

Indiana Department of Environmental Management
Indiana Department of Natural Resources

Partnership for Wetland Education
2022 INAFSM Conference



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SILVER JACKETS
Many Partners, One Team

<https://www.iwr.usace.army.mil/Silver-Jackets/State-Teams/Indiana/>

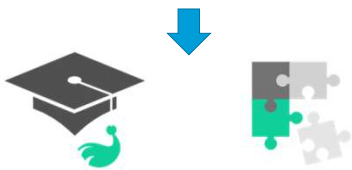
VISION STATEMENT
A partnership of volunteers, devoted to developing comprehensive and sustainable solutions, to all natural hazards and risks.




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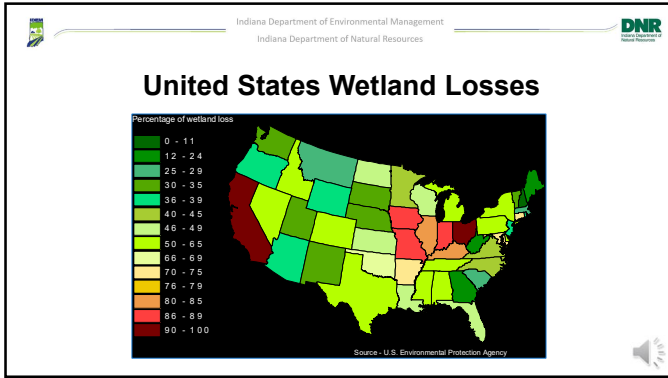
USACE Flood Plain Management Services
Call for Interagency Nonstructural Flood Risk Management Proposal



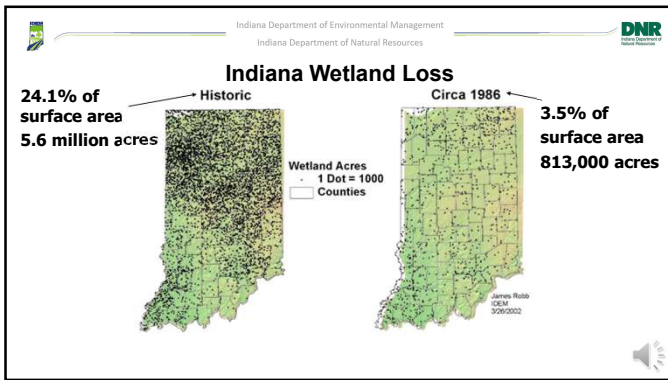
1. Need for more wetland education in Indiana
2. Opportunity to build cohesive message for wetland education in Indiana



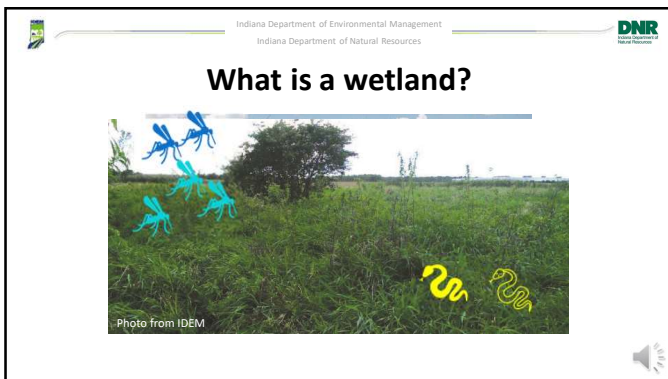
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What is a wetland?

Image courtesy of USFWS. Emergent Marsh, Northwestern Indiana

Image courtesy of USFWS. Wet Meadow, Northwestern Indiana

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What is a wetland?

Image courtesy of USFWS. Flooded Wetland, Southeastern Indiana

Image courtesy of USFWS. Scrub-Shrub Wetland, Northwestern Indiana

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Sometimes wetlands may be hard to identify even in your own backyard.

Floodplain Forest

Wet Meadow

Shallow Marsh

Wet Meadow

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Okay. But really... what is a wetland?


A Venn diagram with three overlapping circles. The top circle is labeled 'Hydric Soils'. The bottom-left circle is labeled 'Wetland Hydrology'. The bottom-right circle is labeled 'Hydrophytic Vegetation'. The central area where all three circles overlap is labeled 'Wetland'. The logo for the Indiana Department of Natural Resources (DNR) is in the top right corner, and a speaker icon is in the bottom right corner.


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What work can I do in a wetland?

Do I need a permit? 

 How do I get a permit?

What type of financial incentive programs are there?



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Not sure if you need a permit?

Waterways Inquiry Request – an online tool from IDEM & Indiana DNR to help Indiana citizens determine if a permit is needed from either agency.
Additional information at: waterways.IN.gov



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Why should I care?

Photo: Courtesy of USFWS

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Why should I care?

Image courtesy of Indiana DNR

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FY22 FPMs Interagency Nonstructural Flood Risk Management Proposal Template

1. Proposal Name: Indiana Wetland Educational Outreach

2. Interagency Team Name: Indiana Silver Jackets

3. USACE POD: First Name: [Blank] Last Name: [Blank] District: [Blank]

4. Proposal Summary: Project will deliver an educational outreach program for Indiana communities focusing on the importance of wetlands and how they impact water quality and reduce flood risk.

5. Proposal Details: The Silver Jackets Team has noticed that many of the state's wetlands are being filled or drained. There is a general lack of knowledge regarding the importance of wetlands to reduce the... (text continues)

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1722 FEMA Nonstructural Flood Risk Management
A Nonstructural Flood Risk Management Plan (NSFRMP) is a risk reduction strategy that identifies, evaluates, and prioritizes nonstructural flood risk reduction measures to protect lives and property, reduce economic damage, and enhance the resilience of communities. The NSFRMP is a key component of a community's overall flood risk management strategy.

1723 FEMA Nonstructural Flood Risk Management Process Template
This template provides a structured approach to developing and implementing a Nonstructural Flood Risk Management Plan (NSFRMP). It outlines the key steps and components of the process, from initial assessment to final implementation and monitoring.

Emergency Nonstructural Flood Risk Management Process Template
This template provides a structured approach to developing and implementing an emergency Nonstructural Flood Risk Management Plan (NSFRMP). It outlines the key steps and components of the process, from initial assessment to final implementation and monitoring.

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The Nature Conservancy

IDEM

DNR
Indiana Department of Natural Resources

INDIANA STATE DEPARTMENT OF AGRICULTURE

IUHS

WHITE RIVER ALLIANCE

PURDUE UNIVERSITY Center for the Environment

USDA
United States Department of Agriculture
Natural Resources Conservation Service

U.S. FISH & WILDLIFE SERVICE

INDIANA ASSOCIATION OF SOIL AND WATER CONSERVATION DISTRICTS

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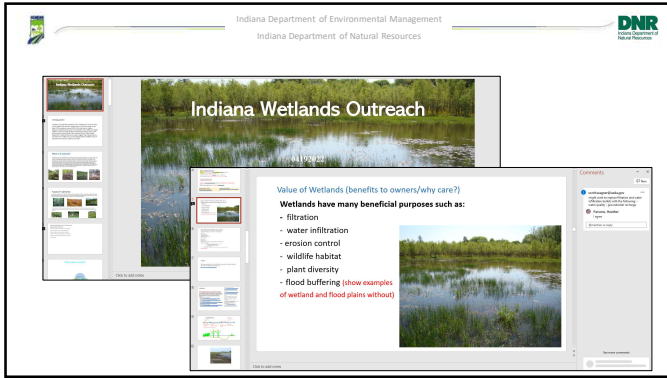
IDEM Wetland Permitting 101
An overview of IDEM permitting for work in Waters of the State

NRCS Wetland EASEMENTS
Natural Resources Conservation Service

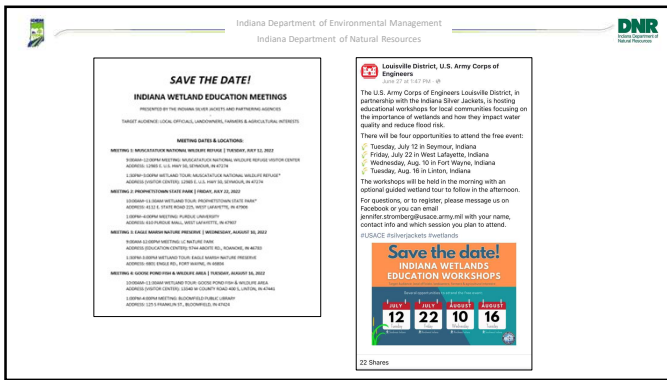
CRP Area Completed vs. Desired

Year	Area Completed (Acres)	Area Desired (Acres)
2002	~1000	~1000
2003	~1500	~1500
2004	~2000	~2000
2005	~2500	~2500
2006	~3000	~3000
2007	~3500	~3500
2008	~4000	~4000
2009	~4500	~4500
2010	~5000	~5000
2011	~5500	~5500
2012	~6000	~6000
2013	~6500	~6500
2014	~7000	~7000
2015	~7500	~7500
2016	~8000	~8000
2017	~8500	~8500
2018	~9000	~9000
2019	~9500	~9500
2020	~10000	~10000
2021	~10500	~10500

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Prophetstown State Park & Purdue University



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Eagle Marsh Nature Preserve & LC Nature Park




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Goose Pond Fish and Wildlife Area & Bloomfield Public Library



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Goose Pond Fish and Wildlife Area & Bloomfield Public Library

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Workshop Results

- Workshop 1: Muscatatuck National Wildlife Refuge, July 12, 2022 – **21 attendees**
- Workshop 2: Prophetstown State Park, July 22, 2022 – **25 attendees**
- Workshop 3: Eagle Marsh Nature Preserve, August 10, 2022 – **18 attendees**
- Workshop 4: Goose Pond Fish & Wildlife Area, August 16, 2022 – **16 attendees**

Total: 80 attendees

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Story Map


<https://storymaps.arcgis.com/stories/aaa3df210e421a92421a063552463f>

Indiana Wetlands Outreach

What is a Wetland? How do Wetlands Function? Value of Wetlands Vanishing Wetlands Keeping Wetlands Healthy Success Stories Resources

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Wetlands Of Indiana

Indiana is home to a variety of wetlands. In fact, wetlands are found in every one of Indiana's 92 counties. Though most of them are rural, by the early 1970s, wetlands covered 25% of the total area of Indiana. However, Indiana has since lost most of its wetlands.


In the late 1800 and early 1900s, millions of acres of wetlands were converted into farms, cities and roads. But estimates from a 1993 Indiana Department of Natural Resources report suggest that Indiana has lost over 80% of its wetlands since the 3.6 million acres of wetlands that existed in Indiana circa 1780.



Identifying A Wetland: Three Criteria


There are three criteria used to identify a wetland: vegetation, hydrology and soils. All three criteria must be met for the area to be classified as a wetland.

Although many states have their own wetland regulations, the federal government bears a major responsibility for regulating wetland protection through the Clean Water Act. The law delineates state and federal primary responsibility for protecting wetlands. The Department of Defense, U.S. Army Corps of Engineers (originally the U.S. Environmental Restoration Agency) (then the Department of Interior), U.S. Fish and Wildlife Service (FWS), the Department of Commerce, National Oceanic and Atmospheric Administration (NOAA), and the Department of Agriculture, Natural Resources Conservation Service (NRCS) ultimately form the Clean Water Act's framework.



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Types Of Wetlands


Wetlands go by many different names including marsh, swamp, bog and fen. Each of these generally describes a specific type of wetland, which can be further classified by three vegetation types.

These types include forested wetlands (swampy vegetation over 20ft tall), herbaceous wetlands (swampy vegetation less than 20ft tall), and emergent wetlands (swampy non-woody vegetation).




How do Wetlands Function?

Wetlands develop in areas of poorly drained soils. As these areas are flooded, often for prolonged periods of time, the saturated soils limit the availability of oxygen. This process allows vegetation adapted for poorly drained soils, to thrive. Biogeochemical processes allow wetlands to store large quantities of carbon, filter nutrients and provide many other ecosystem services.




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Value of Wetlands

Along with being some of the most diverse and unique ecosystems in the world, wetlands play an important role in providing benefits to society.

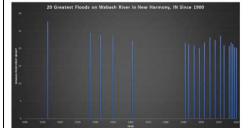


Monetary Value of Wetlands

In a study to determine how the loss of wetlands result in increased flood insurance claims, researchers examined land use, topography and flood claim data to estimate the flood mitigation value of wetlands (in monetary terms) so these benefits could be incorporated in the cost of construction.

The findings revealed that losing just one hectare of wetlands (1/4 of 1.6 football fields):

- Increases flooding insurance claims by \$1,840 annually. This number jumps to more than \$8,000 in developed areas, where the \$12,000 of a wetland is comparable to building a garage.
- The 47 million hectares of wetlands in the US have a flood mitigation value of \$1.2 to 2.3 trillion.




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Keeping Wetlands Healthy

- Reduce nitrogen runoff to minimize pollution and eutrophication
- Conserving invasive species such as reed, smart, giant, common, purple loosestrife
- Implementing riparian zone grass buffers (500-2000 feet recommended depending on habitat type)
- Add native wetland vegetation to promote biodiversity
- Increase the use of fertilizers and pesticides in agricultural operations near wetlands and grassland buffers to prevent them from entering wetlands
- Promote wetland restoration where feasible in areas that may have been drained
- Place native wetland vegetation along shorelines and avoid the use of hard materials such as riprap



The Power of Nature's Wetlands

Success Stories

Below are some local examples of wetland protection and restoration success stories in the state of Indiana.

Goose Pond

[Goose Pond Fish & Wildlife Area \(PDF\)](#) in Greene County created and managed by the Indiana DNR, provides quality outdoor recreational opportunities on 5000 acres of restored prairie and marsh habitat. About 13,000 visitors visit each year, and the property yields about 3,000 annual hunting efforts (one 4-day visit per hunter).

[Printable Map: Goose Pond Fish & Wildlife Area Map \(PDF\)](#)

USDA: Restoring Indiana's Wetlands

USDA Restoration of Goose Pond
[DNR/USDA/USDA.gov](#)



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Resources

Natural Wetlands Inventory


Inventory for the regulatory program for both wetlands and 401 areas.
[DNR/IN.gov/401areas](#)

IDEM: Wetlands, Lakes and Stream Regulation

A website for wetlands and stream regulation, including information on 401 areas.
[IDEM/IN.gov](#)

Project WET

Project WET is an innovative water-based stream restoration approach, project water resources for water resource management.
[DNR/IN.gov](#)




Economic Benefits of Wetlands

Wetlands contribute to the natural and local economies by providing numerous, useful environmental services and promoting open habitats.
[DNR/IN.gov](#)

Indiana State Jackson	State Jackson Wetlands - State Theme - Indiana (PDF)
Indiana Department of Environmental Management	DNR: 401 Areas (PDF)
Indiana Department of Natural Resources	DNR: Water, Water, Home (PDF)
Indiana Association of Soil and Water Conservation Districts	http://www.insoilwater.org/conservation-districts
Indiana Department of Natural Resources	http://www.in.gov/dnr
Indiana State Department of Agriculture	http://www.in.gov/agriculture
National Resource Conservation Service	http://www.nrcs.usda.gov/info/about/nrcs-services/conservation
Purdue University	http://www.purdue.edu
U.S. Army Corps of Engineers	http://www.army.mil
U.S. Fish & Wildlife Service	http://www.fws.gov
The Nature Conservancy	http://www.nature.org/en-us

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Lessons Learned & Next Steps

- USACE Workshop Rules
- Covid precautions
- Reaching the right audience
- Story map lives on
- Yearly workshop in the future?

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Questions?



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Indiana Wetlands Educational Outreach

Resources

The following links & resources are provided from the August 16th, 2022 meeting.

National Wetlands Inventory (NWI)*:

<https://fwsprimary.wim.usgs.gov/wetlands/apps/wetlands-mapper/>

***Disclaimer: not for regulatory purposes; not field verified & not delineated!**

USDA Web Soil Survey (WSS): <https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm>

IDEM – Indiana Wetlands: <https://www.in.gov/idem/wetlands/>

Indiana Waterways Inquiry Request: <https://www.in.gov/waterways/>

An IDEM/DNR joint website including a permitting tool

EPA – Wetlands: <https://www.epa.gov/wetlands>

USACE – Wetlands: <https://www.usace.army.mil/>
<https://www.lrl.usace.army.mil/Missions/Regulatory/Water/Wetland-Info/>

DNR Indiana Wetlands Conservation Plan

<https://www.in.gov/dnr/fish-and-wildlife/about-us/indiana-wetlands-conservation-plan/>

Wetland Reserve Easements (WRE):

<https://www.nrcs.usda.gov/wps/portal/nrcs/detail/null/?cid=nrcseprd416653>

Indiana Conservation Reserve Enhancement Program (CREP):

<https://www.in.gov/isda/divisions/soil-conservation/conservation-reserve-enhancement-program/>

Watershed Funding Matrix:

<https://www.in.gov/idem/nps/funding/non-idem-funding/funding-matrix/>

Education & Getting Involved!

February 2nd is World Wetlands Day! <https://www.worldwetlandsday.org/>

May is American Wetlands Month!

Environmental Protection Agency (EPA):

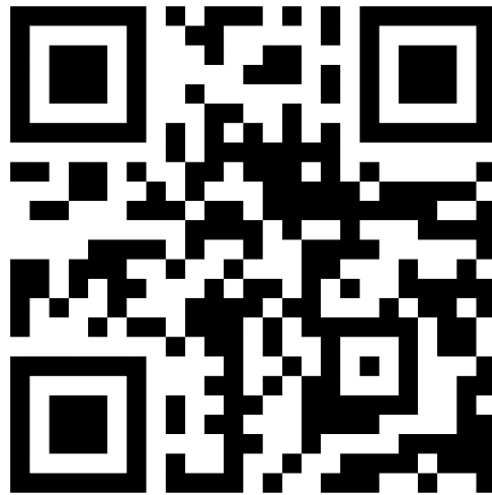
<https://www.epa.gov/wetlands/may-american-wetlands-month>

U.S. Fish & Wildlife Service (USFWS): <https://www.fws.gov/wetlands-month>

Wetland Education

Project WET: <https://www.projectwet.org/>

**Indiana Silver Jackets Wetland Education Outreach:
GIS Story Map**



Link to GIS Story Map:

<https://storymaps.arcgis.com/stories/aaaa3df2f00e421a92421a063552463f>