

What is a
Wetland?



What is a Wetland?



Wetlands and streams are necessary components of a healthy ecosystem.

What is a Wetland?



Photos Courtesy of IDEM

Wetlands - contain standing water or have water at or near the soil surface for part of, or all year, including the growing season

What is a Wetland?

A Typical Wetland

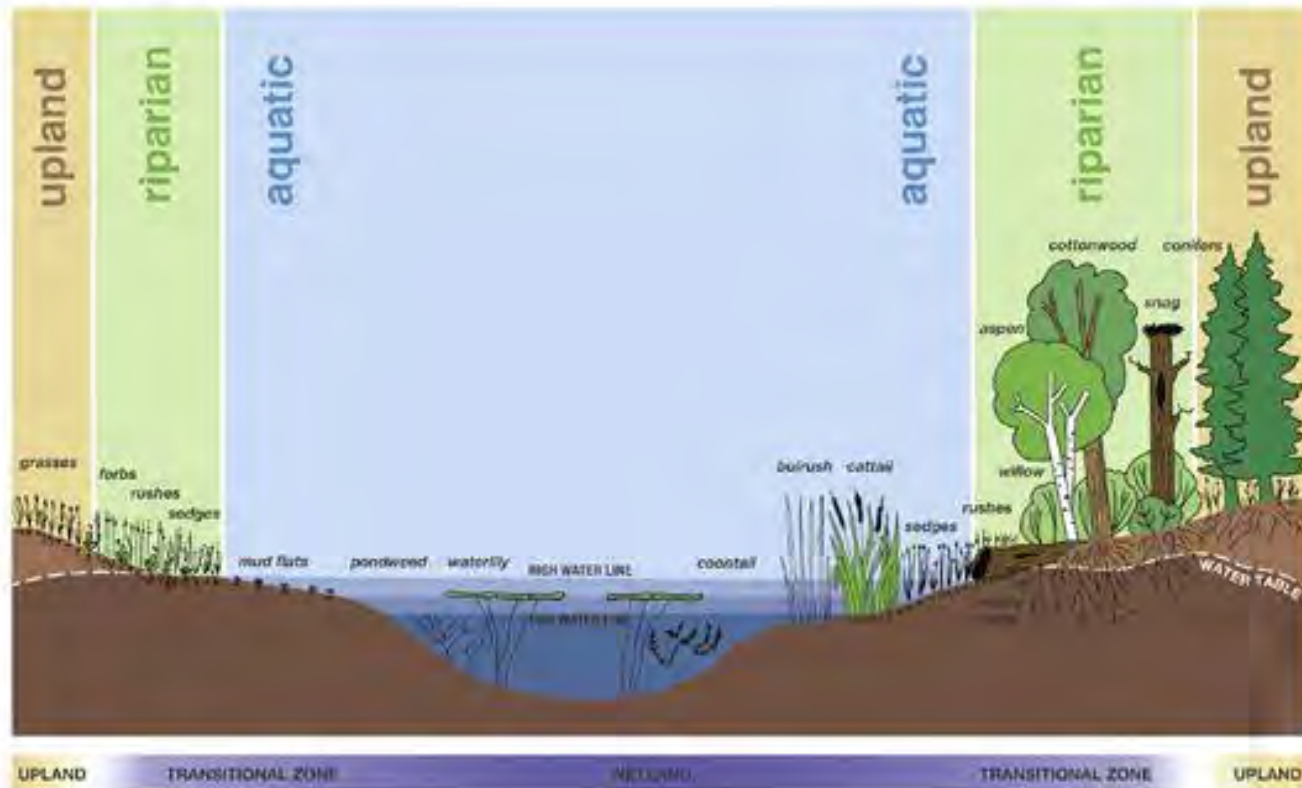


Image Courtesy of IDEM

Different from both dry land (upland) and deep water of lakes and streams, wetlands often occur in the transitional zones between these features.

What is a Wetland?



What is a Wetland?

Many different types of wetland ecosystems exist in Indiana



Floodplain Forest



Wet Meadow



Shallow Marsh



Wet Prairie

Photos Courtesy of IDEM

How Wetlands Function

Wetlands develop in areas of poorly drained soils.

As these areas are flooded, often for prolonged periods of time, the water saturated-soils no longer produce oxygen.

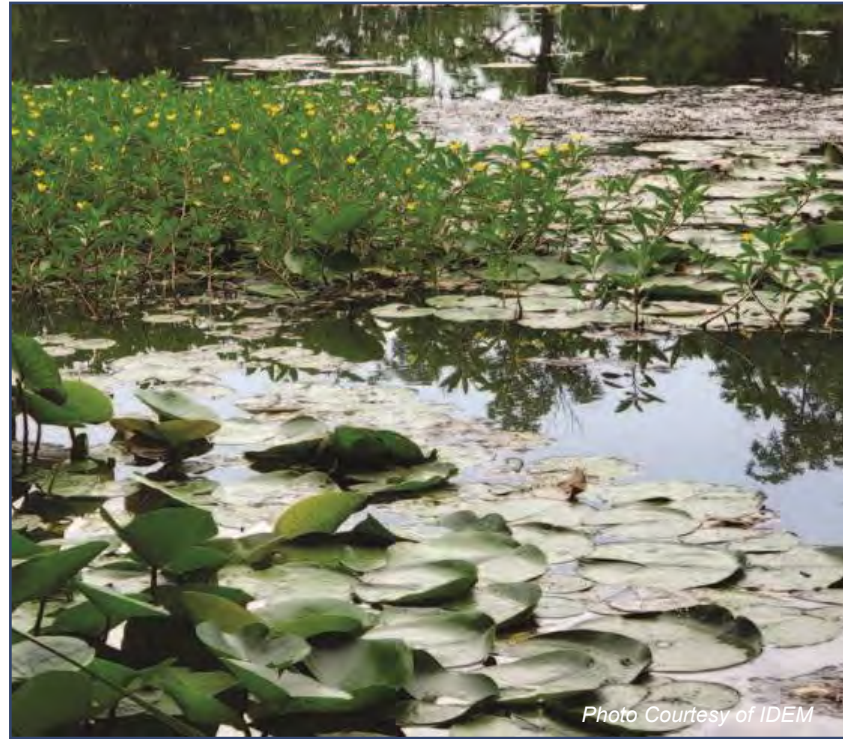
How Wetlands Function



Image courtesy of IDEM

The process allows vegetation adapted to poorly drained soils to thrive.

How do I know if my land has wetlands?



Wetlands are defined by three criteria: **vegetation, hydrology, & soils**

Criteria 1: Vegetation



Nearly 5,000 different hydrophytic (water loving) plants occur in wetlands.

Criteria 2: Hydrology



Refers to the presence of water at or above the soil surface long enough to significantly influence the plant types & soils that occur in the area.

Criteria 3: Soils



Approximately 2,000 different types of hydric soils occur in wetlands across the United States.

Wetland Determinations & Delineations

Wetlands are identified through a process known as **determinations**.
Delineations are the process of using determination data points to identify and map the location & extent of a wetland at that time.

There are no known precise wetland maps!

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: _____ City/County: _____ Sampling Date: _____
 Applicant/Owner: _____ State: _____ Sampling Point: _____
 Investigator(s): _____ Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____
 Slope (%): _____ Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: _____ NWI or WWI classification: _____
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input type="checkbox"/>
Hydric Soil Present? Yes <input type="checkbox"/> No <input type="checkbox"/>	
Wetland Hydrology Present? Yes <input type="checkbox"/> No <input type="checkbox"/>	
Remarks: _____	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <input type="text" value="0"/> (A) Total Number of Dominant Species Across All Strata: <input type="text" value="0"/> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <input type="text" value="0"/> (A/B)
1. _____				
2. _____				
3. _____				
4. _____				
5. _____				
_____ = Total Cover				Hydrophytic Vegetation Indicators: <input type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
Sapling/Shrub Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____				
2. _____				
3. _____				
4. _____				
5. _____				
_____ = Total Cover				
Herb Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____				
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
_____ = Total Cover				
Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input type="checkbox"/>
1. _____				
2. _____				
_____ = Total Cover				

SOIL

Sampling Point: _____

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: <input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) <input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)	<input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8)	Indicators for Problematic Hydric Soils³: <input type="checkbox"/> Coast Prairie Redox (A18) <input type="checkbox"/> Iron-Manganese Masses (F12) <input type="checkbox"/> Other (Explain in Remarks)
---	--	--

Restrictive Layer (if observed):
 Type: _____
 Depth (inches): _____
 Hydric Soil Present? Yes No

Remarks: _____

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)	Secondary Indicators (minimum of two required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> True Aquatic Plants (B14)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Gauge or Well Data (D9)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Other (Explain in Remarks)

Field Observations:

Surface Water Present? Yes <input type="checkbox"/> No <input type="checkbox"/> Depth (inches): _____	Wetland Hydrology Present? Yes <input type="checkbox"/> No <input type="checkbox"/>
Water Table Present? Yes <input type="checkbox"/> No <input type="checkbox"/> Depth (inches): _____	
Saturation Present? Yes <input type="checkbox"/> No <input type="checkbox"/> Depth (inches): _____ (includes capillary fringe)	

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: _____

National Wetland Inventory Map

National Wetlands Inventory
surface waters and wetlands

ABOUT GET DATA PRINT FIND LOCATION

BASEMAPS >

- STREETS
- SATELLITE
- HYBRID
- TOPO
- TERRAIN
- GRAY
- OPEN STREET MAP
- NATGEO
- USGS TOPO
- NAT'L MAP

MAP LAYERS >

- Wetlands
- Riparian
- Riparian Mapping Areas
- Data Source
 - Source Type
 - Image Scale
 - Image Year
- Areas of Interest
- FWS Managed Lands
- Historic Wetland Data

1:4,514
40,994 | -85.273

U.S. Fish and Wildlife Service, National Standards and Support Team, wetlands_team@fws.gov | Maxar | Esri, HERE, Garmin, GeoTechnologies... **esri**



Not for regulatory purposes;
not field verified &
not delineated

What a
Wetland is
Not

What a Wetland is NOT



Photo Courtesy of Google Images



Photo Courtesy of Google Images



Photo Courtesy of National Geographic Society



Photo Courtesy of Flickr



Photo Courtesy of Google Images

Mosquito & monster-infested places from your worst nightmares

What a Wetland is NOT

Wetland
Life Thrives
Beyond
Mosquitos &
Monsters



Photo Courtesy of USFWS



Photo Courtesy of Indiana DNR



Indiana DNR



Audubon Society



Photo Courtesy of Indiana DNR



Indiana DNR

What a Wetland is NOT: a Mosquito Sanctuary



Excessive mosquito populations are often a sign of stagnant water.

Things you can do:

- Dispose of unwanted cans & tires
- Clean clogged roof gutters
- Drain flat roofs
- Flush sump pump pits regularly
- Change water in bird baths, fountains, & troughs twice / week
- Turn over unused wading pools & containers that collect rainwater

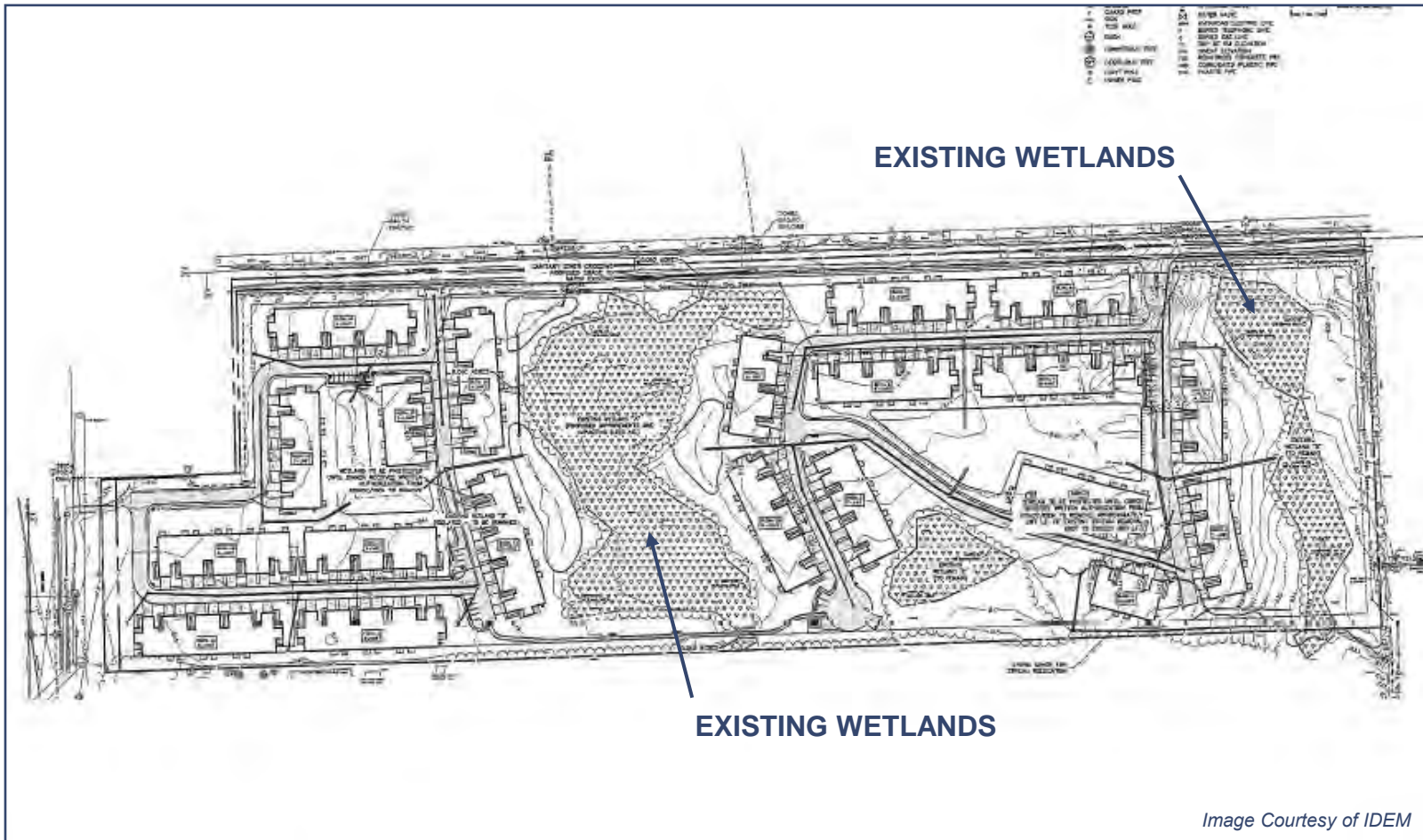
What a Wetland is NOT



Photo Courtesy of IDEM

- **Detention (dry) Basin** – holds water temporarily after rain / storm events; slow release over time period
- **Retention (wet) Pond** – holds water year-round; improves water quality
- **Constructed Wetlands** – Artificial treatment systems that use natural processes involving wetland vegetation, soils, & their associated microbial assemblages to improve water quality (source: EPA)

What a Wetland is NOT



Myth:
Wetlands are a nuisance and an impediment to development.

Fact: Wetlands are an OPPORTUNITY.

This project development incorporated the site's existing wetlands into the surrounding greenspace.

Thank you!