



NATURAL RESOURCES

FOREST RESOURCES



FORESTS

"Conservation is the foresighted utilization, preservation and/or renewal of forests, waters, lands and minerals, for the greatest good of the greatest number for the longest time."

Gifford Pinchot

Forests Defined

In a critical area, Forests are a biological community dominated by trees and other woody plants covering a land area of one acre or more. This also includes forests that have been cut but not cleared. In other areas, Forests are a biological community dominated by trees and other woody plants covering a land area of 10,000 square feet or greater. ¹

Forested Land in Centre County

Centre County lies within the Eastern Deciduous Forest Community within Pennsylvania and more specifically is dominated by white pine-hemlock-hardwood type forest species and oak-chestnut forest species. The most abundant hardwoods in Centre County are northern red oak, red maple, white oak, black oak, chestnut oak, scarlet oak, shagbark hickory, and mockernut hickory. Softwood species include hemlock, white pine, and pitch pine.



Figure 1: Forest Strata Layers

An Eastern Deciduous Forest is dominated by trees that drop leaves in winter (deciduous trees). Throughout this type of forest, mature trees range in height from 60 to more than 100 feet, and the forest is usually layered with a distinct canopy, understory, shrub, and herbaceous layers. (See Figure 1: Forest Strata Layers) The canopy is distinguished by the crowns of the tallest trees. Beneath the canopy, lies the understory which consists of smaller tree species. Below the understory is the shrub layer made up of species such as Mountain Laurel which is very common in Pennsylvania. The shrub layer is atop the herb/fern layer which is most evident in spring when many spring ephemerals and wildflowers are in bloom.

Forest strata layers also called stratification allow various plant-growth forms to co-exist within a given habitat. The structure of the forest is made of multiple layers that create multiple habitats for abundant plant and animal species. Stratification is one pattern by which several distinct kinds of plants can share the same space and resources.

When the first settlers arrived in Centre County the landscape was virtually entirely forested. The vast forests attracted and supported considerable lumbering activity for many years. A tremendous amount of lumber was cut, especially in the first half of the 19th century, for charcoal to fire approximately 20 ironmaking furnaces and forges in the county. One figure referenced in an 1876 publication edited by Franklin B. Hough, Pennsylvania, was 300,000 bushels of charcoal were needed annually to fire the county furnaces. Sawmills were also in abundance early in Centre County history, taking advantage of the fast moving streams for power to provide lumber for housing, farm buildings, tools, and even roads. It is estimated that there were approximately 45 sawmills in the County by 1810, with a combined production of 3,370,000 board feet. Looking at Pomeroy Atlas of Centre County (1874) shows more than 60 sawmills. Lumber trade districts in the 19th century were identified in Beech Creek, Snow Shoe, Karthus, Moshannon, Philipsburg, and Bald Eagle areas.

¹ *A Glossary of Zoning, Development, and Planning Terms*, American Planning Association, Planning Advisory Service, 107, December 1999



Figure 2: Underwood Mills, Former Village in Rush Township, Lumber to be Shipped, Source: Centre County Historical Society Website

Centre County covers a great array of landscape and landform features ranging from the Allegheny Plateau to its gently rolling limestone valleys and forested sandstone ridges. (See Figure 3: Physiographic Regions) The landscape has undergone changes resulting from various uses it has experienced during the course of human settlement, most notably from agriculture, timber extraction, and mining. Agriculture remains prevalent in the limestone valleys of the County, forestry stands as an important industry especially within the ridgelines and plateau, and residential and urban use is increasing. The condition of Centre County's ecological resources today closely reflects this history of human land use.²

Natural communities have redeveloped across large swaths of the landscape previously used for timber extraction and the historical industry of iron ore mining. The Allegheny Plateau area and especially the ridges in the eastern part of the County today have large areas of contiguous forest that provide abundant habitat for forest dwelling species. The forested areas also help to maintain water quality, a relationship particularly reflected within the numerous Exceptional Value watersheds³ in the County.

² *Centre County Natural Heritage Inventory*, Western Pennsylvania Conservancy, December 2002

³ *Exceptional Value Waters* is a stream or watershed which constitutes an outstanding national, state, regional or local resource, such as waters of national, state or county parks or forests; or waters which are used as a source of unfiltered potable water supply, or waters of wildlife refuges or state game lands, or water which has been characterized by the Fish and Boat Commission as "Wilderness Trout Streams", and other waters of substantial recreational and ecological significance. (Source: Special Protection

Throughout the environment of the forested regions exist many unique communities and the condition of those forest communities varies across the County. While some areas have experienced regrowth, other areas are fragmented by clearings related to gas extraction, utility right-of-ways, and certain management practices. Regardless of the varied condition of Centre County's forested lands, the contiguity of land in natural condition across the ridges is a great benefit to the County's ecological integrity and overall habitat.⁴

The Natural Heritage Inventory (NHI) for Centre County is a listing of the County's significant ecological resources. The first inventory was completed in 1991 and updated in 2002. The NHI identifies Biological Diversity Areas⁵ (BDA), Landscape Conservation Areas⁶ (LCA), and managed lands. Centre County also contains seven communities that have been identified as Dedicated Areas⁷ including:

- Bear Meadows Natural Area
- Big Flat Laurel Natural Area
- Black Moshannon Bog State Park Natural Area
- Burns Run Wild Area
- Detweiler Run Natural Area
- The Hook Natural Area

Waters Implementation Handbook, Commonwealth of Pennsylvania, Department of Environmental Resources, First Edition, November 1992

⁴ Ibid

⁵ A Biological Diversity Area is defined as containing one of the following: One or more occurrences of plants, animals, or natural communities recognized as a state or federal species of concern. High quality examples of natural communities or areas supporting native diversity. (Centre County Natural Heritage Inventory, December 2002)

⁶ A Landscape Conservation Area is a large contiguous area which is important because of its size, open space, habitats, and/or inclusion of one or more Biological Diversity Areas. Although a Landscape Conservation Area includes a variety of land uses, it typically has not been heavily disturbed and thus retains much of its natural character. (Centre County Natural Heritage Inventory, December 2002)

⁷ Dedicated Areas are managed lands, public or private, where the owners' stated management objectives are the protection of natural ecological systems and biological diversity. (Centre County Natural Heritage Inventory, December 2002)

- Thickhead Mountain Wild Area

These Dedicated Areas are managed lands, either privately or publicly and are legally bound properties not to be confused with areas of natural heritage importance which are primarily identified by their ecological significance alone. Dedicated lands in Centre County are very critical managed lands because plans to protect the ecological resources already exist. Centre County Natural Heritage Inventory Map and Listing of Sites by Significance are found in Appendix A-1 and A-2.

One example of a unique community in Centre County is the Scotia Barrens which is identified by the NHI as a Biological Diversity Area. The NHI has documented the area which encompasses parts of Patton, Ferguson, and Halfmoon Townships as containing a regionally rare community type that hosts species of state and global concern. The Barrens has a unique microclimate as a result of mining of iron ore, widespread fires, and deforestation of the forest for charcoal back in the 1800's. This community now contains pine and scrub oak trees and because of its vegetation and topography remains one of the coldest areas in Pennsylvania.

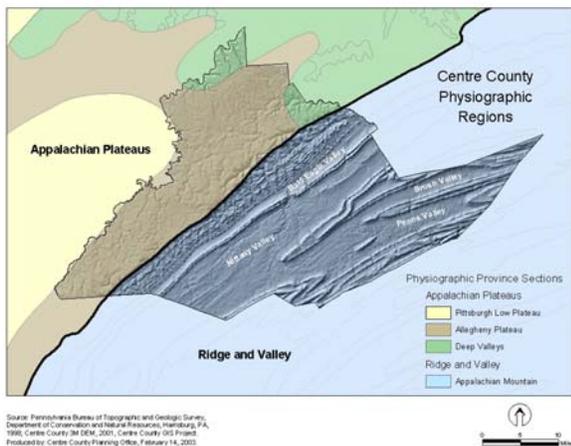


Figure 3: Physiographic Regions

Centre County Forest Land Ownership

Nearly sixty percent of Pennsylvania's 28 million acres is forested. Seventy five percent of the forested land in the State is owned privately.

State forests account for approximately 12% and Game Lands account for about 9% in Pennsylvania. Centre County encompasses 709,120 acres of land of which 535,100 acres are forested. Similar to the trend on the state level, while thirty-three percent of the County's land is owned publicly, and sixty seven percent of the land is held in private ownership.⁸ (See Figure 4: Forestland Ownership) These forests are a vital resource to sustaining Centre County's economy and environment.

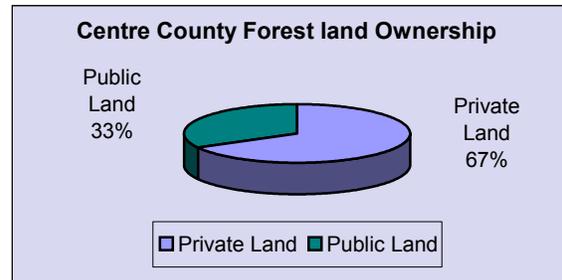


Figure 4: Forest Ownership

Nationally Pennsylvania ranks number one in hardwood production. Forest-based recreation in Pennsylvania is a large component of tourism, the state's second-largest industry. (See Figure 5: Centre County Land Use)

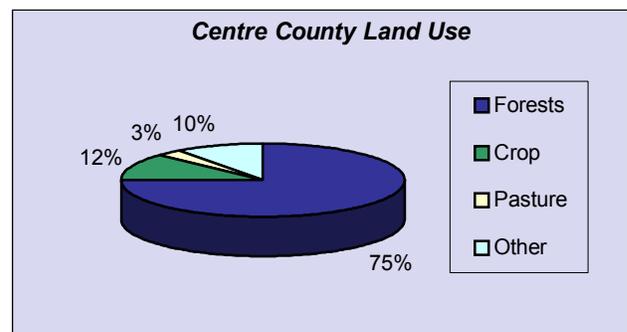


Figure 5: Centre County Land Use

Private Owned Forests

Managing a forest woodland means carrying out a series of planned activities intended to achieve the property owner's objectives. Because most of the forested land in Centre County is privately owned this becomes a very important issue in ensuring the health and productivity of our

⁸ *How Important is Forestry in Centre County?*, A Publication by Penn State, School of Forest Resources, 2002

forests. Historically owners of private woodlands were referred to as “small woodlot owners” and the land as “farm woodlots”. Typically these landowners had forested land ranging in size, with only a small percentage farming the land and the greatest use being investment purposes and recreational activities.

All timber harvesting operations in Pennsylvania must have a plan to control erosion and sedimentation. Disturbance of 25 acres or more require an Erosion and Sedimentation Control Permit. As a result, state regulations (25 Pa. Code, Chapter 102) require that all earth disturbances have a site specific erosion and sedimentation control plan. Department of Environmental Protection compliance specialists and The Department of Environmental Protection regional offices are responsible for enforcing this regulation and delegation is also provided to County Conservation Districts which have trained erosion and sedimentation technician personnel on staff. Other aspects of timber harvesting such as stream crossings, logging of access roads, wetlands, and fish habitat may require permitting actions and concerns should be directed to the local County Conservation District. Certified Conservation District personnel, Department of Environmental Protection compliance specialists and engineers, and Pennsylvania Fish and Boat Commission Waterways Conservation officers have the legal power to enter private property for the purpose of administering applicable laws and regulations.⁹

The former Occupational Safety and Health Administration (OSHA) logging standards that went into effect in February 1995 replace the OSHA pulpwood logging safety standards and are designated in the OSHA safety standards package as Sec. 1910.266 Logging Operations. All logging operations, regardless of the product produced are covered. Logging is considered one of the most dangerous occupations in the United States and safety standards designated by OSHA should be taken seriously.

Private woodland owners have many best management practice opportunities and assistance available. Most woodland owners

maintain their property for many unique uses but many do harvest and sell timber. Most of these timber harvests are completed without a timber management plan. The selling of timber without professional guidance and a management plan may result in a forest cutting that decreases the long-term productivity of the woodland. The first step in forestland management is to develop a working relationship with the individuals that can offer assistance. The Rural & Community Forestry Section of DCNR's Bureau of Forestry is the responsible agency for giving professional advice, guidance, and technical assistance to private landowners. A forest stewardship plan educates a landowner as to what their resources are, what condition they are in, and what can be done to achieve the landowner's goals. The Forest Stewardship Program in Pennsylvania is operated with the intent to sustain healthy and productive forests for people and wildlife. Since 1990, this project has been funded in all 50 states. This program provides cost-share monies to help a landowner with their plan and a Bureau of Forestry service forester is assigned to the landowner for guidance and to help them get started. Woodlots that are managed professionally yield more timber and suffer less environmental impacts. Other types of professional assistance are available through the Bureau of Forestry, Penn State Cooperative Extension, forest industry professionals, and private consultants. Forest landowner associations provide informational assistance and educational programs to help members better manage their forest resources. An example of a forest landowner association in Centre County is the Woodland Owners of Centre County. (Contact located in Huntingdon, PA) Woodland Associations is a good venue to interact with forestry professionals, VIP members, woodland owners, and other landowners interested in forest stewardship.

Consultants are in the business of providing forest management services that include:

- *Appraisals of value*
- *Acquisition of forest land*
- *Computer services*
- *Environmental impact studies*
- *Environmental regulatory compliance*
- *Estimates of timber value*
- *Insect and disease control*
- *Management of forest resources*
- *Timber stand improvement*

⁹ Best Management Practices for Pennsylvania Forests, Penn State College of Agricultural Sciences

- *Forest regeneration*
- *Marketing forest products*
- *Urban forestry*
- *Taxation counseling*
- *Timber trespass*
- *And Timber damage evaluation*

Municipal Regulations

In Acts 67 and 68 amending the *Pennsylvania's Municipalities Planning Code* (adopted June 2000), new provisions for agriculture, forestry, and mining were signed into law. Added to the amendments affecting forestry by Act 68 is: To encourage maintenance and management of forested or wooded open space and promote the conduct of forestry as a sound and economically viable use of forested land throughout this commonwealth; forestry activities, including, but not limited to timber harvesting, shall be a permitted use by right in all zoning districts in every municipality."¹⁰ Municipalities wishing to exert some influence over forestry activities will have to modify their ordinances with technically sound provisions with respect to this activity. The new legislation is aimed toward the utilization of natural resources while guiding growth and development.

Public Forest Lands

The Mission of the Bureau of Forestry is to ensure the long-term health, viability and productivity of the Commonwealth's forests and to conserve native wild plants.



The purpose of state forests by law is “to provide a continuous supply of timber, lumber, wood and other forest products; to protect the watersheds; conserve the water and regulate the flow of rivers and streams of the state; and to furnish opportunities for healthful recreation to the public”. Our state forests play a critical role in preserving biological diversity and protecting special plant and animal species. Natural areas are identified throughout the state and are

¹⁰ Agriculture, Forestry, and Mining in Acts 67 and 68 amending the Pennsylvania Municipalities Planning Code (adopted June 22, 2000)

managed with little human interference allowing nature to take its own course.

The state forest system is divided into 20 forest districts, each with a district office, and a district forester. Centre County encompasses four forestry districts, which include Bald Eagle State Forest, Moshannon State Forest, Rothrock State Forest, and Sprowl State Forest. (See Appendix A-3 and A-4) These district forests provide a prominent role for our public lands by protecting the lands from fire, harmful insects and disease, timber management, wildlife habitat, and recreational needs of the forests users.

The state forest management goal is to manage state forests sustainability under sound ecosystem management, to retain their wild character and maintain biological diversity while providing pure water, opportunities for low density recreation, habitats for forest plants and animals, sustained yields of quality timber and environmentally sound utilization of mineral resources.¹¹

The Bureau of Forestry management strategy has changed to a “Forest Ecosystem Management”¹² approach. Ecosystem Management is the implementation of practices that will promote the long-term health of the forest ecosystem measured by important ecological indicators. This management approach will attempt to mimic natural processes. Natural gas leases have incorporated new regulations with more emphasis on ecological issues. All silviculture practices (manipulation of the forest to improve growth or regenerate) are followed by a prescription procedure by a professional forester. All funds from timber sales on forestry lands return to the Bureau of Forestry with ten percent of those funds going toward regeneration processes.

The Division of Forest Fire Protection under the Pa DCNR Bureau of Forestry is responsible for

¹¹ (Source: State Forest Resource Management Plan 2001-2005, Pennsylvania Department of Conservation and Natural Resources, Bureau of Forestry)

¹² Forest Ecosystem Management is the implementation of practices that promote the long-term health of the forest ecosystem as measured by important ecological indicators.

the prevention and suppression of wildfire on the estimated 17,000,000 acres of wildlands throughout the commonwealth. This division of the Bureau of Forestry maintains a fire detection system and works with local fire wardens and local fire departments to insure that they are trained in advance in fire prevention.

Pennsylvania's state forests offer an abundance of high quality forest products, a source of revenue, and a base for an industry that generates many needed jobs. Centre County's state forests present a tremendous opportunity for recreation and a large area publicly owned for plant and animal habitat.

State Game Lands

The Pennsylvania Game Commission is the one sole agency charged with protecting, preserving, and managing the diversity of wild birds and mammals and their habitats. The Pennsylvania Game Commission owns 1.4 million acres in Pennsylvania and approximately 65,000 acres in Centre County. These lands are purchased by hunting and trapping fees and other revenues are received by timber, gas, and other mineral sales on game lands. The agency services include wildlife management, law enforcement, land management, and information and education. Wildlife rehabilitator and taxidermist permits, furtaking licenses, and maintenance of an elk viewing area are examples of a few of the special services the game commission provides to Pennsylvania residents.

Vehicular traffic, riding of animals, property damage, damage to plants and animals, and removal of certain materials are regulated to some degree on State Game Lands. Expanding populations and increasing urban sprawl pose a threat to these public lands by unrestricted uses, habitat degradation, and soil erosion and water pollution that are detrimental to the wildlife, flora and fauna on these lands. Discussions with Game Commission staff indicate the most serious threats to Game Lands include:

- *Dumping of yard waste, deer parts, and shingles and other household debris*
- *General littering*
- *Invasive species such as Multiflora Rose, Stripped Maple, and Sweet and Hayscented Ferns*
- *Hemlock Wooly Adelgid in future*

Centre County's Game Lands offer an abundance of uses for individuals seeking open space to conduct recreational activities.

State Park Lands

The Department of Conservation and Natural Resources was established in 1995 and charged with preserving and maintaining Pennsylvania's 116 state parks and 2.1 million acres of forest land. The primary purpose of state parks is to provide opportunities for enjoying healthful outdoor recreation and serve as outdoor classrooms for environmental education.¹³ Centre County's State Parks offers residents educational programs, historic areas, natural areas, and an abundance of recreational opportunities from fishing to cross country skiing. State Parks within Centre County include Bald Eagle State Park, Black Moshannon State Park, Penn Roosevelt State Park, Poe Valley and Poe Paddy State Parks.



Mid State Trail, Approaching Poe Paddy Mountain Tunnel, Poe Paddy State Park

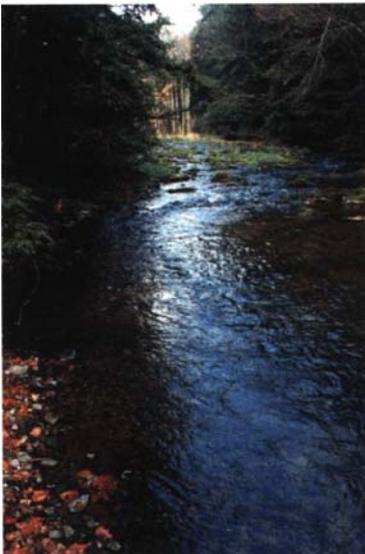
Benefits of Forests

Forests contribute more than wildlife and timber. The recreational value of forests for walking, camping, hunting, and nature observation are probably the most recognized. Forest resources can be considered in both economic and non-economic benefits. Some forest lands possess exceptional values that deserve to be protected. Many host rare plants and animals, offer unique

¹³ State Parks, Department of Conservation and Natural Resources, Website

recreational opportunities, and spectacular views.

Forests provide a renewable source of lumber, paper, nuts, and chemicals. The sale of timber products from state forests returns money to the Commonwealth and provides a stable resource base for the forests products industry. Forests provide a diversity of habitats for plants and animals over space and time. These significant habitats are essential for the survival of many sensitive species. Forests are critical in respect to water quality. Forest soils absorb runoff, filter water, and trap contaminants. Trees and other plants reduce the impact of rain while the root systems hold the soil in place. Tree roots have proven to be the best device to hold streamside soil in place. A canopy of limbs and leaves slows the downward fall of precipitation, reducing the force of impacts on the soil, the rate of surface water runoff, and the rate of erosion.



Forested Riparian Buffer, Source: Upper Penns Creek Watershed Assessment, LandStudies, April 2002

Healthy streams and watersheds are linked to trees by the water which runs through them. Forests directly adjacent to streams and rivers are termed riparian forests. Riparian forest buffers¹⁴ are valuable for improving water quality and preserving biological diversity. (See

¹⁴ A Riparian forest buffer is the area of forested land adjacent to a body of water, stream, river, marsh, or shoreline which forms the transition between the aquatic and terrestrial environment. Source:

Appendix A-4) The most general function of riparian forest buffers systems is to provide control of the stream environment. An ideal riparian buffer, from a wildlife habitat and water - quality standpoint, is a forested buffer, as wide as possible.¹⁵ Rain that runs off the land can be slowed and infiltrated in the forest, which helps settle out sediment, nutrients and pesticides before they reach streams. Buffered areas also provide the most diverse habitats for fish and wildlife. The fallen trees provide cover for fish species while also preserving stream habitat over time. Forest diversity is valuable for mammals and birds for survival. Cool stream temperatures maintained by riparian vegetation are essential to the health of aquatic species. Shading moderates water temperatures and protects against rapid fluctuations that can harm stream health and reduce fish spawning and survival. Leaves fall into a stream and are trapped on woody debris and rocks where they provide food and habitat for crustaceans, amphibians, insects, and small fish, which are critical to the aquatic food chain.

Forests replenish the earth's oxygen through photosynthesis and improve atmospheric quality by removing dust and pollutants from the air and control noise. It is estimated that for a ton of growing wood; approximately 1.47 tons of carbon dioxide is removed from the air and 1.07 tons of oxygen provided. Growing forests are considered an important **sink** for greenhouse gases.

Forests are natural filters of pollutants and dust in the air and act as natural barriers to wind, snow, rain, and solar radiation. Public and private interests recognize that forests have economic, recreational, wildlife, water supply, and scenic importance.

Economic Benefits

Pennsylvania's forest products industry is fundamental to the state's economy and to the livelihood of the residents. Pennsylvania ranks number one as the nation's largest hardwood lumber manufacturer and the industry provides more than 10% of Pennsylvania's manufacturing workforce. Private landownership of forested

¹⁵ Upper Penns Creek Watershed Assessment, Landstudies Inc., April 2002

land contributes approximately 80% of timber products. Pennsylvania is the nation's largest producer of hardwood lumber, producing over 1 billion board feet per year. The average cost of a board foot of lumber is estimated to be .15 cents. A board foot is a unit of measurement 1 foot long, 1 foot wide, and 1 inch thick, or its equivalent. The timber and forest products industry is the fourth-largest manufacturing industry in the state, employing over 90,000 workers in 2,500 firms, and contributing almost 5 billion dollars annually to the state's economy.¹⁶ Individual firms range from one-person cabinet shops to major facilities that employ several hundred individuals. Products may range from engineered wood products to fine wood furniture. The furniture manufacturing industry has experienced an increase in Centre County with the sustainable business as Spectra Wood and WoodCraft Industries which has created 100 new jobs in Centre County. Rural areas of the County benefit by the production of non-forest products such as maple syrup, mushrooms, and ginseng.

Source: 1993 USDA Forest Service, Northeast Forest Experimental Station, PA Department of Labor, Publication by Penn State University, School of Forest Resources

Timber management provides significant tax benefits to local governments. According to a study conducted by the American Farmland Trust, timberland and farmland yield an average of \$3 in taxes for every \$1 in required government services, while residential land costs \$1.11 in services for every \$1 collected in tax revenues.¹⁷

Recently, Pennsylvania's job mix among sectors continued to experience the major shift of the 1990's, with job gains in services and retail trade. Agriculture, forestry, and fishing accounted for 1.1% of the total employment of 5,635,806 total employees in Pennsylvania from data collected June of 1999. Agriculture, forestry, and fisheries experienced 11.2%

¹⁶ How Important is forestry in Centre County? A publication by Penn State University, School of Forest Resources, 2002

¹⁷ Timber Harvesting in Pennsylvania, College of Agricultural Sciences, School of Forest Resources, Penn State, 1994

change in employment by sector from June 1999-2001.¹⁸

Under the authority of the McSweeney-McNary Forest Resources Act of 1928 and subsequent acts, including the Renewable Resources Planning Act of 1974 and the Renewable Resources Research Act of 1978, the USDA Forest Service conducts periodic forest inventories of all states to provide up-to-date information on the forest resources of the nation. Pennsylvania's initial inventory was conducted in 1958. A second and third inventory was conducted in 1968 and 1978. Information provided below in the tables was conducted in 1988 and was a cooperative effort of the Pennsylvania Bureau of Forestry, Department of Environmental Resources, the Allegheny National Forest, and the Northeastern Forest Experimental Station.¹⁹ Information, data analysis, and data tables from these forest surveys was conducted by Clifton E. Rodgers & Associates for the Centre County Planning Commission in a Comprehensive Plan 1970 Background Studies Report. (See Appendix A-5)

CENTRE COUNTY FOREST FACTS	
Estimated number of private forestland owners	14,700
Number of forestry and wood products establishments	21
Number of forestry and wood products employees	402
Value of standing timber	\$314,10million
Annual value of timber harvest	\$9.84 million
Annual contribution of forestry sector	\$12.6million

¹⁸ Road to 2003, Update on Pennsylvania, The Economy: Jobs, Forecasts, and Telecommunications. Penn State College of Agriculture Sciences, Department of Agricultural Economics and Rural Sociology. September 2002

¹⁹ Forest Statistics for Pennsylvania 1978 and 1989, United States Department of Agriculture, Forest Service Northeastern Forest Experimental Station, January 1993.

Forest Statistics for Centre County 1989

Land Class In Centre County In Thousands of Acres

Timberland	505.0
Other Forestland	0
Reserved Production Forestland	30.1
Reserved Other Forestland	0
Total Forestland	535.1
Non-Forestland	172.8

Land Ownership In Centre County In Thousands of Acres

National Forest	0
Miscellaneous Federal	0
State	155.5
County and Municipal	11.4
Forest Industry	0
Farmer	17.2
Other Private	320.9

Forest Type Group In Centre County In Thousands of Acres

White/Red Pine	27.9
Spruce/Fir	0
Loblolly/Shortleaf	6.1
Oak/Pine	10.9
Oak/Hickory	370.8
Oak/Gum/Cypress	0
Elm/Ash/Red Maple	17.3
Northern Hardwoods	72.0
Aspen/Birch	0

Threats to Forested Lands

Over the last two centuries, the eastern forests have been heavily logged, cleared for agriculture, and roaded. These forests today are beginning to grow back. Farming fields left uncultivated are returning to their former forested state, and many species are being re-introduced into the Eastern forests by special programs and migration efforts. Though the forests have been recovering from years of utilization new problems threaten these forests.

The main threats to forests come from logging, land clearing (for infrastructure, mining, farms, shopping malls, and other types of

development), and the building of roads for logging and mining. In many cases they are never replaced, so the land and the people may be exposed to serious damage from flash flooding. Loss of forest land was viewed as a severe (27%) or minor (37%) problem in a Centre County 1995 survey. Two thirds of residents surveyed (67%) thought woodlands should be preserved for recreation rather than utilized for timber production.²⁰

Invasive species are a growing problem in Eastern forests. Insects, fungi, and disease introduced from Europe and Asia have damaged millions of acres of forested land. Insect defoliators remained prevalent in mid-and south central counties of the Commonwealth. These species include gypsy moth, orange striped oakworm, and variable oak leaf caterpillar (more noticeable in north-central Pennsylvania). Gypsy moth defoliation was reported on 237, 764 acres in 2001, representing a 71% decline in damage as compared to the previous year.²¹ The hemlock woolly adelgid is becoming an increasing problem in the forests and residential stands of hemlocks. The adelgid is a sap-feeding insect that attacks hemlock trees throughout eastern North America. This insect feeds throughout the year, although spring is when they do the most tree damage. Introduced probably from Japan, and appearing in Pennsylvania in the mid-60's the hemlock woolly adelgid has become a significant threat to Pennsylvania's state tree.²²



Hemlock Woolly Adelgid

²⁰ Centre County: Today and Tomorrow, Public Perceptions, 1995

²¹ Pennsylvania -2002, Forest Health Highlights, Pennsylvania Department of Conservation and Natural Resources Bureau of Forestry & USDA Forest Service, Northeastern Area State and Private Forestry, 2002

²² DCNR's Bureau of Forestry, Hemlock Woolly Adelgid Site, DCNR Website, 2003

Off-road vehicle use has considerably increased on forested lands. The result of this type of recreational use can result in severe erosion, degradation of water quality, and elimination of wildlife habitat.

Oil and gas production is a growing concern on forested lands. Roads are constructed for production, creating threats to remote and natural areas. Degradation of wildlife habitat and water quality can result from oil and gas projects that have leaking pipelines. Improper disposal of brine can also be a problem.

Too many deer browsing on seedlings and saplings is a major concern for the timber industry. Deer browsing can kill trees or retard their growth, both scenarios represent economic losses to the industry. These are direct economic losses to Pennsylvania's forest industry which affect saw timber produced, a decrease in tax revenue, and fewer jobs for Pennsylvania.²³

Forest fragmentation is the increase of non-forest/developed land uses around existing forestland resulting in the increase of developed non-forest edges and the splitting of forestland into patches of smaller size. When large areas of a forest are fragmented there is a decrease in wildlife biodiversity and an introduction of exotic species. Also associated with this threat to forested lands are a decrease in water quality and less land available for forest management and recreation. Mitigation of the effects of fragmentation may include conservation easements, tax incentives for landowners, purchase of land near streams, and municipal ordinances that provide resource protection.

Illegal dumping is a growing concern on public and private forested land. It is estimated that nearly 200 illegal dumpsites are scattered across Pennsylvania's state forest and parklands.²⁴ This garbage that should have been recycled or dumped in a landfill poses many threats to our public and private lands. The consequences of illegal dumping puts serious health risks on humans and animals,

²³ Negative Impacts of Deer, Pennsylvania Game Commission Website, 2003

²⁴ Pennsylvania Forest Land Beautification Program Brochure, 2002

contaminate the water supply, and such discarded items such as tires have become breeding grounds for disease carrying insects. Fortunately DCNR is trying to clean up these lands under their Forest Lands Beautification Program. A cross-section of sites were identified across Pennsylvania on state forest and park land. The sites were located on slopes, in streams, and near scenic vistas, and included tires, appliances, construction debris, household waste, deer carcasses, mattresses, automobile parts, and other types of refuse. Illegal dump sites in Centre County that have been addressed as part of clean up effort by DCNR, PA CleanWays (a non-profit organization partnering with DCNR), include Bald Eagle State Forest, Moshannon State Forest, Rothrock State Forest, and locations in Rush Township, Worth Township, Ferguson Township, and Union Township.



Wildcat Gap Cleanup Site, Gregg Township
Fall 2000/ Forest Land Beautification Program

Local Strategies for Forest Resources

Best Management Initiatives for Landowners

1. *The Federal Forest Stewardship Program* is administered by the Department of Conservation and Natural Resources (DCNR) Bureau of Forestry. A landowner must have at least five acres, work and coordinate with a resource manager, and develop a written resource plan for 10-year implementation. Private landowners who own between 5 and 1,000 acres can join the program. This federal program provides cost-sharing assistance to landowners.

2. The *Sustainable Forestry Initiative* (SFI) is a voluntary program that is an industry-driven effort developed to ensure that future generations will have the same abundant, healthy, and productive resources we enjoy today integrating the growth of trees, working to protect wildlife, plants, soil, air, and water quality.
3. In 1941 the *American Tree Farm System*® (ATFS) was established to encourage private landowners to manage their woodlots. The ATFS is a program of the American Forest Foundation committed to sustaining forests, watersheds and healthy habitats through the power of private stewardship. Landowners are required to have a 10-acre minimum for participation in this program
4. The *Pennsylvania Forestry Association* is a broad-based citizen group providing sound forest management and stewardship to its members. This organization holds meetings, workshops, tours, and seminars, and oversees the Tree Farm Program in Pennsylvania.
5. The *Pennsylvania Urban and Community Forestry Program* offers community assistance and grants to landowners.

For Other Sources of Forestry Assistance See Appendix A-6

Municipal Tree Commissions

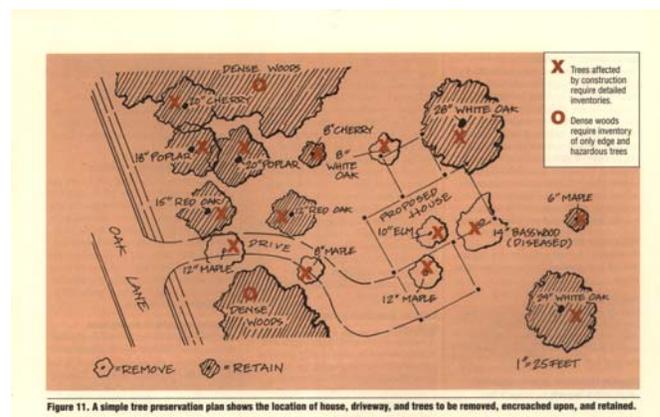
Trees can be a critical component of an urban environment. While they have an aesthetic value they also produce oxygen, minimize dust, absorb carbon dioxide, are a noise buffer, and provide important habitat for urban wildlife. Urban trees also moderate the temperature extremes of those environments. Trees and shrubs provide the natural cooling effects of shade resulting in reduction of the “heat island” effect, and the sheltering effect of trees reduces energy consumption of heating in the winter months. Urban trees reduce energy consumption and individual utility bills. The social benefits of an urban forest render a better quality of life for residents. Urban forests are a preferred place to live, work, and visit. Municipalities supporting these environments have been shown to add up to 20 percent to individual property values. This is an added

value to the entire neighborhood and strengthens the local economy.

Forming a tree commission is a planning tool for municipalities to create and preserve urban forestry within their communities. In Pennsylvania, a tree commission is created by a municipal ordinance and the powers and responsibilities are based on state statute by the local government. Volunteers within the community assume the responsibility for important community decisions that help shape a community urban forestry effort.

Tree commissions can take on an advisory or administrative type role and assist communities with various responsibilities such as organizing tree plantings and maintenance, developing and implementing urban forest inventories, and making responsible decisions about tree removal, planting, and maintenance. Formation of a municipal tree commission and development of a comprehensive urban forestry program should take place together for maximum benefits to the community. Municipal tree commissions have a great impact on a community’s image as well as its public safety. By establishing a municipal tree commission a community’s quality of life and attractiveness of the environment are enhanced.

Municipal tree commissions in Centre County:
Bellefonte Borough Shade Tree Commission
Harris Township Community Tree Commission
Philipsburg Borough Shade Tree Commission
State College Borough Shade Tree Commission



Example of Tree Design, Source: Preserving Trees in Development Projects, Penn State, College of Agricultural Sciences Cooperative Extension

Tree City USA is a program sponsored by the National Arbor Day Foundation, in cooperation with the USDA Forest Service. This program provides technical assistance and national recognition of urban and community forestry in thousands of cities and towns nationwide. A Tree City sign at a community's entrance tells a visitor that a community cares about its environment and quality of life. State College Borough has been a recipient of the tree city award for eighteen years.

Tax Incentives for Forested Land

Pennsylvania has two programs that offer reduced property tax assessments for forested land. These two programs do not require a forest management plan but do have a rollback tax feature if there is a conversion from eligible uses. The first program is Pennsylvania's statewide Farmland and Forest Land Assessment Act, (known also as "Clean and Green"). This program allows an individual's forest reserve land, agricultural land, and agricultural use land to be assessed at their current use value rather than market value. "Forest reserve land" must be at least ten contiguous acres and stocked by forest trees of any size and capable of producing timber or other wood products. Landowners may enroll in the program by completing an application form available from the Centre County Assessment Office, Willowbank Office Building, Bellefonte, PA.

The second program is PA Act 515, enabling Pennsylvania counties to covenant with landowners to preserve land in farm, forest, water supply, or open space by taxing land according to its use value rather than market value. This program is voluntary and requires a minimum acreage enrollment that remains in the designated land use for a period of ten years. Participation in this program has not been as high as use of the Clean and Green which has tended to dominate the property tax incentive.

Municipalities have can acquire and fund easements by using tax dollars to preserve non-recreational land from development. In 1996, a law commonly referred to as Act 153 was passed to make available specific authority for townships, cities, and boroughs to purchase

interests in land solely for conservation purposes. Under this law, local governments may levy real estate and earned income taxes above the existing limits of the Local Government Unit Debt Act after voters approve a referendum. This law deals with the need to prepare a land use or open space plan, procedures for the resale and disposal of land or development rights, and a number of related matters. Municipal acquisitions under Act 153 are authorized as long as "open space benefits" include protection of: water resources, forests and farmland, natural resources such as steep slopes, scenic vistas, historic and geologic sites, and open spaces between communities. Halfmoon Township, Centre County passed in 1999 a 2 mill real estate tax estimated to produce \$100,000 per year to preserve open space in the municipality. Municipalities with Pennsylvania open space bond referendums and other appropriations are quite common in Bucks, Chester, Delaware, and Montgomery Counties.

Although most forested land will remain privately owned, some key forest lands may best be conserved through ownership by government agencies or private non-profit organizations such as land trusts. Other privately owned forested land can be protected from fragmentation and development, while remaining in active forestry use through acquisition of conservation easements. ClearWater Conservancy is an example of an organization in Centre County that has a Land Protection Program. This organization protects these lands by a conservation easement.²⁵ In this process a landowner would willingly donate or sell a portion of property rights that all property owners have, such as the right to subdivide or the right to build structures. Landowners granting a conservation easement to ClearWater Conservancy, retain ownership of the property while agreeing to limit certain activities that may be harmful to the resources of the property. This agreement allows the landowner to use their property as they did before the easement, so long as the use is consistent with the easement.

²⁵ A Conservation Easement is a legal agreement between a landowner and a qualified organization or agency that protects the natural, cultural, and/or historic resources of a property. Source: ClearWater Conservancy Website

Examples of Local Conservation Easements:

- Millbrook Marsh
- Millbrook Marsh Fen
- Nittany Farm
- Rhoneymeade Farm
- Thompson Woods Preserve



Thompson Woods Path

In 1945, the Lions's Paw Alumni Association saved 525 acres from lumbering and other desecration through a fund-raising effort by members. As development pressures continued, the Association formed what is now the Mount Nittany Conservancy. Since 1981 the Conservancy through members and Penn State alumni support has been obtaining land for preservation through purchase, donation, or conservation easements. These two organizations continue to work together to provide the preservation of Mount Nittany for future generations. Landowners participating in this program are rewarded tax benefits and peace of mind that Mount Nittany land will be kept in preservation in perpetuity.

Pennsylvania has several well-funded programs to acquire land and easements, most significantly for farmland preservation which can include agricultural woodlots. These programs include

The Keystone Recreation, Park, and Conservation Fund Act - Provides funding for acquisition of natural areas and open space

Growing Greener - Enacted in Pennsylvania in 1999, this program awards monies for a variety of environmental stewardship programs

Community Recreation Grant Program - This program administered by DCNR is a community grant program for municipalities

Land Trust Grant Program - This program administered by DCNR provides land trusts with grants to pay up to 50% of eligible project costs for planning the acquisition of natural areas and open space

Agricultural Conservation Easement Purchase Program - This program is Pennsylvania's largest acquisition program in which the counties and the Commonwealth acquire easements on agricultural lands using both County and state funding.

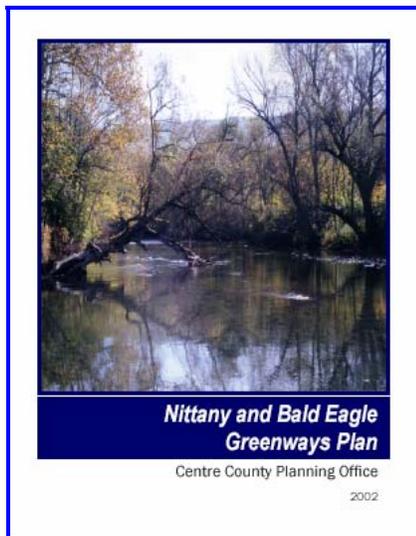
Environmental Advisory Councils (EAC) –
An Environmental Advisory Council is a group of 3 to 7 community residents, appointed by local officials, that advise the local planning commission, park or recreation boards, and other elected officials on the protection, conservation, management, promotion, and the use of natural resources within their territorial limits. Municipalities are authorized to establish an Environmental Advisory Council through Act 177 of 1996, originally Act 148 of 1973. Currently there are approximately 111 EAC's in Pennsylvania.

Acquisition has an important role in preserving and maintaining forested land. Conservation easements can be prepared to assure that forestry activities continue while preventing fragmentation of forests by development activities. Acquisition can also be critical for private in-holdings within state lands and also key to protection of headwaters, forested riparian buffers, and critical forest habitats.

County Initiatives

The Nittany and Bald Eagle Valleys Greenway/Bikeway Plan which was recently completed for the Spring Creek Watershed Commission by the County Planning Office recognizes the importance of a network of open space managed specifically for conservation and/or recreation. Creating a green network of

protected corridors can have a positive effect on water quality, air quality, habitat, biodiversity, ecological integrity, and provide environmental benefits.²⁶ Greenways serve to connect fragmented forested landscapes and promote the health of a natural system through connectivity.



ClearWater Conservancy has completed in two phases the Spring Creek Rivers Conservation Plan. Though this document was intended for the fourteen municipalities of the Spring Creek Watershed its content is invaluable county-wide. The plan recommends protection of forested buffers for their role in water quality, removing contaminants, moderating stream temperatures, and enhancing wildlife. A continuous buffer could exist connecting streamside parks, including the Milesburg Community Park, Talleyrand Park, Spring Creek Park, and Millbrook Marsh into a riparian recreational network throughout the watershed.²⁷ The plan also recommends conserving forested slopes which are currently threatened by residential development and clear-cutting. Stewardship practices can help conserve the forested mountains for future generations.

The Centre County *Natural Heritage Inventory* is a list of identified sites in Centre County that are key to the maintenance of biological diversity and ecological integrity. The Inventory includes

²⁶ Nittany and Bald Eagle Greenway Plan, Centre County Planning Office, January 2003

²⁷ Spring Creek Study: Phase II, A Rivers Conservation Plan, ClearWater Conservancy, 2000

some of the County's significant natural communities. This information is to be used as a tool in planning for the protection of these resources.

The November 1991 report includes general recommendation for Natural Heritage Sites. In 2002, this Inventory was updated to include new and edited sites. In addition to preservation and complete protection of natural areas, recommendations specific to forested areas include:

- Maintaining the contiguity and connectivity of natural land
- Maintaining natural corridors between forest patches
- Recognition of forested ridgelines as significant migration routes for migrant bird species

As Pennsylvania's 11th Heritage Region, the Lumber Heritage Region of Pennsylvania encompasses 15 counties including Centre County.

Lumber Heritage Region Mission Statement

*The Lumber Heritage Region is an internationally recognized forest community with a sense of pride in our people, our quality of life, and the traditions of our rural heritage. Our sustainable forest is a destination that continues to provide unique opportunities for forest products manufacturing, education, research, and recreation. Linking forests, parks, historic resources, and communities allows residents and visitors to explore our vibrant culture and contribute to a vital economy.*²⁸

The Lumber Heritage Region will focus its marketing, interpretive education, historical preservation, and economic development around the evolution of timbering - from the early days of timber rafting and railroad logging, to the recovery of the forests and modern-day forest management. Grant monies from the Heritage Parks Program, administered by the Department of Conservation and Natural Resources made available to the Lumber Heritage Region will enhance visitor's

²⁸ Lumber Heritage Region of Pennsylvania, Management Action Plan, Pre-Final CD-Rom Version, Executive Summary, May 2001

opportunities to experience Centre County's industrial history of railroads, mills, coal mines, canals, and scenic highways.



Logo for Pennsylvania Lumber Heritage Region,
Source: NorthCentral Regional Planning and
Development Commission Website

"Pennsylvania's northcentral and northwest regions consist of the state's most densely forested counties, areas known for supplying the timber that helped our Commonwealth and the nation grow." "Among the amazing stands of hardwoods, one is reminded of a time when transient lumber camps followed the path of timber, rivers were jammed with floating logs, and Pennsylvania was the "Lumber Capital of the World."²⁹

Conclusion

Individuals are becoming more aware of how important forests, trees, plants, and green spaces are to their quality of life. Forests in Pennsylvania are home to approximately 3,500 species of plants and animals and provide habitat for an abundance of birds and mammals.

Forest soils trap runoff, filter water, and trap and transform contaminants. Forests provide a diversity of habitats over space and time. Trees and other plants reduce the impact of rain while root systems hold the soil in place. Trees are important gas exchangers converting carbon dioxide and water into carbohydrates and oxygen. Our forests filter pollutants and dust in the air and act as natural barriers to wind, snow, and rain. Our community depends on forests for recreation, hunting, fishing, timber production, and aesthetic values.

²⁹ Quote from Lt. Governor Mark Schweiker,
September 27, 2001

NATURAL RESOURCES GOAL

Identify, preserve, and monitor Centre County's environmental natural resources for the benefit of present and future generations.

OBJECTIVES-Forests

Promote the wise use and management of the County's natural resources that include prime agricultural lands, forested areas, and mineral resources

Protect watershed features such as surface and underground water supplies, stream, floodplains, forested riparian areas, wetlands, fish and wildlife habitats, and aquifer recharge areas.

Promote and preserve the County's natural areas for scenic, educational, historic, environmental, recreational, and tourism purposes.

Use identified natural resource areas and public open spaces to provide guidance with land development activities.

Encourage owners of forested land to develop and implement forest management plans that provide for sustainable development of forest lands and enhance the quality of timber resources.

Develop strategies that provide for growth while maintaining a balance with the County's natural resources: forest lands, ag lands, sensitive environmental areas steep slopes, floodplains, scenic views, and high quality surface and ground waters.

Reduce air, water, land, noise, and visual pollution.

RECOMMENDATIONS

Protect forested land in Centre County from development pressures and degradation by guiding land development activities in forested areas.

Encourage through incentives the protection, preservation, and management of forest resources for their economic and environmental benefits

Encourage tree protection (tree ordinances, tree commissions) in urban areas to provide aesthetic beauty, shading, reduction in stormwater flows, and a green infrastructure.

Support protection and wise land use management of mountain ridges to protect sensitive features, i.e., groundwater recharge areas, wildlife habitats, and scenic vistas

Protect and encourage development of riparian buffers for improving water quality and preserving biological diversity

Coordinate with conservancies and land-trust organizations to encourage the purchase of conservation easements on forested lands that enhance our quality of life.

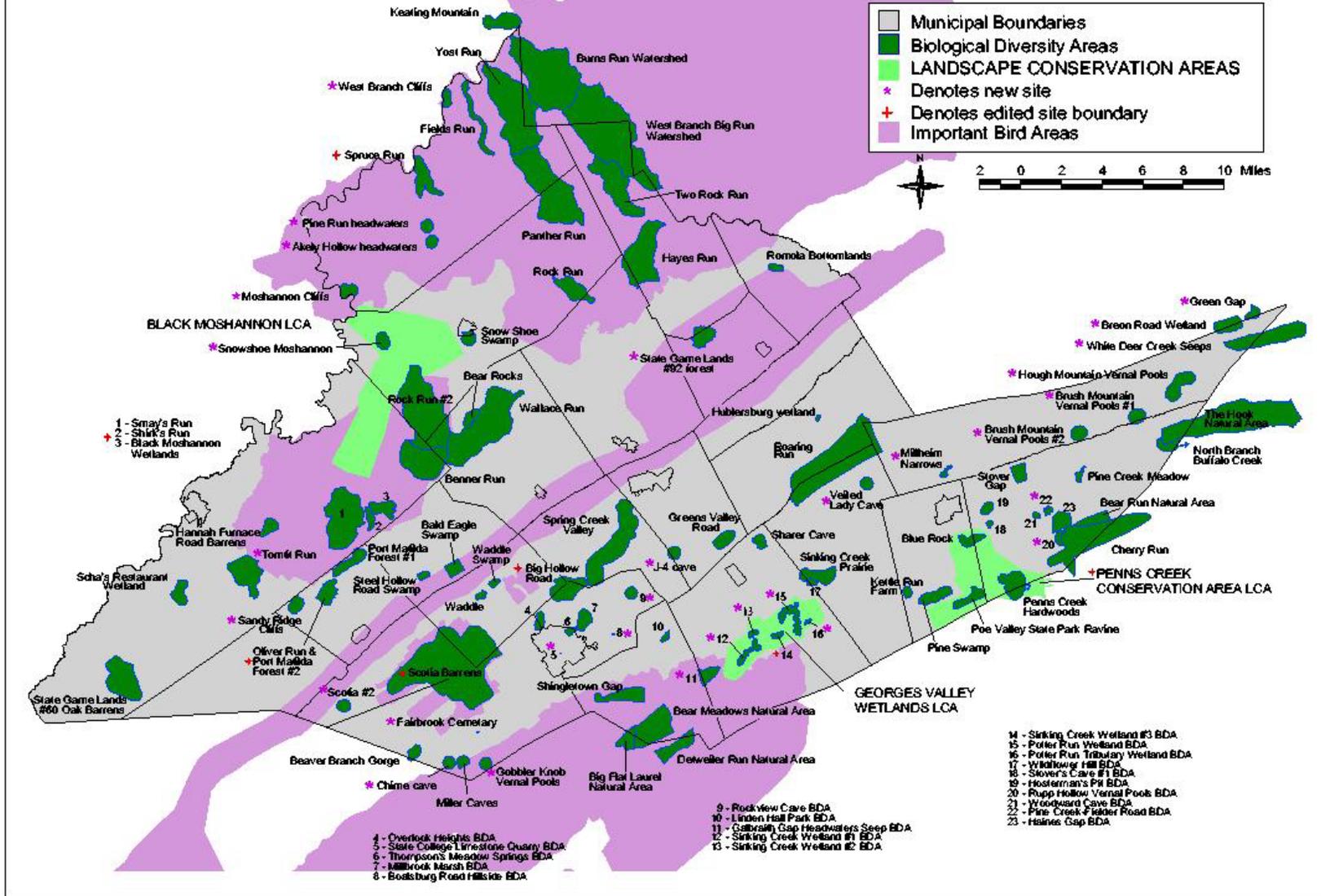
Encourage and educate landowners to use "best management practices" on forested land and adjacent lands for economic and environmental benefits

Limit land development activities in areas identified as containing endangered and threatened animal and plant species

APPENDICES

Appendix A-1

Biological Diversity Areas & Landscape Conservation Areas in Centre County



Source: Centre County Natural Heritage Inventory, 2002 Update Edition

Appendix A-2

EXCEPTIONAL SIGNIFICANCE

Miller Caves BDA
Thompsons Meadow Spring BDA
State Game Lands #92 Forest BDA
Oliver Run & Port Matilda Forest #2 BDA
Port Matilda Forest #1 BDA
Hosterman's Pit BDA
Scotia Barrens BDA
Sinking Creek Prairie BDA
Spring Creek Valley BDA
Big Hollow Road BDA
Millbrook Marsh BDA
Stover's Cave BDA
Woodward Cave BDA
Sharer Cave BDA
Penns Creek Hardwoods BDA
Bear Meadows Natural Area BDA
Linden Hall Park BDA
Brush Mountain Vernal Pools #1 BDA
Brush Mountain Vernal Pools #2 BDA
Yost Run BDA
Hough Mountain Vernal Pools BDA
Rupp Hollow Vernal Pools BDA
Pine Run Headwaters BDA
Akely Hollow Headwaters BDA
Blue Rock BDA
Smay's Run BDA
Tomtit Run BDA
Rock Run BDA
Wallace Run BDA

Ferguson Township
College Township, State College Borough
Howard Township, Curtin Township
Worth Township
Worth Township, Rush Township
Haines Township
Patton Township, Ferguson Township, Halfmoon Township
Gregg Township, Potter Township
Benner Township
Patton Township, College Township, Benner Township
College Township
Haines Township
Haines Township
Potter Township
Haines Township
Harris Township
Harris Township
Miles Township, Haines Township
Miles Township
Burnside Township
Miles Township
Haines Township
Burnside Township
Burnside Township
Burnside Township
Penn Township, Haines Township
Rush Township
Rush Township
Snow Shoe Township, Boggs Township
Union Township

HIGH SIGNIFICANCE

Spruce Run BDA
Moshannon Cliffs BDA
Snow Shoe Moshannon BDA
West Branch Cliffs BDA
Sandy Ridge Cliffs BDA
Chime Cave BDA
Scotia #2 BDA
Gobbler Knob Vernal Pools BDA
Hublersburg Wetland BDA
Greens Valley Road BDA
Millheim Narrows BDA
Pine Creek-Fiedler Road BDA
State College Limestone Quarry BDA

Burnside Township
Burnside Township
Snow Shoe Township
Burnside Township
Worth Township
Worth Township
Halfmoon Township
Ferguson Township
Walker Township
Spring Township
Miles Township
Penn Township
College Township

Boalsburg Road Hillside BDA
Fairbrook Cemetary BDA
Overlook Heights BDA
State Game Lands #60 Oak Barrens BDA
Black Moshannon Wetlands BDA
Burns Run Watershed BDA
Cherry Run BDA
North Branch Buffalo Creek BDA
Hayes Run BDA
Panther Run BDA
Waddle BDA
Shirks Run BDA
Kettle Run Farm BDA

College Township
Ferguson Township
Ferguson Township, College Township
Rush Township
Rush Township
Burnside Township
Haines Township
Haines Township
Boggs Township, Curtin Township
Burnside Township, Snow Shoe Township
Patton Township
Rush Township
Penn Township

NOTABLE SIGNIFICANCE

J-4 Cave BDA
Rockview Cave BDA
Veiled Lady Cave BDA
Wildflower Hill BDA
Pine Creek Meadow BDA
Hannah Furnace Road Barrens BDA
Scha's Restaurant Wetland BDA
Galbraith Gap Run Headwaters Seep BDA
White Deer Creek Seeps BDA
Big Flat Laural Area BDA
Haines Gap BDA
Two Rock Run BDA
Roaring Run BDA
West Branch Big Run Watershed BDA
Breon Road Wetland BDA
Beaver Branch Gorge BDA
Benner Run BDA
Green Gap BDA
Penns Creek Conservation Area LCA
Black Moshannon LCA
Rock Run #2 BDA
Stover Gap BDA

Spring Township, Benner Township
College Township
Gregg Township
Gregg Township, Potter Township
Haines Township
Rush Township
Rush Township
Potter Township, Harris Township
Miles Township
Miles Township
Haines Township
Curtin Township
Walker Township, Miles Township, Gregg Township
Curtin Township
Miles Township
Ferguson Township
Rush Township, Union Township
Miles Township
Haines Township, Penn Township
Rush Township, Snow Shoe Township, Burnside Township
Snow Shoe Township, Union Township, Rush Township
Haines Township

COUNTY SIGNIFICANT

Sinking Creek Wetland #2 BDA
Shingletown Gap BDA
Romola Bottomlands BDA
Poe Valley State Park Ravine BDA
Pine Swamp BDA
Bald Eagle Swamp BDA
Fields Run BDA
Detweiler Run Natural Area BDA
Bear Run Natural Area BDA

Potter Township
Harris Township
Liberty Township
Penn Township
Penn Township
Huston Township
Burnside Township
Harris Township
Harris Township

The Hook Natural Area BDA
Sinking Creek Wetland #1 BDA
Sinking Creek Wetland #3 BDA
Bear Rocks BDA
Steel Hollow Road Swamp BDA
Snow Shoe Swamp BDA
Potter Run Wetland BDA
Geroges Valley Wetlands LCA
Waddle Swamp BDA
Cedar Run Springs BDA
Slab Cabin Run BDA
Wingate-Milesburg Floodplain Forest BDA

Haines Township
Potter Township
Potter Township
Union Township
Huston Township
Snow Shoe Township, Snow Shoe Borough
Potter Township
Potter Township
Patton Township
Harris Township
College Township, Harris Township
Boggs Township, Union Township

Appendix A-3

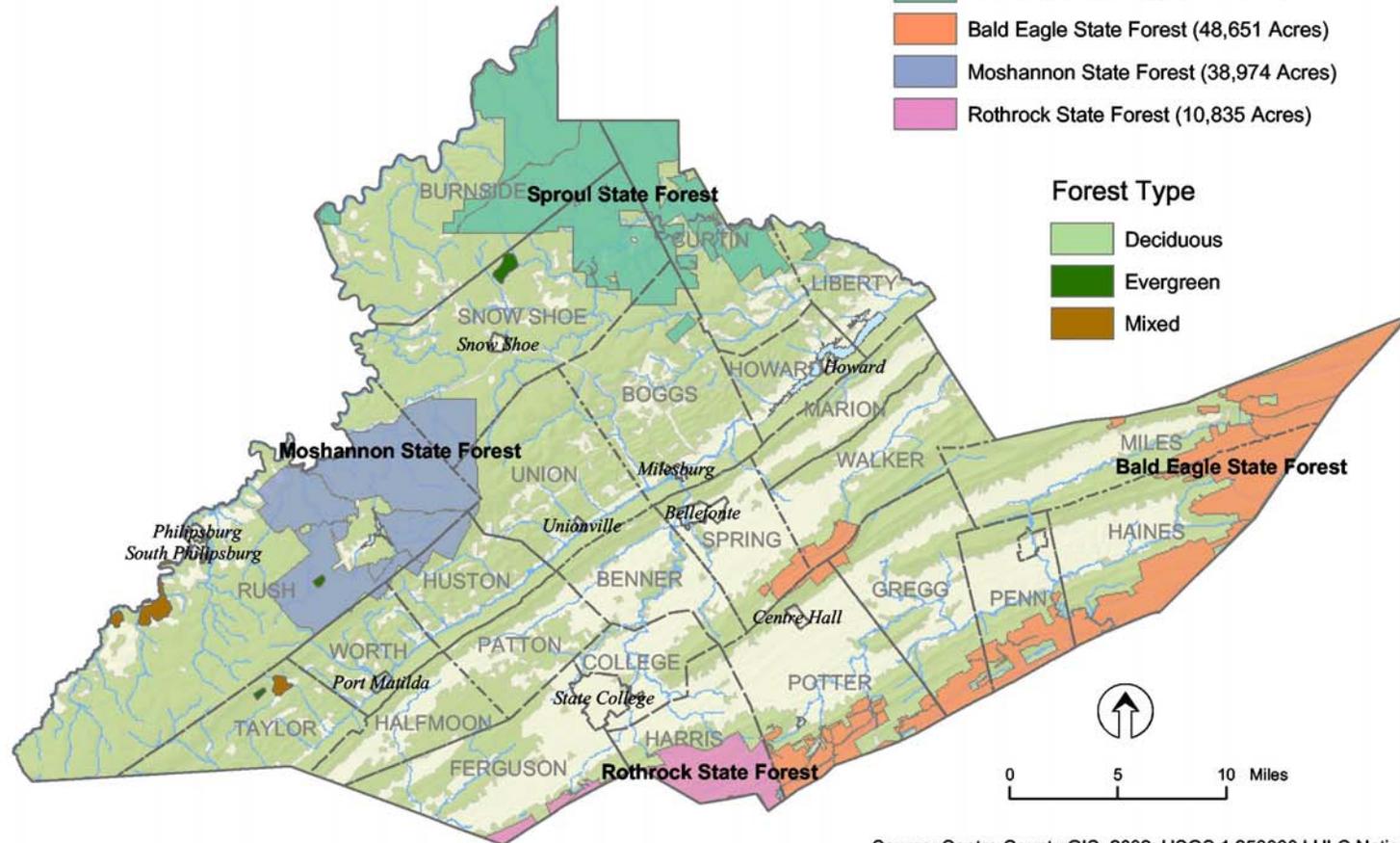
Centre County State Forests

State Forest

- Sproul State Forest (54,573 Acres)
- Bald Eagle State Forest (48,651 Acres)
- Moshannon State Forest (38,974 Acres)
- Rothrock State Forest (10,835 Acres)

Forest Type

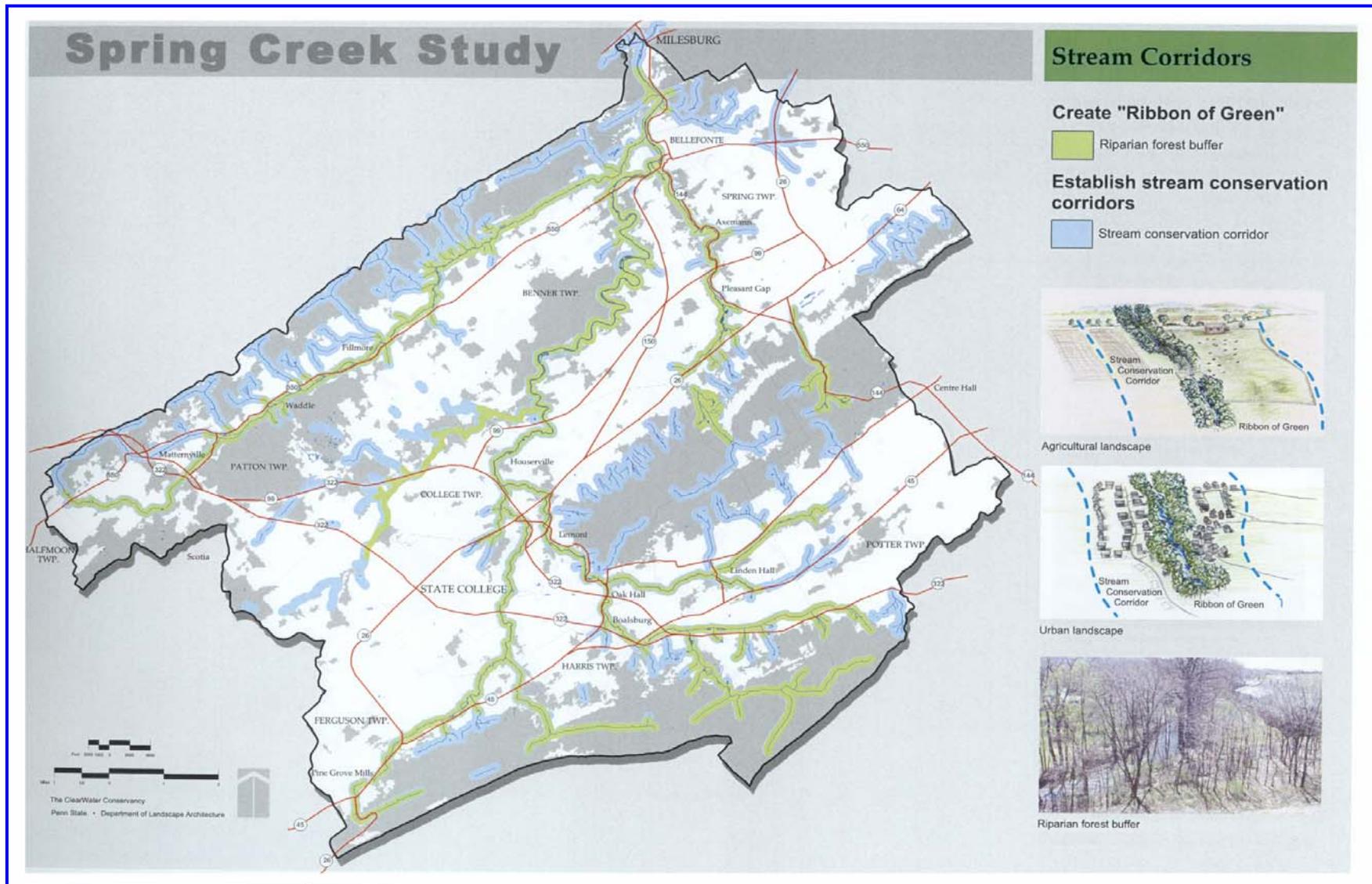
- Deciduous
- Evergreen
- Mixed



Source: Centre County GIS, 2002; USGS 1:250000 LULC National Mapping Program, <http://www.webgis.com>.
 Prepared by: Centre County Planning Office, March 13, 2003.

Map to be inserted. (Public Lands)

Appendix A-4



Green Corridors (Source: Spring Creek River Conservation Plan, Phase II, A Study sponsored by the ClearWater Conservancy)

Appendix A-5

FORESTS

The forests of Centre County are located within Pennsylvania's North Central Forest Region which includes the Counties of Tioga, Potter, McKean, Cameron, Clinton, Lycoming, Clearfield, and Centre. This region is the State's largest and most productive. There are 713,600 acres of land in Centre County; 76% (539,700 acres) is involved in commercial forest activity. This is 8.1% of the forest land in the region and 3.2% of the forest land in the State. A summary of the forest land in Centre County is shown in Table 3-13.

TABLE 3-13
LAND AREAS BY LAND CLASS

	CENTRE COUNTY	NORTH CENTRAL REGION	STATE	COUNTY % OF REGION	COUNTY % OF STATE
Total Land Area	713,600	8,613,120	28,804,480	8.2	2.5
Non-forest Land Area	138,500	1,249,500	11,732,400	11.1	1.2
Non-commercial Forest Land	35,400	133,500	354,200	26.5	10.0
Commercial Forest Land	539,700	6,609,000	16,717,900	8.1	3.2
% Commercially Forested	76%	76.7%	58%		

SOURCE: Pennsylvania Forest Industries Statistics, 1964.

The percentage of commercial forest land in the County has increased by 7% in the ten-year period 1954-1964.

The ownership of forest land can be a definite barometer to its continuance for forest purposes. For instance, State Game Lands and National Forest Lands among others can be counted upon to remain in that category. Commercial forest land by ownership in Centre County is illustrated in Table 3-14.

TABLE 3-14
COMMERCIAL FOREST LAND BY OWNERSHIP

	Centre County	% of Region	% of State
State Forest Lands	106,600	1.6	.6
State Game Lands	54,000	.8	.3
National Forest Lands	-0-	-0-	-0-
Forest Industry Owned	11,300	.2	.1
Farmer Owned	64,900	1.0	.4
Other	<u>302,900</u>	<u>4.6</u>	<u>1.8</u>
TOTAL	539,700	8.2	3.2

SOURCE: Pennsylvania Forest Industries Statistics, 1964.

It is noted that national forests have no acreage in Centre County. Perhaps activity can be generated toward the establishment of some of the industrially owned and farmer owned forests as a part of the State and National forest areas. This would help to insure the continued existence of the urgently needed forest land if an ecological balance is to be maintained in the State and the Nation.

The species of trees that make up the forests is an important consideration both in its longevity and in its economic relationship to the forest and lumber industry. Trees are generally divided into two main classifications: soft woods and the hard woods. The predominant soft woods in Centre County include Yellow Pine, White Pine, and Hemlock. The hard woods of the County include White, Red, and Chestnut Oaks; Hickory; Sugar and Red Maple; Beech; Ash; Bass Wood; Black Cherry; and Elm. The tree species and the approximate acreage in Centre County is summarized in Table 3-15.

TABLE 3-15

<u>TREE SPECIES</u>	<u>ACREAGE IN CENTRE COUNTY</u>
White Pine	37,800
Pitch-Virginia Pine	13,000
Oak-Hickory	351,700
Other Oak Types	6,300
Elm-Ash-Red Maple	44,200
Maple-Beech-Birch	52,200
Aspen-Birch	43,400
TOTAL	548,600

SOURCE: Ferguson, R. H., The Timber Resources of Pennsylvania, Forest Service, U. S. Department of Agriculture, 1968.

In order to better understand the economic importance of forests, it is necessary to define the terms "sawtimber" and "poletimber". Sawtimber includes the soft woods with a trunk diameter (measured approximately 4 feet above the ground) of 9" or more. It also includes the hard woods, measured the same way, of a diameter of 11" or more. Poletimber includes the soft woods with a diameter measurement of 5" to 9"; and the hard woods with a diameter measurement of 5" to 11".

The commercial forest area in Centre County is distributed as follows:

Sawtimber Stands	228,600
Poletimber Stands	220,900
Sapling-Seedling Stands*	91,900
Non-Stocked	<u>7,200</u>
Total	548,600

*Saplings include trees smaller than poletimber.

SOURCE: Ferguson, R.H., "The Timber Resources of Pennsylvania", Forest Service, U. S. Department of Agriculture, 1968.

Timber volume on commercial forest land is measured in two ways: First, the total growing stock in cubic feet; and second, the total sawtimber in board feet. A summary of the timber volume is given in Table 3-16.

TABLE 3-16
TIMBER VOLUME ON COMMERCIAL FOREST LAND

	<u>TOTAL GROWING STOCK</u> (Millions of Cu. Ft.)	<u>TOTAL SAWTIMBER</u> (Millions of Bd. Ft.)
Stand Size Classes:		
Sawtimber Stands	336.3	670.9
Poletimber Stands	207.9	113.6
Other Stands	<u>19.3</u>	<u>23.5</u>
TOTAL	563.5	808.0
Species Groups:		
Softwoods	56.0	132.3
Oaks	314.1	474.8
Other Hardwoods	<u>193.4</u>	<u>200.9</u>
All Hardwoods	<u>507.5</u>	<u>675.7</u>
TOTAL	563.5	808.0

SOURCE: Ferguson, R.H., "Timber Resources of Pennsylvania", Forest Service, U. S. Department of Agriculture, 1968.

Summarizing further the information in Table 3-16, it is found that Centre County has an average timber volume per acre of 1,026 cubic feet of growing stock and 1,474 board feet of saw timber. These figures compare with averages for the State of 1,065 and 1,466, respectively. Forest management is

Appendix A-6

Sources of Forestry Assistance

Erosion and Sedimentation; Water Permits; other Environmental issues

County Conservation Districts

Their are 66 Districts in Pennsylvania; see the Blue Pages in your phone book for
The district included in your area

Forestry

DCNR Bureau of Forestry Headquarters

6th Floor, Rachel Carson State Office Building

P.O. Box 8552

Harrisburg, PA 17105-8552

Phone (717) 705-5194; FAX (717) 783-5109

<http://www.dcnr.state.pa.us/forestry/forestry/html>

Hardwood Lumber Manufacturers' Association of Pennsylvania, Inc

545 W. Chocolate Avenue

Hershey, PA 17033

Phone 1 (800) 232-HLMA or (717) 312-1244

FAX (717) 312-1335

<http://www.hlma.org>

School of Forest Resources

Cooperative Extension Office

The Pennsylvania State University

7 Ferguson Building

University Park, PA 16802-4302

Phone (814) 863-0402; FAX (814) 865-6275

<http://rnrext.cas.psu.edu>

Society of American Foresters

5400 Grosvenor Lane

Bethesda, MD 20814-2198

Phone (301) 897-8720; FAX (301) 897-3690

<http://www.safnet.org>

Pennsylvania Forestry Association

56 East Main Street

Mechanicsburg, PA 17055

Phone (717) 766-5371

<http://pfa.cas.psu.edu>

Private Consulting Engineers

Association of Consulting Foresters of America, Inc.

National Office

723 N. Washington Street, Suite 4-A

Alexandria, VA 22314

Phone (703) 548-0990

<http://www.acf-foresters.com>

General

Pennsylvania Hardwoods Development Council

2301 N. Cameron Street, Room 308

Harrisburg, PA 17110-9408

Phone (717) 772- 3715; FAX (717) 705-0063

http://sites.state.pa.us/PA_Exec/Agriculture/bureaus/hardwoods/index.htm

Department of Community and Economic Development, Governor's

Center for Local Government Services

4th Floor, Commonwealth Keystone Building

400 North Street

Harrisburg, PA 17120-0225

Phone 1 (888) 2-CENTER, (717) 787-8169

FAX (717) 783-1402

<http://www.dced.state.pa.us>

Pennsylvania State Association of Township Supervisors

3001 Gettysburg Road

Camp Hill, PA 17011-7296

Phone (717) 763-0930

FAX (717) 763-9732

<http://www.psats.org>

