

# THE AG HERALD

A Special Section of the Herald Part of Iowa Information Media Group June 20, 2023

## Restoration of oxbows offers benefits for farmers and wildlife

By JACK MCCLELLAN  
jmcclellan@iowainformation.com

Environmental organizations and farmers are working together to restore oxbow river formations along the Raccoon River watershed, leading to a variety of benefits in water quality, wildlife habitats and flood mitigation.

Oxbow formations occur naturally when rivers meander in their paths, curving until they eventually loop back into themselves. Water begins to flow straight through, while the curve that is left behind holds excess water and becomes a hotspot for wildlife.

Over the past century, many oxbows in watersheds across the country have filled in with sediments running off of farms. Without oxbows, many species of fish are left without suitable habitats and risks of flooding increase.

A variety of environmental and agricultural entities have focused on restoring oxbows in recent years. With oxbows being added to Iowa's list of nutrient-reduction strategies in 2019, funding for the projects has been made available for groups looking to restore the river formations.

Around Carroll County, the U.S. Fish and Wildlife Service and Iowa Soybean Association have been working together to restore oxbow formations along waterways on private lands. Darrik Weissenfuh, a biologist with the U.S. Fish and Wildlife Service, said wetlands and surrounding environmental features play a big role in maintaining healthy ecosystems.

"Oxbows, because they are a wetland feature, provide a lot of those benefits at any given time," Weissenfuh said. "We often refer to oxbows as multi-purpose because of all those different benefits that they can



SUBMITTED PHOTO

An oxbow restored in April 2023 along Purgatory Creek in Carroll County.

provide from fish and wildlife habitat to water quality."

Oxbows can help to filter excess nitrates from farms by holding water after it runs off of fields. When paired with other edge-of-field practices, like bioreactors, wetlands, or saturated buffers, oxbows can lead to a significant reduction in nitrate runoff.

Brandon Iddings, field services program manager at the Iowa Soybean Association, said oxbows are a successful practice, especially when agricultural tiles drain directly into oxbows. He said studies conducted at the University of Iowa have found oxbows can lead to anywhere from a 35% to 54% nitrate reduction.

Karen Wilke, Iowa freshwater specialist at The Nature Conservancy, said the longer water is held in the river formation the more nitrates are filtered from the water. She said if water would stay in an oxbow formation for two months, 100% of the nitrates

would be naturally filtered out.

Wilke said the restoration projects fit in well with farm country, as the restoration of wetlands in marginal lands along the river does not require farmers to take land out of production.

"There's really no negative impact on [farmers], so it's been a really easy sell," Wilke said. "And for those multiple benefits, that's why we're doing it. It's not just water quality, it's not just wildlife habitat, it's not just food water storage, it's all of those things in one."

The Nature Conservancy is another entity working towards restoring oxbows in Iowa, although the Nature Conservancy's efforts have been more centered around the Boone watershed in recent years.

Wilke said the typical size and cost of the restorations is around a half acre. With the conservancy covering all associated costs, Wilke said an oxbow restoration usually costs around \$15,000

"Literally all they need to do is give us the okay to do it, and then sign an agreement that says they're not going to undo it for at least 10 years," Wilke said.

Iddings said another benefit for farmers who allow for oxbow restorations on their land is being able to use the soil that is excavated to make way for the oxbow.

"Some of these oxbows are 1000s of cubic yards of dirt," Iddings said. "Sometimes, depending on the size of the oxbow, you can cover some big areas and cover that sand back up and start getting some better yields out of your acres."

Oxbows also provide important habitats for a variety of species, including the federally endangered Topeka Shiner, which relies on the oxbow river formation and its slow-moving waters.

"Oxbows are really like the nursery of the river system," Weissenfuh said. "So a lot of fish utilize them to reproduce

and then also a lot of younger fish, smaller fish utilize oxbows to get away from predators, or to find slower moving water."

Weissenfuh said while the Topeka Shiner, a small minnow that ranges across the midwest, has seen significant declines over the last century, they are seeing huge progress in rebuilding the population through oxbow restorations.

Weissenfuh said many other species of fish take advantage of oxbows, but that the presence of the Topeka Shiner is a good indicator of a quality habitat that will, in turn, benefit other types of wildlife.

"We have at least 56 [fish] species that we have captured in oxbows in Iowa and then birds of course too," Weissenfuh said. "Other birds that utilize wetlands and the adjacent riparian habitat, we've documented with our partners at least 54 species of birds in those areas and nine of them are relying on those restored oxbows to provide that habitat."

Weissenfuh said on top of the benefits to wildlife, an oxbow also adds value to a property for landowners, whether it be for recreational or pragmatic purposes.

"Both the local landowner of course that might enjoy the recreation, floating a kayak on it or fishing or hunting, whatever it might be, or maybe it's just more of from a land management standpoint, and they have cattle and they graze and they want some off water area for their cattle to utilize," Weissenfuh said.

Oxbows also can reduce flood risks, both by capturing and holding extra water, but also by slowing the flow of the river overall.

Iddings said a one-acre oxbow can hold up to a million gallons of water, which on its own may not absolve any risk of flooding, but may help to reduce the impact of flooding events.

"So not necessarily going to prevent your crop fields from flooding, but maybe it'll flood all but one row that used to flood or you might save one row of corn," Iddings said. "Or if you have these all up and down the landscape that's gonna really start holding some water and preventing some of these big flooded areas."

Weissenfuh said over 100 oxbow restorations have taken place in just the Raccoon River watershed since 2002.

One set of farmers who had an oxbow restoration take place on their property along Purgatory Creek in April 2022 will host an oxbow field day on July 12 to celebrate the restoration and discuss the benefits it's offered to the local habitat. People interested in attending the event on Kathleen and David Law's farm can RSVP at Practicalfarmers.org.