



# 2008 STATE OF THE FOREST



ANNUAL REPORT  
ON VIRGINIA'S FORESTS

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# FROM THE STATE FORESTER

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This is my fourth annual report to you since becoming State Forester of Virginia in late 2004. Much has changed in Virginia's forests since my last report one year ago. Some of the changes have been positive, but many are not. This report is intended to provide a candid assessment of the challenges and opportunities facing the Virginia Department of Forestry (VDOF), the forest lands of Virginia, and, ultimately the quality of life in our Commonwealth.

The latest forest inventory assessment puts the loss of forest land in the Commonwealth at 27,000 acres annually. If this trend continues, Virginia could lose 1 million of its 15.7 million acres of forest land within 25 years. In addition to the threats posed by development, the forests are under siege by a host of invasive insects and plants. Gypsy moths defoliated more than 112,000 acres in Virginia's western mountains – up from the 74,000 acres defoliated a year ago. The hemlock woolly adelgid continues in its quest to eliminate hemlock trees from the Commonwealth. The emerald ash borer – a major threat to millions of ash trees in the state – has been found in northern Virginia. Invasive plants, such as ailanthus, Chinese privet, kudzu and multiflora rose, are wreaking havoc in our forests and will likely change entire ecosystems where they are found.

Wildland fire activity was unusually high this year. Persistent drought conditions necessitated a statewide burning ban in the fall of 2007. In early February 2008, the Commonwealth experienced its busiest single day of fire activity ever as more than 350 wildland fires broke out February 10<sup>th</sup>. Two VDOF firefighters were seriously injured battling separate blazes during the year. And last, but certainly not least, are the continuing challenges we face with our workforce: nearly 40 percent of Agency employees have been with VDOF less than five years; the annual turnover rate is just under 27 percent, and the reason why more than 38 percent of those who left the Agency within the past five years was for better-paying positions.

On the positive side, we dedicated two new state forests (Channels and Dragon Run), thereby adding more than 6,000 acres to the self-funding state forest system. We created a Division of Forestland Conservation within the Agency and have already secured conservation easements on several thousand acres of privately held forest land. We grew and sold more than 33 million tree seedlings; oversaw the regeneration of nearly 81,000 acres of forest land, and partnered with several private entities (including Vaughan-Bassett Furniture Co., Glatfelter Pulpwood Co., Plow & Hearth Co., and Belfort Furniture) to provide more than 563,000 free tree seedlings to Virginia landowners. Our wildland firefighters protected more than 2,200 homes and other structures from the ravages of wildland fires. And we conducted more than 5,000 timber harvest inspections to ensure Virginia's waters were protected.

Lastly, the Weldon Cooper Center for Public Service at the University of Virginia completed a study in 2008 of the economic impact of forestry in Virginia. According to the study, the value of Virginia's forests exceeds \$27.5 Billion annually. There are more than 373,000 private forest landowners in the Commonwealth. Those who harvest trees together receive more than \$350 million annually for their timber. And 144,000 Virginians (1 out of every 33 workers) are employed in forestry-related industry jobs. Forestry and the forest industry are big business in the Commonwealth.

I invite you to read through this document to fully understand: the state of Virginia's forests; the Virginia Department of Forestry's role in the protection and development of healthy, sustainable forest resources, and the impact Virginia's forests have on your quality of life. Thank you for your continued interest in and support of the Virginia Department of Forestry.

Sincerely,



Carl E. Garrison III

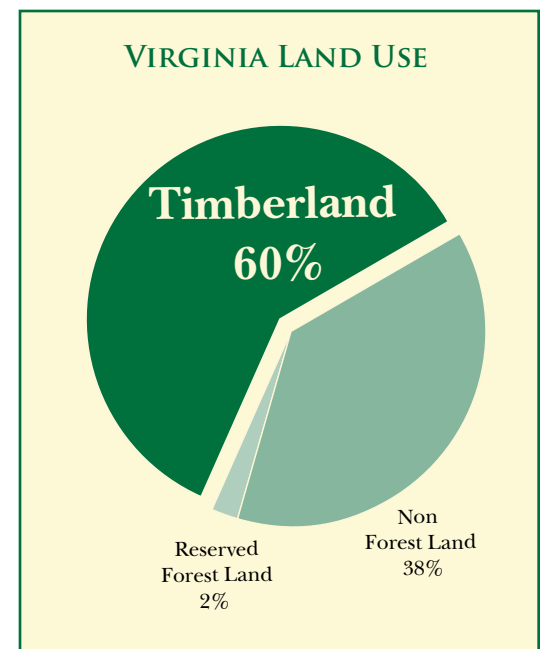
# VIRGINIA FOREST TRENDS

In August 2007, Virginia Department of Forestry staff completed the eighth inventory of Virginia's forest resources. Information from nearly 5,000 plots was analyzed and summarized by the USDA Forest Service and posted in June 2008.

## FORESTED LAND

In 2007, more than 15.72 million acres – more than 62 percent of the Commonwealth – qualified as forest land. Of this forest land, 15.2 million acres are categorized as commercial timberland and 500,000 acres are categorized as reserved forest land. With an average plot re-measurement period of 5.2 years, the net loss of forest land was 27,000 acres per year, up from 20,000 acres per year during the seventh survey period. This translates to a rate of one acre lost every 20 minutes. If the long-term trend continues, Virginia could lose one million acres of forest within the next 25 years. By comparison, Virginia's largest state forest (Appomattox- Buckingham State Forest) is slightly under 20,000 acres in size.

Interestingly, the loss of forest land to other land uses is dynamic – other land uses are reverting back to forest land simultaneously. During the 2001 to 2007 period, for every four acres diverted to non-forest land uses, three acres reverted back to forest within the state. The coastal plain experienced the highest ratio of diversions to reversions with almost two acres of forest land cleared for each acre reverted.



## LAND-USE CHANGES 2001-2007 (ACRES)

Region	Diversions from Forest Land	Reversions to Forest Land	Ratio
Coastal Plain	107,334	64,238	0.60
Southern Piedmont	86,164	76,381	0.89
Northern Piedmont	107,200	82,792	0.77
Northern Mountains	74,739	52,849	0.71
Southern Mountains	109,529	78,122	0.71
<b>Statewide</b>	<b>484,965</b>	<b>354,381</b>	<b>0.73</b>

## GLOSSARY OF FOREST INVENTORY TERMS

**Forest land** – Land at least 10 percent stocked by forest trees of any size, or formerly having such tree cover, and not currently developed for non-forest use. The minimum area considered for classification is one acre. Forested strips must be at least 120 feet wide.

**Timberland** – Forest land capable of producing 20 cubic feet of industrial wood per acre annually and not withdrawn from timber utilization.

**Reserved Forest land** – Forest land withdrawn from timber utilization by legislation or statute, e.g. National Park lands or designated Wilderness Areas.

## FOREST OWNERSHIP

Most of Virginia's forest land is privately owned (12.9 million acres). More than 373,600 individuals and families hold a total of 10.1 million acres. These private holdings average less than 75 acres in size, but range from a few acres to thousands of acres.

By 2007, ownership of forest land by forest products firms had declined to less than four percent of the total (550,000 acres). This is a reduction from seven percent in 2001 and 11 percent in 1992. Timber investment management organizations (TIMOs) and real estate investment trusts (REITs) account for more than 300,000 acres of forest land divested by forest industry. These two categories of owners continue professional forest management on the properties in their holdings. However, the long-term trend is likely further subdivision and development of these lands.

The balance of Virginia's forest lands (16 percent) are owned by federal, state and local governments – the largest entity being the USDA Forest Service National Forest lands at 1.6 million acres.

The Virginia Department of Forestry – through its 19 state forests - holds 55,000 acres of forest land.

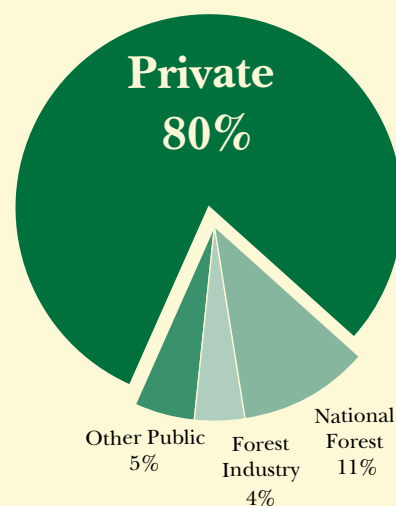
### Virginia Forest Cover

61.5% Forest



*From year 2004-2006 Landsat satellite imagery, classified by the Virginia Department of Forestry*

### VIRGINIA FOREST LAND OWNERSHIP



## FOREST SUSTAINABILITY

*“We envision forest resources that support and enhance a healthy living environment.”*

*“We protect and develop healthy, sustainable forest resources for Virginians.”*

-DOF 2014 Shaping Virginia's Forests (Strategic Plan)

When we address the issue of whether Virginia's private and public forests are healthy and are being managed sustainably, we can look at several indicators. One of these is the ratio of the net growth versus the removal of forest volume, due to harvesting and land conversion. The latest available forest inventory data indicate a net growth to removal ratio of 1.30 for hardwoods statewide. In other words, for every unit of hardwood removed, 1.3 units have grown to replace it. For softwoods (pine), the ratio is also positive: 1.17 statewide.

When looking at growth/removal ratios, some areas of the Commonwealth do present a concern. In the coastal plain, the ratio for hardwoods is 0.82, while softwood is 0.99. One reason for this may be the impact of Hurricane Isabel in

September 2003. Hurricane Isabel caused significant damage throughout the coastal plain as 20 eastern counties experienced hurricane force winds. Studies have shown that category 1 hurricane force winds cause forest damage ranging from 0.5 percent to 5 percent of the merchantable forest, depending on the condition and composition of the forest.

The impact of Isabel is reflected in the growth to removal ratios in several ways. First, increases in mortality related to the storm were noted, which reduced net growth rates. Second, removal rates increased, due to the impact of post-Isabel salvage of damaged timber. As the damage from Isabel fades, future updates of the forest inventory data are expected to show an improvement in the coastal plain growth/removal ratio.

In terms of composition, the forests of Virginia continue to display good diversity. Hardwood and hardwood-pine forest types make up more than 12 million acres of the Commonwealth's forest – more than 78 percent. The area of hardwood forest types has increased steadily since the first forest inventory in 1940, when 8.1 million acres existed. The hardwood forests of Virginia are maturing, with more than 6.6 million acres in stands 60 years old or older.



Concerns do exist with the hardwood resource. While five upland oak species are among the top 10 tree species for total volume in the state, only one upland oak species – Chestnut oak – occupies a top 10 position for number of individual trees. The exclusion of fire and presence of high-grading are significant factors in limiting oak regeneration. In its place, shade-tolerant regeneration – such as red maple and blackgum – is becoming more prevalent.

Pine forests represent approximately 3 million acres (more than 20 percent) of Virginia’s forest land. This is a decline from the 6.2 million acres of pine found during the 1940 inventory. Pine plantations now constitute more than 50 percent of the pine acreage. Plantations help offset the loss of natural pine acreage, due to their higher productivity when intensively managed. These productivity increases should continue in the future with the use of genetically improved seedlings from the Virginia Department of Forestry nurseries.

A number of tree species have suffered significant decline over the latest inventory period: table-mountain pine, pitch pine and shortleaf pine, due to southern pine beetle infestation, and eastern hemlock, due to hemlock woolly adelgid infestation.

Several uncommon tree species in Virginia are receiving special attention: Atlantic white-cedar stands are being actively regenerated in the Great Dismal Swamp; and the Virginia Department of Forestry is actively promoting the propagation and planting of longleaf pine.

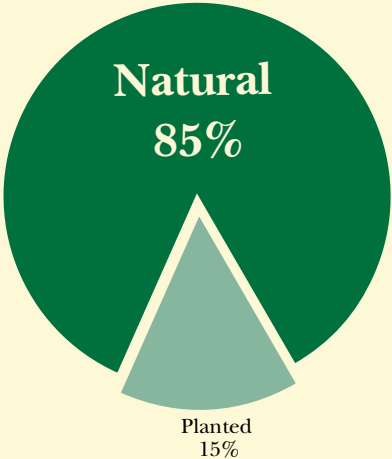
### TEN MOST COMMON TREE SPECIES IN VIRGINIA BY NUMBER OF TREES

Forest Types	No. of Trees
Red Maple	1,423,086,376
Loblolly Pine	1,041,611,689
Yellow-Poplar	846,502,497
Sweetgum	682,095,600
Blackgum	619,735,307
Virginia Pine	490,996,058
White Pine	438,344,537
American Holly	424,257,520
Chestnut Oak	361,635,540
Flowering Dogwood	331,893,179

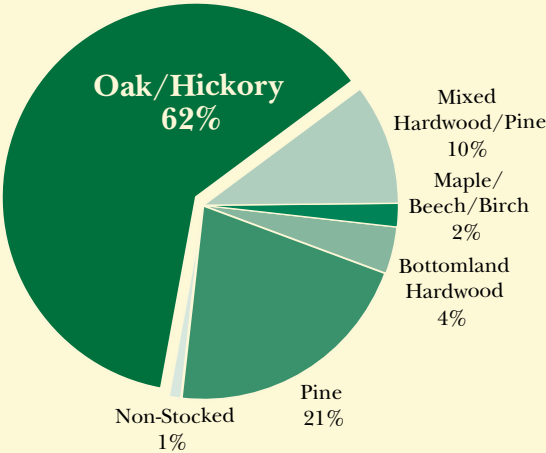
### TEN MOST COMMON TREE SPECIES IN VIRGINIA BY VOLUME

Forest Types	Cubic Feet
Yellow-Poplar	5,018,250,078
Loblolly Pine	4,189,451,742
Chestnut Oak	3,055,983,928
White Oak	2,988,259,766
Red Maple	2,253,778,167
Northern Red Oak	1,638,881,901
Virginia Pine	1,470,378,473
Sweetgum	1,115,031,838
Scarlet Oak	1,028,096,670
Black Oak	1,018,412,506

### VIRGINIA FOREST STAND ORIGIN



### VIRGINIA FOREST TYPES



## FOREST BENEFITS

Each year, Virginia's forests provide more than \$27.5 billion in direct economic benefits to the Commonwealth. These economic benefits include:

- ▲ More than \$23.4 Billion generated by the forest products industry and related activities;
- ▲ \$350 Million paid to forest landowners for the harvest of products;
- ▲ 144,380 jobs in the forest products industry, and
- ▲ Forest-related recreational spending in excess of \$2.4 billion.

In addition to the direct economic benefits, the extensive cover of forest land in Virginia provides its citizens with many valuable ecological services, including:

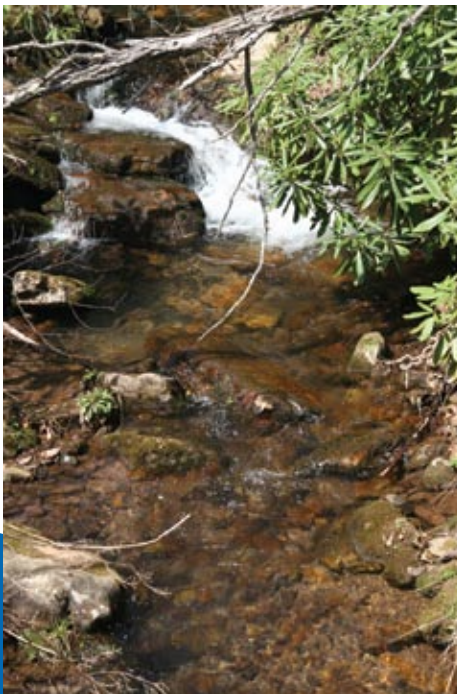
- ▲ Protection of water quality;
- ▲ Protection of air quality;
- ▲ Aesthetic quality;
- ▲ Moderation of climate, including the offsetting of carbon emissions that contribute to global warming, and
- ▲ Provision of habitat for many plant and animal species.

These "non-market" services have been conservatively valued at more than \$1.7 Billion annually.

## ECOSYSTEM SERVICES

Virginia's forests provide a vast array of ecosystem services. Simply defined, ecosystem services are the many benefits and services that forests provide. These services include: ameliorating nitrogen and phosphorus nutrient load reductions; carbon sequestration; biodiversity; pollination; recreation; aesthetics, and air quality improvements to name a few. The Virginia Department of Forestry is committed to increasing awareness of these vital services and finding solutions that keep working forests on Virginia's landscape sustainably providing ecosystem services.

Forest growth in Virginia annually sequesters or captures and stores about 6.42 million metric tons of carbon dioxide emissions. This growth roughly offsets about 14 percent of the total annual carbon dioxide emissions in the State. Voluntary markets are beginning to emerge to help forest landowners capture a value for the carbon sequestration service. The ability of forest growth to sequester carbon dioxide emissions and help provide solutions to climate change is a positive story to tell. However, each year, approximately one million metric tons of carbon dioxide is emitted into the atmosphere due to land-use changes, such as the loss of forest cover.



In addition to carbon markets, other market opportunities are emerging for landowners. Tree planting projects on open land are being looked at as solutions to reduce nitrogen and phosphorus loading and, therefore, enhance water quality. There is a tremendous effort to reduce nutrient loading in the Chesapeake Bay and forestry will have a role to play.

Other ecosystem services, such as providing for and enhancing biodiversity, are extremely important. How we manage our forests and plan for the

development of Virginia's landscape need to consider biodiversity values. The Department of Forestry is working with Virginia Tech and other state agencies to develop tools that will enhance our ability to include ecosystem service considerations in our land-use planning efforts.

## CONSERVING THE FOREST LAND-BASE

The conversion of forest land to other uses, typically due to development, continues to be one of the most significant threats to the forest resource in Virginia. Unlike conversion for agriculture, which can eventually revert back to forest, when forest land is developed, it is essentially lost forever. The Commonwealth is estimated to be losing more than 27,000 acres of forest land to conversion each year, and that rate is increasing. Due to the wide range of benefits that forests provide, from cleaner air and water to wildlife habitat and forest products, the loss of forest land impacts the quality of life for all Virginians.

The VDOF is leading state efforts to slow the loss of forest land by encouraging landowners to keep their land in forest and by promoting development practices that require less forests to be converted. Our forest conservation program focuses on protecting working forests. These are forests that are managed to provide the full range of benefits to the Commonwealth through wise stewardship. To better focus our efforts, the VDOF has identified forests throughout the state that provide the greatest combination of benefits and that are at the greatest risk for conversion.

Forest land conservation efforts at the VDOF include: landowner tools, such as forest management assistance; state and federal grant programs, and donated conservation easements. Our work with local governments

includes promoting property tax and land-planning policies that encourage continued rural land uses. We are also working with other conservation agencies and groups to encourage conservation of working forests. In 2007, the VDOF created three conservation specialist positions to work directly with landowners, local governments and conservation partners.

The VDOF is the only organization in Virginia with a conservation easement program focused solely on protecting working forests. In 2007, the VDOF accepted five easements totaling more than 500 acres. In addition, we are in negotiation with landowners to accept easements totaling more than 5,000 acres. These easements are spread across the state and range in size from 38 acres to more than 2,000 acres.

In 2007, the VDOF completed acquisition of the 1,811-acre Dragon Run State Forest in King and Queen County. This was made possible with Forest Legacy funding through the USDA Forest Service. In early 2008, we acquired the 4,836-acre Channels State Forest in Washington County utilizing funding from the Virginia Land Conservation Foundation and the General Assembly.

The sale of timberlands by industrial forest landowners continues in Virginia. The VDOF is working to secure some of these properties as state forests to maintain the working forest resource and provide for public access.



*Channels State Forest*

## FOREST MANAGEMENT

Forests provide a multitude of benefits to the Commonwealth and its citizens. These include: forest products, clean water, pure air, habitat for wildlife, outdoor recreation, natural classrooms, defense against environmental stresses, and settings for quality living. The value and quality of these benefits can be greatly enhanced through planning and implementation of active forest management projects. In 2008, the Department has emphasized planning and project implementation in the agency's performance measures.

Forests are, by nature, long in development and duration. Because of this, long-term planning is essential to realize long-term benefits. Planned forest management practices, implemented over time, will ensure sustainable and continuous benefit from forest resources. The Virginia Department of Forestry has a small but strong corps of professional foresters who accomplish this planning on private and state-owned forest land. All steps are critical in planning, beginning with determining landowner objectives. This is followed by a site examination; development of recommendations, and, finally, a schedule for implementation of practices. Department foresters collaborate with other state agencies and private natural resource professionals, including game biologists, soil and water conservation specialists, and private consulting foresters, to develop these plans. In the 2007-08 fiscal year, foresters completed plans on 204,081 acres.

Planning provides the blueprint.

Building active, working forests is done using tools and workers to implement projects. Department of Forestry staff, landowners, contractors and other professionals cooperate to put the plans into action. Silviculture, the art and science of producing and tending forests, is the means to build these forests. There are many different types of forest management practices used: preparing sites and planting trees; thinning; controlling competing or invasive vegetation; fertilizing; partial or complete harvesting for natural forest regeneration, and prescribed burning. In the 2007-08 fiscal year, 3,955 forest management projects were implemented, located throughout the state, from less than an acre to hundreds of acres, from rural to urban settings, all designed to build healthy, valuable and productive forests.

There are a number of programs designed to encourage and assist private landowners in implementation of these practices. In addition to planning assistance, state and federal programs help to offset landowner cost of doing the work. The flagship program for planting and improving pine forests is Virginia's Reforestation of Timberlands Program. Begun in 1970, the program is funded by the wood-using industry and general funds. Since its inception, the program has supported work on more than 1.4 million acres, a tremendous accomplishment. In the past year, program funding and accomplishments remained at high levels, with RT providing assistance on more than 57,000 acres at 1,506 different sites, with an RT fund investment of \$1.93 Million.

The VDOF has strong cooperative relationships with the Virginia Department of Conservation and Recreation, the USDA Natural Resource Conservation Service (NRCS) and the Farm Service Agency and the assistance programs they administer. The VDOF and Virginia NRCS working relationship through the Environmental Quality Incentive Program has been used as a national model for other states. Private support for forest management is active as well, specifically in 2007-08 by Vaughan-Bassett Furniture, the Glatfelter Pulpwood Company, Plow and Hearth

Catalog Company, and Belfort Furniture. Together, these firms funded the purchase of more than 563,000 seedlings for planting by private landowners.

Accomplishing the work in forest management is truly a cooperative effort with private owners, forest industry, loggers, consulting foresters and contractors all playing a role. Historically, VDOF has worked very closely with private landowners to coordinate and implement forest management projects. Recently, the Department has been working to increase the role of the private sector in project implementation. Successful examples in 2007-08 include regional tree planting and pine spraying contracts organized by VDOF, but accomplished by consulting foresters and private contractors.

Two of the important native pine species in Virginia, longleaf and shortleaf pine, have declined significantly over time. Longleaf pine, the premier southern pine for lumber, naval stores and wildlife habitat, which used to occupy 1.5 million acres in Southeast Virginia, has been reduced to a scattered handful of native specimens. Shortleaf pine, the tree that built the heart of Virginia and once abundant statewide, has declined to less than 10 percent of 1940 levels. For several years, the Department has had acreage goals for reestablishing these species with steady results. In 2007-08, two VDOF committees developed more comprehensive statewide plans for reestablishing these species. Strategies in these plans include: securing and developing native seed sources; research; demonstration areas, and promotion to landowners.

Planning and professional advice prior to harvest is the key to successful resource management. Pine forests in Virginia have been very successfully and intensively managed through genetic improvement of seed, planting and intermediate stand treatments. Hardwood forests are more diverse, occupy a much larger acreage and have a longer growth cycle. These forests produce trees that are used for a wide range of products – from pallets and crossies to high-quality furniture and flooring. There remain many opportunities to improve management of hardwood forests through proper planning and appropriate management practices.



## PROTECTING VIRGINIA'S FORESTS FROM WILDFIRE

The Virginia Department of Forestry responds to more than 1,270 wildland fires that burn more than 10,500 acres annually (based on a 10-year average, 1998 – 2007).

Although more than 70 homes and other structures are damaged or destroyed by wildland fire each year, on average, agency efforts protect more than 1,200 others at a value of more than \$173 million dollars.

From July 1, 2007 through June 30, 2008:

- ▲ 1,462 fires burned 27,810 acres;
- ▲ more than \$4 million of timber was damaged;
- ▲ damage to homes and other buildings exceeded \$750,000;
- ▲ 1,228 homes, worth more than \$216 million, were protected, and
- ▲ 1,013 other structures, worth an estimated \$17 million, were protected.

A record-shattering wildfire outbreak occurred February 10, 2008. A passing cold front, which produced no precipitation, created winds of historical scale. This extreme event, which created statewide sustained winds of more than 40 miles per hour with gusts of 70 miles per hour for more than 12 hours, came at a time when

conditions were both unseasonably dry and warm. This combination led to the largest single-day outbreak of wildfire in modern Virginia history: 354 wildfires that burned more than 16,000 acres on this one day.



*Gov. Timothy M. Kaine recognized the VDOF for its efforts during the February 10th fire storm at a ceremony in Roanoke County.*

The Agency relies on highly trained and experienced personnel operating a fleet of 200 4x4 engines; nine specially equipped Hummers; five specially equipped wildland brush trucks, and 89 bulldozer/wildland fire plow suppression units for quick response to any reported wildland fire or other weather-related emergency. The assistance of Virginia's 765 fire departments and close working relationships with Federal land management agencies and other public and private landholders in the Commonwealth ensure that wildland fire response in Virginia is both efficient and effective.

Virginia Department of Forestry wildland firefighters and support employees also came to the aid of other states throughout the nation. During the latter part of 2007 and early 2008, 96 VDOF personnel deployed to other states to fill critical incident management and fire suppression roles. Assistance was provided to the states of California, Georgia, Idaho, Montana, Nevada, Oregon, Washington and the District of Columbia.

Virginia is a recognized leader in the national Firewise Communities USA program, which identifies and works with high-risk woodland home communities to reduce the potential for damaging wildfire. Virginia is third in the nation for the number of fully certified communities at 34.



*Fred Turk, Resource Protection Division, received the Governor's 2007 Virginia Fire Services Award for Excellence in Virginia Fire Prevention.*

## DRY HYDRANT PROGRAM

The Virginia Dry Hydrant Grant Program is funded by the General Assembly using money from the Fire Programs Fund Bill. The program is administered by the Department of Fire Programs and the Department of Forestry and is assisted by an advisory committee.

The objectives of the program are to:

- ▲ Conserve energy by reducing losses from fire;
- ▲ Conserve energy by reducing miles traveled to shuttle water;
- ▲ Fund the installation of dry hydrants that otherwise would not be installed, and
- ▲ Conserve processed domestic water supplies in urban and urbanizing areas.

Those organizations eligible to apply for dry hydrant grants include the fire departments listed with the Department of Fire Programs. Using the \$100,000 appropriated last

year, a total of 76 new dry hydrants were installed through the program. This is a 64 percent increase in the number of hydrants installed over the previous year.

Fire departments submit grants based on established priority locations; secure any local permits necessary, and obtain landowner permission for the establishment of a dry hydrant. There is a standard specification for dry hydrant installation, so any special requirements or additional costs would have to be borne by the specific fire department. Communities and homeowner associations can obtain a dry hydrant by working with the local volunteer fire departments to secure a grant.

## VOLUNTEER FIRE ASSISTANCE PROGRAM (VFA)

The Volunteer Fire Assistance Program continues to increase the fire protection capability in Virginia. This is accomplished by making available financial assistance to rural volunteer fire companies to provide additional training and the acquisition of small equipment and wildland personal protective equipment (PPE). Since the inception of this program in 1975, 4,717 grants have been made providing a total of \$2,196,561 in matching grant funds.

The grant program improves the capability and effectiveness of America's 26,000 Rural Volunteer Fire Departments – 585 of them in Virginia – to protect lives and other rural investments. The purpose of this program is to provide financial, technical and other assistance to State Foresters and other appropriate officials to organize, train and equip fire departments in rural communities. In 2007, 124 rural volunteer fire departments in the Commonwealth received \$210,721 in Title IV Volunteer Fire Assistance funds made available to Virginia. Requests for support continue to greatly exceed the available funding.

## PROTECTING VIRGINIA'S WATER QUALITY

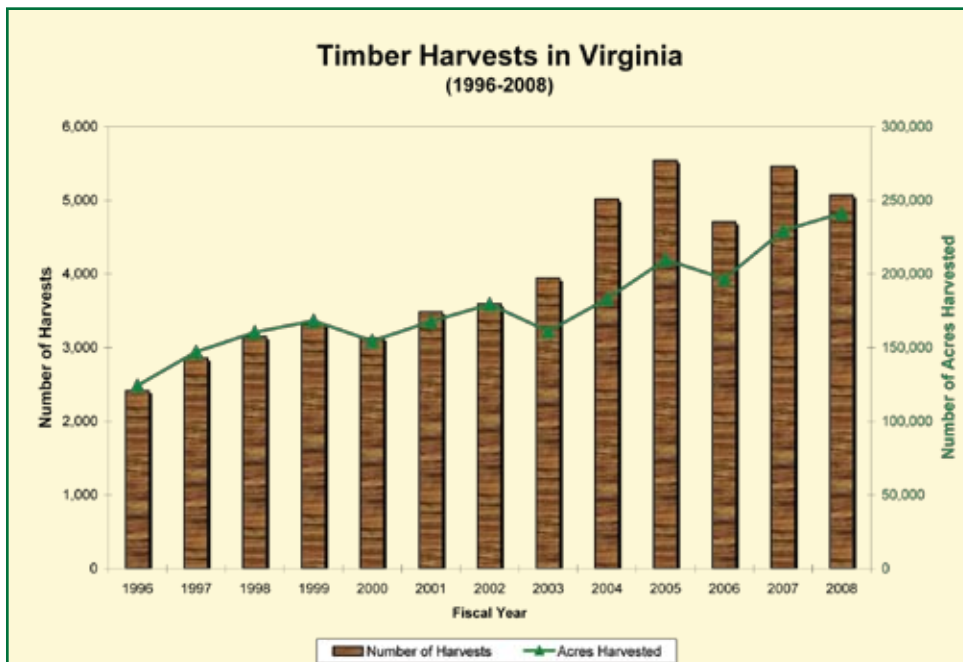


Water quality is important to all Virginians. Studies have shown that the cleanest water comes from forested watersheds. These watersheds are critical sources of pure drinking water, habitat for important fisheries, and areas that are treasured for their recreational value and purity of life. Two of the Department's important measures involve water quality. One focuses on Best Management Practices on forest harvesting operations and protecting streams from sediment. The other focuses on improving and protecting watersheds through management and land conservation.

The Virginia Department of Forestry has been involved with the protection of our forested watersheds since the early 1970s with the development of our first set of Forestry Best Management Practices (BMPs) for Water Quality. The Department is now utilizing the fourth edition of those guidelines, and has circulated copies of its latest version nationwide as well as to numerous countries worldwide. The backbone for the Department's water quality effort is the harvest inspection program which began in the mid-'80s. This program has provided for one-on-one contact between VDOF and the harvest operators and a welcomed opportunity to educate the operators on BMPs and the latest in water quality protection techniques. In fiscal year 2008, VDOF field personnel inspected 5,071 timber harvest sites across Virginia on 241,328 acres.

Another main focus of the VDOF water quality program is logger education. Since the development of the first BMP Manual for Virginia, the VDOF has been involved in the training of harvesting contractors in water quality protection techniques ranging from harvest planning, map reading and the use of GPS units to BMP implementation. This occurred through training that the agency sponsored and, more recently, through VDOF participation in the SFI® SHARP (Sustainable Harvesting and Resource Professional) Logger Training Program. Since 1996, this program has enabled VDOF to assist in training 6,202 harvesting professionals in 185 different programs relating to water quality protection. For fiscal year 2007, there were 15 training programs offered with 402 attendees present. Five of these courses were in the core area with 116 attendees, and the remaining 10 courses were for logger continuing education and had 286 attendees.

In July 1993, the General Assembly of Virginia with the support of the forest industry, enacted



the Virginia Silvicultural Water Quality Law, §10.1-1181.1 through §10.1-1181.7. The law was created to provide Virginia with an enforcement mechanism to address water pollution originating from silvicultural activities. The law grants the authority to the State Forester to assess civil penalties to those owners and operators who fail to protect water quality on their operations. Virginia continues to be the only state in the southeastern United States that grants enforcement authority under such a law to the state's forestry agency. In fiscal year 2008, the VDOF was involved with 393 water quality actions initiated under the Silvicultural Law. Of these actions, 16 resulted in Special Orders being issued for violations of the law. One of these proceeded to the issuance of civil penalties. All penalties collected under this law are placed in the Water Quality Penalty Fund, which is a non-reverting fund to be used for education, demonstration and research.

A statewide audit system has been in place since 1993 to track trends in BMP implementation and effectiveness. This system was revised during fiscal year 2008 and brought Virginia into compliance with the Southern Group of State Foresters' BMP Monitoring Protocol. This new audit process has added more tracts and will be able to provide more specific information on areas to concentrate additional

training for harvest operators. Initial results from two quarters of data show that overall BMP implementation on 60 randomly selected tracts is 75.2 percent and that BMPs associated with stream crossings on those same tracts is 82.4 percent. The significance is that stream crossings are the place where significant water quality impacts can occur, and BMPs will mitigate any possible water quality impacts. The audit results also show that 98.8 percent of the sites visited had no active sedimentation present after the close-out of the operation.

During fiscal year 2006, the VDOF developed and implemented a BMP Logger Cost-Share Program.

Funding for this unique initiative was made available through a grant from the Commonwealth's Water Quality Improvement Fund. This program provides a 50 percent cost-share to timber harvesting contractors who implement appropriate BMPs on eligible stream crossings. The projects must be pre-approved by the VDOF, and harvesting contractors must be SHARP Logger certified to be able to participate in the program. The program will cover items, such as culvert pipes, equipment time to construct water diversion structures as well as material to revegetate the site. But probably the one feature of the program that will have a lasting effect on water quality in the Commonwealth is that the program will provide cost-share for the purchase of portable timber bridges that will continue to provide water quality protection for sites beyond the specific site for which they were purchased. In fiscal year 2008, this program funded 45 BMP projects throughout the Commonwealth with 60 percent of those being in the Chesapeake Bay Watershed. Of those projects, 37 involved the purchase of portable bridges.

In addition, the Water Quality Improvement Fund Grant provided funding for 25 projects involving innovative BMPs for urban and riparian areas for fiscal year 2008. These included installation of demonstration areas involving rain gardens, riparian stream restoration and riparian buffer establishment projects.

## WATERSHED PROTECTION

Forests provide the best protection for watersheds. Because of this, one of the Department's goals is to increase the amount of forest land conserved, protected and established in Virginia's watersheds. The concept here is to focus on tools and practices that will have a high benefit to water quality, specifically conserving land permanently; establishing and maintaining riparian buffer zones; planting trees on non-forested open land, and increasing urban forest canopy by planting trees. All of these activities are closely related to meeting water quality goals associated with the Chesapeake Bay restoration and watersheds for Virginia's southern rivers.

The Department and other state agencies have been very active and have made significant progress in promoting land conservation that will protect watersheds and other forest benefits. In 2007-08, land permanently protected through purchase or private land conserved through a VDOF-held easement totaled 7,177 acres.

New riparian forest buffers were established by planting trees on 2,258 acres. Many of these areas were agricultural or pasture land. Forested buffers provide significant water quality benefits through nutrient uptake, reduced runoff, and by livestock and cropping exclusion.

Virginia's Forestry BMPs that address harvesting have been highly successful. One of the most valuable BMPs for water quality is the uncut or partially cut streamside management zone. This voluntary measure assures an unbroken forest groundcover near the stream, shade for the water, and wildlife corridors. Landowners can elect to receive a state tax credit for a portion of the value of the uncut trees in the buffer. By doing so, they agree to leave the buffer undisturbed for 15 years. The number of landowners electing this option is increasing, and in 2007-08, landowners participated in this watershed protection option on 779 acres.

Forests provide superior watershed benefits over nearly every other land use. Because of this, the Department is encouraging planting of open land with trees. This is a particularly valuable option on marginally productive pasture or crop land and land that is no longer being farmed or managed for other purposes. Other benefits include carbon storage, air quality improvements, and wildlife habitat. In the 2008 season, trees were planted on 3,229 acres of open land.

Maintaining and increasing tree cover or canopy in urban and suburban areas provides water quality benefits by reducing storm runoff as well as helping to reduce air pollution and keep cities cooler. VDOF is working with several urban communities to inventory tree canopy area, as a first step toward setting and meeting canopy goals. Many communities already have activities that include tree planting in urban areas and 68 acres of urban tree planting were recorded in 2008.

One program that helps to support this watershed improvement goal is the Water Quality Improvement Grant that VDOF received through the DCR. This provided funding for 25 of the projects involving innovative BMPs for urban and riparian areas as of printing of this report for FY 2008. These involved installation of demonstration areas involving rain gardens, riparian stream restoration and riparian buffer establishment projects.

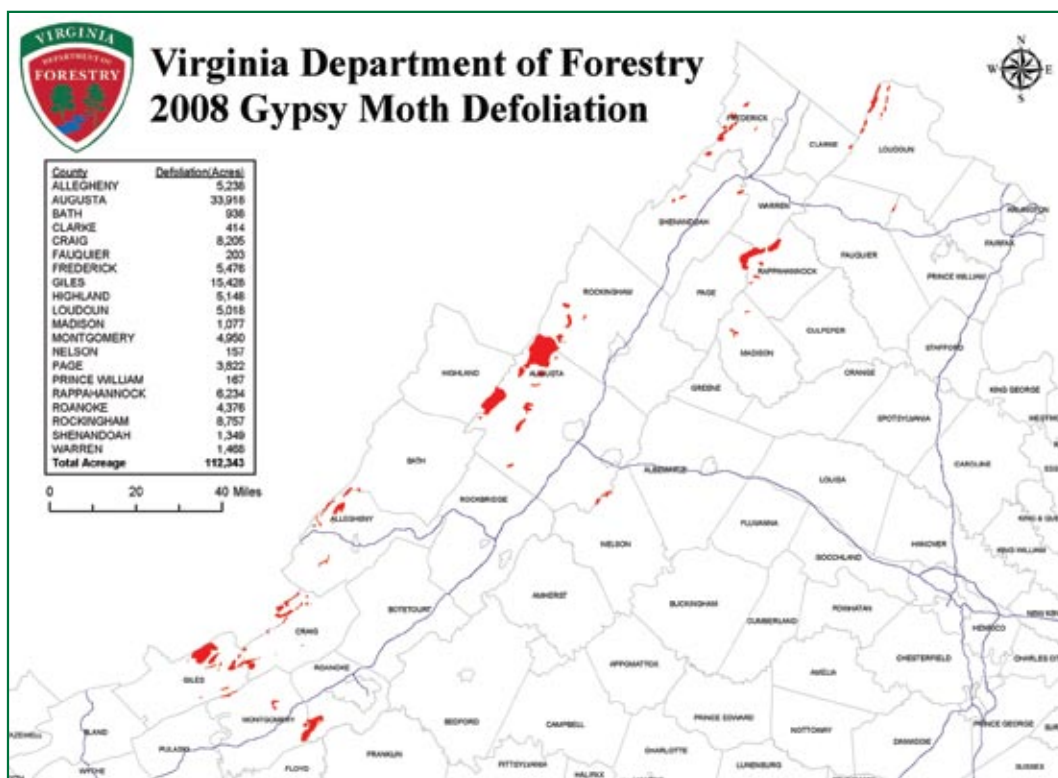
## FOREST HEALTH

Virginia saw a fourth consecutive year of drought conditions in 2008. Drought and unusually warm temperatures have been a regular occurrence in Virginia and other parts of the South during the last 10 years. The cumulative effects of drought and severe storms in some locations during the past five to seven years have taken their toll on many trees, particularly urban and landscape trees. Drought and record-high temperatures have exacerbated the impacts on previously stressed trees, leading to widespread secondary insect and disease problems and subsequent tree mortality. Red oak trees are among those that continue to be hard hit, although most tree species suffer from sustained drought.

This spring, the gypsy moth caused moderate to severe defoliation on more than 112,000 acres of Virginia's forest. This is a substantial increase from the 74,000 acres defoliated last year, and represents the highest amount of defoliation in Virginia since 2001. The majority of the defoliation that was detectable from aerial surveys was spread among 20 counties in the mountainous western part of the Commonwealth, from Loudoun County in northern Virginia to Giles and Montgomery counties in the southwest (see map). For some areas, such as Bent Mountain near Roanoke, this is the third year of widespread, severe defoliation. A large number of oak trees suffering from complete defoliation two years in a row or more will inevitably die. The dry spring weather during the last three years has contributed to this gypsy moth buildup. Insecticide spraying is effective at controlling damage

locally, but it cannot stop overall gypsy moth numbers from surging once these buildups gain momentum. During wet periods, gypsy moth caterpillars are effectively killed and controlled by a naturally occurring fungus. A naturally occurring virus can also cause these populations to crash, but it can often take a number of years of severe defoliation before this happens. May 2008 was cool and wet just as the gypsy moth was mid-way through feeding, and some disease was evident in many areas. Whether this will be enough to suppress the population next year remains to be seen, but unless we have another wet spring in 2009 gypsy moth populations and defoliation may continue to rise significantly next year. Meanwhile, federal funds for spraying and slowing the spread continue to decline or are maintained at less than ideal levels.

The southern pine beetle has been relatively quiet during the last five years. The last significant outbreak was during the late 1990s and had a major impact on pine in the mountains, particularly in southwestern Virginia. As a result, many isolated areas once dominated by pine will revert to hardwood cover. However, the pine resource in central and southeastern Virginia remains healthy and productive. Federal funds from the USDA



Forest  
Service,  
Forest Health Protection  
support our cost-share program  
with landowners for pre-commercial  
thinning of pine stands. To date, Virginia has pre-  
commercially thinned almost 25,000 acres of loblolly  
pine out of approximately 130,000 acres estimated to  
be overstocked and in the appropriate pre-commercial  
age class.

Invasive species remain the most significant threat to forest health. During the last century and most recently, our efforts to keep invasive species from entering North America and wreaking havoc represent a battle that we are largely losing. The pathogens that cause chestnut blight and Dutch elm disease have virtually eliminated the American chestnut and American elm from our natural and urban forests. The pathogen that causes sudden oak death in western forests can potentially devastate Virginia's oaks and other species, if introduced. Other pathogens that cause butternut canker and dogwood anthracnose diseases threaten those tree species with ecological irrelevance if not eventual extinction. Eastern hemlock faces the same threat from the hemlock woolly adelgid, an insect that has killed up to 90 percent of the hemlocks in Shenandoah National Park and other areas in Virginia during the last 50 years.

The most recent threat is the emerald ash borer, newly discovered this July in two locations in Fairfax County. Evidence suggests these infestations are at least two to three years old, meaning the pest has likely spread to other areas. Eradication is not being pursued – at this stage it would be too expensive and, more importantly, very unlikely to succeed. Virginia and the nation face the prospect of losing all ash species from the natural and urban landscapes in the forthcoming decades, an impact that could

eventually cost the state hundreds of millions of dollars. Its primary means of spread is through the unrestricted movement of firewood across state lines by private citizens. A survey by the Virginia Dept. of Agriculture and Consumer Services also demonstrated that firewood is being brought into Virginia for sale from 15 states and three countries. Since Virginia is fully capable of meeting its own firewood needs entirely from within the state, it raises the question as to whether this interstate commerce is within everyone's best interests.

All of this tree mortality in conjunction with trends towards increasing land parcelization and forest fragmentation serve to disturb intact forest and create ideal environments for invasive weeds. Many species of invasive weeds, including trees, shrubs, vines, grasses and forbs, plague Virginia's forests. Some of these plants were brought here by European colonists hundreds of years ago for urban and landscape plantings and erosion control. What most of these plants have in common are their ability for rapid growth and reproduction and their ability to colonize disturbed habitats, such as roadsides and forest edges. Once established, many invasive weeds are able to encroach upon intact forest, out-competing native plant species. Complete eradication of well-established invasive plants is all but impossible and management is often impractical. Forests dominated by invasive weeds typically have less biodiversity, productivity and natural beauty.

To change this disturbing trend will require bold, decisive and enforceable legislation at the federal level to ensure that no new organisms are introduced into North America via international travel or trade. Likewise, major restrictions on the movement of firewood, mulch, and other unregulated or untreated goods between states must be in place to limit or slow the spread of newly established pests. Compliance must be enforced at all levels. Anything less than this and we will continue to put Virginia's forests at risk of catastrophic changes.

## FOREST RESEARCH

Both the practice of forestry and the nature of forests are changing rapidly, so it is important that the VDOF be able to continuously evaluate and apply new information to meet ever-changing needs. Our strong Forest Research Program has been developing and demonstrating breakthrough ideas for the Commonwealth's forest landowners for more than half a century. This year, more than 60 individual tests have been installed, maintained or monitored addressing subjects from invasive species control to forest applications of biosolids. The findings are shared in the semiannual Research Review publication, which is also available online at [www.dof.virginia.gov](http://www.dof.virginia.gov).

### HARDWOOD SILVICULTURE

Our 2006 test of different establishment methods and initial seedling sizes for northern red oak plantings in old-fields shows that all the trees are off to a very slow start. Even the best of the seedlings have grown only about 1.5 feet in height and 0.06 inches in groundline diameter (GLD) after two years. Tree shelters were essential for survival and browse protection – increasing survival by more than 70 percent. Mulch mats and spot herbicide treatments resulted in similar survival and growth, and each succeeded only when combined with the tree shelter. The largest seedlings have grown nearly four times as much in diameter as the smaller ones, but there was no effect of initial seedling size on survival. Our 2007 test of white oak, northern red oak, sawtooth oak and pin oak seedlings of varied root-collar diameters has shown no effect of initial seedling size on early survival.

### TREE IMPROVEMENT

VDOF continues to collaborate with the many other agency and industry members of the North Carolina State University Tree Improvement Program to support the ongoing selection, testing and deployment of the best loblolly pine for Virginia citizens. Seedlings from our second generation of testing and selection grow about 17 percent better in volume than unimproved “wild” seedlings, but these gain estimates are the average of all open-pollinated seed in our orchard. Some individual parent trees are much better while others are average or below average. For example, our best individual families grow 44 percent better than wild seedlings, and a mix of the 10 best averages 37 percent more yield. The faster growth and better form of these elite families means quicker reforestation and higher financial returns in the future for landowners who



elect to plant them. This is why we collect seed of individual families in our orchards separately. And the best news of all: in 2009, we anticipate a large seed crop from our new third-cycle orchards, which will take the productivity and value of our future seedlings to an even higher level.

## PINE SILVICULTURE

In conjunction with the other members of the NC State/Virginia Tech Forest Nutrition Cooperative, VDOF is installing a major study and demonstration area in a 14-year-old loblolly pine stand on the Appomattox-Buckingham State Forest. From an original stocking of nearly 500 trees per acre (tpa), various plots will be thinned to 300, 200 and even 100 tpa, and all densities will be repeated both with and without fertilizer application. The objective is to determine the best combination of thinning and nutrients for sustaining forest vigor and increasing financial returns to the landowner.

In our 2006 study of different methods of competition control with and without supplemental fertilization in shortleaf pine planted on old field and cutover sites, two-year results show that the value of different treatments depends on the type of site where they are applied. Weed control and fertilizer were helpful on all sites. The best treatments increased shortleaf volumes between two- and 17-fold over the poorest. But on old fields, the first limiting factor is competition from weeds. On a cutover forest site, the greatest response was to the addition of fertilizer. We have also learned that mechanical scalping is a viable alternative to herbicides for controlling grasses in old fields.

Plots testing the effectiveness of new products for controlling tipmoth in newly-planted pine stands

were installed in early 2008 and are already yielding positive early results. After just three months, overall tipmoth damage is low in the young stands, but treatment with either systemic insecticide product has reduced tipmoth infestation between 50 percent and 90 percent. If the early trend continues, this could be a valuable tool for improving the health of newly-planted pine stands.

## DIMINISHED SPECIES RESTORATION

In the fall of 2007, the Department of Forestry seeded more than 1,500 nuts at our Augusta Nursery from hybrid American chestnut crosses that will be lifted and planted next spring. They consist of  $7/8^{\text{th}}$  and  $15/16^{\text{th}}$  American chestnut seedlings. In 2008, we bagged and crossed more than 2,200 ( $7/8^{\text{th}}$  and  $15/16^{\text{th}}$  American chestnut) hybrid chestnut flowers at our Lesesne State Forest breeding facility. These nuts look healthy so far, and will be picked this fall to be planted next spring. In 2008, the Department planted more than 600  $15/16^{\text{th}}$  American chestnut nuts from the American Chestnut Foundation on the Matthews State Forest and another 7,000 pure and hybrid American chestnut nuts were seeded at our Augusta Nursery under an arrangement with the American Chestnut Foundation. These seedlings will be lifted next spring and planted on test sites.

Our three-year-old study comparing native Virginia longleaf pine from Southampton County to longleaf pine from seven other locations across the geographic range of longleaf pine shows that efforts to preserve the native trees may be worthwhile. The native seedlings have outperformed all other seed sources in the initial stages of growth and establishment; survival is between 5 percent and 20 percent better and height growth has been initiated in two to three times as many seedlings on plots planted with native source seedlings.

Our latest effort – seeking successful methods of grafting cuttings from the remaining 200 or so native trees so they can be preserved in a seed production area for future generations – has been successful. Our best grafting protocol has yielded up to an 80 percent success rate, and establishment of the seed production area will begin this fall.

## URBAN AND COMMUNITY FORESTRY

Trees and forests in communities provide many benefits to the citizens of Virginia. The obvious benefits include aesthetic appeal, shade and contact with nature. Less obvious, but just as important, are the positive impact community forests have on clean air, water quality, business district enhancement, view-shed protection, community health, and quality of life in general. The Department of Forestry helps Virginia communities maintain and enhance their community forests through its Urban & Community Forestry Program.

The Department provides technical assistance to communities of all sizes, from large metropolitan areas to small cities and towns. The Department provides expertise on tree selection and tree maintenance through direct contact as well as through a variety of workshops and conferences it organizes and/or supports. The Department administers the Tree City USA program that promotes standards for community forestry. Participation in this program reached 52 communities, with a combined population of more than one million, during 2008.



Through its Urban and Community Forestry Assistance Grant Program, the Department supports the capacity-building efforts of municipalities, non-profit organizations, and

educational institutions. The purpose of the program is to strengthen local programs and organizations. Since its inception in 1991, the program has funded an average of 45 projects annually and has assisted 60 cities and towns, 21 counties, 64 non-profit organizations and a number of universities, colleges and community colleges. The program has also funded 26 educational events, several of which continue to be offered on an annual basis. Recent cuts in federal funding have diminished our capacity to support grant projects and this trend may continue for the next few years. However, VDOF is still supporting projects started in recent years under the program with available funding.

The Urban & Community Forestry Program continues to maintain strong partnerships with Virginia Tech and the University of Virginia, as well as several community colleges. At Virginia Tech, the program supports the evolving urban and community forestry curriculum in the School of Natural Resources. The program helps support the Community Design Assistance Center (CDAC) that provides open space and landscape design planning to interested communities. CDAC's projects help underserved communities across the state and often involve local VDOF field staff. Research projects funded at Tech's Hampton Roads Agricultural Research & Extension Center have received national attention. At the University of Virginia, the program has a strong partnership with the Virginia Natural Resources Leadership Institute (VNRLI), providing both financial and training support. VNRLI just completed its seventh year-long session, and VDOF staff continues to serve on the faculty and participate as students. VNRLI focuses on natural resource issues, conflict resolution and leadership.

USDA Forest Service research has shown that urban tree canopy cover can make a significant contribution to water quality and storm flow reduction. The Chesapeake Bay Agreement has identified the development, retention and enhancement of urban tree canopy as an effective strategy to improve the health of the Bay.

T h e



Chesapeake Bay Agreement has established a goal of five Virginia communities establishing urban tree canopy goals by 2010. The Department has identified several target communities and will provide technical assistance and grant support to communities that commit to the urban tree canopy strategy. The Department now has commitments from seven communities across the state to establish urban tree canopy goals, and three of these have already completed their assessments and set goals to increase their urban tree canopy.

USDA Forest Service research has also documented the contribution of urban tree canopy in removing certain air pollutants and improving air quality. The Environmental Protection Agency will now allow tree planting as a voluntary strategy in State Implementation Plans (SIPs) for air quality in designated air quality non-attainment areas. In 2007, the Northern Virginia State Implementation Plan was one of the first in the nation to include tree planting as a voluntary measure. In 2008, VDOF continued to work with partners in this region to monitor the implementation of tree planting for air quality and to assess its contribution to air quality improvement in this high-profile non-attainment area. VDOF was able to obtain federal funding to support the work of its partners in this effort.

Through the Virginia Municipal Tree Restoration Program, the Department is working with Virginia's utility companies and Virginia Tech to promote the planting of utility-appropriate species in cities and towns to minimize tree/utility conflicts. While funding limitations forced reduced activity in this program, VDOF was still able to support the establishment of additional utility arboreta. Research work and publications resulting from this program continue to attract national attention.

The Department has been encouraging the development of greenway projects throughout the Commonwealth. Greenways are environmental corridors that often contain recreational amenities, such as trails and parks. Greenways are recognized as important community assets for recreation, environmental protection and public health. The Department has provided greenway planning funds to several communities, provided technical assistance, and sponsored planning workshops. The Department works closely with the Department of Conservation & Recreation (DCR) and the National Park Service (NPS) to assist interested communities. The Department's role in the greenway arena is to provide conceptual planning and see that projects gather grassroots support. The other agencies, DCR and NPS, implement

detailed planning and construction of greenways on the ground. This partnership with DCR and NPS has resulted in the implementation of several successful projects and there are several projects in process. VDOF continues to support state and regional greenway conferences in cooperation with the Virginia Department of Conservation and Recreation (DCR).

Land-use patterns in Virginia are consuming land at a rate of three to four times the rate of population growth. Many formerly rural areas are now in what is called the “wildland-urban interface.” This is a landscape where urban and suburban influences intermingle with the rural landscape and present a whole host of environmental and forest management challenges. In this setting, conserving the critical forest land base is vital. The Department, through the Urban & Community Forestry Program, has been promoting the “green infrastructure” approach to strategic land conservation. The Department is continuing to work with the New River Valley Planning District Commission on a pilot green infrastructure project over a four-county area. When completed, this project will serve as a model for other regions that are dealing with rapid growth and the resultant pressures on the forest land base. VDOF was also able to secure federal funds to support two other pilot projects in the New River Valley area, one with the City of Radford and one with the Appalachian Trail Conservancy. VDOF is also working cooperatively with local land trust organizations in the New River Valley. The Thomas Jefferson PDC is in the second year of developing a green infrastructure plan for the five-county region and the City of Charlottesville. In addition, VDOF is supporting green infrastructure work in central Virginia through a partnership with and the Green Infrastructure Center.

In recent years, climate change has impacted the south with severe and destructive weather events. VDOF, in cooperation with the North Carolina Forest Service, has trained several of its staff who are ISA-certified arborists to become members of urban forest storm damage response teams. These teams are trained to assist storm-damaged communities by coordinating with FEMA and state emergency response agencies to provide estimates of tree debris as well as assess the condition and safety of the

residual urban forest. In early 2008, several VDOF employees trained in this function were deployed in Oklahoma and assisted several localities in response to a devastating ice storm as part of a FEMA pilot project. In July of 2008, VDOF trained additional staff in this function and provided the training to participants from 10 other states.

Through its partnership with Trees Virginia (the non-profit Virginia Urban Forest Council), VDOF continued to host the quarterly Northern Virginia Urban Forestry Roundtable. These educational and urban forestry policy forums are attended by urban forestry professionals, tree board members and non-profit representatives from numerous northern Virginia jurisdictions. An example of the cooperation of roundtable participants was a successful Discovering Common Ground conference with Northern Virginia developers that focused on tree protection issues. In 2008, due in part to these events, support was generated for urban tree protection legislation that was adopted by Virginia’s General Assembly.

VDOF continues to support the training and professional development of ISA-certified arborists. VDOF has 24 certified arborists on its staff, more than any other state in the south. VDOF was the catalyst for the first formal certified arborist training to be held in Southwest Virginia, which was accomplished in August.



## PUBLIC INFORMATION

### CONSERVATION EDUCATION

The 2008 fiscal year saw the publication of the book *Common Native Trees of Virginia* – a comprehensive update to a book that has been published by the VDOF since 1922. This edition of the popular guide, which is the most accurate and up-to-date version, includes several new features, such as species range maps and a dichotomous key that makes species identification much easier. The book has received rave reviews and more than 20,000 copies have been sold. This edition of the book will likely go into its second printing in the fall of 2008. A number of employees from across the Agency were directly involved in making this guide a success, and it wouldn't have been possible without their support.

The Agency's efforts in the area of Conservation Education took a huge step forward as two employees assumed direct responsibilities for conservation education activities in the eastern and western portions of the Commonwealth. Lisa Deaton, who has served for several years as the Project Learning Tree (PLT) coordinator, is also overseeing the development of educational programming at the soon-to-be-opened State Forest Education Center in New Kent County. In the western portion of Virginia, Zach Olinger, formerly a high school teacher, joined the VDOF to deliver conservation education programs at the Matthews State Forest, located just west of Galax, Va. Educational programs delivered by Lisa and Zach will benefit Virginia landowners as well as students.

Virginia was in the spotlight when Brita Hampton was selected as one of the Project Learning Tree International Educators of the Year. A teacher and science coordinator at a parochial school in Virginia Beach, Ms. Hampton embraced the PLT curriculum after attending a facilitator workshop led by VDOF's Lisa Deaton. Ms. Hampton has infused the PLT curriculum both in her classes and those taught by others in the school.

America's longest running forestry camp held its 62nd annual edition of the program at the Holiday Lake 4-H center. Nearly 80 teenagers from across the Commonwealth took part in the week-long residential camp. They were joined by four science teachers who participated in order to secure credits needed for teacher recertification. VDOF employees from across Virginia served as instructors and camp counselors to ensure another successful year of this important program. Every camper receives a scholarship – provided by individuals, natural resource entities and forest products companies – to cover most of the cost of attending camp.

Through the generous support of The Ballyshannon Fund, additional conservation education programs were developed and implemented. The fund paid for portable forestry kits that Agency employees could use to deliver educational programs in their communities. In addition, The Ballyshannon Fund also provided money to develop a new week-long forestry day camp program for teens in Albemarle County.



## PUBLICATIONS

A number of new pamphlets, brochures, activity sheets and reports were made available to citizens during the year. In addition to the Common Native Trees of Virginia book, publications included: the 2008 VDOF calendar; Holiday Lake Forestry Camp annual report; two issues each of the Forest Health Review and the Forest Research Review; a hardwood planting guide; "Don't Move Firewood" in both English and Spanish; a pamphlet on the State Forest System as well as individual pamphlets for Appomattox-Buckingham, Cumberland and Prince Edward-Gallion state forests; four issues of Forestry News, and four seasons' worth of activity sheets for use by people in and around their homes. A monthly electronic newsletter – emailed to anyone who chooses to subscribe through our Web site – entered its second year as an information resource. VDOF also edited, designed and produced a quarterly, 16-page electronic newsletter on behalf of the Southern Group of State Foresters.

## WEB SITE

The Agency's Web site ([www.dof.virginia.gov](http://www.dof.virginia.gov)) received a lot of attention this year. In addition to a complete redesign of the layout, all 2,400 Web pages were individually coded to make them "Level 3" compliant, even though we were required to be only Level 1 compliant. By taking our site to Level 3 compliance, people with an impairment who might otherwise have trouble accessing and reading information on our Web site will be able to see all of our content through their Web browser.

## VDOF IN THE NEWS

Employees and the Agency were the focus of hundreds of news and feature stories this year including articles about: the 354 wildland fires that occurred Feb. 10; Gov. Timothy Kaine publicly expressing his appreciation to Agency employees for their valiant efforts fighting those 354 fires; arrests made in woods arson cases; elevated fire danger; a statewide burn ban during the fall of 2007; the donation of 150,000 tree seedlings by Vaughan-Bassett Furniture Company; Fred Turck receiving the Governor's Fire Service Award; the dedication of Channels State Forest; Ed Rodger earning a Golden Smokey; record enrollment at this year's Wildland Fire Academy, and the retirement of Greg Winston. These news stories, and the many others published or aired this year, helped raise the Agency's profile with the public.



# ACCOMPLISHMENT REPORT

JULY 2007 - JUNE 2008

Objectives	Goal/Target	Accomplished
<b>Goal 1: Protect the citizens, their property and the forest resource from wildfire.</b>		
Measure 1.1.1: Percentage of human-caused fires	95.7%	95%
Measure 1.1.2: Percentage of all emergency response equipment and vehicles in good repair and ready to respond to a wildfire.	95%	97%
Measure 1.2.1: Percentage of rural volunteer fire departments that receive financial assistance.	40%	31.3%
Measure 1.3.1: Number of full scale mock exercises completed to test VDOF readiness and implement changes based upon the results/findings of the test.	2	1
Measure 1.4.1: An uninterrupted transition of existing VDOF radio communication systems carried out in a safe, timely transition to STARS.	1	TBD
<b>Goal 2: Protect, promote and enhance forested watershed, non-tidal wetland and riparian areas.</b>		
Measure 2.1.1: Percentage of harvest sites with sediment not reaching streams.	97%	98.8%
Measure 2.2.1: Number of new miles of riparian forest buffer established.	260	139
Measure 2.2.2: Percentage of landowners utilizing cost-share monies for riparian plantings and successfully completing the project.	95%	100%
Measure 2.2.3: Percentage increase in the number of miles of riparian forest buffers conserved (Riparian Buffer Tax Credit).	20%	49%
Measure 2.3.1: Percentage of the riparian forest buffers established or conserved within critical areas of the Chesapeake Bay Watershed.	50%	TBD
Measure 2.4.1: Percentage of WQIF funds allocated to appropriate projects.	100%	100%
<b>Goal 3: Conserve the forest land-base.</b>		
Measure 3.1.1: Percentage of priority areas for land conservation geographically identified in order of priority across the State and within watersheds within 2 years.	100%	100%
Measure 3.2.1: Percentage of forest conservation knowledge base incorporated into the career tracks for Foresters and Technicians.	100%	50%
Measure 3.3.1: Percentage of goals established for the amount of acreage to conserve as working forests based upon the data found in 3.1.1.2.	100%	TBD
Measure 3.4.1: Number of yearly meetings concerning forest land conservation with partners and cooperators sharing the newest information and tools to assist in conservation with emphasis given to working forest.	1	1
<b>Goal 4: Improve the stewardship, health and diversity of the forest resource.</b>		
Measure 4.1.1: Number of regional plans developed for forest resource management accomplishments.	6	TBD
Measure 4.1.2: Acres of all forest management plan types: (Stew plan, Stand Plan, CS Plans, AMP, Community Plans, TF Plans, Mitigation Plans).	130,000 acres	204,081 acres
Measure 4.1.3: Number of stewardship plans.	400	555
Measure 4.1.4: Number of certified stewardship owners.	64	28
Measure 4.1.5: Percentage of "recognized" stewardship owners (with >2 selected accomplishments).	75%	38%

Objectives	Goal/Target	Accomplished
Measure 4.1.6: Develop state restoration plans for diminished tree species, including longleaf and shortleaf pine.	2	2
Measure 4.2.1: Percentage of eligible Reforestation of Timberlands incentive received by landowners.	90%	95%
Measure 4.2.2: Number of new acres planted to pine trees under the Reforestation of Timberlands (RT) Act.	35,000	36,856
Measure 4.2.3: Total number of acres reforested and improved in Virginia.	130,000	159,453
Measure 4.2.4: Number of acres annually planted to shortleaf and longleaf pine.	340	1,046
Measure 4.2.5: Number of forest management projects (IFRIS groups: stand establishment, stand management excluding recommendation only, wildlife habitat, erosion control/water quality, C&UF tree planting).	2,200	3,955
Measure 4.2.6: Number of acres improved, no - RT.	40,000	61,424
Measure 4.3.1: Number of new strategies developed by DOF and implemented to protect Virginia's Forests from invasive species through increased education, cost-share programs, and monitoring.	6	8
Measure 4.4.1: Number of communities with active urban forest management programs.	104	122
Measure 4.4.2: Increase participation in the Tree City USA program while maintaining participation of communities already in the program.	46	52
Measure 4.4.3: Number of Greenway conceptual plans.	2	2
Measure 4.4.4: Number of major U&CF training opportunities annually.	5 communities	8 communities
<b>Goal 5: Promote the development of ecosystem service markets for forest landowners.</b>		
Measure 5.1.1: Number of outreach efforts/programs.	6	15
Measure 5.2.1: Number of landowners pledged to participate in an ecosystem services market.	100	250
<b>Goal 6: Collect, maintain and communicate forest resource information.</b>		
Measure 6.1.1: Number of forest inventory count panels measured annually.	1	1
Measure 6.2.2: Number of forest research reports issued annually.	6	8
Measure 6.2.3: Number of educational and informational events providing results of research and latest forest information.	6	10
<b>Goal 7: Manage agency resources to effectively and efficiently accomplish the strategic initiatives.</b>		
Measure 7.1.1: We will increase the percent of Governor's Management scorecard categories marked as meets expectations for the agency.	100%	97.1%
Measure 7.2.1: We will increase the percentage of customers who rate the quality of DOF's seedlings as satisfactory.	85%	97.1%
Measure 7.3.1: We will increase the percentage of net revenue generated by the state nurseries.	2.5%	11.6%
Measure 7.4.1: We will increase the percentage of scheduled State Forest management Plans updated annually.	100%	100%
Measure 7.5.1: We will increase the percentage of annual allowable harvest actually harvested.	80%	56.5%

# GET TO KNOW YOUR VDOF WORKFORCE

As wildland firefighters, law enforcement officers and natural resources professionals, the Virginia Department of Forestry's 280 employees are responsible for protecting Virginia citizens and their property on 15.7 million acres of forest land in Virginia.

Agency employees respond to more than 1,200 wildland fires annually and conduct more than 5,000 timber harvest inspections each year to ensure water quality.

The average age of Agency employees is 46. Nearly 18 percent are under the age of 30, and 38 percent are 50 or older.

The median years of service has decreased from 15.9 years of service in 2004 to 10.8 years in 2008.

More than one-third of the employees have been with the Agency less than 5 years.



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