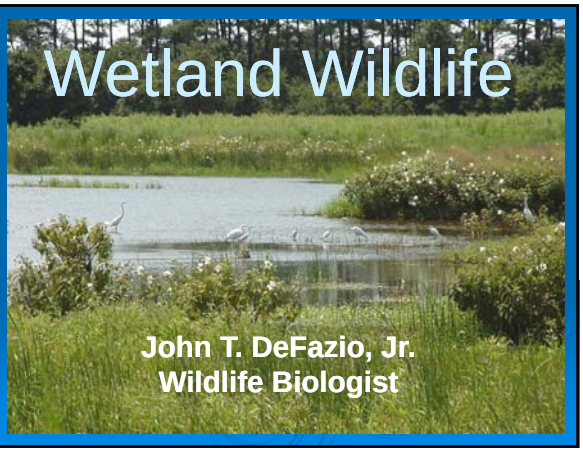
Wetland Wildlife



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Wildlife Biologist

Lesson Objectives

- Describe the major wildlife groups using freshwater emergent wetlands
- List a few of the common species that depend on wetlands within each major wildlife group
- Explain how these wetlands are important for various wildlife groups
- Apply knowledge gained to make informed wetland restoration and management decisions

Aquatic Invertebrates

Play an important role in wetland ecosystems

- Breakdown of organic matter
- Recycling of nutrients
- Wetland food web

Organic Matter and Nutrient Recycling

Detritus

Plankton | Algae | Bacteria

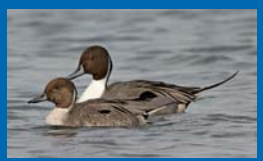
Invertebrate Roles

As litter is flooded, nutrients and detrital material are released

- Shredders – break down dead leaves and plant parts
- Grazers – scrape algae that grow on surfaces
- Gathers – feed primarily on fine particulate organic matter
- Filterers – filter fine particles suspended in the water
- Predators – reduce numbers of other invertebrates

Wetland Food Web

Aquatic invertebrates play a critical role in the diet of water birds



Waterfowl

- Major food source
- Protein demanding periods
  - Molt
  - Egg laying

Shorebirds

- Major food source
- Stopover sites

Aquatic Worms and Midges

Most commonly available in moist-soil impoundments in early spring

Aquatic Worms

Midges (Chironomids)

Extremely important to early nesting waterfowl and shorebirds

Crustaceans

Fairy Shrimp

- Common in vernal pools
- Among 1st invertebrates
- Important to early nesters

Amphipods

- Found in permanent wetlands
- Can't survive droughts
- More important to diving ducks

Caddisflies and Dragonflies

Caddisflies

- Variety of wetland types
- Wide variety of feeding habits
- Diets of diving ducks

Dragonflies

- Standing or slow-moving water
- Feed on other invertebrates
- More important to diving ducks

True Bugs

Water Boatmen

Backswimmer

Giant Water Bug

- Mouthparts – form a piercing beak
- Predaceous – forage on other insects
- Winter – hide in mud and vegetation
- Diets – more important to shorebirds

Water Beetles

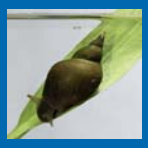
Whirligig beetle

Diving Beetle

- Aquatic larvae – diet highly variable
- Found in shallow water near debris and aquatic vegetation
- Adults over-winter by burrowing into debris or mud
- Diet of shorebirds

Snails

Snails are most common in shallow water



- Consume algae film on surfaces
- Slightly alkaline conditions
- Calcium carbonate – shell production

Snail shells – very important calcium source for egg production

Reptiles and Amphibians (Herps)

Ephemeral wetlands serve as crucial habitat

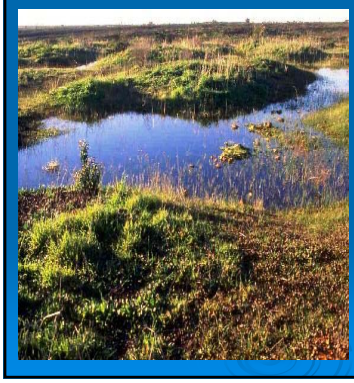
Green Tree Frog

Spotted Turtle

Tiger Salamander

- Desirable breeding sites
- Opportunistic food source

Ephemeral Wetlands (Vernal Pools)



Flood Duration

- Seasonal or temporary
- Spring to early summer
- Dry most summers

Critical for amphibians

- Vital breeding habitat
- Absence of fish
- Feeding and resting

Marbled Salamander

Natural Water Level Fluctuations

Natural water level fluctuations are integral

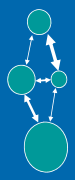
Amphibians

- Specific hydrological regime
- Complete life-stages
- Minimum hydroperiod
- 2.5 to 4 months
- Some require 5 months

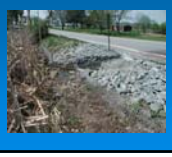
Blue-spotted Salamander

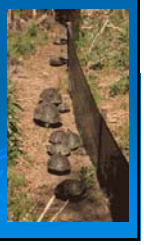
Habitat Fragmentation

Major threat to herp populations



- Most herps move among different wetlands as well as between wetlands and uplands
- Open habitats and roads are major barriers
- Maintain connectivity of wetlands and uplands
- Herp tunnels and tree/shrub corridors





Associated Habitats

Protecting or restoring only wetlands is not enough

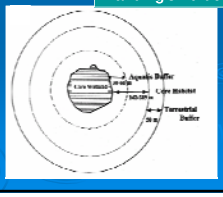
Adjacent uplands are vital for:

- Nesting, Foraging, Shelter
- Function as travel corridors
- Minimum – 500 feet wide

Blanding's Turtle

Wetland Buffers:

- Reduce chemical and sediment runoff into wetlands
- Minimum – 164 feet wide



Frogs and Salamanders

Several species require temporary wetlands to complete life cycle

Wood Frog

Spotted Salamander

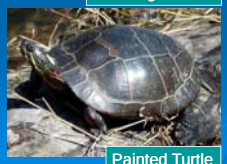
- Wood Frog, Spotted, Tiger, Marbled, and Blue-spotted Salamanders
- Breeding success depends on how long wetland holds water
- Valuable components of the aquatic food web
- Indicator species of ecosystem health

Turtles

Several species use vernal pools seasonally

Blanding's Turtle

- Facultative vernal pool species: spotted, Blanding's, wood, painted, and snapping
- Over-winter: Blanding's and spotted
- Life history strategy: contributes to endangered status
- Invasive: Red-eared and yellow-bellied sliders



Painted Turtle

Red-Eared Slider

Snakes

Wetlands are important feeding grounds for several species of snakes

Northern Water Snake

- Water, ribbon, and garter snakes feed on fish, frogs, and salamanders
- Eastern massasauga is strongly associated with wetlands
  - West: wet prairie
  - East: bogs and swamps

Eastern Ribbon Snake

Eastern Massasauga

Wetland Birds

One of the best known functions of wetlands is to provide a habitat for birds

- Breeding
- Nesting
- Brood-rearing
- Feeding
- Shelter
- Social Interactions

Value of a wetland is affected by the depth, duration, and timing of flooding

Geese

Found in many types of watery habitat

Canada Goose

- Common Habitats
  - Lakes and rivers
  - Marshes
  - Bogs
  - Sloughs
- Most Common Species
  - Canada Goose
- Herbivorous
  - Grasses, sedges, grains

Diving Ducks (Bay Ducks)

Forage in open water habitats of lakes, ponds, rivers, and marshes

Lesser Scaup

Common Species

- Canvasback and Redhead
- Greater and Lesser Scaup
- Ringed-necked Duck

Canvasback

Feeding Habits and Diet

- Dive underwater to obtain food
- Aquatic plants, fish, mollusks, crustaceans, aquatic invertebrates

Dabbling Ducks (Puddle Ducks)

Forage in shallow water by tipping rather than submersing

Blue-winged Teal

Common Species

- Mallard, Black Duck, Pintail
- Gadwall, Shoveler, Wood Duck
- Widgeons and Teals

Mallards feeding

Feeding Habits and Diet

- Have specialized bills
- Filter aquatic invertebrates, seeds, and other plant materials

Herons and Egrets

Herons and Egrets hunt in shallow waters by stalking their prey

Black-crowned Night-Heron

Common Species

- Great Blue and Little Blue Herons
- Great and Snowy Egrets
- Black-crowned Night-Heron

Great Egret

Diet

- Fish, frogs, lizards, and insects

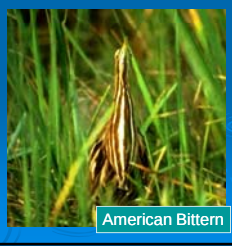
Bitterns

Secretive birds that forage and nest in wetlands with tall dense vegetation

Least Bittern

Common Species

- American Bittern
- Least Bittern



American Bittern

Least Bittern

- Small fish and insects

American Bittern

- Fish; amphibians, crayfish, insects

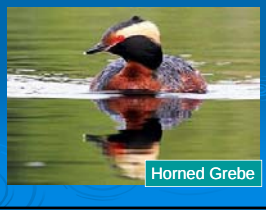
Grebes

Forage by diving in open water and among aquatic vegetation

Pied-billed Grebe

Common Species

- Pied-billed Grebe
- Horned Grebe



Horned Grebe

Diet

- Fish
- Aquatic macroinvertebrates
- Own feathers

Rails

Secretive birds of freshwater marshes; often hiding in dense vegetation

Sora

Common Species
- Virginia Rail
- Sora

Virginia Rail

Virginia Rail
- Fish; amphibians, crayfish, insects

Sora
- Aquatic insects, snails, worms, fish
- Aquatic plants and seeds – winter

Coots and Moorhens

Duck-like rails that often swim and forage in open water habitats

Common Moorhen

Common Species
- Common Moorhen
- American Coot

American Coot

Common Moorhen
- Seeds of grasses/sedges, snails

American Coot
- Plants, fish, invertebrates, eggs
- Pirate food from other species

Plovers

Semipalmated is most common plover seen on migration in most areas

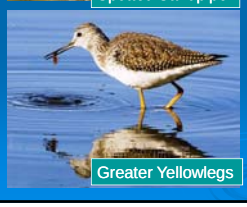
Semipalmated Plover

Feeding Habits and Diet
- Large eyes
- Short, thick bills
- Run and peck strategy
- Stand looking for prey
- Run to feed on detected prey
- Aquatic invertebrates

Sandpipers

Highly diverse family found along wetlands and shores

Spotted Sandpiper



Greater Yellowlegs

Feeding Habits

- Small eyes and specialized bills
  - Find food by probing (touch)

Different species forage together

- Short bill: exposed crustaceans
- Medium bill: clams near surface
- Long bill: burrowing invertebrates

Least Sandpiper

Stilts and Avocets

Fairly uncommon in the northeastern United States

Black-necked Stilt

- 2nd longest legs
- Water up to 15 cm deep
- Aquatic invertebrates

American Avocet

- Water 10 to 20 cm deep
- Sweep bill side to side
- Stir up aquatic insects

Cranes

Open freshwater wetlands, marshes, and wet meadows

Sandhill Crane

New York Sightings

- Occur during migration
  - March – April
  - October – November

Feeding Habits and Diet

- Tubers, grains, seeds
- Small vertebrates
- Invertebrates

Wetland Mammals

Many species of mammals depend on wetland habitats for survival

Breeding, Foraging, Shelter, etc.

Focus on some of the more common wetland-dependent mammals

Beavers

Beavers are a "Keystone" species in North America

- Biodiversity
- Create wetland habitat
- Habitat for many species
- Wood ducks

Beavers

Beavers select dam sites based on topography and food supply

Beaver Dams

- Large flat area
- Plenty of desirable woody plants
- Constrictions in stream flow

Diet

- Woody and aquatic vegetation
- Aspen, alder, birch, maple, poplar
- Girdle coniferous trees

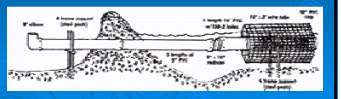
Beaver Problems

Problems are much easier to take care of when they first occur

Beaver Damage

- Blocking ditches and culverts
- Flooding roads, crops, timber
- Burrowing into dikes and levees
- Eating or cutting trees

Clemson Beaver Pond Leveler



Potential Solutions

- Habitat improvements
- Trapping

Nutria

Nutria are now recognized as an invasive wildlife species

Description

- Native to South America
- Imported for fur industry
- Invasive – 22 states

Diet

- Prefer basal portions of plants
  - Dig roots, rhizomes, tubers
- Wasteful feeders
  - Destroy root mat
  - 90% plant material unconsumed

Nutria Damage

Most extensive damage is a direct result of feeding and burrowing

- Eat Outs – convert to open water
- Degrades marsh habitat
- Weakens stream banks, levees, dikes

Nutria Damage Control

Exclusion is often the best long term solution to nutria damage


Fencing


Rock riprap


Gradually sloping edges


Trapping or poisoning

Muskrats

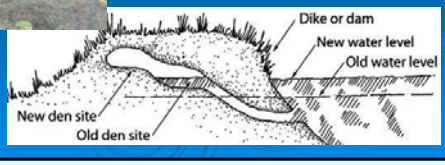
Natural marsh cycle – muskrats control persistent emergent vegetation

- Aquatic plants, prefer cattails
- Carnivorous when food scarce
- Feeding creates open water
- Prey for other animals

Muskrat Damage

Digging and burrowing is the most common problem

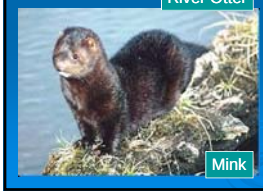
- Trap and fill burrow with soil
- Gentle slopes (3:1 or less)
  - borrow fill material away from levee
- Riprap or 1 or 2 mesh poultry wire
  - 3 feet below to 1 foot above water level



Mink and River Otters

Indicator species for environmental contamination and habitat quality

River Otter



Mink

Habitats

- Wetlands and riparian areas
- Surrounding upland vegetation

Mink Diet

- Muskrats and small rodents
- Summer – birds and crayfish
- Winter – fish

River Otter Diet

- Primarily fish; crayfish & herps

Top predators in the food chain

Summary

- Many species depend on wetlands for their survival
- Different species utilize different wetland habitats
- Aquatic invertebrates play an important role
- Ephemeral wetlands are critical habitats
- Protecting and restoring wetlands is not enough
  - Surrounding uplands and connectivity