



# Preserving, restoring, and enhancing wetlands through the Farm Bill



CONSERVATION THAT CONNECTS



# Abstract

Wetlands play a critical role in the health of North America's agricultural landscape. Policies governing their preservation, restoration, and enhancement must be economically feasible and make sense for landowners and agricultural producers who are the custodians of the land

The benefits of wetlands are numerous. They protect and improve water quality, sequester carbon, store floodwaters, replenish groundwater supplies and aquifers, maintain surface water flow during dry periods, and provide fish and wildlife habitats. They also constitute some of the most productive and biodiverse habitats as 40 percent of all plant and animal species live or breed in wetlands. Threatened and endangered species are no exception, with approximately half of all species protected by the Endangered Species Act in the United States being considered wetland dependent.<sup>1</sup>

Wetlands also present challenges to production agriculture because they retain excess spring soil moisture in low-lying areas. This can delay planting outside normal optimum planting dates, often reducing yields. Crops planted in farmable wetlands often suffer reduced yield or are a total loss if there is excessive rain during the growing season.

Yet wetlands and production agriculture can complement each other with proper water management practices and cost-effective incentives. Carbon sequestration and groundwater retention are significant attributes that must be recognized when determining wetlands' value and incentivizing their preservation.

Multiple U.S. Department of Agriculture (USDA) and U.S. Fish & Wildlife Service (USFWS) programs have preserved and enhanced millions of acres of wetland; yet while certain programs are oversubscribed, some are underutilized due to a lack of awareness among landowners and agricultural producers. (See Appendix II).

<sup>1</sup>U.S. Fish & Wildlife Service, *2019 Wetlands Status and Trends Report*. [fws.gov/project/2019-wetlands-status-and-trends-report](https://www.fws.gov/project/2019-wetlands-status-and-trends-report)

# Introduction

According to the US Department of Agriculture, the U.S. lost nearly 30,000 farms per year between 2017 and 2022—an overall decrease of seven percent. Losses of farmland were smaller by percentage (2.2 percent), but still represented some 20.1 million acres—nearly the same size as South Carolina.<sup>2</sup>

The world's population is expected to increase by nearly 2 billion in the next 30 years, from the current 8 billion to 9.7 billion in 2050. It could peak at nearly 10.4 billion in the mid-2080s. Increased production is needed to feed this expanding population, yet the footprint of agricultural land is shrinking—along with the footprint of environmentally sensitive areas.

The sixth edition of the national “Wetlands Status and Trends” report to Congress<sup>3</sup> revealed that wetlands covered less than 6 percent of the lower 48 states as of 2019, which is half the area they covered in the 1780s. This report also indicated that loss rates have increased by 50 percent since 2019 and that without additional conservation actions to protect these ecosystems, wetland loss will likely continue.

Although wetlands preservation and production agriculture often are regarded as countering forces, it is possible to achieve a healthy balance through existing wetlands initiatives, water management practices, and landscape management practices that preserve and enhance wetlands and other ecologically necessary structures.

In 2023, the Max McGraw Wildlife Foundation of Dundee, Illinois, assembled a working group to review the status

of wetlands in the United States. This review included the Swampbuster provisions of the 1985 Farm Bill and Waters of the U.S. provisions in the Clean Water Act.

The group included a broad range of conservation and agriculture policy experts with diverse backgrounds in federal farm program implementation, legislative expertise, production agriculture, and in-depth research.

Their work built upon the 2022 McGraw white paper entitled “Strengthening conservation and sustainable agriculture practices in the Farm Bill.” It also took into consideration the additional funds made available for conservation through the Inflation Reduction Act of 2022.

After careful review of the status of wetlands and the consequences of their continued destruction, the group recommended an educational initiative and certain modifications to current wetlands policy and protective measures that would incentivize wetlands preservation and improve their management.

This resulting white paper is meant to identify and propose: 1) common-sense and economically viable alternatives to draining wetlands; 2) improved water-management practices applied to existing tiling systems; 3) incentives to restore previously drained wetlands.

Policymakers and agricultural producers must work together to overcome the detrimental loss of wetlands. “No net loss of wetlands,” a slogan adopted more than 30 years ago under President George H.W. Bush, should once again be the goal.

<sup>2</sup> U.S. Department of Agriculture, National Agricultural Statistics Service. [nass.usda.gov/AgCensus](https://nass.usda.gov/AgCensus)

<sup>3</sup> U.S. Fish & Wildlife Service, *2019 Wetlands Status and Trends Report*. [fws.gov/project/2019-wetlands-status-and-trends-report](https://fws.gov/project/2019-wetlands-status-and-trends-report)



## RECOMMENDATIONS

Wetlands and production agriculture can complement each other with proper water-management practices and cost-effective incentives. The McGraw working group recommended a series of improvements to existing programs and ideas for new ones, all aimed at protecting or enhancing wetlands and their vital role on the landscape. Detailed in later sections, the recommendations include:

- Improve wetlands management and incentives so lost wetlands functions can be restored, either through the creation of wetlands or the preservation of existing ones, and enhancing their functionality;
- A communications and outreach program designed to better inform landowners of existing wetlands protection services and to assist them in seeking those services;
- Providing more funding through the Inflation Reduction Act for wetlands easements in the critical prairie wetlands of the Great Plains and Upper Midwest;
- An educational effort to advise landowners on improved water-management options on tiled croplands.
- A streamlined applications process, along with more technical assistance for landowners;
- A review of per-acre payments for permanent and long-term wetlands easements;

In addition, the group recommended the adoption of two recommendations found on pages 9-11 of McGraw's 2022 Farm Bill white paper:<sup>4</sup>

- Modifying the Grassland Conservation Reserve Program to encourage wetlands enrollment;
- Authorize a National and Wetlands Soil Health and Income Protection Program.

<sup>4</sup>Max McGraw Wildlife Foundation, *Strengthening Conservation and Sustainable Agriculture Practices in the Farm Bill*. [mcgraw.org/wp-content/uploads/2023/03/Farm-Bill\\_final.pdf](https://mcgraw.org/wp-content/uploads/2023/03/Farm-Bill_final.pdf)

# Background

## What is a wetland?

A wetland is an area of land or type of ecosystem covered partially or filled completely with water, either seasonally or permanently. A wetland can be filled from nearby water sources or from precipitation. The presence of a wetland is also determined by the existence of hydric soils and hydrophytes, plants which can grow in extremely wet areas.

## What wetlands do for us

- Provide water-quality protection
- Provide fish and wildlife habitat
- Provide natural floodwater storage
- Recharge aquifers and groundwater supplies
- Reduce erosive potential of surface water runoff
- Sequester carbon
- Trap pollutants such as phosphorus and heavy metals in their soils
- Transform nitrogen into a form that's easier for plants to absorb
- Physically and chemically break down dangerous bacteria
- Sink leaves, debris, animal waste and other carbon laden matter that is detrimental

## Consequences of wetlands destruction

- Increased flooding
- Decline in water quality
- Extinction and reduction of species
- Diminished aquifer and groundwater supplies

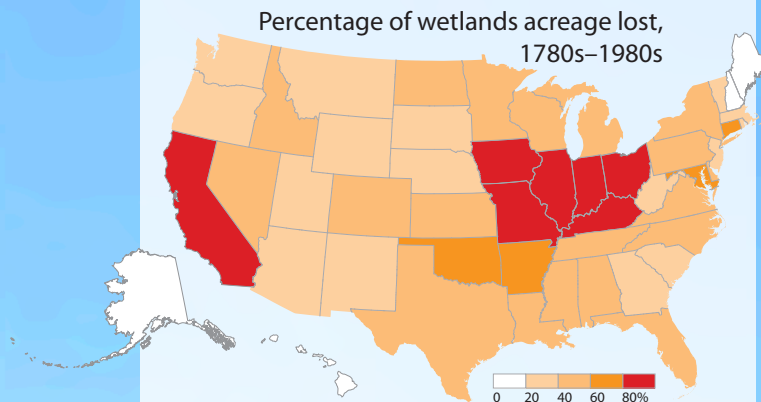


## Diverse views on wetland protection

Producers and other members of the agricultural community have expressed diverse views about wetland protection, from strong opposition to strong support. Those who oppose protection offer two general concerns:

- 1 As a philosophical matter, some object to federal regulation of private lands, regardless of the societal values those lands might provide.
- 2 Many farmers want certainty and predictability about the land they farm to limit their financial risk. Therefore, if wetlands are located on farm property, they want assurances that the boundary line delineating wetlands will remain in place for as long as possible.

## BY THE NUMBERS



Source: Mitch and Gosselink, *Wetlands*, 2nd edition, Van Nostrand Reinhold, 1993

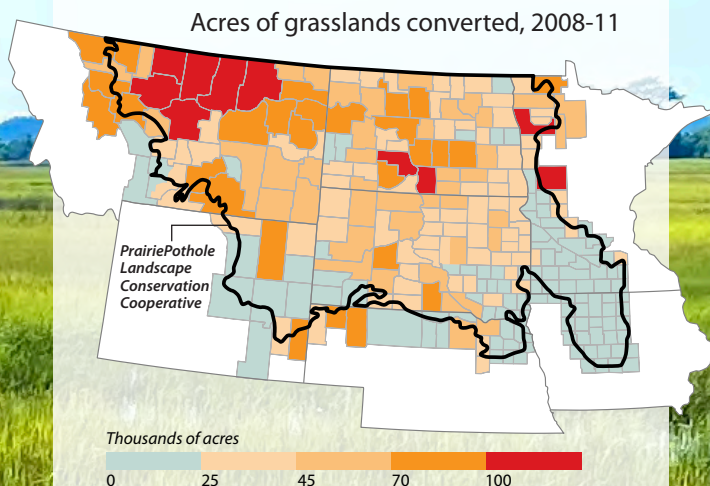
In the early 1600s more than 221 million acres of wetlands existed on America's landscape. Today, wetlands cover just over 5% of the contiguous United States or 110 million acres.

More than 50% of U.S. wetlands have been destroyed.

The mid-1950s to the mid-1970s saw major national wetland loss.

According to the Environmental Protection Agency, about 60,000 acres of wetlands are lost each year in the United States.

More than 80% of U.S. wetlands losses are attributed to agriculture.



Source: Environmental Working Group. Agriculture expansion was calculated using the USDA NASS Cropland Data Layer.

# New research offers a path forward

Thoughtful wetlands restoration has the potential to improve surrounding agricultural production.

Recent research<sup>5</sup> by Nicole Karwowski, assistant professor at Montana State University in the Agricultural Economics and Economics Department; and Marin Skidmore, assistant professor at the University of Illinois Urbana-Champaign, studying the interaction between policy, agriculture, and the environment, found that fields next to land enrolled in wetland easements produce better yields. This is partly due to wetlands acting as natural sponges that absorb and store large amounts of precipitation. This mitigates the effect of extreme heat and excess precipitation on adjacent croplands that remain in production.

Wetland easements increase county-level yields for corn, soybeans, and wheat (Karwowski 2022).<sup>6</sup> One reason for this improvement is that marginal land is being taken out of production, increasing average yields. The second reason for this improved productivity is that wetland easements act as flood buffers for neighboring croplands.

Moreover, there is evidence that increasing the proportion of wetland easements to cropland lessens indemnities needed for excess moisture, heat, and disease (Karwowski, 2022). These steps could result in a value of more than \$7 billion over three decades.

In another paper, Karwowski (2023) also shows this directly using field-level data from Wisconsin. Corn production increases by three to four bushels per acre

when a wetland averaging 100 to 200 acres is restored within a 1.9-mile buffer. Yield improvements are especially notable when heavy rain occurs in early spring and during harvest season.<sup>7</sup>

There are ancillary benefits such as landscapes with additional open space, open water, and a high soil-moisture content promoting lush vegetation.

Karwowski and Skidmore's research also underscores wetlands' ability to act as Earth's kidneys, filtering nutrients from surface waters. In the Mississippi River Basin, the Wetland Reserve Program (WRP) and Agricultural Conservation Easement Program (ACEP) from the Natural Resources Conservation Service (NRCS) is associated with improved nutrient concentrations within the subwatershed and in downstream river segments (Karwowski and Skidmore 2023).

This finding holds particular promise in light of slow progress in reducing nutrient loading<sup>8</sup> in the Mississippi River Basin and Gulf of Mexico.

In sum, wetland easements are a promising instrument to reduce nonpoint source pollution, and seem to be the most effective filters in areas with the highest rates of runoff and areas with a substantial amount of cropland and developed land.

**These benefits could be promoted by providing crop insurance premium subsidy assistance on cropland bordering wetland easements.**

<sup>5</sup> *Nature's Kidneys: the Role of the Wetland Reserve Program in Restoring Water Quality*. [ageconsearch.umn.edu/record/335440?v=pdf](https://ageconsearch.umn.edu/record/335440?v=pdf)

<sup>6</sup> *The Effects of Wetland Easements on Agricultural Yields*. [ageconsearch.umn.edu/record/335462?ln=en&v=pdf](https://ageconsearch.umn.edu/record/335462?ln=en&v=pdf)

<sup>7</sup> National Bureau of Economic Research, *Estimating the Effect of Easements on Agricultural Production*. <https://www.nber.org/books-and-chapters/american-agriculture-water-resources-and-climate-change/estimating-effect-easements-agricultural-production>

<sup>8</sup> Illinois Environmental Protection Agency, *Illinois Nutrient Loss Reduction Strategy Biennial Report 2023*. [epa.illinois.gov/content/dam/soi/en/web/epa/topics/water-quality/watershed-management/excess-nutrients/documents/2023-biennial-report/FINAL\\_NLRS2023-Web-08-Mar-2024.pdf](https://epa.illinois.gov/content/dam/soi/en/web/epa/topics/water-quality/watershed-management/excess-nutrients/documents/2023-biennial-report/FINAL_NLRS2023-Web-08-Mar-2024.pdf)





# Grassland conservation protects wetlands

Grassland conservation is a very effective form of wetland protection. The U.S. Fish & Wildlife Service partners with ranchers to maintain rangeland and grazing as part of the landscape's agricultural fabric. More specifically, maintaining grazing land as a primary land use has ecological and economic benefits to adjacent wetlands, particularly in the Western Corn Belt. The FWS Partners for Fish and Wildlife projects and grassland easements are active, popular — and oversubscribed.

## Proposals to increase participation rates and improve existing wetland easement programs

### NO COST

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- Reestablish the “No Net Loss of Wetlands” policy established in 1989 under President George H.W. Bush’s administration after he campaigned on the policy. This requires that lost wetlands functions must be restored, either through the creation of new wetlands or the preservation of wetlands and enhancing their functionality. President Barack Obama’s administration was the last to endorse the policy, while a proposal before President Joe Biden’s administration calls for a “net gain of wetlands.”

*Note:* New figures released in April 2024 by the United States Department of Agriculture showed that for the first time, Americans had reversed the annual loss of wetlands on farms. The United States was losing nearly 500,000 acres of wetlands per year 30 years ago, but that loss is now down dramatically.

- The map type that works best for the specific tract and landowner’s needs should be preferred.

### LOW COST

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- Improve communication with and program outreach to landowners and agricultural producers, with a focus on program availability, program operations and policy, and the potential benefits of enrolling in a wetlands easement.
- Streamline and simplify the application process.
- Establish a coalition of interests such as NRCS, USFWS, National Corn Growers, Ducks Unlimited, the National Wildlife Federation, conservation districts, and others to pool resources and knowledge on wetlands mitigation and restoration.
- Existing marsh wetlands should be ranked according to ecological value, wildlife habitat value, carbon sequestration potential, etc.; and rental rates should be established accordingly in a joint effort between USDA and USFWS.
- Allow wide latitude in the use of wetland maps to determine program eligibility and payment levels for each wetland program.

*Current wetland maps predominantly used include:*

- USDA Certified
- USDA Official
- USFWS National Wetlands Inventory

### MODERATE COST

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Increased funding for wetlands easement programs would help reduce backlogs. For example, the current backlog of U.S. Fish and Wildlife Service easements is 440 landowners representing approximately 99,000 grassland



and wetland acres. The authors of this paper agree that wetlands loss mitigation should provide economic benefits to participating landowners and/or farmers.

- Offer more technical assistance for landowners through NRCS.
- Establish higher per-acre easement payments for long-term and permanent easements, encouraging landowners to enroll marsh and other wetlands and appropriate marginal areas into easement programs rather than tiling and producing crops on land up to their immediate perimeters.
- The total number of acres encompassed by a wetland, including a marsh wetland, plus the appropriate surrounding acreage, should be included when determining payment for wetlands enrolled in all easement programs, even if all the acres under the easement do not meet cropping requirements.
- Authorize cost-share under applicable existing programs or develop economic incentives for

enhancing and improving wetlands under existing easements.

- Redesign wetlands mitigation banking to make it more accessible and practical for agricultural producers.
- Optimal wetland mitigation policies would make it desirable for many landowners or farmers to mitigate loss of wetlands to benefit the farm operation. This would be a business decision determined by the value of the wetland mitigation.
- Internalize Risk Management Agency rates and lower premiums to reflect the reduced risk, higher yields, and fewer indemnities fostered by wetland easements surrounded by croplands.
- Increase funding for USFWS grasslands easements
- Increase funding for the agency's Partners for Fish and Wildlife programs with priority granted to projects that protect, restore, and enhance wetlands.



# Increasing wetlands protection under the Inflation Reduction Act of 2022

The IRA provides \$19.5 billion over five years to support USDA's oversubscribed NRCS-administered conservation programs such as the Agricultural Conservation Easement Program (ACEP), Environmental Quality Incentives Program (EQIP), Wetlands Reserve Easement (WRE), and Landscape Conservation Initiatives.

- ACEP helps landowners and eligible entities conserve, restore, and protect wetlands, productive agricultural lands, and grasslands at risk for conversion to non-grassland uses.
- EQIP is NRCS' flagship conservation program helping farmers, ranchers and forest landowners integrate conservation into working lands.
- WRE is a longstanding easement program that has protected millions of wetland acres and surrounding areas.
- NRCS uses its Landscape Conservation Initiatives to accelerate the benefits of voluntary conservation programs, such as cleaner water and air, healthier soil, and enhanced wildlife habitat. These initiatives build on locally led efforts and partnerships based on science, and provide a more targeted approach by NRCS and its partners to coordinate the delivery of assistance where it can have the most impact. They help producers get predictability for their use of voluntary conservation systems or practices.

*Note:* There is no Landscape Conservation Initiative for the Prairie Pothole Region of the northern Great Plains. Establishing an initiative for the region for wetlands preservation and enhancement would focus more funding for wetlands protection in this area.

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## Recommendations for IRA funding to improve wetlands

Each of these initiatives include wetlands programs. NRCS should:

- Focus more IRA funding for wetlands easements in states in the critical Prairie Pothole Region.
- Establish a Landscape Conservation Initiative in the region to enhance and protect additional prairie wetlands.
- Launch a communications initiative to provide critical information and a database to help farmers determine what programs would work on their operations.
- Expand USDA's communication and education capabilities, and utilize conservation districts, NGOs, and farm commodity organizations to raise awareness of wetlands easements and programs.
- Establish a ranking system for marsh wetlands according to ecological value, wildlife habitat value, carbon sequestration potential, etc.; and administer wetlands programs accordingly.

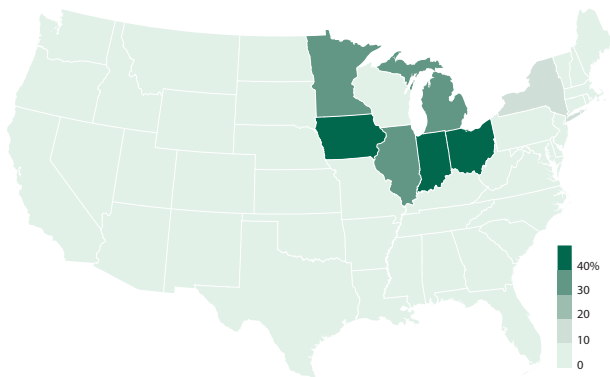
*Note:* The ranking system could be established jointly by USFWS, USDA and other applicable federal agencies.

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# Draining and tiling wetlands

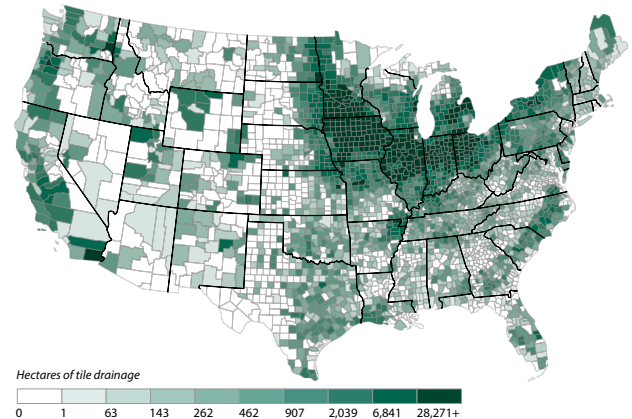
Any discussion of wetlands preservation must include the pros and cons of tiling and draining. The 2017 Census reported that 56 million U.S. acres were being drained by tile, a 14 percent increase from the 2012 census.

Those acres represented 14 percent of total U.S. cropland in 2017, compared with 11 percent in 2012. Corn Belt and Great Lakes states are historically associated with using tile to drain their highly productive soils, though the practice is growing. More than 80 percent of tiled acres are in six Midwest states.



Tiled acres as a share of cropland acres in the United States, 2017.

Source: [researchdata.springernature.com/posts/a-well-validated-30-meter-resolution-tile-drainage-map-for-the-united-states](https://researchdata.springernature.com/posts/a-well-validated-30-meter-resolution-tile-drainage-map-for-the-united-states)



Subsurface tile drainage is one of the most widely used agricultural management practices to enhance crop yield in regions with high water tables or poorly drained soils.

## Recommendations

Because tiling is so effective, it will continue. Yet we must find ways to better manage water flows due to tiling.

- An education initiative should provide landowners and agricultural producers with information about water-management options on tiled land, including bioreactors and controlled drainage.
- Cost-share percentages for installation of water management practices should be increased under applicable federal programs.
- Incentives should be established to use water control structures to restrict drainage during critical early spring waterfowl resting, feeding and breeding periods, then allow the opening of the control structure for agricultural operations.



## Why tile?

Soils that tend to hold water longer, flat land that cannot shed water, and fields that have spots subject to saturation are suitable for tile drainage, which can enable the soil to act more uniformly.

Yield increases of 15 to 25 percent are commonly achieved on tiled land. Tiling also can enhance land stewardship by decreasing compaction on drier soils and allowing farmers to implement soil health practices such as no-till farming and cover crops.

Tiling is here to stay, but managing and storing the water flows resulting from tiling is a critical component of land stewardship. Tiling can play an important role in flood mitigation. Once wetlands and soils are saturated or water is ponded from spring melts, the only place for additional moisture to go is downstream in the form of floodwater that can cause widespread soil erosion.

When drainage allows the soils to remain unsaturated, then additional rainfall or melt has room to soak into the

## The golden rule of drainage

Release only the amount of water necessary to ensure trafficable conditions for field operations and to provide an aerated crop root zone. Any drainage exceeding this rule likely carries away nitrate and water that is no longer available for crop uptake.

soil rather than running off. In this scenario, tiling reduces surface runoff and the erosion associated with it.

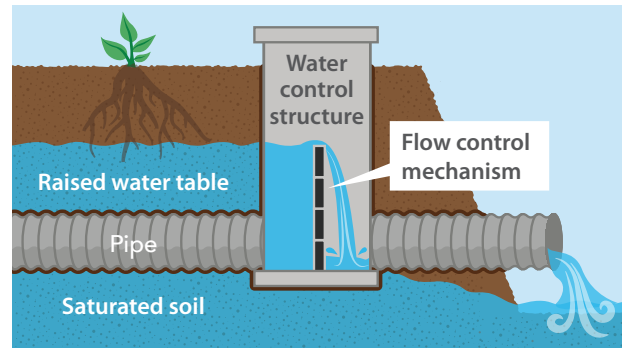
Maximizing the overall effectiveness of tiling-controlled drainage or other conservation drainage practices, discussed below, would prevent excess water loss and reduce nutrient transport.

Water management is needed to control water levels to ensure adequate water is retained for groundwater and aquifer replenishment, and crop utilization and uptake.

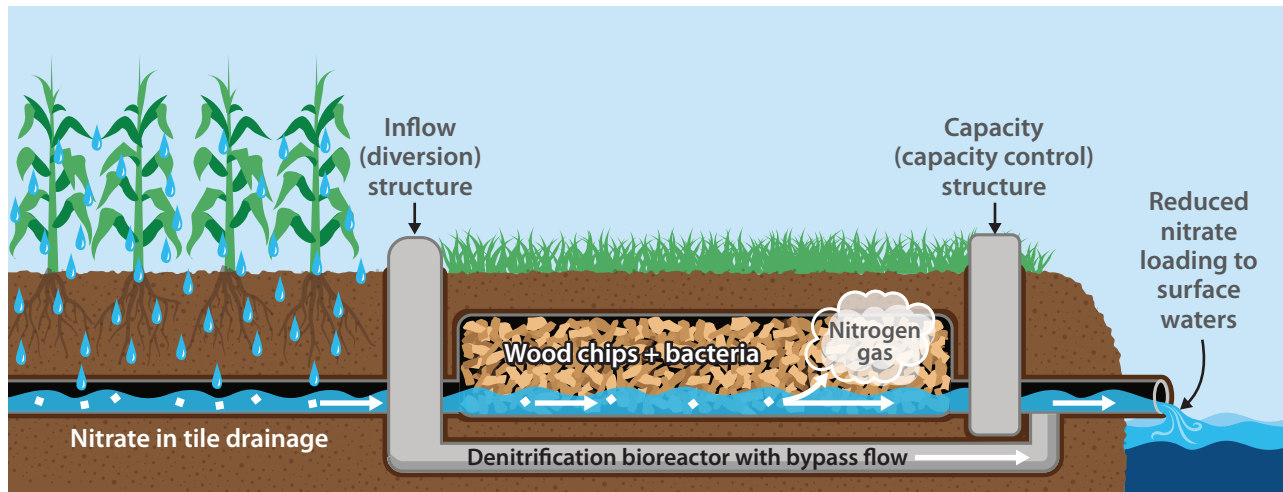
## Drainage water management—controlled drainage

Management practices that improve tile drain water quality without damaging crop yield are called “conservation drainage.” They are meant to manage outflows and reduce nutrient transport from drained land without reducing drainage performance.

One of these practices is controlled drainage. This practice involves a control structure placed close to an outlet to manage the level of water above the tile line. Water levels are controlled by adding or removing “stop logs” or using flow valves. There are many shapes and sizes of structures.



## Bioreactors



Dr. Richard Cooke, University of Illinois Urbana-Champaign/Image courtesy of Farm Journal Magazine

Bioreactors consist of a buried trench with wood chips through which the tile water flows before entering a surface water body such as wetland. Microorganisms from the soil colonize the wood chips. These microorganisms “eat” the carbon from the wood chips and “breathe” the nitrate from the water. Just as

humans breathe in oxygen and breathe out carbon dioxide, these microorganisms breathe out nitrogen gas, which enters the atmosphere. Through this mechanism, called the denitrification pathway, nitrate is removed from tile water before it can enter surface waters.





## APPENDIX I

# Types of wetlands



Izaak Walton League

### MARSH WETLANDS

Marsh wetlands that have not been drained or farmed and left in their natural state provide the greatest ecological benefits, including serving as catch basins for groundwater recharge, flood protection, wildlife habitat, and reducing nonpoint source pollution. Nonpoint pollution sources are broad, diffuse areas, rather than specific points, from which pollutants enter bodies of water.

## FARMED AND PRIOR CONVERTED WETLANDS

### Farmed wetlands

As defined by the Swampbuster act, these are wetlands that were partially drained or altered to improve crop production before Swampbuster's enactment in December 1985. Farmed wetlands have undergone less alteration than prior converted wetlands and are therefore subject to more stringent rules about further change. Farmed wetlands may be farmed as they were before 1985 and the drainage that was in place before that date can be maintained, but no additional drainage is allowed.

### Prior converted wetland

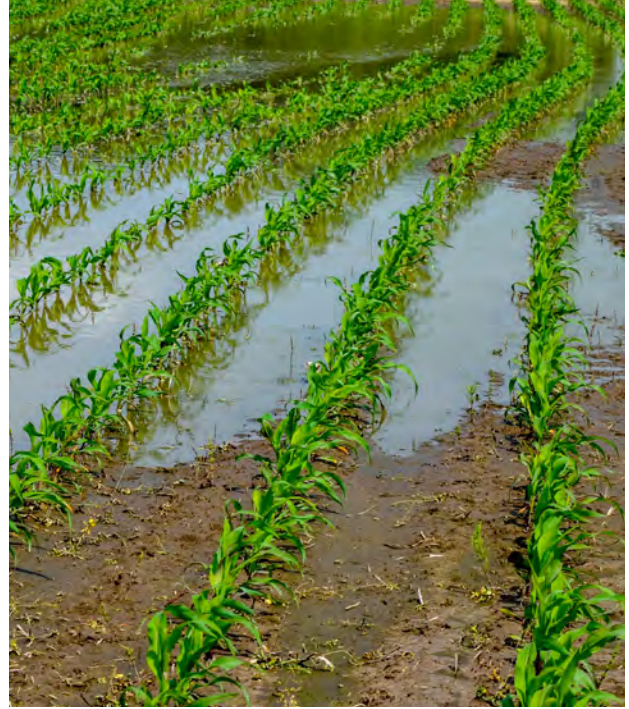
These are wetlands that were converted to cropland before Swampbuster's enactment. Swampbuster places no restrictions on either drainage maintenance or additional drainage on these wetlands, which are estimated to total more than 50 million acres.

Activities that converted wetlands into farmed or prior converted wetlands include:

- Filling
- Draining, either through ditches or subsurface tiling
- Land leveling
- Clearing woody vegetation and stumps
- Diverting runoff water from a wetland (i.e., building a diversion)

## OTHER WETLANDS AND LOW-LYING AREAS

Much of North America's agricultural land is dotted with wetlands and low-lying areas that often flood during heavy rain. Many of these wetlands and low-lying areas are tilled and used for crop production, but may not be planted in the spring due to standing water or excessive moisture. Swampbuster protects these areas



Example of a wetland—not converted, drained or altered and planted to a commercial crop:

by prohibiting the manipulation of their drainage and function.

NRCS uses three factors to identify those wetlands subject to the Swampbuster provisions.

1. Prevalence of hydrophytic vegetation (plants that live in water or saturated soil conditions) under normal circumstances, meaning vegetation that would exist if not farmed;
2. Predominance of hydric soil (soils that are impacted by ground or surface water to support hydrophytic vegetation);
3. Wetland hydrology (ground or surface water that inundates or saturates soils sufficiently to support a prevalence of hydrophytic vegetation).

## APPENDIX II

# Current statutes and programs intended to protect wetlands

Starting with the 1972 Clean Water Act, the federal government has passed various statutory wetlands protection programs that may be grouped into disincentives and incentives.

### DISINCENTIVES

#### Waters of the U.S.—Clean Water Act

In 1972, Section 404 of the federal Clean Water Act established a program to regulate the “discharge of dredged or fill material (such as soil or sediments) into waters of the U.S.,” including wetlands. The act prohibits the dredging and filling of “waters of the U.S.,” which include wetlands, without a permit from the U.S. Army Corps of Engineers.

#### Swampbuster

The Food Security Act of 1985 (P.L. 99-198) includes a provision officially titled Wetland Conservation that discourages the conversion of wetlands to cropland use. Commonly called Swampbuster, this provision aimed to strike a balance between attempting to reduce crop subsidies and conserving wetlands. (1985 Conference Report)

Swampbuster uses disincentives by making agricultural producers who grow crops on converted wetlands ineligible for certain USDA benefits. The Swampbuster provision states that people who convert wetlands to allow production of agricultural commodities will be ineligible for USDA benefits until the functions of the converted wetlands are mitigated or restored.

### INCENTIVES

Programs administered by the Farm Service Agency and the NRCS protect more than 4.5 million acres of wetlands.

#### Conservation Reserve Program

CRP (authorized in the 1985 Farm Bill) includes a cadre of initiatives with several targeted at wetlands preservation.

As of August 2023, 1,622,584 acres were enrolled in eight practices across the United States.

#### CRP WETLANDS PRACTICES

PRACTICE	NAME	ACRES
CP 23		
CP 23A	Wetland restoration	1,247,921
CP 27		
CP 28	Farmable wetland	276,943
CP 30	Wetland buffer	24,838
CP 39	FWP-constructed wetland	660
CP 40	FWP-aquaculture wetland	17,336
CP 41	FWP-flooded prairie wetland	54,886
<b>Total acres</b>		<b>1,622,584</b>

#### Wetlands Reserve Program

WRP (authorized in the 1990 Farm Bill) began as a pilot in nine states. The 2014 Farm Bill consolidated the program into the Agricultural Conservation Easement Program to streamline program administration and make it easier for landowners to participate in the program. It has two components: Wetlands Reserve Easements (WRE) and Agricultural Land Easements. (ALE).

Private landowners and conservation organizations have enrolled 2.9 million wetland acres in WRP and related programs. Nearly 16,000 wetlands easements are in effect.

#### Wetlands Mitigation Banking Program

Wetland mitigation banking is the restoration, creation, or enhancement of wetlands to compensate for the loss or reduction at another location.

A bank is established by creating or restoring a wetland. After the bank is in place, any entity that would modify or destroy a wetland faces certain requirements under Section 404 of the Clean Water Act, and can meet its obligations by buying credits in the mitigation bank.

The purchases offset the cost of establishing the bank, and if the bank is a private enterprise, it can be used to generate a profit. Both agencies and companies have established banks, either to mitigate their own projects or to earn profits.

When a mitigation bank is established, the landowner

retains ownership and use of the property while a conservation easement protects the wetlands. The size and scope of the wetland restoration, creation or enhancement activities determine the quantity of credits available for sale. The price of credits is negotiated between the buyer and seller, with no involvement by USDA.

Wetland mitigation banking has been used largely by commercial and residential urban developers when wetlands have been in the way of expanding cities or roadways. Agricultural producers have had little to no access to wetland mitigation banking in several areas.

## Additional wetlands protection needed

Although USDA programs have resulted in the protection of more than 4.5 million acres over the past 30 years, the United States is still losing about 60,000 acres of wetlands each year.

Consequently, more must be done to preserve and restore wetlands. There are two major programs aimed at restoring previously farmed or converted wetlands: the Farmable Wetlands Program (FWP), and the previously mentioned WRP, which is now the WRE component of the NRCS's Agricultural Conservation Easement Program.

FWP is a voluntary program designed to restore previously farmed wetlands and wetland buffers to improve vegetation and water flow. Its goal is to restore up to a million acres of farmable wetlands and associated buffers. Participants must agree to restore the wetlands, establish plant cover, and not use enrolled land for commercial purposes.

WRE aims to restore wetlands converted before 1985. Landowners can benefit from this partnership by participating in the program and conducting habitat restoration work.

To enroll land, NRCS enters into purchase agreements with eligible private landowners or tribes that include the right for NRCS to develop and implement a Wetland Reserve Plan of Operations. This plan will detail practices

to help restore, protect, and enhance the wetland functions and values.

Enrollment options include:

- *Permanent easements:* NRCS pays 100 percent of the easement value for the purchase of the easement in perpetuity. Additionally, NRCS pays between 75 to 100 percent of the restoration costs.
- *30-year easements:* NRCS pays 50 to 75 percent of the easement value for the purchase of the easement. Additionally, NRCS pays between 50 to 75 percent of the restoration costs.
- *Term easements:* These apply for the maximum duration allowed by state laws. NRCS pays 50 to 75 percent of the easement value for the purchase of the term easement. Additionally, NRCS pays between 50 to 75 percent of the restoration costs.
- *30-year contracts:* These are available only for acreage owned by Native tribes. Payment rates are commensurate with 30-year easements.

For all WRE options, NRCS pays all costs associated with recording the easement in the local land records office, including recording fees, charges for abstracts, survey and appraisal fees, and title insurance.

# Team biographies

## **LYNN TJEERDSMA**

*Group Leader*

Lynn began working for U.S. Senator John Thune in 2006 as Agriculture and Alternative Energy Legislative Assistant and later became Thune's senior policy advisor, retiring in September 2019. During 30 years spent in Washington, Lynn helped to draft four Farm Bills in the U.S. Senate and administered two Farm Bills as Specialist, Branch Chief, Assistant to the Administrator and Assistant Deputy Administrator at the USDA Farm Service Agency.

His conservation career began after 15 years of full-time farming and ranching 1,800 acres in south central South Dakota, when he became county executive director of the Moody County South Dakota Agricultural Stabilization and Conservation Service.

In 1989 he moved to Washington to become the Agricultural Legislative Assistant for U.S. Senator Larry Pressler, working on the 1990 Farm Bill.

Lynn spent two years as policy initiatives manager for the Theodore Roosevelt Conservation Partnership and served as county executive director of the Cass County, Nebraska, FSA office from 1993 to 1995.

He actively manages his 480-acre South Dakota farm, part of which was homesteaded by his great-great-grandfather in 1883. Multiple conservation practices are utilized on this operation, including Conservation Security Program, Wetlands Reserve Program, Conservation Reserve Program, Partners for Fish and Wildlife, cover crops, no-till/minimum till, and North American Wetlands Conservation Act seedings.

He continues to write a weekly column in the South Dakota Platte Enterprise, "What's Happening in Washington."

Lynn is married and has five children and 12 grandchildren.

## **KEITH ALVERSON**

Keith and his wife, Kari, operate a sixth-generation 2,600-acre grain farm growing corn and soybeans near Chester, S.D. Conservation has been a focus for the Alverson farm across multiple generations as they've ridged tilled for nearly 40 years.

In 2015, Keith and his father, Ron, hired an ecological consulting firm to measure and establish a soil carbon baseline on their farm with comparisons to neighboring fields and practices to track soil carbon into the future.

Keith served for seven years as a member of the Corn Board of the National Corn Growers Association focusing on ethanol, stewardship, and conservation issues. Keith represented NCGA to Field to Market: The Alliance for Sustainable Agriculture, including serving 4 years on their board of directors. Keith has previously chaired

NCGA's Climate Task Force, the NCGA Ethanol Committee, served as board liaison to NCGA's Stewardship Action Team, and represented NCGA numerous times speaking on soil health and climate issues including an event at COP21.

Keith also served on the South Dakota Corn Utilization Council for three years and South Dakota Corn Growers Association for nine years. He is a past president of the South Dakota Corn Growers Association.

Keith is currently a member of The Environmental Defense Fund Top Producer Network.

## **JONATHAN W. COPPESS**

Jonathan Coppess is on faculty at the University of Illinois at Urbana-Champaign, director of the Gardner Agriculture Policy Program and author of "The Fault Lines of Farm Policy: A Legislative and Political History of the Farm Bill."

Previously, he served as chief counsel for the Senate Committee on Agriculture, Nutrition and Forestry, administrator of the Farm Service Agency at USDA, and legislative assistant to Senator Ben Nelson.

Jonathan grew up on his family's farm in western Ohio, earned his bachelor's from Miami University and his juris doctor from The George Washington University Law School.

His experience in federal policymaking guides his research, extension, and teaching in agricultural policy and law. His work connects the history of federal agricultural policy development to current policy development, specifically applied to risk management and natural resource conservation.

### **MICHAEL CROWDER**

Michael Crowder is a native of southern Indiana and has been an avid outdoorsman and conservationist his whole life. He currently is the senior manager of strategic engagement on Ducks Unlimited's national policy team.

Crowder has served for many years at the local, state, and national levels with conservation districts and is currently the immediate Past President for the National Association of Conservation Districts. Michael served as General Manager of the Barker Ranch for 24 years, but now is senior advisor to the president and a full shareholder of the ranch. Barker Ranch is a world-class 2,000+ acre duck club and wetland restoration area located along several miles of the Yakima River in West Richland, Wash. While serving as GM, Crowder mentored more than 40 wetlands and wildlife summer interns from across the country. Additionally, he is a partner of his family farm in Indiana and owns multiple wetland easements in Illinois.

Crowder received an associate's degree in natural resources and environmental science from Vincennes University and earned a bachelor's degree in natural resources and environmental science, as well as a master's degree in wildlife science, from Purdue University. Michael served eight years as an adjunct professor at Washington State University Tri-Cities teaching classes in wetland restoration, wildlife science,

and ecology. He is active in agriculture, conservation, and community issues, and serves on many local, state, and national boards and advisory committees. Michael has received both the Benton County and Washington State "Wildlife Farmer of the Year" awards and has been acknowledged by NACD as a "Soil Health Champion".

Crowder now lives on the edge of the Yakima River in West Richland, WA with his wife, Gretchen, and their black Labs.

### **DUANE HOVORKA**

Duane Hovorka is a senior agriculture policy Specialist at the National Wildlife Federation. Prior to this role, he directed the Izaak Walton League's agriculture program, where he provided analysis and outreach on federal Farm Bill programs to deliver healthy soil, clean water and wildlife habitat benefits, and oversight of agricultural policy issues in key states.

### **DR. NICOLE KARWOWSKI**

Dr. Nicole Karwowski is an assistant professor in the Montana State University department of Agricultural Economics & Economics. Her work focuses on quantifying the role of conservation and nature-based solutions in improving agricultural resiliency.

Dr. Karwowski uses econometric methods and remote sensing data to conduct ecosystem valuations that improve land-use decisions. Her most recent work examines how wetland restoration impacts crop yields, indemnities, and water quality. This work can guide decision-making that balances agricultural productivity with environmental sustainability.

Additionally, her aim to inform cost-effective policy-making is especially pertinent given the increasing impacts of climate change on agriculture and the need for adaptive, resilient practices.

### **BRUCE KNIGHT**

Bruce Knight is a nationally recognized expert on conservation, agriculture and the environment.

Drawing on his experience as a former association executive, lobbyist, regulator and Capitol Hill staffer, Knight has a broad understanding of how Washington works. But he also brings firsthand knowledge of farming to his national policymaking credentials. Knight was the Under Secretary for Marketing and Regulatory Programs at the U.S. Department of Agriculture (USDA) from 2006-2009. In this post, he provided leadership and oversight for the Animal and Plant Health Inspection Service, the Agricultural Marketing Service and the Grain Inspection, Packers, and Stockyards Administration. These agencies protect animals and plants and promote fair, open and orderly markets for U.S. agricultural products.

From 2002 to 2006, Knight served as Chief of the Natural Resources Conservation Service, the lead USDA agency for conservation on private working agricultural lands. Under his leadership, the agency assisted 1 million farmers and ranchers in applying conservation on more than 130 million acres of working farm and rangelands. Knight provided the strategic vision for the development, implementation, and management of the largest expansion of working lands conservation programs in the agency's history.

Knight also served on the staff of Senate Majority Leader Bob Dole of Kansas, focusing on development of the conservation title of the 1996 Farm Bill and was a legislative assistant to Representative Fred Grandy of Iowa, and Senator James Abdnor of South Dakota. He also served as vice president for public policy for the National Corn Growers Association and worked for the National Association of Wheat Growers.

A third-generation rancher and farmer and lifelong conservationist, Knight operates a diversified grain and cattle operation using no-till and rest rotation grazing systems. Knight attended South Dakota University. He is married and has two children. He is a member of the Vienna Presbyterian Church in Virginia and is an avid sportsman.

## **GREGORY PILCHAK**

Gregory Pilchak serves as the director of the Central Working Lands Program for the National Fish and Wildlife Foundation, and also served as project

manager for Field to Market: The Alliance for Sustainable Agriculture.

Previously, he was the agriculture policy program coordinator with the Association of Fish and Wildlife Agencies, coordinating efforts on Farm Bill implementation and reauthorization, private lands conservation and recreational access, and integrating wildlife and habitat concerns into sustainable agricultural production. He was responsible for tracking and monitoring the rulemaking process, policy changes, and legislation pertaining to wildlife conservation on private and agricultural lands; and serving as the primary point of contact for state fish and wildlife agencies on these issues. In addition, Greg provided support to AFWA's Agricultural Conservation Committee and working groups.

Before joining AFWA, Greg worked as a Policy Analyst with Strategic Conservation Solutions, a consulting firm in Washington, DC that works with commodity groups and conservation NGOs on sustainability issues in agriculture. Greg holds degrees in political theory and constitutional democracy and Russian from Michigan State University.

## **DR. MARIN SKIDMORE**

Dr. Marin Skidmore is an assistant professor in the Department of Agricultural & Consumer Economics at the University of Illinois Urbana-Champaign.

Dr. Skidmore is an applied economist studying the interaction between policy, agriculture, and the environment. Her research focuses on how market-based and public agricultural policy in the United States and the Brazilian Amazon influence farmer behavior. She uses this lens to study indirect policy effects on the environment, including deforestation, GHG emissions, and water quality.

She approaches these questions by combining econometric methods, big data, extensive field work, and collaboration with interdisciplinary partners in the US and Brazil.





## **About the Max McGraw Wildlife Foundation**

The Max McGraw Wildlife Foundation is the nation's most prominent advocate for creative and entrepreneurial thought in conservation and a leader in conservation communications. It was created more than 60 years ago by the visionary conservationist Max McGraw, founder of McGraw-Edison Co.

Headquartered on 1,250 acres in Dundee, Illinois, McGraw's mission is "to drive innovation and entrepreneurial thought in conservation."





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