

# ENDANGERED SPECIES CURRICULUM

## GRADES 10 – 12

### Topic

Endangered Species and the U.S. Endangered Species Act

### Goals/Objective

**Educate students about endangered species.** This includes their habitat, threats to their survival, and ecological and social value.

**Educate students about the U.S. Endangered Species Act.** This includes a brief history, its purpose and success stories as well as factors both threatening and strengthening this piece of legislation.

**Show students how to get involved.** This includes information on letter writing, public art displays and habitat awareness.

**Suggested Time Allowance:** 1 hour

### Materials

- Handout 1- Endangered and Extinct Species—two copies, cut up one for class. (<http://www.fws.gov/arkansas-es/esday.html>)
- Handout 2- Understanding the Endangered Species Act & reading materials (<http://www.fws.gov/arkansas-es/esday.html>)
- The Citizen’s Guide to the Endangered Species Act
- On the Endangered Species Day site, link from ([www.stopextinction.org](http://www.stopextinction.org))
- Salon.com article “*Inside the secretive plan to gut the Endangered Species Act*” ([http://www.salon.com/news/feature/2007/03/27/endangered\\_species/index\\_np.html](http://www.salon.com/news/feature/2007/03/27/endangered_species/index_np.html))
- Letter writing material, envelopes with senator’s addresses (link below)

## CLASSROOM PRESENTATION

### Introductory Vocabulary

*Biodiversity:* The variety of all life on earth

*Biologist:* A person who studies living organisms

*Native species:* A species that naturally occurs in an ecosystem

*Invasive species:* A species that has been introduced into an ecosystem that it does not naturally inhabit

*Extinct species:* A type of animal or plant that no longer exists

*Habitat:* The place or environment where a plant or animal naturally lives and grows, the essential elements it needs to survive including water, food, shelter and space

*Stewardship:* Responsible management and care of the environment  
**Endangered Species Act:** A law passed to ensure the survival and recovery of endangered and threatened species by protecting the species and the ecosystems they depend upon.

- What does **Extinct** mean?
- Extinct means an animal is gone **forever!** For example, the passenger pigeon was hunted to extinction in the United States. Extinct means there is a big hole in the ecosystem effecting all plants and animals in that ecosystem.
- What does **Endangered** mean?
- Endangered means a species is **in danger** of extinction in the near future. It means that something is attacking its home, its food source, or directly attacking that species. *Ask students to think of examples of how species are being attacked.* For example, Elephants in Africa are endangered because people hunt them for their tusks.
- What does **Threatened** mean?
- Threatened means a plant or animal is likely to become endangered soon. This is a good time to take actions to make sure these plants and animals don't get on the threatened list.

### **Interactive Game**

This game demonstrates the *great loss of plants and animals* around the world. Scientists estimate that over 500 species of plants and animals have gone extinct in the US in the past 200 years. Biodiversity is essential to planetary health.

- Start by handing out cards to students with names of extinct and endangered animals and plants (See Handout 1 - <http://www.fws.gov/arkansas-es/esday.html>).
- Ask students to stand up as the attribute of their species is read off until the entire class is standing.
- Explain that the world has lost a tremendous number of plants and animals from habitat destruction, pollution, non-native species and overharvesting.
- Have students to sit down if their species is extinct.
- The remaining standing students represent the plants and animals the Endangered Species Act is working to protect!

### **Why is plant and animal diversity important?**

**Read and discuss the following paragraphs written by Edward O. Wilson**, research professor emeritus from Harvard University. Part of an editorial published in *The Washington Post* in August 28, 2003, describes what he calls “the four horsemen of environmental ruin” and discusses the effect on biodiversity.

*“Each kind of forest or any other natural ecosystem is a masterpiece of evolution, exquisitely well adapted to the environment it inhabits. The fauna and flora of the world are, moreover, the cradle of humanity, to which we, no less than the rest of life, are closely adapted in our physical and psychological needs. Each species and its descendant species live, very roughly, a million years before suffering natural extinction. Worldwide, habitat destruction combined with the other three of the four horsemen of environmental ruin -invasive species, pollution, and unsustainable logging- have increased the rate of extinction by as much as a thousand-fold, thereby shortening the average life spans of species by the same amount.*

*At least one percent of America’s native plant and animal species has vanished, mostly during the past century, and a third are classified as vulnerable or endangered. Most native species,*

*including those still relatively safe, have undergone large reductions in abundance, geographic range and most likely, genetic diversity.”*

**Create a brainstorm** on the board with students highlighting the uses and value of plants and animals. How does biodiversity affect the local economy? Discuss how they are interconnected.

**Here are just a few ideas:**

- Food
- Clothing
- Medicine - The rosy periwinkle provides the cure for Hodgkin’s disease and certain forms of leukemia, while the Pacific yew helps with the treatment of cancer. A cure for many diseases may lie in a plant or animal waiting to be discovered.
- Healthy Environment – plants and wildlife maintain natural ecosystems for drinking water, flood protection, open space, and recreation.
- Personal Recreation - hiking, fishing, hunting, wildlife watching

### **The Endangered Species Act**

#### ***What is the Endangered Species Act?***

The Endangered Species Act is a federal law and is the safety net for wildlife, plants and fish that are on the brink of extinction. Upon signing the Endangered Species Act (ESA) on December 28, 1973, President Nixon stated "Nothing is more priceless and more worthy of preservation than the rich array of animal life with which our country has been blessed." This statement defines the ESA's ultimate purpose, which is to conserve the nation's natural heritage for the enjoyment and benefit of current and future generations.

#### ***Why do we need the Act?***

We need the Endangered Species Act in order to ensure our children and grandchildren can experience the environment as we have known it, and leave behind a legacy of protecting endangered species and the places they call home. The Endangered Species Act prevents the extinction of fish, plants and wildlife, an important responsibility to uphold because once they are gone they are gone forever.

#### ***How does the Act work?***

One of the most effective ways to protect species is to protect the places where they live. Species need their habitat as much as you need your house in order to survive. The Endangered Species Act protects the critical habitat that is needed to prevent the extinction of endangered fish, plants and wildlife. We live in this habitat as well and by preserving and keeping it clean we create a healthy environment for ourselves. The Endangered Species Act provides common sense solutions for government agencies, landowners, and concerned citizens to protect and restore endangered species and their habitat. It is based on three key elements:

- **Listing** species as threatened or endangered
- **Protecting habitat** essential for their survival and recovery
- **Restoring healthy populations** of the species

The bald eagle, the peregrine falcon, and the gray wolf have all benefited from the Endangered Species Act; once on the edge of extinction, they have rebounded to the point where populations

are more stable. The Act does more than just protect threatened species; it protects a habitat supporting the greater web of life.

**Listing:** A declining species has to be added to the official list of endangered and threatened species before it receives any federal protection. Government scientists may propose a species is listed because of the threats to its survival such as habitat loss, pollution, invasive species and overharvesting. Any person may petition the government to list a species as either endangered or threatened. The decision to list a species is supposed to be based solely on the best available science. The Fish and Wildlife Service maintains a current list of endangered and threatened species at [endangered.fws.gov](http://endangered.fws.gov).

**Critical Habitat:** The ESA requires the designation of critical habitat for all endangered and threatened species. Critical habitat is an area "essential to the conservation of the species", including areas that are not currently occupied by the species. Simply put, critical habitat is habitat necessary for the recovery of an endangered or threatened species. Since habitat loss is the most prevalent cause of endangerment -- affecting more than 95% of all listed species according to one study -- critical habitat must be protected if endangered and threatened species are to be conserved.

**Recovery Planning:** Recovery plans, as part of the Fish and Wildlife Service's Recovery Program, are designed to reverse the decline of a threatened or endangered species and eventually bring the population to a self-sustaining level. Each plan should include:

- a description of the species' current situation, including any relevant scientific data;
- a recovery objective (for example, a target population number), and a list of criteria for indicating when the objective has been achieved;
- an implementation schedule, including priorities of tasks and cost estimates;
- an appendix identifying appropriate external reviews of the plan, and any additional pertinent information.

A recovery plan may include a myriad of different options including reintroduction, habitat acquisition, captive propagation, habitat restoration and protection, population assessments, research and technical assistance for landowners, and public education. Unfortunately, implementation of a recovery plan is not mandatory, so it is up to concerned citizens to make sure the actions are taken to save endangered species

## **EXERCISE**

### **Reading**

- The Citizen's Guide to the Endangered Species Act
- Read one or more Success Stories Species Profiles

### **Essay/Discussion Questions**

1. Species are put on the endangered list if they are likely to become extinct in "the foreseeable future." What are some threats to species that could cause them to go extinct?

2. What is critical habitat? Why is critical habitat so important to the recovery of a species?
3. Why is it important for both state and federal agencies to manage recovery programs? What might happen if only state agencies managed the recovery? What might happen if only national agencies managed the recovery? How does a species range (the entire area it lives and roams in) relate to this issue?
4. Many local economies thrive because of the wildlife and wild places in the community, for example salmon supports both commercial and recreation fishing. How does the Endangered Species Act protect local economies?
5. Many projects can cause habitat destruction that in turn leads to loss of species. Currently the Endangered Species Act does not allow such projects. Why is this important?

## **Getting Involved**

### **Here are a few ideas of how to get involved**

- Pictures and murals to post up around your school and community
- Art, music, and activities always pique interest. Brainstorm ideas about how to spread awareness through your community through art.
- Adopt an endangered species
- "Adopt" an endangered species native to your area, find out how you can help conserve it, and inform the citizens in your community about your adopted plant or animal with speeches, newspaper articles, art, signs etc.
- Contact a local conservation group about habitat restoration projects you can get involved in. For a list of endangered species groups, visit [www.stopextinction.org](http://www.stopextinction.org).
- Letter writing to senators
- A simple statement by each student about why they want a particular species protected will make a meaningful impact. Maybe include pictures of your favorite endangered species.
- Sample letters can be found on the Endangered Species Coalition website at [www.stopextinction.org](http://www.stopextinction.org)
- Senators contact information can be found at: <http://www.senate.gov/>

### **For More Information:**

U.S. Fish and Wildlife Service – Arkansas Ecological Services Office  
<http://www.fws.gov/arkansas-es/esday.html>

Endangered Species Day website [www.stopextinction.org/endangeredspeciesday](http://www.stopextinction.org/endangeredspeciesday)

Endangered Species Coalition Citizen's Guide to the ESA and 30 Endangered Species success stories report [www.stopextinction.org/](http://www.stopextinction.org/)

U.S. Fish and Wildlife Service Endangered Species Program  
<http://www.fws.gov/Endangered/>

U.S. Fish and Wildlife Service Kids Corner  
<http://www.fws.gov/endangered/kids/index.html>

Endangered Species Glossary for students  
<http://www.fws.gov/endangered/kids/pdf/glossary.pdf>

The Endangered Species Act of 1973  
<http://www.fws.gov/Endangered/esa.html>

Environmental Protection Agency endangered species coloring book  
<http://www.epa.gov/espp/coloring/>

Union of Concerned Scientists Science in the Endangered Species Act is Threatened  
[http://www.ucsusa.org/scientific\\_integrity/restoring/science-in-theendangered.html](http://www.ucsusa.org/scientific_integrity/restoring/science-in-theendangered.html)

*Prepared by the Endangered Species Coalition [www.stopextinction.org](http://www.stopextinction.org)*