

## Maryland's Forests: Past, Present, and Future

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For centuries, Maryland's forests have provided wood, wildlife habitat, clean water and air, aesthetic and recreational enjoyment, and many other benefits. However, over the last few decades the State population has grown rapidly and demands on forest resources have increased. This fact sheet briefly describes Maryland's past, present, and future forests and attempts to impress upon all woodland owners that the forest is truly a renewable natural resource whose future can be ensured by sound forest stewardship.

### The Past: Forest Clearing Cycles of Use and Neglect

Many people think present-day forests have never changed or been changed. In fact, most of Maryland's forests have been harvested and regrown three to five times since European settlement. These woodlands have been shaped by other human activity as well. A brief look at Maryland's forest history shows how humans have affected the forests.

### The Early Forest

Maryland's forests were virtually untouched before the arrival of the first European settlers in 1634 at St. Mary's City. Prior to this, Native Americans had cleared and burned small

areas of forest for agriculture, berry production, and hunting, but these activities were primarily near settlements along the Chesapeake Bay and its tributaries. Virgin forest covered almost the entire state. The tree species of 17th century Maryland forests—oak, tulip-poplar, eastern hemlock, beech, loblolly pine, white pine, and American chestnut—are similar to those growing today. Forest composition, however, has changed dramatically. The original forests were primarily composed of hardwoods; at present, pine is more abundant due to planting efforts and the reversion of abandoned farmlands to forest.

### Colonists and the Forest

The first European settlers saw the forest as a dense wilderness that impeded their agricultural livelihood and harbored dangerous animals and diseases. Timber was abundant, had little monetary value, and colonists indiscriminately cleared woodland (primarily by burning) to grow tobacco and other cash crops. Poor agricultural practices caused massive soil erosion and silted up what had been the deep-water harbors of the Chesapeake Bay.

Colonization centered primarily around the Chesapeake-Tidewater area until 1732. At this

time, Lord Baltimore opened land to the west to settlement—primarily to assert Maryland's claim to lands disputed by neighboring Virginia. As settlements expanded, more wood was needed for structures, fences, and fuel. These demands were met by clearing

## **Industrial Exploitation**

**Iron furnaces.** The first widespread industrial exploitation of forests began in the early 1700's. Iron was in short supply in the early settlements and smelting iron ore required large quantities of charcoal. In 1719 the Maryland Assembly offered 100 acres of land to anyone who built an iron furnace. Throughout the 1700's and 1800's, large tracts of forest were clearcut to produce charcoal to fire iron furnaces. The Principio Furnace, Maryland's first iron furnace, was established in 1719 in Cecil County and consumed 10,000 acres of woodland during its 100 years of operation.

**Steam engines, railroads, and canals.** The invention of the steam engine in the early 1800's revolutionized the use of forest resources. The 1850 introduction of the circular saw, which was powered by steam, allowed settlers to produce far more saw timber than water-powered mills. Forests that previously had been inaccessible to logging were opened to wholesale exploitation through the use of steam engines or narrow gauge railroads. Forest products were no longer restricted to local markets but could be transported to large industrial centers, such as Baltimore and Williamsport. New lumber markets followed the B&O Railroad, which was chartered in 1827 and reached St. Louis in 1857. The C&O Canal, begun in 1826 and completed in 1852, also provided the means to transport timber products to industrial areas.

**Forest products.** As the timber industry expanded, its primary product—lumber—increased, as did associated enterprises that relied on forest products. Pulpwood was used to make paper. Tanbark, the bark of hemlock and chestnut oak, supplied chemicals needed for tanning. Other specialty products and industries flourished as well. These forest products provided raw materials

for the Industrial Revolution. As forests were harvested, towns were established and then abandoned, sometimes within a few years.

## **Agricultural Abandonment and Forest Regrowth**

Clearing for agriculture reached its peak in the mid 1800's. After the Civil War, there was a gradual increase in the number of forested acres as agricultural land was abandoned and people moved to industrial centers for jobs. Additional land abandonment occurred after the Great Depression in the 1930's. Fields reverted to pine and hardwood forests, many of which exist today. These 60- to 90-year-old even-aged forest stands are rapidly reaching maturity. The species composition and size- and age-class distribution that characterize many of today's forests are the results of natural succession as well as planned forest management and silvicultural practices.

## **The Conservation Movement**

By the late 1800's, there was a burgeoning national conservation movement with leaders such as Theodore Roosevelt, John Muir, and Gifford Pinchot. National attention focused on widescale timber harvesting and the lack of concern for regeneration. This resulted in the formation of the National Park and Forest system and many State forestry agencies. However, the widescale timber harvests that occurred in that century and the early 1900's were not nearly as damaging as the wildfires that followed. Set by sparks from steam engines, fires decimated the seeds and young growth that were to supply future forests. The Maryland State Board of Forestry was organized in 1906, primarily to control forest fires, and until 1944, forest wardens were not paid a salary for their services.

Fred Besley was the first Maryland State forester. He single-handedly inventoried every 5-acre woodlot in Maryland and produced the first forest inventory, which was printed in 1916. Thus, although widespread exploitation dramatically affected our forest resources, it resulted in the establishment of a State forestry agency with the mission of

improving the management of public and private forest resources.

The first State forest nursery was established in 1914 to supply seedlings for reforestation efforts. Starting in the 1950's, the Maryland Forest Division offered woodland owners professional forestry assistance, as well as seedlings, to ensure forest regeneration. In the early 1900's, forestry schools were formed around the nation that sponsored research on how forests could be managed to provide adequate regeneration and meet other land-use objectives. As the schools developed, so did the science of forestry management.

## The Present: A Patchwork of Forest Ownership and Management

### Forest Coverage

Maryland's forests cover 43 percent of the State or 2.7 million acres (Figure 1).

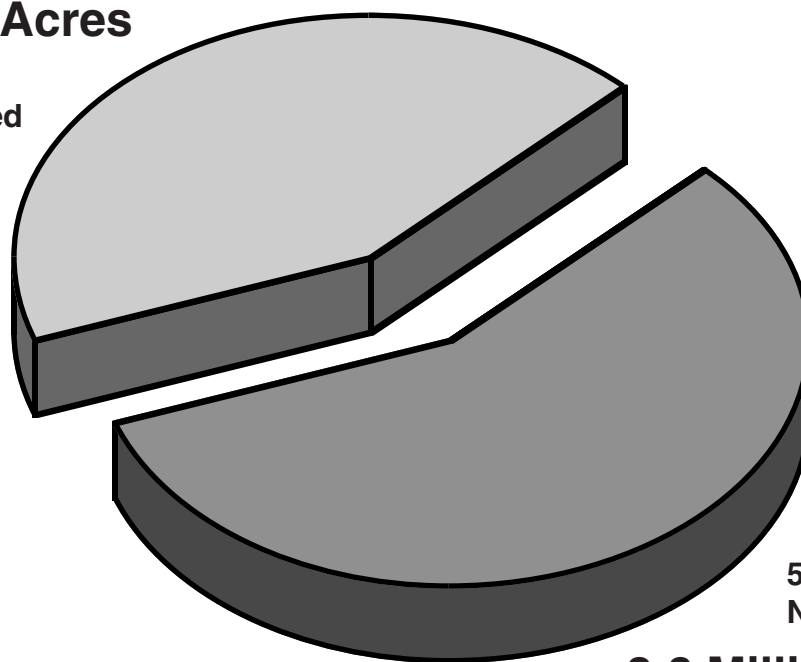
Amazingly, this percentage has remained rather constant from the turn of the century when forests and old fields covered 46 percent of the State. Forest cover varies from the heavily forested (about 73 percent) counties of Western Maryland to the less-forested (24 to 35 percent) urban, suburban, and agricultural counties of central Maryland and the Eastern Shore. Southern Maryland and the lower Eastern Shore also have a considerable amount of forest, 54 to 61 percent and 37 to 51 percent respectively. Ninety percent of Maryland forest is classified as commercial, which means it is capable of producing large mature forests.

Most of the State's commercial forestland regenerated after extensive harvesting at the turn of the century and following farm abandonments. Today, forests of trees greater than 11 inches in diameter (sawtimber) make up the largest percentage of Maryland's forests (Figure 2). At present, 71 percent of Maryland's woodland acreage comprises saw-

Figure 1. Percentage of Maryland Land That Is Forested

**2.7 Million Acres**

**43%  
Forested**

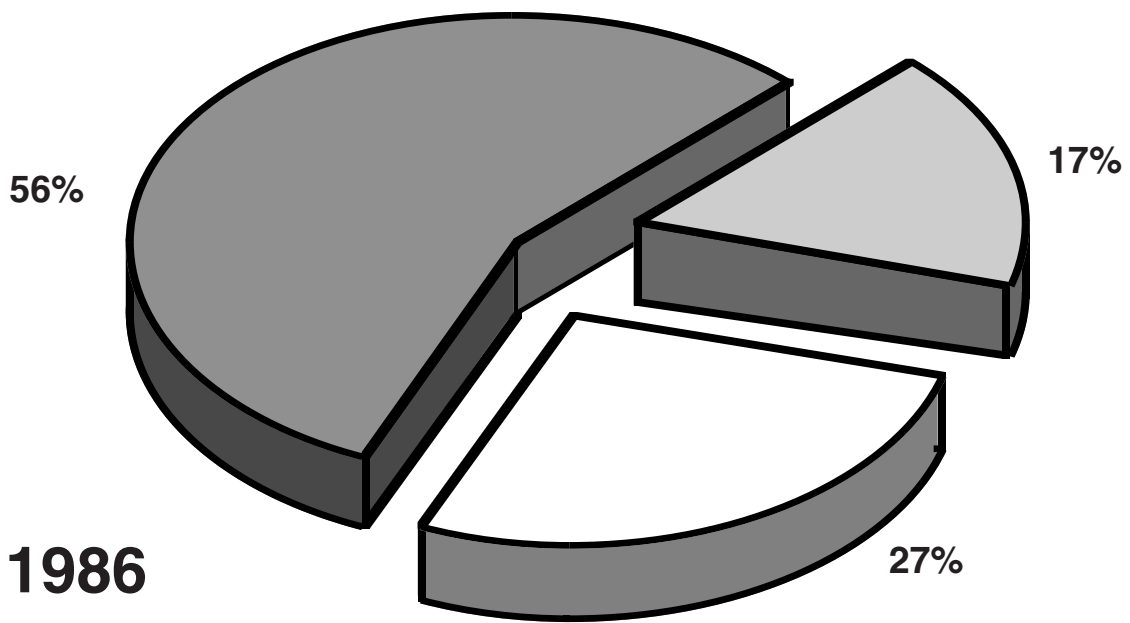
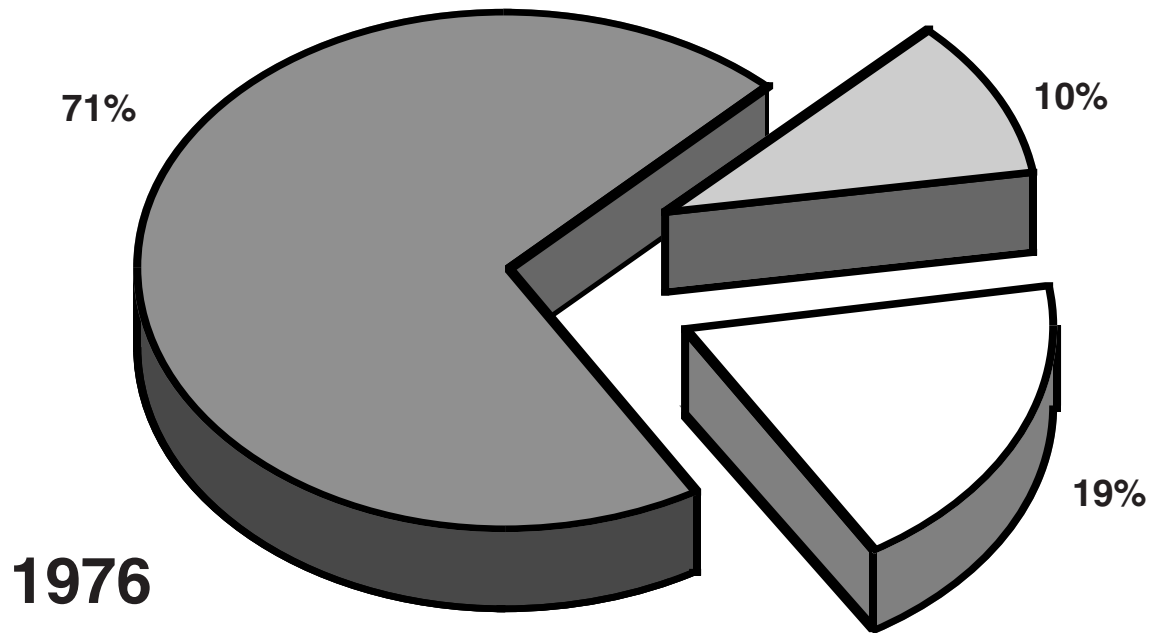


**57%  
Not Forested**

**3.6 Million Acres**

Source: Frieswyk, T.S., and D.M. DiGiovanni. 1988. Forest statistics for Maryland-1976 and 1986. *USDA Forest Service Resource Bulletin*. NE-107.

**Figure 2.** Maryland Forests: Change in Size of Trees From 1976 To 1986.



 **Sawtimber**       **Poletimber**       **Seedling/Sapling**

Source: Frieswyk, T.S., and D.M. DiGiovanni. 1988. Forest statistics for Maryland—1976 and 1986. *USDA Forest Service Resource Bulletin*. NE-107.

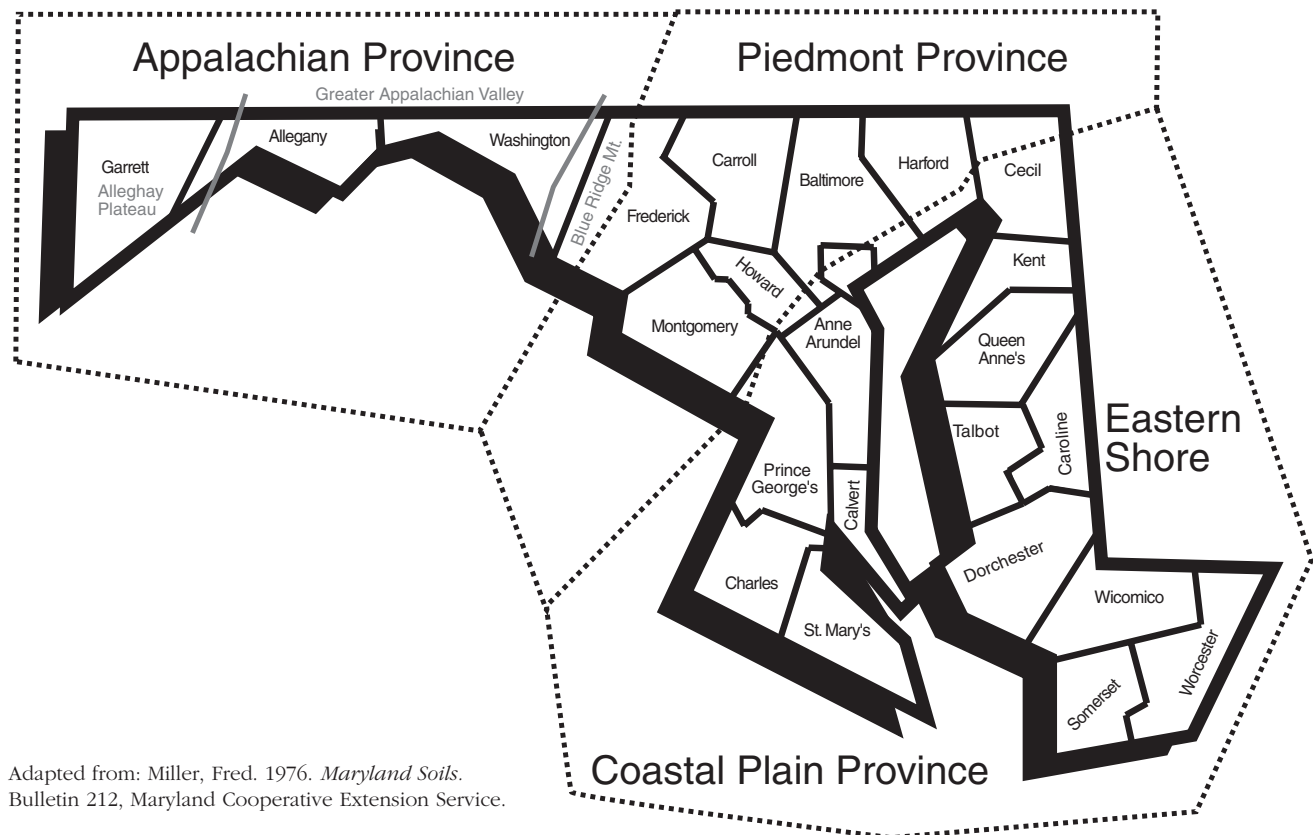
timber-sized trees; 19 percent comprises trees 5 to 11 inches in diameter (poletimber); and only 10 percent contains trees smaller than 5 inches in diameter. As Maryland's forests mature, young forests and the species they support dwindle.

### Forest Zones and Types

If one were to traverse Maryland from the southeast to the northwest, he or she would cover 262 miles and three distinct forest zones (Figure 3). The sandy, flat Coastal Plain Province of southeast Maryland with its mild climate marks the northernmost boundary for southern trees such as loblolly pine and bald cypress. The Piedmont Province of central Maryland supports forests of red, white, and chestnut oak, yellow poplar, and ash with mixtures of pine/oak throughout. Higher in elevation than the Coastal Plain, it is characterized by a broad, undulating landscape with some ridges and low knobs. The

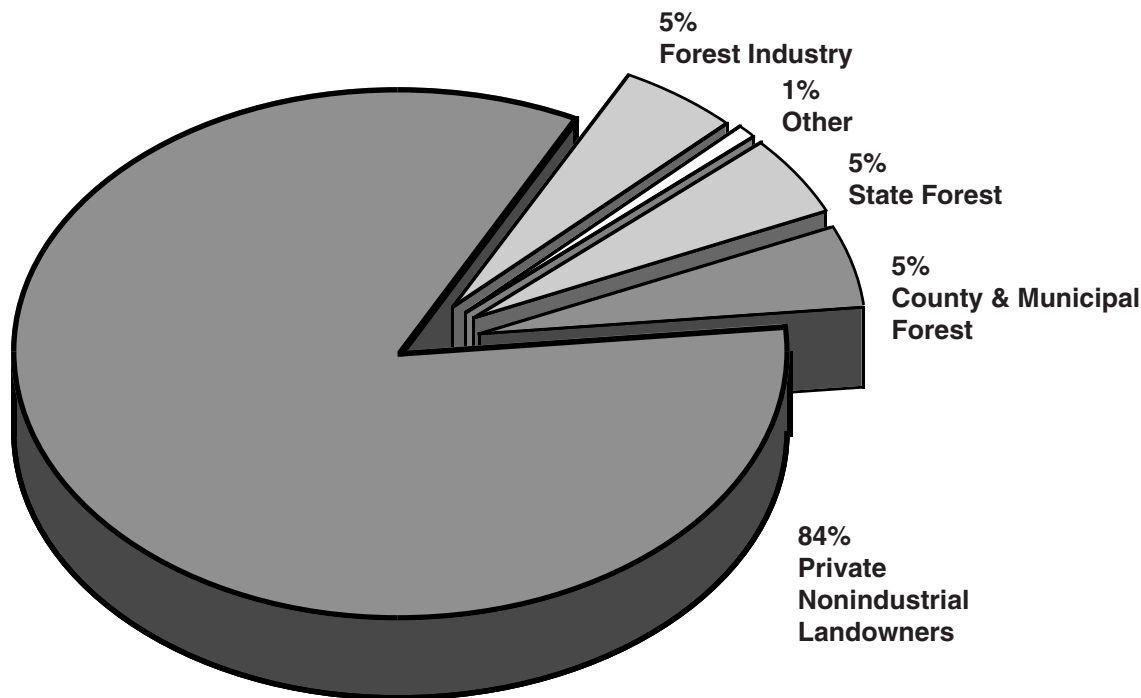
Appalachian Province of Western Maryland includes the Blue Ridge Mountains, the Greater Appalachian Valley, and the Appalachian Plateau. These areas of mountains and valleys contain a diversity of oak forests and northern hardwoods (beech, birch, and maple trees), along with a colder climate. The elevation and relief of this province increases going westward to reach an elevation of 3,360 feet above sea level in Garrett County. More than 150 native tree species are found in Maryland. The dominant forest type across the State is oak-hickory, which covers 60 percent of forest acreage, followed by loblolly-shortleaf pine (12 percent), oak-pine (12 percent), northern hardwood (6 percent), and other types (10 percent). The majority of the timber in Maryland forests is yellow poplar, oak, and red maple—the major species in the oak-hickory forest type.

**Figure 3.** Physiographic Provinces and Their Divisions in Maryland.



Adapted from: Miller, Fred. 1976. *Maryland Soils*. Bulletin 212, Maryland Cooperative Extension Service.

**Figure 4. Maryland Forests: Ownership of Forestland.**



Source: Frieswyk, T.S., and D.M. DiGiovanny. 1988. Forest statistics for Maryland—1976 and 1986. *USDA Forest Service Resource Bulletin*. NE-107.

### **Forest Ownership**

Commercial forest ownership patterns are a patchwork. Among the many reasons for acquiring forestland are investment, recreation, timber production, wildlife habitat, and aesthetic enjoyment. *Contrary to public perception, 90 percent of Maryland forest—2.4 million acres—is privately owned by more than 125,000 individual owners* (Figure 4)! (Only 10 percent of the forest is in public ownership.) Therefore, it is the decisions of private landowners that will have the largest effect on the future of Maryland forests. The majority of the individual holders are nonindustrial landowners, and 55 percent own fewer than 10 acres. However, large properties continue to be subdivided, which makes management increasingly difficult. The diverse objectives of the many landowners, along with growing populations and shrinking resources, cause much conflict. With 25 percent of all private landowners expected to harvest timber in the next 10 years, it is important to provide sound management information on a timely basis.

### **Forests, Population, and Development**

As Maryland's population continues to grow, the greatest threat to forestland is development. From 1973 to 1990, Maryland lost 126,300 acres (4.5 percent) of forestland to development, and this trend is increasing. Between 1990 and 2020, Maryland may lose 6,000 or more acres of forestland per year. This prospect is a cause for great concern. It means that the remaining forestland must be better managed to meet the needs of Maryland's citizens.

### **Forest Health**

Forest insects, diseases, fires, air pollution and other factors threaten the future of our forests. A local scourge, the southern pine beetle, periodically ravages Southern Maryland and the Eastern Shore killing hundreds of acres of woodland, particularly mature timber, and causing large changes in wildlife habitat.

In Northern and Western Maryland, nearly 690 million acres of forestland have suffered

moderate to heavy gypsy moth defoliation, which has killed an estimated 428 million board feet of oak timber. As a result, many oak forests have regenerated with other species—species less amenable to wildlife and less valuable as timber. As the gypsy moth moves south into previously unaffected areas of Southern Maryland and the Eastern Shore defoliation, mortality, and changes in Maryland species composition will probably increase.

Because many factors affect the health of our forests, sound management and regular monitoring of private woodlands is needed to ensure that problems are discovered and treated in a timely manner.

### **Forest-Products Industry**

Forest products are a large industry in Maryland. They play a vital role in maintaining a healthy, vigorous forest and meeting the State's wood-product needs. The industry employs more than 15,500 people, is the largest employer in Garrett and Allegany Counties, and is the second largest employer on the Eastern Shore.

The forest products industry is diverse, including sawmills, a paper mill, pulpwood operations, family-owned logging companies, firewood operators, whole-tree chippers, and veneer log buyers, as well as producers of furniture, cabinets and other secondary wood products. During an average year, millions of board feet of hardwood and softwood timber is harvested in Maryland. In 1993, the income from timber sold on Maryland woodlands, whether as stumpage (price paid to the landowner for standing trees) or cut and then sold, was estimated to be \$29.3 million. This provided a direct economic benefit to Maryland workers. For every \$1 paid to landowners for the sale of timber in 1993, \$14 in direct wages and salaries was generated for the State's economy. The total annual payroll from the forest products industry in Maryland is more than \$420 million. If indirect benefits of these wages and salaries were included, the effect would be even greater.

The partnership of private forest stewards and the forest products industry is mutually beneficial and provides woodland owners

the means to improve tree growth, wildlife habitat and other forest benefits, while contributing to the economic and aesthetic well being of the region.

## **The Future: Putting Forest Stewardship Into Practice**

Today the reawakening of interest in environmental issues has renewed interest in forest stewardship. Forest resources other than wood products will gain attention as populations spread out and Maryland's patchwork of forests, farmlands, and cities becomes more intimately interwoven.

The economic exploitation that characterized the early history of Maryland's forests has been replaced by a more informed style of woodland management. The use of professional foresters and other resource managers to assist private woodland owners in forest management planning and harvest decisions is becoming an accepted practice. Further, the large private ownership of Maryland's forests makes it clear that the stewardship practices implemented by these owners and managers will control the health and productivity for future generations.

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This fact sheet is part of a series on woodland management. If you would like information on additional topics in the series, contact your county Extension office.