

# Iowa Wetlands

Iowa is home to a diverse array of wetland ecosystems that provide multiple benefits to humans and the natural world. These wetlands are essential for the survival of plants and animals adapted to life in a wet environment, including many rare and endangered species.

## What is a wetland?

A wetland is an area of land that has three basic features:



### Hydrophytic vegetation

Plants that are adapted to a wet environment.



### Hydric soils

Soil that developed under wet conditions.



### Standing water

or saturated soils for a significant portion of the year.

## How do we benefit from wetlands?

The most common wetland ecosystem services are:



Water quality improvement



Floodwater retention



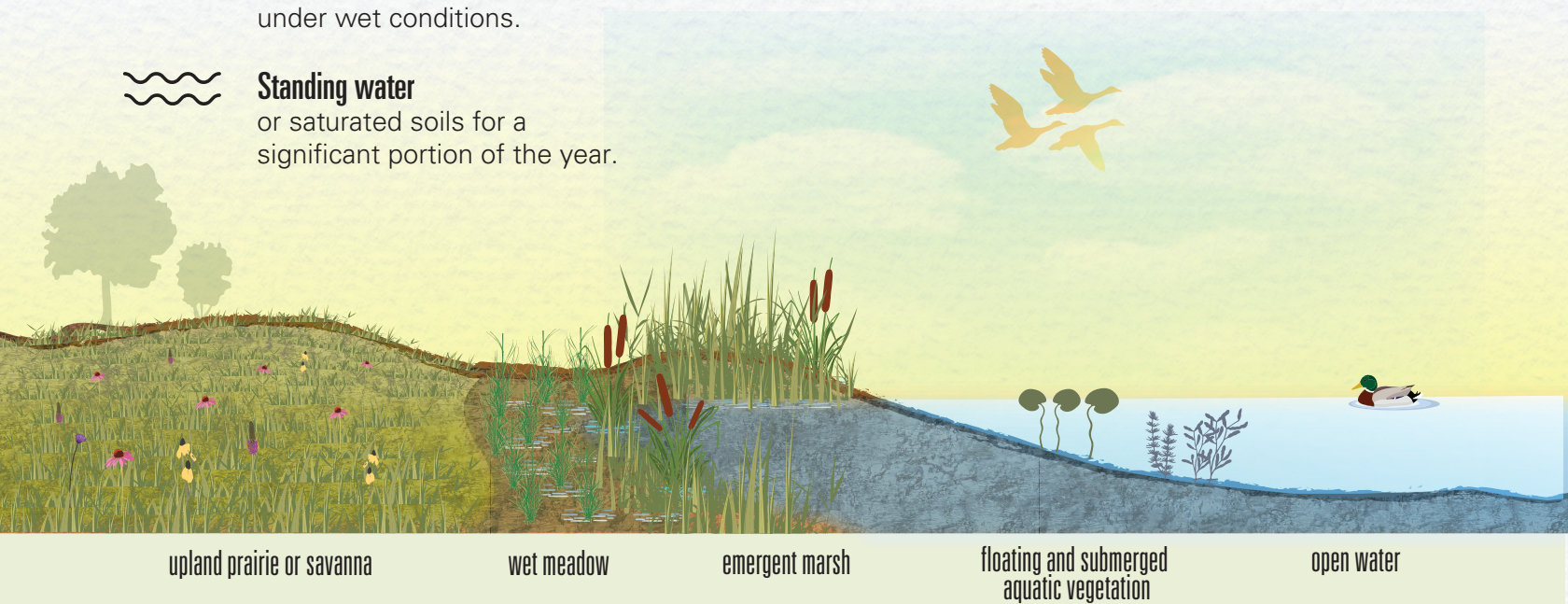
Wildlife habitat



Recreational opportunities



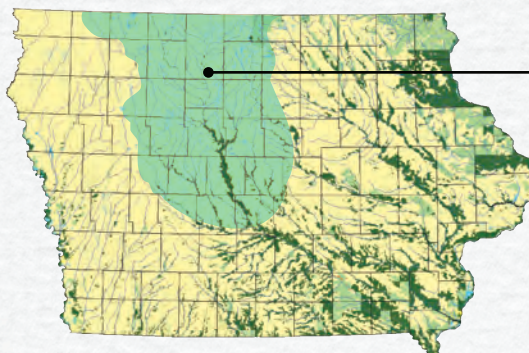
Food and fiber



## Water makes the wetland

Water depth and duration determine the type of habitat found in a wetland. Many wetlands have distinct zones along a water depth gradient of open water, floating and submerged aquatic vegetation, emergent marsh, and wet meadow that transitions into drier upland habitat. These zones are home to specific plants and animals adapted to each zone.

## Where have all the wetlands gone?



Iowa has lost:  
**99%**  
of Des Moines  
lobe prairie pothole  
wetlands

**89%**  
of wetlands  
statewide

# Types of Wetlands in Iowa

Iowa wetlands come in many shapes and sizes and can be found near rivers, lakes, and in isolated areas. The six wetlands featured here represent only a portion of the wetland types found in Iowa, but include a mix of both common and unique wetlands.



## Prairie pothole and depressional wetlands

Prairie pothole and depressional wetlands form in low spots or depressions in the landscape where the soil type allows water to pool on the surface. These wetlands are important for water storage, water quality improvement, and wildlife habitat. Prairie pothole and depressional wetlands often dry up in late summer and fall or during dry years.

## Water quality enhancement wetlands

Water quality enhancement wetlands, also called nitrate reduction wetlands, are constructed or restored wetlands designed to reduce nitrate from tile drainage water or agricultural drainage, thus improving water quality. These wetlands also provide wildlife habitat and can help with floodwater retention.



## Urban stormwater wetlands

Stormwater wetlands have been constructed in many urban areas for floodwater retention and water quality improvement. These wetlands are important urban green space and wildlife habitat, and can be designed for recreational and educational use with the inclusion of trails, boardwalks, viewing platforms, and educational signage.

## Fens

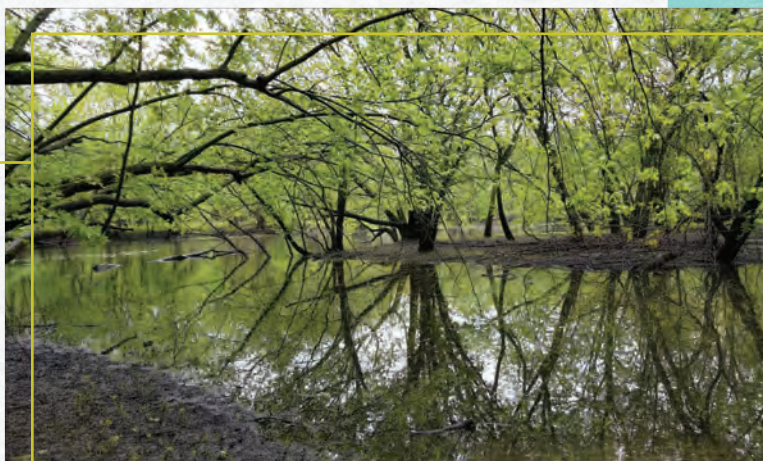
Fens are one of the rarest types of wetlands in Iowa, home to a number of threatened and endangered plant species. The main water source of a fen is groundwater that seeps back to the surface due to the area's underlying geology. Fens are characterized by soggy soils, but may have little standing water.



## Oxbows

Oxbows are wetlands that form when an old stream meander is cut off from the main channel through natural processes or channelization. Oxbows help with floodwater retention, holding stormwater after rain events.

A special type of restored oxbow, the multipurpose oxbow, is designed to capture tile drainage water for nitrate removal, while retaining floodwater and providing wildlife habitat.



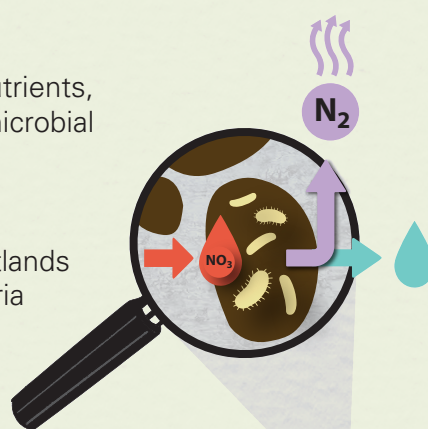
## Riverine wetlands

Riverine wetlands are adjacent to streams and rivers, receiving most of their water from overbank flooding of the stream or river. Riverine wetlands, which include oxbows and bottomland hardwood forests, are important storage areas for spring snowmelt and stormwater.

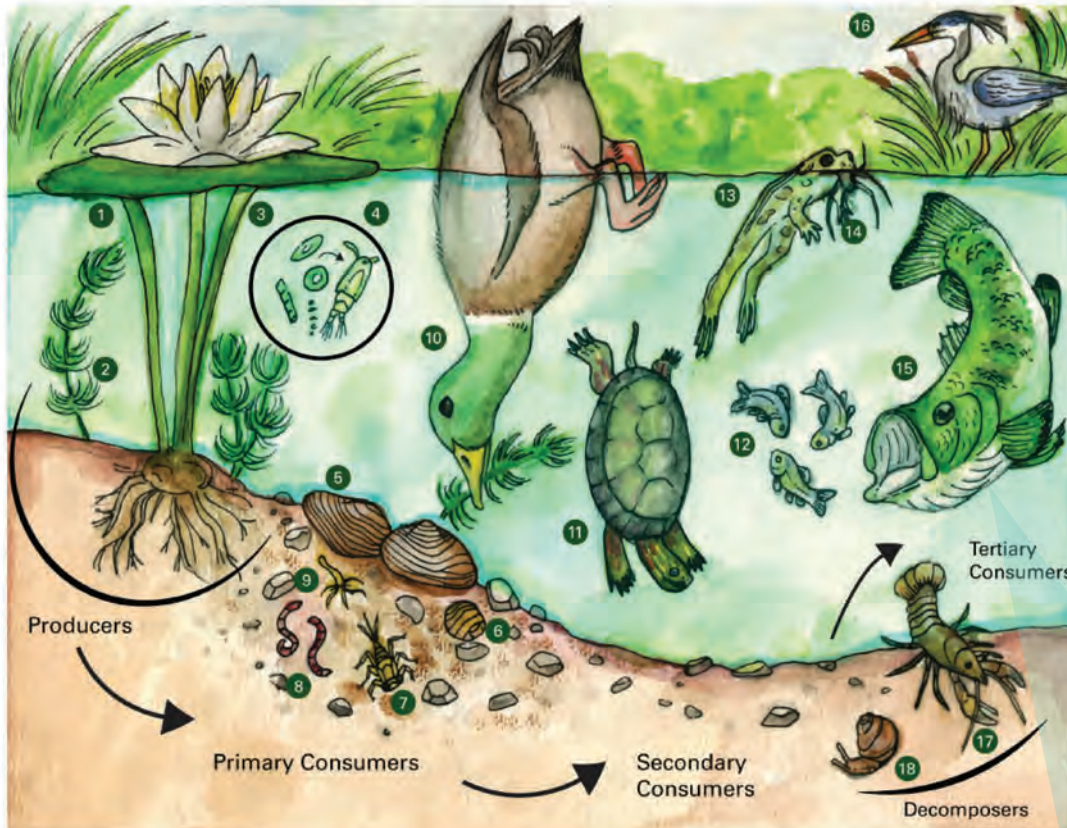
## How do wetlands improve water quality?

Wetlands improve water quality through biological uptake of nutrients, filtering and settling out of sediment from the water column, microbial breakdown of contaminants like pesticides, and UV-induced breakdown of pathogens.

One of the most important nutrient reduction processes in wetlands is denitrification. Denitrification occurs when denitrifying bacteria take up nitrate from the water and convert it to nitrogen gas. The nitrogen gas is lost to the atmosphere, which is about 78% nitrogen, resulting in cleaner water.



# Wetlands and Wildlife



Graphic courtesy of Iowa State University Extension and Outreach Natural Resource Stewardship

## Producers

1. White water lily
2. Coontail
3. Phytoplankton

## Primary Consumers

4. Zooplankton
5. Pond mussels
6. Water penny
7. Mayfly larva
8. Midge
9. Hydra
10. Mallard

## Secondary Consumers

11. Painted turtle
12. Fathead minnows
13. Northern leopard frog
14. Water strider

## Tertiary Consumers

15. Largemouth bass
16. Great blue heron

## Detritivores/Decomposers


17. Northern crayfish
18. Pond snail

Wetlands provide food, water, shelter, and space for a variety of wildlife including invertebrates, amphibians, reptiles, fish, birds, and mammals. Wetlands are important for the lifecycle of animals like dragonflies, frogs, and salamanders. These animals lay their eggs in wetlands, where the eggs hatch and the juveniles grow into adults that may continue using the wetland ecosystem or migrate to a nearby upland area.

Wetlands are also important stopover areas for migratory birds passing through in the spring and fall. The gentle slopes of the wetland basin and the variety of wetland zones provide nesting habitat for birds and mammals. Muskrats build huts—mounds of vegetation, mud, and algae located in open water areas of wetlands—to overwinter and raise their young. Some geese and swans, like the Trumpeter swan, will use the tops of muskrat huts to nest and lay their eggs.

## Healthy wetlands have diverse habitat that can support a wide variety of wildlife.

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Fish are found in some Iowa wetlands, but not all. The wetlands most likely to contain fish are those adjacent to streams, rivers, and lakes.



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