will grow quickly, putting on a wide ring. In non-optimal conditions, such as a lack of water or a short growing season, they can't grow as much, and the ring ends up being much narrower.

Counting tree rings might seem like a simple process, but a very high level of care and knowledge is necessary to account for anomalies and inconsistencies while maintaining precision. For example, sometimes trees will put on what appears to be more than one ring per year, called a 'false



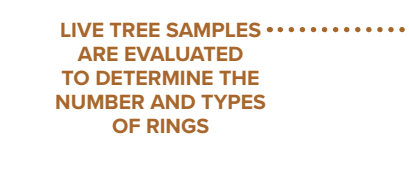
A SAW IS USED TO CUT MEDALLIONS FROM DEAD TREES



DEAD TREE SAMPLES ARE EVALUATED TO DETERMINE HOW MANY RINGS ARE PRESENT & HOW MUCH DATA THEY WILL PROVIDE



AN INCREMENT BORER IS USED TO CARVE OUT SAMPLES FROM LIVING TREES



LIVE TREE SAMPLES ARE EVALUATED TO DETERMINE THE NUMBER AND TYPES OF RINGS



ALL SAMPLES ARE SENT TO THE LAB SO THAT THE CROSS-DATING PROCESS MAY BEGIN



ring', while other years a tree might not grow a ring at all. Eastern redcedar, tenacious as they are and living on some of the harshest sites in the region, are notoriously tricky, sometimes foregoing numerous rings in a row on one side of the tree while surging in growth on the other. This means that many samples need to be thoroughly studied and cross-analyzed before a chronology emerges. But once this process is finished, the chronology will be an exact annual record of tree growth for that area.

"When we say there was a bad drought in 1632, where a lot of cedars literally didn't even have enough energy to put on a ring, we're not talking about anything other than 1632," says Larson. "The precision that's available through these records is just unmatched."

Once tree rings are situated within the chronology, they can be further analyzed for information. Depending on the site and region where trees grow, researchers can extrapolate data such as yearly growing conditions as well as rare, dramatic events like large fires, ice storms or particularly harsh winters. This study is specifically concerned with flash drought reconstruction and telling the historical climate story of the Great Plains region. The understanding of historical climate that this reconstruction aims to provide is far more relevant to everyday life than most people realize.

In particular, Larson and Riser mention farmers and insurance companies — it's easy to ignore when things are going well, but unexpected climate events, like drought or fire, can bring about large-scale devastation.

"Knowing if a 10-year long drought happens every now and then is really good to know," says Riser. "It will very likely happen again... you can handle a few years of drought, but can



**TOP LEFT:** Core samples from living trees. **BOTTOM:** Professor Larson shows INHF's 2024 communications intern, Clara Wodny, some raw sample cuts. *Photos by Erica Place, INHF*

you absorb 10 years of crop failure? This data and record can help us prepare."

Trees are the ideal tool for understanding climate history due to their long lifespan and detailed memory. Additionally, they are impartial observers of the world — tree rings don't try to convince you of one thing or another, they simply demonstrate how hard or how easy it was to grow each year.

"Only a very few people alive now remember the dust bowl, but it was a formative drought for our nation's history," Larson says. "What about the droughts before then? What about the droughts over the past 500 years? Or 1000? What other events happened in the past that we can learn from to better plan for the future?"

"I would hope that [the results of the study] are used to help inform policies and human actions," adds Riser.

From the information written into their rings to the insight that can be gleaned from observing how they grow and spread in our current landscape, redcedars have many important lessons to teach. When you are observing these old cedar trees, you are literally observing old growth forests that rival some western forests for age and longevity, which is not something we often expect in Iowa.

Perhaps the first step we can take is to acknowledge their wisdom and start paying attention to the expressions of the land. 🌲

If you know of a site you think harbors ancient cedars that could contribute to this study, consider contacting James ([riserj@uwplatt.edu](mailto:riserj@uwplatt.edu)) or Evan ([larson@uwplatt.edu](mailto:larson@uwplatt.edu)) with photos and location!



# COMMON GROUND

INHF is working to help small-scale farmers access the land they need to be successful

BY ERICA PLACE  
Communications & Outreach  
Manager | [eplace@inhf.org](mailto:eplace@inhf.org)

Protecting Iowa's landscapes through partnership is at the core of Iowa Natural Heritage Foundation's work. If there is a need, INHF answers the call and works hard to find the right fit. That steadfast commitment positions the organization to explore creative ideas and partnerships that align with our mission.

More than 85% of Iowa's 36 million acres is dedicated to agriculture. INHF recognizes that — beyond parks, trails and wildlife areas — there are boundless opportunities to work on protection and restoration activities on agricultural land.

We've implemented regenerative agriculture practices on INHF-owned lands, opting to sustainably crop or graze fields where agriculture is a compatible land use and offers income to fund other restoration. Seventy percent of the conservation easements we hold contain an agricultural component like hay, grazing or row crops, preserving these working lands as open space.

One of INHF's newest partnerships is finding a balance of agriculture and conservation that supports healthy landscapes and successful farmers.

## Small Farms, Large Barriers

In Harmony Farm, a newly formed nonprofit in central Iowa, has been working since 2022 to assist historically underserved Iowans in their quest to operate small-scale farms. At their 70-acre property in Earlham, they run a farm business development program where individuals receive access to land, needed infrastructure and a wide range of education and training to help them become independent at the end of the five-year program, all against the backdrop of environmental sustainability. The entire farm runs as an organic operation with climate-smart practices like cover crops, prairie buffer strips and rotational grazing.

In Harmony Farm's business development program accepts applications from any new farmer. So far, all participants have been graduates from an incubator farm for immigrants and refugees run by Lutheran Services of Iowa's Global Greens program. After getting their feet wet with cultivating

Iowa soil in their quarter-acre plots, they arrive at In Harmony Farm with a foundation of skills and supplies and a desire for access to more land to grow and sell traditional Iowa produce and culturally relevant crops that support themselves and their families.

"The majority of my time is spent building relationships with the farmers," says Sam Applegate, farm manager for In Harmony Farm. "Most of them have been farming their whole lives and know what they're doing, especially when it comes to regenerative agriculture practices, but they're learning the skills to be successful in an Iowa market."

In addition to access to land and needed infrastructure like coolers, irrigation systems and washing stations, the suite of supports In Harmony Farm provides includes classes on tractor operation, bookkeeping and farm budget creation, gathering of harvest and planting data, irrigation systems, building a farm brand and more. In Harmony Farm also helps connect farmers with markets to sell their crops including wholesale options like grocery stores and the Food Bank of Iowa, which purchased more than 22,000 pounds of produce from In Harmony farmers during the 2024 growing season.

"They're building confidence," says Applegate, who came to In Harmony Farm after a career with the National Guard. He remembers deployments to areas where he didn't speak the language fluently. "I know what it feels like to not be able to communicate, to be embarrassed about fumbling over your words. This program helps build confidence not only in farming, but in tasks needed for a successful business like calling a supplier or interacting with patrons at the farmer's market."

One such farmer is Bizimana Charles, whose family relocated to Iowa after being forced to flee their home in Burundi. Charles made an arrangement with an Iowa landowner and farmed that ground for five years, but the deal dissipated when the owner listed the land for sale at a price Charles couldn't afford. In Harmony Farm was just getting started and was able to provide a place for Charles to land, offering plots where he could continue to grow

crops and supporting his desire to grow his business.

"The classes are important for me," says Charles. "You can go to the same class over and over and still learn something new. I like that I can keep growing my knowledge. It is helping me refine my business plan."

Between the education, infrastructure, exposure to markets and personal relationships with Applegate and others at In Harmony Farm, the seven farmers currently enrolled in the program have everything they need to be set up for success, with one exception: where will they farm after they graduate? To build a sustainable business that offers a livable wage, graduates will be looking for 5-10-acre parcels close to their markets.

"One of the biggest hurdles for marginalized small-scale farmers is affordable access to land," explains Sharon Krause, founder of In Harmony Farm. "Suitable-sized parcels are costly and difficult to find. The farmers don't like moving around — they recognize their regenerative agricultural practices build healthy soils, but this building takes time. A partner like INHF could offer access to land that has a secure future."

## Putting Down Roots

In 2024, INHF began partnering with In Harmony Farm with the hope of securing donations of land within 30 miles of the Des Moines metro. INHF would partition the land into farmable plots and establish long-term leases with In Harmony Farm, who could continue to provide resources for the new farmers during this next step towards independence. Farmers and land alike would reap the benefits of regenerative agriculture, yielding returns on any investments the farmers make in soil health over the course of a long-term lease.

A central Iowa site INHF protected in 2021 will serve as a case study. The majority of the 320-acre property has been restored to prairie, with future plans to revive several drained wetlands. But a portion of the property remains well-suited for small-scale agriculture, and two In Harmony farmers — one of whom is Charles — are excited to move to their new

plots come spring.

"This small-scale, diverse crop operation illustrates INHF's vision of land protection while building vibrant communities," explains Andrea Boulton, INHF's Trails and Community Conservation Director and lead on this partnership.

"Natural ecosystems are really important in keeping pests and disease at bay," Krause elaborates. "Pollinators for the prairie are pollinators for the crops, and vice versa. Wildlife will keep insect populations in check rather than relying on insecticides. It's a symbiotic relationship."

Symbiosis permeates throughout this project — leveraging a land trust's skills and resources to assist a local organization in achieving their mission; providing access to land as a means of making it more resilient; letting suitable land be cultivated in order to improve soil health. It's a holistic approach that feels beneficial for all parties.

While this is a new partnership for INHF, this is not a new idea. Access to smaller scale farm plots is an issue many other Iowa groups have been working to solve. INHF is proud to be part of the movement to address this need.

"My hope is that in five years we'll have a working model others can copy," Krause says. "We want to share the playbook."

Charles is looking forward to this larger plot of land with a secure future and to growing even more of the crops his customers enjoy.

"Since I know I can depend on farming this plot for at least 10 years, I will get to enjoy the results of all the work I put in to improve the soil," says Charles.

There is richness in partnering with organizations that have overlapping missions to make an impact on societal and environmental needs. Climate smart agricultural practices, habitat restoration and social justice activities can not only happen within the same space, but there's powerful synergy in their combination.

"Conservation has a role in the quality of our water, the retention of our soil or human health and wellness," Boulton says. "But even more so, conservation can build community."



In Harmony Farms provides resources and training for starting farmers, including access to land. Farmers in the program are gaining needed skills to move towards independence. Photos by Jason Walsmith

Find more winter activities at [www.inhf.org/blog](http://www.inhf.org/blog)

Photo by Larry Reis

## TAX CREDIT FOR BARGAIN SALES – WHERE YOUR CONSERVATION LEGACY COULD BEGIN

Since 2006, Nan Bonfils and Don Adams have been working with Iowa Natural Heritage Foundation on ways to protect land they own in Boone County. Their latest effort expands the McCoy Wildlife Area just south of Ledges State Park by another 31 acres, safeguarding wildlife habitat and outdoor recreation opportunities.

“We are passionate about keeping land protected in perpetuity and available for humans and wildlife,” Nan says of their decision.

Nan and Don had long hoped their land could become part of McCoy Wildlife Area, a popular hunting and nature exploration spot. Located in the Des Moines River corridor, it offers habitat for a variety of wildlife — including several species of Greatest Conservation Need like the Henslow’s Sparrow or Red-Shouldered Hawk. The area connects other tracts of public land, providing a contiguous experience for traveling wildlife and people alike. The couple began discussions with the DNR in 2021, but both sides found it challenging to figure out how to complete the sale. Nan and Don sought assistance from INHF, and the option to do a bargain sale emerged as a cost effective solution. The difference between the land’s

appraised value and the bargain sale price is considered a donation of land value. Nan and Don will be able to use this donation value for a federal income tax deduction as well as an Iowa income tax credit.

“The possibility of tax credit made it more feasible to do a bargain sale,” said Nan.

The state legislature instituted the tax credit in 2008 to encourage and support Iowans choosing to benefit the public with their gift. Tax credits for land donations and other means of land protection are not only an added benefit, it can be a critical factor in families balancing their conservation legacy wishes with their financial realities. It can take a gift from being something an individual wishes they could do, to something they can actually do.

— STACIE COUVILLON, *Planned Giving & Major Gifts Officer*

**To learn how tax benefits could be the key to bringing your conservation legacy to reality, contact Planned Giving & Major Gifts Officer Stacie Couvillon at [scouvillon@inhf.org](mailto:scouvillon@inhf.org) or 515-288-1846, ext. 45.**

## TRIBUTE GIFTS

### IN HONOR OF

Ross Baxter  
Kelly and Mary Croft  
Phil Cummins  
Larry and Peg Fletcher  
Kodie  
Dr. Lowell Luhman  
Joe McGovern  
Richard the Mule  
The Fish Quad  
Cindy and Rich Raabe  
Carole and Duke Reichardt  
Ruth Rose  
Tylar Samuels  
Clara and Matt Schmitz

Debra Kane and Snickers  
Annette Mihm Taylor  
Joseph H. and Linda R.F. Zaletel

### IN MEMORY OF

David E. Anderson  
Donald A. Beneke  
Barbara Berry  
Kay Bucksbaum  
David Lee Cook  
Bion Lee Curry  
Jeanette Jane Douglas  
George P. Malanson  
Elizabeth Glaza Greiner  
Nancy Hamilton

Marc Hemmes  
Thomas R. Hoff  
Margaret Jespersen  
Earl W. Drilling Jr  
Chuck Klohs  
Roger Koster  
Art J. Lambe  
Elizabeth Axnix Lower  
Susan Connell-Magee  
George P. Malanson  
Marlys R. Svare  
Sandra Ostwinkle  
Tim Osweiler  
Bion Lee Pierson  
Bob Reilly

Earl and Isabelle Salterberg  
J. Richard Sampel  
Robert Scheeper  
Brenda Marie Leigh Solko  
Harold Steinfeldt  
Brandon Stone  
Donna M. Tiller  
Laura VanderMeer  
Dr. Kent L. Webb

# FROST: NATURE’S FINGERPRINTS

BY CLARA WODNY  
*Communications Intern*

You wake up on a chilly winter morning and look out the window to find the ground, your car and other surfaces covered in tiny, sparkling ice crystals. What you’re noticing is frost — the frozen counterpart to dewdrops.

## The Formation of Frost

Frost forms through a process called deposition, when water vapor that is suspended in the air cools enough to condensate and turn into liquid. If the surface that the water vapor condensates on top of is cold enough, it will skip the liquid state and immediately transform into ice, becoming frost. Because heat rises, the air is typically much cooler near the ground. If the surface on which the water vapor condensates is below freezing, it is possible for frost to form even if the overall air temperature is above freezing.

## Types of Frost

Not all frost is created equal. There are many varieties, differentiated based on where and how they form.

Hoarfrost, also known as radiation frost, is the most common. Hoarfrost occurs when water vapor directly freezes into ice crystals upon touching a cold, exposed surface. In addition to commonly coating sidewalks, grass and car surfaces, the frost that forms inside of your refrigerator and freezer is likely hoarfrost.

Advection frost refers to tiny spikes of ice that form when very cold air blows into an area and replaces warm air. It is usually




associated with cloudy conditions and strong winds, forming on surfaces like tree branches and metal poles.

A third type of frost, called rime, forms quickly in very cold, wet or windy climates. Rime frost particles tend to be thicker and sturdier than hoarfrost, which means it can last up to several days and build up over time. True hoarfrost is much more delicate and will not build up over time.

## Nature’s Decorations

Frost is one of nature’s many phenomena that helps transform the outside world into a captivating, breathtaking winter wonderland. Next time you’re salting your sidewalk or scraping frost off your car’s windshield, take a moment to appreciate the uniqueness of each crystal and nature’s ability to constantly create something new. ❄️

## FROST ID

|   | NAME      | CHARACTERISTICS   | HOW IT FORMS  |
|---|-----------|---|---|
|  | HOARFROST | <ul style="list-style-type: none"> <li>Delicate</li> <li>Not long-lasting</li> <li>Found on sidewalks, grass cars, &amp; inside the fridge</li> </ul> | Upon touching a cold, exposed surface, water vapor directly freezes into ice crystals |
|  | ADVECTION | <ul style="list-style-type: none"> <li>Tiny spikes</li> <li>Found on tree branches &amp; metal poles</li> </ul>                                       | Very cold air/wind blows into an area & replaces warm air                             |
|  | RIME      | <ul style="list-style-type: none"> <li>Thick, sturdy particles</li> <li>Lasts several days</li> </ul>   | Quickly forms in very cold or windy climates & can build up over time                 |



Iowa  
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505 5th Ave., Suite 444  
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**A Hooded Merganser (*Lophodytes cucullatus*) swims on a frosty morning.** Hooded Mergansers feed by diving for fish and other small aquatic critters. They have several adaptations to help them dive including nictitating membranes which act similarly to goggles, and legs that are set farther back on their body. *Photo by Stan Buman*

