

19.1

Endangered Species I—What's Happening?

Data Graphing Activity

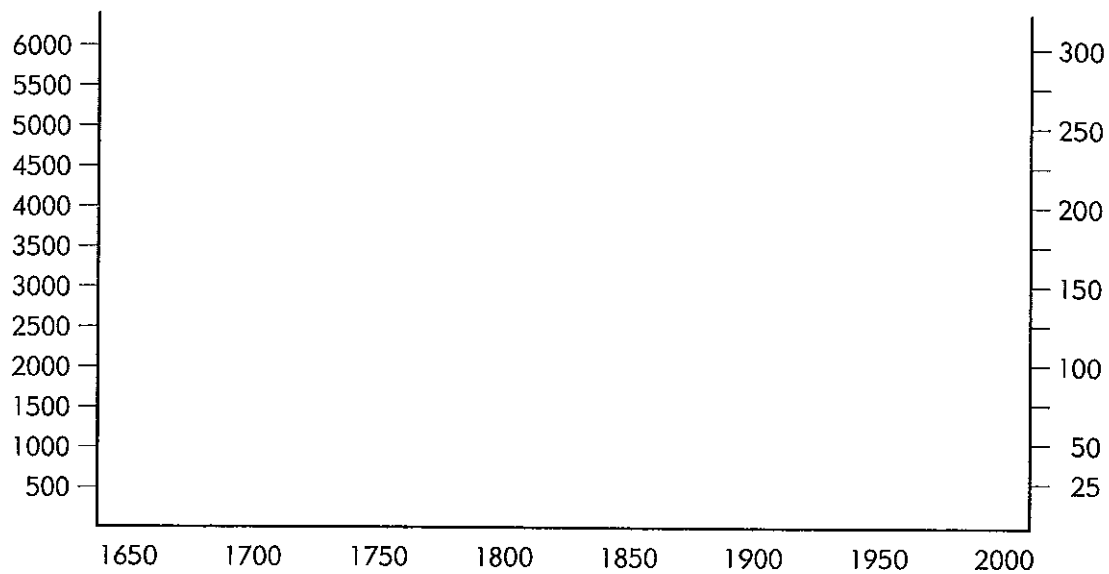
Two sets of data are given in tables A and B below. Use the axes given below to make line graphs of the data.

Use a blue pen or pencil to graph the data from Table 19-A, using the left axis.

Use a red pen or pencil to graph the data from Table 19-B, using the right axis.

Table 19-A	
1650	.....550
1700	.....610
1750	.....760
1800	.....950
1850	.....1210
1900	.....1630
1950	.....2520
2000	.....6000

Table 19-B	
1650	.....5
1700	.....9
1750	.....7
1800	.....12
1850	.....27
1900	.....70
1950	.....124
2000??



Activity 19.1: Endangered Species I—What's Happening? (Continued)

1. How are the two graphs similar? _____

2. Can you guess what the data from tables A and B might represent?

Table 19-A might represent: _____

Table 19-B might represent: _____

3. If the trend continues, what will happen to each graph after 2000?

19.2

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Background Information

The data in Table A represent the human population of the world, in millions. The data in Table B represent the numbers of bird and mammal species that became extinct during each fifty-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 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 two hundred million years has been about ninety species per century, or less than one per year. The data in the table show that in the fifty 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. Many scientists estimate that species are becoming extinct at a rate of twenty-five to fifty per day! The loss of plants is especially important, partly because many animals are dependent on specific species of plants—if the plant becomes extinct so will some species of animals. While exact numbers of plants, fungi, insects, and other small organisms aren't known, some believe that fifteen thousand to forty thousand species are becoming extinct each year, mostly due to the actions of humans.

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.

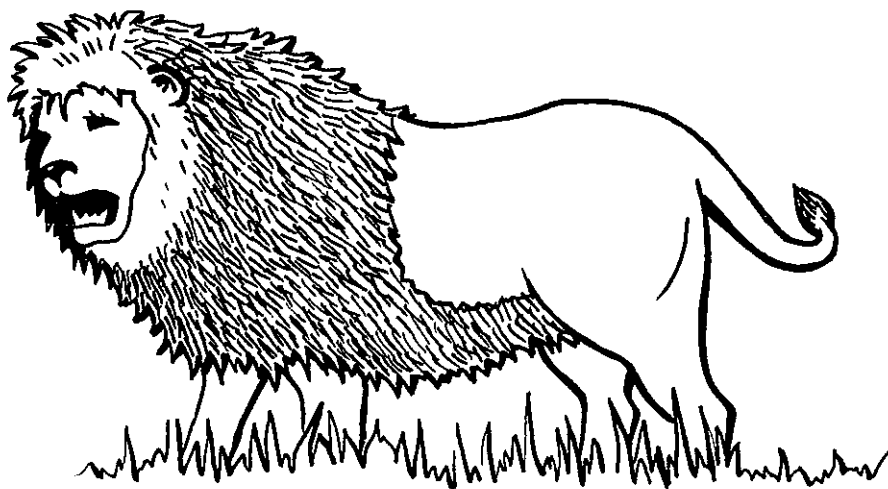


Table 19-C: Causes of Extinction

Habitat alteration	40%	Subsistence food hunting	6%
Commercial hunting	23%	Captured to serve as pets	5%
Competition with introduced species	16%	Superstitious beliefs	2%
Pest control	7%	Pollution	1%

Terms used in Table 19-C:

Habitat alteration: changes in an organism's habitat such as logging, landfill, dredging, clearing for development, or flooding

Commercial hunting: hunting of animals for financial gain

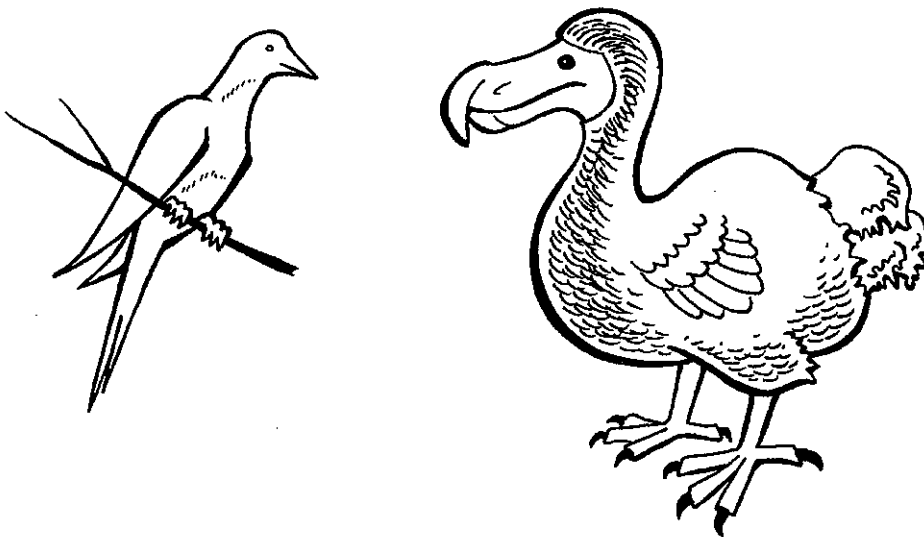
Introduced species: organisms that do not naturally live in an area

Subsistence food hunting: hunting of animals for food

Superstitious beliefs: killing of organisms to use in religious ceremonies or for scientifically unsupported superstitions—for example, killing a bear for its spleen or a rhinoceros for its horn in the belief that it has medical value

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. As more habitat is protected in parks, habitat destruction may decline in those places, but hunting may increase around the parks. Logging, mining for minerals, and development of land for housing and roads all increase as the human population increases.

It is also important that before a species becomes extinct, it becomes increasingly less common. Various agencies and groups use different systems to describe how close to extinction an organism might be. Often the first step is classification as "of special concern." Then it might be classified as rare, then **threatened**, then **endangered**.



19.3

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Questions

1. Do the data provided in Tables 19-A and 19-B *prove* that the increase in extinctions is due to the increase in human population? Explain your answer.

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

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

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.
