

SNC1D BIOLOGY

SUSTAINABLE ECOSYSTEMS

☛ Benefits of Natural Ecosystems (P.XX)

Benefits

Ecosystems provide humans with many services. For example, ecosystems supply food, fuel, natural resources, and water. Ecosystems cycle nutrients and decompose wastes. They regulate climate. The animals they contain help pollinate crops and disperse seeds. Ecosystems provide humans with cultural and recreational opportunities.



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Products

Ecosystems also provide more than just natural beauty and a place to relax. Each day we use products from ecosystems that help to make our lives easier. Plants provide us with wood, rubber, fabrics, dyes, food, and medicines. Animals provide us with leathers, oils, bones, and beeswax. Some people hunt animals and collect plants for personal/commercial use.



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Environmental Benefits

Ecosystems provide several environmental benefits:

- **producing oxygen** – microscopic organisms in the ocean produce about 50% of the oxygen in the atmosphere
- **moderating climates** – plants in many different ecosystems, including tropical rainforests, take in carbon dioxide gas for photosynthesis (carbon dioxide helps trap thermal energy that warms Earth's surface so changes in the amount of carbon dioxide can influence climates on Earth)
- **filtering pollutants** – certain plants and organisms can remove and destroy some of the harmful chemicals in the air, water, and soil which reduces the amount of pollution in the environment

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Economic Benefits


Natural ecosystems can support industries as well as provide valuable products.

- **Forestry:** More than 65% of Ontario's land surface is covered with forests. Ontario's forests provide \$18 billion worth of products each year and employ more than 80 000 people. Another 30 000 people in Ontario have jobs that are related to forest ecosystems, including fishing and trapping, tourism, and parks management.
- **Ecotourism:** Ecotourism, which is a growing industry that relates tourism to the ecology of an area, also creates jobs. Hotels, restaurants, transportation services, arts organization, and companies that organize guided tours all provide jobs in a local area.

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Other Benefits

Ecosystems also help to protect us from physical threats, such as erosion and flooding. The roots of plants, which are anchored in soil, help to reduce soil erosion by wind and water. Ecosystems such as wetlands absorb surface water. Then they slowly release the water both underground and at the surface, which prevents flooding after a heavy rain.



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Activity: Benefits of Natural Ecosystems

ISSUE
 Recreational activities and an opportunity to appreciate the beauty of nature are just two of the benefits that ecosystems provide to us. Ecosystems offer a wide variety of benefits to humans and for the biosphere in general.

INSTRUCTIONS
 A. Complete a chart listing the benefits of the following aspects of our natural ecosystems:

- cultural
- products
- environmental
- economic
- other

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Activity: Benefits of Natural Ecosystems

Benefit	Examples
cultural	<ul style="list-style-type: none"> • recreation • education • spirituality
products	<ul style="list-style-type: none"> • lumber • food • medicine
environmental	<ul style="list-style-type: none"> • climate moderation • water and air purification • oxygen supply & nutrient cycling
economic	<ul style="list-style-type: none"> • jobs • tourism products and services
other	<ul style="list-style-type: none"> • erosion reduction • flood prevention • balance of wildlife maintained


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Monetary Value

NOTE!
It is difficult to put a monetary value on the beauty of wildlife and wilderness experiences. However, it is possible to estimate the value of many of the ecological services provided by natural ecosystems. Globally, the value of natural terrestrial ecosystems ranges into the trillions of dollars per year.




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 **Check Your Learning**

1. Grass is useful. Describe the ecological services that grass performs in a hay field, on a golf course, or along the shoulder of a highway.

hay field – food
golf course – recreation
highway – erosion prevention

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 **Check Your Learning**

2. Provide reasons why a renewable service is more valuable than a non-renewable service.

a renewable service can continue to provide for generations to come

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