

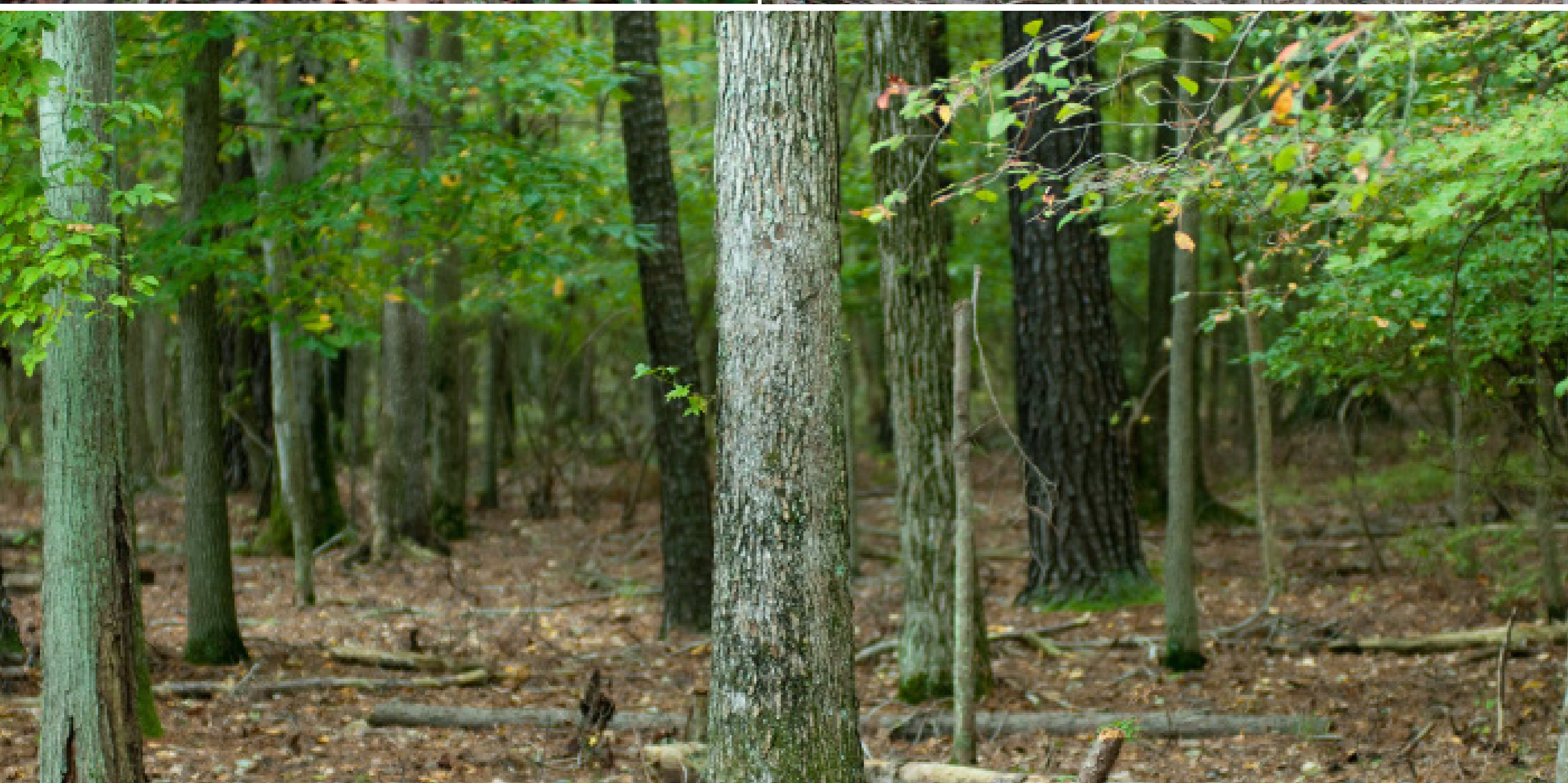


Undergraduate Program

Ecological Technology Design
Ecosystem Health
Soil and Watershed Science
Natural Resources Management

Graduate Program

Soil and Watershed Sciences
Ecological Technology Design
Wetland Science
Ecosystem Health & Natural Resource Management



Ecosystem Services: Their Value, Markets and Payments

Have you ever considered that the cereal you eat is brought to you each morning by the wind, or that the glass of clear, cold, clean water drawn from your faucet may have been purified for you by a wetland or perhaps the root system of an entire forest? Trees in your front yard work to trap dust, dirt, and harmful gases from the air you breathe. Ecosystem services, the processes by which the environment produces resources, are little understood and too sophisticated to reproduce even with the most advanced technology. Extension Specialist Dr. Bob Tjaden has a research and educational interest in natural resource management and policy, with a special emphasis on forest and wildlife management, forest tax policy, environmental policy, and ecosystem services.

Ecosystems Provide “Services” that:

- Moderate weather extremes and their impacts;
- Mitigate drought and floods;
- Provide wildlife habitat;
- Protect stream and river channels and coastal shores from erosion;
- Decompose wastes;
- Control agricultural pests;
- Maintain biodiversity;
- Generate and preserve soils and renew their fertility;
- Purify the air and water.

What are Ecosystem Services Worth?

Natural ecosystems and the plants and animals within them provide humans with services that would be very difficult to duplicate. While it is often impossible to place an accurate monetary amount on ecosystem services, we can calculate some of the financial values. Many of these services are performed seemingly for “free”, yet are worth many trillions of dollars, for example:

- Much of the Mississippi River Valley’s natural flood protection services were destroyed when adjacent wetlands were drained and channels altered. As a result, the 1993 floods resulted in property damages estimated at twelve billion dollars partially from the inability of the Valley to lessen the impacts of the high volumes of water.
- Over 100,000 different animal species - including bats, bees, flies, moths, beetles, birds, and butterflies - provide free pollination services. One third of human food comes from plants pollinated by wild pollinators. The value of pollination services from wild pollinators in the U.S. alone is estimated at four to six billion dollars per year.

Education and Research Focus

- Determine the level of knowledge and understanding of Maryland farmers and forest landowners about ecosystem services and their willingness to participate in a payment for ecosystem service program
- Examine Maryland citizen’s willingness to pay for specific ecosystem services.
- Evaluate current federal and state tax policy impacts on Maryland farmers and forest landowners who participate in a payment for ecosystem service program.