

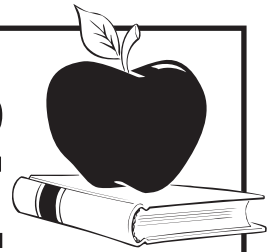
GRADE LEVEL: 3

CORRELATION TO NEXT GENERATION SCIENCE STANDARDS: 3-LS4-3, 3-LS4-4

SKILLS/PROCESSES: comparison & generalization, analysis, fact-finding, evaluation, creativity, application, inference, relationships

OBJECTIVE: Students will be able to: 1) identify and describe some causes for extinction of animal species; and 2) define rare, threatened and endangered as they apply to animal populations.

# TEACHER'S GUIDE



## UNIT THREE ■ LESSON ONE

# Endangered and Threatened Species

## BACKGROUND

Although **extinction** is a natural process, extensive and excessive human interaction with the environment has greatly increased its rate. Habitat destruction is the single greatest cause of extinction. Other human-related causes include habitat damage, unregulated or illegal commercial and personal use, disruption of migration routes and breeding behaviors, contamination by pollutants, and competition or predation from artificially introduced species.

In Illinois, in 2015, a total of 356 species of plants and animals are **endangered**, and 124 species are **threatened**. There are five species of endangered mammals and four species of threatened mammals.

**Rare** species, though not in immediate danger, are few in number. Some species have always been rare because their natural range does not include much of Illinois or because they have limited habitat preferences. Threatened species are those still present in their natural range, but whose numbers are declining and are likely to become endangered in the foreseeable future. Endangered species are those in immediate danger of extinction as a breeding species. **Extirpated** species are those that have become eliminated from a portion of their range. For instance, elk and American bison have been extirpated from Illinois.



NORTH AMERICAN RIVER OTTER

## PROCEDURE AND DISCUSSION

Review the student information with the class, emphasizing the impact of human activity on threatened and endangered species and methods for correcting the situations we have created.

### 1. What is extinction?

Extinction is the complete elimination of a species.

### 2. What human activities can threaten a species with extinction?

Destroying natural habitats, unregulated killing of animals for personal or commercial use, pollution, disturbing migration or breeding behaviors, and introducing exotic species can threaten or endanger animal species.

### 3. What criteria make a species rare?

A species is considered rare if its numbers are low but stable.

### 4. What does endangered mean?

A species is endangered if it is in immediate danger of extinction as a breeding species.

## VOCABULARY

**endangered**—any species which is in danger of extinction as a breeding species

**extinction**—the elimination of a species

**extirpated** or **extirpation**—the elimination of a species from a portion of its historic range

**rare**—low, but stable, in number

**threatened**—a breeding species which is likely to become endangered in the foreseeable future

## CHALLENGE YOURSELF EVALUATION

1. Extinction is the elimination of a species.
2. The prey items would greatly increase until the habitat could no longer support them.
3. We can help endangered species by careful planning of construction and development, acquiring critical land, educating people and making environmental regulations stronger.
4. We are increasing the rate of extinction tremendously beyond the natural rate.
5. The American bison no longer is found in the wild in Illinois although it does live in other areas of the United States.

## ACTIVITY PAGE EVALUATION

Each poster should be assessed, making sure that it meets the stated parameters.

## EXTENSIONS

Create a publicity campaign to increase awareness about local endangered and threatened species.

Have the students conduct research to find out what people are doing to help endangered species. As a class, develop and implement a project that can be used to help endangered species in Illinois to survive.

# Endangered and Threatened Species

# STUDENT'S GUIDE

When all members of a particular species have died, the species has become **extinct**. Dodo birds and passenger pigeons are extinct.

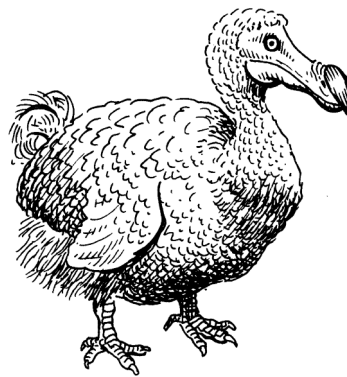
Extinction is a natural process and often has natural causes. If the climate changes greatly, as it has at different times in the past, many species unable to live in the new conditions will die. Many scientists believe this is what happened to the mastodon and other species during the last Ice Age.

Since the 1600s, several hundred species of wildlife, including the dodo bird and passenger pigeon, have become extinct directly or indirectly as a result of human activities. When humans excessively clear forests or other habitats for their own use, kill great numbers of animals for personal or commercial use or pollute the water and land, many species are driven toward extinction. Sometimes our activities interfere with natural migration routes or breeding behaviors. If we introduce a foreign or alien species into an ecosystem, it can change or even destroy the delicate balance of the food chain.

In Illinois one or another of these activities is threatening barn owls, spotted turtles, eastern woodrats, Indiana bats and other species.

When the number of a species is low but stable, we say it is **rare**. If its numbers are low and getting lower, and it is likely to become **endangered** as a breeding species within the foreseeable future, we say it is **threatened**. When it is threatened with extinction, we say the species is endangered. If it has been eliminated from a part of its historic range, it is **extirpated** in that area.

It is our responsibility to recognize and evaluate the consequences of our actions and, through planning and management of our natural and cultural resources, strive to correct and avoid them. Education, careful planning of construction and development projects, acquisition of critical land and more stringent environmental regulation may help to slow the process, but even these practices do not offer guaranteed results. There have been successful efforts, though. The reintroduction of the North American river otter to its historic habitats in Illinois has resulted in the establishment of this species that was once thought to be headed for extirpation.



DODO BIRD – failure



NORTH AMERICAN RIVER OTTER – success

## CHALLENGE YOURSELF

1. What is extinction?
2. What do you think would happen in an ecosystem if predators became extinct?
3. How can we help a species that is endangered?
4. Since extinction is a natural process, why would we be concerned about our actions and the problems our actions have caused?
5. The American bison has been extirpated from Illinois. What does this statement mean?

## VOCABULARY

endangered	rare
extinction	threatened
extirpated or extirpation	

# ACTIVITY PAGE:

## Endangered Species Gallery Walk

### What you will need

- poster board or large paper
- writing/coloring tools
- access to reference materials

### VOCABULARY

### WHAT YOU DO

1. Select an animal from the current Illinois endangered and threatened species list. You can find the latest list at <http://www.dnr.illinois.gov/ESPB/Pages/default.aspx>.

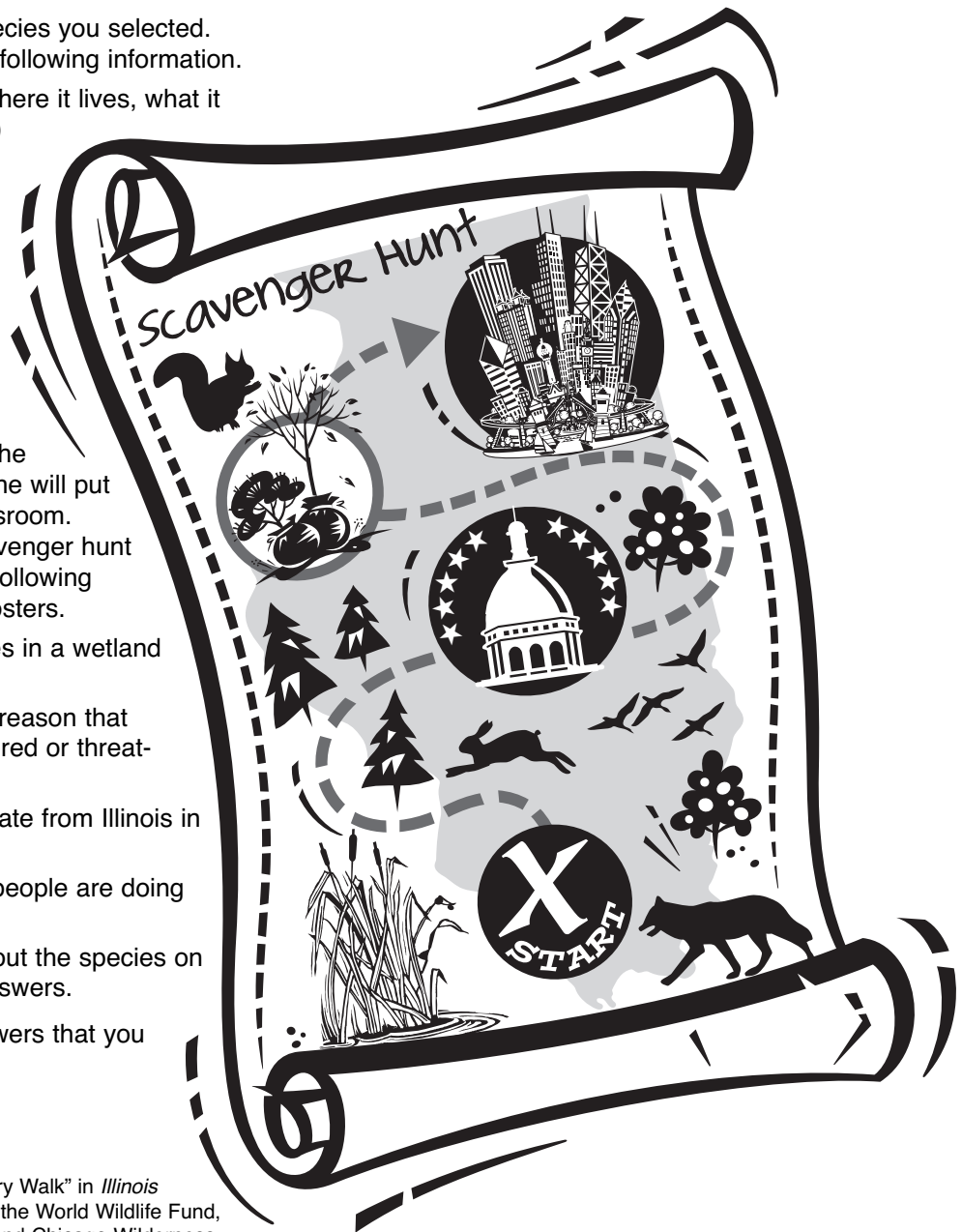
2. Develop a poster about the species you selected. Your poster should include the following information.

- life history of the animal (where it lives, what it eats, how long it lives, etc.)
- why this species is endangered or threatened
- what is being done to help the species
- a photograph or drawing of the species
- a range map (where the species lives in Illinois)

3. When you have finished, give the poster to your teacher. He or she will put the posters up around the classroom. Now you will take part in a scavenger hunt using the posters. Answer the following questions as you look at the posters.

- Name one species that lives in a wetland habitat.
- What is the most common reason that these species are endangered or threatened?
- Do any of the species migrate from Illinois in the fall?
- What are two actions that people are doing to help these species?
- Make up two questions about the species on the posters and find the answers.

4. Discuss with the class the answers that you found.



Adapted from "Endangered Species Gallery Walk" in *Illinois Biodiversity Basics*, 2002, a publication of the World Wildlife Fund, Illinois Department of Natural Resources and Chicago Wilderness.