

# Human Impact on Ecosystems

## Key Words

<b>natural resources:</b>	materials in the environment that are used by people
<b>renewable resources:</b>	natural resources that can be replaced
<b>non-renewable resources:</b>	natural resources that cannot be replaced by nature
<b>pollution:</b>	any harmful substance released into the environment
<b>conservation:</b>	the wise use of natural resources

## KEY IDEAS

Humans use the earth's resources to meet their needs and maintain their lifestyles. As the human population grows, the demands placed on the earth's resources also grow. To preserve the earth's ecosystems, the amount of resources used by humans must be reduced.

The world's supply of fresh water is becoming scarce. To make more water available for drinking, people are looking for ways to cut down on the amount of fresh water used for crops. One way this might be done is to use wastewater to water crops. The water left over from treated sewage is high in nutrients. The nutrients in it would help the plants to grow better.

**Natural Resources.** Materials in the environment that humans use are **natural resources** (NACH-er-uhl REE-sawrs-ehz). A natural resource that is replaced by natural processes is a **renewable resource** (ree-NOO-uh-buhl REE-sawrs). Trees are an example of a renewable resource. When trees are cut down for use, new trees can grow in their place.

Natural resources that cannot be replaced naturally are **non-renewable resources** (NAHN-ree-NOO-uh-buhl REE-sawrs-ehz). Oil and coal are two types of non-renewable resources. Non-renewable resources take millions of years to form. Once they are used, they cannot be replaced.

**Pollution.** As the human population has grown, the demand for natural resources has greatly increased. One result of the increased use of natural resource is pollution. **Pollution** (puh-LOO-shuhn) is any harmful substance released into the environment. Pollution can destroy the habitats of many types of organisms.

Air pollution occurs when harmful substances are released into the air. Burning fuel for heat, electricity, and transportation causes air pollution. Sulfur dioxide, nitrogen oxide, carbon monoxide, and soot are given off through burning fuel.

One serious problem caused by air pollution is smog. Smog is a mixture of smoke, gases, and fog. Another harmful result of air pollution is acid rain. Acid rain occurs when certain gases from burning fuel mix with water in the air to form acids. The acids fall back to the earth in raindrops. Acid rain damages soil, crops, and forests. Acid rain also pollutes lakes and streams. The acids are harmful to many of the organisms living in lakes and streams.

Other harmful substances released into water ecosystems cause pollution. Sewage, fertilizers, and pesticides used in farming, and chemical wastes from factories are all sources of water pollution. These substances can poison water supplies, killing plants and animals.

**Human Activity.** Certain human activities have destroyed many ecosystems. For example, forests are cut down for timber. New trees can be grown to replace them. However, it takes decades for the new trees to reach the size of the old ones. During that time, damage to the environment occurs.

The tiny roots of the new trees cannot hold the soil in place. Much soil is washed away by the rain. Nutrients are also washed out of the soil. With fewer nutrients, the new trees and other plants won't grow as well. Also, many organisms depend on the old forests for their food. With the forest cut down, many of the organisms that lived there die or move away from the area.

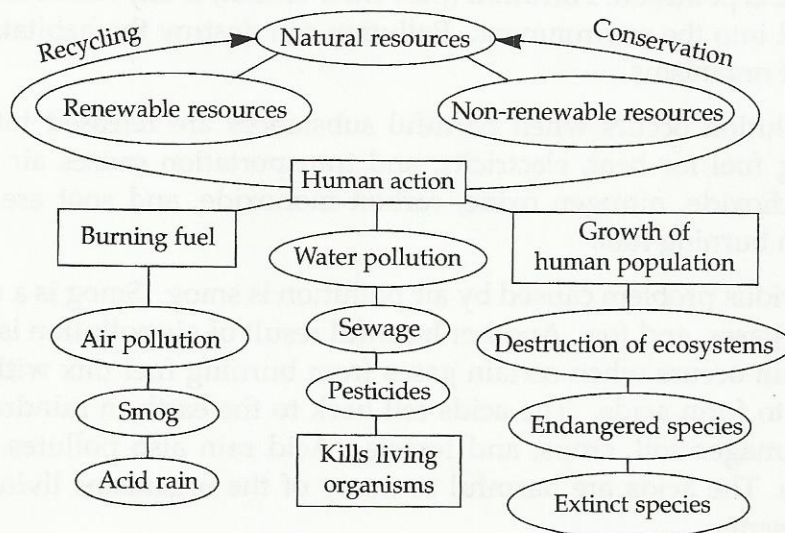
All the earth's ecosystems depend on natural resources. To preserve ecosystems, humans must take steps to decrease their use of the earth's resources. This can be done through conservation. **Conservation** (KAHN-ser-VAY-shuhn) is the wise use of natural resources.

Conservation includes reducing the amount of pollution we release into the environment. Many countries have set aside nature parks where nothing can be built or destroyed. People also can recycle, or reuse, resources to make new products. For example, the more paper we recycle, the fewer trees we will have to cut down. By thinking about the effect our actions have on the environment, we can help protect all the earth's ecosystems.

# TAKE ANOTHER LOOK

Fig. 42-1 summarizes the relationship between human actions and the earth's natural resources.

Fig. 42-1



## Check Your Understanding

Write a sentence explaining the connection between each pair of words.

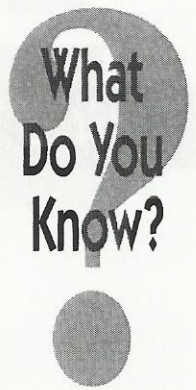
- natural resources, conservation \_\_\_\_\_  
\_\_\_\_\_
- renewable resources, non-renewable resources \_\_\_\_\_  
\_\_\_\_\_

Complete the paragraphs by adding the correct words.

Materials in the environment that can be used by living things are (3)\_\_\_\_\_. (4)\_\_\_\_\_ resources can be replaced. (5)\_\_\_\_\_ resources cannot be replaced once they are used.

Air pollution occurs when (6)\_\_\_\_\_ substances are released into the air. (7)\_\_\_\_\_ is a mixture of smoke, fog, and gases in the air. The mixing of gases with water in the air to form acids causes (8)\_\_\_\_\_. Fertilizers and (9)\_\_\_\_\_ used in farming can pollute water. Chemical wastes from (10)\_\_\_\_\_ are another source of water pollution.

To save the environment, humans must change the way they use (11)\_\_\_\_\_. (12)\_\_\_\_\_ means using resources wisely. (13)\_\_\_\_\_ means reusing resources to make new products.



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14. What is the difference between renewable natural resources and non-renewable natural resources? \_\_\_\_\_

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15. Give two ways that the human population has affected resources.

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16. What are the main sources of air pollution? \_\_\_\_\_

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17. What causes acid rain? \_\_\_\_\_

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18. How does acid rain affect water ecosystems? \_\_\_\_\_

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19. What is conservation? \_\_\_\_\_

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20. What are two ways that humans can help preserve natural resources?

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