

## 8.2 Endangered Species I —What's Happening?: Information

The data in Table A represent the human population of the world, in millions. The data in Table B represent the numbers of birds and mammals that became **extinct** during each 50-year period. It is important to note that these are only the species known to have become extinct during that time. There may have been others that we do not know about. It is also very important to keep in mind that these are only the birds and mammals. Reptiles, fish, amphibians, insects, and plants are not included in the data. Loss of plants and insects can be especially important to ecosystems and, most likely, to mankind.

No doubt you noticed that the rate of species loss has accelerated along with the growth in human population. This makes sense, because as human populations grow they will have more and more impact on their environment.

Species have been becoming extinct for as long as organisms have been evolving on the earth. Some scientists estimate that the average rate of vertebrate extinctions over the last 200 million years has been about 90 species per century or less than 1 per year. The data in the table show that in the 50 years between 1900 and 1950, about 124 species of birds and mammals became extinct. When other vertebrates are included, it is easy to see that the rate of vertebrate extinctions has nearly tripled the historical average!

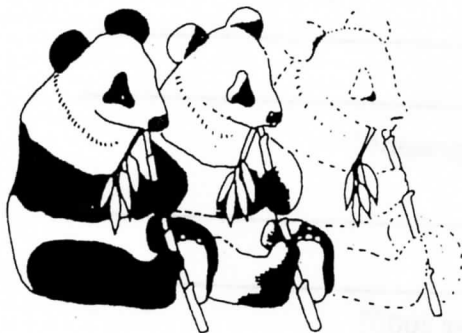
The data are even more alarming when one considers plants and invertebrates. Some scientists estimate that we are losing at least one species per day! The loss of plants is especially important partly because many animals are dependent on specific species of plants, so if the plant becomes extinct so will some species of animals. There are even estimates that the annual rate of loss may accelerate to 50,000 species per year by the year 2000. This would be a loss of about 130 species per day!

There are several reasons for this alarming loss of species. Even today, some species undoubtedly become extinct due to "natural causes," but most are due to human activities. The following table lists some of these human activities and the percentage of extinctions caused by each.

**Table 8-C: Causes of Extinction**

habitat alteration	30%	pest control	7%
commercial hunting	21%	subsistence food hunting	6%
competition with introduced species	16%	captured to serve as pets	5%
sport hunting	12%	superstitious beliefs	2%
		pollution	1%

It is important to realize that many extinctions are caused by combinations of these factors. Also, the percentages and causes may change with time. For example, extinctions caused by pollution may increase while those caused by superstitious beliefs may decrease.



### 8.3 Endangered Species I — What's Happening?: Questions

1. Do the data provided in Tables 8A and 8B prove that the increase in extinctions is due to the increase in human population? Explain your answer.

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2. Why do you think statistics were given for birds and mammals, rather than some other kind of organism?

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Start at # 3

3. Habitat alteration is a very important part of the species endangerment and extinction problem. List several ways that humans alter the natural habitat.

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4. For each of the following causes of extinction, discuss how increases in human population make the problem worse.

- a. habitat alteration \_\_\_\_\_
- b. commercial hunting \_\_\_\_\_
- c. competition \_\_\_\_\_
- d. sport hunting \_\_\_\_\_
- e. pest control \_\_\_\_\_
- f. hunting for food \_\_\_\_\_
- g. pollution \_\_\_\_\_

5. List some ways that you as an individual can help protect endangered species.

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## 9.1 Endangered Species II—Who Cares?: Background Information

Many people have heard about **endangered** species such as the wolf, bald eagle, elephant, and giant panda. Most people would agree that it would be nice to help protect these species. But what about small species, or plants, or animals such as fish, snails, or insect? What about species that you will never actually see? Are there reasons why we should care about them and take actions to help protect them?

Species have been becoming **extinct** since life first formed on Earth four billion years ago. Most species that have ever lived are now extinct. But that does not mean that extinction is nothing to be concerned about. The rate of extinction has vastly accelerated in the last few decades, and most extinctions today are due to the activities of one species—*Homo sapiens*—humans.

One reason to preserve species is because they may have **economic or medical importance** to us. Many of the products that we use every day are made from plant and animal products. New uses for plants and animals are found daily. Many medications are made from plants. Some of the species that people have utilized for years are endangered. A species that has not even been discovered yet may yield an important new product, food, or medicine.

Wild species of plants and animals also provide us with a genetic insurance policy. For example, there are over a hundred varieties of corn, but almost all of the corn grown for human consumption comes from less than ten varieties. If a disease or some other problem reduces the ability of those few varieties to produce food, we will need to have the **genetic diversity** provided by the other varieties. **Biodiversity** is becoming increasingly important to us.

Wild plants and animals provide a source of beauty, wonder, and joy for millions of people. To lose the great diversity of life on Earth impoverishes all of us for **aesthetic** reasons as well as practical ones. In addition to the purely aesthetic values of wildlife, many species have **recreational value**. Hunting, fishing, bird watching, photography, and other recreational uses of wildlife are enjoyed by millions of people.

As scientists try to learn more about life on Earth, about ecology and evolution, about botany and zoology, they study the organisms living in various ecosystems. Every species in an ecosystem has a particular role or niche, and the loss of a species reduces our ability to learn from it. Every species of life on Earth has purely **scientific and ecological value** in addition to whatever other value it may have. Biodiversity is important to all organisms.

Perhaps the most important reason to care about other life forms is simply because **it is the right thing to do**. What right do we as humans have to hasten the extinction of other species of life, especially if they are of no threat to us? The ability of humans to think, reason, and make value judgments is one of the characteristics that, supposedly, sets us apart from most other species. Is it ethical for us to use our awesome power to destroy entire species of life?

## 9.2 Endangered Species II—Who Cares?: Assignments

### Part I: Hard Choices

Assume that you are a wealthy philanthropist who has money that you want to use to save endangered species. You have only enough money to save one of the species listed below. Number the plants and animals in the order that you would select them for saving. Use #1 for the species that you would save first.

After each member of the class has selected his or her personal choices, the class will form teams to come up with a priority list that the team agrees upon. This team list needs to be a **consensus** agreement. Everybody needs to agree on the sequence, rather than just voting.

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ENDANGERED SPECIES	MY PRIORITIES*	TEAM PRIORITIES*
Apache Trout	_____	_____
Arizona Cliff Rose	_____	_____
Blunt-Nosed Leopard Lizard	_____	_____
California Condor	_____	_____
Giant Carrion Beetle	_____	_____
Giant Panda	_____	_____
Hawaiian Crow	_____	_____
Oahu Tree Snail	_____	_____
Pitcher's Thistle	_____	_____
Red-Footed Tortoise	_____	_____
Salt Marsh Harvest Mouse	_____	_____
Schaus Swallowtail Butterfly	_____	_____
Texas Blind Salamander	_____	_____
Wyoming Toad	_____	_____

\*#1 is the first to be saved.

### 9.3 Endangered Species II—Who Cares?: Questions

1. Why is it important to save plant species?

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2. Why is it important to save invertebrate species?

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3. List three reasons to protect species that you as an individual may never see.

- a. \_\_\_\_\_
- b. \_\_\_\_\_
- c. \_\_\_\_\_

4. What is "biodiversity" and why is it important?

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5. What are some ways that you can help protect species of plants and animals?

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