

Pennsylvania's Forests: How They are Changing and Why We Should Care

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After filling drinking water reservoirs for New York City, the Delaware River emerges from the Catskills and then flows over 350 miles to the Delaware Bay. By the time the river reaches its destination, it has provided drinking water for over 15 million people, supported world-class fisheries, and maintained an iconic sense of place. All of these services are dependent on the presence of healthy forests.

A new report from the Pinchot Institute, *Pennsylvania's Forests: How They are Changing and Why We Should Care*, investigates how forestland influences the economy, community, and environment of Pennsylvania. The report was developed in collaboration with Pennsylvania Department of Conservation and Natural Resources, The Nature Conservancy, Western Pennsylvania Conservancy, and Penn State University.

Pennsylvania is one of the most forested states in the nation and includes some of the most intact and bountiful hardwood forestlands in the temperate world. This was not always the case. As the early seat of agriculture for a young United States, Pennsylvania was dominated by farms until the early 1900s. Over the last century, Pennsylvania has regained much of its historic forestland, reaching approximately 17 million acres during the last two decades. This is the largest amount of forest to stand in Pennsylvania since it became a state.

Forests and trees can now be found nearly everywhere in Pennsylvania—state parks, rural hamlets, suburban developments, and the

largest cities. This recovery has benefited the state by improving the quality of air and water, providing highly valued wood for builders and craftsmen, and supporting recreation and spiritual renewal.

Yet for the first time in a century, forest growth is being outpaced by forest loss. Between 1989 and 2004, more than 680,000 acres of forests disappeared. Pennsylvania's population is growing more slowly than all but three other states, but over the past 15 years, Pennsylvanians developed 47% more of the state and added more than 3,000 miles of road—the sixth fastest rate of land consumption in the country. These trends are expected to continue. By 2030, 6% or 761,000 acres forest are expected to succumb to residential development—an area equivalent to 20 cities the size of Pittsburgh.

Forest loss to development compounds the many other forces shaping Pennsylvania's forests: air pollution, invasive species, overabundant deer, natural resource extraction, etc. As these forces continue to reduce and degrade forests, the many services that Pennsylvanians have long depended will also be diminished.

Water

Forests are the best land use for water quality. They also provide a steady supply of water, gradually filtering and releasing clean water throughout the year. In watersheds dominated by agriculture or development, remaining forests help lessen the impacts of more intensive land use, giving cover to the ecological functions that maintain productive streams.

In general, small watersheds are adequately protected when 70 percent of stream miles are buffered by forests and when at least 65 percent of all land cover is in forest. Only about one-third of the small watersheds in the state reach the riparian forest threshold—most of these are in the north-central part of the state, where large tracts of public and private land predominate. Right now, more than half of Pennsylvania's small watersheds meet the threshold of 65% forest land cover.

Wildlife

William Bartram was one of the first American conservationists to recognize the importance of Pennsylvania's forest to wildlife noting that Pennsylvania is one of the places in North America "...where the greatest variety and abundance of these winged emigrants [referring to migratory birds] choose to celebrate their nuptials, and rear their offspring, which they annually return with, to their winter habitations in the southern regions of N. America."

While forest conditions have changed considerably since the 18th century, Pennsylvania still provides important habitat for wildlife. The state hosts more than 3,000 species of plants, 400 species of birds, 200 species of fish, 75 species of reptiles and amphibians, and 70 species of mammals. All told, there are more than 25,000 species documented in the state of Pennsylvania—more than half are fungi and invertebrates (insects, arachnids, crustaceans, worms, etc.).

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Wood

The 20th Century recovery of forests allowed the state to sustain a generally even flow of forest products for the first time in its history. In 2002, the wood products industry contributed \$13.5 billion and over 100,000 jobs to Pennsylvania's economy. Among the products include exports of some of the best hardwood cherry and maple used for furniture and cabinets.

The quality of wood and, generally, forest conditions are quite different on public and private lands. For example, the volume of high quality commercial timber on public forests is almost twice that on private forests. Between 1989 and 2004, the numbers of economically valuable black cherry trees on private land decreased by almost 30 percent, but increased four-fold on public land. In general, public forests are better managed than private forests. There are many reasons for this, and none definitely proven as the main driver. At the same time, a substantial amount of anecdotal evidence exists that many of Pennsylvania's private forests are “high-graded” This means that forest harvesting removes only the best trees. Over the long-term high-grading can change the structure and composition of a forest — leaving the least productive and healthy trees in the forest.



Climate and Energy

The reality of a changing climate and competition for global energy resources has focused the world's attention on reducing greenhouse gas emissions and finding secure, renewable sources of energy closer to home. Pennsylvania is no exception and ranks among the leading states in developing new sources of energy — some of which will come from its forests.

Natural gas development from the Marcellus Shale formation promises to provide much needed income to forest landowners and reduce the state's reliance on imported gas. The gas extraction process will fragment forests and tax drinking water treatment systems. The ways in which Pennsylvania lays claim to its gas wealth may critically affect forest ecosystems for generations to come.

Pennsylvania legislators have set some of the most ambitious renewable energy targets in the nation. By

2021, 18.5 percent of Pennsylvania's energy supply must come from alternative energy sources. Renewable resources provided 5.7 percent of Pennsylvania's electricity as of 2007, and so the state must meet another 13 percent with renewables. The use of woody biomass could decrease Pennsylvania's reliance on imported fuels for heating and transportation. However, meeting even half of the target for alternative fuels with forests is not possible given the accessibility of the resource and would seriously tax forests on which Pennsylvanians depend for other industries, wildlife, and ways of life.

This report is both a resource and catalyst for Pennsylvanians — spurring action among government agencies, environmental organizations, and other groups that recognize forest conservation as a key strategy for improving the state's economy, community, and environment. Contact Eric Sprague at esprague@pinchot.org. 

FULL REPORT AVAILABLE ONLINE



http://www.pinchot.org/gp/Pennsylvania_Forest