

Wetlands in Peril

How Industrial Agriculture Damages Critical Ecosystems, Increasing Flood Risk in the Upper Midwest

HIGHLIGHTS

Industrial agriculture degrades and destroys wetlands. Changes to the Clean Water Act in 2023 rolled back federal wetland protections, further increasing risks from corporate agribusiness. Wetlands are vital natural flood barriers, and when they are destroyed by industrial agricultural corporations, people pay the price. The Union of Concerned Scientists found that 30 million acres of wetlands in the Upper Midwest provide nearly \$23 billion in annual flood mitigation benefits to homeowners. Over the long term, protecting these wetlands could prevent between \$323 billion and \$754 billion in residential flood damages in this region. The next farm bill offers a pivotal opportunity to protect wetlands and address the devastating damage industrial agriculture inflicts on these essential ecosystems.

Wetlands, Flooding, and Climate Change

Wetlands provide natural barriers against flooding by regulating the timing, volume, and direction of water flow. The spongy soils and water-loving plants found in wetlands can capture large volumes of water from snowmelt and heavy rainfall. Rushing floodwaters are also slowed by the friction of wetland trees and plants, further reducing flood risks to nearby communities.

In the Midwest, flooding will worsen as climate change brings higher sea levels and more intense precipitation. Wetlands not only protect communities from flooding, but as effective carbon sinks, wetlands also provide an important nature-based solution to climate change. They excel at carbon sequestration, trapping and storing over 30 percent of soil-stored carbon on Earth, despite covering only 6 percent of the planet's surface. But the high carbon stocks of wetlands present a significant risk, as damaged or destroyed wetlands release stored carbon as methane, carbon dioxide, and nitrous oxide, powerful heat-trapping gases that accelerate climate change.

Threats to Wetlands

Despite the clear benefits of protecting wetlands—and the severe consequences of destroying them—wetlands are losing ground: Half of US wetlands have disappeared since the 1780s, and the pace of wetland loss has accelerated over the last 20 years. Urban and rural development, cultivated forestry, and climate change-related disturbances to temperature, evaporation, and precipitation patterns all play a role in wetland decline. But no factor has contributed more to wetland loss over the past two and a half centuries than the rapid expansion of mechanized and large-scale agriculture.

Wetlands that abut commercial farming operations are at risk of being drained and converted into crop fields and livestock pastures. Even wetlands that avoid drainage and conversion suffer damage from fertilizer, manure, pesticide, and other pollution runoff from nearby agricultural fields. The US Environmental Protection Agency has identified agricultural runoff as a leading cause of wetland impairment in the United States.

Analysis: Wetlands Prevent Billions of Dollars in Flood Damage in the Upper Midwest

Protecting and restoring wetlands in the Upper Midwest offers significant economic benefits to Midwesterners grappling with intensified flooding caused by climate change. Recent research estimated that one acre of wetlands provides

\$745 of benefits in averted flood damage to residential properties (Taylor and Druckenmiller 2022). Using this estimate:

- We found that wetlands in the Upper Midwest provide almost \$23 billion in annual residential flood mitigation benefits.
- We further estimated that these wetlands offer between \$323 billion and \$754 billion in long-term residential flood mitigation benefits to the region.

The Next Farm Bill Can Help Save Wetlands

The next farm bill offers a pivotal opportunity to strengthen wetland protection by enhancing existing agricultural conservation programs and introducing new incentives that foster soil and water health. When sufficiently funded and effectively employed, US Department of Agriculture (USDA) conservation programs can protect and restore wetlands: In the Upper Midwest,

successful conservation programs drive the majority of newly created or rehabilitated wetlands.

To fortify USDA programs that safeguard wetlands from industrial agriculture, the next farm bill should increase the acreage cap of the Conservation Reserve Program (CRP), including the Farmable Wetlands Program. It should boost funding for Wetland Reserve Easements (WRE) in the Agricultural Conservation Easement Program (ACEP). In addition to programs that directly protect wetlands, the next farm bill should increase funding to conservation programs—such as the Environmental Quality Incentives Program (EQIP) and the Conservation Stewardship Program (CSP)—that improve soil and water quality and reduce the amount of damaging agricultural runoff into wetlands. The next farm bill should also expand equity initiatives to ensure that all farmers have access to federal conservation programs that preserve and restore wetlands.

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TABLE 1. Flood Mitigation Value of Wetlands in the Upper Midwest

	IA	IL	MI	MN	ND	NE	SD	WI	Upper Midwest
Wetland Area (acres)	640,483	1,014,199	6,403,146	10,787,865	2,239,658	1,276,851	1,876,204	6,130,329	30,368,735
Annual Residential Flood Mitigation Value	\$477 million	\$755 million	\$4.77 billion	\$8.03 billion	\$1.67 billion	\$951 million	\$1.40 billion	\$4.56 billion	\$22.6 billion
Estimated Long-Term Flood Mitigation Value (low)	\$6.81 billion	\$10.8 billion	\$68.1 billion	\$115 billion	\$23.8 billion	\$13.6 billion	\$20.0 billion	\$65.2 billion	\$323 billion
Estimated Long-Term Flood Mitigation Value (high)	\$15.9 billion	\$25.2 billion	\$159 billion	\$268 billion	\$55.6 billion	\$31.7 billion	\$46.6 billion	\$152 billion	\$754 billion

Annual value using \$745 per acre; low and high estimated values over time based on 7 percent and 3 percent discount rates, respectively. See methodology in full report appendix for details.