
CHAPTER 1

ENDANGERED SPECIES

When people hear the word **endangered**, most of them think of a large and majestic species, like the Asian elephant, or a cute and cuddly one, like the giant panda. While these creatures are indeed endangered, the threat of **extinction** is not limited to the few **species** we can recognize in pictures or on visits to zoos. The threat of extinction affects nearly every species on the planet.

Endangered Species has been selected as the theme of the first chapter of the Environmental Education volume because of its universal importance and its interest to students. By learning about some animal and plant species that are in trouble, students can discover why we need to protect all the species on the planet, including the ones that are not as cute as pandas or as majestic as elephants. Learning about endangered species is important for other reasons too. By examining the problems of endangered species, students can begin to appreciate the crucial role of **habitat** protection.

While reading about and discussing endangered plant and animal species, students improve their language skills by learning and using new vocabulary and concepts associated with the topic. The topic is a broad one and can be exploited in a variety of ways. Some teachers may decide to use the activities described in the section on [Classroom Applications](#) as a single 50-minute lesson. Others may choose to combine some of the materials outlined in the section on [Internet Resources](#) to create a more extensive teaching unit. The ideas presented here are offered only as a starting point for introducing the study of endangered species to students.



BACKGROUND INFORMATION

Most people have a general idea of what an endangered, **threatened**, or **extinct** species is, but biologists have rather precise definitions for each term. An endangered species is a type of animal or plant that is in immediate danger of extinction. The species usually has a small **population** and needs protection in order to survive. The mountain gorilla, the Indian python, the lady slipper orchid, and thousands of other plant and animal species throughout the world are endangered.

Biologists use the word threatened to describe species which face serious problems, but whose populations are not in immediate danger of becoming extinct. Some examples of threatened species are the African elephant, the northern spotted owl, and the eastern indigo snake.

Extinct species no longer exist or live anywhere in the world. The dodo, the passenger pigeon, and the dinosaurs are examples of extinct species.

AN OLD PHENOMENON

Extinction is not a new phenomenon. For hundreds of millions of years, extinction has been occurring naturally, as part of the evolutionary process. Some cases of extinction have been caused by natural disasters, such as volcanic eruptions. Others have been the result of environmental changes, such as shifts in climate. Sometimes extinction occurs on a very large scale, with hundreds or thousands of species becoming extinct over a relatively short period of time. An example of this is the dinosaurs and their contemporaries, victims of a mass extinction that took place at least 65 million years ago.

An Increasing Rate of Extinction

Although extinction itself is not an old phenomenon, the current rate of extinction is something new. Biologists say that at least three animal and plant species become extinct every day, a rate much higher than anything in the past 65 million years.

Why Species Become Endangered

Species become endangered for a wide variety of reasons. However, when individual cases are grouped and studied, the same broad causes appear again and again:

Rapid habitat destruction is the main reason that species become endangered. Natural changes usually occur at a slow rate, so the effects on individual species are usually slight, at least over the short term. When the rate of change is greatly speeded up, there may be no time for individual species to adapt to new conditions. The results can be disastrous. This increase in the rate of habitat destruction is directly linked to the rise in human population. As more people use more space--for homes, farms, shopping centers, and so on--there is less living space for species that cannot adapt to changing conditions. People also affect plant and animal habitats when they take wood, oil, and other products from the land.

Another people-related problem that harms wildlife is the introduction of **exotic species** - foreign species that are deliberately or accidentally introduced into new habitats by human activities. Sometimes an introduced species causes no obvious harm, but in other cases the introduced species causes serious problems. The worst of these problems is when introduced species begin to prey on native species and cause them harm.

Overexploitation is another reason species become endangered. One example of this is the case of the great whales, many of which were reduced to extremely low population sizes in the mid-20th century because of unrestricted whaling. In 1982 a number of countries agreed to put a ban on commercial whaling. As a result, some whale species that used to be endangered have made great comebacks. Many other species, however, are still at risk. Some other animal species experience high rates of exploitation because of the trade in animal parts. Currently, this trade is centered in several parts of Asia where there is a strong market for traditional medicines made from items like tiger bone and rhino horn. Other people-related problems that put plant and animal species at risk include **poaching**, **pollution**, and **over-collecting**.



CLASSROOM APPLICATIONS



PRELIMINARY LESSON PLANNING

Materials Preparation:

- Prepare and duplicate an Endangered Species Summary Sheet listing the names of 4-6 endangered species, as in the sample provided in [Appendix A](#). (Note: The activity will be more meaningful to students if you include an endangered species from their country.) Make enough copies of the Summary Sheet to give one to each student.
- Prepare a set of 4-6 Case Histories, one for each of the species listed on the Summary Sheet. A sample set of Case Histories is provided in [Appendix B](#). Duplicate enough copies of the set of Case Histories to give an individual Case History to each pair of students in the class.

Vocabulary Considerations:

Before using the Endangered Species Summary Sheet and the Case Histories in class, consider what vocabulary students will need to know to carry out the lesson successfully. Determine which vocabulary items the students are already familiar with and which items will be new for them. Some important terms and their definitions are included in the glossary in [Appendix A](#).



WARM UP ACTIVITY (APPROXIMATELY 5 MINUTES)

Purpose:

- To stimulate students' interest in the topic of endangered animal species
- To activate students' background knowledge
- To introduce students to vocabulary that will help them to successfully complete the lesson

Procedure:

1. Write the phrase *endangered species* on the board, and ask students what they think the phrase means.
2. As student volunteers give their answers, write key words from their responses on the board. If students are unfamiliar with the concept of endangered species, be prepared to provide the class with relevant information (see [Background Information](#) at the beginning of this chapter), adding words to the board as you introduce key ideas.
3. Ask students if they can name some of the reasons animals and plants become endangered. As volunteers suggest different reasons, list their answers on the board.

(Note: Do not erase the board. You will come back to it at the conclusion of the lesson.)



ACTIVITY #1 (APPROXIMATELY 25 MINUTES)

Purpose:

- To have students explore some of the reasons that plant and animal species become endangered
- To allow students to practice reading, note-taking, speaking, and listening in a meaningful way
- To give students the opportunity to use key vocabulary and concepts associated with the theme of the lesson

Procedure:

1. Distribute the Endangered Species Summary Sheet, giving one to each student. Tell the students that they are going to learn about the endangered species listed on the sheet and the problems each species is facing.
2. Put students into pairs, and give one Case History to each pair of students.
3. Explain the task to the students. They are to work in pairs, using the information in the Case History to find the information they need to fill in the required information about their assigned species. Explain that they are to take down the information in the form of brief notes.
4. Have pairs of students read the Case Histories and make notes in the appropriate boxes on the Endangered Species Summary Form.
5. Have pairs take turns giving their "summary reports" to the class. As students listen, they attempt to complete their charts with the information being reported. Encourage students to ask for repetition and clarification if necessary.



ACTIVITY #2 (APPROXIMATELY 15 MINUTES)

Purpose:

- To provide students with opportunities to use English in a meaningful way
- To reinforce key concepts and vocabulary associated with the theme of endangered species
- To give students the opportunity to be successful in English by asking them to report information discussed earlier with classmates

Procedure:

1. Tell the students to put their Case Histories away. Explain that they are to going to have a class discussion, and they should use the notes they made on the Summary Sheets to answer the questions.
2. Conduct a whole-class discussion centering on the following questions:
3. What animals are a big threat to kagus? (Dogs, pigs, cats, and rats that humans have brought to New Caledonia)
4. How do these animals harm kagus? (They eat kagus and their eggs.)
5. Which species are endangered because people like to collect them? (Black lace cactus, Manus Island tree snail, Karner blue butterfly)
6. What are some of the problems that have caused leatherback sea turtles to become endangered? (loss of nesting habitats; fishing; hunting)
7. What is the main reason that Asian elephants are in trouble? (Habit destruction: there is nowhere left for them to go to find food.)
8. Which species are in trouble because of habit destruction? (All of them. Most endangered species experience some form of habit destruction.)
9. From what you know about these species, are most animals and plants endangered because of only one reason, or because of a number of reasons? (Most species are endangered for a number of reasons.)



COOL DOWN ACTIVITY (APPROXIMATELY 10 MINUTES)

Purpose:

- To conclude the lesson
- To give students an opportunity to discuss the relevance of lesson

Procedure:

1. Ask the students to once again name some reasons that plant and animal species become endangered.
2. As volunteers provide answers, write them on the board.
3. When all volunteers have finished giving their answers, ask the class to compare this second list with the one they made at the start of the lesson. Ask students to comment on how this list is similar or different to the one they made earlier. What new information did they learn about endangered species?
4. Wrap up the lesson by asking students if they can name the main reason why plant and animal species become endangered. (Habitat destruction is by far the biggest problem that animals and plants face today.)



EXTENSIONS

1. Have students research another endangered species and write a paragraph or two about the particular animal or plant and why it is endangered.
2. Have students do a mini-survey on endangered species. Students should interview ten people, asking them to name five endangered species. Students should also ask interviewees to specify what action, if any, they think should be taken to save endangered species. Students summarize their findings in a one-page written report, indicating whether there was any consistency among the interviewees' answers.
3. Ask groups of students to select an endangered species. Groups work together to plan presentations about the species they have selected. This can be done in the form of a poems, posters, skits, or songs.

Refer to the [Internet Resources](#) section for more information and lesson planning ideas.



CHAPTER 1 APPENDICES

APPENDIX A

Endangered Species Summary Sheet					
	Description	Habitat	Range	Population	Survival Threats
Asian Elephant					
Black Lace Cactus					
Kagu					
Manus Island Tree Snail					
Leatherback Sea Turtle					
Karner Blue Butterfly					

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APPENDIX B

Case Histories
<p>Asian Elephant</p> <p>Asian elephants used to live in the forests from Iraq to southern China. Since these forests were cut down to make room for farms and villages, the elephants have been confined to small, hilly regions where they have little contact with humans. These tiny areas of land cannot supply enough food for the elephants. An adult elephant eats about 330 pounds (150 kg) of grasses, leaves, and other vegetation each day. When forests were larger, Asian elephants migrated with the seasons. In this way, they found fresh food supplies. The plants and trees could also regenerate after the elephants left.</p> <p>Today there is nowhere for the elephants to go. Experts say that the Asian elephant population is about 55,000, living on a habitat of about 190.73 square miles (494 sq km). In contrast to this, the African elephant population is about 10 times this size and lives on almost 3 million square miles (7.7 million sq. km) of available habitat.</p>
<p>Black Lace Cactus</p> <p>This colorful plant is a favorite of collectors around the world. It is a tiny plant, only 6 inches tall. It grows alone or in small groups in desert areas near the coast of southern Texas in the United States. It is called "black lace" because the pattern of spines on each stem looks like lace.</p> <p>One reason the black lace cactus is endangered is because its habitat has been destroyed. In areas where the land has been cleared to plant grass for cattle, the cacti have disappeared. Another problem is over-collecting. The plant's large pink and purple flowers are very pretty. For this reason, many people dig up the plants and take them home for their private collections. Other people dig up them up and sell them.</p>
<p>Kagu</p> <p>Many birds sing or whistle. Others--such as myna birds and many parrots--talk. The kagu is a bird that barks! These barking birds live in the forests of New Caledonia, an island about 900 miles (1,450 km) east of Australia.</p> <p>Kagus are big birds. They are 20-24 inches (51-61 cm) long and weigh about 1.9 pounds (0.9 kg). Their loud barking noise is becoming rare because only about 650 kagus are alive today.</p> <p>One problem for kagus is the animals that people have brought to the New Caledonia. These dogs, pigs, cats, and rats eat kagus or their eggs. Another problem is hunting. Some people kill kagus for their meat. But, the biggest problem for kagus is the loss of habitat. The forests of New Caledonia have been cleared for mining and agriculture, leaving only a few small valleys where the kagus can live.</p>

Manus Island Tree Snail

Manus Island, north of New Guinea, is covered with rain forest. The Manus Island tree snail, a small animal with a bright green shell, lives in the tops of the trees in this forest.

Over-collecting has been a serious problem for these small animals. Many people like to collect the shells of Manus Island tree snails because of their beautiful color. The 1.6-inch long (4 cm) shells are often used for jewelry. Another big problem for these snails is the loss of the forests where they live. Loggers are cutting down more and more trees of the Manus Island rain forest.

Little is known about the habits of this little animal. If the logging and collecting continue, soon there will be no Manus Island tree snails left to study.

Leatherback Sea Turtle

Picture a turtle that is six feet (1.8 m) long and weighs 1400 pounds (636 kg)! That's the size of a large Leatherback sea turtle, the largest turtle on earth. It is called "leatherback" because its shell is covered with a leathery-type skin.

Leatherbacks live in the warm waters of the Atlantic, Indian, and Pacific Oceans. Males spend all of their time at sea, and females come on land only when it is time to lay their eggs.

Loss of nesting habitats is a serious problem for Leatherbacks. Females build their nests on remote sandy areas along the coast. Because many coasts are being made into beaches, leatherbacks often cannot find a safe place to lay their eggs. Other problems are fishing and hunting. Leatherbacks get caught in fishing nets, and in some parts of Asia they are hunted for food and oil. Only about 100,000 females are alive today. It is hard to know the number of males since they never come ashore.

Karner Blue Butterfly

With a wingspan of about one inch (2.5 cm), Karner Blue butterflies are among the smallest of all butterflies. They are also among the rarest. They are found in the Midwestern and northeastern parts of the United States.

Many people like to collect Karner Blue butterflies because they are so beautiful. However, because numbers of Karner Blue butterflies are so low, the collection of even a few can seriously harm their population.

An even bigger problem for these butterflies is habitat loss. The only known food of the Karner blue butterfly is the wild lupine, a small blue flowering plant. Wild lupine grows best in sandy soils, in areas that are occasionally cleared by wildfires. Land development and lack of wildfire have reduced the growth of this plant. Without the wild lupine, Karner Blue butterflies cannot exist.

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