Name Date Class

Chapter 5

Real World BioApplications

A Future Zoo

Solutions to complex human problems, such as supplying food and housing for a growing human population and conserving critical resources, often result in changes to the environment. Animals that cannot adapt to changes may face endangerment (very few animals left) or extinction (no animals left). Historically, zoos have served as preservation sites. Today, many zoos are taking a more active role in bringing back—reintroducing—endangered species.

Reintroduction, the repopulating of a species, has several stages. First, the number of animals in a zoo is increased through captive breeding programs that often result in higher birth and infant survival rates. ("Family trees" are kept for many zoo animals. Mates are selected so the gene pool is not reduced.) Second, the animals are trained to live in the wild. Third, the animals are released into an environment that can support them. Reintroduction programs promote the natural interaction and integration of former zoo inhabitants with individuals of the same species in the existing environment.

Reintroduction has positive and negative effects. A suitable habitat must be found or created for reintroduction to be successful. Animals raised in captivity have special problems due to lack of "wild" role models. Often, they do not fear humans or animal predators and may have to be trained to find or capture food. Many critics of reintroduction think that it is unacceptable to reintroduce animals viewed as predators or pests.

Most programs have concentrated on mammals and birds. It is much harder to apply reintroduction programs to aquatic animals and insects. In preserving the environments of mammals, however, other species may also be saved. The area of reintroduction is an important consideration for future zoologists, forestry technicians, and parks and recreation specialists.

Part A: Examining Two Reintroduction Programs

The following tells of two successful reintroduction programs.

The California Condor In 1985, when only nine California condors remained in the wild, they were captured and put into a captive breeding program. In 1991, the first condors were reintroduced. An artificial habitat was placed in the wild for the birds. Seed was provided, and meat was placed nearby so the condors could learn to scavenge. The birds did not fear humans, however, and also liked to perch on power lines. Now, condors are taught to avoid power lines by using a mild electrical shock during training and are also taught to avoid humans.

The Golden Lion Tamarin The golden lion tamarin normally lives in the jungles of Brazil. Due to rain forest destruction and the capture of these animals for the pet trade, they became endangered. At first, zoo-raised tamarins did not know how to live in the wild. One even got stuck in a tree while trying to eat. The tamarins were then trained on zoo grounds to learn how to adapt to changing conditions in the wild. Many tamarins have been released on a biological reserve where they have raised offspring. A fire, however, nearly destroyed the reserve. If the reserve had been destroyed, the tamarins would have had trouble finding a new place to live.

1. How did humans affect the environments of the California condor and the golden lion tamarin?

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2. What problems did zoos solve when reintroducing the animals?

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Chapter 5

A Future Zoo, *continued*

Real World BioApplications

Part B: Examining Positive and Negative Results of a Reintroduction Program

One way to examine the positive and negative results of a plan is to make a decision map. This map lists the pros and cons of each decision, helping you study the major effects of a reintroduction program.

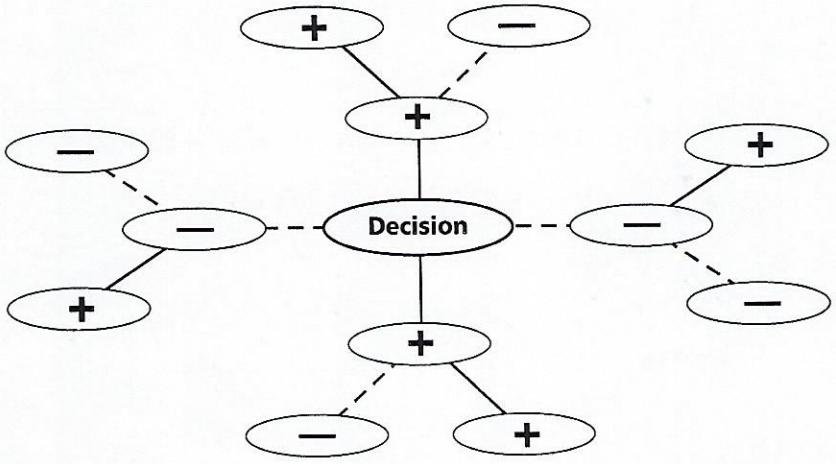

Figure 1

- The decision map above puts a decision in the center oval. Each oval connected to the center with a solid line tells of a positive consequence of the decision. Each oval connected with a dashed line tells of a negative consequence. You can continue this logic by adding additional ovals, each telling the consequence of a previous consequence.
- In your science journal, create a similar map for the decision, "Our zoo will start a reintroduction program." Fill in as many ovals as you can, although you do not have to fill them all. Use logic and thought when completing the decision map—there are no right or wrong answers. Create the decision map in your science journal.

Now plan a reintroduction program for an animal you know about. (The species itself does not have to be endangered.) Write the plan in your science journal. Be sure to write about how you will train the animals to live in the wild and how you will find or create a suitable habitat.

Analyze and Conclude

1. How did making a decision map help you organize your thoughts?

2. Review your decision map and what you learned when planning your program. Write a short paragraph in support of your reintroduction program. Include a response to any possible negative consequences of the program.