



Image 1. Duck hunters often see the splendor and beauty of wetland habitats at sunrise. Here the sun is rising over an emergent marsh in winter.

Building a Lasting Natural Heritage Legacy for Missouri Wetlands

by Kelly Srigley Werner

Every year, World Wetlands Day falls on February 2 and in 2023, a cadre of over 300 conservation professionals, educators and landowners met February 1–3 at the Lake of the Ozarks for a Missouri Wetland Summit, co-hosted by the Conservation Federation of Missouri and the Missouri Department of Conservation. The summit was designed to reignite a commitment to conserving, restoring and protecting wetland habitats for the health of the land, water, wildlife and people.

A recurring theme from the presenters at the conference was that science must be a cornerstone in wetland conservation because of the vital role all wetlands play in ensuring clean and healthy water for all who depend on them. At the conclusion of the summit, the excitement was palpable and a flurry of ideas and sugges-

tions were offered from over 300 attendees. But, shortly after the summit, the nation learned that the Supreme Court of the United States handed down a decision that erased decades of protections for wetlands under the Clean Water Act. The ruling states that only those wetlands that are connected to surface water flow will be recognized for federal protections under the Clean Water Act. This is concerning, not only for Missouri, but for states that have numerous isolated wetland habitats like the prairie pot-holes in the Dakotas and upper Midwest.

Can Missouri's commitment to wetland conservation keep pace with the implications of this ruling? If you are a proponent of diverse landscapes that support diverse fish and wildlife resources, contextualizing Missouri wetlands and the various niches they fulfill is as import-

ant as knowing the historical extent of wetlands and the related social and economic changes that have occurred over time.

Missouri Wetland Status and Trends

Missouri's land base is about 44.6 million acres. Although not yet a state, the U.S. Fish and Wildlife Service estimated that around the time of the American Revolution (1770s) there were approximately 4.84 million acres of wetlands, about 10.9% of the state's surface area. Nearly half of that acreage (2.3 million acres) occurred in the Missouri 'bootheel' and was dominated by expansive bottomland hardwood forests and cypress-tupelo swamps. The other half were various complexes of wet prairie and emergent

wetlands, bottomland hardwood forests and scrub-shrub wetland habitats occurring along our large rivers and streams and those associated with karst systems (Figure 1).

By 1980, the wetland base acres had been reduced from 4.84 million acres to roughly 643,000 acres, or about 1.4% of the surface area of the state. So, approximately 87% of the original wetland acres in Missouri were lost by 1980. This was all progressive, the reduction of wetland acreage required societal 'progress' for around 200 years to channelize rivers, construct dams, ditch, tile, fill and constrict wetland water flow with elaborate levee systems; essentially removing the processes that originally and naturally shaped and created wetland habitat.

Figure 1. Historical reference where the largest concentrations of wetlands were located on the landscape exhibited by hydric soils.



Mike Leahy/ Missouri Department of Conservation

Other states in the Midwest, and nationwide, also experienced extensive wetland loss during this time period, and for people along the rivers, the Mississippi and Missouri rivers, wide-ranging wetland loss occurred in the lands between the bluffs. Between 2004 and 2009, both emergent marshes and forested wetlands continued to decline nationally (0.2% and 1.2% respectively) as well as in Missouri. But throughout that earlier timeframe, wetlands were not understood in the same way they are now, and the science continues to evolve even today.

Irreplaceable Biological and Ecological Values

Missouri wetlands play a critical role to birds during spring and fall migration including species of waterfowl, shorebirds, large wading birds, secretive marsh birds, songbirds and raptors. As part of the Mississippi Flyway, millions of birds hone in on Missouri for a place to rest and refuel due to the mid-latitude location of the state along migratory routes.

The diverse array of wetland types and habitats provided in Missouri can't be overstated. It is this diversity in wetland types that makes Missouri wetlands support a plethora of niche species too, such as insects, butterflies, amphibians, reptiles, mammals, fish, and plants. Wetlands provide much needed refuge for species of conservation concern like three-toed amphiuma, swamp rabbit, and prairie massasauga rattlesnake, monarch butterfly and federally-listed species like Hine's emerald dragonfly, pondberry and decurrent false aster.

Most of Missouri wetlands occur along rivers and streams as marshes, swamps, sloughs, oxbows and forested wetlands, and some more obscure wetlands occur deep in the Ozarks as seeps, fens and sinkhole ponds.

Over time, science has informed us that ecologically, wetlands provide flood control, absorb

nutrients (reduce nitrogen and phosphorus in streams) and pollutants from runoff, reduce erosion and sedimentation in streams, recharge groundwater, sequester carbon in a changing climate, provide recreation and social interactions through hunting, wildlife watching and outdoor learning. These values are important for people and wetlands, as part of a healthy ecosystem, and help maintain healthy, clean water, and provide a valuable connection to water supplies.

So, with these values in mind, it is more important than ever to think of wetlands holistically with an ecosystem approach to conservation which must include the human dimensions element in decision-making, striving for open communication concerning knowledge of status and trends, ecological importance, and critical benefits that wetlands provide to our citizenry and our state's natural heritage.

A Closer Look into the Supreme Court Decision

Today, it is difficult to comprehend the impacts to the processes that conserved and protected wetlands over generations. But in the 1970s, because wetland losses were not just occurring in Missouri, national legislation was passed to stop the continued losses, recognizing among other things the science related to wetlands' role in flood storage and ground water recharge.

Wetlands have been protected for over 50 years and are considered waters of the United States under the Clean Water Act of 1972. Through a regulatory process under Section 404 of the Clean Water Act, wetlands require permits before any dredging or filling, and mitigation of impacts are required to replace the acres impacted if there are no other alternatives. In addition, a presidential Executive Order 11990 beginning in the late 1970s and carried through administrations on both sides of the aisle declared a no net loss of wetlands: 1) due to their important

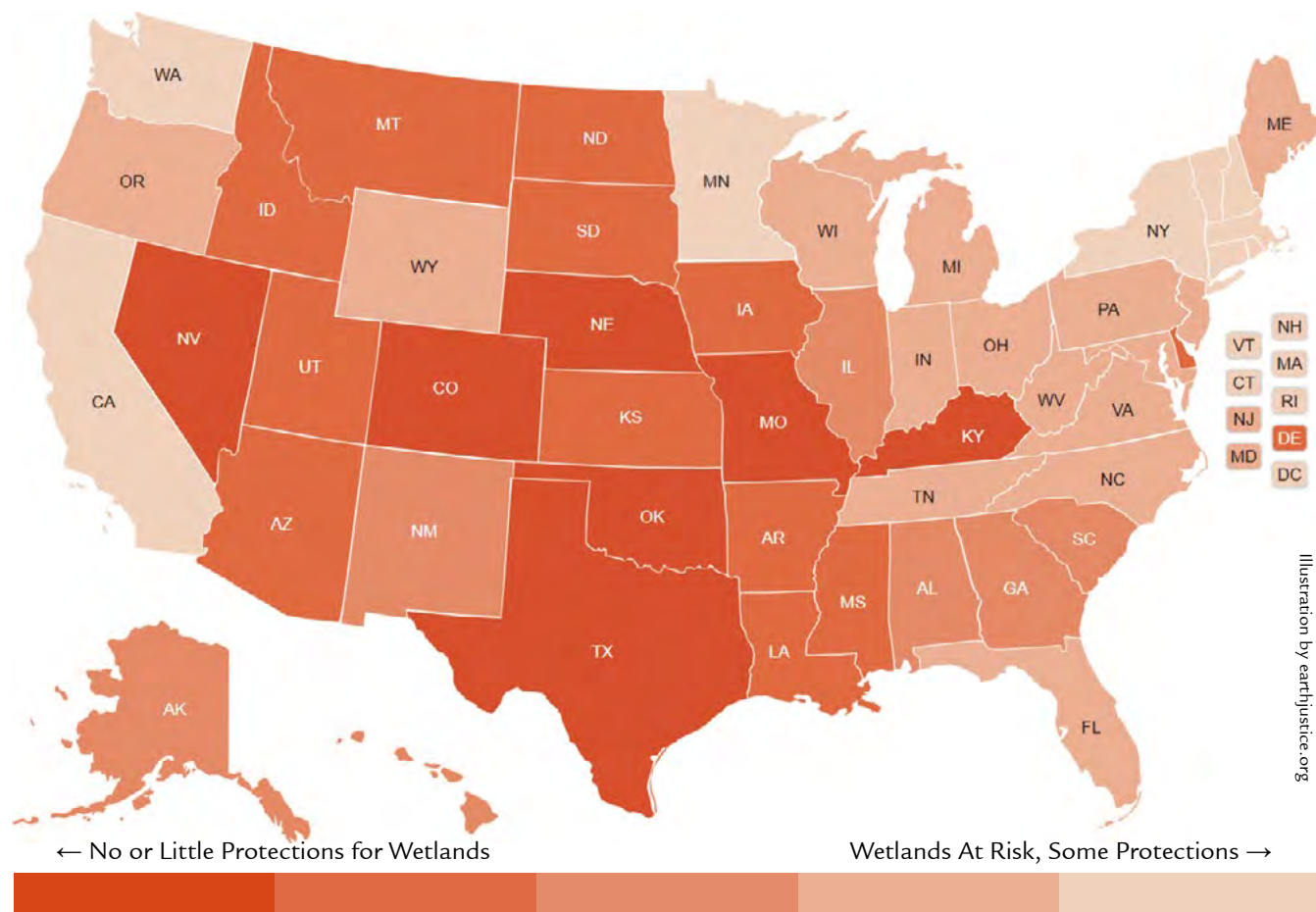
roles in protecting public health, safety and welfare; 2) supporting flora and fauna in natural systems, and; 3) other uses such as recreation, and cultural and scientific study. Societal tests of the definition of a wetland and whether they should be considered waters of the U.S. regulated under the Clean Water Act have been challenged in court over the last several decades.

The spring 2023 split (5-4) Supreme Court decision to limit the definition of a wetland under the Clean Water Act did not take into account Justice Kennedy's language in previous challenges regarding the application of science in determining jurisdiction, putting the bulk of the nation's remaining wetlands at risk.

In Missouri, the Clean Water Act, through section 401 gives states authority to protect wetlands from certain activities through their state water quality certification program. But that authority in Missouri is directly tied to the Clean Water Act's section 404 permit process at the national level. Meaning that if a 404 permit is not required, nor is a 401 certification.

This decision could potentially impact over half of the remaining wetland acres in the United States including the acres left in Missouri for a few reasons: 1) the state has few alternative laws for protections in place (Figure 2); 2) many wetlands, while connected to a river or stream are cut off from surface flow due to levees; and 3) fens and seeps are connected to ground water

Figure 2. Missouri is one of 7 states where wetlands are most at risk after the Supreme Court decision to limit the definition of wetlands to only include those with direct surface flow to a water of the U.S.



that ebbs and flows, without a discernible surface source, rendering important habitats like these, sinkhole ponds and wetlands near losing streams, to have no protections. Put another way, the 13% of wetlands that remain could be reduced to 6.5% or less than 1% of the state's land base.

Partnership Efforts and a Call to Action for Missouri Wetlands

Missourians are strong advocates for natural resources and over the years have voluntarily stepped up to the plate to invest in conservation through support for the "Design for Conservation" which provided 1/8 of a cent sales tax to directly support forest, fish and wildlife management.

State and federal agencies and organizations have worked together in partnership and with voluntary landowners and communities to protect and restore wetland habitats and educate people on their management. While unrealistic to imagine Missouri's land base being restored to 10.9% of its original wetland base, landowners voluntary conservation actions have resulted in positive collaborations through various public-private partnerships on private lands including in north-central Missouri, the bootheel, and the Missouri-Mississippi River Confluence.

Missourians engaging in efforts to work with the U.S. Fish and Wildlife Service's Partners for Fish and Wildlife Program, Ducks Unlimited, Inc's Land Protection Program, Missouri Department of Conservation's Landowner Assistance Program and the Natural Resources Conservation Service's Wetland Reserve Enhancement (WRE) Program and other private organizations have helped to restore approximately 200,000 (WRE around 166,000 acres) acres providing some gains of wetland habitat over the last 35 years — a significant investment in time and money but also a local economic driver to contract the work and provide materials for construction.

Efforts can't stop here though. "For 50 years the Clean Water Act has been instrumental in revitalizing and safeguarding drinking water sources for people and wildlife, wetlands for flood control, and habitats that sustain our wildlife heritage," said Jim Murphy, director of legal advocacy for the National Wildlife Federation. "We call on both Congress and state governments to step in, plug the gap, and protect our threatened waters and the people that depend on them."

We need social connections with Missouri wetlands to generate renewed support with our local communities and citizenry. Our Missouri Natural Areas Program celebrates the variety of wetland habitats in our state by protecting and recognizing 51 natural areas with wetlands as the primary feature, including the following community types and a few examples: Wet Bottomland Forest (Big Oak Tree NA), Wet Bottomland Prairie, Marsh (Oumessourit NA), Shrub Swamp (Mingo NA), Swamp (Allred Lake NA), Oxbow & Slough, Sinkhole Pond Wetlands (Cupola Pond NA), Fens and Seeps (Grasshopper Hollow NA). Each natural area wetland represents many irreplaceable biological and ecological values.

To answer the question early on in this article, "Can Missouri's commitment to wetland conservation keep pace with the implications of the Supreme Court ruling?" The answer is yes, but it will require strong leadership and local partnerships, perhaps focused on Missouri's many designated natural areas with a wetland focus, to generate appreciation. This can be done through local events like workshops and festivals that can, in turn, change hearts and minds about how wetlands affect people's everyday lives and why wetlands need strong advocacy, policies and protections. Other ideas include holding a State Wetlands Day, where communities celebrate Missouri wetlands perhaps in combination with birding festivals and soil health demonstrations.

Wetlands are a part of the patchwork of our state's natural heritage and while the court's decision is troubling, citizens have a voice and can build support serving as messengers and ambassadors for wetlands. Take friends to a wetland to let them 'touch' the resource and get their feet wet. Building that advocacy is a first good step in leaving a lasting wetland legacy for future generations of Missourians. 🌿

Kelly Srigley Werner retired from a 34-year career with the U.S. Fish and Wildlife Service in 2021, where for 28 years she served as the Missouri State Private Lands Coordinator and Administrator for the Partners for Fish and Wildlife Program.

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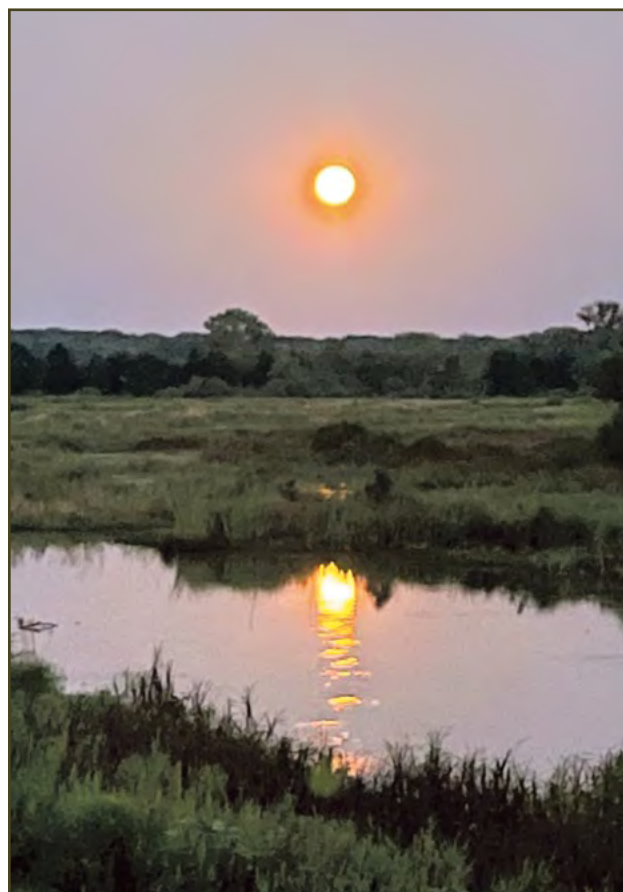


Photo by George Seek

Image 2. North-central wet prairie marsh captured under a blue moon September 2023

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