A Greener World

The destruction of vital Missouri wetlands, exposed

By Ira Rodrigues
Conserving Editor

Photos courtesy of Missouri Botanical Garden

By Madeline Fong & Nathan King
Staff

Photo by Robin Powell

Mosquitoes buzz, filling the air with a raucous din as they fly in lazy circles. Mud layers the ground in decay and moisture. Spiders glide across the surface of the murky green water, and an unbearable stench fills the air, evoking the image of rancid sewage. This is what most people picture when they think of wetlands: a marshy, swampy mess with little environmental impact. Few know the reality of the once majestic floodplains that spanned millions of acres and were an essential part of the Missouri ecosystem.

These deep waters, blanketed with water lilies and surrounded by soft rushes and sweeping willows, used to bloom with life. They enable the survival of thousands of creatures; for many species, the wetlands are their only home. They are responsible for enriching the soil that we now depend on for crops and agriculture. They breathe life into the environment.

Now, they're disappearing.

Wading In

How did the wetlands become the forgotten, endangered habitats they are today? According to Michael Saxton, an ecological restoration and land stewardship manager at the Shaw Nature Reserve, it's because people didn't understand their true value.

"Historically, we didn't value [wetlands] very much," Saxton said. "[People] would just drain the wetlands, because they didn't see a lot of value to them. [They] looked at these areas and [said], it's just a swamp, it's just a marsh. What does it do? You can't use it. But they're really ecologically diverse."

In fact, the Missouri wetlands host a variety of plants and wildlife, from towering cypress trees and herons to the tiniest of green tree frogs. These species depend on the floodplains to survive.

"[Wetlands] have a whole bunch of different reptiles, amphibians, birds [and a] whole wide array of plants that physically can't grow anywhere else,"

Wetland Wonders

A look at species common to the wetlands

Photo by Kathy Melton

Saxton said. "They've specialized in living in these wetland communities."

As well as providing a home for many, wetlands can also mitigate the effects of climate change with the flora that they support, according to St. Louis University assistant professor Matthew Bast.

"We have this fundamental disconnect between ourselves and the natural world. We've lost that sense that we belong to an ecosystem."

Michael Saxton
Shaw Nature Reserve Manager

"Water plants can hold a ton of water, so wetland areas soak up more water than regular land," Bast said. "[They] can soak up pollutants, slow the spread [of floods] and hold tons of carbon that otherwise, if those areas were burned and farmed, would be in the atmosphere."

But despite all these positive qualities, over 87% of Missouri wetlands were destroyed, according to an article by St. Louis National Public Radio. This has made the wetlands vulnerable to threats like climate change.

"Those wetland communities are almost all gone," Saxton said. "If the 13% that remains are less resilient because they've lost so many species, in an era of climate change and various other pressures, they're even more at risk."

A Deeper Dive

Wetland destruction is often dismissed as a concern because of the agriculturally rich farmland that has replaced them. After all, wetlands themselves don't provide any economic benefits. A closer look at this issue reveals deeper, more insidious crises that we may not recover from.

Flooding is an issue that has plagued Missouri for decades, and according to the U.S. Environmental Protection Agency, it has worsened, with waterflow rising by almost 20%. New research has shown that wetland destruction may be a factor.

RESERVE RESEARCH

The reserve is a branch of the Missouri Botanical Garden.

2,400
acres of land are used for conservation.

32
acres form the wetland complex of the reserve.

Since **2016**
the reserve has hosted restoration educational workshops.

CURIOUS?
Scan here for more on the Shaw Nature reserve

"The wetlands were expansive lowlands where, when there was flooding, those areas took the water," Saxton said. "Now, we've built a series of levees, berms and dikes that keep water out. We've created human barriers to try to control water, which is not a good strategy. Water always wins."

However, flooding and climate change are only two parts of a larger picture. Another major concern results from species loss.

"People have gotten the message about the climate crisis, and that's important, but equally important is the biodiversity crisis," Saxton said. "They're linked. We've lost species, we continue to lose species and [it is] occurring without anyone noticing."

This problem, according to Saxton, needs more attention.

"These [species] have inherent value," Saxton said. "They've evolved over millions of years. But we don't care about what we don't understand, we don't love what we don't care about, we don't support and protect what we don't know. If we expose people and have them become knowledgeable, hopefully people will start caring."

To Maginel, wetland preservation efforts are vital.

"Anything that we're doing to recognize and restore communities with biodiversity in mind, those are good steps," Maginel said. "We're still extracting without full recognition of what it took to create what we're extracting. That's scary to me."

Outreach and Opportunities

As time ticks and wetlands are destroyed, the need for a biodiverse habitat has proved critical. But government solutions are full of problems, begging the question: how can we move forward?

"At this stage, our natural areas are so fragmented," Saxton said. "We've taken this historic, expansive assemblage of habitats and we've converted it to different land uses. We've fragmented areas with roads and subdivisions and cities. We've introduced invasive plants all over the place. What we can't do now is put a fence around it and let nature take its course. We have to be active participants in the natural world."

Organizations like the Shaw Nature Reserve target artificial restoration.

"We are trying to recognize the importance of functioning wetlands and increase the diversity of the ones we're creating," Maginel said.

The reserve also promotes wetland education; Maginel and his colleagues hope that this will increase awareness.

"The more you know, the harder it is to not care," Maginel said. "If we can reach people, talk about the importance of [the wetlands], and show not only its beauty, but also what it does for biodiversity, it's harder to destroy one later."

There are many ways to help preserve the wetlands, according to Saxton.

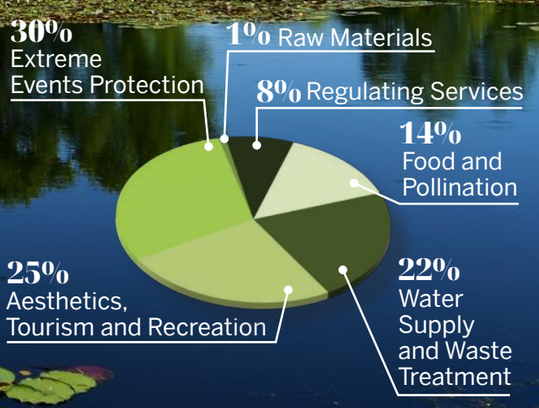
"There are a lot of good places [to get involved]," Saxton said. "People will say, 'I don't know where a wetland is. I'd have to go 100 miles away.' No, we have those areas right here in our own backyard. We just have to start looking." P

Testing the Waters

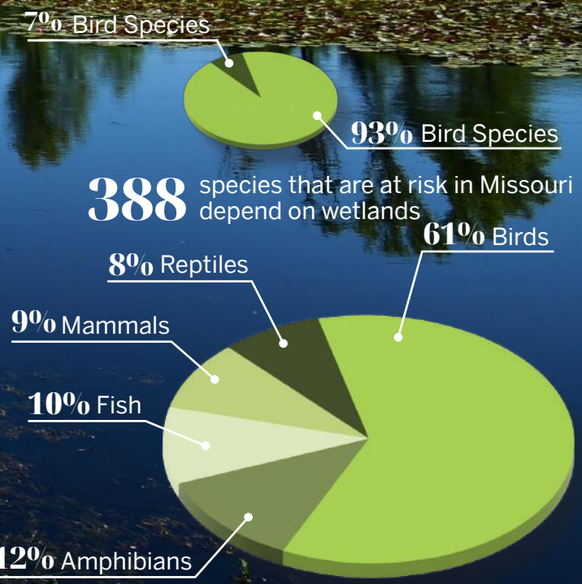
Statistics on endangered species and the wetland economy

Photo by Steve Frank
Illustration by Emily Liu

Missouri's wetlands are worth
$7.7 Billion



Of the **1,900** bird species that breed in the United States, at least **138** are wetland dependent



388 species that are at risk in Missouri depend on wetlands

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To read and listen to the full story

Sources: Dogwood Alliance, National Association of Wetland Managers, Missouri Botanical Garden, Missouri Department of Conservation

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