



Valuing Virginia's Forests

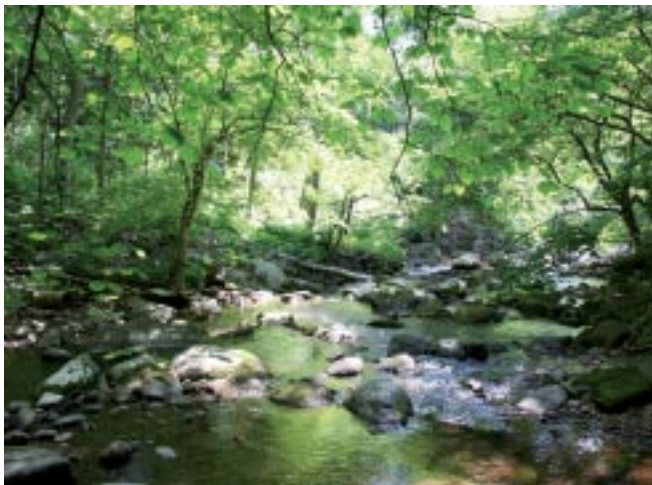
Ecosystem Benefits Provided by Our Forests

Forestry Topics FT0005

March 2006

Forests are valued commercially for the products they provide. In addition, forests and forest ecosystems play an essential role in human quality of life. Some of these benefits are hard to measure in monetary terms, but we can think of them as natural capital on which we all depend.

Direct ecosystem services of forests include water filtering, soil conservation, plant and animal habitat, and sequestering greenhouse gases. Indirect ecosystem services include ecotourism, genetic resources and recreation opportunities.



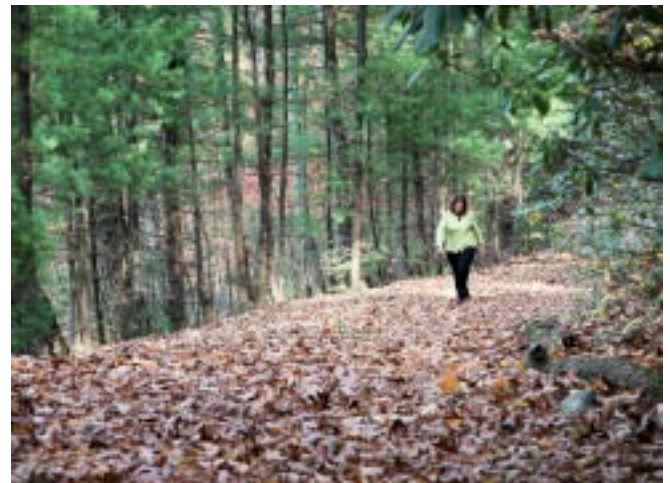
Forests provide an essential role in protecting our water resources.

In Virginia, forest loss through land conversion has been estimated at 22,000 acres per year. Forest loss not only diminishes economic timber-based opportunities, but also decreases our natural capital. Unfortunately, ecosystem services historically have not been valued in commercial markets. The inability to place a dollar value on these services contributes to their continuing loss. However, there is a growing acceptance that forest attributes should be valued in a commercial sense, hence incorporated in traditional markets. Valuing natural capital is a complicated exercise that will take time to establish. Globally, an estimate of the total ecosystem services has been placed at \$36 trillion annually. For Virginia forests, the value figure would be much less, but we must realize we cannot live without nor replace these services.

Specifically, U.S. ecosystem services markets have focused mainly on carbon, with some attention given to water quality and quantity. Approximately 12% of the world's

atmospheric carbon is cycled through forests each year during photosynthesis and respiration. Virginia trees contain about 392 million metric tons of carbon, which equates to removing 1.4 billion metric tons of carbon dioxide from the air. This volume of carbon storage has an estimated value of over \$60 billion. In total, Virginia forests provide over \$900 million of air pollution abatement each year for the 5 major pollutants (CO₂, SO₂, NO₂, ozone and particulate matter).

The establishment of markets, which place buyer and seller together, is a critical step for developing a natural capital value system. Conservation banking, which allows for trading and investment in ecological services, may be one way of establishing a market. Businesses that cause environmental impacts look for ways to mitigate their effect on the environment through purchase of "credits." The sale of carbon credits will require a method for registering and monitoring forests through time. This market establishment may eventually lead to private landowners being compensated in some way for keeping their land in forest.



Virginia's forests are critical to our livelihood and quality of life.

The complete valuing of Virginia's forests, including important timber values, can lead to a more complete and fair evaluation of the importance of forests to Virginia citizens. Both economically and environmentally, Virginia forests are critical to our continued livelihood and quality of life. The Department of Forestry is committed to valuing all aspects of forests, in order to minimize forest loss through conversion, protect water quality and conserve habitat.