

Name \_\_\_\_\_

## Key deer worksheet

Read the following information about Key deer:

The Key deer is a small, endangered deer native to the Florida Keys. Scientists believe that the Key deer (*Odocoileus virginianus clavium*) is a subspecies of the white-tailed deer (*Odocoileus virginianus*). According to the commonly held theory, white-tailed deer migrated from the mainland to the Florida Keys during the most recent ice age, which peaked twenty thousand years ago. Because the seawater was locked up in glaciers, the sea level was lower and the Florida Keys were not a series of islands as they are today, but a continuous ridge of land.

As the glaciers receded ten thousand years ago, the water levels rose and the white-tailed deer were isolated on the islands we now call the Florida Keys. Scientists believe this isolation led to the Key deer's distinctive small size: Through evolution, large mammal species isolated on islands typically become smaller over time, probably as an adaptation to the limited resources available. Thus, adult male Key deer weigh half as much as typical white-tailed deer and stand about 30 inches tall at the shoulder.



image from US Fish and Wildlife Service

Over recent decades, the Key deer's native habitat has been changing quickly with the rapid growth of human populations in the islands. The deer have struggled to adapt to these changes and, as a result, have become endangered. Some of the factors threatening Key deer populations include:

- Road kills: Increased traffic and the creation of more paved roads have led to an increase in Key deer killed by motor vehicles. In addition, illegal roadside feeding of Key deer by humans has led to more road deaths by encouraging the deer to approach roadways.
- Dogs: Free-roaming packs of dogs prey on fawns, and chase adult deer to roadways where they're killed by cars.

- Mosquito ditches: The Florida Keys are crisscrossed by narrow canals called mosquito ditches. The ditches are dug to provide a habitat for a species of African fish used to control the mosquito population. Unfortunately, the ditches also trap Key deer that drown when they fall in and can't escape.
- Habitat loss and fragmentation: As more development comes to the Keys, the deer's natural habitat is diminished. Additionally, development leads to the elimination of natural corridors that allow the deer to roam freely. As the deer become concentrated in fragmented parcels of habitat, they become more susceptible to disease.

### **Improving the odds**

Read the following career descriptions. Then list some ways these professionals can help the Key deer species survive. (Career information comes from the Bureau of Labor Statistics' *Occupational Outlook Handbook*, available at [www.bls.gov/oco](http://www.bls.gov/oco).)

**Biological scientists** – Biological scientists study living organisms and their relationship to the environment. They perform research to gain a better understanding of fundamental life processes or apply that understanding to developing new products or processes. Most specialize in one area of biology, such as zoology (the study of animals) or microbiology (the study of microscopic organisms). How can biological scientists support the survival of the Key deer?

**Conservation scientists and foresters** – Conservation scientists and foresters manage the use and development of forest and range lands and help to protect them. Some advise landowners on the use and management of their land. Conservation scientists and foresters often specialize in one area, such as wildlife management, soil conservation, urban forestry, pest management, native species, or forest economics. How can conservation scientist and foresters support the survival of the Key deer?

**Elected officials and legislators** – Chief executives, general and operations managers, and legislators establish government policy and develop laws, rules, and regulations. They are elected or appointed officials who either preside over units of government or make laws. Chief executives include governors, lieutenant governors, mayors, and city managers. General and operations managers include district managers and revenue directors. Legislators include State senators and representatives, county commissioners, and city council members. How can elected officials and legislators support the survival of the Key deer?

**Environmental, conservation, and wildlife advocates** – Environment, conservation, and wildlife organizations promote the preservation and protection of the environment and wildlife. They address issues such as clean air and water; conserving and developing natural resources, including land, plant, water, and energy resources; and protecting and preserving wildlife and endangered species. How can environmental advocates support the survival of the Key deer?

### **Adaptation and ecology**

Evolution is a slow process. For most species, noticeable change can be observed only over thousands of years. Assuming that the environmental pressures on the Key deer last long enough to result in evolutionary adaptation, how would you expect the Key deer might evolve over time to adapt to the challenges facing them?

**Extra credit:** Conduct research into the other animal species and plants in the Florida Keys, and construct a terrestrial food web for the Key deer's habitat. The food web should include Key deer, mangrove tree (Key deer's primary food source), Florida brown snake, silver rice rat, pelican, young mangrove snapper fish, key mud turtle, narrow mouth frog, American alligator, palmetto bug.

## Improving the odds: **Answer key**

Read the following career descriptions. Then list some ways these professionals can help the Key deer species survive. (Career information comes from the Bureau of Labor Statistics' *Occupational Outlook Handbook*, available at [www.bls.gov/oco](http://www.bls.gov/oco).)

**Biological scientists** – Biological scientists study living organisms and their relationship to the environment. They perform research to gain a better understanding of fundamental life processes and apply that understanding to developing new products or processes. Most specialize in one area of biology, such as zoology (the study of animals) or microbiology (the study of microscopic organisms). How can biological scientists support the survival of the Key deer?

Answers will vary, but may include: Research population density, research other organisms in the key deer's food web, study diseases and parasites affecting deer populations, research ways to adapt mosquito ditches so they that won't trap deer.

**Conservation scientists and foresters** – Conservation scientists and foresters manage the use and development of forest and range lands and help to protect them. Some advise landowners on the use and management of their land. Conservation scientists and foresters often specialize in one area, such as wildlife management, soil conservation, urban forestry, pest management, native species, or forest economics. How can conservation scientist and foresters support the survival of the Key deer?

Answers will vary, but may include: Wildlife monitoring, evasive plant control, population monitoring, rehabilitation for sick and injured deer, habitat restoration and preservation.

**Elected officials and legislators** – Chief executives, general and operations managers, and legislators establish government policy and develop laws, rules, and regulations. They are elected or appointed officials who either preside over units of government or make laws. Chief executives include governors, lieutenant governors, mayors, and city managers. General and operations managers include district managers and revenue directors. Legislators include State senators and representatives, county commissioners, and city council members. How can elected officials and legislators support the survival of the Key deer?

Answers will vary, but may include: Enact legislation to further protect the key deer, including more severe fines for illegal feeding or poaching, mandatory education for public school students about wildlife protection.

**Environmental, conservation, and wildlife advocates** – Environment, conservation, and wildlife organizations promote the preservation and protection of the environment and wildlife. They address issues such as clean air and water; conserving and developing natural resources, including land, plant, water, and energy resources; and protecting and preserving wildlife and endangered species. How can environmental advocates support the survival of the Key deer?

Answers will vary, but may include: Educate the public on wildlife interaction and safety through public events, radio ads, and letters to newspapers; lobby legislators to pass laws further protecting the deer.

## **Adaptation and ecology**

Evolution is a slow process. For most species, noticeable change can be observed only over thousands of years. Assuming that the environmental pressures on the Key deer last long enough to result in evolutionary adaptation, how would you expect the Key deer might evolve over time to adapt to the challenges facing them?

Answers will vary, but may include changes in diet, size, habitat needs, etc.

**Extra credit:** Conduct research into the other animal species and plants in the Florida Keys, and construct a terrestrial food web for the Key deer's habitat. The food web should include Key deer, mangrove tree (Key deer's primary food source), Florida brown snake, silver rice rat, pelican, young mangrove snapper fish, key mud turtle, narrow mouth frog, American alligator, palmetto bug.

The web should show an interrelationship between species and should illustrate an understanding of the relationships between consumers and producers.