



# BUREAU OF FORESTRY

## *CONSERVING PENN'S WOODS*

Transition Document | January 2015



**pennsylvania**  
DEPARTMENT OF CONSERVATION  
AND NATURAL RESOURCES

# Table of Contents

Our Mission.....	3
Organizational Overview.....	6
Structure and Field Operations.....	6
State Forester’s Office .....	6
Forest Districts.....	8
Personnel.....	9
Program Areas and Staff Functions .....	11
Forest Resource Planning and Information Division.....	11
Operations and Recreation Division .....	24
Forest Fire Protection Division .....	29
Forest Pest Management Division .....	32
Minerals Division.....	35
Conservation Science and Ecological Resources .....	38
Silviculture Section .....	42
Rural and Community Forestry Section .....	46
Business Services Office.....	51
Forest Conservation Issues.....	52
Bureau of Forestry Advisory Committees .....	59

## OUR MISSION

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

### WHAT WE DO:

#### ADVOCATE AND PROMOTE FOREST CONSERVATION

The bureau is the state's lead forest conservation agency. The bureau advocates and provides leadership on issues related to the management of the Commonwealth's forests, trees and native plants.



#### FORESTRY INFORMATION AND OUTREACH

The bureau plays an instrumental role in providing credible information about the conditions and status of Pennsylvania's forest resources to industry, academia, other government agencies and conservation organizations. The bureau is actively involved in public outreach on topics ranging from woodlot management to wildfire prevention, invasive species control and urban tree planting.

#### PREVENT AND SUPPRESS WILDFIRES

The bureau is responsible for extinguishing forest wildfires on both public and private land. Each year, personnel assist in the suppression of approximately 600 wildfires on 6,000 acres across the Commonwealth. Bureau personnel educate the public about wildfire risk and prevention, and train volunteers and local fire companies in wildfire suppression.

#### PROTECT THE FOREST FROM DESTRUCTIVE INSECTS AND DISEASE

The bureau is responsible for monitoring and managing destructive forest insects and diseases on all Commonwealth lands. It coordinates statewide suppression and spraying efforts on ecologically disruptive invasive insects, such as the gypsy moth.

#### CONSERVE NATIVE PLANTS

The bureau manages and conserves Pennsylvania's rich diversity of native, wild plant communities across public and private ownerships. The bureau is responsible for determining the status and classification of the 3,000 native wild plant species in Pennsylvania. Of these, more than 500 are listed as Rare, Threatened or Endangered in Pennsylvania.



## CONSERVE PRIVATE FOREST LAND

Approximately 70 percent of the Commonwealth's forest land is privately owned. Through its outreach programs, the bureau provides leadership and technical assistance in conserving and managing these important forest lands.



## PROMOTE COMMUNITY FORESTS AND TREE PLANTING

Through its partnerships and programs, the bureau provides leadership and coordination in planting and maintaining trees in cities and towns across the Commonwealth. Tree cover in communities helps improve the environment, manage stormwater, conserve energy, and revitalize downtowns and main streets.

## MANAGE THE CERTIFIED STATE FOREST SYSTEM

The state forest system of Pennsylvania—2.2 million acres in 50 of 67 counties – comprises 13 percent of the forested area of the Commonwealth. These forest lands represent one of the largest expanses of wildland in the eastern United States, making them a truly priceless public asset. The bureau proudly manages this third-party certified forest with an ecosystem management approach to provide a multitude of uses, values and resources to Pennsylvania citizens.

## PROTECT WATER QUALITY

The state forest system serves as the headwaters and living filter for municipal drinking water supplies and thousands of miles of high-quality coldwater streams. Sound management of our state forests helps keep these important waters clean. The bureau also coordinates tree planting along streams on private land to help improve water quality in Pennsylvania waterways and downstream to the Chesapeake Bay.

## SUSTAINABLY HARVEST TIMBER ON STATE FOREST LAND

Each year, the bureau sustainably harvests approximately 14,000 acres across the state forest system. Harvesting serves multiple goals, including providing a steady flow of wood products to the economy; creating wildlife habitat; and enhancing forest health and diversity.

## MANAGE NATURAL GAS ACTIVITY

The bureau manages natural gas activity on 700,000 acres within the state forest system. Bureau forest managers, ecologists, botanists, foresters, geologists and forest planners



work to minimize and mitigate the environmental effects of well pads, roads, pipelines and rights-of-way.

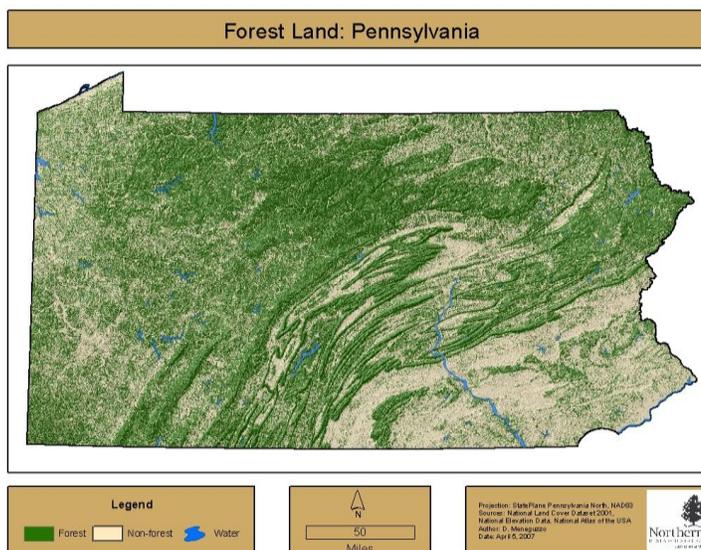
## PROVIDE FOREST RECREATION OPPORTUNITIES

Citizens look to Pennsylvania's state forest system for a variety of recreational activities, from scenic driving to hiking, camping, hunting and snowmobiling. The bureau maintains thousands of miles of trails, roads and related infrastructure to accommodate state forest visitors and ensure quality low-density recreational experiences.

## ORGANIZATIONAL OVERVIEW

The Bureau of Forestry works to ensure the long-term health, viability and productivity of the Commonwealth's forests and to conserve native wild plants by:

- **MANAGING STATE FORESTS** 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.
- **PROTECTING FORESTLANDS**, public and private, from damage and/or destruction by fires, insects, diseases and other agents.
- **PROMOTING FORESTRY AND THE KNOWLEDGE OF FORESTRY** by advising and assisting other government agencies, communities, landowners, forest industry and the general public in the wise stewardship and utilization of forest resources.
- **PROTECTING AND MANAGING NATIVE WILD FLORA** by determining status, classifying and conserving native wild plants



## STRUCTURE AND FIELD OPERATIONS

### STATE FORESTER'S OFFICE

The State Forester's Office coordinates the overall operations of the bureau including budgeting and program direction. Forest resource planning and communications are also housed within this office.

The bureau is divided into three basic administrative units under the State Forester's Office: Forestry Services, Community and Private Forest Stewardship, and Field Operations. There is an assistant state forester responsible for each of the three units. The divisions, sections and offices within these administrative units serve the staff functions for the bureau.

### ASSISTANT STATE FORESTER FOR FORESTRY SERVICES

The Assistant State Forester for Forestry Services is responsible for most central office programs. The bureau's central office is responsible for providing program direction and coordination and providing support for field operations. The basic program area in the bureau is the section. In several

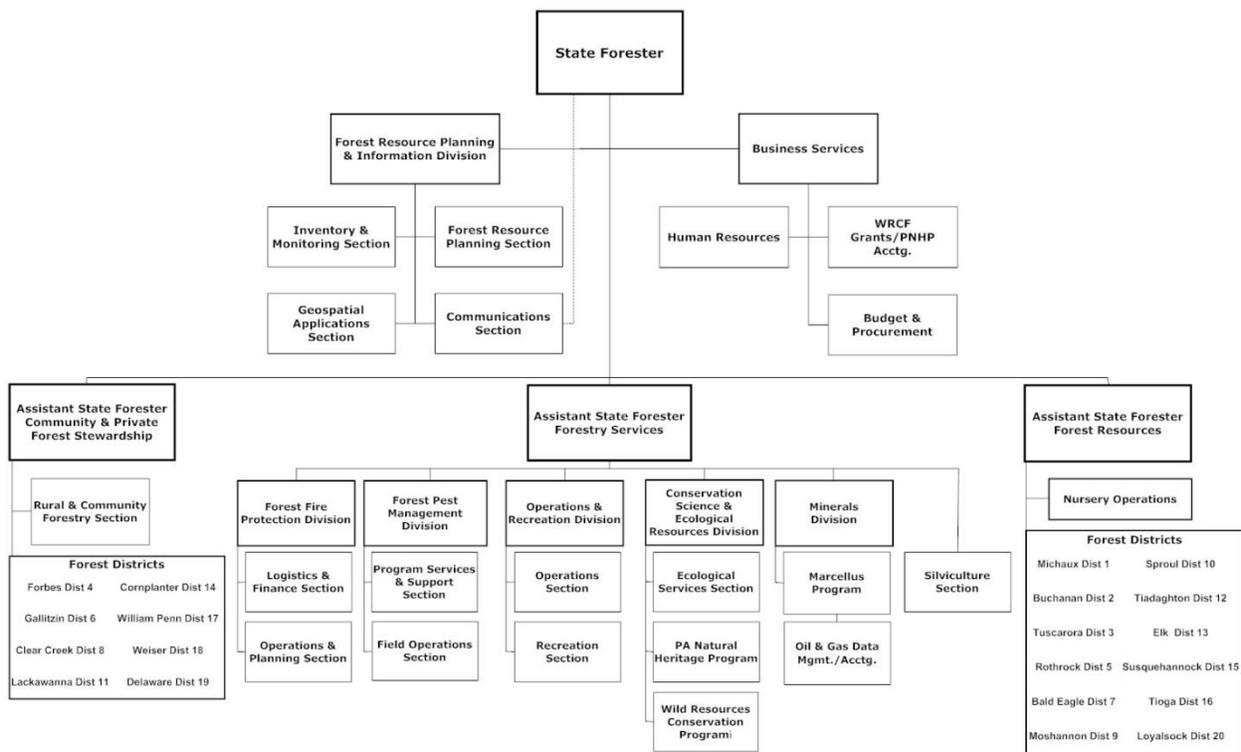
circumstances, sections are combined creating divisions either because of similarity in program areas or to highlight certain program areas.

### ASSISTANT STATE FORESTER FOR COMMUNITY AND PRIVATE FOREST STEWARDSHIP

The Assistant State Forester for Community and Private Forest Stewardship is responsible for the implementation of the bureau's private lands programs. This includes taking the lead on developing statewide strategies to identify conservation priorities and developing cooperative partnerships. Responsibilities also include serving as the bureau's line manager for eight forest districts focused on stewardship and community partnership functions.

### ASSISTANT STATE FORESTER FOR FOREST RESOURCES

The Assistant State Forester for Forest Resources supervises the 12 forest districts that contain substantial state forest lands as well as Penn Nursery. This Assistant State Forester is responsible for implementing bureau programs and activities in these field offices.

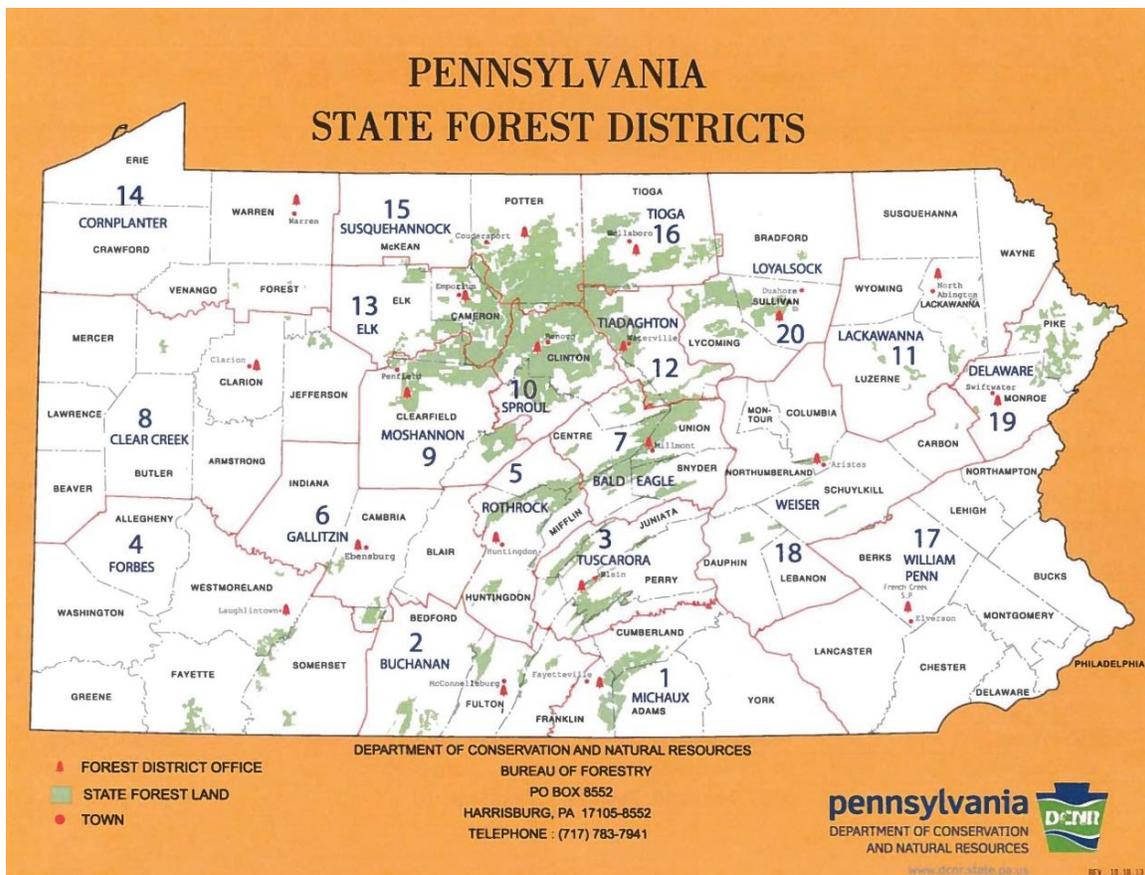


## FOREST DISTRICTS

For the purposes of administering and implementing bureau programs on the ground, the Commonwealth is divided into 20 forest districts. These forest districts serve the “line functions” of the bureau. Field operations in each forest district are supervised by a district forester and conducted by a staff that varies in size according to the specific circumstances in the district.



Each district is responsible for protecting all forest land within the district from fire and destructive insects and disease. District personnel promote private forestland stewardship through assistance to private landowners, working with other organizations and partners, and through informational and educational programs. The staff also provides for the protection, administration and management of state forest lands within the district.



## PENN FOREST NURSERY AND WOOD SHOP

The bureau's Penn Nursery and Wood Shop is located in the seven mountains region of central Pennsylvania. The nursery began in 1908 in a potato patch at the rear of forest ranger W.F. McKinney's residence. It produced seedlings needed to replant land denuded by timbering and subsequent forest fires which scoured Penn's Woods in the late 19th and early 20th centuries. Penn Nursery has evolved into a transplant nursery producing over 35 different species of native conifers, hardwoods and shrubs for reforestation projects on State Forest and State Park lands.

The Nursery's goal is to propagate the finest tree and shrub seedlings available for reforestation and wildlife enhancement projects on Commonwealth properties. Nursery and forest district staff coordinate the selection, harvesting and collection of millions of tree and shrub seeds from state forest lands and orchards across the Commonwealth to preserve and maintain genetic diversity. Potential resistance to the destruction caused by beech bark disease, butternut canker and insect pests is developed through ongoing research.

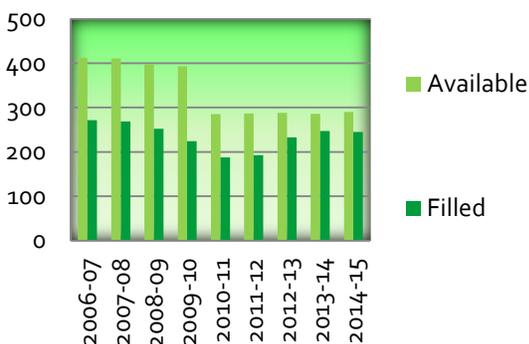
Over the years, the Nursery's operations have expanded to include state of the art sign and picnic table operations. The sign shop provides high quality wood, plastic, and laminated signs to direct visitors through Pennsylvania's state parks and forest lands. Kiosks designed and fabricated at Penn Nursery enhance DCNR's outdoor education and recreation programs. Wood and metal leg picnic tables used at state forest picnic areas and park lands across Pennsylvania are produced here.

## PERSONNEL

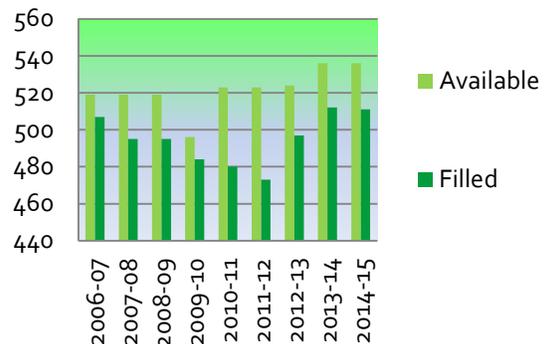
The bureau consists of 536 salary positions including: 83 managers; 187 professional and technical staff (foresters, forest technicians, geologists, botanists, ecologists and program specialists); 58 clerical and administrative personnel; 33 public contact employees (forest rangers); 32 wildfire suppression specialists; and 143 state forest maintenance personnel (equipment operators and maintenance specialists).

The bureau also employs 290 seasonal wage staff. These personnel are vital to bureau operations and include clerical support, public contact, maintenance, and wildfire suppression personnel.

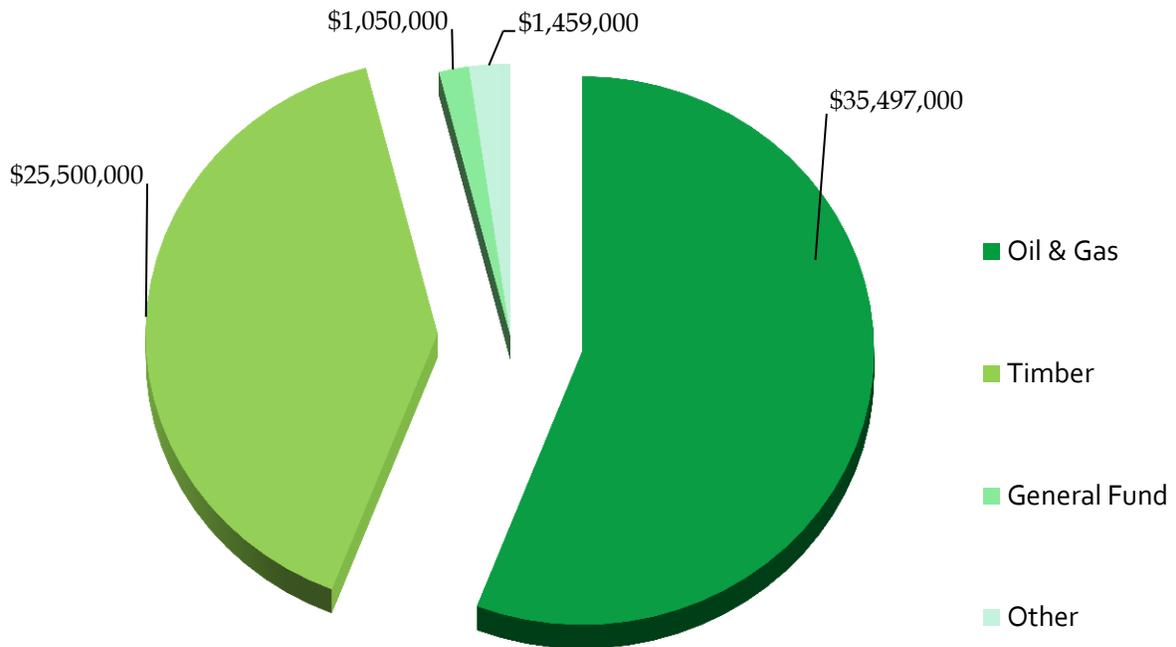
### Wage Complement



### Salary Complement



# State Forest Operations Budget FY 2014-2015 \$63.4 million



# PROGRAM AREAS AND STAFF FUNCTIONS

## FOREST RESOURCE PLANNING AND INFORMATION DIVISION

The Forest Resource Planning and Information Division is responsible for organizational strategic planning; forest resource planning; forest resource inventory; shale gas monitoring; geospatial services and data management; and communications. The division also coordinates bureau-wide initiatives and programs, such as Forest Stewardship Council certification, land acquisitions and exchanges, and state forest environmental reviews. The division maintains the Bureau's strategic plan, *Penn's Woods*; the State Forest Resource Management Plan; the Pennsylvania Forest Action Plan; shale gas monitoring reports; and manages and coordinates publications and website content. The division includes four sections: Forest Resource Planning; Inventory and Monitoring, Geospatial Applications; and Communications.

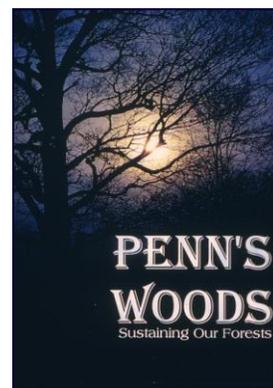
### FOREST RESOURCE PLANNING SECTION

The Forest Resource Planning Section's primary responsibility is strategic and forest resource planning across the bureau. These planning efforts are reflected in the bureau's planning documents, including:

- *Penn's Woods*, the bureau's strategic plan
- *State Forest Resource Management Plan (SFRMP)*, the central document communicating goals, objectives, and management guidelines for the state forest system
- *Pennsylvania's Forest Action Plan*, a document describing forest conditions across all ownerships in Pennsylvania and outlining broad strategies for achieving forest sustainability.

### PENN'S WOODS

*Penn's Woods* was developed in the early 1990s and adopted in 1995. It communicates strategic direction for managing the state forest system and outlines the bureau's role in providing guidance and leadership in managing Pennsylvania's private forest resource. While due for revision, the document communicates the bureau's mission and articulates ecosystem management as the philosophy for managing the state forest, which continues to be both relevant and flexible to meet changing demands.



### STATE FOREST RESOURCE MANAGEMENT PLAN

The bureau's first statewide forest management plan was adopted in 1955. This initial plan was revised in 1970 and 1985. In the late 1990s the bureau initiated a major revision of the State Forest Resource Management Plan (SFRMP) to reflect the new directions outlined in *Penn's Woods*. This revision process included two rounds of public meetings and many new sections added, including ecological considerations, communications, forest health, water resources, forest infrastructure and non-timber forest products. The new plan was finalized and adopted in 2003. Generally following a 5-year revision process, the SFRMP was updated in 2007 to incorporate fast-moving changes relative to invasive

species management, white-tailed deer impacts, and energy development including wind, biomass, and natural gas. The plan is on schedule to be updated in 2015. Key components of the plan include:

- A zoning system for the state forest to guide land management activities. Similar to local municipal zoning, the state forest has been zoned for various uses and management activities based on environmental considerations as well as desires of the public. The multiple resource zone includes areas actively managed for timber, recreation, and oil and gas development. Buffer zones protect streamside forests and aesthetics along roads and trails. Wild and Natural areas provide remote recreation opportunities and protect unique habits and special places like remnant old growth forests. Areas zoned for limited use protect water and soil resources on steep hillsides, wetlands, and rocky areas.
- A timber harvest allocation model establishing annual and 10-year harvest goals based on an overall goal to sustainably regenerate the state forest system. The 10-year goals allow for an even flow of forest products and revenue generation. The harvest allocation was developed and adopted with considerable stakeholder involvement. The bureau has just entered the 2<sup>nd</sup> decade goals for the harvest allocation model in 2014.
- A Recreation Opportunity Spectrum planning tool used to manage and protect landscape-level recreation on state forests.
- Inventory reports communicating forest conditions.
- Guidelines summaries for silviculture, recreation, and oil and gas activities.
- A landscape-level inventory and management process for managing the state forest for a broad array of ecological and social values.



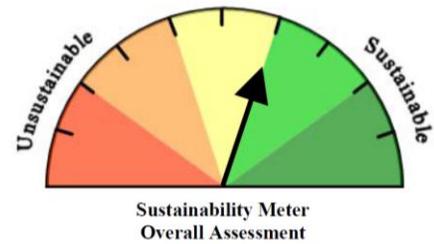
#### STATEWIDE FOREST ACTION PLAN

Pennsylvania's Assessment and Strategy was completed in June 2010. Combined, they make the Forest Action Plan. Based on considerable stakeholder input, the document describes current forest conditions and trends, identifies priority issues, delineates important landscapes across the Commonwealth, and proposes long-term strategies for achieving sustainability. The Forest Action Plan is to be reviewed and updated in 2015.

The bureau partners with USDA Forest Service for Forest Stewardship, Urban and Community Forestry, Forest Health, and Wildland Fire programs. The 2008 Federal Farm Bill required all states to complete a statewide assessment and strategy to qualify for continued funding. As part of a national forest planning effort, the U.S. Forest Service identified three themes to guide investments in forest resources: conserve working forests; protect forests from harm; and enhance public benefits from trees and forests.



A highlight of the effort includes an analysis of forest sustainability, evaluating the Commonwealth's forests on an international set of criteria and indicators. At the conclusion of each indicator, a "Sustainability Meter," similar to the one pictured, is presented as a visual interpretation of the indicator. The image reflects the overall assessment of Pennsylvania's forests, which face many challenges and threats including land-use change and development, forest health concerns, ownership demographics, poor management decisions, and uncertainties of shale gas development. The evaluation of many indicators resulted in an overall sustainable condition, but with many causes for concern.



### FOREST STEWARDSHIP COUNCIL™ (FSC®) CERTIFICATION

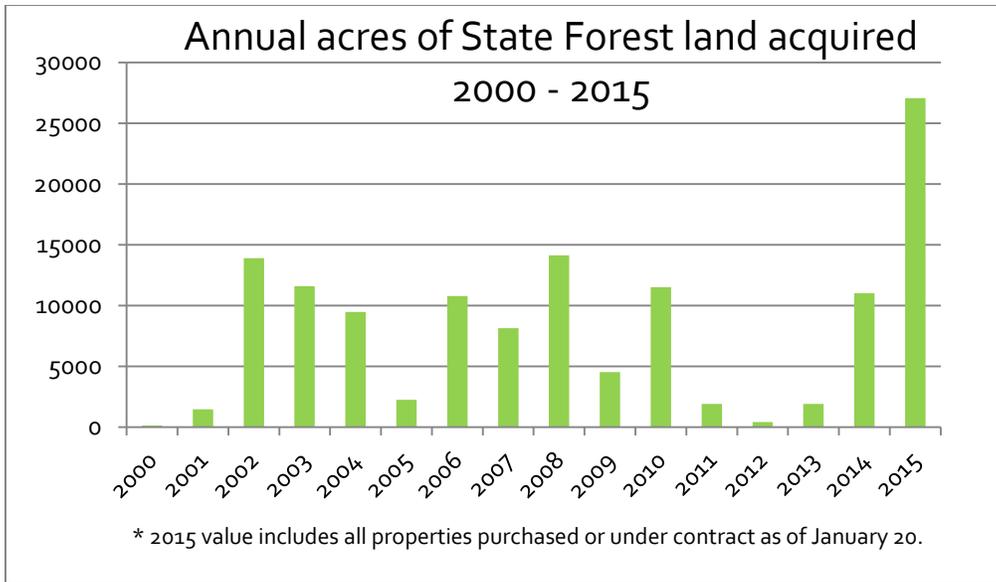
The bureau was first sustainably certified in 1998 by an independent certifying body, Scientific Certification Systems. Third-party certification increases awareness of important management issues, adds value to timber products, and opens market opportunity for our contractors. Bureau stakeholders and environmental groups are reassured that our forest management is independently recognized as meeting the gold standard for being "well managed."



Each year a team of independent auditors inspects our operations and evaluates our management against a standard set of criterion and indicators. Spending several days on site, and considerable supplemental time researching and preparing the report, the auditors learn about how the bureau manages Pennsylvania's state forest system. Most years, the FSC audit uncovers some aspect of our operations that can be improved. Recent issues involving certification include public engagement, recreation, shale gas development; High Conservation Value Forests; tracking plantings and seed mixes on state forest; and white-tailed deer impact. The Forest Resource Planning Section coordinates the certification audit and is responsible for ensuring the bureau fulfills any resulting corrective action requests.

### LAND ACQUISITIONS AND EXCHANGES

The Planning Section coordinates land acquisitions and exchanges, and plays a key role whenever land rights are in dispute. Access to a number of funding sources have made possible the purchase of tens of thousands of acres over the past several years, thereby conserving important forest resources, increasing opportunities for outdoor recreation, and increasing the ability to sustainably produce valuable timber products. Since 2000, the bureau has acquired approximately 130,000 acres of state forestland Land exchanges provide opportunities for the bureau to acquire lands suitable to our mission while allowing lands more suitable for other purposes to be utilized by other landowners.



#### STATE FOREST ENVIRONMENTAL REVIEWS COORDINATION

The Planning Section coordinates environmental reviews of proposed activities and development projects in effort to minimize potential impacts and ensure compliance with the State Forest Resource Management Plan. The section circulates projects for review within the bureau, compiles comments, and prepares a recommendation to the state forester.

#### INVENTORY AND MONITORING SECTION

The Inventory and Monitoring Section is responsible for collecting and analyzing data to document, describe, and communicate forest conditions on the state forest system. Several types of inventories provide detailed analyses and reports on forest and plant communities, tree growth and mortality, timber volumes and habitat conditions. The section is also responsible for monitoring and communicating the environmental and social effects of oil and gas development on state forest land. In addition, the section provides analytical support for bureau-wide programs.

#### CONTINUOUS FOREST INVENTORY (CFI)

The purpose of the Continuous Forest Inventory (CFI) is to provide basic biological data about the state forest system that includes herbaceous plants, shrubs, trees, tree growth and mortality, forest stand structure, and volume. Inventories are a continuous process that provides data for developing periodic updates to resource management plans, as well as for long-range planning and monitoring. Monitoring the components of growth and yield is a fundamental function of CFI. This information is a primary component of the bureau's Harvest Allocation Model, which allocates annual acres for harvest by forest community. Data are also reported and summarized to aid in the forest certification process.



CFI is completed in rolling 5-year “panels” to compliment updates and revisions to the State Forest Resource Management Plan. Since adopting an ecosystem management approach in the mid-1990’s, the bureau redesigned its CFI to include metrics on herbaceous plants, woody shrubs, mid-canopy trees and saplings, regeneration, seedlings, and coarse woody debris along with overstory tree characteristics. Prior to this redesign, the CFI was conducted on 15-year cycles and focused mostly on timber related metrics. In addition to CFI, a number of state forest Wild and Natural areas have also been inventoried since 1997.

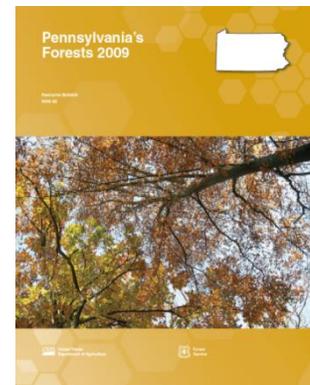


#### WILD AND NATURAL AREA INVENTORIES

The section conducts inventories of Wild and Natural areas. These areas represent unique scenic, historic, geologic, or ecological value. They have been designated to provide locations for scientific observation of natural systems, and to protect examples of typical and unique plant and animal communities. Inventories have been conducted on Natural Areas and Wild areas to gather baseline information on the unique or representative plant communities and focus on quantifying plant community size, successional stage, disturbance, and species richness and relative density of woody and herbaceous plants. In 2014 the section developed a revised Natural Area Inventory to facilitate a more rapid assessment of these areas.

#### USDA FOREST SERVICE FOREST INVENTORY AND ANALYSIS (FIA)

The bureau cooperates with USDA Forest Service to inventory the Commonwealth’s forests. FIA is the only statewide data available on forest conditions across all ownerships. It is used for statewide analysis and strategic planning. The bureau also supports the collection of additional advanced tree seedling regeneration data from FIA plots. These data are a critical component of the Pennsylvania Game Commissions analysis of habitat conditions across the state, and is vital to understanding the continued sustainability of the forest resource statewide.



#### HERBARIUM

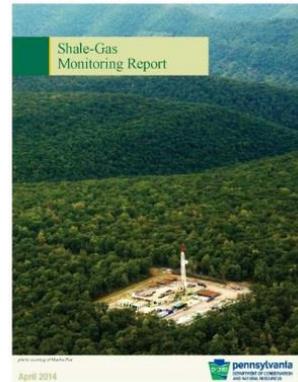
The section maintains a herbarium to preserve and catalog plant specimens. The herbarium meets accepted standards and facilitates the section’s collaboration with botanists at the Morris Arboretum. The herbarium provides the resources and voucher specimens for conducting plant identification trainings.

#### TIMBER HARVESTING ASSESSMENTS

The section compiles and analyzes forest stand level information collected by forest districts 20 years following a timber harvest. This analysis aids field staff in evaluating past forest management activities and informing future practices and treatments.

## SHALE GAS MONITORING

The bureau's Shale Gas Monitoring Program is an interdisciplinary team designed to assess and communicate the environmental and social effects of natural gas development on state forest lands. Shale gas development has the potential to affect a wide range of environmental and social values, including soil and water resources, plant and animal habitats, recreation and aesthetics, and air quality. Environmental effects include forest and habitat loss, soil erosion, increased fragmentation, and movement of invasive species, including plants, insects, and diseases. Social effects include changes to the forest's wild character, public safety concerns, increased noise, recreation user conflicts, forest infrastructure condition, and impacts to local communities. In addition to these impacts, this effort will also document and communicate the benefits of shale gas development.



A comprehensive and systematic program to track, detect, and report on these impacts is critical for the continued sustainable management of the state forest system. Understanding the effects of shale gas development will aid in the development of improved policies, guidelines, and best management practices. Based on existing programs, the bureau has developed a three-tiered approach for implementing this program: on-the-ground field management, research and external partner collaboration, and an integrated team of staff.

In April 2014 the bureau released its first *Shale Gas Monitoring Report* that outlines efforts to track, detect and report on the impacts of gas development on Pennsylvania's state forest lands. Information in the document represents a snapshot in time through 2012. The 265-page document is available on the DCNR website.

Some findings that can be gleaned from this initial report:

- Water is the resource that most people cite when expressing their concerns about shale gas production. Although incidents have occurred, the monitoring data shows that water quality has not been affected due to this activity.
- Approximately 1,486 acres of forest has been converted through 2012 to facilitate gas development; a number that is lower as a result of a management decision to place this activity within or adjacent to existing infrastructure or existing disturbances where it is more noticeable to the public, but requires less forest disturbance.
- Invasive species are a concern as areas of disturbance tend to create conditions conducive to invasion unwanted plant species or pests. The report clearly shows that invasive species need to be carefully managed and controlled. DCNR leases require that companies address invasives.
- Recreational experiences and expectations vary by user. Some recreationists prefer solitude and a more wilderness-type experience whereas others such as motorized vehicle enthusiasts are happy with a less primitive and more developed experience. The monitoring data shows a trend from the

more remote experience to a semi-primitive experience. This bears close scrutiny to ensure that a wide variety of recreational experiences are available on the state forests in the future.

The bureau has developed a *Shale Gas Monitoring Data and Information* webpage. The background data that supported the report is available there. Updated information related to monitoring is posted as it becomes available.

#### ANALYTICAL SUPPORT FOR BUREAU-WIDE PROGRAMS

The section also conducts analyses to support the bureau's Timber Products Output survey, vegetation monitoring for the bureau's Deer Management Assistance Program, the bureau's Gas Management Team, forest certification field monitoring and other bureau initiatives.



#### GEOSPATIAL APPLICATIONS SECTION

The bureau has made significant advancements in employing geospatial technologies in its business and workflows. The use of geographic information systems (GIS) and global position systems (GPS) is critical to bureau operations and helps facilitate communications and decision making with up-to-date and accurate maps; allows for spatial and landscape analyses of habitats and important forest areas; and helps to increase efficiency of operations such as the timber sale program. The section manages the bureau's GIS and GPS programs, administers the bureau's spatial and tabular data inventories, conducts geospatial analysis, generates maps, facilitates GIS/GPS training, manages the Forest Information Management System (FIMS), and aids in the implementation and future development timber harvesting schedules for state forest land.

#### FOREST INFORMATION MANAGEMENT SYSTEM (FIMS)

FIMS is the bureau's centralized mapping and inventory system where the bureau's inventory of state forest roads, trails, boundaries, recreational features, natural gas infrastructure, monitoring data, forest management activities, and many other inventories are maintained. Staff use FIMS to edit the bureau's spatial and tabular inventory data or collect and enter new information from GPS data collected in the field. Examples of inventory edits include when a new timber sale haul road is constructed, a new gas well pad is built, or new state forest land is acquired. FIMS provides secure, centralized access to the thousands of reference mapping layers and custom tools for map production, data editing, GPS downloading, and analysis. The centralized system also reduces the organization's computer hardware costs, reduces network traffic, makes rollout of software updates easier, and eliminates redundant editing as would occur with a distributed data management system.

#### MAPPING AND COMMUNICATIONS

Producing accurate and easy-to-read maps is a major product of the bureau's geospatial program. Maps are used for many different purposes including recreation and trails, DMAP areas, timber sale

administration, oil and gas management, private lands planning and stewardship, landscape planning, and habitat management. The bureau's public website contains several interactive web maps of the state forest. The interactive maps provide the ability for users to zoom in on specific locations, easily search for features of interest, overlay state forest data with basemaps (such as imagery or streets), obtain driving directions, and provide for daily updates of the of the map data from the bureau's centralized FIMS inventories.

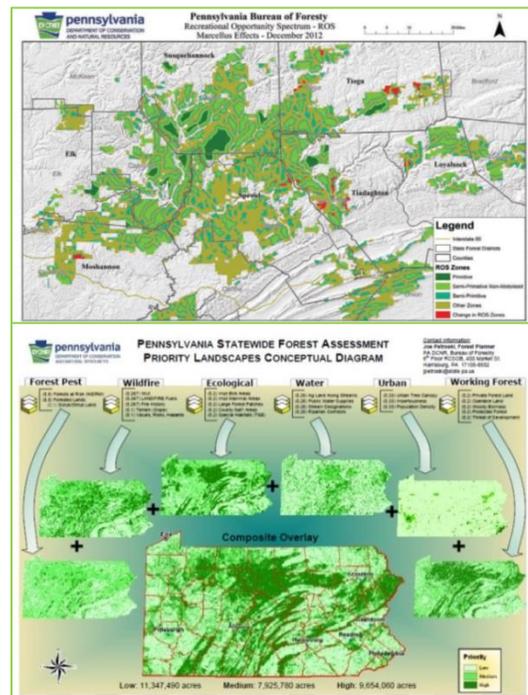
#### DATA ANALYSIS AND PLANNING

Advanced spatial data analysis improves the bureau's ability to analyze multiple data sets over large landscapes, enabling improved decision making. Recent projects include:

- Shale gas development and forest fragmentation analysis
- Wild Character Analysis
- Trail Density Planning
- Priority areas analysis of the Statewide Forest Resource Assessment and Strategy
- Rights-of-Way Planning Tool
- Spatial Analysis Project of forest stewardship plans
- Wind energy citing criteria
- High Conservation Forest analysis
- Recreation Opportunity Spectrum implementation
- Wildfire occurrences
- Viewshed analyses for high recreation use areas

#### TIMBER HARVEST SCHEDULING

One specific and major analysis the geospatial program is involved with is developing long-term timber harvest schedules for the state forest system. Developing sustainable timber harvesting schedules is an important and challenging goal of managing a public forest. Forests are a renewable resource, and careful scheduling of how much timber is harvested each year balanced with how quickly the trees in previously harvested areas are growing back is a key to sustainability. A sustainable timber harvest schedule is required to maintain forest certification and market wood products harvested from state forest land as "certified". The bureau uses advanced mathematical and optimization modelling techniques to develop and defend its long-term, sustainable timber harvesting schedules and to analyze the conflicts among stakeholder groups as it relates to the amount of timber to harvest annually from the state forest. The bureau's geospatial program helped develop the timber harvest allocation model, defends the sustainability of the bureau's timber harvest schedules, assists districts with implementation of timber harvest schedules, and coordinates data requirements for future timber harvest schedule planning.



## TRAINING AND COORDINATION

The section is responsible for providing technical GIS training to central office program areas, GIS coordinators, and other staff in the forest districts. Section personnel participate in department-level efforts such as the GIS Center for Excellence and the GIS workgroup.

## COMMUNICATIONS AND INTERPRETATION SECTION

Public education and outreach is an essential component of the bureau's mission. DCNR's enabling legislation mandates it to "develop forestry and knowledge of forestry" throughout the Commonwealth. The bureau's mission further states that it will accomplish this by "advising and assisting other government agencies, communities, landowners, forest industry and the general public in the wise stewardship and utilization of forest resources." Fulfilling this role is vital in advancing forest conservation throughout the Commonwealth.



The Communications and Interpretation Section was created in 2008 to consolidate bureau communication activities to provide greater focus and streamlined coordination for its communications and outreach efforts. The section also plays an important role in fostering internal communications and providing staff support for the state forester's office. The section consists of one forest program manager and two forest program specialists and is housed in the State Forester's Office.

The section's roles can be subdivided into the following categories and/or functions:

### LIAISON TO DCNR OFFICE OF EDUCATION, COMMUNICATIONS AND PARTNERSHIPS

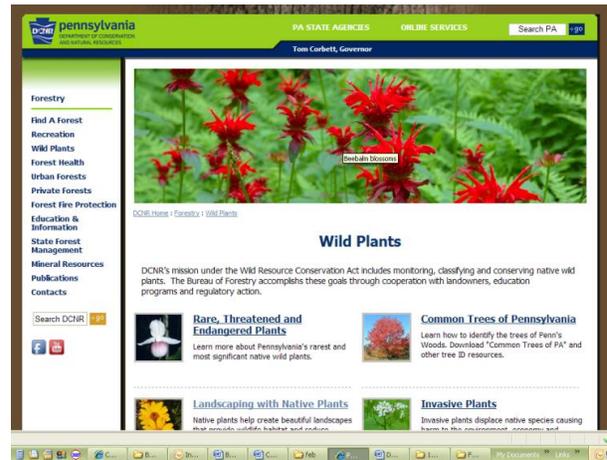
The section works closely with DCNR's Office of Education, Communications and Partnerships (OEC) to accomplish both bureau- and department-level goals. The section represents the bureau on key department-wide committees, such as Communications and Outreach and the Secretary's Stewardship Messaging committees. The section also represents the bureau and provides a forestry perspective to many interdepartmental initiatives and projects, such as iConservePA, Pennsylvania Wilds, publications and website development, and stewardship messaging training for employees. The section is responsible for implementing departmental communications strategies and programs at the bureau level.

### PRESS RELEASES AND MEDIA RELATIONS

The section assists the DCNR press office in writing forestry related press releases. For statewide press releases, the section helps compile information for the releases and coordinates reviews at the bureau level. The section also assists forest districts in writing and distributing press releases on the local level. The section also serves as a central bureau contact for the press office and helps coordinate media relations activities in field districts and in central office.

## WEBSITE COMMUNICATIONS

With the advent of DCNR's Universal Content Management system in 2010, the section is taking a greater role in website communications. Section personnel now have the capacity to directly design and edit web content. Bureau website administration is a team effort. The Operations Section is responsible for technical website infrastructure. The Communications and Interpretation Section is responsible for the public-facing components of the website, including graphic elements and content development. The section coordinates with bureau program areas to ensure accurate and current information is available to the public.



## PUBLICATIONS DEVELOPMENT

While the website is the bureau's primary communications tool, publications still serve an important role in the organization's communications and outreach efforts. The section directs the development of new publications and also provides support and coordination for the development of field-level brochures and fact sheets. The section works with the Department of Environmental Protection, Department of General Services, and DCNR graphic artists to produce publications. Recent publications include *Healthy Deer*, *Healthy Forests: Finding the Right Balance* and *Common Trees of Pennsylvania*. In addition to developing bureau publications, the section serves as a primary contact for reviews of other agency publications involving forestry issues.

## PUBLIC USE MAPS

The section is responsible for the coordination and development of the bureau's state forest public use maps and guides. These publications are the bureau's most popular, and serve state forest visitors by offering a detailed map and comprehensive information about the recreational use of the forest. Each state forest district has its own public use maps that are updated and reprinted approximately every 5 years.

## FORESTRY INTERPRETATION

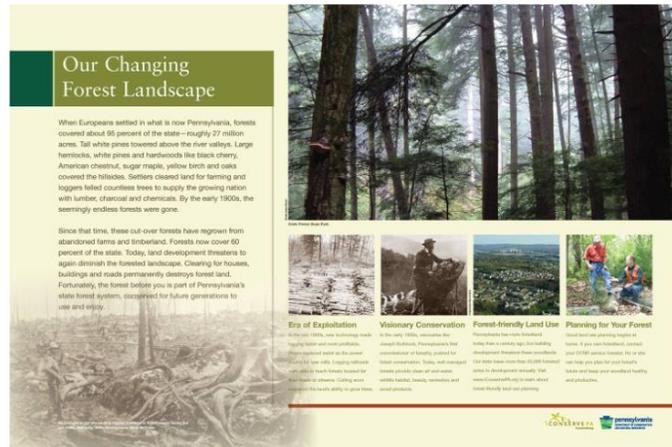
In recent years the bureau has placed increased emphasis on interpretation. Given the dispersed nature of the state forest system, interacting directly with the public can be challenging. Non-personal interpretation, such as kiosks and wayside panels, can serve as a tool to engage citizens with forest resources, explain management activities, and foster stewardship and care of the forest.



The section works closely with the Bureau of State Parks on interpretive programs and projects. Section staff members have received training through the National Association for Interpretation. The bureau now has environmental education specialist positions in the Tiadaghton and Forbes State Forests.

### INTERPRETIVE PLANNING

The section ensures all bureau interpretive projects are planned to accomplish messaging goals. The section coordinates interpretive planning for bureau-level interpretive projects. The section also serves as the bureau representative to planning committees for department-level interpretive projects, such as the Elk Country Visitor Center and the Pine demonstration areas and local interpretive trails and sites.



### INTERPRETIVE DEVELOPMENT

In addition to planning the section is also responsible for interpretive project development, either through direct involvement or working through interpretive contractors. The section assists in the editing and development of content for interpretive brochures and waysides and kiosks. Recent examples of work include forest management demonstration panels the Cherry Springs Working Forest Trail

### INTERPRETIVE CENTERS

The section coordinates and assists in the planning and development of interpretive centers located at state parks, forestry offices and other DCNR facilities. Recent examples include the Elk Country Visitor's Center ,Pine Creek Interpretive Center at the Tiadaghton Resource Management Center and interpretive work to be installed in the new Weiser State Forest Resource Management Center



### CONSERVATION EDUCATION

The section directs and coordinates forest conservation education efforts throughout the bureau. Forest districts cooperate with local school districts teaching classes and providing programs related to forest management and forest ecology. The section cooperates with the Bureau of State Parks, the Department of Education and the USDA Forest Service in its conservation education efforts.

## PROJECT LEARNING TREE



Project Learning Tree (PLT) is an award-winning, environmental education program designed for educators working with youth from preschool through twelfth grade. It uses hands-on, interdisciplinary activities to help students learn how to think, not what to think, about complex environmental issues. PLT is the environmental education program of the American Forest Foundation (AFF).

Recently, the American Forest Foundation reached out to DCNR because they wanted the state's forest resource agency involved in sponsoring Project Learning Tree in Pennsylvania. On July 9, 2013, a Memorandum of Understanding was signed between the secretary of DCNR and the American Forest Foundation for DCNR to be a state sponsor and coordinator of Project Learning Tree in Pennsylvania. As the department's forest content experts, the Bureau of Forestry has taken a key role in moving this program forward. The bureau houses and disseminates all PLT materials and has invested much time and effort into training DCNR employees as facilitators of the program (150 DCNR staff have trained as of January 2015). In 2014, the bureau's facilitators completed 24 workshops for 554 educators across Pennsylvania. Additional PLT programs have been conducted by the Bureau of State Parks and the state's other co-sponsor, the Pennsylvania Alliance of Environmental Educators.

## ENVIROTHON

The Pennsylvania Envirothon is a program that challenges high school students to think critically about the natural world and their role in it by combining in-class curriculum and outdoor training to help students learn about aquatic ecology, forestry, soil and land use, wildlife, and current environmental issues. The section coordinates the forest resources components of the Envirothon by developing study guides and materials, holding tutoring sessions and coordinating expert staff and demonstration equipment for events that further student understanding of the Commonwealth's forest resources and industries.

## SOCIAL MEDIA

The section serves as the coordinator for all social media related activities within the bureau. The bureau currently has a Facebook page titled "Pennsylvania Forests" and ten forest districts currently maintain pages. The Division of Forest Fire Protection also maintains a Twitter account. Additionally, the section also manages a YouTube account and produces forestry related videos for distribution on the web and social media outlets. Section personnel sit on DCNR social media committees.



## INTERNAL COMMUNICATIONS

**Internal Newsletters:** The section produces two newsletters to provide an effective platform for internal communications. The primary newsletter, *News and Notes*, is distributed annually and allows each division and section as well as forest districts to submit brief narratives of accomplishments and to

announce upcoming events and activities. The section also compiles *Forest Resources in the News*, a newsletter of recent clips of forestry related articles published in newspapers and other publications.

**Talking Points and Messaging:** In coordination with the DCNR press office, the section develops, compiles and distributes “talking points” or “key messages” related to various “hot-button” and politically sensitive issues such as deer management, natural gas drilling and gypsy moth spraying. This helps ensure consistent communications to the public and media.



**From the Pinchot Desk:** To help foster communications between the director’s office and bureau employees, the section plans and coordinates the production of *From the Pinchot Desk*, a quarterly video message from the state forester to all employees. The message typically highlights accomplishments and informs staff about various issues and events.

#### POLICY PAPERS AND INTERNAL DOCUMENTS

The section assists in the development of various policy papers and internal documents at both the bureau and department level. These activities can include writing, editing, formatting and compiling text, photographs and graphs. Recent examples include gubernatorial transition documents and the *State Forest Resource Assessment and Strategy*.

#### TESTIMONY AND PRESENTATIONS

The section assists the state forester and other senior staff in the writing of testimony for various public meetings, such as testimony to the Board of Game Commissioners. The section also develops presentations for general outreach and communications.

#### WINTER MEETING COORDINATION

Each year the bureau conducts a meeting of professional staff dubbed the “Winter Meeting.” Approximately 250 bureau employees attend. The section is responsible for all aspects of meeting coordination, from logistics to theme development and speaker selection.

#### THE PENNSYLVANIA FORESTER

The section manages public e-mail inquiries and comments through its “Pennsylvania Forester” account. The section coordinates responses to these forestry related inquiries.

#### SHOWS AND DISPLAYS

The bureau participates in many statewide and local shows, conferences and fairs. The section develops displays for these events and coordinates the bureau’s presence for events such as the Farm Show the Eastern Sports and Outdoors Show and Penn State’s Ag Progress Days.

## COMMUNICATIONS COMMITTEE

The section coordinates the activities of the bureau's Communications Committee. This committee consists of approximately 25 members from various forest districts, central office sections and divisions, and DCNR executive offices. The purpose of the committee is to provide strategic input and direction to bureau communications efforts. The committee meets approximately twice per year.

## OPERATIONS AND RECREATION DIVISION

The bureau's Operations and Recreation Division is responsible for the development and maintenance of all bureau infrastructure including electronic systems, state forest recreation, and state forest administration. The division is also responsible for recreation-related activities, including safety and volunteer programs and the DCNR forest ranger program. The division comprises two sections to accomplish its mission.



## OPERATIONS SECTION

The Operations Section plays a key role in supporting and facilitating efficient and coherent approaches to infrastructure development and administration. Its primary function is to serve as a centralized support section for maintaining and updating the bureau's infrastructure needs and to coordinate efforts among district decision makers and other entities such as the Department of General Services, Office of Equipment Management, the Office of Chief Counsel as well as with other department and bureau program areas.

The Operations Section supports and coordinates information technology efforts in the bureau, including all aspects of computer hardware and software. It maintains Commonwealth and department standards on information technology and its application within the bureau. Hardware and software requests are routed through this section to ensure suitability and compatibility. The section coordinates and supports the following major information technology functions for the bureau: network administration, computer hardware purchasing, setup and support, server hardware setup and support, website development, software design and development, and end-user support. These functions are closely coordinated with DCNR Bureau of Information Technology to maintain department goals.

The section also administers all right-of-way agreements on state forest land, including electric and natural gas transmission lines and other leases, such as campsite leases, water leases, state building leases, antenna site leases and road-use agreements. It maintains the bureau's building inventory. It is responsible for the purchase of all bureau vehicles and heavy equipment.

## RECREATION SECTION

Recreational activities are a major use of state forests and include activities such as hunting, fishing, camping, hiking, mountain biking and snowmobiling. The section provides direction and leadership concerning recreational uses and opportunities on state forest. The section coordinates the bureau's recreational program across the forest districts.



Emphasis is placed on statewide coordination, providing new and enhanced recreation opportunities, and minimizing and managing conflicts and issues. The section serves as a central point of contact for the many various interest groups that utilize the state forest system as a land base for their activities as well as serving as a liaison with other agencies and organizations.

In addition to recreational activities, the section also administers several closely aligned programs. These include the bureau's safety program, ranger and public contact program, volunteer program, snowmobile/ATV safety program, snowmobile/ATV accident reporting, and search and rescue. The section also coordinates and administers funding, technical trainings and rehabilitation guidance and oversight for the state forest road system.

## MAJOR PROGRAMS

### RIGHTS-OF-WAY

The bureau has legal authority to issue right-of-way agreements across state forest land. Right-of-way requests have tripled due to shale gas activity and now constitute a major portion of the division's workload. The bureau administers several types of rights-of-way agreements, including gas and electric utility corridors, antenna sites, access agreements, land-use agreements, road-use agreements and water use agreements.

### LEASED CAMPSITES

The Operations Section along with 17 district campsite administrators oversee the 4,000 leased campsites that provide an annual income to the Commonwealth of approximately \$800,000. A state forest leased campsite is a small parcel of state forest land (approximately one-quarter of an acre) that is leased to an individual or group of individuals to maintain a cabin solely for recreational purposes. Leases are renewed every 10 years while payments are collected annually.

The bureau stopped adding new leased campsites in 1970 and since then they have become a valued commodity. An annual rental fee of \$200 per site is considered a bargain. Campsites are not allowed to be used as a fulltime residence, in keeping with the recreational purpose of the



program. Issues of residency and modern amenities such as water and sewer are among the top concerns of the program.

#### STATE FOREST BUILDINGS

The bureau maintains 690 buildings located in 20 forest districts across the state as well as the Penn Nursery complex. The buildings can be divided into three main categories: administrative, public and other leased buildings. The division is responsible for maintaining the building inventory and for administering lease agreements.

#### BRIDGES

The bureau maintains approximately 521 bridges on state forest lands. Routine safety inspections are done by engineers in the Bureau of Facility and Design. Priorities for replacement are assigned to each bridge based on the type of bridge and road and by the ratio of cost of replacement to the funds available. Funds from the Forestry Bridge Program are used to replace these bridges when necessary.

#### AUTOMOTIVE FLEET AND MECHANIZED EQUIPMENT

The automotive fleet is critical to the daily operations of the bureau. Seventy-five to 80 percent of bureau personnel require a vehicle to get from their office location to their field work location on a daily basis, with an additional 10 percent needing a vehicle to travel to field locations on a part-time basis. Current inventory of vehicles is barely adequate to perform daily functions. Progress has been made over the past several years to update the fleet but there are still aging vehicles where repair costs exceed actual value.



The biggest change of late has been the amount of time spent on vehicle management since new requirements were instituted by DGS.

The bureau maintains more than 2,700 miles of state forest roads, several hundred miles of motorized and non-motorized trails, and more than 60 picnic areas and parking lots. These infrastructure improvements are maintained by a maintenance staff and a fleet of trucks and heavy equipment. The equipment fleet is a combination of purchased and federal excess equipment that is evaluated annually for repair or replacement. The Operations Section coordinates equipment needs and purchases.

#### INFORMATION TECHNOLOGY INFRASTRUCTURE

The division coordinates the purchase, replacement and repair of more than 650 computers and servers. Computers are on a lifecycle rotation of 5-6 years to maximize usefulness without compromising efficiency. The division manages network user accounts, email, data backup, training and helpdesk functions to nearly 600 computer users in the bureau. Basic support is handled by local computer coordinators; however, the majority of the helpdesk functions are handled by central office staff.

The division also coordinates and develops forestry related software applications used by bureau staff. Databases and web applications are developed and used to maximize efficiency and minimize time spent inputting and analyzing data. Advanced software applications are coordinated with the Bureau of Information Technology. The division maintains both internal and external websites to educate and communicate with the public and staff. Web applications are used internally to efficiently centralize, collect, analyze and share data.

#### SEARCH AND RESCUE

DCNR's responsibility to perform search and rescue on state forest and park lands is derived from the powers and duties given to DCNR in sections 302 (a)(3) and 303 (a)(1) of Act 18. The primary functions of the program include ensuring successful searches are conducted on DCNR lands; providing adequate training to field personnel; coordinating activities with non-DCNR agencies and organizations; and communications. The program is guided by the Search-and-Rescue (SAR) Committee, a joint effort of the bureaus of Forestry and State Parks and other cooperating entities.

#### PENNSYLVANIA WILDS INITIATIVE AND RECREATION TEAM

The Pennsylvania Wilds Outdoor Recreation Plan builds upon existing resource inventories and management plans, integrates DCNR and other public lands and programs in a coordinated, region-wide effort, and works toward developing and sustaining a broad-based initiative to stimulate the growth of outdoor and heritage tourism in the Pennsylvania Wilds region.

Two division forest program specialists are based in the region to serve on the Pennsylvania Wilds Recreation Team. These recreation specialists ensure that facilities are designed with user and resource needs in mind; service is customer focused; policies protect resources without being overly restrictive; information meets user needs as well as communicating agency messages; and recreation is considered in land-use discussions. Among the responsibilities of the team is to develop service-quality guidelines; ensure the consistent application of the guidelines; evaluate the appropriateness of new recreations on public land; draft and recommend recreation and public use rules; and help prioritize capital investments.



#### VISITOR USE MONITORING

Visitor Use Monitoring (VUM) is the first effort by DCNR to gauge visitor use on state forest land. Pennsylvania is also the first state to conduct this type of survey based on the Federal National Visitor Use Monitoring system.

VUM is an important tool to help forest managers better understand state forest visitors, their needs, and how the bureau can better serve them. The information collected is used for forest planning and projecting recreation and tourism economic benefits.

## ATV AND SNOWMOBILE SAFETY

The Snowmobile and ATV Law requires that children ages 8 through 15 take a safety training course prescribed by DCNR before operating an ATV off their parents' property. The law also prescribes those children ages 10 through 15 take a safety training course before operating a snowmobile off their parents' property. The law authorizes DCNR to certify ATV and snowmobile safety instructors to act as its agents in conducting these courses and issuing temporary certificates. DCNR's safety training program is administered by the bureau.

## CONSERVATION VOLUNTEER PROGRAM

The basis for the Conservation Volunteer Program is the Conservation and Natural Resources Act of 1995, P. L. 89, No. 18, Section 310, which authorizes DCNR to recruit, train and accept volunteers "for or in aid of interpretive functions, visitor services, conservation measures and development or other activities in and related to state park and forest areas and other conservation and natural resource activities administered by the department."



The act, which refers to the program as the "Natural Resource Volunteer Program," states that volunteers in the program are to be treated as DCNR employees for purposes of workers' compensation and general and automotive liability, and authorizes DCNR to reimburse them for incidental expenses in connection with their volunteer activities. The act states that volunteers may not be assigned to positions covered by a collective bargaining agreement.

DCNR has designated this program as the "Conservation Volunteer Program." A conservation volunteer is a person who provides services to DCNR and does not receive any compensation from DCNR. Reimbursement from DCNR for incidental expenses of volunteering does not constitute "compensation."

## RANGER PROGRAM

A DCNR ranger has successfully completed both training specified under the Municipal Police Education and Training Law, Act of 1974, PL 359, No. 120, commonly known as Act 120. Act 18 also provides for the secretary of DCNR or his or her designee to specially commission certain forest officers to preserve order in the state forests and state parks, with all the powers conferred on park officers by §303(a)(7) of Act 18 (of 1995). These specially commissioned forest officers are forest rangers and forest ranger supervisors.

The bureau's ranger program works toward protecting the forest resource while providing the opportunity for the forest visitor to enjoy the wild character of state forest land. Laws, rules and regulations have been established to guide and control the activities of forest visitors.

## FOREST FIRE PROTECTION DIVISION

DCNR is legally mandated to provide for the protection of all wildlands in the Commonwealth from damage by wildfire (71 P.S. § 1340.302d). This mandate is accomplished by a combination of wildfire prevention, suppression, investigation and preparedness. The Division of Forest Fire Protection's mission is to protect lives, property and natural resources from damage by wildfire.



The division is led by a division chief who currently functions as Pennsylvania's chief forest fire warden. Division programs are administered by two sections – the Wildfire Operations and Planning Section and the Wildfire Logistics and Finance Section. The implementation of these programs is accomplished through direction and support from division staff and implementation by forest district staff.

### WILDFIRE OPERATIONS AND PLANNING SECTION

The Wildfire Operations and Planning Section is responsible for fire suppression, fire reporting, prescribed fire, training and bureau-wide air operations. It provides direction and support for field personnel and program development. It is also responsible for the processing and collection of all fire claims and for providing nationally trained fire suppression personnel for use in other states during wildfire emergencies.

This section organizes and trains three Type 3 Incident Management Teams (IMTs) with Commonwealth and local personnel for wildland fire and search-and-rescue management on state forest. More than 4,000 firefighters receive training in wildland fire and incident management each year. A network of Remote Automated Weather Stations (RAWS) is maintained by this section to provide current information on fuels and weather conditions.

### WILDFIRE LOGISTICS AND FINANCE SECTION

The Logistics and Finance Section is responsible for the enhancement of public safety and awareness in wildfire prevention through education, enforcement activities, and the development of new fire technology. Partnerships in cooperative prevention programs assist local communities in developing and implementing Firewise Communities and Community Wildfire Prevention Plans. The section conducts special investigations throughout the bureau as assigned, coordinates the distribution of federal funds and equipment to local fire organizations, and acquires federal excess to supplement bureau fire equipment. The section maintains fire equipment caches throughout the state.



## SELECTED PROGRAMS

### INCIDENT MANAGEMENT TEAMS

In 2006, the bureau began the development of interagency Incident Management Teams to increase its capacity to deal with large or complex wildfires. This program has focused on building capacity and maintaining partnerships with other state emergency management agencies; dealing with all-hazard situations; credentialing; training; and responding to wildfire incidents.

### PRESCRIBED FIRE (CONTROLLED BURNING)

Prescribed fire is a land management tool that has been added to the Bureau's toolbox. It was authorized in 2009 by the Pennsylvania Prescribed Burning Practices Act. The bureau has developed prescribed fire standards. The division is charged with the review of prescribed fire plans submitted by all federal, state, local and private entities in the Commonwealth.



### FEDERAL EXCESS PROPERTY AND VOLUNTEER FIRE ASSISTANCE

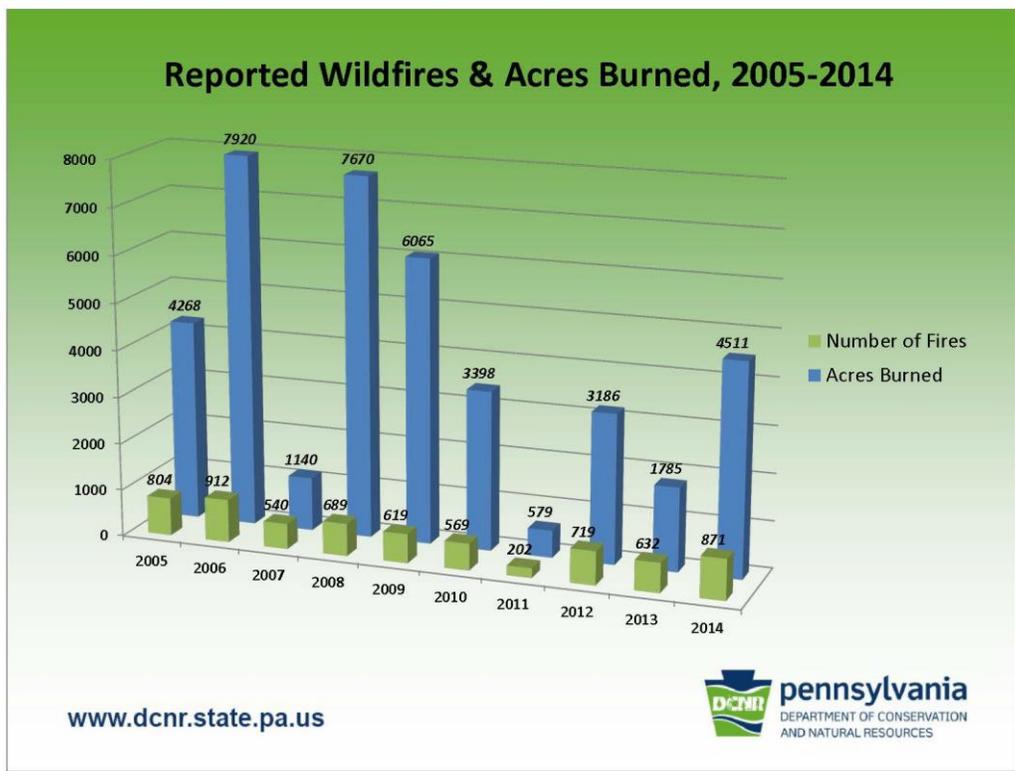
The Federal Excess Property and the Department of Defense Firefighter Property programs have proven to be extremely valuable in providing much needed equipment to rural fire companies statewide. Approximately \$500,000 to \$700,000 in funding is distributed to volunteer fire companies each year through the Volunteer Fire Assistance program. Limited community funds are mostly devoted to structural fire protection. The equipment that these programs provide helps municipalities meet wildfire protection needs as well. Volunteer Fire Assistance cost-share grants have also been critical in directing funds to wildland equipment and training.

### FIREWISE

Firewise is a nationally based program to assist communities and townships in high fire risk areas where wildland and urban land interface. The program gives federal grant money to assist with mechanized fuel reduction to prevent fire from reaching buildings, installing dry hydrants for fire departments, and many more fire suppression preparations. The program also advises home owners how to build with fire resistant materials and offers different landscaping techniques to keep fire from reaching their structures.



The Pennsylvania Firewise Communities Program was first introduced in the Pocono region and targeted gated communities. In 2003, the Firewise Task Force initiated an effort to develop one Firewise Community in each of the 20 bureau forest districts. Sixteen districts have successfully developed Firewise Communities. Today there are 36 communities and 2 counties that have Community Wildfire Protection Plans.



## STATEWIDE WILDFIRE PROGRAM IMPLEMENTATION

Each forest district has a district forester that functions as the district forest fire warden. The district forest fire warden is responsible for all phases of fire program implementation in their respective forest district. Districts fire staff commonly includes a forest protection assistant manager and one to three forest fire specialist supervisors and/or fire foresters that handle day-to-day fire operations. Depending on the district, further assistance is provided by forest patrolmen, forest lookouts and/or other district staff. All bureau staff members who are not primarily involved in the fire program are considered to have secondary firefighting duties and can be called on as needed to assist with emergencies. These personnel are required to have basic training and equipment.

## FOREST FIRE WARDEN NETWORK

All forest districts have a network of volunteer forest fire wardens who can be utilized to augment bureau personnel for wildfire patrol, prevention and suppression. The system of fire wardens was created in 1915 through legislation granting authority and responsibility through a chief forest fire warden to a network of local wardens statewide. They are charged with and authorized to develop local crews of trained wildland firefighters and to respond to wildfires in the Commonwealth regardless of land ownership. Nearly 2,000 fire wardens are on-call across the Commonwealth. Celebrations of the program's 100<sup>th</sup> anniversary are planned throughout the Commonwealth in 2015.

## FIRE CACHES AND AIR OPERATIONS

The bureau's 20 forest district offices, nine forest fire control stations and 46 forest maintenance headquarters function as fire tool and equipment caches and serve as a dispersed network of dispatch points for firefighters. The division maintains a statewide fire cache that is used to distribute wildland fire materials, tools and equipment for both in-state and out-of-state incidents. The bureau operates two air tanker bases, three alternate air tanker bases and two heli-bases. All are activated seasonally utilizing contracted aircraft and pilots. In addition to suppression aircraft, the bureau also contracts with private aircraft vendors across the state for single-engine aircraft for wildfire detection, tactical decision making and mapping.



## FIRE TOWERS

The bureau owns 46 fire towers across the Commonwealth. They remain an important asset for discovering and locating wildfires. A large replacement and rehabilitation project is currently underway in cooperation with the Department of General Services. Twelve are recognized as "Historic Lookouts."

## PARTNERSHIPS

The division enters into partnerships with other state and federal agencies to share knowledge and resources. A cooperative agreement with the USDA Forest Service has allowed the bureau to mobilize firefighting resources to assist other states during wildfire emergencies. This program has been in existence since the early 1970s and provides valuable training and experience for our personnel. The division also coordinates with the Pennsylvania Emergency Management Agency, the Office of the State Fire Commissioner, the Middle Atlantic Forest Fire Protection Compact, county emergency management agencies, and the 2,000-plus rural fire companies in the Commonwealth's 2,500 townships and municipalities.

## FOREST PEST MANAGEMENT DIVISION

The mission of the Division of Forest Pest Management is to protect forest resources from forest pests and other destructive agents to ensure the long-term health of the Commonwealth's forest ecosystems, including urban forests. DCNR has the responsibility for "*protecting forestlands in Pennsylvania from harmful insects, diseases, and other factors*" under authority of Act No. 18 of 1995. The division promotes programs designed to improve or maintain the health and biodiversity of forest ecosystems. The division's mission is



accomplished by evaluating factors affecting the health of trees and forests; utilizing integrated pest management techniques to mitigate the effects of destructive agents on the forest ecosystem; and promoting forest health to the public.

## FIELD OPERATIONS SECTION

The Field Operations Section is responsible for monitoring factors that affect forest health. Various projects are implemented for the suppression, prevention, detection, diagnosis, investigation, and evaluation of forest health problems. These include pest surveys, implementation of forest pest suppression programs, biological control programs, tree mortality surveys, long-term monitoring projects for significant forest pest effects, coordination of annual forest pest surveillance flights over all forest land in the state, and conducting forest pest damage appraisals. The section also participates in multi-disciplinary/multi-agency field studies; coordinates forest health monitoring system data acquisition; and the training of field personnel in DCNR forest districts, state parks, forest industry, and other state, local, and non-profit agencies.

## PROGRAM SERVICES AND SUPPORT SECTION

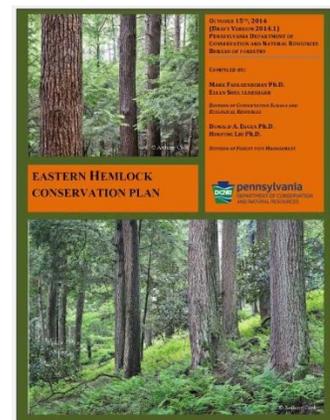
The Program Services and Support Section coordinates with the Field Operations Section to perform early warning detection of destructive forest pests through intensive surveys of Pennsylvania's 17 million acres of forest land. The section develops and recommends control and management of these pests through our client collaborations, public education, demonstrations, seminars and forest health diagnostic services.

The section is responsible for administering the division's federal grants for insect pest suppression, biological control, and forest health surveys. Section staff prepares environmental assessments associated with pest suppression and control activities, and is responsible for the development and transfer of technological innovations. The section develops and disseminates informational materials on forest pests/damage, and provides forest pest/damage identification services. The section coordinates statewide forest pest suppression projects involving the application of pesticides on private forested residential lands, state forests, state parks, and other non-federal public lands. Programs are planned, organized, supervised and evaluated both before and after treatment to determine environmental impacts and efficacy. Suppression projects are conducted in cooperation with federal and county government agencies. In conjunction with suppression projects, such as gypsy moth and hemlock woolly adelgid, spray application technology and insecticides are tested. Management recommendations are also developed to promote the establishment of pest-resistant stands.

## MAJOR FOREST HEALTH ISSUES

### Hemlock Woolly Adelgid

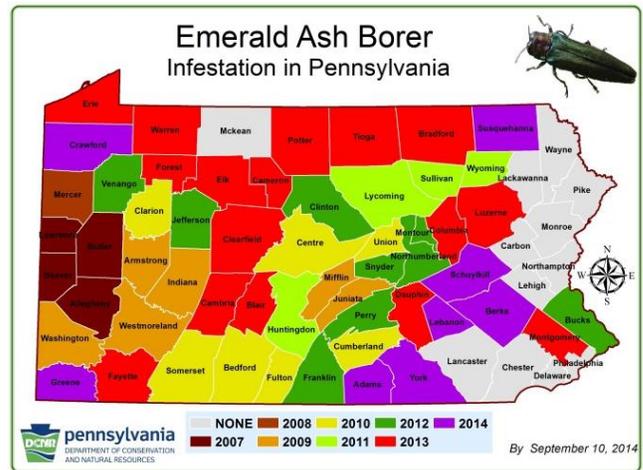
The hemlock woolly adelgid is a serious pest of Eastern hemlock in the northeastern states. This insect was first reported in southeastern Pennsylvania in the late 1960s and has spread to both ornamental and forest hemlocks. The hemlock woolly adelgid sucks sap from the young



branches which results in premature needle drop and branch dieback. The bureau developed an Eastern Hemlock Conservation Plan in 2014 and posted it on the agency website.

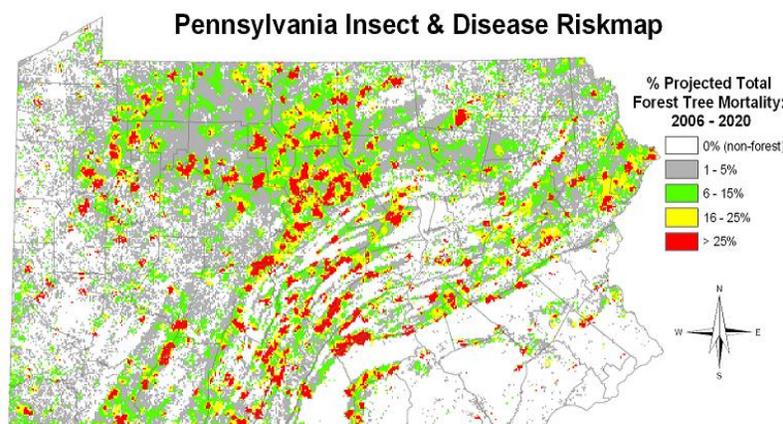
### Emerald Ash Borer

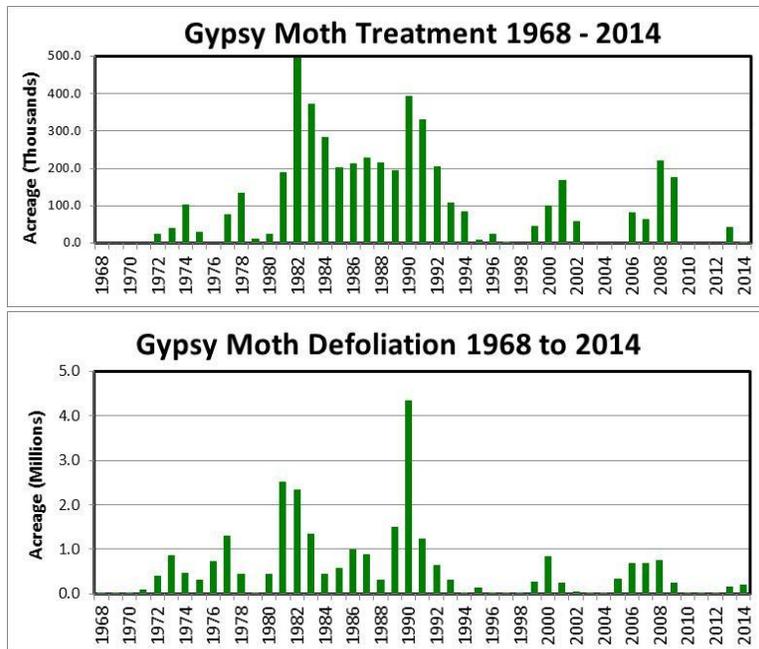
The emerald ash borer is a half-inch long metallic green beetle. Larvae of this beetle feed under the bark of ash trees. Their feeding eventually girdles and kills branches and entire trees. Emerald ash borer was first identified in North America in southeastern Michigan in 2002. In the years since that discovery, the beetle has spread into Minnesota, Wisconsin, Indiana, Illinois, Iowa, Kansas, Missouri, Kentucky, Tennessee, Ohio, Maryland, Virginia, West Virginia, Pennsylvania, New York, Massachusetts, Connecticut, New Hampshire, North Carolina, Ontario and Quebec. Tens of millions of ash trees have been lost to this pest, which usually kills ash trees within 3-4 years of infestation.



### Thousand Canker Disease of Black Walnut

Thousand cankers disease (TCD), recently discovered in Pennsylvania, poses a significant new threat to black walnut. Black walnut (*Juglans nigra*) wood products have the highest value per board foot of any native tree species in Pennsylvania. Forest inventories show Pennsylvania has over 28 million black walnut trees on forested land. Black walnut has commercial value in numerous forms including veneer, lumber, and nut products. Thousand cankers disease is a complex that is caused by a fungus that is spread from tree to tree by the walnut twig beetle. Adult bark beetles carry fungal spores that are introduced into a tree when the beetles burrow under the bark. Small cankers develop which may enlarge and coalesce to completely girdle a branch. Trees die as a result of these canker infections at each of the thousands of beetle attack sites, usually within 10 years. There is no known cure for thousand cankers disease.





## MINERALS DIVISION

The Minerals Division is responsible for managing all oil, gas, gas storage, coal and hard minerals activity on state forest and park lands. The division provides geologic, reservoir engineering and geophysical expertise to other departments of the Commonwealth. The division is made up of geologic scientists and licensed professional geologists. The following is a list of minerals related programs that are routinely carried out on state forests lands and state park lands:

### OIL AND GAS LEASING AND MANAGEMENT

The extraction of oil and gas from state forest lands has been a program in the bureau since 1947, when the first oil and gas leases were issued by the department to private operators. Currently, the management of the gas extraction program requires approximately 95 percent of the division's time.

The Marcellus Gas Play underlies approximately 1.5 million of the 2.2 million acres of the state forest system. Currently, approximately 673,000 acres of these 1.5 million acres of state forest lands are subject to gas extraction activity by either private ownership of mineral rights or leasing by the Commonwealth of its gas rights. The leases issued by the Commonwealth comprise approximately 386,000 acres of primary extraction leases and gas storage leases. Approximately 287,000 acres of natural gas activity may occur on state forest lands where the Commonwealth does not own the gas rights, but does manage the surface lands during gas activity. The Commonwealth owns approximately 86 percent of state forest land subsurface rights. The remaining 14 percent of state forest lands (330,000 acres) have the oil and gas rights owned fully or in part by private parties.

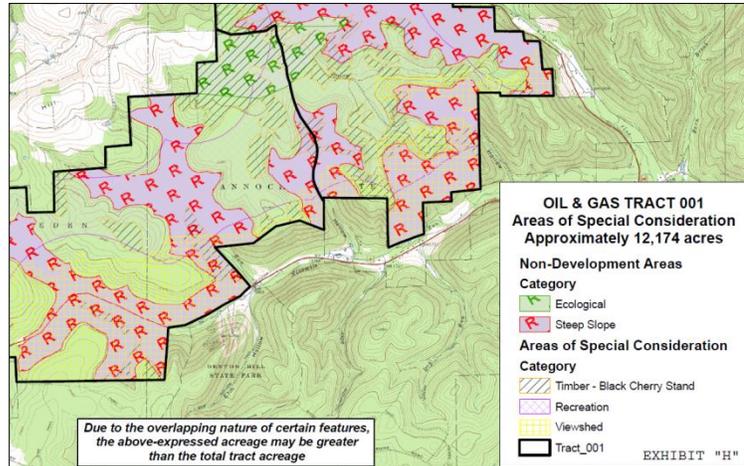


## Gas Leasing Activity

Before 2007, prior to any Marcellus leasing or activity on state forest lands, approximately 260,400 acres were under historic Commonwealth lease agreements. Of these leased lands, 187,200 acres were for primary gas production and 68,000 acres for gas storage. In 2008 and 2010, the bureau held two competitive Marcellus lease sales. The bureau also held a "sole source" lease sale in 2010. A total of 74 lease sales have occurred since 1947 in deep Oriskany Sandstone, shallow Upper Devonian Sandstone and medium Marcellus Shale.

## Marcellus Shale Leases

The first Marcellus lease sale in 2008 consisted of 74,023 acres. The second Marcellus lease sale was held in early 2010 and consisted of 31,947 acres. The third Marcellus leasing event took place in 2010 wherein the Commonwealth extended a sizeable sole-source lease to Anadarko E&P Company for approximately 32, 896 acres.



State forest lands leased prior to 2008 are not restricted from Marcellus drilling. Marcellus drilling is currently taking place on these acres leased prior to the 2008 and 2010 lease sales mentioned above.

## Wells

From 1947 to 2008, approximately 1,662 wells for both shallow and deep targets were drilled on state forest lands. Of that, approximately 750 are still under production, the rest having been plugged or abandoned. The bureau has approved approximately 1,003 new Marcellus well locations since 2008, of which approximately 594 have been drilled. New Marcellus wells are being approved by the bureau at an average rate of 100 per year. The bureau projects that approximately 3,000 new Marcellus wells will be drilled on state forests over the next 10 years on Commonwealth leased lands.

## STATE PARK GAS MANAGEMENT

The section also serves a consulting role to the DCNR Bureau of State Parks by providing geologic support, lease management expertise, land ownership expertise and business leadership. Management of the possible gas drilling activity and the recreational opportunities within parks will likely be a challenging endeavor. The Commonwealth only owns approximately 20 percent of the subsurface rights under our state parks. Determining ownership on the other acreage will be a complex and potentially expensive process.

## COAL LEASING AND MANAGEMENT

The extraction of coal on state forest lands is only done in conjunction with reclamation of existing mine lands. Approximately 30,000 acres of mine lands are in the state forest system. Several cooperative

efforts with watershed associations and DEP are under way where acid mine drainage and land reclamation are the goals.

#### STONE LEASING AND MANAGEMENT

Periodically, the extraction of limestone and building stone from existing quarries and mines on adjacent private lands presents opportunities for deep mining beneath state forest lands without impacts to the surface. In these cases the bureau may offer a lease agreement provided there are limited impacts to the environment.

#### OWNERSHIP ISSUES

Adverse claims arise periodically on the bureau's subsurface rights, and with the recent economic activity generated by Marcellus shale, DCNR has numerous claims in the works. The program supports the claims with title research and documentation from its files and the courthouse where appropriate. This activity is part and parcel with oil and gas activity.

#### LAND EXCHANGES

The opportunity to enter into beneficial land exchanges presents itself frequently to the bureau. In addition, the exchange of coal rights, stone rights, and oil and gas rights for advantageous land positions are commonly presented to the section for research and negotiation.



#### GAS STORAGE LEASE MANAGEMENT

The bureau has issued seven gas storage leases for depleted gas fields where the operators are using the capacity to store gas for the winter peak markets. Gas storage is a large business in Pennsylvania and the state forest system hosts the three top-capacity gas storage fields in the state. Annual income from gas storage rentals usually runs around \$2.2 million.

#### REVIEW OF LAND PURCHASES FOR GEOLOGIC HAZARDS AND VALUES

Prior to the purchase of selected land parcels for inclusion into the state forest system, it may be necessary to research the geology for hazards, past or present oil, gas, gas storage, hard mineral mining and water issues to ensure the Commonwealth is not intentionally taking title to serious pollution or economic liabilities.

#### GEOLOGICAL RESEARCH ON STATE LANDS

General geologic research is usually necessary for most of the management programs listed above. For example, in a cooperative effort with the Bureau of Topographic and Geological Survey, the use of state forest lands was considered for the possible location for a carbon sequestration demonstration facility.

## CONSERVATION SCIENCE AND ECOLOGICAL RESOURCES

The Conservation Science and Ecological Resources Division provide conservation and ecology expertise and program oversight for both the Bureau and the Department. The division provides four major functions—management of the PA Natural Heritage Program, the Wild Plant Program, the Wild Resources Conservation Program, as well as providing ecological management expertise to the Bureau. To accomplish ecological goals and objectives, the division partners and collaborates with other agencies and organizations, including the Pennsylvania Game Commission (PGC), Pennsylvania Fish and Boat Commission (PFBC), U.S. Fish and Wildlife Service (USFWS), PA Department of Environmental Protection and a variety of non-governmental organizations, citizens groups, advisory committees and the academic community.

### NATURAL HERITAGE

The Wild Resource Conservation Act of 1982 gave the Department the authority to survey and inventory the ecological resources of the Commonwealth and make the information available. The Department facilitates this process through the Pennsylvania Natural Heritage Program (PNHP). Staff in the Natural Heritage Section work closely with partners and stakeholders to implement the following:

#### PA Natural Heritage Program

The PA Natural Heritage Program (PNHP) is a partnership between DCNR, PGC, PFBC and the Western Pennsylvania Conservancy. Natural Heritage section staff provides strategic direction and support in close coordination with PNHP partners. PNHP is a member of NatureServe, an international network of natural heritage programs that gather and provide information on the location and status of important ecological resources (plants, vertebrates, invertebrates, natural communities and geologic features). PNHP provides current, reliable, objective information to help guide conservation work, land-use planning, and environmental decisions. The program performs County Natural Area Inventories which identify important natural resource areas within the Commonwealth as well as other ecological inventories and studies of PA's ecological resources such as wetlands and aquatic communities. Information and data obtained through the PNHP program is made available through the PA Natural Diversity Inventory and other conservation planning tools such as county inventory reports and interactive maps.

#### PA Natural Diversity Inventory

PA Natural Diversity Inventory (PNDI) program is the environmental review function of the PNHP. It is the main source of information in PA utilized for state-permitting and planning needs to support biodiversity conservation and to facilitate the avoidance and minimization of impacts to endangered, threatened, rare, candidate and special concern species and resources. The natural heritage section maintains the online PNDI Environmental Review Tool, which enables the public to perform



online PNDI screenings of development projects for potential impacts to threatened, endangered, special concern species and special concern resources in PA. Staff coordinates the data management, conservation planning and environmental review functions of PNDI in close cooperation with PNHP partners. Outreach and trainings with stakeholders and partners play an important role in this program given its role in development and environmental permitting within PA.



In addition to managing the PNHP and PNDI programs as a whole, Natural Heritage Section staff also review individual projects located throughout the state that have the potential to impact state-listed native plants. Staff performs in-office reviews using GIS and also assists landowners and developers in the field by performing plant surveys and monitoring.

#### ECOLOGICAL SERVICES SECTION AND WILD PLANT PROGRAM

The state forest system is managed to ensure the conservation of a diversity of native wild plants and animals and provide suitable habitats that support these species and communities. Ecologists, botanists and wildlife biologists within the Ecological Services Section provide conservation and management expertise and recommendations for the bureau's ecological, flora and fauna conservation efforts as well as managing the state's Wild Plant Program.

##### Ecological Field Services

Ecologists, botanists and wildlife biologists within the Ecological Services are responsible for the bureau's ecological, flora and fauna conservation efforts. The state forest system is managed to ensure the conservation of a diversity of native wild plants and animals and provide suitable habitats that support these species and communities. Staff provides ecological field expertise and management recommendations to ensure management on State Forest lands are accomplishing these diversity goals.

Specific game and non-game wildlife projects have included: a Bat Habitat Conservation Plan developed in coordination with the U.S. Fish and Wildlife Service; Allegheny woodrat and spotted turtle habitat management; and participation in the PA Game Commission's Deer Management Assistance Program (DMAP). The Bureau has recently enhanced its DMAP program by developing a Vegetation Impact Protocol to assess the herbaceous vegetation and regrowth in an area to estimate deer density and to help make decisions on management of the deer herd.

Plant management projects have included habitat improvement projects for threatened and endangered plant species including: blue lupine and northeastern bulrush within public plant sanctuaries; a Conservation Plan for Eastern hemlock; targeted invasive species tracking, management and eradication; and a program to monitor plants within gas activity areas on SF lands. In addition,

seeps, wetlands and vernal pools are inventoried and assessed by section staff to ensure protection of any ecologically significant areas.

### Ginseng

Ginseng and other medicinal plant species are becoming popular among collectors for sale and for personal use. The Wild Plant Program (WPP) administers licensing for ginseng dealers in Pennsylvania to monitor the harvest of the species. Bureau field personnel are responsible for certifying ginseng root shipments out of state. Due to its popularity, the harvest of ginseng is monitored and reported to ensure the harvest is sustainable for the species. In recent years the harvest numbers have increased for ginseng—given the rising cost of ginseng and television shows exploiting the ginseng as a quick and easy money-maker. In 2013 the Department updated its ginseng regulations, changing the beginning of collection time from August 1 to September 1 and clarifying language to better ensure a sustainable harvest of ginseng.



### Wild Plant Regulations

Of the more than 3,000 vascular plants in Pennsylvania, approximately 600 are classified as endangered, threatened, rare, extirpated, or tentatively undetermined in Title 17, Chapter 45. In cooperation with expert biologists, botanists and technical committees, the Wild Plant Program continually evaluates the current classifications of these species and makes necessary regulatory changes to reflect the current information available on plant distribution in Pennsylvania. As part of the regulations, Wild Plant Management Permits are issued for collecting Threatened and Endangered plants or plant parts in Pennsylvania by surveyors or academia. Approximately 100 permits a year are issued to perform plant studies, inventories, or surveys for development projects.

### Invasive Species Management

One of the greatest threats to biodiversity is invasive species, second only to habitat removal. Ecological Services staff represents the bureau on several multi-agency committees that address management strategies, public education and prevention of invasive plant species. There are several steps staff takes in tackling invasive plants:

One important step in reducing the impact of invasive species is to use native plant species in gardens and plantings. Staff provides the Bureau and public landowners with training and management guidance on planting native species, invasive prevention and removal. In consultation with experts, staff has developed predominantly native species seeding mixes for use after disturbance on state forest lands. These native mixes decrease the risk of introducing invasive plant species and require less maintenance and cost. Finally, staff has developed tracking and monitoring programs to quickly identify, prioritize and treat invasive plant populations on state forest land. This involves the implementation of an Early Detection Rapid Response program for invasive plants in districts impacted by gas activity, and a statewide tracking program of invasive plants across all districts.

### Wild Plant Sanctuaries

The Wild Resource Conservation Act provides that DCNR may protect wild plant species and populations in jeopardy of decline on public and private lands. The Private Wild Plant Sanctuary Program was created to recognize private landowners for conserving and enhancing native wild plants and plant communities. This is a voluntary program for landowners interested in managing for wild plants on their properties. To date, 10 sanctuaries have been designated across the Commonwealth. On public lands, there are approximately 32 designated Public Wild Plant Sanctuary sites on state forest (30) and state game lands (2). Management plans for the public sanctuaries are developed in cooperation with forest and game land managers.

### CONSERVATION SCIENCE PROGRAM

The Conservation Science Program combines science with conservation to support on-the-ground resource management and advance the understanding of emerging conservation issues in PA.

### WILD RESOURCES CONSERVATION PROGRAM

Now in its 32nd year, the Wild Resource Conservation Program (WRCP) serves as the nexus for conservation, education and research on Pennsylvania's native biodiversity. Established by The Wild Resource Conservation Act of 1982, WRCP works closely with the PGC and PFBC to establish priorities and support research, conservation and education projects through grant funding. Over the past four years the Wild Resource Conservation Program funded 41 projects totaling a little over \$1,225,000.

To facilitate the flow of information between researchers, conservationists, and educators, the program develops educational publications, including a quarterly E-magazine called *Keystone Wild! Notes*, developed an online searchable research database, and hosts symposia, including the state's first conference on climate change adaptation and biodiversity.

### Research Coordination

In order to more cost effectively and efficiently incorporate research into state park and state forest management, the program coordinates the department's research prioritization and solicitation process. This program identifies joint research priorities, identifies projects that satisfy the needs of the Department, serves as the department's liaison with universities and research institutions, and broadly distributes and shares research results.



*Ruffed Grouse – Pennsylvania's State Bird*

## SILVICULTURE SECTION

Silviculture is the art and science of controlling the establishment, growth, composition, health and quality of forests to sustainably meet the many needs and values of society. Act 18 of 1995 specifically states that the state forest system was created, in part, to “provide a continuous supply of timber, lumber, wood and other forest products.” The bureau’s Silviculture Section is responsible for directing and supporting timber harvesting and forest regeneration activities on the 2.2 million-acre state forest system.



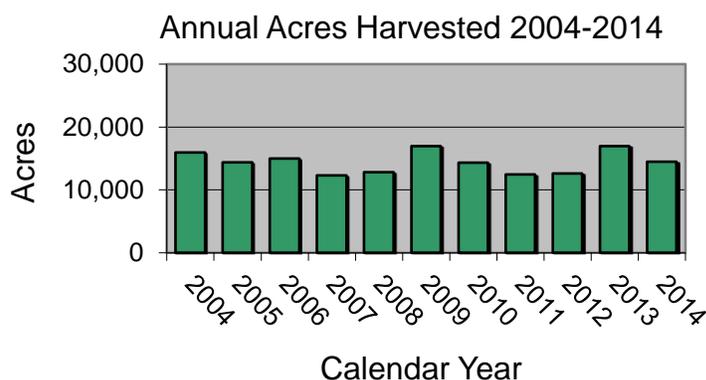
The silviculture program ensures that all silvicultural treatments proposed on state forest comply with the State Forest Resource Management Plan. The section also develops timber management and regeneration guidelines and procedures; monitors all regeneration treatments and timber sale activities; bids and processes all timber sale contracts; and trains field foresters. When requested, the section provides silvicultural assistance to the Bureau of State Parks and other state agencies.

The bureau’s policy is that “state forest lands will be managed to provide a sustained yield of high quality timber and other wood products. The successful and timely regeneration of diverse forest communities will be promoted on state forest lands. The management of state forest lands will demonstrate and promote silvicultural practices that sustain ecological and economic forest values.”

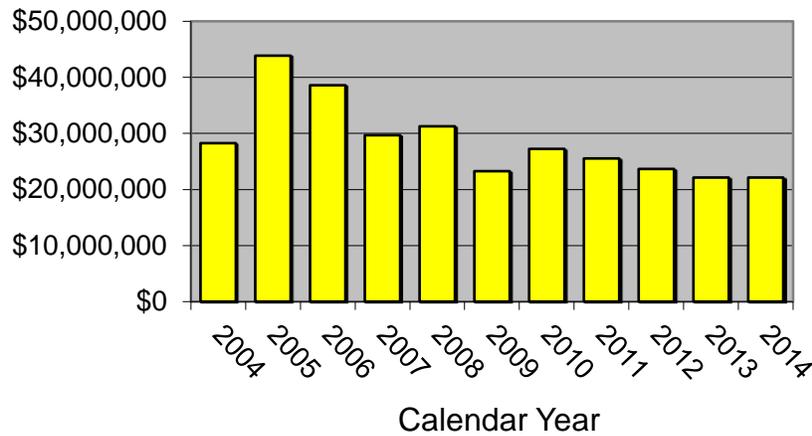
To accomplish these goals the section administers three distinct but interrelated programs: timber management, forest regeneration and forest research.

### TIMBER MANAGEMENT

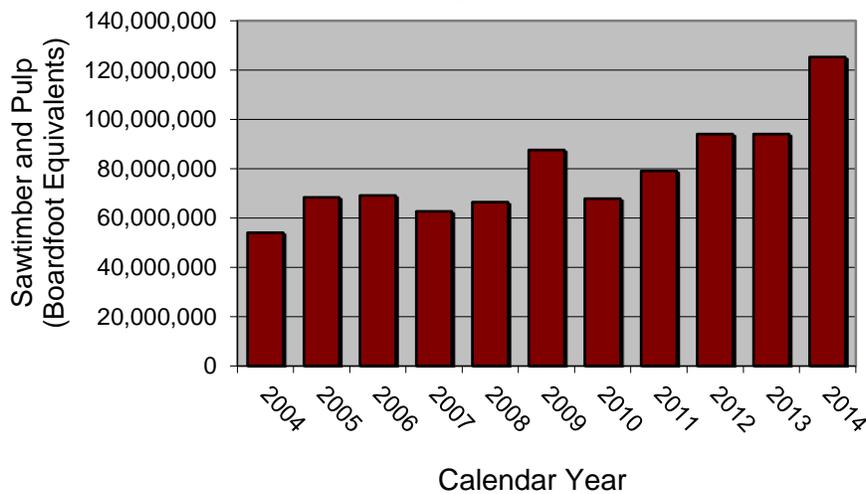
The bureau has harvested 140,000 acres on state forest lands in the last ten years. Timber sale contracts generated about \$29 million in annual revenue to the Commonwealth (\$287 million since 2004). Harvesting and careful management of state forest lands generates an estimated \$500 million of private-sector economic activity per year. Harvest levels are carefully planned to be sustainable for future generations. The timber program is estimated to cost the Commonwealth less than \$8 million per year.



Timber Sale Contract Values  
2004-2014



Annual Volumes Harvested  
2004-2014



The state forest timber harvesting program provides renewable raw materials to an important Pennsylvania industry that produces cabinets, flooring, pallets, paper, home heating and other wood products. Pennsylvania is in fact the largest manufacturer of hardwood lumber in the nation. While the forests of Pennsylvania grow a variety of hardwoods, its cherry and oak are truly world class. The Commonwealth’s \$19 billion per year forest products industry employs about 100,000 Pennsylvanians. In some communities, the timber industry is the primary source of employment. This industry relies on a steady supply of timber from state forest lands. During the recent economic downturn, the availability of private timber was greatly curtailed, but state forest lands continued to provide a steady, sustainable timber source.

The state forest system's status as a Forest Stewardship Council certified producer has created a higher demand for Pennsylvania paper and building products. The availability of certified timber on state forest lands has been particularly important during the most recent economic recession, making Pennsylvania's pulp and lumber industries more competitive.

Wildlife and forest plant species each prefer their own unique habitat conditions. Deer thrive in different habitat than fishers, and ruffed grouse prefer different habitat than certain songbirds. Careful timber harvesting is often the most effective means of promoting a variety of habitat conditions on a large scale.

The bureau's professional foresters carefully plan each timber harvest and assess natural regeneration to ensure a new high-quality forest will replace the forest being harvested. Inventories of threatened and endangered species are checked prior to any harvest. Wildlife biologists and ecologists are consulted for management recommendations to ensure these species are protected. While the majority of the state forest system is older and more mature, each year approximately 6,000 acres of early successional forest are created through bureau timber harvests, providing important plant and wildlife habitat across the state forest system.

#### FOREST REGENERATION FUND

Sustainable and efficient forest management requires that a new forest be established prior to or immediately following a timber harvest or natural disturbance. By law, the bureau deposits 10 percent of state forest timber sale receipts into the Regeneration Fund to aid in forest renewal activities. The section is responsible for the regeneration program on state forest, including the allocation and disbursement of regeneration funds. The \$3 to \$4 million that is placed in the fund each year is devoted primarily to the following programs:

##### Deer Fencing Program

Excessive browsing by white-tailed deer can prevent the establishment of young forest stands. Deer exclosures, also known as "deer fences," are widely used on state forest lands and are effective at mitigating deer impacts and establishing regeneration. Two types of exclosures are used on state forest land—woven wire and high-tensile electric. About 3,000 acres of fencing is constructed annually and about 2,000 acres are removed each year. The average fence is 35 acres and is maintained for 3



to 10 years until regeneration is established. Currently, there are about 1,200 miles of fencing protecting 40,000 acres of regenerating forests on state forest lands. Fencing is the primary use of the Regeneration Fund, requiring about 50 percent fund's budget each year.

### Herbicide Program

Herbicide application is used when fern, grasses and undesirable shrub and tree species are competing with the establishment and growth of more desirable tree seedlings. Accord (glyphosate), Oust (sulfometuron-methyl), and/or Garlon (triclopyr) are the primary herbicides used on state forest lands. Approximately 5,000 acres of broadcast herbicide treatments and 1,000-acres of direct bark herbicide treatments are completed annually. It is the second largest use of the Regeneration Fund.



### Tree Planting Program

Tree planting is occasionally done to supplement natural regeneration, increase species diversity, and improve wildlife habitat. On some highly disturbed sites it may be the only means available to reestablish forests.

An average of 4,000 acres of tree planting is completed each year on state forest lands. Nearly all of these tree seedlings are grown by the bureau's Penn Nursery facility. Tree planting is accomplished primarily through the Regeneration Fund, but there are notable partnerships with community groups, prison programs and non-profit organizations that assist in the planting of trees.

### Other Regeneration Programs

A variety of methods are used to control weedy vegetation that competes with desirable tree species on disturbed sites within state forest lands. These other treatments commonly include forest mowing, pre-commercial crop-tree releases, prescribed fires and forest fertilization.

### FOREST RESEARCH FUND

An additional 5 percent of timber revenues may be set aside annually for forest research through the Research Fund. This fund has been used in the past to resolve a host of complex problems related not only to forest regeneration and silviculture but also related to ecological, social and recreational values on and off state forest lands. Projects within the program have had numerous partners, including USDA Forest Service, Penn State University, the Western Pennsylvania Conservancy, Pennsylvania Game Commission, Pennsylvania Fish and Boat Commission, and many others.

The Bureau will soon release the first Timber Product Output Survey completed since the early 1990s. This new 60-page report will provide forest landowners and wood-processing business owners with insights into the volumes, species, uses, products and origins of wood harvested and processed in Pennsylvania. This survey was funded with a U.S. Forest Service grant.

## RURAL AND COMMUNITY FORESTRY SECTION

The Rural and Community Forestry Section manages statewide programs that provide technical assistance and funding to enhance a myriad of environmental and economic benefits to Pennsylvania constituents and their municipalities. Rural and community forestry programs focus on private woodland owner assistance, land conservation, agroforestry, and urban and community forestry.

To accomplish its goals, the section works with bureau field offices as well as essential partner organizations to conserve forests across the landscape and in communities. Through its partnership with the USDA Forest Service, DCNR receives significant funding to implement rural and community forestry programs.



### MISSION

The mission of the Rural and Community Forestry Section is to provide leadership and support in the promotion of private forestland sustainability, watershed health and community livability throughout Pennsylvania.

### MAJOR PROGRAM AREAS

#### Woodland Stewardship

Pennsylvania is 60 percent forested and most of that forestland (71 percent) is owned by private citizens. Research shows that healthy forests are vital to providing a wide range of benefits and services essential to human health and quality of life. For example, the quality and quantity of water in the Commonwealth is heavily dependent on forests and forest products are an important part of the Commonwealth's economy, providing hundreds of millions of dollars in revenue annually to private landowners.

Woodland Stewardship covers a broad range of programs. Central office staff work with the bureau's outreach foresters, called Service Foresters, to provide programs and services to constituents, many of whom own forest land. The program provides advice and assistance to municipalities, school districts, or municipal authorities that own forest land and desire further integration of natural resources into their comprehensive planning. Field staff provide information, educational programs, and advice to landowners, school children, municipal officials, and others via workshops, conferences, calls and visits. More than 5,500 forest landowners attended bureau programs last year. The Woodland Stewardship Program fosters important partnerships with the USDA Forest Service and USDA Natural Resource Conservation Service that result in funding and cost-share assistance to landowners in creating plans for their forest land and implementing forestry practices. The bureau also works with private forestry consultants to complete and implement forestry plans and practices. Currently, Pennsylvania has 563,769 acres of private land under Forest Stewardship and related plans.

### Forest Legacy

Forest Legacy is a federally funded, nationally competitive, voluntary private forestland conservation program conceived to conserve working forests. It seeks to purchase land in fee or via conservation easements from interested and willing sellers. The process for projects is highly competitive both in-state and nationally. Projects must show that they are environmentally important, vulnerable to development, and strategic in one or more conservation efforts. To date, Pennsylvania has completed four projects: two conservation easement purchases, one fee purchase, and one conservation easement donation. These projects total 4,811 acres. An additional project is currently underway: Eagle Rock has potential to be completed during 2015 and is a fee purchase that will add 1,100 acres to the Michaux State Forest. DCNR currently holds 3,354 acres of conservation easements and 1,466 acres of property in fee through the Forest Legacy Program. All acreage held under the Forest Legacy Program is sustainably managed for economic and environmental benefits via an approved forest management plan.



### Clean and Green

The section assists the Pennsylvania Department of Agriculture with its Clean and Green tax incentive program, which seeks to use tax relief to promote open space conservation. The section works with Penn State University to calculate the Forest Reserve Use Values for each tax year. The section also provides input into Clean and Green issues that arise throughout the year, as well as assists constituents who call for information.

### Agroforestry

The section is on the cutting edge of the Agroforestry movement, not just in Pennsylvania, but in the Northeastern United States. Agroforestry is an innovative blending of agronomic and forestry practices that can be utilized to provide income streams from farm woodlots and forests and to better integrate forestry practices into farm woodlots and farming operations. The section is frequently tapped to provide insight into statewide and regional projects. Major partners in this effort are the USDA Forest Service, the Pennsylvania Association for Sustainable Agriculture (PASA), Penn State Extension, the Farmers Union, PA Certified Organic, and the USDA Natural Resources Conservation Service. Part of this effort is the expansion of “buy local” style programs into the wood and forest product markets.

### TreeVitalize

The bureau’s comprehensive urban and community forestry program is called TreeVitalize. Around 80 percent of Pennsylvania citizens live in urban or suburban areas, and most of the urban areas in the state have less than the 40 percent recommended tree canopy cover. Trees in urban and community settings provide numerous benefits that reach far beyond



aesthetic appeal. Research shows that trees stimulate the economy by increasing property values and revitalizing downtown business districts. Properly located trees have been shown to provide significant energy savings to businesses and residents alike. Trees are also essential to the management of stormwater, in both developed and natural forested settings. Their capacity to intercept and take up stormwater has the potential to drastically reduce the need for expensive stormwater infrastructure.

TreeVitalize is a public-private partnership to help restore community tree cover, educate citizens about the myriad benefits of trees (such as energy savings, clean air, and storm water control), and build capacity among local governments to understand, protect and restore their urban trees. The program was originally created as a response to an alarming trend of tree loss in Pennsylvania’s metropolitan areas and has since expanded to include all work done under the urban and community forestry umbrella. TreeVitalize utilizes the Pennsylvania Horticultural Society’s TreeTenders™ program to train local citizens in the planting and maintenance of trees. The program plants street trees as well as vital streamside buffers in the 14 metropolitan areas of the Commonwealth.



Statewide Tree Planting Goal:	1 million
Progress To-Date:	388,870
Citizen Education Goal:	10,000
Progress To-Date:	5,561

Under TreeVitalize, the bureau partners with the National Arbor Day Foundation to implement the Tree City USA and Tree Line USA programs. The Tree City USA program recognizes communities that reach four separate milestones related to community tree sustainability—an ordinance pertaining to street trees; \$2 per capita spent on tree-related costs; a tree board or department; and an Arbor Day celebration. The Tree Line USA program is a similar program that recognizes electric utilities for their use of industry-approved pruning practices, and involvement with and assistance to the communities they serve. Tree Campus USA schools must meet five tree-related criteria similar to those of Tree City USA.

#### Urban Tree Canopy

The section is at the forefront of the urban tree canopy arena. An urban tree canopy assessment can greatly help communities decide how many trees to plant each year and where those trees should be planted to obtain maximum benefits for the community. Urban tree canopy assessments were first begun with funding received from the US Forest Service under the Chesapeake Bay Program, but have since been expanded beyond the Bay, due to their usefulness to communities. Pennsylvania is close to meeting its original Bay goals (10 communities) for urban tree canopy and continues to work in this arena both within and outside of the Bay

Complete assessments to-date: 7  
Assessments in-progress: 10

### Watershed Health

Pennsylvania's abundant water resources continue to be key factors in the economic development, community health, recreational opportunities, and ecological wealth of the state. The Commonwealth contains roughly 83,000 miles of streams; 4,000 lakes, reservoirs, and ponds; 80 trillion gallons of groundwater and over 400,000 acres of wetlands. According to the Pennsylvania Department of Environmental Protection, Pennsylvanians withdraw about 9.7 billion gallons of water per day from both surface and ground water sources. Pennsylvania is a headwaters state and is connected through its rivers to the Great Lakes, Gulf of Mexico, and Delaware Estuary and Chesapeake Bay drainages. Land management choices not only impact Pennsylvania's 12 million citizens, but hundreds of downstream communities as well. Through its programs and efforts, the section works to further water-related goals related to stream buffer planting, urban tree canopy expansion, and forest land conservation that will benefit millions of people downstream.

### Chesapeake Bay

Pennsylvania provides an estimated 50 percent of the Chesapeake Bay's fresh water supply through its Potomac and Susquehanna watersheds and comprises more than 35 percent of the total Chesapeake Bay watershed acreage. In 2014, Pennsylvania signed on to a new Chesapeake Bay Agreement designed to improve water quality in the bay. The bureau and its partners are working to further these directives, which include a riparian forest buffer goal, a forestland conservation goal for priority watersheds, and an urban tree canopy expansion goal.

### Goals:

#### Forest Buffers:

- Bay-wide: restore 900 miles per year of riparian forest buffer and conserve existing buffers until at least 70% of riparian areas throughout the watershed are forested.
- Pennsylvania's Portion: 89,630 acres must be added between 2012-2025 or 6,895 acres per year ( 575 miles) to reach goal by 2025
- Pennsylvania's Progress To-Date (since 2006): 39,007 acres (2,367 miles)

#### Forestland Conservation:

- Bay-wide: by 2025, protect an additional two million acres of lands throughout the watershed – currently identified as high-conservation priorities at the federal, state, or local level – including 225,000 acres of wetlands and 695,000 acres of forest land of highest value for maintaining water quality.
- Pennsylvania's Portion: 100,000 acres
- Pennsylvania's Progress To-Date (since 2006): 37,722 acres



#### Urban Tree Canopy:

- Bay-wide: Expand urban tree canopy by 2,400 acres by 2025
- Pennsylvania's Portion: 1,444 acres (60 acres or 6000 trees annually)
- Pennsylvania's Progress To-Date (since 2013): [77 Acres](#)

#### Forestry Working Group

The section acts as DCNR's representative in the Chesapeake Bay Forestry Working Group, which develops and implements plans and projects focusing on the contributions of forest lands in restoring the health and productivity of the Chesapeake Bay watershed and in retaining their economic potential. The workgroup provides a forum to discuss issues and identify opportunities among the forestry community, interested individuals and organizations, and federal, state and local governments.

#### Chesapeake Bay Watershed Implementation Plan

Pennsylvania's Watershed Implementation Plan was prepared to address the U.S. Environmental Protection Agency's expectations for the Chesapeake Bay Total Maximum Daily Load (TMDL), published in 2010. The section has provided Pennsylvania DEP with extensive feedback on the Watershed Implementation Plan document and has been successful in working with partners to include urban tree planting in the bay model. Tree planting is now considered a "gap filling Best Management Practice" to meet nutrient reductions. The section has also partnered with Penn State University Extension to inform municipal officials and employees of green storm water management solutions that can assist them in meeting their TMDL requirements.

#### PARTNERS

The bureau relies on dozens of partnerships to complete rural and community forestry projects and to locate funding for important projects and programs. Partners include the USDA Forest Service; USDA Natural Resources Conservation Service; Penn State University; ALCOA; Pennsylvania Forest Products Association; Pennsylvania Urban and Community Forestry Council; American Chestnut Foundation; WITF and other public radio stations; Pennsylvania Forest Stewardship Committee; Pennsylvania Forest Stewards; Pennsylvania Horticultural Society; Chesapeake Bay Foundation; the National Arbor Day Foundation; and the Alliance for the Chesapeake Bay, among others.

#### Funding

Throughout the years, the USDA Forest Service has been an important funder of the vital work done by Rural and Community Forestry, supplying multiple millions of dollars for work in both urban and rural arenas. More recently, the Commonwealth has seen fit to support the important work of the section, especially through ongoing funding of the TreeVitalize Program, making a measurable difference in quality of life for Pennsylvania citizens.

## BUSINESS SERVICES OFFICE

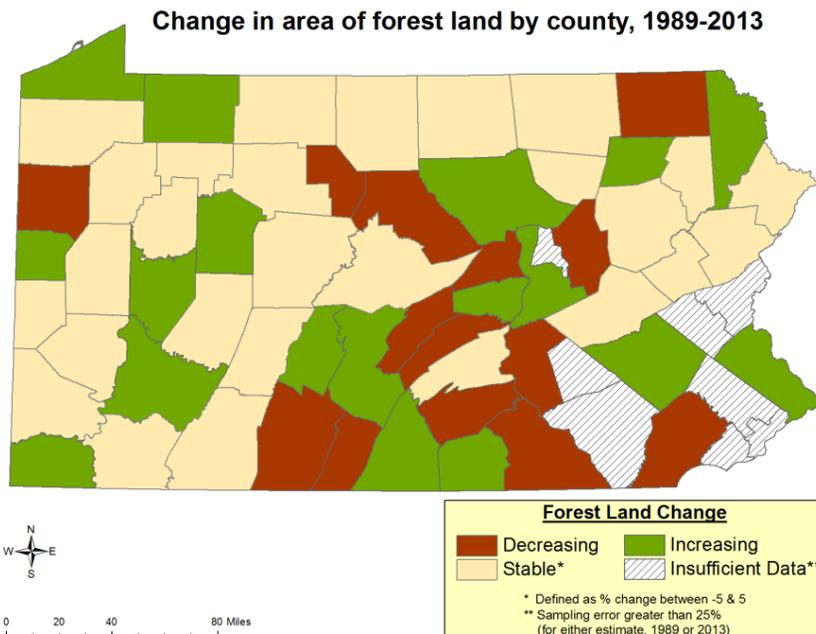
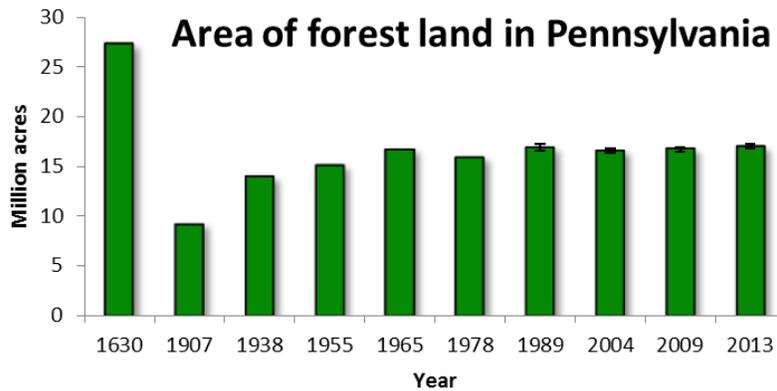
The Business Services Office supports the agency's mission through oversight, direction, and guidance of fiscal, procurement, and human resource activities administered within the bureau. Staff analyzes and plans for resource adjustments needed to continue program operations and to ensure a consistent flow of revenue and provide input to the bureau's annual operating budget. The team promotes fiscal accountability through the development of criteria-based spending plans and oversight of procurement activities. Staff manages the bureau's wage and salary complement, plans for position actions, and oversees statewide time and attendance activities. This office provides an important link between the field and DCNR central services staff, maintaining consistency and ensuring adherence to established policies and procedures.



# FOREST CONSERVATION ISSUES

## LOSS OF FOREST LAND

Pennsylvania contains 16.6 million acres of forest, covering approximately 60 percent of the Commonwealth. Recent USDA Forest Service data suggests that on a statewide basis, Pennsylvania’s forest land area is stable. However, a closer look reveals that some parts of the state are gaining forests, while other parts are losing forests. Counties surrounding the metropolitan areas of Philadelphia and Harrisburg lost significant amounts of forestland over the past 25 years. Statewide, an estimated 50,000 acres of forest are lost to residential and industrial development and agriculture yearly.



## INVASIVE INSECTS, DISEASES AND PLANTS

Non-native invasive species pose a very serious threat to the health of Pennsylvania’s forests. Terrestrial plant species such as Japanese stilt grass, mile-a-minute weed and multiflora rose adversely

affect biodiversity and forest regeneration. Japanese knotweed, garlic mustard and purple loosestrife are choking out native plant populations found in riparian areas.

Invasive diseases such as chestnut blight and Dutch elm disease and insect pests such as gypsy moth and hemlock woolly adelgid have already significantly changed forests and urban landscapes. Oaks continue to be at risk from gypsy moth. While gypsy moth populations are currently at low levels, they may begin to increase as early as 2012. Hemlock woolly adelgid, introduced into Pennsylvania in 1967, continues to spread westward, threatening the Pennsylvania's state tree. Emerald ash borer continues to expand its population, threatening 323 million ash trees and urban tree cover across the Commonwealth.



Non-native invasive and insect species that attack forests will continue to be introduced in the United State at a rate of about 2.5 species per year. All the major forest types in Pennsylvania are currently at risk.

## LACK OF FOREST REGENERATION

The capacity of the forest to renew itself through natural regeneration is a key indicator of forest health and a necessary component of a sustainably managed forest. Ensuring desirable regeneration throughout Pennsylvania's forest is a significant management challenge. Across the state, only 47 percent of sampled stands have adequate regeneration to develop into high-canopy forests. When only considering commercially desirable species, the number drops to 34 percent.

The extent and quality of forest regeneration has far-reaching impacts on forest health and the suite of values the forest provides to society. The habitat structure that young forests provide is essential to many wildlife species, such as American woodcock, golden-wing warblers and Appalachian cottontails. The species mix in these regenerating forests impacts the future availability of wood products. Some of today's commercially valuable timber species, for example – such as oak and sugar maple – are not strongly represented in the current collection of young trees that will become the future forest.



A myriad of both ecological and social factors underlie the fundamental lack of regeneration in Pennsylvania forests. The lack of planning and sound forest management practices on a majority of private forestland contributes widely. Deer populations out of balance with habitat conditions is a significant factor, as are changing fire regimes, alterations in soil chemistry, acidic deposition, and the proliferation of both native and nonnative invasive plants and insects.

## DEER MANAGEMENT

White-tailed deer are an integral part of Pennsylvania's forest ecosystems and provide myriad recreational opportunities for hunters and wildlife watchers. But when their populations are out of balance with habitat conditions, they can profoundly impact forest plant and animal communities. In extreme cases, they can greatly hinder forest renewal by consuming trees and young plants that make up the future forest.



Many complex social and ecological factors come into play in managing deer populations and the state forest system. The bureau has long advocated for deer populations in balance with forest habitat conditions. In recent years, the bureau's forest monitoring activities have registered positive impacts on the forest ecosystem because of more balanced deer populations. However, the bureau is concerned about recent policy changes of the Board of Game Commissioners in regards to decreasing antlerless deer harvest allocations and weakening the Deer Management Assistance Program on state forest land. These policies have the potential to erase recent gains in forest health and regeneration and hinder future forest health and sustainability.

## RECREATIONAL USER CONFLICTS

The bureau makes every effort to achieve the most balanced recreation program for state forest visitors. Providing a diversity of recreational opportunities from a limited land base, however, poses a continual challenge.

In particular, there is a growing tension between those who prefer the quiet contemplation of nature on our public lands and those who enjoy the use of motorized vehicles for recreation. As the steward of the state forest system that is managed for multiple uses and as the administrator of the state's ATV licensing and registration program, DCNR is responsible for achieving a delicate balance of providing safe ATV trails while protecting forest resources and meeting the needs of a broad array of stakeholders.

DCNR's ATV strategy is to develop larger recreation areas on "already disturbed land," such as the recently opened Rock Run Recreation Area in Cambria County. DCNR committed \$5 million to Rock Run's planning and development. This investment was intended to increase the amount of land open to the general public for ATV use, provide longer trails and draw riders to communities that could benefit from their economic contributions.

To supplement large-scale efforts, the bureau has committed to improving the existing ATV network on state forest lands. DCNR recently announced plans to develop five small, new ATV connector trails on state forest land — totaling 29 miles — to enhance existing 247 miles of trails. The miles were strategically



chosen to maximize riding opportunities and minimize environmental impact. The development of these short connecting trails will link existing state forest trails to private ATV trails, as well as township roads that have already been legally opened to ATVs by local municipalities. This will result in expanding riding opportunities by a total of 276 miles.

Despite these additions DCNR will likely receive significant pressure from motorized sport enthusiasts to open more state forest for trail use. At the same time, the agency has a responsibility to other stakeholders who just as enthusiastically value the wild character of the state forest system. The bureau has the difficult challenge of continuing to manage the forest for multiple uses and values and to serve a variety of stakeholders.

## FOREST FRAGMENTATION

Fragmentation refers to breaks in forest cover or openings created by roads, utility corridors, gas well sites, and housing developments resulting in a loss of interior forest habitat. While a certain amount of forest edge creates habitat beneficial to some wildlife, larger quantities of forest edge are problematic for species requiring expanses of unbroken interior forest. Forest fragmentation also creates conduits for the introduction and spread of invasive species.

Pennsylvania already contains an abundance of roads and other fragmenting features, with the exception of the large blocks of public forests in northern Pennsylvania. However, Marcellus shale gas development coupled with the development of utility rights-of-way will likely become a major source of fragmentation and a potential threat to the ecologically important interior forests of northern Pennsylvania.



## INTER-GENERATIONAL LAND TRANSFER

Forest parcelization, the process of dividing large tracts of forest into smaller tracts, has been on the rise in Pennsylvania. As forested parcels are subdivided and sold, new owners are often confronted with decisions regarding their forests. Whether new owners choose to develop their newly acquired land or their management objectives simply differ from their neighbors, continuity of forest cover is jeopardized.

Landscape-level management with a focus on overall sustainability is extremely difficult with larger numbers of landowners with wide-ranging management objectives. A recent study estimates that Pennsylvania has well over 600,000 forest landowners, with an aging demographic, suggesting the potential for an increased rate of parcelization in the near future. The study estimates that half of Pennsylvania's private forests will change hands in the next two decades. In another study, researchers found that the next generation of landowners has varying viewpoints of forest ownership, thus raising additional uncertainty of future management and stewardship.

More than 70 percent of the Commonwealth's forests are privately owned. The bureau has a leadership role in ensuring these forests are sustained for future generations. To achieve this goal, the bureau will have to address this impending wave of ownership transfer and its potential impacts by working with forest landowners, forest industry, local municipalities and other conservation organizations and agencies.

## WATER QUALITY

Forested watersheds are key to providing drinking water to millions of Pennsylvanians. Three hundred and five surface water supply systems provide drinking water to 7.5 million Pennsylvanians, while the remaining population obtains its drinking water from groundwater systems which are hydrologically linked to surface waters.

Forested watersheds produce higher quality water than non-forested watersheds. In general, watershed health begins to decline as forest cover drops below a range of 65 to 75 percent. Water quality decreases as forests are converted to other uses.

Current estimates indicate that slightly more than half of Pennsylvania's small watersheds meet the 65 percent threshold. However, concern about the overall loss of forest land cover in Pennsylvania may push some watersheds below this level.

Pennsylvania contains 86,000 miles of streams, 4,000 lakes, reservoirs and ponds, and over 400,000 acres of wetlands. Forests adjacent to these water bodies, commonly referred to as riparian forests, are critical to providing clean water for humans and quality aquatic habitats for plants and animals. Riparian forests serve as buffers and help to reduce the impact of various land-use activities by providing overhead shade to cool the water and by trapping and filtering sediment, chemicals, and excess nutrients from agricultural operations.

Countless studies have documented the benefits of riparian forests, and, for maximum benefits, 70 percent or more of streams in a watershed should be protected by a forested buffer. Statewide, Pennsylvania nearly meets this threshold with 63 percent of streams buffered by a forest more than 100 meters wide. However when viewed at a smaller, individual watershed scale, the story is much different. Only a third of the state's small watersheds are protected with buffers.

## ENERGY DEVELOPMENT

People have always looked to the forest for sources of energy, from firewood to fuel to smelt iron in the 19<sup>th</sup> century. Today, forests continue to provide vital sources of energy to society. Wind farms are being



constructed across the state's forested ridges; woody biomass is being harvested to heat buildings and produce electricity; natural gas development is occurring across the state's most heavily forested regions; and rights-of-ways and pipelines are being cleared across both state and privately owned forest land.

These various forms of energy development have the potential to affect some of our state's most valuable forest lands and change the character of Pennsylvania's forested landscapes. Most of the impacts are related to surface disturbance – the clearing of forest land for well pads, pipelines and rights-of-way. This activity, often referred to as “forest conversion,” contributes to the overall loss of forest land throughout the state; impacts the wild character and the forest's scenic and recreational values; creates potential pathways for destructive invasive species; and contributes to ecological degradation due to forest fragmentation. How energy development and its related surface disturbance are managed in Pennsylvania – both on public and private land – is perhaps one the most pressing concerns of overall forest sustainability.

## CLIMATE CHANGE

Climate change has been suggested to be a large threat to the long-term survival of the Earth's biodiversity. In Pennsylvania, the average yearly temperature has risen 1.0°C since the 1960s with a net increase of 1.3°C in the last century. Projections by the Intergovernmental Panel on Climate Change (IPCC) suggest that if the global average temperature increase exceeds 3.5°C, a significant number of species (40-70%) could go extinct around the globe. Climate change prediction models use different warming and greenhouse gas emission scenarios, but some predict that much of North America could reach this threshold in just 50 years.

Climate change could impact state forests directly through increases in average, maximum and minimum temperatures, longer growing seasons, increased average rainfall, decreased winter snow cover, more intense weather events, and longer periods of drought. These forest composition changes could cause increased stress and mortality of trees, the growth rate and spread of invasive species, and ultimately in the function of the forest ecosystems. Although climate change is not the sole agent of environmental stress, there are signs that changes to Pennsylvania's climate are already affecting the structure and composition of its forests. For example, kudzu, an invasive species with a formerly southern distribution, has migrated north and has now been identified at 140 locations in Pennsylvania.

Developing practical conservation measures that address existing stresses and improve forest resilience will provide the most effective approach to retaining healthy forest ecosystems in Pennsylvania while addressing climate change. Developing baseline information, identifying trends and gaining a better understanding of the impacts of climate change will help guide future management decisions to help natural systems adapt.



## WILDFIRE RISK

DCNR is tasked with protecting all of the Commonwealth's wildlands from wildfire. The bureau is playing an increased role in protecting lives and property from wildfires. As these demands increase, the bureau's capacity to provide these services is decreasing in terms of manpower and funding.



Over the last few decades, expansion of the wildland/urban interface—areas where homes and other human development meet or intermingle with undeveloped land—has significantly impacted all emergency response and disaster management activities. In many areas, community expansion has outpaced local infrastructure, stretching capabilities of fire, police, and other local emergency services. The wildland/urban interface creates an environment where fire can move readily between structural and vegetative fuels, increasing the likelihood that wildfires will threaten homes and people. University of Wisconsin and the USDA Forest Service report that more than 17 percent of Pennsylvania residents live in the wildland/urban interface. An informal wildfire risk assessment was conducted in 2002 identifying more than 250 municipalities at risk.

## COMMUNITY TREE COVER

According to the most recent census, close to 9.5 million people, or 77 percent of Pennsylvania's population, live in urban areas. Urban land in Pennsylvania increased from 8.2 percent in 1990 to 9.5 percent in 2000 and is projected to more than double, to 22.1 percent of the total acreage, by 2050.



The ecological, economic and social benefits of conserving community tree cover is well documented. Trees improve air and water quality, reduce stormwater runoff, reduce the urban heat-island effect and the formation of ozone, and reduce energy usage. Trees increase property values, increase business in downtowns, reduce health and energy costs, reduce the need for engineered solutions to air and water pollution and extend the life of paved surfaces shaded by trees. Socially, trees have a calming effect on people, slowing traffic, reducing recovery time from illness, encouraging creative play in children, and even reducing crime.

Urban settings present numerous challenges to trees and their management including: placing the right tree in the right space; overcoming poor soils and excess salting of roadways; and accounting for future resources needed to ensure tree health and public safety. Existing tree cover needs to be considered in land-use planning and municipal development to ensure viable community forests into the future. Enhancing and maintaining community tree cover and urban forests will only be possible through continuing effective partnerships among government agencies, local citizen groups, municipalities, conservation organizations and private industry.

## BUREAU OF FORESTRY ADVISORY COMMITTEES

### PENNSYLVANIA BIOLOGICAL SURVEY AND VASCULAR PLANT TECHNICAL COMMITTEE

The objective of the Pennsylvania Biological Survey is to increase the knowledge of and foster the perpetuation of the natural biological diversity of the Commonwealth of Pennsylvania. In addition to the objectives of the PBS, the Vascular Plant Technical Committee advises the department on issues related to native wild plant conservation including updates to Title 25, Chapter 82.

Membership of the survey includes individuals, both professionals and dedicated amateurs, who volunteer their expertise and energies to help achieve the survey's purpose. The survey is governed by a steering committee and is composed of several technical committees representing various taxa. The Vascular Plant Technical Committee includes botanists from universities and colleges, museums, conservation organizations and state and federal agencies.

### PENNSYLVANIA RARE PLANT COMMITTEE

The objective of the Pennsylvania Rare Plant Committee is to advise the department on matters relating to native wild plant classification within the Commonwealth. Membership of the committee includes individuals, both professionals and dedicated amateurs, who volunteer their expertise and energies to advise and assist the department in wild plant conservation. The Rare Plant Committee is open to all individuals with an interest in wild plant conservation.

### THE ECOSYSTEM MANAGEMENT ADVISORY COMMITTEE

The purpose of the Ecosystem Management Advisory Committee (EMAC) is to advise DCNR on ecological approaches to resource management. The committee is working with the DCNR to help identify ecosystem management concepts and principles, integrate these concepts into the State Forest Resource Management Plan, and evaluate their implementation.

EMAC membership includes public agency personnel from DCNR, Pennsylvania Department of Environmental Protection, USDA Forest Service, Pennsylvania Game Commission, Pennsylvania Fish and Boat Commission, National Park Service, private forestry consultants, academia, and natural resources conservation organizations.

### SILVICULTURE/TIMBER ADVISORY COMMITTEE

The purpose of the Silviculture/Timber Advisory Committee (STAC) is to advise DCNR on the planning and implementation of silvicultural/timber-related activities on state forest land, including forest inventories, forest regeneration, and timber harvest planning, scheduling, and administration. STAC membership includes public agency personnel from DCNR, USDA Forest Service, Pennsylvania Game Commission, private forestry consultants, forest industry, and academia.

## RECREATION ADVISORY COMMITTEE

The purpose of the Recreation Advisory Committee (RAC) is to advise DCNR on natural resource based recreation planning and management. The focus of the committee is recreation planning and the State Forest Resource Management Plan that guides the management of state forests.

RAC membership includes public agency personnel from DCNR, USDA Forest Service, Pennsylvania Fish and Boat Commission, and the National Park Service, recreation and tourism organizations, recreation and tourism industry, natural resources conservation organizations, academia, and local government.

## PENNSYLVANIA FOREST STEWARDSHIP STEERING COMMITTEE

The purpose of the Pennsylvania Forest Stewardship Steering Committee is to guide the Forest Stewardship Program in Pennsylvania, which is designed to provide forest management assistance to private forest landowners.

Committee members serve at the request of the state forester. Membership includes public agency personnel from DCNR, USDA Forest Service, Pennsylvania Fish and Boat Commission, Pennsylvania Game Commission, Pennsylvania Hardwoods Development Council, Pennsylvania Hardwood Lumber Manufacturers Association, USDA Natural Resources Conservation Service, USDA Farm Service Agency, the Pennsylvania Farm Bureau, natural resources conservation organizations, academia, local government, forest industry, private forestry consultants, and private forest landowners.

## THE PENNSYLVANIA URBAN AND COMMUNITY FORESTRY COUNCIL

The mission of the Pennsylvania Urban and Community Forestry Council is to assist communities in developing comprehensive and sustainable urban forestry programs for the purpose of enhancing quality of life. The council advises the department on issues related to urban and community forestry and promotes state and federal urban and community forestry programs.

Membership of the council includes individuals, both professionals and dedicated amateurs, who volunteer their expertise and energies to help achieve the council's mission. The council is governed by a board of directors and is composed of several technical committees to address specific areas of activity, such as grants, public relations, community outreach, legislative outreach, publications, membership, and finance.

## PINE CREEK RAIL TRAIL ADVISORY COMMITTEE

This committee was established to advise the Bureau of Forestry on matters related to the construction, operation and maintenance of the Pine Creek Rail Trail in Tioga and Lycoming counties. Its members consist of officials from the townships, borough and counties that the trail passes through. Currently there are 14 members on the committee. Two county commissioners jointly chair the committee.

## PENNSYLVANIA APPALACHIAN TRAIL COMMITTEE

This advisory committee was established for the purpose of advising the secretary of DCNR on matters of concern relating to any aspect of the Appalachian Trail in Pennsylvania. The committee is composed of not more than nine persons selected to represent the different Appalachian Trail interests. It is chaired by one of the members, elected annually by the members and designated by the secretary of DCNR.

## CONSERVATION AND NATURAL RESOURCES ADVISORY COUNCIL (CNRAC)

As taken from Section 315 of Act 18 of 1995:

- 1) The council shall review all conservation and natural resource laws of the Commonwealth and make appropriate suggestions for the revision, modification and codification thereof.
- 2) The council shall consider, study and review the work of the department and for this purpose the council shall have access to all books, papers, documents and records pertaining or belonging to the department.
- 3) The council shall advise the department, on request, and shall make recommendations upon its initiative for the improvement of the work of the department.
- 4) The council shall report annually to the Governor and to the General Assembly and may make such interim reports as are deemed advisable.
- 5) The council shall have power to employ and fix the compensation of such experts, stenographers and assistants as may be deemed necessary to carry out the work of the council, but due diligence shall be exercised by the council to enlist such voluntary organizations and other agencies in Pennsylvania or elsewhere, generally recognized as qualified to aid the council.

## PA GREENWAYS PARTNERSHIP COMMISSION

The purpose of the commission is to aid the Secretary of DCNR in the promotion of greenways development throughout Pennsylvania. The membership reflects a cross section of greenway interests and the geographic diversity of the Commonwealth. It includes a representative from the following organizations: Pennsylvania Environmental Council; Pennsylvania Organization for Watersheds and Rivers; Pennsylvania Rails-to-Trails Conservancy; Pennsylvania Recreation and Parks Society; Pennsylvania Planning Association; Pennsylvania Chamber of Business and Industry; Pennsylvania Land Trust Association; Pennsylvania Heritage Parks Association; and the Pennsylvania Recreational Trails Advisory Board. The remaining at-large members are to represent a diversity of greenway interests. The individuals are appointed by and serve at the pleasure of the Secretary of DCNR. In addition, there are liaisons from 12 state agencies that work with DCNR and the Commission on greenways related activities.

## SNOWMOBILE AND ATV ADVISORY COMMITTEE

According to Act 68, the powers and duties of the advisory committee are to advise the Secretary of the Department of Conservation and Natural Resources on matters concerning the implementation of Chapter 77 of the PA Vehicle Code, including existing and proposed regulations, standards, policies and

practices; use and operation of snowmobiles and ATVs on public land; acquisition, construction development and maintenance of trails; enforcement; and allocation of fees collected by the department pursuant to Chapter 77.

The 17-member committee comprises the chairman and minority chairman of the Environmental Resources and Energy Committee of the Senate; the chairman and minority chairman of the Environmental Resources and Energy Committee of the House of Representatives; one representative from the following organizations: Pennsylvania Game Commission, Allegheny National Forest, Pennsylvania State Association of Township Supervisors, Pennsylvania State Association of Boroughs, Pennsylvania State Association of County Commissioners; and public representatives from the following organizations: Pennsylvania Snowmobile Association (2), Pennsylvania Off-Highway Vehicle Association (2), Conservation or Non-motorized Recreation Groups (2), Pennsylvania Farm Bureau (1), Pennsylvania Travel Council (1).

## NATURAL GAS ADVISORY COMMITTEE

The purpose of Natural Gas Advisory Committee (NGAC) is to advise and provide recommendations for implementing natural gas management in a manner consistent with the mission of DCNR and its Bureaus. NGAC is composed of experts from a variety of backgrounds and organizations, including conservation groups, universities, gas industry, environmental consultants, and recreation. Several DCNR program areas implement natural gas management strategies, notably the Bureaus of Forestry, State Parks and Topographic and Geologic Survey. NGAC will focus on state forest lands and the work of the Bureau of Forestry. NGAC recommends means of integrating the Bureau's ecosystem management and resource sustainability approach with natural gas management concepts and principles. DCNR and the NGAC Chairman facilitate all NGAC meetings.