

# Ohio Forest Benefits



## Clean Air

Trees help mitigate air pollution by reducing heat, intercepting airborne particles and absorbing pollutants such as carbon monoxide, sulfur dioxide, and nitrogen dioxide. Trees also absorb carbon dioxide, sequester carbon, and release oxygen back into the environment. When trees absorb carbon dioxide from the air, they are reducing the greenhouse effect through which atmospheric gases trap heat and warm the earth. Trees also reduce heat by creating shade. Especially in urban environments, shade from trees help cool homes and other buildings. Shaded buildings require less air conditioning and so use less electricity.

Try PLT Activity **Pollution Search** or **Air Plants** and **Teaching with i-Tree**

## Recreation

Forests provide a wide variety of outdoor recreational pursuits that support healthy, active lifestyles. Recreational activities in forests nurture appreciation for the essential role that forests play in preserving the health of our planet. Ohioans enjoy many outdoor activities in the forest including hiking, mountain biking, horse-back riding, camping, hunting, and rock climbing. Recreation allows humans to enjoy the outdoors and take advantage of the beautiful nature of our state. If not done properly, some recreation can degrade the environment and cause issues like erosion and pollution. It is important to pay attention to the rules of a park or natural area, like staying on marked trails and disposing of trash appropriately, so that future generations of Ohioans can enjoy these places too.

Try PLT Activity **400-Acre Wood**

## Healthy Soil & Water

Forests have many positive effects on water and soil quality. Trees fight soil erosion, conserve rainwater, and reduce water runoff and sediment deposit after storms. Leafy tree canopies catch precipitation before it reaches the ground, allowing some of it to gently drip down and the rest to evaporate. This lessens the force of storms and reduces runoff and erosion. Riparian tree roots hold soil together and help anchor stream banks to keep them from eroding. Forests filter the water and retain nutrients and potential pollutants within the soil where they break down into harmless substances.

Try PLT Activity **Field, Forest, and Stream**

## Renewable Wood Resources

Forests provide us with many valuable commodities. Trees can be replenished since the major inputs that contribute to their growth are sunlight, air, water, and nutrients from the soils in which they grow. The many products that come from trees like paper, books, wood furniture, flooring, musical instruments, and so many more, can all be made sustainably because trees are a renewable resource. It is vital that forests are carefully managed to provide for sustainable, long term benefits. Ensuring that forests are regenerated after each harvest helps to assure that healthy forests will be around for future generations to use and enjoy.

Try PLT Activity **Renewable or Not**

## Human Health and Wellness

Immersing oneself in nature has many health and wellness benefits. With so much of our lives spent indoors, it is critical for children to spend time outside. Nature and forest therapy are a pathway to the healing powers of nature. While in a natural area, take in your surroundings and interact with the living and nonliving things around you. You do not need to go to a forest. You can connect with nature while at a local park, a garden, walking along a sidewalk with street trees, or admiring a houseplant. Taking time to connect with the environment through your different senses can reduce stress, support sleep, and increase relaxation. Spending time in the forest has been shown to significantly reduce the stress hormone cortisol, which can suppress the immune system. Ohio has ample opportunities for nature therapy in the thousands of parks, forests, and natural areas throughout the state.

Try PLT Activity **Get in Touch with Trees** or **Sounds Around**

## Climate Resilience

Trees absorb carbon dioxide (CO<sub>2</sub>), sequester carbon, and release oxygen back into the environment. Through this process trees act as a carbon sink, storing carbon in the global carbon cycle. The emission of greenhouse gases such as carbon dioxide has contributed to global climate change through the greenhouse effect. Planting trees and effectively managing forests can help enhance their ability to mitigate climate change by increasing their ability to sequester carbon. By absorbing CO<sub>2</sub>, trees and forests help reduce the greenhouse effect. Forests store carbon in living trees, dead trees, understory plants, leaf litter on the forest floor, and organic soil.

Try PLT Activity **The Global Climate** or **Our Changing World, Carbon & Climate E-Unit, Southeastern Forests and Climate Change** online module.

## Ecosystem Biodiversity

Forests and trees provide valuable habitat for Ohio's wildlife. From a bird's nest in an urban tree to a tree snake in the forest, there are many types of animals that make trees their home. Having forests in Ohio is important to support biodiversity and keep natural ecosystems intact. Many of Ohio's forests are under pressure from non-native invasive plants, insects, and diseases. These forest invaders can negatively impact forest health and outcompete beneficial native plants and wildlife. Through appropriate forest management, the effects of invasive species can be mitigated to provide for a healthy functioning forest ecosystem.

Try PLT Activity **Trees as Habitats**

## Green Jobs

Ohio's forests also contribute to the livelihood of Ohioans through supporting industries and providing jobs. Many people work to keep Ohio's trees and forest ecosystems healthy, productive, strong, and safe for all to enjoy. Forests are managed for multiple uses such as producing timber, providing food and habitat for wildlife, recreation, and improving water quality, just to name a few. Forest activities require the work of many professionals. Some examples include forest managers, loggers, forest ecologists, urban foresters, hydrologists, naturalists, wildlife biologists, and many others who dedicate their careers to working in the forest. Forests provide an opportunity for many types of scientists to conduct research on the complex forest ecosystem.

Try PLT Activity **Who Works in this Forest?** and PLT's **Green Jobs**

## Glossary

**Biodiversity-** the variety of life reflected in the variety of ecosystems and species, their processes and interactions and the genetic diversity within and among species.

**Canopy-** the forest layer formed by the leaves and branches of trees or shrubs. There may be several canopy layers.

**Carbon cycle-** the circulation and recycling of carbon atoms, especially through the processes of photosynthesis, respiration, and decomposition.

**Carbon sink-** something in the natural environment viewed in terms of its ability to absorb carbon dioxide from the atmosphere (examples are forests and the ocean)

**Commodities-** a useful or valuable thing

**Cortisol-** a stress hormone, like an alarm system for the human body.

**Degrade-** Worsen, weaken, deteriorate. Environmental degradation is damage done to the environment through activities that cause harm to ecosystems and their components such as soil, water, and air.

**Ecosystem-** the interacting system of a biological community and its nonliving environment; also the place where these interactions occur

**Environment-** the sum of all external conditions and influences that affect the development and ultimately, the survival of an organism or group of organisms

**Erosion-** the wearing away of the land surface by wind or water. Erosion occurs naturally from weather or runoff but is often intensified by some human activities.

**Evaporate-** Evaporation is the physical change of state in which a liquid is transformed into a vapor of gas.

**Generations-** all the people born and living at about the same time

**Greenhouse effect-** the trapping of heat by gases, such as carbon dioxide, methane, and nitrous oxides in the Earth's atmosphere

**Habitat-** an area that provides an animal or plant with adequate food, water, shelter, and living space in a suitable arrangement

**Immune system-** the defense system in the human body that fights off foreign substances and infection

**Invasive-** An invasive species is a plant, animal, or other organism that is typically nonnative to a particular ecosystem and whose introduction causes or is likely to cause harm to the economy, environment, or human health.

**Management-** Forest management is the practical application of scientific, economic, and social principles to the administration of a forest.

**Mitigate-** to lessen in force or make less severe

**Pollutants-** any introduced gas, liquid, or solid that makes a resource less useful or unfit for a specific purpose

**Precipitation-** water from the atmosphere that falls to the ground as rain, snow, sleet, or hail.

**Recreational-** recreation is any activity done for enjoyment

**Regenerated- Regeneration** is the renewal of vegetation by natural or artificial means. A regeneration period can be the period required or allowed in the plan for regenerating following timber harvest.

**Renewable-** A renewable resources is a naturally occurring raw material or form of energy which has the capacity to replenish itself through ecological cycles and sound management practices. The sun, wind, falling water, and trees are examples of renewable resources.

**Runoff-** runoff water is fresh water from precipitation and melting ice that flows on the ground surface into nearby streams, lakes, wetlands, and reservoirs

**Sediment-** the solid precipitate or matter that settles to the bottom of a liquid. The material deposited by water, wind, or glaciers.

**Sequester-** to remove or separate; **carbon sequestration** is the process by which carbon dioxide (CO<sub>2</sub>) is removed from the atmosphere and held in solid or liquid form.

**Sustainable-** using natural and human resources in a way that does not compromise the needs of future generations.

**Understory-** the layer formed by the crowns of smaller trees in the forest