

A species is endangered when it is threatened with extinction. Since time began, countless species have become extinct from natural processes. The extinction of dinosaurs is the best known example. If extinction is a natural process, why should we make an effort to save endangered species? Because we can no longer attribute the accelerating extinction of plants and animals to natural causes. Today, most species of plants and animals become extinct because of habitat destruction (loss of living space to development or pollution), introduction of non-native organisms, and direct killing (over-harvesting, poisoning). Florida's endangered wildlife includes the American crocodile, loggerhead sea turtle, and the West Indian manatee.

Our understanding of the value of endangered species to humans has increased with the recognition that human activities cause extinction. In general, the benefits of species can be classified as ecological, economic, and social. Different combinations of benefits occur for any particular species, and some species are obviously more "valuable" than others.

The assemblage of populations of plants and animals in an area is termed its "biological diversity." The term biological diversity is often used interchangeably with two other terms: "genetic diversity" and "ecological diversity." Genetic diversity (amount of genetic variability among individuals of the same species) and ecological diversity (number and relative abundance of species) are both components of biological diversity.

Genetic diversity is directly related to a species' ability to survive environmental change. For example, plants and animals can be characterized by their ability to exist under different climatic (moisture and temperature) conditions. However, within different species there is a certain amount of variability in the tolerance of individuals to climatic conditions. The ability of different species to cope with environmental--in this example climatic-- change depends on this variability. When genetic variability is reduced, as with the Florida panther, the risk of extinction increases.

The loss of a single species can set off a chain reaction that affects many other species. The total impact of extinction is not always apparent and is difficult to predict, but it is clear that conserving biological diversity is essential for maintaining intact ecosystems.

How does maintaining biological diversity benefit humanity? It only takes a moment to realize that throughout history plants and animals have provided humans with food, clothing, energy, medicines, and structural materials. Today, solutions to problems in agricultural production in tropical countries, reliance on petrochemicals, and the cures for cancers may lie in organisms not yet discovered. It would be a shame to lose these benefits without even knowing we had them. Unrecognized benefits of maintaining biological diversity are those services we receive when ecosystems function normally. These ecosystem functions include energy fixation, chemical cycling (oxygen production by rainforests), soil generation and maintenance, groundwater recharge, water purification, and flood protection. These services are provided to us at no cost.

When we destroy the ability of ecosystems to function naturally, we not only lose these free services but all too often have to pay to replace them. There is no more dramatic example of the problems caused by ecosystem degradation and species endangerment than the loss of wetlands, especially the Everglades, in Florida. Floods, problems in water quality and quantity for natural and human systems, and declines in fish and wildlife populations have all been linked to the drainage of the Everglades. The price tag for fixing these problems is hundreds of millions of dollars.

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Many non-endangered species are used to monitor environmental quality. In Florida, for example, largemouth bass and other fish have warned us of mercury contamination in freshwater ecosystems, and the spread of cattails into freshwater marshes formerly dominated by sawgrass warned us of nutrient problems in the Everglades. Without environmental monitors, we may not have learned of these contaminants until much more damage was done.

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<http://edis.ifas.ufl.edu/uw064>

1. Which of the following titles is best for this passage?
 - A. Environmental Impacts of Species
 - B. Biological Diversity in a Changing Environment
 - C. Environmental Challenges and Solutions
 - D. The Roles of Environmental Monitors

2. To prevent irreparable environmental damage, humans should _____
 - A. explore the possibilities of genetic variability.
 - B. curtail agricultural production.
 - C. attempt to control climactic elements.
 - D. endeavor to understand the role of all species.

3. One of the causes of species extinction is _____
 - A. biological diversity.
 - B. energy fixation.
 - C. the chemical variability of organisms.
 - D. the introduction of foreign organisms.

4. The word “diversity” in the third paragraph refers to _____.
 - A. component
 - B. structure
 - C. variety
 - D. element

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5. It can be concluded from the passage that _____.
- A. Florida has fewer endangered species than any other state.
 - B. Florida has more endangered species than any other state.
 - C. Florida has experienced ecosystem degradation.
 - D. The Everglades is threatened with extinction.
6. The passage implies that _____
- A. no species can be considered less important than another.
 - B. some species may be more important than others.
 - C. ecosystems cannot be effectively monitored.
 - D. biological diversity does not affect humans.
7. The main topic of this passage is _____
- A. the relationship of biological diversity and survival.
 - B. the financial impact of biological diversity.
 - C. the climactic impact of genetic diversity.
 - D. the composition of specific ecosystems.
8. It can be inferred from this passage that _____
- A. the extinction of some plants and animals is an entirely natural phenomenon.
 - B. ecosystems are dependent upon biological diversity.
 - C. the benefits of maintaining biological diversity have not been explored.
 - D. the human environment is not really dependent upon plants and animals.
9. Ecosystem functions include all of the following except _____ -
- A. chemical cycling
 - B. water purification
 - C. oxygen deprivation
 - D. soil maintenance
10. According to the passage, the Everglades are an example of _____
- A. genetic variability
 - B. climactic variability.
 - C. ecosystem degradation.
 - D. genetic diversity.

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11. All of the following are mentioned in the passage. Which two are compared?
- A. agricultural production and freshwater marshes.
 - B. biological diversity and ecological diversity.
 - C. petrochemicals and ecosystems.
 - D. species endangerment and chemical cycling.
12. The tone of this passage could best be described as _____
- A. humorous.
 - B. bewildered.
 - C. objective.
 - D. pessimistic.
13. Which of the following best describes the development and organization of the passage?
- A. Opposing viewpoints are introduced, followed by arguments to support an opinion.
 - B. After a general introduction, the author provides a general overview of diversity.
 - C. The author proposes a hypothesis concerning diversity and proceeds to discuss all of the factors that have contributed to evolution of the species.
 - D. The author first selects to advocate the accelerating extinction of plants and animals, followed by arguments concerning research trends.
14. In which of the following publication types would this article most likely appear?
- A. A chapter in a chemistry book.
 - B. A magazine that focuses on current events.
 - C. A periodical for environmentally concerned citizens.
 - D. A scholarly journal for scientists and researchers.
15. The author would agree with which of the following statements.
- A. Extinction of a species is a natural phenomenon.
 - B. The economic impact of environmental factors cannot be ignored.
 - C. Agricultural production should outweigh the maintenance of ecosystems.
 - D. The effects of biological diversity have been fully researched.

HESI A2 Reading Passage 3 Answers

1. B	2. D	3. D	4. C	5. C	6. A	7. A	8. B	9. C	10. C	11. B	12. C	13. B	14. C	15. B
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