Section 6–3 Biodiversity (pages 150–156)

TEKS FOCUS: 12D Long-term survival of species dependent on limited resource base;
TEKS SUPPORT: 9D Flow of matter and energy; 12E Interactions in an ecosystem

This section describes the current threats to biodiversity. It also explains the goal of conservation biology.

The Value of Biodiversity (page 150)

1. What is biodiversity? It is the sum total of the genetically based variety of all organisms in the biosphere.

2. Complete the table about diversity.

<table>
<thead>
<tr>
<th>Type of Diversity</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ecosystem diversity</td>
<td>The variety of habitats, communities, and ecological processes in the living world</td>
</tr>
<tr>
<td>Species diversity</td>
<td>The number of different species in the biosphere</td>
</tr>
<tr>
<td>Genetic diversity</td>
<td>The sum total of all the different forms of genetic information carried by all organisms living on Earth today</td>
</tr>
</tbody>
</table>

3. Why is biodiversity one of Earth’s greatest natural resources? Species of many kinds have provided us with foods, industrial products, and medicines, including painkillers, antibiotics, heart drugs, antidepressants, and anticancer drugs.

Threats to Biodiversity (page 151)

4. What are four ways that human activity can reduce biodiversity?
   a. Altering habitats
   b. Hunting species to extinction
   c. Introducing toxic compounds into food webs
   d. Introducing foreign species to new environments

5. When does extinction occur? It occurs when a species disappears from all or part of its range.
6. A species whose population size is declining in a way that places it in danger of extinction is called an **endangered species**.

7. Why does a declining population make a species more vulnerable to extinction?
   - As populations decline, there is less genetic diversity.

---

**Habitat Alteration** (page 151)

8. The process of splitting a habitat into small pieces is called **habitat fragmentation**.

9. What is the relationship between biological “island” size and the number of species that can live there? The smaller the “island,” the fewer species that can live there, the smaller their populations can be, and the more vulnerable they are to further disturbance or climate change.

---

**Demand for Wildlife Products** (page 151)

10. Why are species hunted? Some are hunted for meat, fur, or hides. Others are hunted because people think that the body parts have medical properties.

---

**Pollution** (page 152)

11. What is DDT? It was one of the first widely used pesticides.

12. What two properties of DDT make it hazardous over the long term? First, it is nonbiodegradeable. Second, when DDT is picked up by organisms, they do not eliminate it from their bodies.

13. What is biological magnification? It is the increase in concentration of a harmful substance in organisms at higher trophic levels in a food chain or food web.

---

**Introduced Species** (page 153)

14. Plants and animals that have migrated to places where they are not native are called **invasive species**.

15. Why do invasive species reproduce rapidly and increase their populations? Their new habitat lacks the parasites and predators that control their populations back home.
Conserving Biodiversity  (pages 154–156)

16. What is conservation?  It is the wise management of natural resources, including the preservation of habitats and wildlife.

17. What is the purpose of conservation biology?  It seeks to protect biodiversity.

18. What does protecting an ecosystem ensure?  It ensures that the natural habitats and the interactions of many different species are preserved at the same time.

19. What are some of the challenges that conservationists face?  Protecting resources requires people to change the way they earn their living. For example, restrictions on fishing impact fishers.

Reading Skill Practice

Writing a summary can help you remember the information you have read. When you write a summary, write only the important points. Write a summary of the information in Section 6–3. Your summary should be shorter than the text on which it is based.

Students’ summaries will vary, though all should include descriptions of biodiversity and the major threats to biodiversity.