

State of the Forest

Annual Report on Virginia's Forests

2019







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Welcome to our new State of the Forest annual report. It’s interactive! Follow the links to videos, more stories and additional information. The four categories shown below represent the VDOF mission priorities; stories are tabbed with applicable categories to provide additional context.

Protect

Manage

Conserve

Educate



Rob Farrell, State Forester of Virginia

From the State Forester

Fiscal Year 2019 (FY19) was a big year for the Virginia Department of Forestry (VDOF). All of Virginia's state forests achieved certification to the Sustainable Forestry Initiative (SFI) and American Tree Farm System (ATFS) standards, establishing our state forests as examples of science-based forest management for private landowners. Our agency dedicated the Commonwealth's 25th state forest, First Mountain, at the base of Massanutten Mountain. We played a key role in a three-state land acquisition that resulted in VDOF holding the largest conservation easement ever in Virginia. The Commonwealth continues to demonstrate one of the nation's best programs for inspecting timber harvests to ensure the protection of water quality. We launched a solar initiative at our Garner Building headquarters in Charlottesville and we joined people across the country in celebrating Smokey Bear's 75th birthday. That's just for starters. The stories and highlights in our State of the Forest report this year spotlight some of the projects we've undertaken, and the people of forestry who make these initiatives happen.

This past year, VDOF programs and partnerships emphasized the relationships between healthy forests, healthy communities and a strong economy. Our partnership with the James River Association to establish riparian buffers through a Virginia Environmental Endowment (VEE) grant demonstrate the increased recognition that trees and forestry are key to Bay restoration. The establishment of two Speyside stave mills and one cooperage mill in Virginia, all of which rely upon Virginia white oak, will provide employment opportunities, strengthen local economies, and add vitality to our hardwood market.

FY19 also delivered its share of challenges. Trade tariffs and other international and economic headwinds have significantly affected Virginia's forest industry, making our economic development and market diversification efforts even more critical. The significant rainfall across the state this past year also proved challenging, and as a result, Virginia's forest productivity declined from recent record highs. However, in spite of the prolonged rainy weather, our silvicultural water quality program saw no significant impact and our audit still showed high levels of BMP implementation.

The most uplifting event this past year was by far assisting with the Smokey Bear hot air balloon tour. The balloon travels around the country, raising awareness of wildfire prevention and celebrating Smokey's 75th birthday. Many of our staff had the honor of working with U.S. Forest Service and Shenandoah County Fair staff to provide tethered rides to fairgoers.

Forestry is a great story in Virginia, and there are new chapters on the horizon. Our hardwood initiative strives to create markets and increase sustainable and viable hardwood management. We've begun collaboration with military installations to pursue Sentinel Landscapes designation, and are working with other state agencies to help think ahead about siting solar energy facilities in Virginia. We continue to strengthen and diversify our workforce so our agency is prepared for the future of forestry in Virginia and equipped to deliver creative and sustainable results.

Whether we are talking about managing the forests of tomorrow, creating vibrant markets, protecting water quality, training educators or escorting Smokey Bear to community events, the common denominator is people. Forestry is a great story because of the many ways it intersects with people's lives. The air we breathe, the water we drink, the land upon which we recreate and enjoy nature, and the everyday forest products we rely upon leave no doubt that forestry is more than meets the eye and a renewable resource that is a part of every Virginian's life.



LOOKING AHEAD
VDOF
Strategic Plan
2019-2022

Sustainable Forestry in Virginia

A stable forestland base is critical to Virginia's environmental integrity, economic viability, and quality of life. Forests provide clean air and water, wildlife habitat, recreational spaces, and products we use every day.

Conservationist Aldo Leopold once wrote, "What more delightful avocation than to take a piece of land and by cautious experimentation to prove how it works." Teaching Virginia's forest landowners to make their land work for them is a primary role of VDOF.

VDOF recognizes that forest management goals and decisions are up to individual landowners. To that end, the agency provides the information landowners need to make their decisions and helps them plan and implement strategies to meet their goals. Managed forests are more likely to remain forests because they meet the needs of their owners, whether those are environmental, social, or financial.

On its state forests, VDOF models ways that landowners can manage forests for multiple values. The state forest system receives no state general funds; instead, it supports its operations through timber sales, in much the same way a private forest owner does. Today, there are 25 state forests – biologically diverse, financially productive, and sustainably managed.

Forest certification is one option that VDOF models for landowners. Certification ensures that trees are harvested legally and responsibly. Many consumers prefer to purchase sustainably-sourced products, especially in global markets; so certification can provide advantages for some forest owners. During FY19, all forests in the state forest system achieved certification (69,288 acres) by both the Sustainable Forestry Initiative (SFI) and the American Tree Farm System (ATFS).

Sustainable forest management ensures that the many benefits of forests will continue to exist in the future, ultimately benefitting all Virginians.



Shedding Light
on the Situation



Protect

Manage

Conserve

Educate

A Year of Market Challenges

Virginia's trees and forests provide a multitude of benefits, not the least of which is raw material for the state's third largest industry – wood products. Virginia's timber industry supports 108,000 jobs and contributes \$21 billion to the Commonwealth's economy.

Strong domestic and global markets for wood products provide an economic incentive for landowners to manage their forestland and maintain their properties in forest, rather than converting the land to other uses. Without markets, forestland is at risk of being lost, perhaps permanently. A strong forest economy drives and supports sustainable forest management that keeps our forestland healthy and intact.

In recent years, the southeast U.S. has faced increasing challenges in both domestic and international wood product markets. This past year, however, many wood businesses saw the most severe market changes since the last recession. Overabundance and erratic demand of certain wood products (e.g., low quality hardwood, pulpwood and large pine) and international trade wars and tariffs (e.g., the 2019 tariff on trade with China) have significantly impacted the wood product industry in the southeast generally and Virginia specifically.

One of the ways VDOF addresses these challenges is by working with stakeholders to find innovative solutions to keep the forest products industry strong. These stakeholders – including landowners, loggers, mills, and foresters – help identify concerns, opportunities, and areas of focus for our resources; stakeholders will drive our response to these market shifts. In FY19, VDOF was awarded funding to hold State Forester Industry Roundtables to prioritize the issues and concerns and begin implementing ways to address them starting next year.

Helping landowners find diverse markets for their forest products, and working with industry stakeholders to overcome market challenges is the key to maintaining a viable forest industry with sustainable tree and forest management at its core.



Since the economic recession, Virginia's forest landowners have seen an increase from \$207 million (FY08) to more than \$332 million (FY18) for standing trees, also called stumpage value.



Economic
Impacts of
Agriculture and
Forestry

Reforestation

Roughly 62 percent of Virginia is forestland, and working forests contribute \$21 billion to Virginia's economy each year. Beyond economic benefits, forests provide numerous ecosystem services to the Commonwealth. Keeping our forests intact is a priority for VDOF.

Growing Trees

Virginia is growing more trees than we are harvesting each year – an average of 2.3 times as much for softwood species and 2.6 times as much for hardwood species. To support reforestation of timberlands, VDOF's two nurseries grew more than 29 million trees, including four species of pine (white, loblolly, shortleaf, and longleaf) and 48 species of hardwood to sell to forest landowners in FY19. Through decades of research and selection, the trees sold through the Garland Gray and Augusta Forestry Centers are well-suited for Virginia's soils and climates.

Planting Trees

Numerous cost-share programs exist to support landowners in reforestation efforts. Through the Reforestation of Timberlands (RT) program, landowners are reimbursed for a portion of the costs associated with correctly planting or improving pines on their property. From 1972 through FY19, the RT program has reimbursed 50,156 landowners for projects on 1,918,114 acres in Virginia.

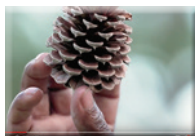


1,151
RT Projects
on 50,654 Acres

In the 2019 planting season, VDOF recorded rural tree planting on more than 61,000 acres. Additionally, partners reported more than 9,000 acres for a total of more than 70,000 acres of tree planting.



How do Trees
Grow in the
Nursery?



People of
Forestry

Manage



Virginia's Hardwood Initiative

In 2019, VDOF took the first steps in developing what will be a long-term pursuit of improved hardwood forest management across the Commonwealth. Virginia has spent 50 years creating our very successful reforestation program centered on improved loblolly pines. That same level of effort is now needed for the hardwood forests that cover almost 80 percent of Virginia and account for nearly half of the timber income produced in the state. Unlike the existing pine seedling program, the hardwood initiative will focus on helping landowners manage their forests to increase natural regeneration of desirable young hardwood trees, such as oak.

Hardwood forests are not only valuable for forest products. Because they cover so much of the state, hardwood forests are also important for water quality protection and the Chesapeake Bay recovery, and they provide critical habitat for many species of plants and animals. Improving hardwood management will enhance wildlife habitat, support recovery of threatened and endangered species, and bolster Virginia's hunting and outdoor recreation opportunities.

Because hardwood forests are valuable for so many different reasons, there are many advocates for improving hardwood forest management. VDOF hosted the initial stakeholder meeting for the hardwood initiative in April, bringing together more than 50 representatives of diverse groups to identify challenges and brainstorm strategies to address them. In October, the Board of Forestry held a meeting at the Appomattox-Buckingham State Forest to tour hardwood management demonstration plots and discuss practices that could be part of a hardwood management incentive program. VDOF is also partnering with the George Washington-Jefferson National Forest and other state agencies.

Building Strong Bonds with Forest Landowners

VDOF foresters are trusted advisors to Virginia's forest landowners. Professional foresters provide science-based guidance on management practices to support landowner objectives – whether they're managing wildlife habitat, planning a timber harvest or reforesting open space. Strong relationships between VDOF foresters and landowners benefit both parties. Sustainably managed forests are more likely to achieve landowner objectives and provide greater benefits to the Commonwealth.

Planning is Key

Planning and preparation are the keys to establishing and maintaining healthy, productive forests. One way foresters assist landowners is by producing multi-resource management plans, including Forest Stewardship Plans. With a focus on sustainable land stewardship, these plans provide private landowners with a description of the property's resources, its potential, and recommendations for the landowner to achieve their goals. When conducted before a timber harvest, management planning can maximize the benefits of forest ownership. These plans are the first step in building a working relationship between a forester and landowner.

Building Relationships to Last

Trees and forests, by nature, are long-term entities; management goals for a forest property can, and often do, span decades. Likewise, VDOF foresters build relationships with landowners that can last decades. While it's not uncommon for property owners to work with different VDOF representatives for projects throughout the years, the initial relationship between the agency and the landowner begins with a forester. Foresters become deeply familiar with individual landowners and their properties; this knowledge enables foresters to provide reliable technical advice specific to the landowners over time.

These relationships also allow foresters to identify private landowners that deserve recognition for sustainable management. In Federal FY19, VDOF foresters nominated 11 properties across the state for Forest Stewardship Certification. Certification demonstrates that the landowner has committed to sound management of their forestland.



257
Forest Stewardship
Plans

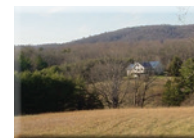
on 31,405 Acres

32
NRCS Conservation
Activity Plans

on 6,189 Acres

27
Tree Farm
Plans

on 5,492 Acres



A Proud
Forest Legacy

*Numbers reported from Federal
Fiscal Year 2019, October 2018 –
September 2019.

Manage

Educate



Protecting Water Quality

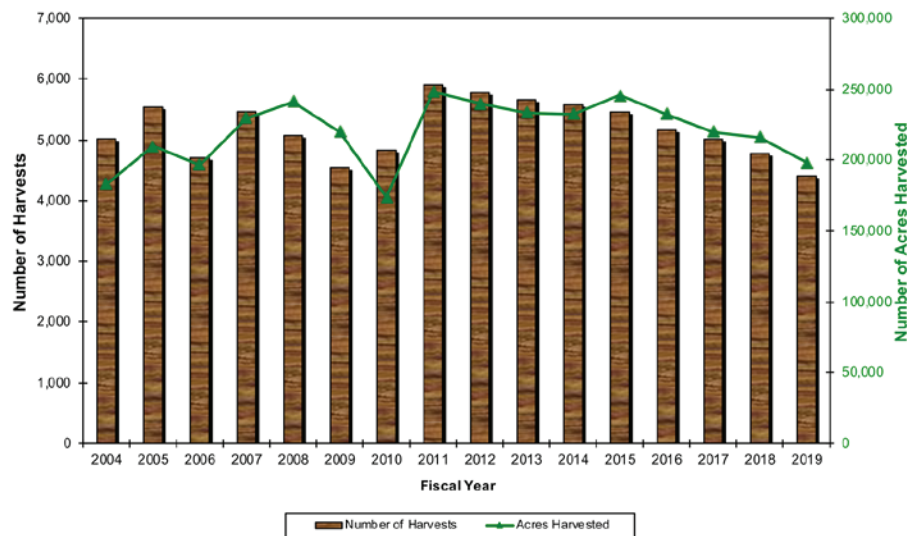
Forests are vital for preserving and improving water quality; in fact, forest conservation is one of the most effective measures to protect our water resources. The Virginia Department of Forestry (VDOF) is tasked with promoting and enforcing the Virginia Silvicultural Water Quality Law (Code of Virginia §10.1-1181.1 through §10.1-1181.7), as well as developing best management practices (BMPs) for forest harvesting operations, and working cooperatively with agencies and landowners throughout the Commonwealth to manage and preserve riparian buffers and protect water quality.

Forested watersheds are critical sources of pure drinking water. They provide habitat for important fisheries and wildlife and are treasured for their recreational value and contributions to our quality of life. Two of the VDOF's performance measures related to the Total Maximum Daily Load (TMDL) and Watershed Improvement Plan (WIP) developed for the Chesapeake Bay involve water quality. One focuses on Best Management Practices (BMP's) of forest harvesting operations and protecting streams from sediment. The other focuses on protecting and improving watersheds through forest management and land conservation.

VDOF has played an important role in the protection of our forested watersheds since the early 1970s when the first set of forestry BMPs for water quality were developed. The backbone of VDOF's water quality efforts is the harvest inspection program that began in the mid-1980s. This program provides one-on-one contact between VDOF staff and the harvest operators, and offers unique opportunities to educate the operators about BMPs and the latest techniques in water quality protection. During FY19, VDOF field personnel inspected 4,404 timber harvest sites across Virginia. These inspections included 17,986 site visits (an average of 4.1 visits per site) on 198,306 acres – a slight decrease in both the number of harvests and the number of acres harvested from the previous year.

Logger education is another key focus area of the VDOF water quality program. Since the development of the first BMP Manual for Virginia, VDOF staff have helped provide harvesting contractors with water quality protection training ranging from harvest planning and map reading, to using GPS units to implement forestry BMPs. This training is offered through agency-sponsored events as well as through the agency's participation in the Sustainable Forest Initiative SHARP (Sustainable Harvesting and Resource Professional) Logger Training Program.

Timber Harvests in Virginia
(2004-2019)



Protecting Water Quality, continued...

During FY19, 22 training programs were offered with a total of 441 participants.

In 2019, VDOF launched the Forest and Drinking Water Forum in conjunction with the Southeast Partnership for Forests and Water. This initial engagement brought together water utilities, conservation organizations, government agencies, and forest landowners to identify opportunities to collaboratively strategize about the utilization and protection of Virginia's forest resource that provides clean drinking water for all of the Commonwealth's citizens.

The Virginia Silvicultural Water Quality Law authorizes the State Forester to assess civil penalties to those owners and operators who fail to protect water quality on their forestry operations. During FY19, the VDOF handled 175 water quality actions initiated under the law, a decrease of 29 percent from FY18. Of these actions, two resulted in a Special Order and two involved the issuance of an Emergency Special Order (Stop Work Order) for violations of the law. There were also 41 Failure to Notify violations.

A statewide audit system has been in place since 1993 to track trends in BMP implementation and effectiveness. Results from calendar year 2018 data showed that the BMP harvest median implementation rate of 240 randomly selected tracts was 94 percent. The audit results also showed that 99.17 percent of the sites visited had no active sedimentation present after operation close-out. The information compiled using this audit process forms the basis of reporting for the Watershed Implementation Plan in response to the TMDL for the Chesapeake Bay. Since the information is captured through GIS technology, this information is compiled spatially for reporting forestry operations within the Bay watershed boundaries. For calendar year 2018, the BMP implementation rate harvest median score for forest harvesting within the Bay watershed was 93.3 percent. The entire BMP implementation monitoring effort has been automated over the past several years to be compatible with VDOF's enterprise database system known as IFRIS (Integrated Forest Resource Information System).

Watershed Protection

Forests are vital to the health of watersheds. VDOF programs guard water quality on land that is permanently protected by a conservation easement, establish and maintain riparian buffer zones, plant trees on non-forested open land, and increase the urban forest canopy by planting trees. All of these activities



help meet water quality goals associated with Virginia's southern river watersheds and the Chesapeake Bay restoration. The agency reviewed harvest plans and inspected for BMP compliance on 14 VDOF-held easement properties.

One of the most valuable BMPs for water quality is voluntarily leaving an uncut or partially-cut streamside management zone, which assures forest cover near the stream, provides shade for water, and preserves wildlife corridors. Landowners can elect to receive a state tax credit for a portion of the value of the uncut trees in the buffer if they agree to leave the buffer undisturbed for 15 years. This option was taken by 83 landowners in Tax Year 2018, an increase from the previous year. This watershed protection option provided tax credits totaling \$489,281 and valued at \$2,016,627 on timber retained in streamside areas – an increase in both the buffer value and tax credit issued.



**BMP
Implementation
Report**

Trees and the Chesapeake Bay

Forests are vital for preserving and improving water quality and improving aquatic habitats. In fact, forest conservation practices and buffer establishments are two of the most effective measures to protect our water resources – especially the Chesapeake Bay.

Watershed Implementation Plans (WIPs) are the roadmap for how Bay states and the District of Columbia will work to attain a healthier, more vibrant Chesapeake Bay. Virginia's clean-up plan, referred to as the Phase III Watershed Implementation Plan (WIP), will guide local, state, and federal actions through 2025, and places greater emphasis on the relationship between trees and the Chesapeake Bay.

VDOF works with its partners to ensure a watershed-wide focus on attaining Virginia's commitments to clean the Bay through initiatives that promote and increase the implementation of riparian forest buffers, urban tree canopy, and tracking improved urban storm water efforts. These efforts, coupled with strengthening stewardship of conserved working forestlands, demonstrate VDOF's key role in achieving the Commonwealth's goals for a healthy Bay.

One such partnership with the James River Association (JRA) and the Virginia Environmental Endowment (VEE) underscores the critical importance of establishing riparian buffers in the James River watershed to improve local water quality and meet Virginia Chesapeake Bay goals. Riparian forested buffers – forested streambanks – are one of the most cost-effective mechanisms for capturing pollution from the land and improving the water quality outflows of a river system. The James River Buffer Program aims to establish more than 700 acres of riparian forested buffers in the Middle James region of the river. This initiative to restore river and streamside forest buffers springs from funding from the VEE James River Water Quality Improvement Program grant awarded to VDOF (\$750,000) and the JRA (\$1.45 million).



Agriculture,
Stream
Protection and
Forestry



Governor
Launches James
River Buffer
Program





Innovative Projects in Virginia's State Forests

State forests serve multiple uses in Virginia. One of those uses is forest research, where VDOF staff and partners can investigate and implement projects or techniques that support sustainable forestry in Virginia and beyond. Many of VDOF's applied research initiatives are dedicated to formal silviculture projects and tree improvement to build strong, healthy, and productive working forests.

Not all of the research is formal; there are many informal, smaller-scale projects that provide context, data, and different perspectives on forests and their management, or identify areas of inquiry that deserve further exploration.

Learning from Pollinators

In a portion of Lesesne State Forest, VDOF staff worked with a local beekeeper to explore the possibilities of deriving quality honey products from certain tree species, specifically from the chestnut trees that are also part of formal VDOF research. The project demonstrates a holistic perspective on forest management – one that explores the overlapping interests of traditional and alternative forest products, pollinator population support, and collaborative research.

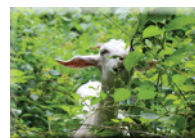
Goats in the Field

Though herbicide application is most frequently recommended for invasive plant removal, some landowners request alternatives to chemical application on their property. In May 2019, the forest health team conducted an informal case study in another portion of Lesesne State Forest with a popular herbicide alternative – goats! Goats are intensive grazers and browsers, and during the study, the goats effectively stripped the invasive plants in their grazing plots. The case study also involved chemical control to compare the two treatment methods. Though no single approach to invasive plant removal will be a “silver bullet,” the team believes goats may be another recommended tool to help landowners.

From research to determine the best ways to manage hardwood forests, to native wildlife habitat restoration, to the exploration of alternative forest products – formal and informal research informs how we approach forestry and demonstrates our continued commitment to being leaders in the field of sustainable forestry.



Virginia's
State Forests



Goodness
Gracious Goats!



Wildfire Response

Preventing and responding to wildfires is a primary component of VDOF's mission; the agency achieves this through education, suppression, and response to wildfires. Fire can be an important component of healthy landscapes, but in developed landscapes, fire can also be devastating, causing loss and harm to people and property. Managing fire in the landscape is critical to maintain healthy forestland and safe communities.

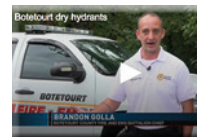
In FY19, 247 wildfires burned 1,396 acres in the Commonwealth. These fires caused timber damage to the sum of \$833,000. With forestry as the number three industry in Virginia, protecting these economic resources is vital. Nine homes (valued at \$272,000) and 25 other buildings (valued at \$60,800) were damaged or destroyed in these fires.

Though these wildfires caused notable damage, VDOF's effective response mitigated even more significant financial losses. Due to VDOF's response, 688 homes (valued at \$21.5 million) and 155 other structures (valued at \$2.4 million) were protected. Well-equipped fire response has real and observable value for the financial and physical security of Virginia's forests, citizens, and both public and private property.

Working with Communities

Prevention is a critical component to wildfire response. VDOF completed 42 wildfire hazard mitigation projects in FY19, resulting in direct improvements to 264 homes in 44 different high-risk woodland home communities. As June 30, 2019, Virginia has 56 recognized [Firewise USA](#) communities, making Virginia one of the top 15 states nationally in terms of communities with formal recognition for their efforts in wildfire hazard mitigation.

VDOF implements the Virginia Dry Hydrant Program – a state-funded initiative that provides 100 percent of the necessary funding to install dry fire hydrants throughout the Commonwealth to improve rural water supply for fire protection. In FY19, 25 new dry hydrants were installed and 13 existing hydrants were repaired.



Dry Hydrants
Help Fight Fires
in Rural Areas

Training Virginia's Responders

VDOF staff works closely with numerous agencies, non-governmental organizations, and institutions throughout the southeastern United States to establish a resilient and united response to wildfires, weather events, and other emergencies. Through cooperative trainings and collaborations, VDOF and our partners support a forestry community well-equipped to respond to disaster. By sharing our collective knowledge, we can establish an integrated approach to preventing and mitigating threats to our forests and communities.

Wildland Fire Response

Some of VDOF's most prominent interagency training offerings are the annual wildfire academies. There were two academy trainings offered in Virginia in 2019, and more than 238 firefighters participated. Some of these firefighters were full-time VDOF staff, but many more were part-time staff who are also members of other state or federal agencies or local fire departments. Courses ranged from hands-on experience with tractors (aka dozers) and chainsaws to training personnel to serve on an incident management team.

VDOF relies on highly-trained personnel to respond to wildland fires or other weather-related emergencies. In FY19, 127 volunteer fire departments throughout the state received grant-funded assistance from VDOF. By supporting our agency partners, regional land managers, and members of Virginia's 768 fire departments through training and grant funds, VDOF helps establish a resilient response network that's ready to protect Virginia's forest resources and citizens during disasters.

Preparing for Deployment During Disaster

VDOF's Urban and Community Forests (U&CF) branch works with external partners throughout the Commonwealth (and beyond) to further develop a strong urban forestry response team. In September 2018, U&CF led an Urban Forest Strike Team (UFST) mock-disaster exercise in Richmond for rapid tree risk assessment, which provided trained task specialists (all certified arborists) hands-on experience identifying the risks that storm-damaged trees pose to people and property. This training enables localities to more efficiently access federal disaster resources.



VDOF has 37 International Society of Arboriculture (ISA) Certified Arborists on staff, which is more than any other state forest resource agency in the southeast.



WTREX
Prescribed
Fire Training
Exchange



Firefighters
Come Together
for Wildfire
Training



Invasive Species Response

Invasive plants and insects are species that are non-native to Virginia, spread quickly, are difficult to eradicate, and inhibit or outcompete native species. They can impact forest health and have economic consequences. Part of VDOF's mission is to protect the Commonwealth's forest resources, and that includes the monitoring and removal of invasive plants and insects to maintain healthy, sustainable forests. An effective invasive species response supports a strong forest economy.

The emerald ash borer (EAB) is an invasive wood-boring beetle that is pushing most native species of ash (*Fraxinus*) trees to the brink of extinction (*emerald ash borer galleries pictured at the left*). The year 2018 marked a decade since EAB became established in Virginia; its presence has since been confirmed in 80 counties. In spite of this harsh reality, for some ash trees in the state, there may still be hope. Insecticide treatment is possible on a small scale; the preferred treatment method is direct injection into the trunk to avoid effects on non-target species. Through the EAB Program, VDOF continues to treat high-value ash on an individual-tree basis and provides support to landowners treating ash on private property through a cost-share program. From May to August 2019, VDOF personnel chemically treated 125 ash trees on state land to protect them against infestation.

In 2018, the invasive spotted lanternfly was confirmed in Virginia and is potentially a serious pest to Virginia's fruit trees, grapes, hops, and forests. VDOF's area foresters and forest health team are working diligently to educate professionals and the public to monitor and slow the spread of this new invasive species.

Responding to Slow Threats

During the past year, the Forest Health and the U&CF staff emphasized working with VDOF's field teams to ensure they have the skills necessary to support their work with localities and individual homeowners in urban settings. This includes arborist certification when appropriate, as well as pest and disease identification and treatment specific for their regions. Though pests or disease may present slower threats to urban trees, early intervention can mean the difference between saving or losing an urban tree canopy.



**Emerald Ash
Borer Story
Maps**



**Spotted
Lanternfly
Information**

Forestland Conservation

Intact forestland sustains Virginia's economy, rural communities and the ecosystem services that serve the Commonwealth – from mountains to Bay. Forestland conservation is a landscape-scale effort achieved through the cooperation of the individual landowners that steward the majority of Virginia's forested properties. Conservation easements are one way forest landowners choose to protect their land, but each family and landowner has unique circumstances and visions for their land.

Planning for Generation NEXT

Regardless of motivation or management goals, finances and planning can be barriers to landowners maintaining their forestland. VDOF and the Virginia Cooperative Extension offer low-cost Generation NEXT workshops throughout the state that provide landowners with access to professionals and resources who can help them develop a land legacy plan that works best for their situation. This past year, 57 family groups attended four Generation NEXT workshops; collectively, these families owned more than 7,315 acres of forestland and 4,826 acres of open land.

Historical Conservation Success

Successful forest conservation not only protects existing forests, it can also actively reverse the impacts of forest loss, and can positively influence local economies. In August 2019, VDOF recorded the largest open space easement in Virginia's history – 22,856 acres in Russell County, Virginia. Though VDOF holds the Highlands Easement, this conservation success came to fruition through a partnership with The Nature Conservancy (TNC) and Virginia Department of Environmental Quality (VDEQ). The easement, part of a larger conservation tract held by TNC, will bolster existing conservation initiatives along the Clinch River, and strengthen local economies through sustainable forest management and ecotourism.

This project nearly doubled VDOF conservation easement portfolio, which now includes nearly 83,657 acres through 189 easements, protecting tens of thousands of acres of forestland as well as hundreds of miles of waterways.



Photo ©Cameron Davidson/Courtesy of The Nature Conservancy

14
Easements
Closed Federal FY19
on 28,463 Acres

"The Commonwealth is comprised of a tapestry of family forest and agriculture lands. Recognizing the importance of this mosaic in rural Virginia is critical."
– Mike Santucci, forestland conservation manager



Generation
Next



**Largest
Easement Ever
Recorded in
Virginia**



Technology Innovation

Although few people may think of forests as being “high-tech,” technology plays an important role in forest resource management, conservation and protection. VDOF is embracing technological innovations that help the agency improve efficiency and perform tasks that were previously more difficult and time consuming, or even impossible.

Bird’s Eye View

In FY19, VDOF received a grant to purchase seven unmanned aerial vehicles (UAV) and train personnel to become licensed drone pilots. UAV or drone technology has a number of applications in forestry. In wildfire situations, drones can assist with spotting and monitoring fires, hot spots or threatened structures, and in non-emergency situations can be used during training simulations or prescribed burns. The Forest Health team can utilize drones to scout insect and disease outbreaks or determine scope of infestation.

Drones can assist forestry staff with harvest inspections on logging jobs, allowing them to identify stream crossings and monitor the site for adherence to Best Management Practices. When scouting large acreage, staff can use drones to map tracts, identify boundaries and estimate acreage.

Fire Response

VDOF has historically maintained a low-tech, paper log system to manage wildfire response records. Recent advancements in web-based applications made it possible to transition to a digital system that better supports real-time documentation and monitoring in statewide emergency situations. In 2019, Virginia became the first state in the nation to move wildfire response management to an almost entirely online platform. Through the web and mobile application FireResponse, VDOF is able to more efficiently and effectively track and dispatch resources – everything from staff to heavy equipment – to wildfires.

Efficient dispatch of resources means the firefighters and emergency personnel responding to wildfires are safer, and safety of our emergency response teams is a top priority.



It’s a Bird, It’s
a Plane, It’s a
Drone!



FireResponse



The program is still in the initial stage, but preliminary observations from pilots indicate that drone utilization is a time-saving measure of roughly 50 percent to 65 percent when compared to performing these same activities on the ground.



Urban and Community Forestry

As the importance of urban tree canopy is increasingly recognized, the Urban and Community Forestry (U&CF) program within VDOF continues to grow and develop. It focuses on working with communities and partners to inventory and manage urban trees for their cultural value, health benefits, and ecosystem services.

Cultural Value

Throughout 2019, U&CF worked with the non-profit Enrichmond (and other partners) on a project in the Historic Evergreen Cemetery in Richmond, Virginia. Iconic Richmonder Maggie L. Walker, among other prominent figures in the African American community, is buried in this historic cemetery. The project goals include restoring a healthy tree canopy, removing invasive plants, saving cultural and historical resources (including historic trees), and creating a safe and enjoyable place of visitation within the community.

The U&CF team provided Enrichmond with a Community Forest Management Plan to assess existing trees and vegetation and provide recommendations for invasive plant mitigation and tree management. U&CF staff hope to maintain an on-going partnership with Enrichmond to manage their urban forest.

Community Wellbeing

VDOF works with communities to improve water quality through tree plantings and helps them make the connection between healthy tree canopy and the water they drink.

Through a partnership with USFS Chesapeake Watershed Forestry Program, Alliance for the Chesapeake Bay, and Virginia Water Quality Improvement Act, VDOF reimbursed \$103,961 to statewide tree planting projects as part of the Virginia Trees for Clean (VTCW) program in FY19. Through this grant funding, more than 4,300 trees were planted across the Commonwealth, thanks to the teamwork of multiple partners and volunteer initiatives at the local, state and federal levels. Grant funds were matched with an estimated \$250,209 in volunteer hours, cash, or in-kind services.

Supported VTCW projects ranged from canopy restoration in Winchester to reclaiming post-industrial sites along the James River.

Photos courtesy of the Enrichmond Foundation

New Markets for Urban Wood

The importance of urban trees is increasingly acknowledged by municipalities and sustainability professionals across the country. Trees in urban and suburban settings have tremendous value while alive, but their usefulness does not end there; planning for urban trees should include the full life cycle of the tree.

VDOF's urban wood initiative supports communities in finding ways to recycle the dead or dying trees while reducing costs associated with removal – in fact, the focus has shifted to earning money from the removed trees through repurposing. Urban wood utilization has become an important link in holistic urban forestry management.

During the past year, VDOF's urban forestry team has dedicated focus to communities with ash (*Fraxinus*) trees impacted by emerald ash borer (EAB). Staff worked with communities to treat and salvage ash trees when appropriate, and strongly encouraged communities to explore these options first ([read more about emerald ash borers](#)). But some trees cannot be saved and need to be removed, which comes at an expense to municipalities or homeowners.

No net waste is the conceptual foundation of urban wood utilization; when urban trees die or need to be removed from the landscape, that wood is often sent to a landfill, rather than being treated as a usable wood product. Through workshops, community planning and partnerships with groups like Trees Virginia, VDOF gives communities the information and resources they need to sell or use urban wood.



Out of the
Ashes



After
the Green



New urban wood markets increasingly contribute to the overall forest economy in Virginia, and their significance in local economy should not be underestimated. Burgeoning urban wood markets support the creation of small, specialized businesses, such as urban wood crafters and recyclers, and help communities save money and reduce tree waste by finding uses for all parts of harvested urban trees – from branch to butt.



Restoring Diminished Species and Habitats

In addition to maintaining existing forests, VDOF and partners seek to restore diminished species and forest landscapes in Virginia through collaborative restoration programs and initiatives. Partnerships are often critical to the success of these restoration programs, and engagement with stakeholders garners support for the important work of ecosystem restoration and heritage species preservation.

Longleaf Ecosystem

Longleaf pine-grassland ecosystems require fire to truly flourish. Because humans have done so well suppressing wildfire in our developed landscape, the natural processes that result from wildfires have been mostly eliminated. VDOF and partners train and support landowners in the wise use of fire through prescribed burn services. In FY19, 276 burns were performed on 7,503 acres.

During FY19, the first mass-produced containerized native Virginia longleaf seedlings – a diminished species in Virginia – were planted on Chereonhaka (Nottoway) Indian tribal land in Southampton County. The Department of Conservation and Recreation, in cooperation with the Chereonhaka tribe, manages the land.

Chestnut Research

Research conducted in Lesesne State Forest provides critical data about American chestnut trees – a nearly extirpated species in Virginia. In recent years, the chestnut research community has learned that fine-tuning the genetics for blight-resistant chestnut trees is even more complex than it was originally thought to be. There is still hope that the majestic species will be restored in eastern North American forests.

In September 2019, Forest Research Program Manager Jerre Creighton led a field tour of the chestnut restoration program. This was one of dozens of similar tours, trainings or classes led by VDOF staff to teach forest science, share innovative research and new initiatives. Demonstrating science-based forest management through tours, trainings, and presentations supports VDOF's objective to be leaders in the forestry community.

Pure American chestnut trees were harvested from Lesesne State Forest in October 2019. Some of the trees will be distributed to partners researching viable markets for chestnut wood products, which may eventually contribute to support for species restoration projects.



American Chestnut Harvest



Conservation Education

VDOF's conservation education initiative invests in the future of Virginia's forests by increasing environmental literacy among Virginians of all ages and equipping them with the knowledge and understanding to make sound forest resource decisions.

Educating Adults

This year's three Forest Landowner Retreats educated 85 participants who manage a total of 5,000 wooded acres. Past surveys of retreat participants indicate that at least half of them will get a written management plan. This exceeds the national average of three percent.

VDOF provided professional development for VSU's Small Farm Outreach agents, offering an overview of basic forestry practices, cost share funding and local agency resources they could share with the small and minority farmers they serve. VDOF co-sponsored two Woods and Wildlife Conferences, Master Naturalists, and Tree Stewards training.

Teaching Teachers

Project Learning Tree (PLT) is VDOF's flagship forest-topic training program for educators. In FY19, 623 educators participated in PLT trainings. Through interactive lessons, students learn how to think, not what to think, about issues affecting forests. PLT also provides specialized training for secondary teachers, such as the field-based, management-focused Teaching Trees workshops and professional development for teachers of the new high school Environmental Science course.

Youth Education

More than 60 teens from across the state participated in VDOF's [2019 Camp Woods & Wildlife](#) – a unique camp experience that takes teens into the Appomattox-Buckingham State Forest to practice real-life natural resource skills and learn about career options.

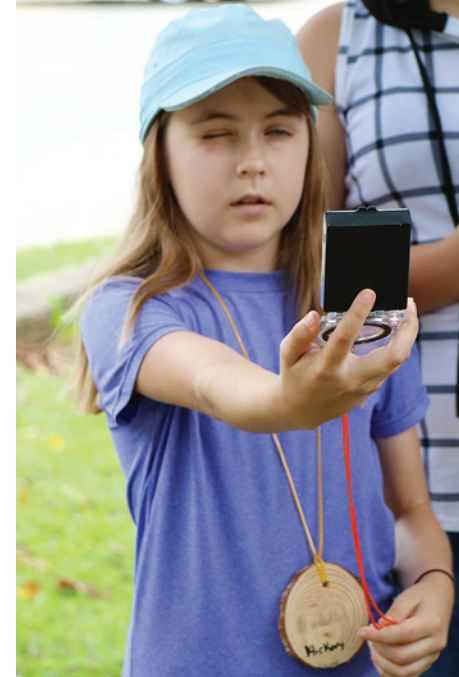
Throughout the year, VDOF supported other youth educational efforts, such as Meaningful Watershed Educational Experiences (MWEEs), Envirothon, Future Farmers of America, Boy and Girl Scouts, 4-H, and school, after-school and day camp programs. At Matthews State Forest, school and community groups take part in hands-on learning activities, using the forest as their outdoor classroom.



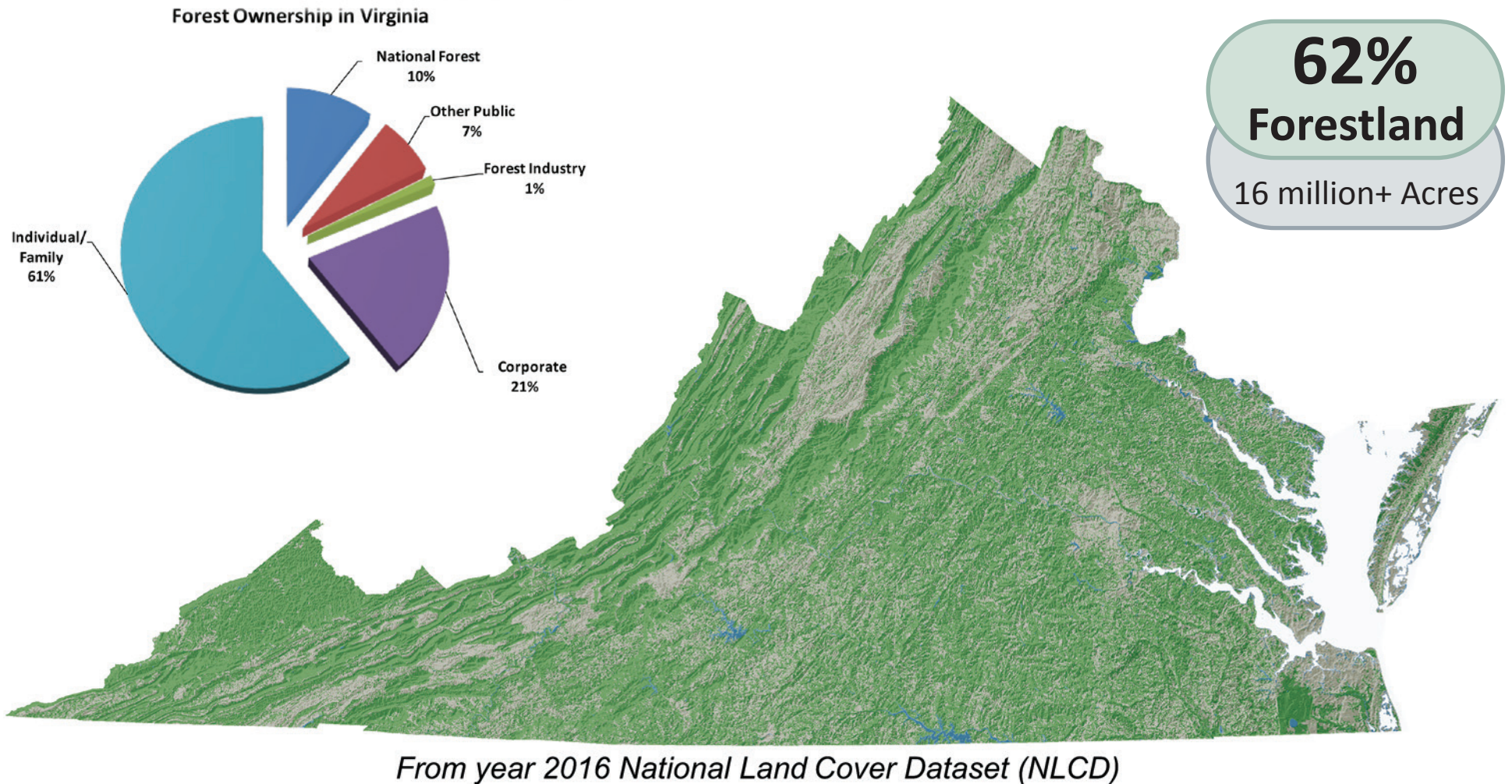
Virginia Project
Learning Tree



Virginia Forest
Landowner
Education
Program



Virginia Forest Cover



Forest Inventory Analysis Program

VDOF maintains an ongoing inventory program to ensure that our forests are being managed sustainably. VDOF, in cooperation with the U.S. Forest Service, conducts a forest inventory analysis (FIA) which is a primary source of statistics

for the forestland in Virginia. The inventory collects and analyzes information on forest growth, forestland area, land use changes, ownership trends, and natural and human impacts to the forest.

Virginia Forest Types at a Glance

22%

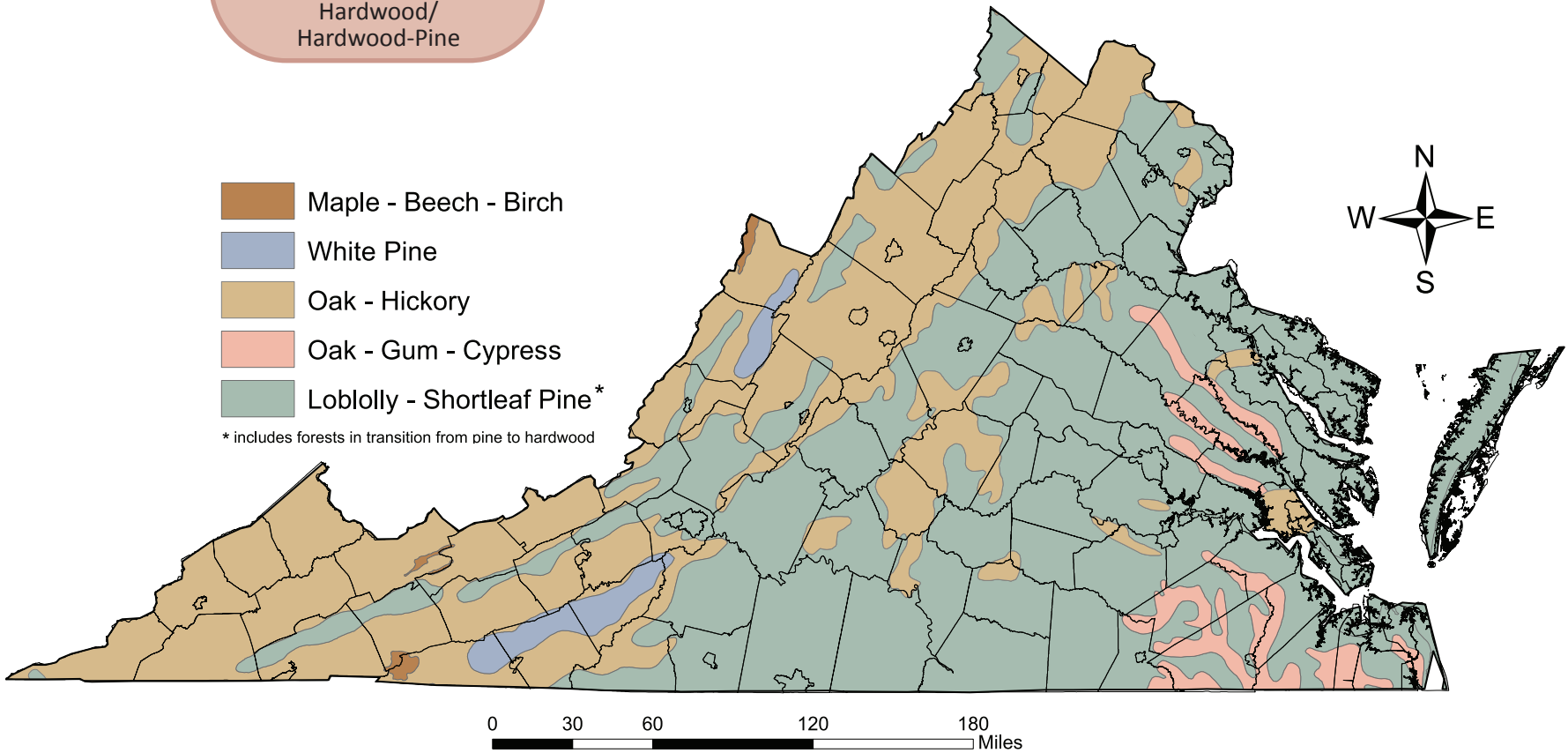
Pine

78%

Hardwood/
Hardwood-Pine

- Maple - Beech - Birch
- White Pine
- Oak - Hickory
- Oak - Gum - Cypress
- Loblolly - Shortleaf Pine *

* includes forests in transition from pine to hardwood



Data source: Southern Forest Resource Assessment, USDA Forest Service - Forest Health Protection, September 1999

Our maps are for the Department's information and demonstration purposes and not legal descriptions of parcels intended for any commercial purpose. These maps shall not be used for the design, modification, or construction of improvements to real property or for boundary or flood plain determinations. DOF does not assume any liability for any errors, omissions, or inaccuracies in the information provided regardless of the cause of such or for any decision made, action taken, or action not taken by the user in reliance upon any data provided herein. Any use of the maps assumes that you understand and agree with the information provided in this disclaimer.



 **234**
Employees

5.1%
Veterans
24.5% Increase
Veteran Hires

Growing and Sustaining Our Workforce

As forestry evolves, so do the characteristics of Virginia's workforce.

Each year, state agencies develop a Workforce and Succession Plan to ensure state agencies are well equipped to serve the people of Virginia into the decades ahead. VDOF's plan focuses on talent development and intentional talent acquisition.

Expanding Recruitment

VDOF expanded its presence this past year at community colleges, liberal arts colleges and other non-traditional institutions, introducing students to potential forestry careers and VDOF's paid internship program.

Our current strategic plan strives for a workforce comprised of at least eight percent veterans by 2022.

Looking Ahead

In the upcoming year, VDOF will emphasize professional development and its role in workforce development. Employees seeking a college degree will have an opportunity to participate in a formal tuition assistance program.

In 2020, VDOF will lay the foundation on career competency models for occupations within VDOF. Through these models, employees can clearly understand the expectations for success in their current roles while acquiring skills and experience to move into more advanced positions. VDOF will also prepare to welcome the inaugural apprentices into the Registered Apprenticeship Program.

Each of these initiatives focuses on building and sustaining a resilient workforce while empowering employees with opportunities for growth and ensuring that VDOF is an agency where employees are inspired and motivated to meet challenges and grow as leaders.



Local Students
Compete in
Forestry

Virginia Department of Forestry's Honor Guard

Sixteen dedicated VDOF employees serve in our Honor Guard – a group of agency representatives that attend memorials of and perform flag presentations for current and retired employees who pass away. Steve Counts, emergency operations program manager, currently serves as Captain of VDOF's Honor Guard; he sees the Guard's activities as an important demonstration of VDOF's community presence.

In addition to individual memorials, the Honor Guard has been particularly active in state, regional and national ceremonies to honor fallen firefighters during the past 15 years. The group is recognized by peers for its sharp, unique uniform. The dress uniform for VDOF's Honor Guard is army green and includes a distinctive sheriff's-style campaign hat and a black Rocky boot with a hand polished toe – both of which indicate that the members are part of the wildland firefighting family.

The Honor Guard attended three VDOF retiree funerals. In June, the members participated in the Virginia State Fallen Firefighters and EMS Memorial Service in Richmond, Virginia, as is typical for the group. Several members of the Honor Guard also served on the Command Group that organized the National Fallen Firefighter Memorial in Emmitsburg, Maryland in October. VDOF's Honor Guard has been participating in this national event for the past several years and the members were proud to provide support for the memorial this year and, hopefully, in years to come.



National Fallen
Firefighters
Foundation



A Year of Celebration

100th Anniversary for the Virginia State Forests and Smokey Bear Turned 75!

2019 was a year of celebration for VDOF and some of its partners. This year marked the 100th anniversary of the Virginia state forest system. The state forest system began in 1919 when Mr. Emmett D. Gallion bequeathed 588 acres in Prince Edward County, near Farmville, to the Commonwealth of Virginia. This year, VDOF celebrated the 100th anniversary with the addition of Virginia's 25th state forest – [First Mountain in Rockingham County](#) – which added 573 acres to the existing 69,441 acres of state forest land.

While Virginia's state forests were celebrating a 100-year anniversary, Smokey Bear was ringing in his 75th birthday! VDOF celebrated with a [birthday party](#) in August at the James W. Garner Building in Charlottesville; Governor Ralph Northam, Secretary Bettina Ring, State Forester Rob Farrell and Smokey Bear himself were all in attendance, along with VDOF staff, media representatives, students from Triple C Camp and members of the public. At the event, Governor Northam presented a proclamation declaring August as Smokey Bear Awareness Month in Virginia.

Smokey Bear is an iconic representative of wildfire prevention with national recognition; VDOF uses his image and the content produced for the Smokey Bear Wildfire Prevention Campaign for messaging in person and online. Collectively, VDOF was involved in 57 Smokey Bear events this year, reaching approximately 42,175 individuals. These events included static displays at museums, school programs, a visit to the Norfolk Naval Base on the U.S.S. Eisenhower and, perhaps most notably, the [Smokey Hot Air Balloon visit](#) to the Shenandoah County Fair. Additionally, VDOF shared online resources and social media posts with Smokey Bear messaging throughout the year, including the [#SmokeyBearChallenge](#) video in which students from Woodbrook Elementary School in Charlottesville, Virginia shared what they wanted to give Smokey for his birthday.



Smokey Bear
Challenge



First Mountain
State Forest
Dedication



The state forests of Virginia are self-supporting and receive no taxpayer funds for operation. Operating funds are generated from the sale of forest products. In addition, up to 25 percent of the revenue received from the sale of forest products is returned to the counties in which the forests are located.
