

RIVER RAISIN WATERSHED

Wetland Protection and Restoration

October 20, 2016

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A photograph of a wetland forest. The scene is dominated by numerous tall, slender, bare trees with light-colored bark, likely cypress or similar species, standing in shallow water. The water is dark and reflects the sky and the trees. The ground is muddy and covered with fallen branches and debris. The overall atmosphere is quiet and somewhat somber due to the lack of leaves.

Why Do We Care About Wetlands?

Why Protect and Restore Wetlands?

- **Wetlands provide numerous valuable functions to society**
- **We have already lost many of our historic wetlands and the functions they provided**

FLOOD WATER STORAGE NATURE'S SPONGES

- ▶ Reduced Flooding and Associated Damage During High Water Events
- ▶ Reduces Flashiness of Streams
 - a) Reduces Bank Erosion
- ▶ Releases Water Slowly Over Time Which Provides Stable Stream Flows
 - a) streams don't dry up in summer
 - b) improves biological health of stream



WATER QUALITY NATURE'S KIDNEYS

▶ Sediment Removal

- ▶ stored or slowed water allows suspended sediments to settle out resulting in clearer water and natural substrate

▶ Nutrient Removal

- ▶ nutrients attached to suspended sediments are trapped and taken up by wetland plants resulting in fewer algal blooms and less nuisance aquatic vegetation



PROTECTION OF SURFACE & GROUND WATER RESOURCES



▶ Shoreline Stabilization

- ▶ wetland plants growing along the shoreline reduce erosion and the need for shore protection (e.g. seawalls, rip rap etc.)

▶ Recharge Ground Water

- a) wells for drinking water (individual and municipal)
- b) irrigation for agriculture

HABITAT FUNCTIONS

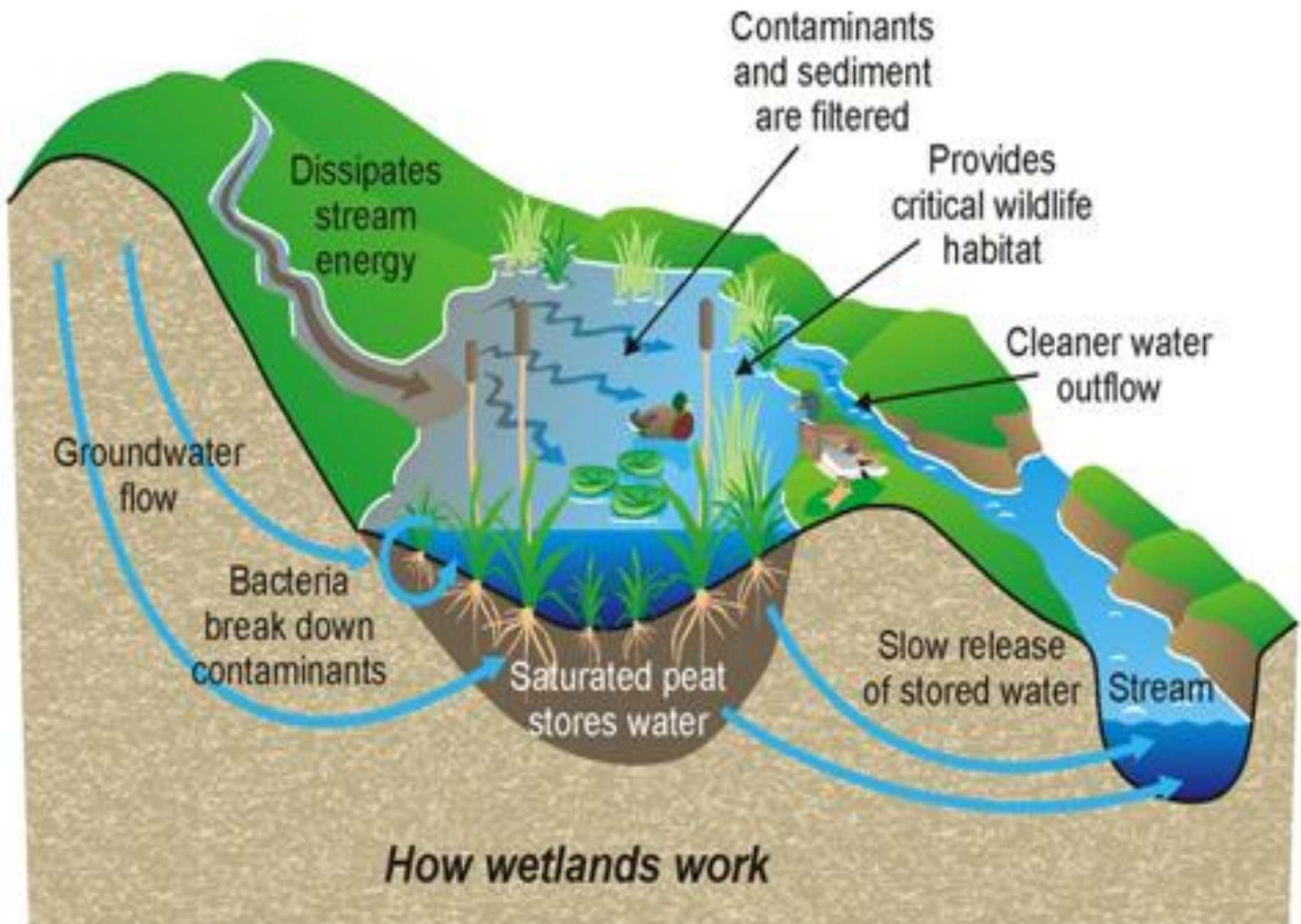
► Fish and Wildlife Habitat

► Recreation Opportunities

- Fishing
- Hunting
- Trapping
- Bird Watching
- Open Space/Green Space

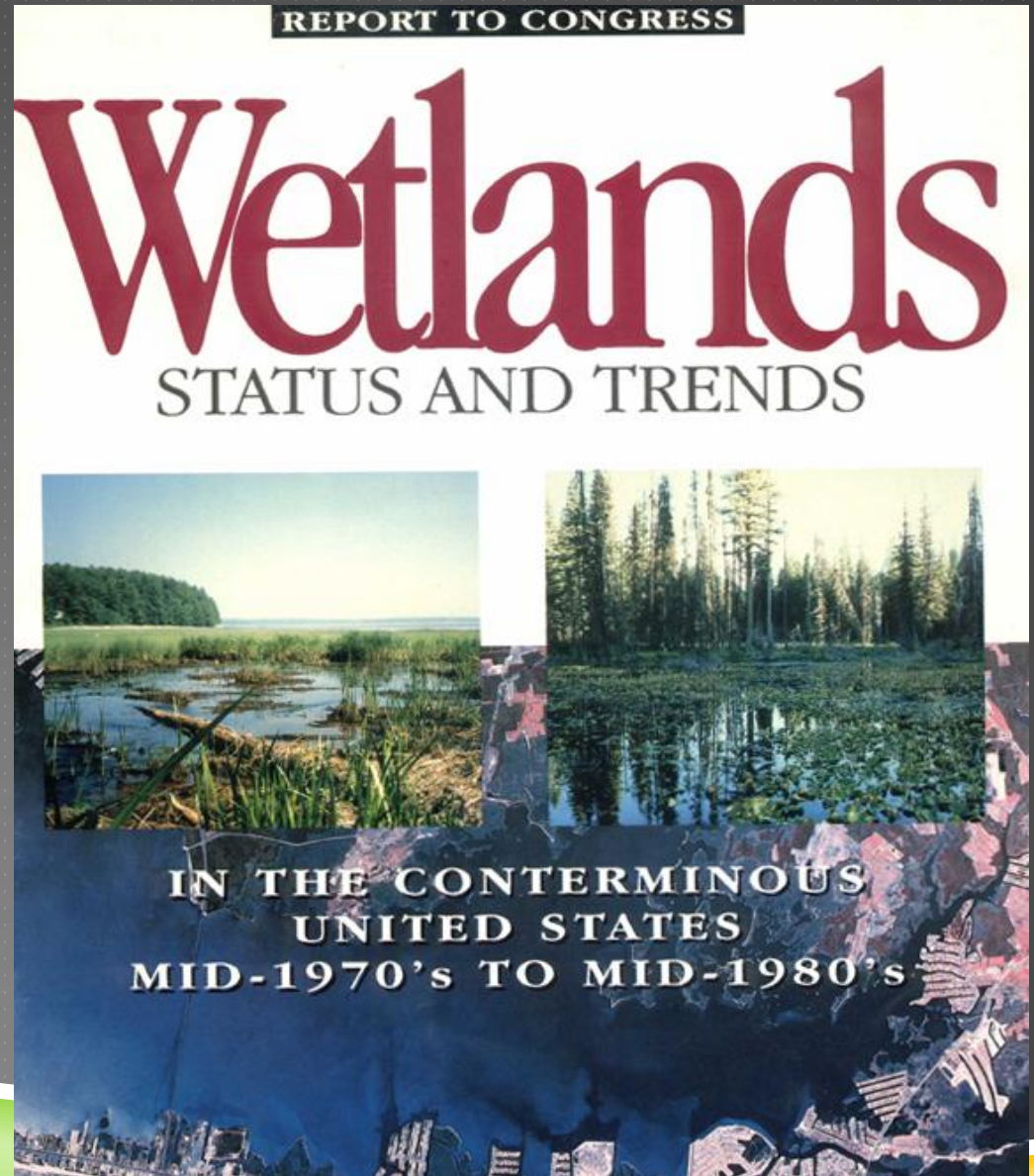
► Threatened & Endangered or Rare Species



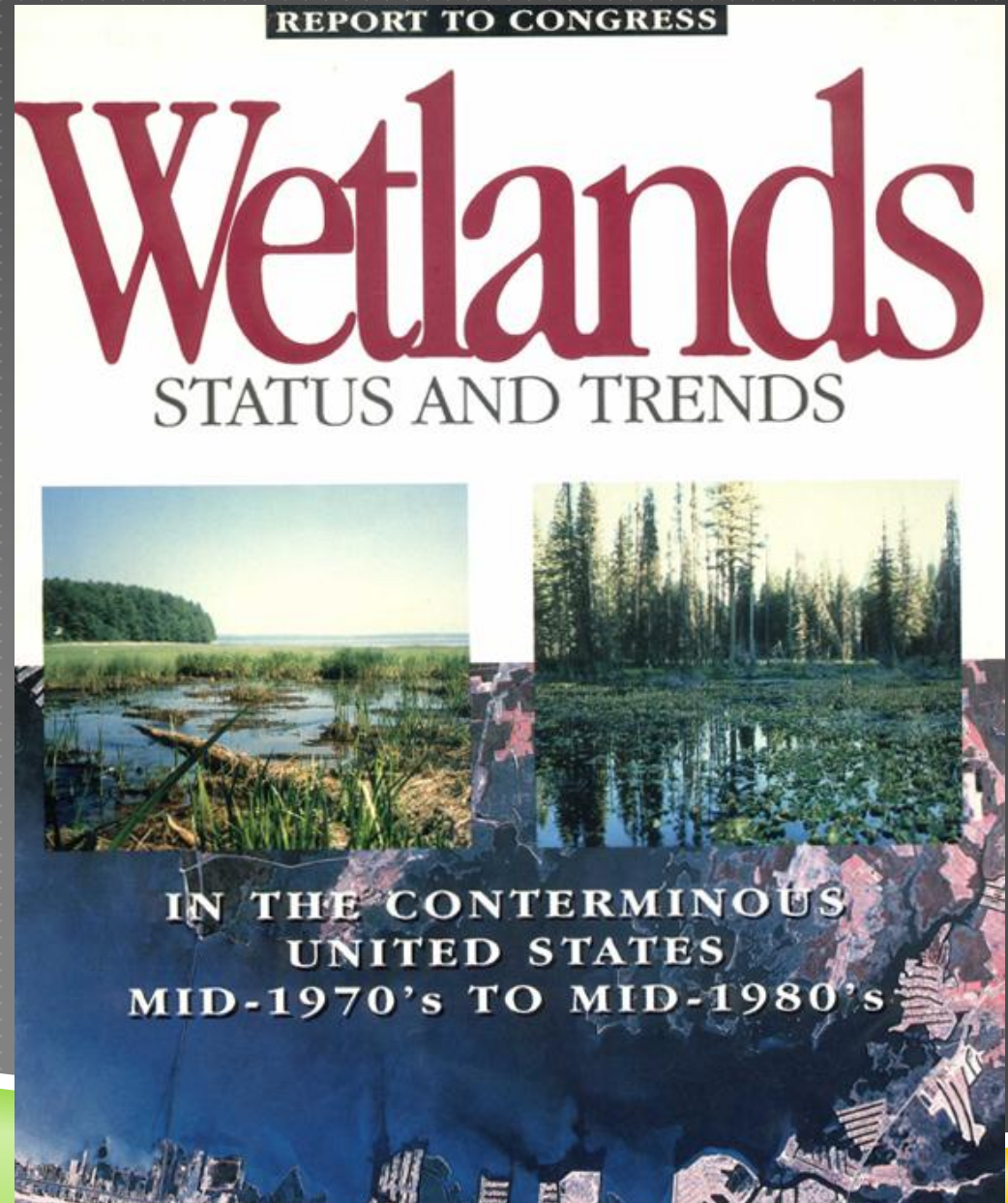


How wetlands work

- ▶ Michigan originally contained approximately 11 million acres of wetlands.
- ▶ Approximately 30% of the State's land mass.



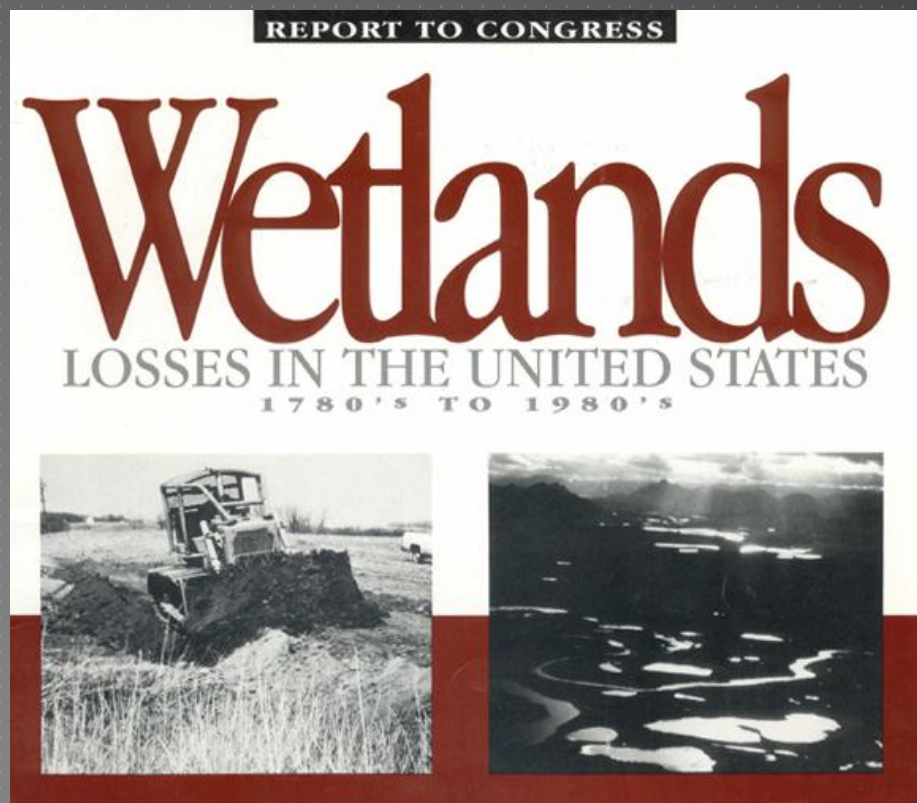
- ▶ Over 50% of Michigan's original wetlands have been drained or filled.
- ▶ Loss of 5.5 million acres. 5.5 million acres remain.
- ▶ US FWS. 1991. Wetlands Status and Trends in the Conterminous United States Mid 1970's to Mid-1980's.



A majority of the historic wetland loss in Michigan was caused by drainage for agricultural purposes before 1930.

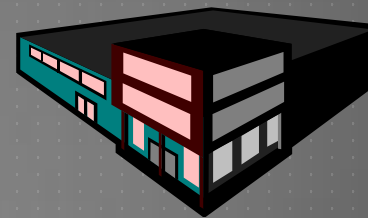
Additional acreage was drained by the Works Progress Administration to control mosquitoes between 1934 and 1940.

USFWS. 1990.
Wetlands Losses in the United States 1780's to 1980's.

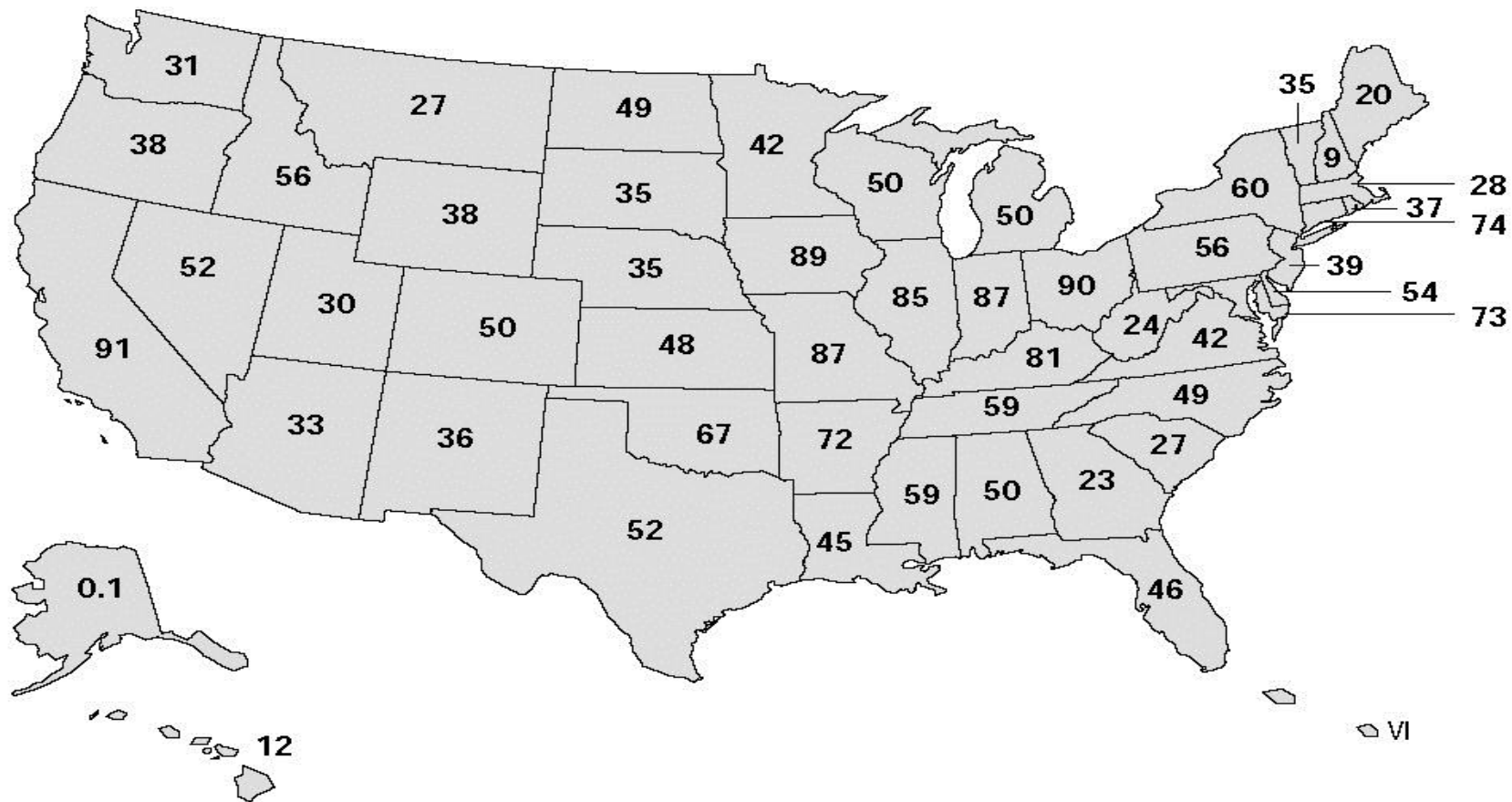


OTHER MAJOR CAUSES OF WETLAND LOSSES

- ▶ RESIDENTIAL, COMMERCIAL AND INDUSTRIAL DEVELOPMENT AFTER THE GREAT DEPRESSION AND WORLD WAR II
- ▶ USED AS DISPOSAL AREAS “ISLANDS OF GARBAGE” IN LAKE ST CLAIR WETLANDS
- ▶ MODERN DAY SUBURBAN SPRAWL (e.g. MALLS, SUBDIVISIONS, ROADS ETC.)



Percentage of Wetland Acreage Lost, 1780s-1980s



Twenty-two States have lost at least 50% of their original wetlands. Seven of these 22 (California, Indiana, Illinois, Iowa, Missouri, Kentucky, and Ohio) have lost more than 80% of their original wetlands.

Source: Dahl, T.E., 1990, *Wetlands Losses in the United States 1780's to 1980's*, U.S. Department of the Interior, Fish and Wildlife Service.

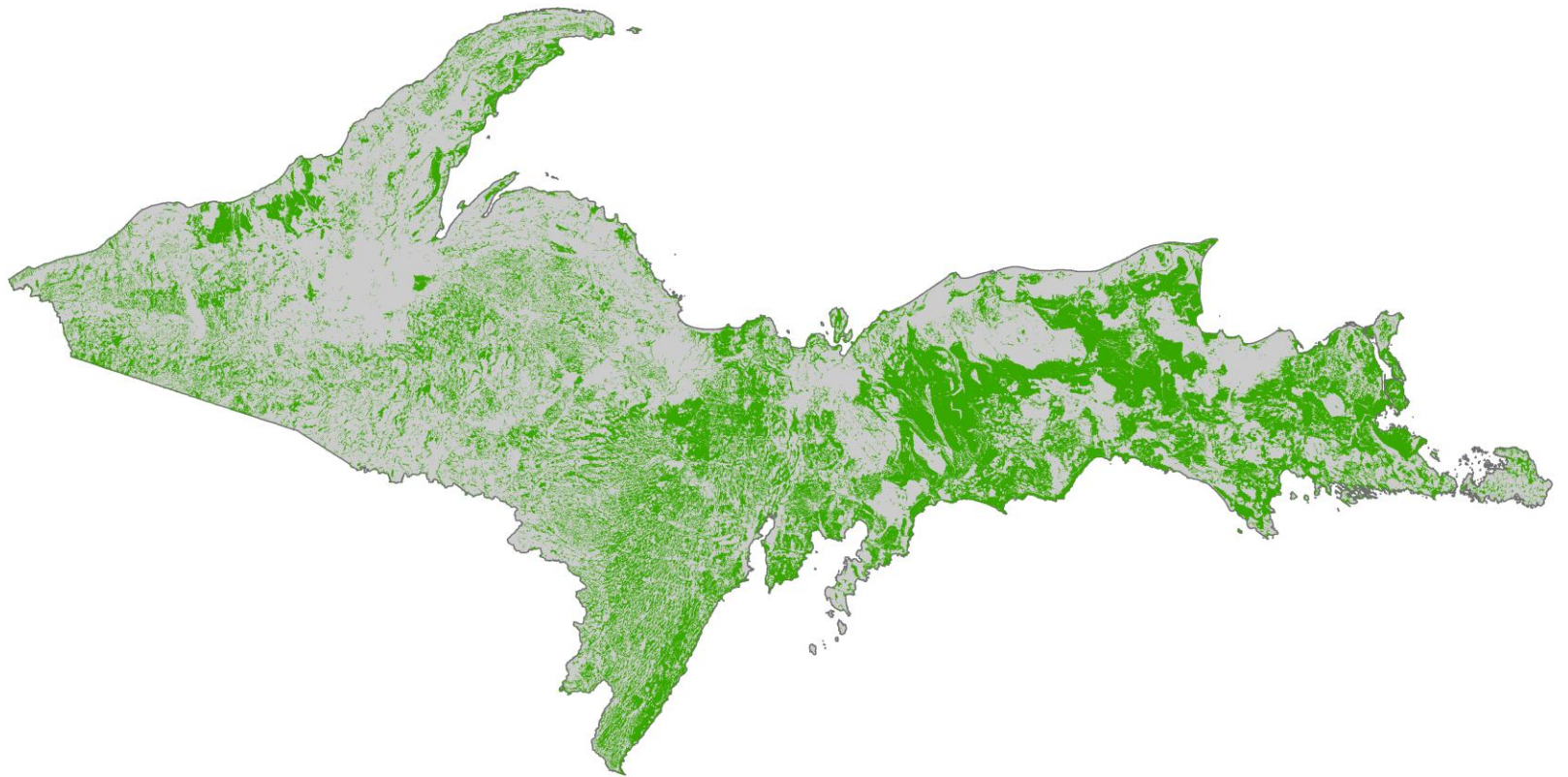
WETLAND DATA USED TO ESTIMATE WETLAND LOSSES IN MICHIGAN

- ▶ Pre-European Settlement Wetland Inventory (Michigan Natural Features Inventory)
- ▶ Hydric “Wet” Soils USDA-NRCS
- ▶ National Wetland Inventory (NWI)
United States Fish and Wildlife Service
Updated by Ducks Unlimited using 2005 aerial photographs

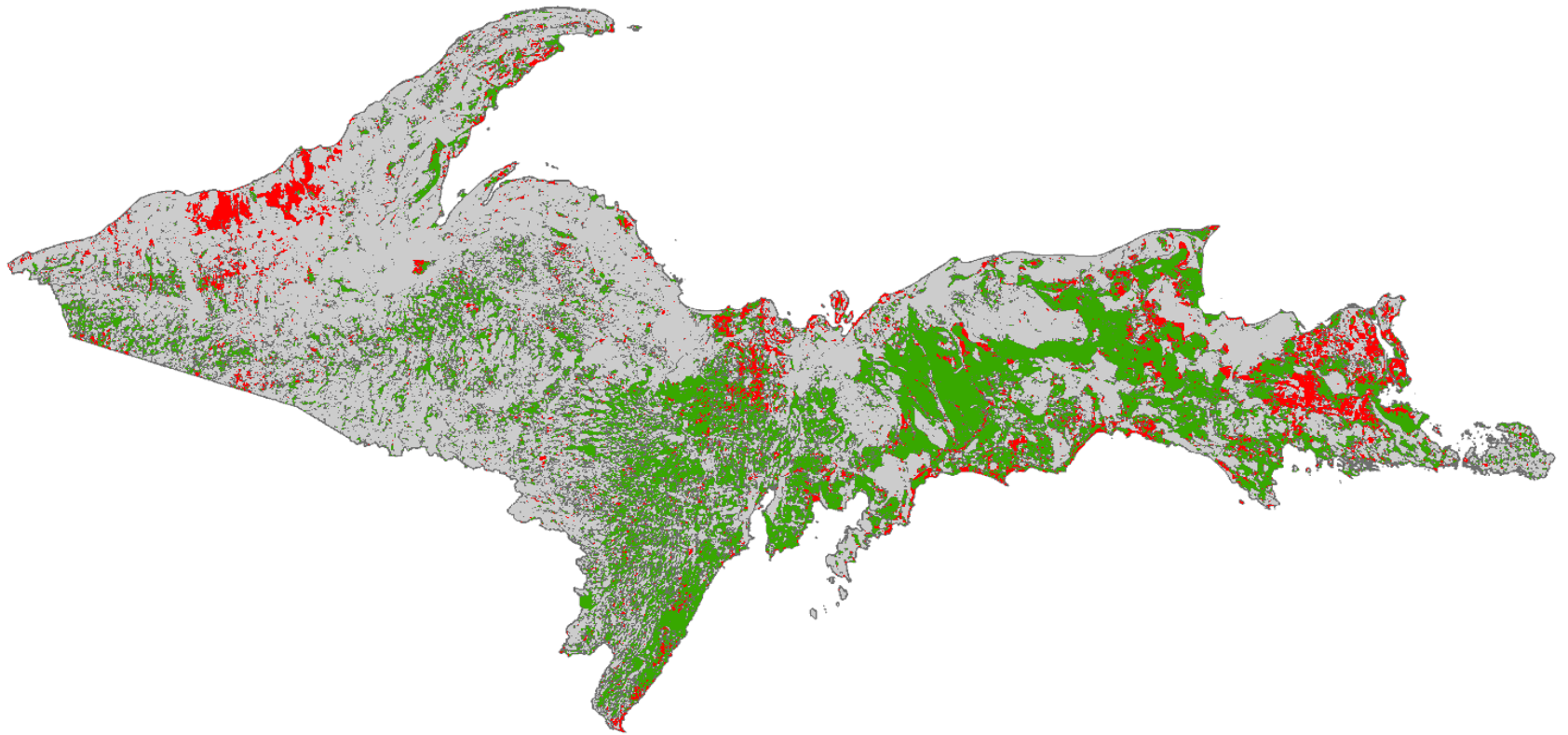
MICHIGAN'S WETLAND LOSES NOT UNIFORM

- ▶ UPPER PENINSULA – 17% LOSS (638,000 ACRES)
- ▶ NORTHERN LOWER PENINSULA – 20% LOSS (387,000 ACRES)
- ▶ SOUTHERN LOWER PENINSULA – 66% LOSS (3,320,000 ACRES)
- ▶ GREAT LAKES COASTAL WETLANDS – 71% LOSS

UPPER PENINSULA: PRE-SETTLEMENT WETLANDS



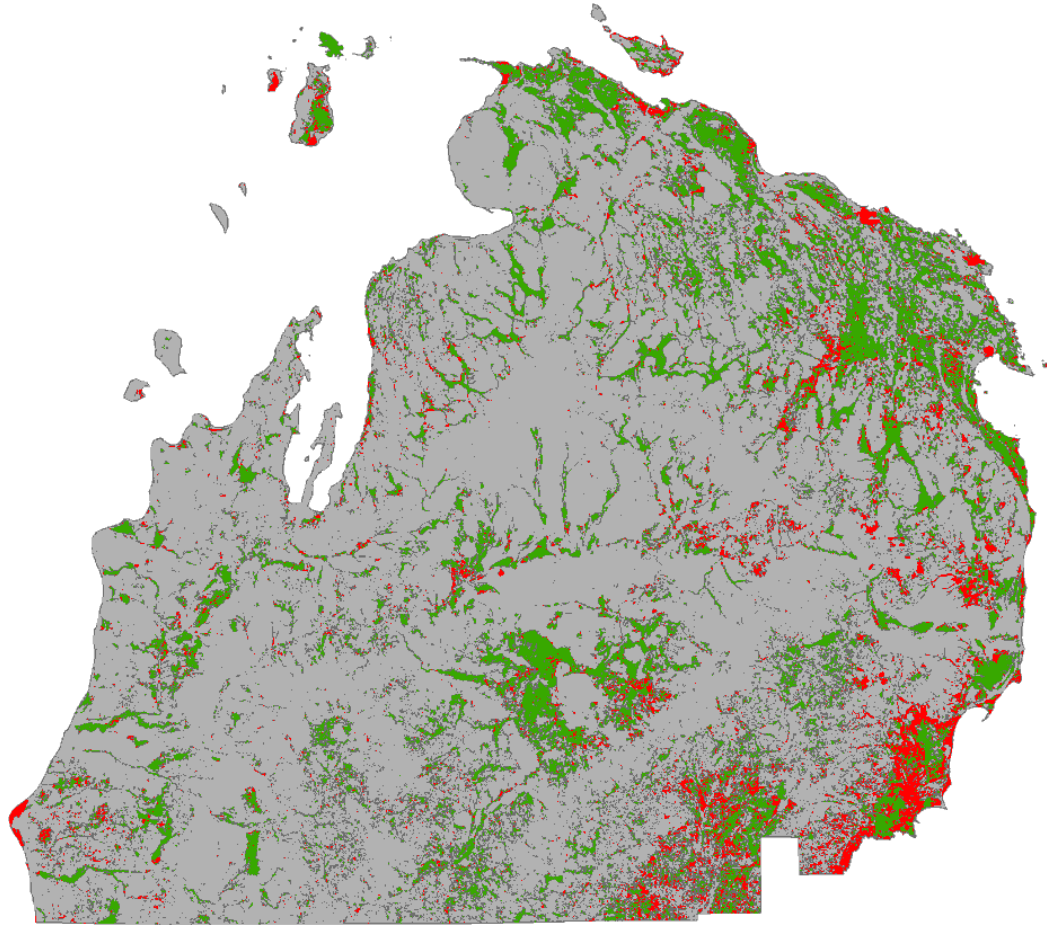
UPPER PENINSULA: APPROXIMATE AREAS OF WETLAND LOSS



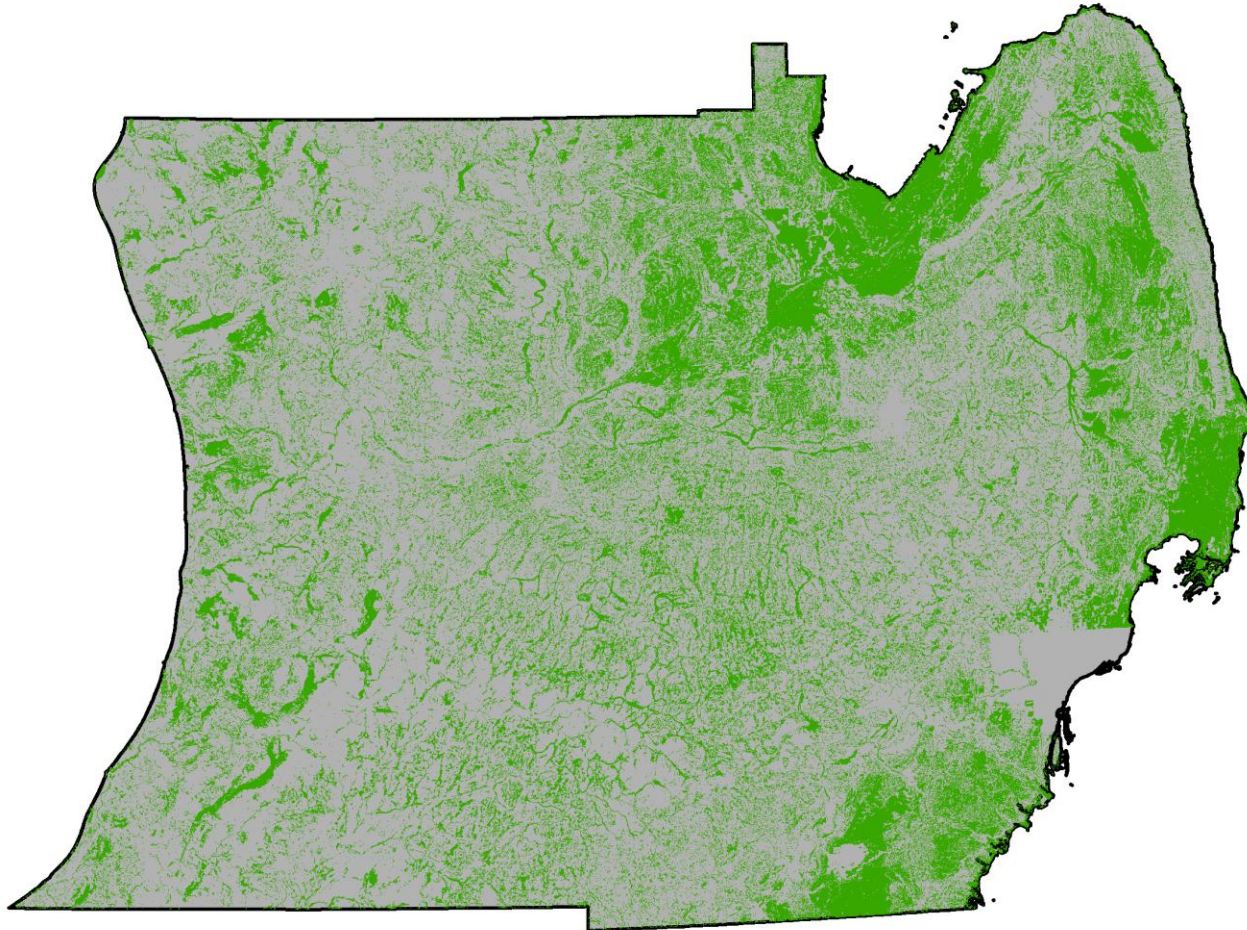
NORTHERN LOWER PENINSULA: PRE-SETTLEMENT WETLANDS



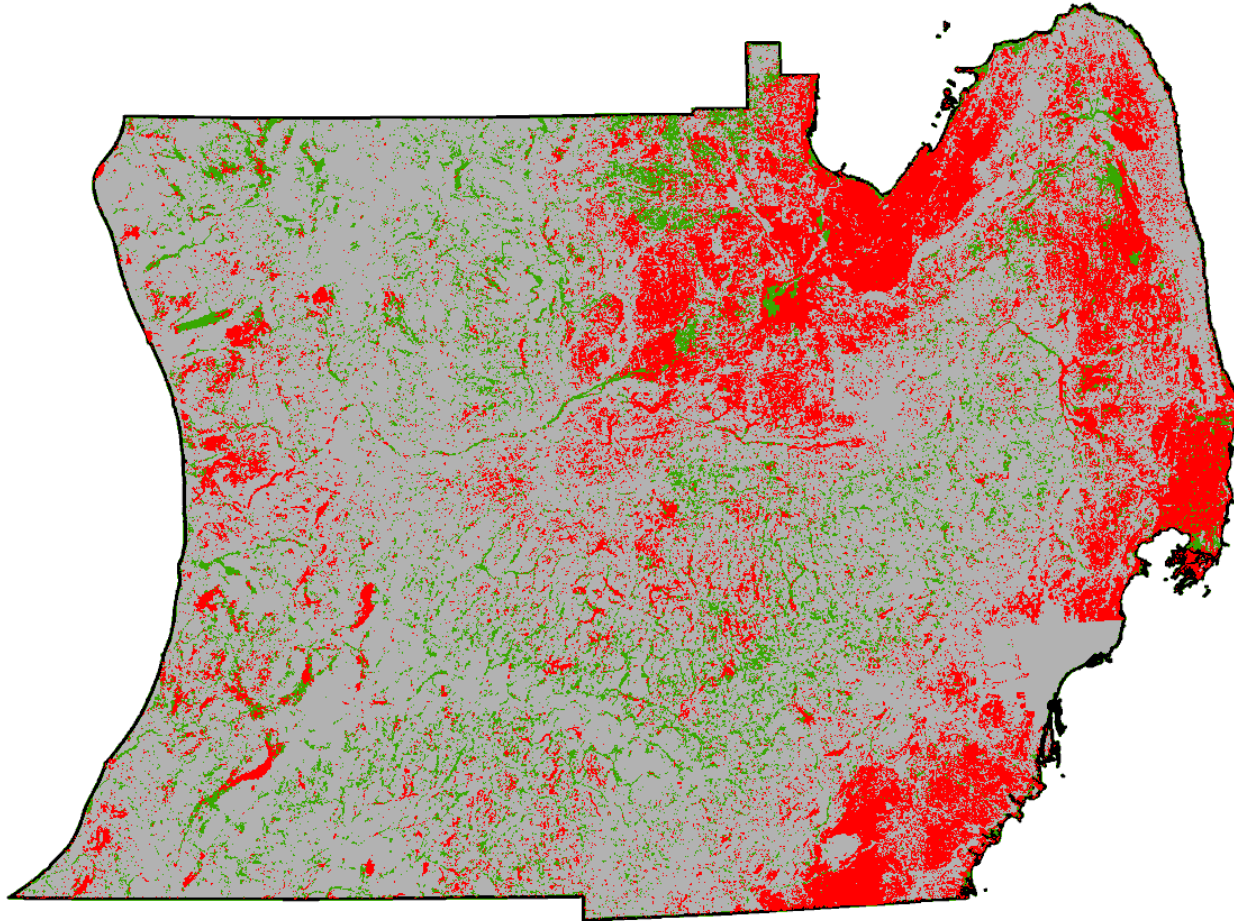
NORTHERN LOWER PENINSULA: APPROXIMATE AREAS OF WETLAND LOSS



SOUTHERN LOWER PENINSULA: PRE-SETTLEMENT WETLANDS



SOUTHERN LOWER PENINSULA: APPROXIMATE AREAS OF WETLAND LOSS



HIGHEST LOSSES

- ▶ **Monroe - 87% loss (118,000 acres) #1 %**
- ▶ **Wayne - 84% loss (127,000 acres)**
- ▶ **Huron - 78% loss (170,000 acres)**
- ▶ **Sanilac - 77% loss (153,000 acres)**
- ▶ **Macomb - 74% loss (57,000 acres)**
- ▶ **St. Clair - 73% loss (104,000 acres)**
- ▶ **Lenawee - 69% loss (86,000 acres)**
- ▶ **Ottawa - 65% loss (38,000 acres)**
- ▶ **Chippewa - 45% loss (192,000 acres) #1 AC**

RIVER RAISIN WATERSHED WETLAND RESOURCES STATUS AND TRENDS

Pre-settlement Wetland conditions

- 250,000 Acres of Wetlands
- 8,579 Polygons
- Average Size – 30 Acres

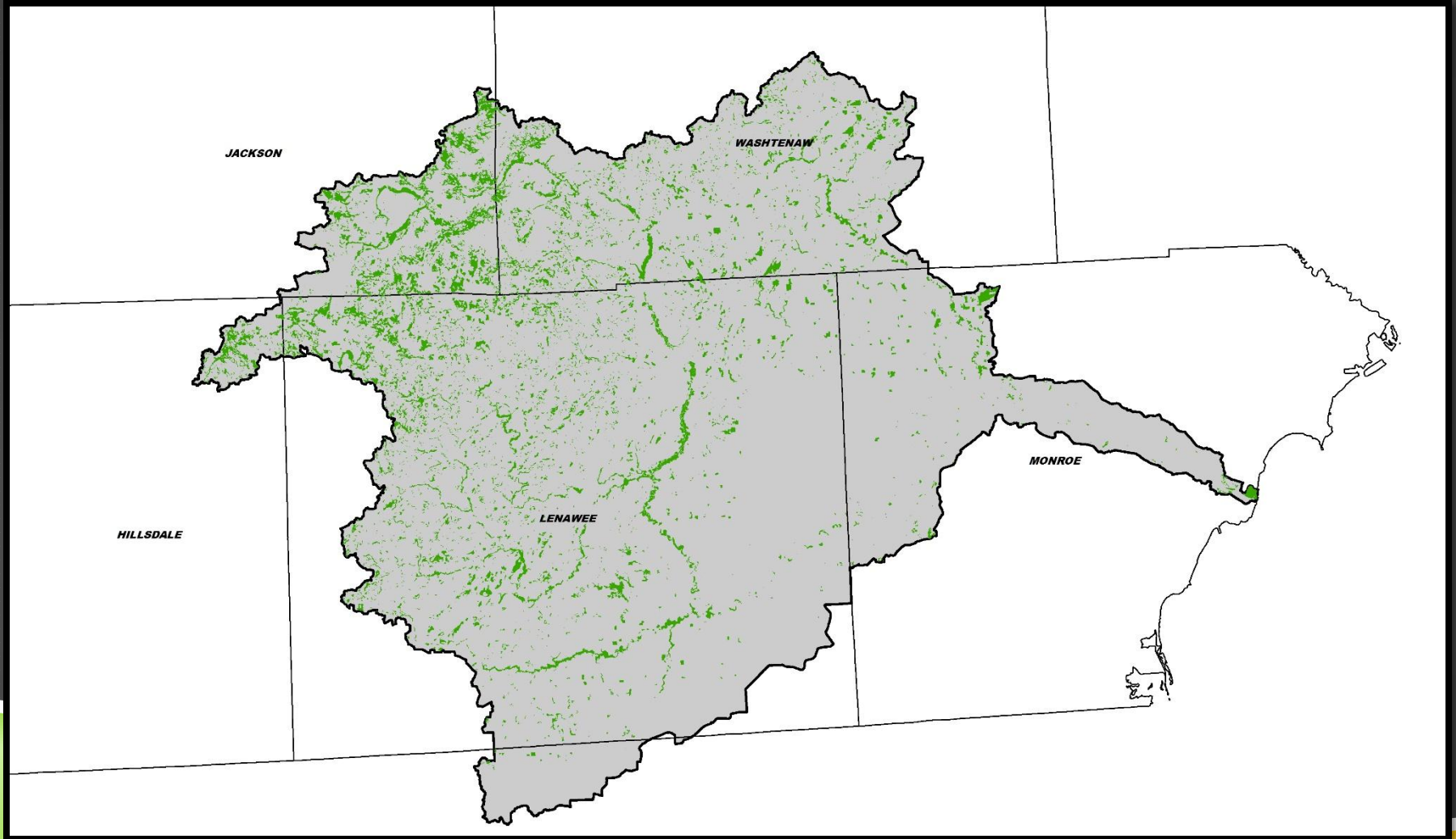
2005 Wetland Condition

- 47,921 Acres of Wetlands
- 9,077 Polygons
- Average Size – 5.2 Acres

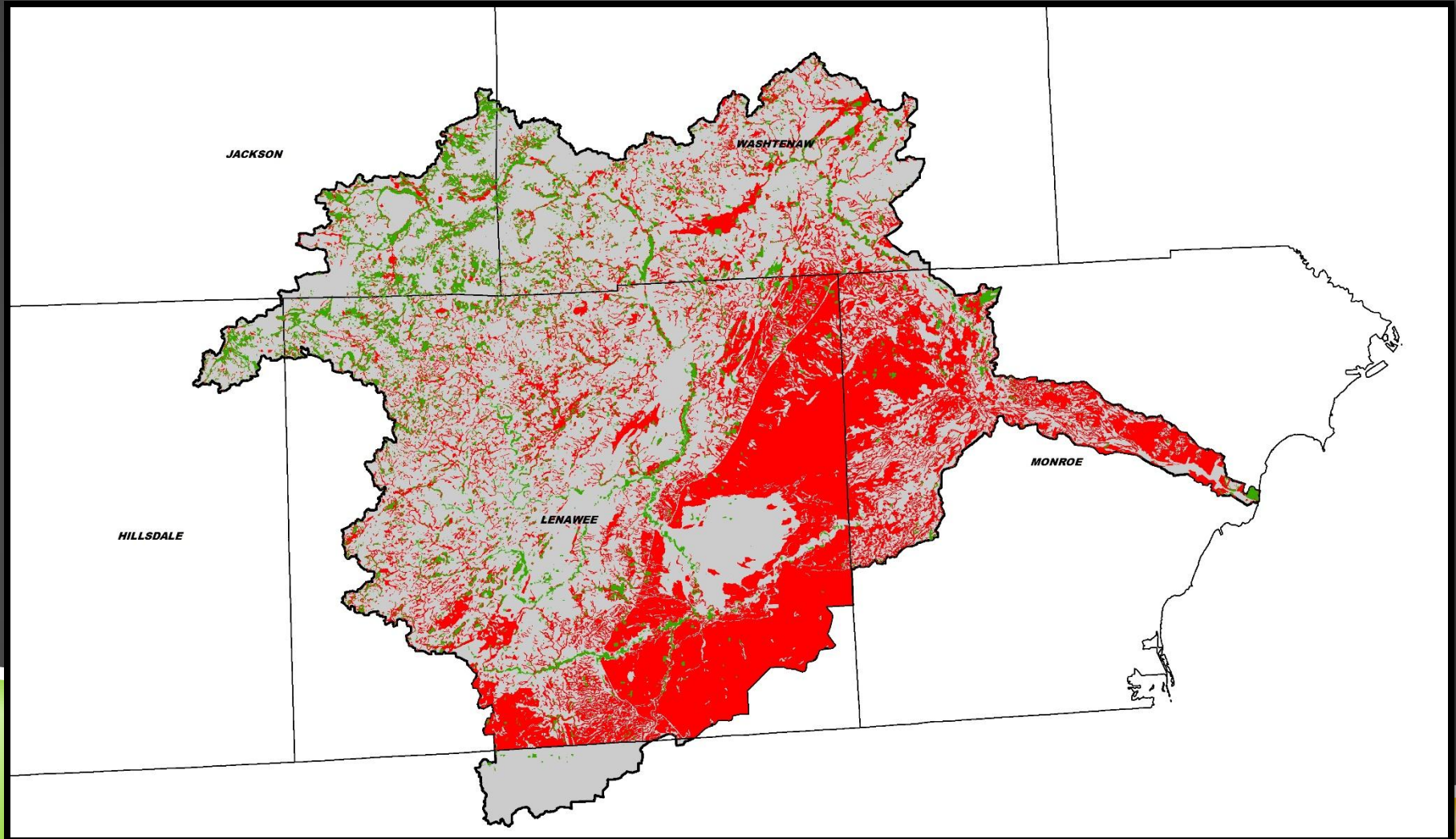
**19% OF ORIGINAL WETLAND ACREAGE REMAINS
81% LOSS OF TOTAL WETLAND RESOURCE**

**TOTAL ACREAGE LOSS OF:
202,079 ACRES**

2005 WETLAND COVERAGE

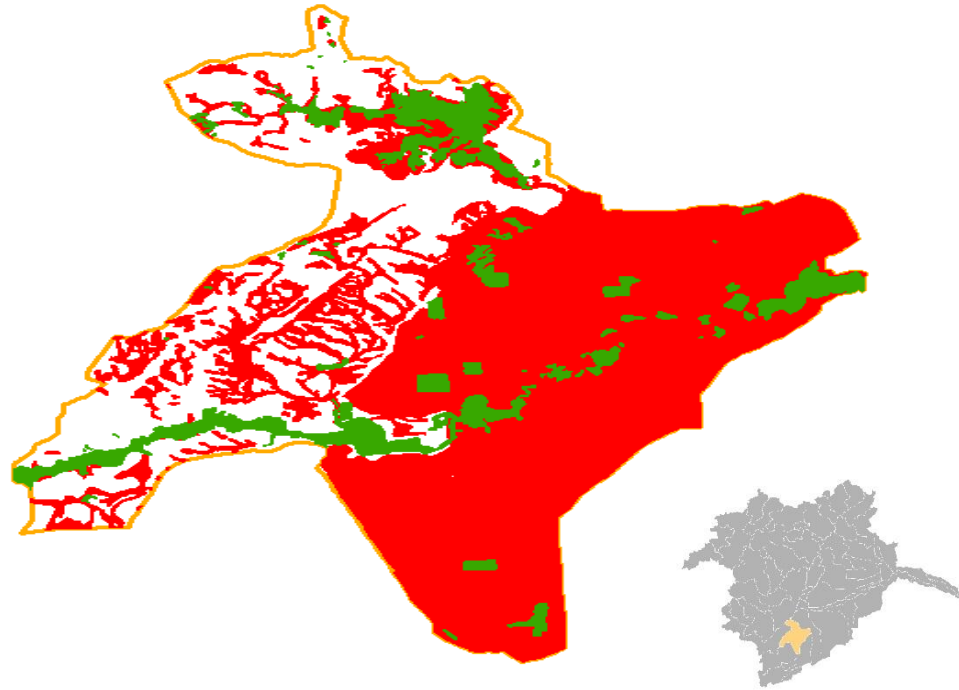


APPROXIMATE WETLAND LOSS PRE-EUROPEAN SETTLEMENT TO 2005





0 0.4 0.8 1.6 Miles



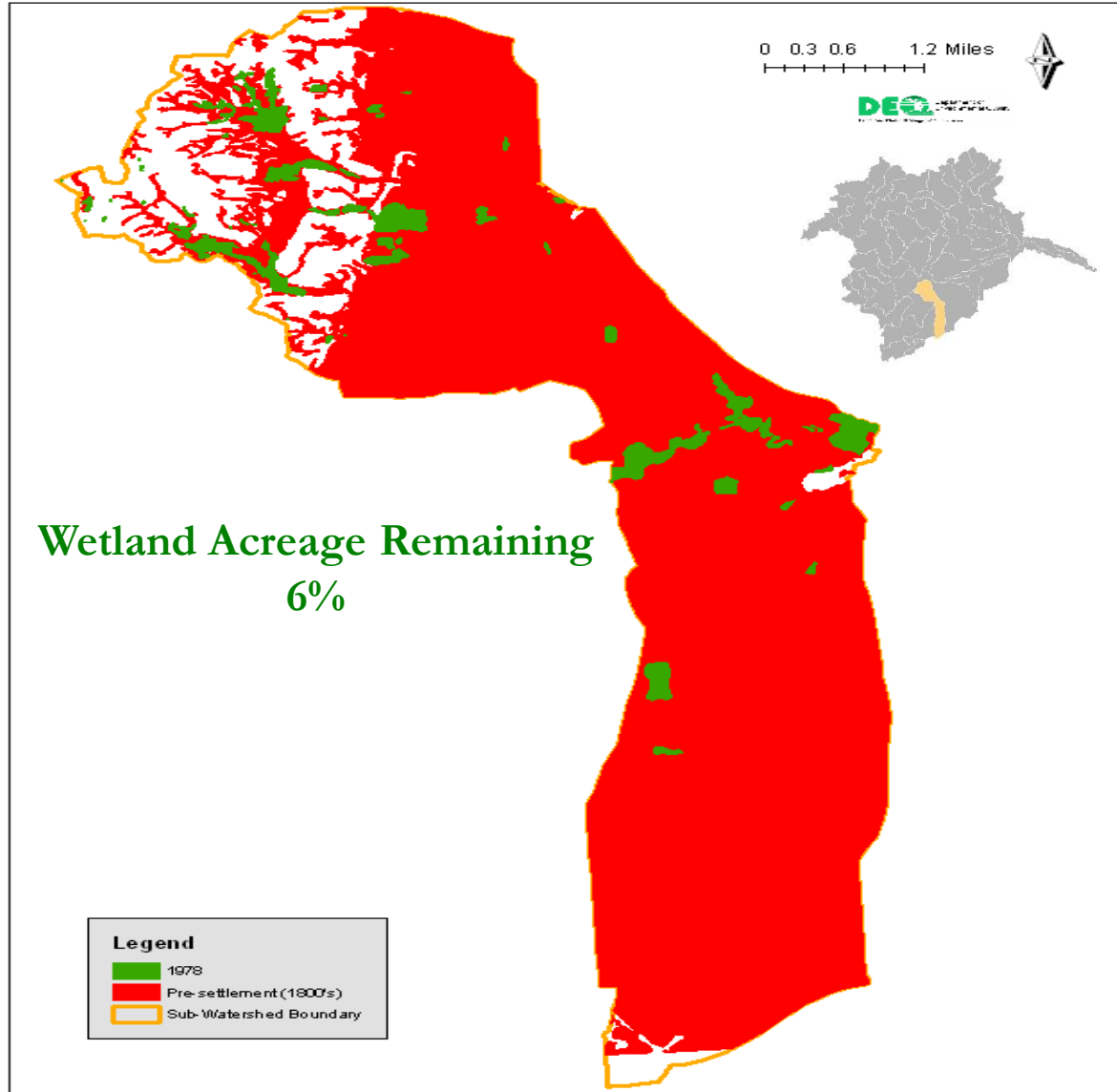
Wetland Acreage Remaining

15%

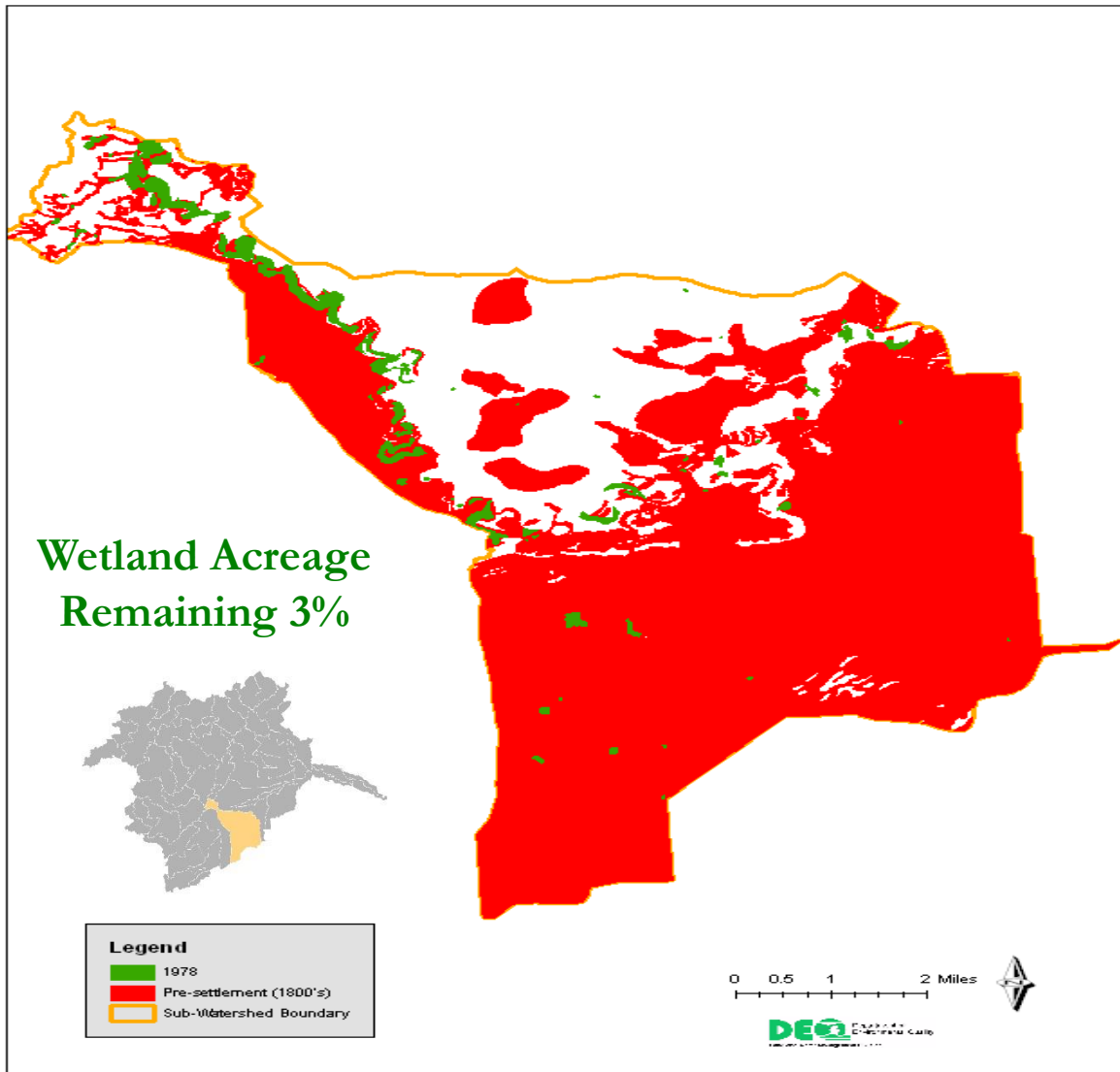
Legend

- 1978
- Pre-settlement (1800's)
- Sub-Watershed Boundary

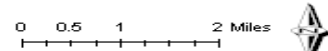
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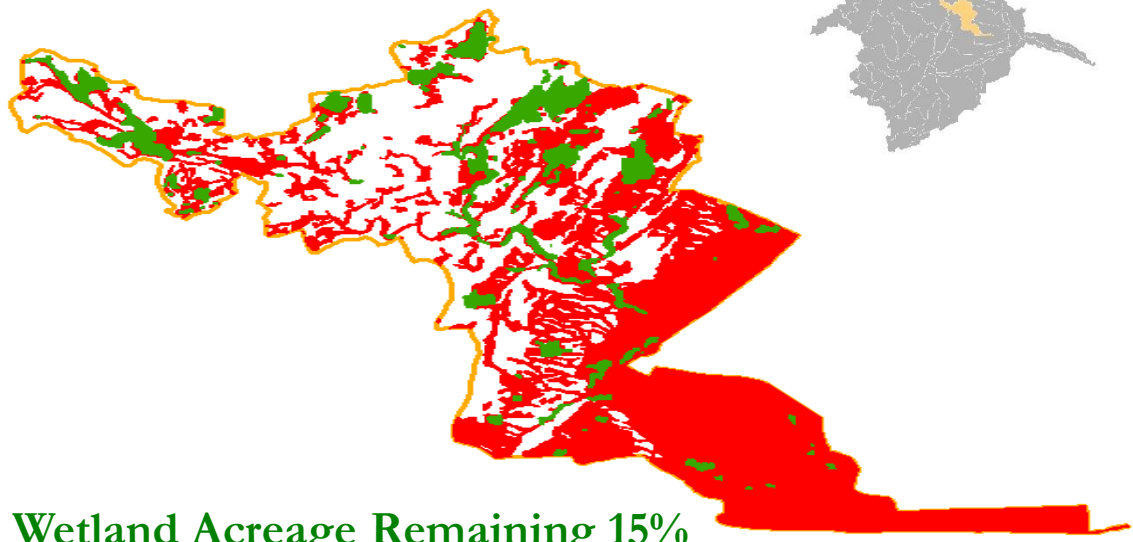


Wetland Acreage Remaining 3%

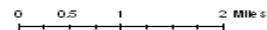
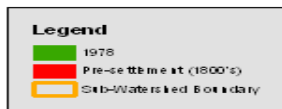


Legend	
Green	1978
Red	Pre-settlement (1800's)
Orange line	Sub-Watershed Boundary





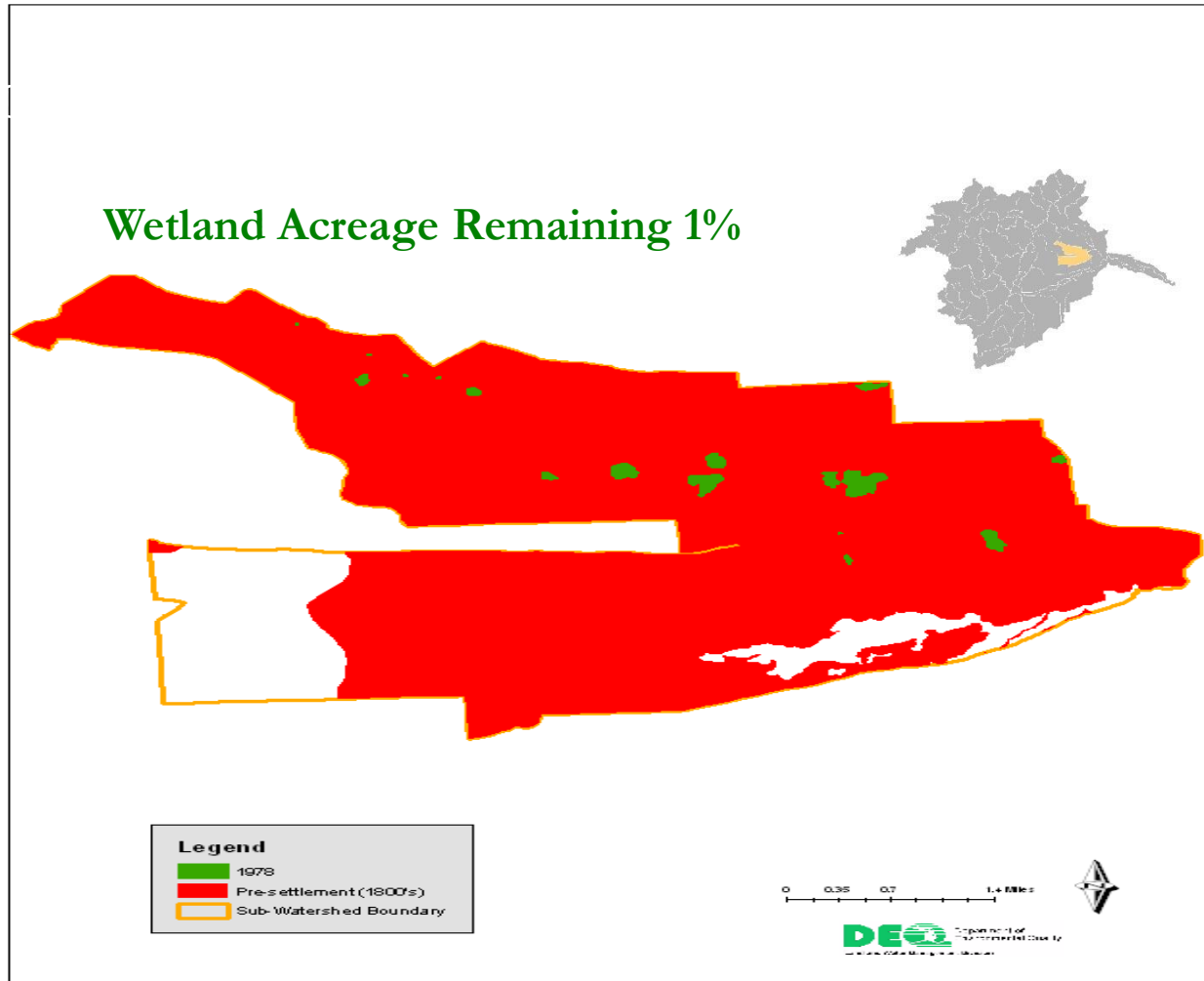
Wetland Acreage Remaining 15%



DEQ Department of Environmental Quality

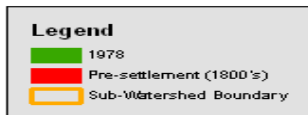
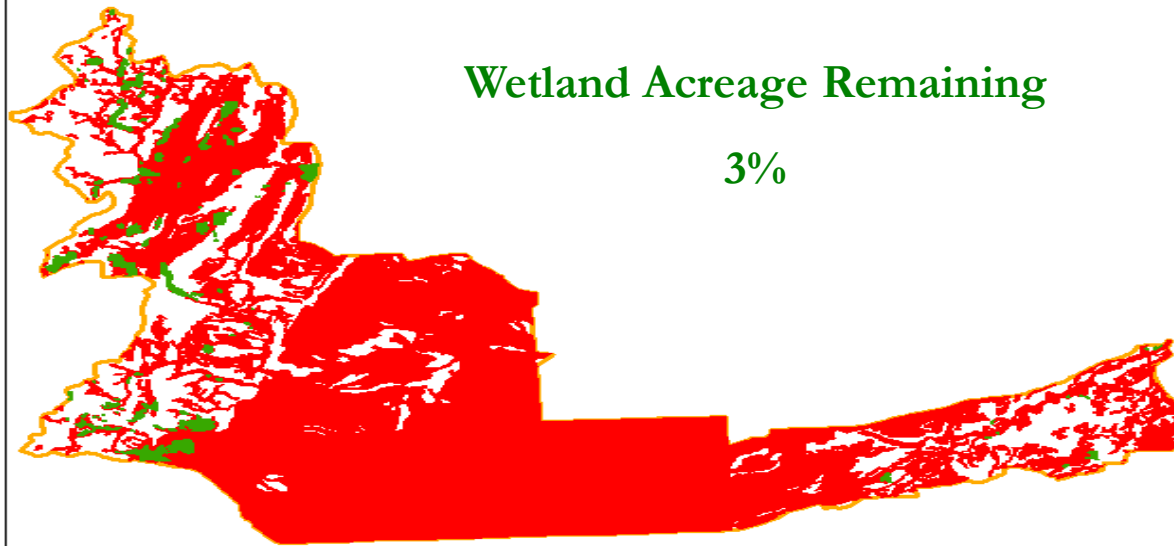
RIV

Wetland Acreage Remaining 1%



Wetland Acreage Remaining

3%

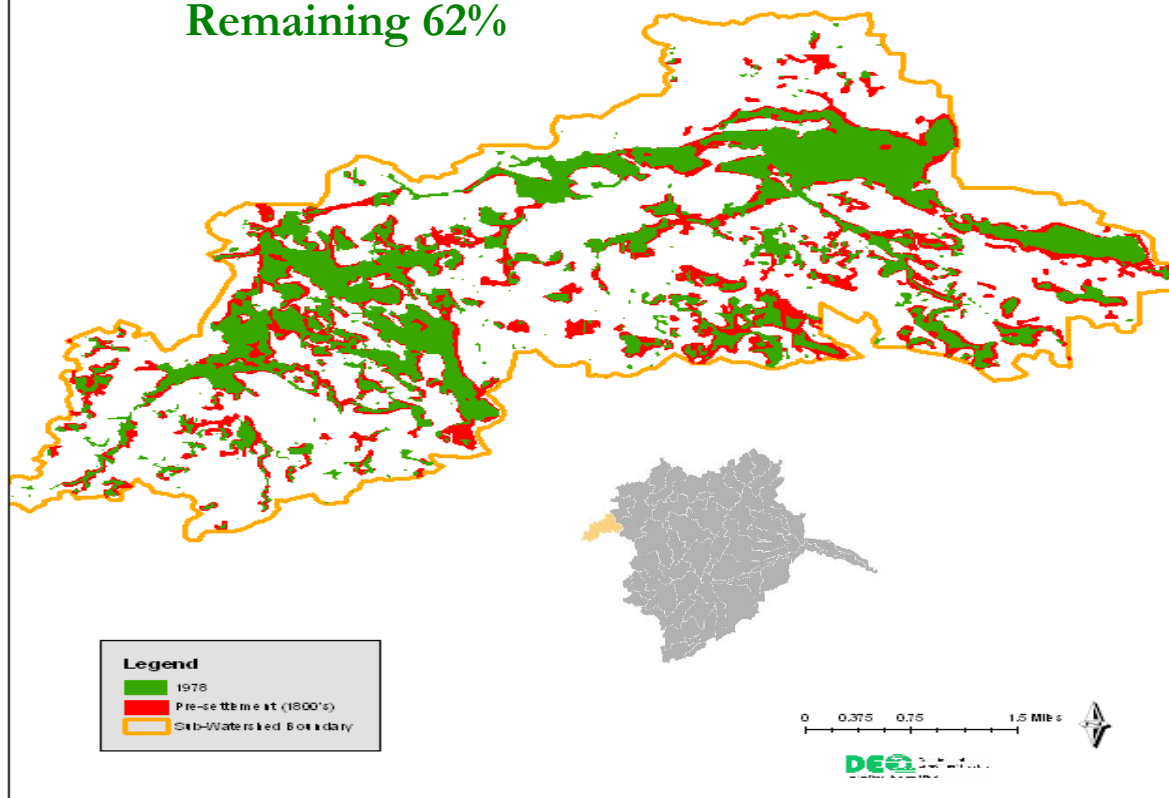


0 0.5 1 2 Miles



DEQ Vermont
Department of Environmental Quality

Wetland Acreage Remaining 62%



RIVER RAISIN WATERSHED

River Raisin Watershed Potential Wetland Restoration Areas

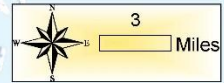
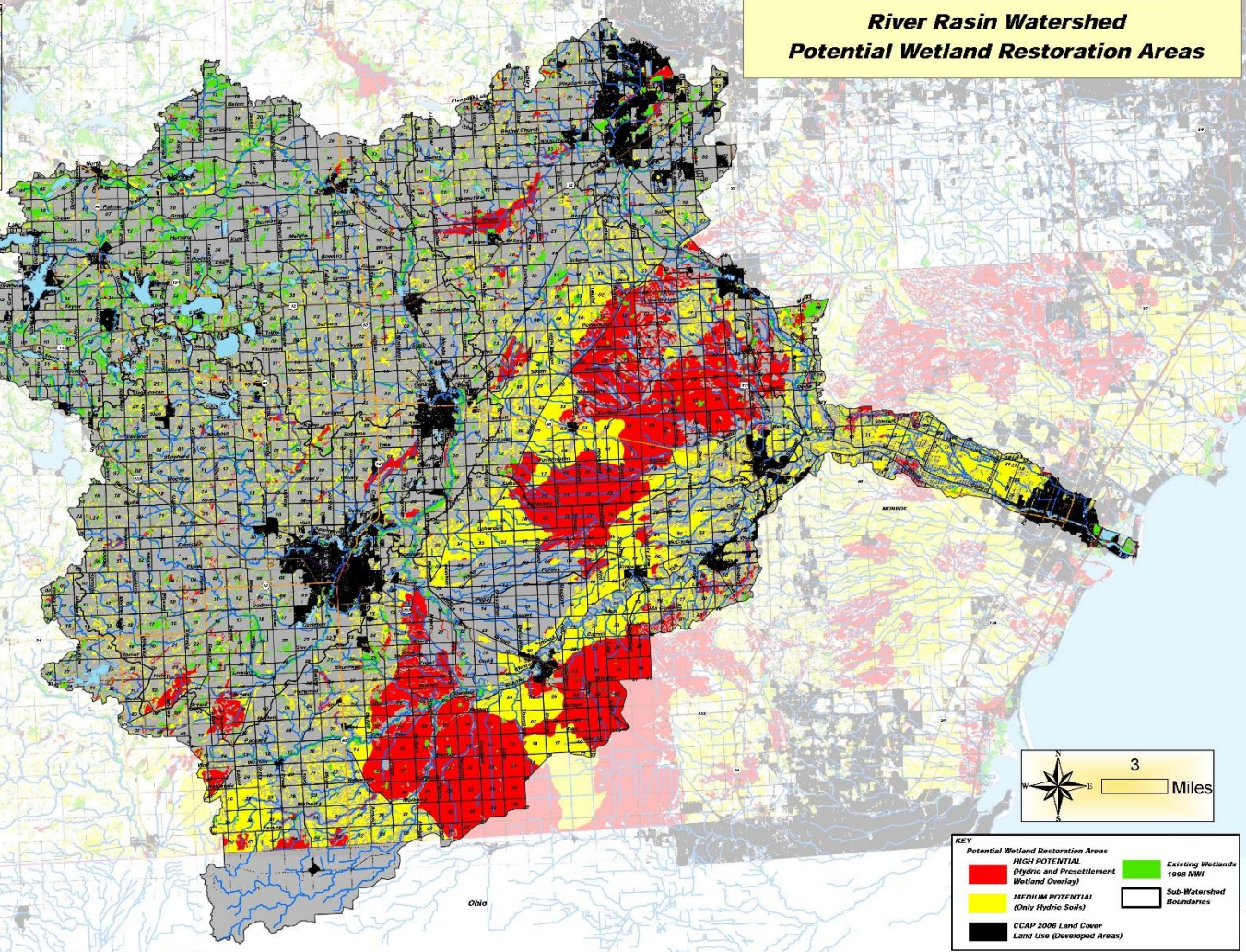


Map Information:

This map is intended to be used as a visual to assess potential high potential areas for wetland restoration. The MDEQ produced this map from the following data obtained from other agencies or organizations:

1. The National Wetland Inventory (NWI) created by the US Fish and Wildlife Service through interpretation of aerial photos and topographic data.
2. Hydric Soils and hydrologic information as supplied by the U.S. Department of Agriculture, Natural Resources Conservation Service (NRCS).
3. Land Cover as mapped by the Michigan Resource Inventory System (MRIS), Michigan Department of Natural Resources, through interpretation of aerial photography.
4. Boundary Features as supplied by the MI Dept. of Geographic Information (MCGI).
5. Preservation Features created from Michigan Natural Features Inventory (MNFI) Land Cover layer.
6. Urban areas as mapped by NOAA in 2006 CCAP Land cover layer.

The Potential Wetland Restoration Areas (PWRA) layer was created by mapping NRCS hydroic soils as MDEQ Preservation Wetlands, then performing an area comparison (ESRI Arc GIS) on the resulting layer to assess NWI, MRIS Wetlands, Hydrology, and other polygons than the coverage area. This map is not intended to be used to determine specific local town and jurisdictional boundaries of wetland areas subject to regulation under the NWI. Wetland restoration of the National Resource and Conservation Act (NRCA), 16 U.S.C. 669, is authorized. Only a wetlands evaluation performed by the MDEQ in accordance with Part 300 may be used for jurisdictional determinations. A permit is required from the MDEQ to conduct certain activities in jurisdictional wetlands.



Potential Wetland Restoration Areas		Existing Wetlands 1986 NWI
Red	HIGH POTENTIAL (Hydric and Preeminent Wetland Overlay)	Green
Yellow	MEDIUM POTENTIAL (Only Hydric Soils)	Black outline
Black	CCAP 2006 Land Cover Land Use (Developed Areas)	White outline
		Sub-Watershed Boundaries



In 1979, the Michigan legislature passed the Goemaere-Anderson Wetlands Protection Act, 1979 PA 203, which is now Part 303, Wetlands Protection, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended.

A wetland permit is required from the DEQ to:



- ◆ Place fill material in a wetland
- ◆ Drain surface water from a wetland
- ◆ Remove soil or minerals from a wetland
- ◆ Construct, operate or maintain a use or development in a wetland

Regulatory programs have slowed wetland loss but not eliminated it.

United States still losses approximately 58,500 acres of wetland annually (Dahl 2000).

Federal and State policy is no net loss of wetlands.

Wetland loss has led to interest in wetland restoration through private and governmental programs.

What is Wetland Restoration?

The re-establishment of wetland characteristics and functions at a site where they have been:

- degraded (wetland still exists)
- eliminated (no evidence of wetlands present)

Wetland Restoration is generally accomplished by re-establishing wetland hydrology

“Putting the “wet” back in altered wetlands”

WETLAND RESTORATION PROJECTS:

- ▶ occur in areas having hydric soils
- ▶ are most often completed on existing agricultural lands (or lands that have a history of agricultural use) that have been drained with open ditches or field tiles.

Wetland Restoration is not:

The creation of farm or fish ponds.

The conversion of **unaltered** wetlands to another aquatic use such as the creation of a pond or impoundment where a wet meadow, fen, or forested wetland exists.

The conversion of one **unaltered** wetland type to another (e.g. flooding a forested wetland to create an emergent marsh).

The creation of wetlands in an upland area (where they never have existed).

WETLAND RESTORATION GOALS

State of Michigan

- ▶ **Short term – 50,000 acres by 2010 (1% of historic loss)**
- ▶ **Long Term – 500,000 acres by 2079 (10% of historic loss)**
- ▶ **In the recent past approx. 4,000 acres of wetlands were being restored in Michigan annually. This allowed us to meet our short term goal in 2010 or 2011.**
- ▶ **Approximately 125 years or more to reach long term goal at the current rate of restoration**
- ▶ **need to increase to approximately 7,000 acres per year to reach the long term goal by 2079**

VOLUNTARY WETLAND RESTORATION PROGRAMS

- ▶ USDA - Wetland Reserve Easement Program (WRE),
- ▶ USDA –Conservation Reserve Program (CRP)
Continuous sign up
- ▶ USDA - Conservation Reserve Enhancement Program (CREP)
- ▶ USFWS- Partners for Fish and Wildlife Program
- ▶ DNR- Landowner Incentive Program (LIP)
- ▶ Ducks Unlimited Inc., The Nature Conservancy and Other Conservation Organizations

Michigan Wetland Working Group



MAJOR FEDERAL WETLAND RESTORATION PROGRAMS

- ▶ USDA - Wetland Reserve Easement Program (WRE)
 - ▶ USDA – Conservation Reserve Program (CRP) Continuous sign up (FSA) and the Conservation Reserve Enhancement Program (CREP)
 - ▶ USFWS - Partners for Fish and Wildlife Program
- 

THE WETLANDS RESERVE EASEMENT (WRE) PROGRAM



- ▶ **The Wetlands Reserve Easement (WRE) Program is a voluntary program offering landowners the opportunity to protect, restore, and enhance wetlands on their property.**
- ▶ **The USDA Natural Resources Conservation Service (NRCS) provides technical and financial support to help landowners.**
- ▶ **WRE offers payment to purchase conservation easements based on the value of the land up to a cap limit.**

RESTORING AMERICA'S WETLANDS



The Wetlands Reserve Easement Program:

- ▶ **pays up to 100% reimbursement for restoration costs**
- ▶ **landowners retain control of access — no public access is required**
- ▶ **landowners maintain ownership of the land**
- ▶ **landowners have the right to hunt, fish, trap, and pursue other appropriate recreational uses**
- ▶ **the land, including any easement, can be sold**

QUESTIONS ABOUT WRE?

Need More Information ????

Please contact Jim Marshall at:
810-230-8766

USDA Adrian Service Center
517-263-7400

USDA Monroe Service Center
734-241-8540

NRCS Web Site:
<http://www.nrcs.usda.gov>

CONSERVATION RESERVE PROGRAM (CRP) CONTINUOUS SIGN UP

- ▶ USDA Program
- ▶ Administered by the Farm Service Agency (FSA)
- ▶ Apply anytime at local USDA Service Center (FSA office)
- ▶ 10-15 year contracts
- ▶ Annual payments based soil rental rates

UNITED STATES FISH AND WILDLIFE SERVICE



Working with others to provide technical & financial assistance to landowners to improve fish & wildlife habitat on private lands

Partners for Fish and Wildlife - Michigan

1988 - start of program



Wetlands and grasslands



Partners for Fish and Wildlife - Michigan

- Partners . . .
- Ducks Unlimited
 - Pheasants Forever
 - ▶ The Nature Conservancy
 - ▶ Conservation organizations
 - ▶ Business/industry



Partners for Fish and Wildlife - Michigan

Partners . . .



- NRCS & FSA
- Michigan DNR, DEQ & MDARD
- Conservation Districts and RC&Ds
- Drain Commissioners
- Schools/universities

Partners for Fish and Wildlife

TO RESTORE HABITAT FOR DUCKS ...



Partners for Fish and Wildlife

...AND A WHOLE LOT MORE!

- ▶ Shore/wading/song birds
- ▶ Fish/amphibians/reptiles
- ▶ Insects/plants
- ▶ T&E species



TYPICAL WETLAND PROJECTS

- ▶ Ditch plug
- ▶ Tile break
- ▶ Low-level berm



Partners for Fish and Wildlife

Ditch plug

BEFORE



AFTER



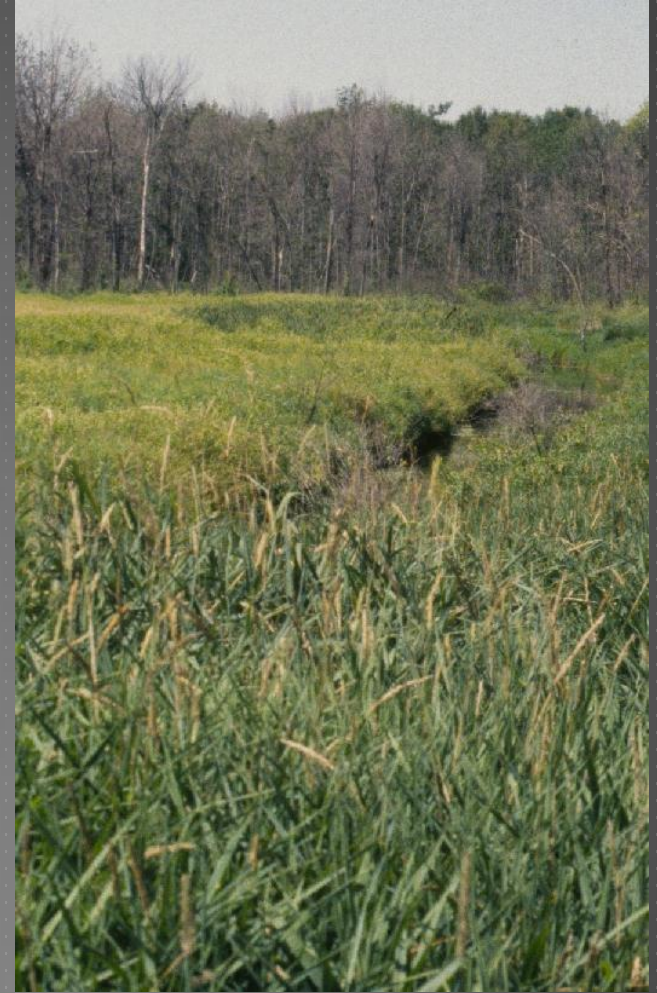
WETLAND PROJECTS

- ▶ Restore hydrology
- ▶ Reestablish shallow wetlands



WETLAND PROJECTS

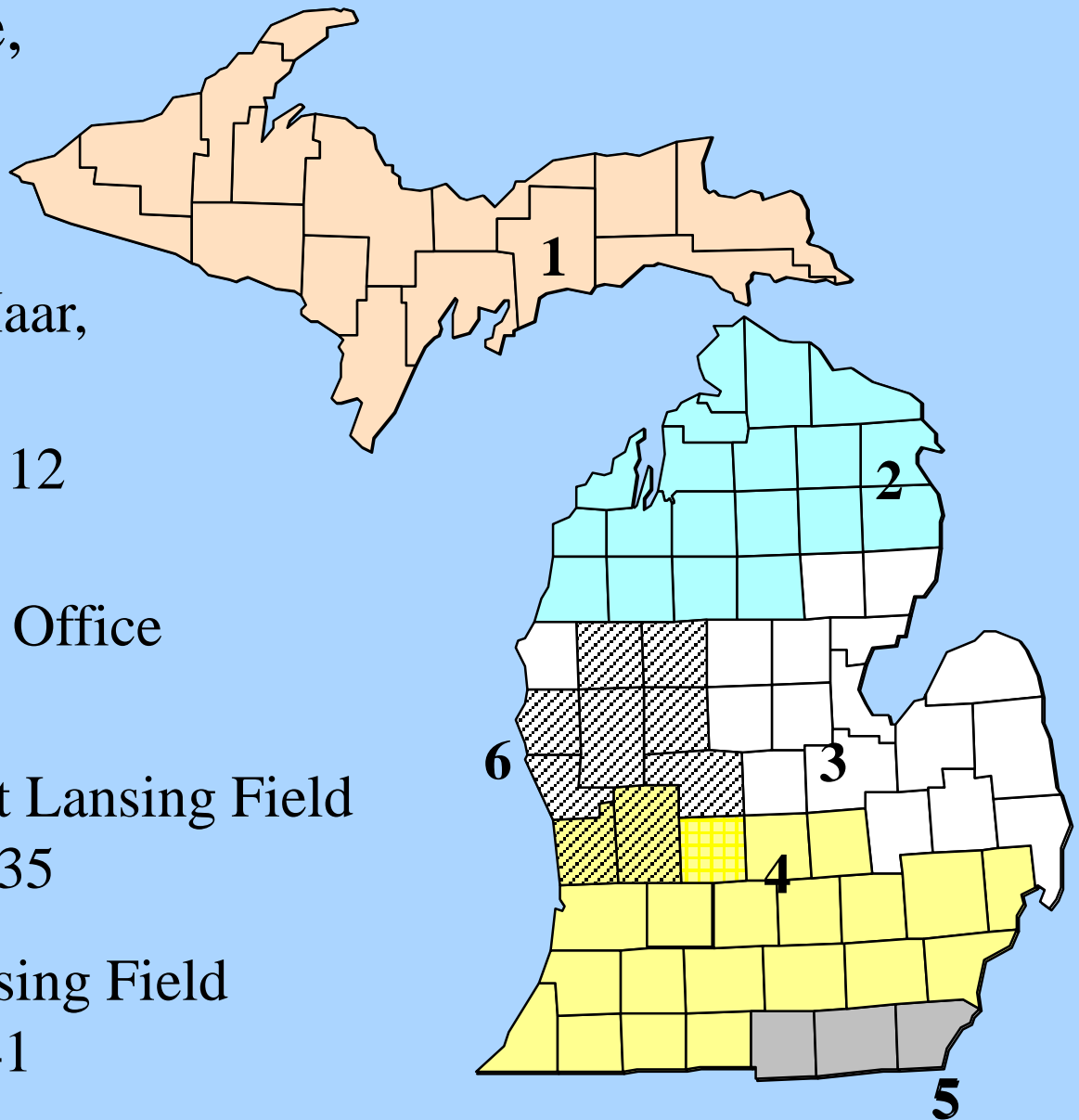
- *Do not* dig ponds
- *Do not* alter undisturbed wetlands



U.S. Fish & Wildlife Service Partners for Fish and Wildlife

For local assistance,
please contact:

3. Michelle Vander Haar,
Shiawassee NWR
989-777-5930 ext. 12
4. Meredith Bryant,
East Lansing Field Office
517-351-6283
5. Jim Hazelman East Lansing Field
Office 517-351-6235
6. Gib King, East Lansing Field
Office 517-351-2241



For information or assistance with wetland restoration programs or issues contact:

Robert P. Zbiciak

517-284-5512

zbiciakr@michigan.gov

www.michigan.gov/deqwetlands

Under “Wetlands Protection” click on Wetland Restoration and Watershed Planning.

WE'RE FROM THE GOVERNMENT .



... and we're here to help!