Chautauqua County Envirothon
Wildlife Review

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Wildlife Learning Objectives

For successful completion of the wildlife section, contestants should be able to:

1. Assess suitability of habitat for given wildlife species
2. Identify signs of wildlife
3. Cite examples of food chains based on specific site conditions
4. Analyze/Interpret site factors that limit or enhance population growth, both in the field and with aerial photos
5. Interpret significance of habitat alteration due to human impacts on site
6. Evaluate factors that might upset ecological balance of a specific site
7. Identify wildlife by their tracks, skulls, pelts, etc.
8. Interpret how presence of wildlife serves as an indicator of environmental quality
9. Identify common wildlife food
WILDLIFE OUTLINE

I. Identification of NYS Species (http://www.dec.ny.gov/23.html)
   • A. Identify NYS wildlife species by specimens, skins/pelts, pictures, skulls, silhouettes, decoys, wings, feathers, scats, tracks, animal sounds, or other common signs
   • B. Identify general food habits, habitats, and habits from teeth and/or skull morphology
   • C. Specific habitats of the above

II. Wildlife Ecology
   • A. Basic ecological concepts and terminology
   • B. Wildlife population dynamics
     • 1) Carrying capacity
     • 2) Limiting factors
   • C. Adaptations of wildlife
     • 1) Anatomical, physiological and/or behavioral
   • D. Biodiversity
     • 1) Genetic, species, ecosystem or community
III. Wildlife Conservation and Management

A. Common management practices and methods
   1) Conservation
   2) Protection
   3) Enhancement

B. Hunting regulations

C. Land conflicts with wildlife habitat needs

D. Factors influencing management decisions
   1) Ecological
   2) Financial
   3) Social

E. Legislation
Outline Continued..

- **IV. Issues Involving Wildlife and Society**
  - A. Invasive and non-native species
    - 1) Examples in NY
    - 2) Environmental impact
  - B. Endangered, Threatened, Species of Concern
    - 1) Examples native to NY
    - 2) Habitat requirements
    - 3) Legislation
    - 4) Terminology and factors
  - C. Diseases
    - 1) Commonly found in NY
Definitions

- **Extinct** - Species is no longer living or existing.
- **Extirpated** - Species is not extinct, but no longer occurring in a wild state within New York, or no longer exhibiting patterns of use traditional for that species in New York (e.g. historical breeders no longer breeding here).
- **Endangered** - Any native species in imminent danger of extirpation or extinction in New York State.
- **Threatened** - Any native species likely to become an endangered species within the foreseeable future in New York State.
- **Special Concern** - Any native species for which a welfare concern or risk of endangerment has been documented in New York State.
Extinct

**MAMMALS**
- Eastern Elk (*Cervus canadensis canadensis*)
  Formerly found in: United States east of Great Plains
  Extinct in 1880

**BIRDS**
- Carolina parakeet (*Conuropsis carolinensis carolinensis*)
  Formerly found in: Southeastern United States
  Extinct about 1920
- Heath Hen (*Tympanuchus cupido cupido*)
  Formerly found in: Eastern United States
  Extinct in 1932
- Passenger Pigeon (*Ectopistes migratorius*)
  Formerly found in: Central and eastern North America
  Extinct in 1914

**FISHES**
- Blackfin cisco (*Coregonus nigripinnis*)
  Formerly found in: Lakes Huron, Michigan, Ontario, and Superior
  Extinct in 1960s
- Blue pike (*Stizostedion vitreum glacum*)
  Formerly found in: Lakes Erie and Ontario
  Declared extinct in 1983
Examples of Extinct Species once abundant in New York

• The **Eastern elk** (*Cervus canadensis canadensis*) is one of six subspecies of elk that inhabited northern and eastern United States, and southern Canada. The last Eastern elk was shot in Pennsylvania on September 1, 1877.[1][2] The subspecies was declared as **extinct** by the United States Fish and Wildlife Service in 1880.

• The **blue walleye** (*Sander vitreus glaucus*), also called the **blue pike**, was a subspecies of the walleye that went extinct in the Great Lakes in the 1980s. Until the middle of the 20th century, it was a commercially valuable fish, with about a half million tons being landed during the period from about 1880 to the late 1950s, when the populations collapsed.

• The **Passenger Pigeon** or **Wild Pigeon** (*Ectopistes migratorius*) is an extinct North American bird. The species lived in enormous migratory flocks until the early 20th century, when hunting and **habitat destruction** led to its demise.
EXTIRPATED
A Species that no longer exists in the wild in a certain country or area, but can be found elsewhere in the world. Extinct in a specific area.

Declining species are not yet extirpated but are at risk of disappearing. Species are categorized by the landscape they inhabit - county-wide, mountains, plains

Canada Lynx - The lynx is considered extirpated in New York because there is no evidence of any remnant population of resident animals.

Eastern Cougar - The Eastern Cougar, or Mountain Lion, is listed as an endangered species in New York. This animal was historically present in the state, but has been absent since the late 1800s.
New York State's official mammal, the beaver is unmistakable due to its large body size (26-65 pounds, 25-35 inches) and broad flattened tail (9-10 inches long, 6 inches wide), not to mention the characteristically altered habitat in which it resides. Characteristics unique to the beaver include a nictitating membrane, or a secondary internal, opaque inner eyelid, valvular ears and nose, and lips that close behind the incisors, thereby allowing a beaver to gnaw under water.

Beaver rarely leave the water for any extended duration of time and can be found inhabiting wooded streams, the margins of lakes, ponds, and reservoirs, swamps and marshes, and many other sources of year-round water. Ideally, waterways will be of low gradient with an abundance of aspen, willow or alder, and a diversity of other woody and herbaceous vegetation.

The beaver's diet consists almost entirely of cellulose in the form of woody plant material. Woody plants are nearly indigestible to mammals, so digestion is aided by microorganisms inhabiting the small intestine. Beavers eat the leaves, bark and twigs of trees such as aspen, willow and red maple and a variety of herbaceous plants. During summer months, their dietary preferences may shift to aquatic vegetation including water lilies and rhizomes from shoreline ferns.
• The Eastern bluebird can see an insect 100 feet away.
• In the fall, roosting flocks of up to 50 birds huddle together at night to stay warm.
• Bluebirds are one of the first birds to return north in the spring.
• The Eastern Bluebird was named our state bird in 1970.
• Bluebirds are about 7" long
• Bluebirds nest in cavities in standing dead trees and in nesting boxes.
• Bluebirds eat insects, seeds and berries, so look for them in fields, meadows and orchards.
• The male is bright blue with white undersides and a rust-colored breast. The female is grayish blue, but otherwise similar to the male
Blanding's Turtle
Emydoidea blandingii

• New York Status: Threatened
  Federal Status: Not Listed
• The Blanding's turtle is a medium sized turtle with an average shell length of approximately seven to nine inches and a maximum length of 10 inches.
• A distinguishing feature of this turtle is the bright yellow chin and throat.
• The head and legs are dark, and usually speckled or mottled with yellow.
• In New York, the clutch size ranges from 5-12 eggs with an average of eight.
• This species' range centers around the Great Lakes, and extends from central Nebraska and Minnesota eastward through southern Ontario and the south shore of Lake Erie as far east as northern New York, with a few disjunct populations in southeastern New York (Dutchess County. Recent investigations in northern New York report the range of this turtle to be primarily in the vicinity of the Thousand Island region along the St. Lawrence River. In this region it is found in isolated coves and weedy bays, and further inland in shallow, marshy waters and ponds. It does not commonly occur in the main channel of rivers.
• Blanding's turtles take 18-22 years to reach sexual maturity and may live to be 70 years old.
The lake sturgeon is New York's largest freshwater fish. Mature adults average between three to five feet in length and ten to 80 pounds in weight, but can occasionally grow to be as large as seven plus feet, and 300 plus pounds. Primitive in appearance, the lake sturgeon has a torpedo-shaped body that is covered with five rows of bony plates. The top and side bony plates are the same color as the dull grey body. There are four barbells on the underside of the sharp, cone-shaped mouth.

Lake sturgeon are some of the longest-lived and slowest to mature freshwater fish species. Females do not reach maturity until 14 to 23 years old and males eight to 19 years old. Adult lake sturgeon display interesting behavior during spawning, sometimes leaping out of the water to fall with a loud splash.
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There are many different reasons why plants and animals become endangered or threatened. The biggest reason is loss of their homes or habitats. Habitat loss happens as more and more people move into new areas and push wildlife out. Illegal or unregulated killing of animals and over collection of plants may also cause a species to become endangered.

Other reasons why endangered species are in trouble are because of pesticides and pollution, competition with other non-native and Invasive species in their habitat, diseases, and predation.
The Endangered Species Act says it is the job of the US Fish and Wildlife Service to protect endangered and threatened species and habitats they depend upon. Plight of the Whooping Crane, prompted the 1966 Endangered Species Act.
The Fish and Wildlife Service makes sure endangered and threatened species are identified, put on the endangered species list, enforces protection for them under the law, assists other government agencies with protecting endangered and threatened species, and develops plans for restoring endangered or threatened species to a secure condition.
The National Environmental Policy Act (NEPA) is a United States environmental law that established a U.S. national policy promoting the enhancement of the environment and also established the President's Council on Environmental Quality (CEQ). This law was passed in 1972. NEPA's most significant effect was to set up procedural requirements for all federal government agencies to prepare Environmental Assessments (EAs) and Environmental Impact Statements (EISs). EAs and EISs contain statements of the environmental effects of proposed federal agency actions. NEPA's procedural requirements apply to all federal agencies in the executive branch. NEPA does not apply to the President, to Congress, or to the federal courts.
Bradford Emerald Ash Borer Remediation Project
Scoping Document

Photos courtesy of Kathleen S. Knight, PhD, and the Northern Research Station

Allegheny National Forest
Bradford Ranger District
Warren, McKean, and Forest Counties, Pennsylvania
Definitions

**Ecosystem**
All living things and their environment in an area of any size, linked together by energy and nutrient flow

**Natural Diversity**
The wide variety of living things that make up an ecosystem
All living things are connected to each other including humans. It is like a web. The more we learn about the “web of life” the more connections we discover. We are quickly learning that when we remove anything in nature, something else is affected.
**Biodiversity** is the degree of variation of life forms within a given ecosystem, biome, or an entire planet. Biodiversity is a measure of the health of ecosystems. Greater biodiversity implies greater health. Biodiversity is in part a function of climate. In terrestrial habitats, tropical regions are typically rich whereas polar regions support fewer species.
Adaptation is the evolutionary process whereby a population becomes better suited to its habitat. This process takes place over many generations.
There is more life in a one acre of a healthy wetland than there is in one acre of almost any other kind of habitat. Wetlands are virtual havens for the endangered species of the United States; about 35% of all plants and animals listed as threatened or endangered in the United States either live in wetlands or depend on them in some way.
Global warming is the term used to describe a gradual increase in the average temperature of the Earth's atmosphere and its oceans, a change that is believed to be permanently changing the Earth’s climate. Polar Bears are just one animal that is being impacted by Global warming. It is on the Arctic ice that the polar bear makes its living, which is why global warming is such a serious threat to its well-being.
Migration

Animal migration: The traveling of long distances in search of a new habitat. The trigger for the migration may be local climate, local availability of food, or the season of the year.

What are some species that migrate in New York State?
The endangered shortnose sturgeon's life history is complex. Much of its spawning behavior and early life stages are still not fully understood. The shortnose sturgeon is anadromous, migrating in the Hudson River; it spawns from April-May. Adult sturgeon migrate upriver from their mid-Hudson overwintering areas to freshwater spawning sites north of Coxsackie.

Anadromous: fishes are ones that migrate from the sea into fresh water to spawn; or, ones that stay entirely in sea water and migrate upstream to spawn.

The monarch butterflies will spend their winter hibernation in Mexico and some parts of Southern California where it is warm all year long. If the monarch lives in the Eastern states, usually east of the Rocky Mountains, it will migrate to Mexico and hibernate in oyamel fir trees.
Invasive and Exotic Species of North America

any species, including its seeds, eggs, spores, or other biological material capable of propagating that species, that is not native to that ecosystem; and whose introduction does or is likely to cause economic or environmental harm or harm to human health.
Nuisance & Invasive Species

Nuisance Species
Problems sometimes arise when the activities of people and wildlife clash. We have provided links to sources of information that will help you better understand wildlife and their habits and suggest things you can do to prevent and control wildlife damage. Please note that most wildlife is protected by state and federal law, and some control activities may require permits.

Invasive Species
What is an invasive species?
Invasive species are non-native species that can cause harm to the environment, the economy or to human health. Invaders come from all around the world. As international trade increases, so does the rate of invasive species introductions.

Why are invasive species a threat?
Invasive species threaten nearly every aspect of our world and are one of the greatest threats to New York's biodiversity. They cause or contribute to:

- Habitat degradation and loss
- The loss of native fish, wildlife and tree species
- The loss of recreational opportunities and income
- Crop damage and diseases in humans and livestock

Use the links below to find information on specific invasive species and learn what DEC is doing to combat them.

Plants
Daidyo (Rock Snout)
Giant Hogweed

Insects
Asian Longhorned Beetle (ALB)
Emerald Ash Borer (EAB)
Hamlock Wooly Adalgid
Gypsy Moth
Sirex Woodwasp

Fish and Shellfish
Chinese Mitten Crab
Northern Snakehead Fish
Sea Lamprey

Mammals
Feral Swine
Giant Hogweed (*Heracleum mantegazzianum*)
Japanese Knotweed (*Polygonum cuspidatum*) (a.k.a. *Fallopia japonica*)
Japanese Stiltgrass (*Microstegium vimineum*)
Mile-a-Minute Vine (*Polygonum perfoliatum*)
Pale Swallow-wort (*Vincetoxicum rossicum*) (a.k.a. *Cynanchum rossicum*)
also Black Swallow-wort (*Vincetoxicum nigrum*) (a.k.a. *Cynanchum louiseae*)
Water Chestnut (*Trapa natans*)

Hydrilla or common reed (*Phragmites austalis*)
Garlic Mustard (*Alliavia petiolata*)
Multiflora Rose (*Rosa multiflora*)
Honeysuckle (*Lonicera spp.*)
New York Fern (*Thelypteris noveboravaensis*)
Hay Scented Fern (*Dennstootdita punctilobula*)
Buckthorn (*Rhamnus*)
Striped Maple (*Acer pensylvanicum*)
Beech (*Fagus grandiflora*)
Chronic Wasting Disease

- **What Is Chronic Wasting Disease?** Chronic Wasting Disease (CWD) is a contagious neurological disease affecting deer and elk. It causes a characteristic spongy degeneration of the brains of infected animals resulting in emaciation, abnormal behavior, loss of bodily functions and death.

CWD belongs to a group of diseases known as transmissible spongiform encephalopathies (TSEs). Within this family of diseases, there are several other variants that affect domestic animals: scrapie, which has been identified in domestic sheep and goats for more than 200 years, bovine spongiform encephalopathy (BSE) in cattle (also known as "mad cow disease"), and transmissible mink encephalopathy in farmed mink.
Northeast Wildfires. Do they Happen in New York State?
The biggest effect wildfire has on wildlife habitat is by altering the three things animals need most: food, water, and shelter.
Herbivores and species that prefer herbaceous vegetation for cover prefer the grass/forb habitats or broad-leafed forests that often become established after a burn.
Habitat Loss

The biggest effect fire has on wildlife is the change in their habitats. Wildlife habitats, like forests, are not static; they evolve and respond to disturbances as do other natural systems. Fire changes the proportion, arrangement, and characteristic of habitats across the landscape.
Fire changes the proportion, arrangement, and characteristic of habitats across the landscape. Immediately after a fire, there can be temporary loss of food and shelter. Depending on the vegetation type, burning can increase or improve forage for wildlife from a few years to as long as 100 years. In some cases, the nutritional content and digestibility of plants will temporarily increase as well.
Prescribed Fire in NYS

What are some benefits related to wildlife of Prescribed burning?
Parts of this slide show were downloaded from the U.S. Fish and Wildlife Website, EPA website, New York DEC, and the NYS Envirotón Website.
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