

Forest Stewardship

Our Link to the Past— Our Legacy for the Future

Forest stewardship is wisely caring for and using forest resources to ensure their health and productivity for years to come. Stewardship challenges us to look beyond our immediate personal needs so we can leave a lasting forest legacy for future generations. Pennsylvania has an estimated 738,000 private forest owners, who together make stewardship decisions on about 11.5 million acres, or about 71 percent of all the state's 16.8 million acres of forestland. Pennsylvania has abundant high-quality forest resources—some of the best in the world. These private woodlands provide myriad ecosystem services that we rely on to sustain and enhance our quality of life—clean water, clean air, wildlife habitat, recreational opportunities, and many more. Unfortunately there are new pressures on this resource, such as invasive plant, insect, and disease species, the need to sequester carbon, development, and so on. The need in our state for forest stewardship—wise care of and considerate use—is pressing.

Stewardship



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We know from research conducted in the early 1990s that Pennsylvania's woodland owners overwhelmingly want to do the right thing when it comes to taking care of their land. We also know that landowners consider a lack of knowledge and information to be their major stumbling block in that effort. Uninformed landowners unwittingly can degrade their land through well-intentioned management decisions and activities. Resources are available for landowners who want to avoid costly or resource-damaging mistakes in their forests and learn how to be better stewards of their land.

Living Your Stewardship Ethic

Pennsylvania's woodland owners often express a connection or "oneness" with nature. They love their trees and woods and the environment they provide. Oneness is a way of defining closeness, identity, maybe even love. If a person wishes to get closer to something—to develop or share a closer connection—a common response is to build a deeper understanding, know what is important, and express care and concern.

Pennsylvania's private forests amount to 11.5 million acres, or 71 percent of the state's 16.8 million acres of forest. Our private woodlands are composed of nearly 738,000 individual holdings. Most of these woodlots are small; 63 percent are less than 10 acres in size. Relatively few, about 25,000 woodlots, are 100

acres or larger. While private woodlots vary greatly in size, it is very likely that most owners will express a closeness to their land. It is a place they love, where they spend time, build memories, and appreciate nature.

Woodlands might seem inanimate, unable to reciprocate that connection. While the forest is alive, does it care about its interactions with people? It

would be a huge anthropomorphic extension to propose that it cares. However, it does respond to human actions. The relationship between people and woodlands might seem one-sided; however, a poorly cared for woodland cannot return to its caretaker—steward—the same values and benefits that an ecologically healthy woodland can provide.

HOW DO FORESTS ENRICH OUR LIVES?

We can divide the value that forests have for us into three general categories: economic, ecological, and social.

Economic Value

Pennsylvania's forest resources are an essential part of our state's economy. Today, an estimated 70,000 people work in Pennsylvania's \$5.5 billion forest products industry, the fourth largest manufacturing industry in the state. Each year, Pennsylvania's 700 sawmills produce nearly one billion feet of hardwood lumber, while the state's three pulp and paper mills produce more than 780,000 tons of paper. No other state has a greater volume of select hardwood species, including red and sugar maple, red and white oak, and black cherry. Pennsylvania's forest products are in worldwide demand. Pennsylvania's forests also provide food and cover for abundant populations of game animals such as white-tailed deer, wild turkey, and ruffed grouse. The state's average annual revenue from hunting licenses totals more than \$40 million. Our state's annual use of fuelwood—well over two million cords—is one of the highest in the nation. Other forest economic values come from recreation, tourism, and specialty products such as maple syrup and medicinal and ornamental plants.

Ecological Value

For every ton of new wood that grows, trees remove about 1.5 tons of carbon dioxide from the air and release 1.07 tons of life-giving oxygen. Pennsylvania's forests are made up of countless plant and animal species, rocks, and minerals. These ever-changing biological communities are continuously influenced by natural forces such as wind, rain, and sunshine. The complex and remarkable ways these organisms and natural forces work together indirectly provide us with many environmental values or ecological services. Forests protect fragile soils from erosion, protect and purify more than 25,000 miles of streams, and improve air quality. More than 90 tree species and about two-thirds of our native wild plants grow in the forest. Our forests' biological diversity represents a treasure chest of cultural, medicinal, and environmental resources that we are only just beginning to discover. Forests serve as indicators of our planet's health, and they contribute to the solutions of a number of potentially serious environmental problems, including global warming.

Social Value

Forests also provide us with less-tangible benefits such as natural beauty and peace of mind. Think about how forests enrich our lives with wondrous displays of gold, reds, and yellows splashed across the hills each fall; with snow-laden branches glistening after a winter storm; and with fragrant blossoms and birdsongs each spring. A forest is a wonderful place to go hiking, camping, hunting, or bird-watching. Sometimes it is simply a good place to go for a walk and collect our thoughts. Forests and trees clearly add to our well-being and contribute significantly to our quality of life in urban as well as rural places. Forests are often the place where we relax and recreate, and they are often in the background providing a context for much of what we enjoy, like a stroll on a shaded street or a hike in the mountains.

Whether your primary interest in forest resources is economic, ecological, or social, you should recognize that in some way each of these aspects enhances your life. If you accept the challenge to be a better steward of our forests, you will help ensure that our forests continue to provide these benefits for future generations.



If a woodland owner is a steward, the decisions he or she makes toward the land are considered and informed. As woodland stewards make decisions, they draw from the best information available, reflect on alternatives, and understand the long-term changes that will result. Woodland stewards understand that their decisions will likely extend beyond their life and affect the relationship of future owners to that piece of land.

Aldo Leopold, a conservationist in the early to mid-1900s, wrote much about our relationship with the land and is credited with defining a land ethic. In *A Sand County Almanac*, his most famous book, he wrote, "Your woodlot is in fact, a historical document which faithfully records your personal philosophy. Let it tell a story of tolerance toward living things, and of skill in the greatest arts: how to use the earth without making it ugly." This sentiment, while perhaps not articulated in such powerful words, underlies the actions of all woodland owners who are conscientious about caring for their land, being a good steward, and leaving a better legacy than what they acquired. The goal of woodland conservation, education, and stewardship is to help woodland owners act on their stewardship ethic, learn tools and strategies to make well-informed decisions, and ensure their actions promote and reflect their connection to the land.

What Is Forest Stewardship?

Stewardship is about both today and the future. It involves taking responsibility for something, caring for it while you can, and ensuring it well serves those who will hold it in the future.

Woodlands provide an excellent opportunity for describing stewardship. Most woodland owners find real value in their land—they either have or develop a concern for the trees, wildlife, water, beauty, and solitude afforded them by their land.

A steward, according to some definitions, is a person who has the responsibility of caring for someone else's property. If forest stewardship is about ensuring the future values of woodlands, the current owner is in fact a steward. By looking forward to a time beyond the current owner's tenure, a steward cares for the land for those who will steward the land in the future.

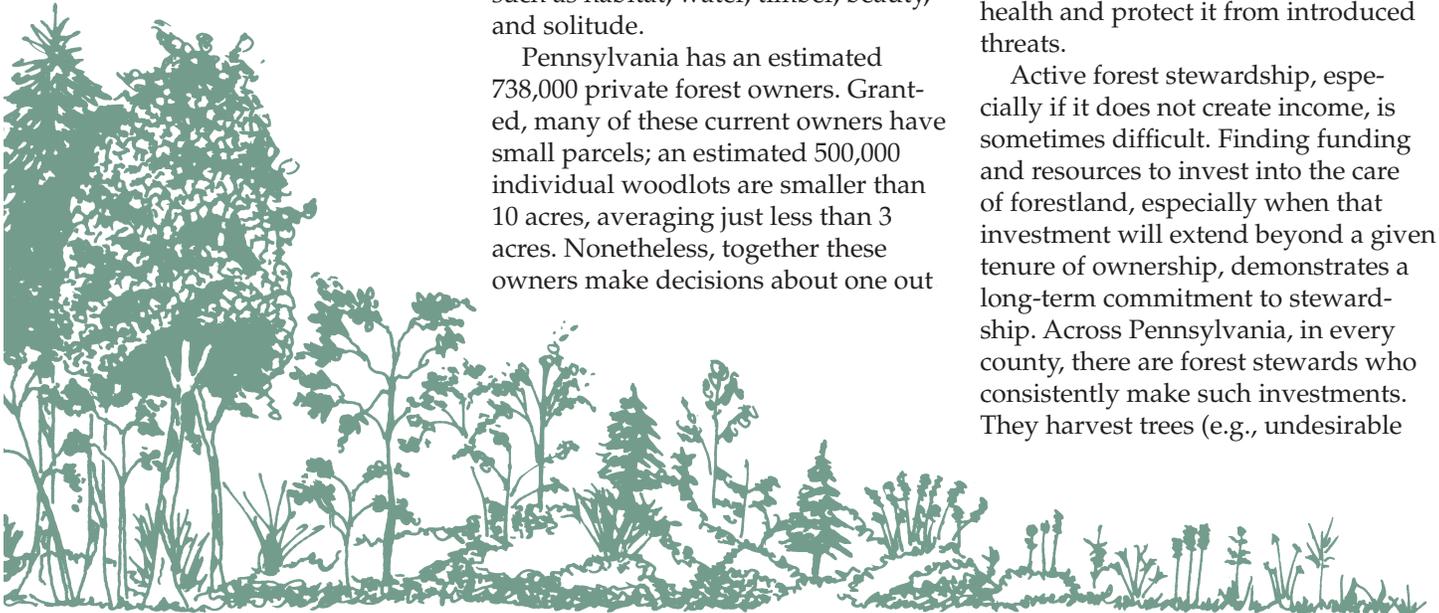
A woodland steward generally wants to protect, enhance, and ensure the continuance of those values they place on the land. To purposefully degrade those values through soil erosion or poorly conceived or conducted timber harvests is not something they would do intentionally. Rather, the intent is to improve the land—to make it better than when it was acquired. Caring for land ensures that it will continue to provide desired values, such as habitat, water, timber, beauty, and solitude.

Pennsylvania has an estimated 738,000 private forest owners. Granted, many of these current owners have small parcels; an estimated 500,000 individual woodlots are smaller than 10 acres, averaging just less than 3 acres. Nonetheless, together these owners make decisions about one out

of every 8 acres of our state's private forests. For these owners, their small woodland parcels are more likely part of their residence and the decisions they make do affect current and future values. Think backyard habitat, water quality, and invasive plants, for example. On an individual basis, each parcel seems small. "Why should I worry about that? I only have 2 acres?" However, cumulatively these lands account for much of our urban and community forests and provide many more public values than just a setting for a home.

The nearly 250,000 holders of parcels 10 acres and larger have the potential to really influence Pennsylvania's forests through their stewardship decisions. Yet we find that many of these woodland owners are passive about their stewardship role. The land is there, they enjoy it, and when appropriate, they engage in active management—maybe they invest in a road, harvest some firewood, or perhaps conduct a commercial timber sale. We often hear that Mother Nature does not need our help. Yet human impacts have introduced threats that our forests have not adapted to. Think about invasive pests such as the emerald ash borer, Asian longhorned beetle, or hemlock woolly adelgid. These threats were brought in by global trade and introduced into a landscape where there is ample food but few to no predators. We find that in many ways, we must undertake action to help mitigate or improve forest health and protect it from introduced threats.

Active forest stewardship, especially if it does not create income, is sometimes difficult. Finding funding and resources to invest into the care of forestland, especially when that investment will extend beyond a given tenure of ownership, demonstrates a long-term commitment to stewardship. Across Pennsylvania, in every county, there are forest stewards who consistently make such investments. They harvest trees (e.g., undesirable



species or poor-quality individuals) that compromise the health of their forest stands, even if these trees are smaller and have no economic value; they plant riparian buffers with white pine and mixed hardwoods to ensure long-term stream cover when the hemlocks die from the adelgid; they reclaim old fields from invasive plants to ensure that early successional habitat is available to wildlife species that require specific forest structure to breed and thrive. Though these landowners may not see the benefit in their lifetime, they are working to improve the forest for the future.

For many woodland stewards, finding resources to invest in the future of a forest is difficult; however, with careful planning and help from confident forest resource managers, it might be possible to make improvements with little or no investment, or maybe there is even the potential to reap some income. Sometimes fortunate woodland owners find windfall income—something unexpected like an estate gift or income from a gas lease or royalties. Maybe it would be prudent to invest some of those resources into their woodlands to demonstrate forest stewardship. If the windfall is large, there may seem to be little reason to plan for, manage, and harvest woodlands when short-term income is not important. Yet, as forest stewards, consider how you remain responsible for the care of woodlands and its future owners.

Many woodlots across the state have been poorly managed in the past. With poor understanding, inadequate planning, or the need or desire to create income, some harvesting practices have led to less than sustainable

outcomes. Sometimes, past practices have shifted tree species composition, or competitive plants and white-tailed deer have limited tree regeneration, especially for desirable species.

In these and many other cases, active, future-focused stewardship would call for planning, investing in practices, and harvesting trees to establish future opportunities and options for

owners yet to come. Good stewardship in many woodlots is not stopping activities; rather, it involves making decisions to move forward. If you are fortunate enough to have the fiscal resources to invest in your woodlands, consider giving the future generations of Pennsylvanians a healthier and more sustainable forest that they can carry forward for the next generations.

WHY WE NEED STEWARDSHIP: A BRIEF HISTORY OF PENNSYLVANIA'S FORESTS

Pennsylvania was aptly named for the seemingly endless stretches of forest that covered the state in William Penn's day. White pine, hemlock, and a variety of deciduous (hardwood) species abounded. But for early colonists, the forests were more of a nuisance than a resource. Colonists' survival depended on their ability to replace the forest with farm fields. That marked the beginning of what would become the widespread and reckless exploitation of Penn's Woods.

The British navy quickly recognized the value of the massive white pine timbers for shipbuilding and claimed many of the best for the mother country. Later, as the new nation grew, logs were floated down every possible river and stream to be sawn in mill towns. Huge rafts of Pennsylvania logs were floated to cities as far away as New Orleans. The early iron industry consumed endless acres of hardwoods to make charcoal to fuel its furnaces. Railroads improved transportation options and encouraged further harvesting. In the late 1800s, narrow-gauge logging railroads made it possible to harvest timber from mountainous areas miles away from waterways. The tanning and wood chemical industries emerged to use even the smallest, lowest-grade material that could be transported.

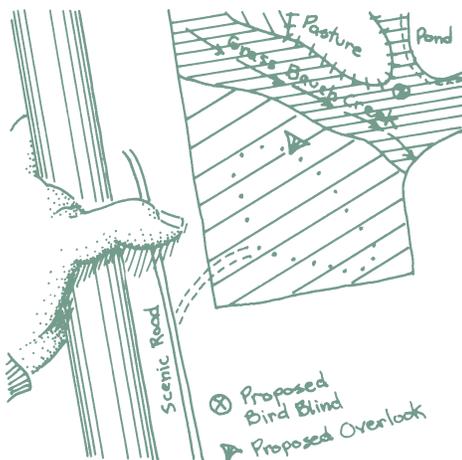
By the 1920s, Pennsylvania largely had been cleared of its majestic forests. Repeated forest fires and soil erosion slowed the forests' recovery. On top of that, chestnut blight entered the state and rapidly eliminated the American chestnut—one of the most environmentally and economically valuable trees ever to grow in Pennsylvania forests. Because of nature's resilience, and in part because of the farsighted efforts of early conservationists and natural resources professionals, Pennsylvania's forests rebounded, but without American chestnut as part of the species mix. Today, our forests are generally healthy and growing and in their best condition of the last 150 years.

Our forests are not without problems, however. The lack of forest regeneration, particularly of some oak species, and a decrease in native biodiversity, caused in part by high populations of white-tailed deer, are significant concerns. The introduction, intentional and otherwise, of certain invasive, exotic plants such as multiflora rose and some honeysuckles also threatens the existence of numerous native plant species. Outbreaks of exotic pests such as the gypsy moth and a host of native defoliators continue to stress the forests. Wildfire remains a serious threat in the wildland/urban interface.

Private forest landowners, who control most of the woodland resource, seldom seek the help of resource management professionals despite increased interest in timber harvesting. Good forestry is so much more than cutting big trees. Good forestry requires concern for and understanding of the effects of our decisions and actions on the well-being of the entire forest ecosystem. We can avoid serious degradation of the forest when knowledgeable landowners and natural resources professionals plan and work together.

To meet the ever-increasing demand on Pennsylvania's forest resources, we must manage our forests to keep them healthy and productive for the long term—an idea known as forest sustainability. Our past exploitation now necessitates our benevolent management. We cannot again treat our woodlands with disregard and count on Mother Nature to restore one of the world's richest forests a second time.

Forest sustainability is the focus of the Forest Stewardship Program, designed specifically to meet the needs of private forest landowners who care about their land. If you are such a landowner, we hope you will join us in the stewardship of Penn's Woods.



What Is the Forest Stewardship Program?

The Forest Stewardship Program was first authorized under the Forestry Title of the 1990 Farm Bill. The U.S. Department of Agriculture (USDA) Forest Service administers the program nationally, and the Pennsylvania Department of Conservation and Natural Resources (DCNR) Bureau of Forestry directs the program with guidance from a state-wide steering committee.

The Forest Stewardship Program does not tell you what you should do on your own land. Instead, it helps you make well-informed decisions about options and outcomes for your land, and what you want to do. The goal is to sustain healthy and productive forests for people and wildlife by providing landowners and the public with publications, newsletters, webinars, assistance and education from service foresters, and other resources at little to no cost to the woodland owner.

How Does the Forest Stewardship Program Help Me?

The Forest Stewardship Program provides information, education, and technical assistance to encourage, help, and recognize private forest landowners who keep their lands and natural resources productive and healthy. One of the great advantages of becoming a forest steward is that you link into a valuable network of information, knowledge, and assistance, provided through various publications, natural resources professionals, and fellow forest landowners. Only your desire for knowledge will limit what you can learn about sound forest management, regardless of your interests and objectives for your land. The Forest Stewardship Program shows you how and where to find information and assistance.

Anyone interested in the Forest Stewardship Program can receive

a quarterly hardcopy newsletter or monthly e-newsletter, *Forest Leaves*, which provides information on various aspects of forest management, from harvesting timber to building a brush pile for wildlife to learning more about forest wildflowers. The newsletter also informs readers of other useful publications available at little or no cost, including this one and the entire series of *Forest Stewardship* publications. See the box at the bottom of page 6 for publication ordering information.

Other opportunities for advancing your stewardship education are monthly webinars, workshops and training opportunities, regional or county woodland owners associations (visit extension.psu.edu/natural-resources/forests/private/woodland-owners-associations), engagement with natural resources professionals (starting with your county DCNR Bureau of Forestry Service Forester), and the Pennsylvania Forest Stewards volunteer program. The latter is a peer-to-peer educational network wherein landowners and others interested in good stewardship of forestlands come together to learn more about caring for their woods and agree, in turn, to share what they've learned with other landowners, youth, and the general public.



A Final Thought

Every day we depend on products or services that come from the forest. Each time we alter the web of forest life, we have an obligation to see that our actions help protect the forest's long-term existence and the diversity of living organisms that call it home.

Because we all use and enjoy wood and paper products, benefit from the clean air and water that forests provide, and need and want the peace and beauty of our forests, we must work to maintain a balance that allows us to use and enjoy our forests while promoting their vitality over the long run.

Forest stewardship challenges us first to understand the natural processes that take place in a forest. Then it challenges us to ensure that when we alter these processes, we do so in a way that continues to enrich the lives of all who depend on forests—wildlife, humans, and generations yet to come.

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The Forest Stewardship Program is administered nationally by the USDA Forest Service and is directed in Pennsylvania by the DCNR Bureau of Forestry with assistance from a statewide steering committee. The Forest Stewardship Program assists forest landowners in better managing their forestlands by providing information, education, and technical assistance. For more information about program services, contact the Pennsylvania Forest Stewardship Program, DCNR Bureau of Forestry, PO Box 8552, Harrisburg, PA 17105-8552; phone: 717-787-2160. For more information about publications, contact the Pennsylvania Forest Stewardship Program, Department of Ecosystem Science and Management, 416 Forest Resources Building, University Park, PA 16802-4705; phone: 800-235-9473.

