



West Virginia

2015 Forest Action Plan

National Priorities Section Addendum



WEST VIRGINIA

2015 FOREST ACTION PLAN

NATIONAL PRIORITIES SECTION ADDENDUM

The 2008 Farm Bill, under Title VIII – Forestry, amends the Cooperative Forestry Assistance Act of 1978, to include the requirement that each state develop a long-term, statewide assessment and strategies for forest resources. These assessments and strategies focused on three national priorities:

- Conserve and Manage Working Forest Landscapes for Multiple Values and Uses
- Protect Forests from Threats
- Enhance Public Benefits from Trees and Forests

These documents were developed with a comprehensive team of stakeholders to address cross-boundary, landscape scale actions that would be the most efficient activities to address issues of concern developed for the assessment phase of the Forest Action plan.

This document serves as a record of activities taken by all state stakeholders to address strategic actions identified in West Virginia's Forest Action Plan 2010 - 2015.

Cover photo: Lower falls of Hill Creek, Pocahontas County, West Virginia – Fire Forester, John Anderson, WV Division of Forestry.

Please note: Supplemental language provided in the 2014 Farm Bill as signed on February 7, 2014, indicates additional coordination requirements. In subsequent reporting, accomplishments with these partners should be included. Section 2A(c)(5) reads; *“as feasible, appropriate military installations where the voluntary participation and management of private or State-owned or other public forestland is able to support, promote, and contribute to the missions of such.*



National Priority 1

Conserve and Manage Working Forest Landscapes for Multiple Values and Uses

State Issue 1 Addressed: Competing Land Uses

Issue 1 Addressed: Competing Land Uses	
Long-term Strategy	Measure of Success
1. Protect significant forest land by acquiring working forest conservation easements.	Acquisition of approximately eight conservation easements.

Strategy Narrative:

The goal of the Forest Legacy Program in West Virginia is to protect from development, parcelization, and fragmentation, regionally significant properties that contain important environmental values and also contribute to working forest economies and local communities. Priority landscape areas for planned land protection activities are the Cheat River, Potomac Highlands, Allegheny Mountains, and Greenbrier / New River Forest Legacy Areas. Forest Legacy competitive grants and administrative grants will be used to provide funding for the Forest Legacy Program to purchase conservation easements, protect land, and administer the program.

These easements are to protect properties that are desirable and that will not cause difficulty for the West Virginia Division of Forestry (WVDOF). Further, the titles shall be clear and free of defect; rights-of-way shall be free of problems; boundary disputes shall be resolved; and easement language is to be clear, so as to avoid problems in the future. The WVDOF shall not acquire more easements than it can effectively monitor.

Strategic Accomplishment:

Seven conservation easements have been acquired. In accordance with the Strategy Narrative above, the application for the eighth easement was withdrawn because WVDOF could not get a commitment from the landowner to perform the necessary cleanup.

State Issue 2 Addressed: Communication and Education

Sub-Issue 2.1 Addressed: Lack of forestry education in public schools	
Long-term Strategy	Measure of Success
1. Contact each elementary school in West Virginia with forestry information.	Increase the knowledge of forestry issues within the citizenry of the state starting with contacting each elementary school every 1-3 years.

Strategy Narrative:

Priority areas correspond with regions where major educational emphasis is central to the project or where it is severely lacking. Some of the areas include eight-county area of the West Virginia's Eastern Panhandle within the Potomac River drainage of the Chesapeake Bay watershed; the four Northern Panhandle counties; the Upper

I-79 Corridor; and the southern coalfield counties. Strategies to increase educational opportunities and build capacity and outreach within these areas will include:

1. Contact each elementary school in West Virginia with forestry information
2. Contact pre-service teaching colleges / universities to establish partnerships for Conservation Education.
3. Survey high schools and Vo-Ag Centers to see where the WVDOF could establish partnerships



Potential exists for further development of more extensive partnerships with universities and colleges and other industries to gain joint support for projects that enhance forestry knowledge. Current developments of new educational standards and incorporating hands-on and STEM activities have allowed opportunities for WVDOF partnerships with county school districts. Also, the WVDOF uses program-specific information (Fire, LSCA, etc.) and Project Learning Tree as tools to accomplish its educational mission.

Strategic Accomplishment:

Educator Trainings – The WVDOF is using Project Learning Tree as one of its vehicles to implement trainings. Many educators do not have a strong science background. Requests are increasing now that Next Generation and Common Core standards are being implemented. Requests for hands-on training and materials allow the WVDOF to be the technical resource for students and teachers to understand the natural world. Over the past five years, the WVDOF has reached 1,075 elementary-, middle school-, high school- and pre-service educators. This amounts to conservation education reaching more than 25,800 students.



WVDOF is a co-sponsor of Project Learning Tree in the state along with an NGO, West Virginia Forestry Association. WVDOF has allowed one of its foresters to accept the position as Statewide PLT Coordinator to continue the momentum and consistency of this education program in the state. By doing this, the director has allowed for time to be spent in the southern part of the state to bring Conservation Education into the counties where fire education was previously the main emphasis. The WVDOF has been working with Marshall University's Pre-Service Education Methods class to train them before they get into the schools. Three new counties have requested their teachers be trained and several more have expressed an interest to find out how we can work together.



STEM - With the new emphasis on STEM (Science, Technology, Engineering and Mathematics) related activities the WVDOF has found a niche in that arena, as well. With forestry exhibiting so many STEM facets, the WVDOF has been involved since the beginning with the Mineral County STEM festival at Potomac State College of WVU.



Smokey Bear – Smokey Bear programs continue to be the method to promote the fire prevention message in school systems. Our goal was to visit every elementary school within the state and with hundreds of programs presented annually, that goal has been met.

Correlating WVDOF informative activities to West Virginia educational standards - WVDOF took some of their common program presentations and requested that educators let them know how WVDOF’s presentations allowed them to achieve their educational goals. This has helped promote non-professional educators (WVDOF) deliver content that is beneficial for schools in many ways.



West Virginia Educational Content, Standards and Objectives (Science)

- SC.03.1.03 Explore science careers in the community
- SC.0.3.2.01 Identify structures of living things, including their systems and explain their functions (fire activities)
- SC.0.3.2.02 Observe, measure and record changes in living things (tree booklet project)
- SC.0.3.1.11 which is identify and control variables.
- SC.0.3.3.06 cite examples of the uses of science and technology in common daily events and in the community. (Fire activities)
- SC.0.3.3.10 Develop respect and responsibility for environment by engaging in conservation practice
- SC.03.1.04 Demonstrate curiosity, initiative and creativity by planning and conducting simple investigations (tree game with food, water, and sun)

State Issue 3 Addressed: Sustainability of Forest Resources in West Virginia

Sub-Issue 3.1 Addressed: Growth ,Yield, and Management	
Long-term Strategy	Measure of Success
2. Accurately locate spatially all NIPF lands and all "managed" forest lands in the state, including Stewardship, Tree Farms, Managed Timberlands, and others.	All private forest lands in the state will be identified and located spatially.

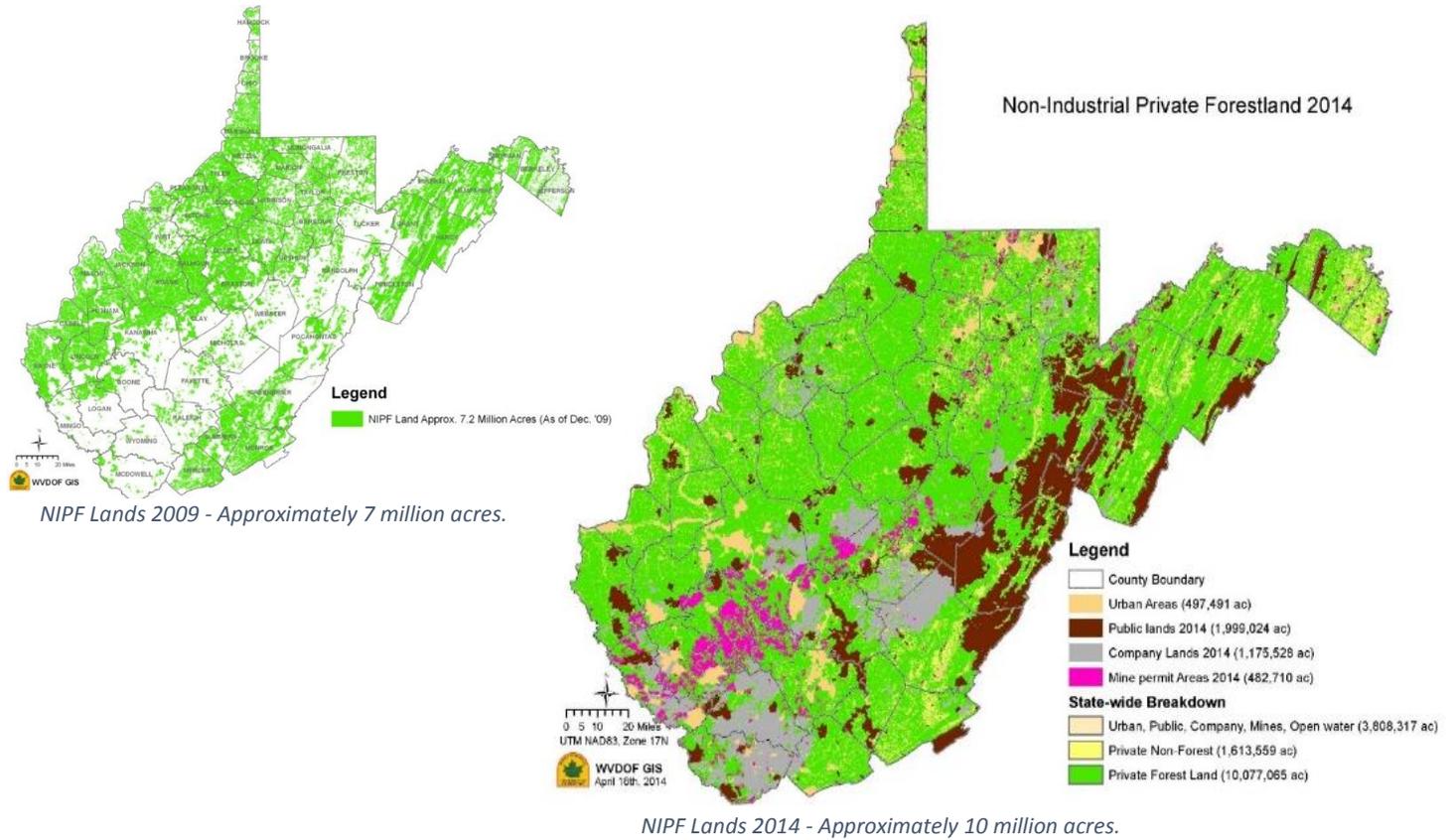
Strategy Narrative:

The WVDOF’s GIS specialist will work with WVDOF and FIA personnel, as well as the Tree Farm Program, State Tax Department, county assessors, company foresters, and others to locate all categories of forest lands in the state. This will provide an accurate estimate of the “managed” forest acreage in the state, as well as to identify priority areas for increasing the number of acres under professional management.

All program areas and identified issues will benefit from this information, as will all stakeholders interested in the forests of West Virginia.

This strategy will require personnel from state and federal agencies to cooperate closely with consultants, private sector foresters, and university researchers. State funds and federal grants will be necessary to implement this strategy.

Strategic Accomplishment: Increase in the number of NIPF acres identified statewide.



Strategic Accomplishment:

An initiative is underway in the state to map all Managed Timberland parcels onto a GIS derived productivity layer. Final completion is estimated to be July 1, 2016. In addition to simply locating the parcels on a map, the new layer also derives a productivity layer largely based on soil moisture values for any given location across the state and on the tract. Currently this program includes 2,449,691 acres across the state.

Sub-Issue 3.4 Addressed: Forest regeneration	
Long-term Strategy	Measure of Success
1. Work to identify, understand and resolve, where possible, the forest regeneration issues in the state.	Forest regeneration issues are well understood and measures are available to resolve any concerns that arise.

Strategy Narrative:

A lack of information about forest regeneration problems in the state has been identified as a significant data gap. Scientific information is needed in order to make management recommendations. Most of the supposed “forest regeneration problems” in West Virginia are anecdotal in nature. The WVDOF will need to determine the factual existence and extent of the problem and the various types of contributing factors and then make solid management recommendations about how to resolve the issues.

All other programs and issues identified in the assessment are in some way linked to this strategy. All sectors of the forestry, wildlife, and natural resource communities are stakeholders in this effort. It will require the full range of expertise and funding to fully understand and resolve this issue.

Strategic Accomplishment:

Forest Regeneration: Perceptions of Natural Resource Professionals in West Virginia

by Voss, Ellen Lee, M.S., WEST VIRGINIA UNIVERSITY, 2012, 120 pages; 1520758

Adviser David W. McGill
School WEST VIRGINIA UNIVERSITY
Source Type Thesis
Subjects Forestry; Natural resource management
Publication Number 1520758

Abstract:

It has generally been assumed that natural hardwood regeneration in West Virginia after a timber harvest or other disturbance will be abundant and successful. However, changes that are being observed in the seedling and sapling components of forest stands suggest that problems may exist with regeneration of desirable species. Factors affecting regeneration have been the topic of conversation among foresters and other natural resource professionals for years. To address the need for more information about this issue, we conducted a mail survey of natural resource professionals (NRPs) in West Virginia. The objectives of the survey were to determine how they perceive the quality of regeneration, their level of satisfaction with regeneration, the types of concerns they have, and the locations and spatial variability of their regeneration concerns. Almost half (49%) of 261 respondents reported they were dissatisfied with the regeneration they had observed. Eighty-nine percent had at least one concern, while 40% had three concerns. For two-thirds (66%) of NRPs, the trees they would like to see regenerate did not correspond to the trees they observed to actually regenerate most abundantly. In general, satisfaction with regeneration was highest in the southwestern, southern, and southeastern parts of the state.

Sub-Issue 3.5: Habitat Diversity and Conservation	
Long-term Strategy	Measure of Success
1. Increase efforts to identify, protect, and restore high priority conservation forest ecosystems, unique native ecological communities, and other significant habitats; will include invasives control in CWPMAs.	MOUs, increased acreages protected and restored.

Strategy Narrative:

State and federal agencies, non-governmental organizations (NGOs), universities, and other forestry entities are extremely interested in these types of projects. Recognizing the importance of this aspect of forest ecology and its role in healthy forest ecosystems is just now becoming commonly accepted by all affected parties and stakeholders.

The Forest Legacy, Fire, Conservation Education, Forest Health, Water Quality, and other programs, including potential multi-state projects, will all be involved in this issue. Grant funding, federal and state monies, cost-share activities, volunteer efforts, and other means will be involved in finding solutions and implementing strategies.

Multi-partner groups, like the current Potomac Highlands CWPCA, will be necessary to effectively solve some of the problems. That group involves state and federal agencies, private citizens, NGOs, universities and other research entities, Extension Service, and others.

Strategic Accomplishment: Several MOUs in place.

- Appalachian Forest Heritage Area
- George Washington and Jefferson National Forests
- Monongahela National Forest
- Natural Resources Conservation Service
- The Nature Conservancy
- Private landowners
- U.S. Fish and Wildlife Service – West Virginia Field Office
- U.S. Forest Service - Northeastern Area State and Private Forestry
- U.S. Forest Service - Northern Research Station
- West Virginia Department of Agriculture
- West Virginia Division of Forestry
- West Virginia Division of Highways
- West Virginia Division of Natural Resources
- West Virginia Native Plant Society

Strategic Accomplishment:

Sites and acres treated on the Potomac Highlands Cooperative Weed & Pest Management Area.

YEAR	SITES	ACRES
2011	24	650
2012	28	1,400
2013	32	2,367
2014	33	3,082



Treatment project in the Potomac Highlands Cooperative Weed and Pest Management Area.

State Issue 7 Addressed: Forest Health Strategy

Sub-Issue 7.1 Addressed: Native and Exotic Diseases, Insects, and Invasive Species of Concern	
Long-term Strategy	Measure of Success
1. Develop effective survey and monitoring methodologies.	To be determined through methods development.

Strategy Narrative:

In a state that is 80 percent forested, forest health by its very nature is a statewide issue. Major native and exotic diseases and pests can impact forests in any region of the state. The West Virginia Department of Agriculture, through the Cooperative Forest Health Program, is responsible for monitoring forest health in the state. Funding for this program comes from state dollars, as well as federal grants through the USFS. There are many stakeholders, mostly comprised of public and private landowners. The West Virginia Forestry Association, West Virginia Association of Consulting Foresters, Woodland Owners Association, and West Virginia Farm Bureau are among the many groups that could be considered stakeholders as well. Among the major issues when dealing with native and exotic pests is the development of effective methods to detect, survey, and monitor pests.

Strategic Accomplishment:

There is a percentage of beech trees that remain healthy despite the degree of Beech Bark Disease (BBD) present. Studies have shown that when eggs are directly placed onto the bark of these trees, the scale insect doesn't establish itself. This indicates a level of resistance to the scale. In the absence of feeding activity by the beech scale insect, there is little opportunity for *Neonectria* to invade, minimizing impact of the fungus. The WVDA has employed the technique of conducting artificial challenges of beech trees with the beech scale for assessing genetic resistance of beech trees to beech scale infestation. This technique attempts to provide a rigorous test of a tree's ability to resist insect infestation by placing scale eggs in direct contact with the bark of a test tree, and provides an ideal environment for the insect to thrive.

After one year, an evaluation of the beech scale challenges is conducted on each challenge tree to determine if the scale hatched, fed, reproduced, and established a colony. If the scale did not, the Beech tree is considered resistant and scion will be collected and sent for grafting to root stock and further testing for resistance by geneticists with the USFS, Northern Research Station.

The WVDA along with the USFS, Northern Research Station, Monongahela National Forest, and State and Private Forestry have established a resistant beech seed orchard at the USFS Timber and Watershed Laboratory located in Parsons, WV. The purpose is for the orchard to propagate regionally adapted beech nuts for restoration plantings in an attempt to reestablish healthy American beech trees in our forests.



Performing beech scale challenges in the field.



Planting the resistant beech in the orchard.

Strategic Accomplishment:

West Virginia Department of Agriculture Plant Industries Division began using the USDA FS Forest Disturbance Monitor (FDM) system to detect, survey, and monitor forest disturbances throughout the state, all year long, in near real time. The FDM is a canopy green down signature detector that uses satellite data to detect and digitize forest disturbances. The FDM has been a significant improvement from the traditional method of only flying aerial surveys during gypsy moth defoliation windows. Use of the FDM has resulted in the most comprehensive disturbance data reported by the division.

Strategic Accomplishment:

West Virginia Department of Agriculture Plant Industries Division upgraded all data collecting equipment and protocols in order to improve data quality and quantity. GPS-enabled tablets linked to a centralized geodatabase provide faster, near real time, error-free data collection, analysis and reporting, while significantly reducing paper data sheet and map production needs.



Baker Rocks - Hardy County, West Virginia.

National Priority 2

Protect Forests from Threats

State Issue 2 Addressed: Communication and Education

Sub-Issue 2.2 Addressed: Public Perception of Forestry	
Long-term Strategy	Measure of Success
1. Provide forestry interpretive/interactive areas of all State Forests and the Chesapeake Bay.	Install interactive sites that can be accessed by the public to educate them in forestry practices to help them better understand reasons they are done.

Strategy Narrative:

The geographic regions of prime concern for interpretation are State Forests and counties in the Potomac River watershed that drain into the Chesapeake Bay; the Upper Ohio River corridor: Education activities within these regions will be the focus of the following strategies:

1. Identify and incorporate educational goals and targets in each State Forest
2. Identify an area to develop educational/interpretive facilities in the Chesapeake Bay Watershed

Strategic Accomplishment:

The *Chesapeake Bay Program* began in 2003 with major emphasis on the eight Eastern Panhandle counties. This goal has come to light through many organizations' involvement. Many riparian tree plantings have taken place in the Chesapeake Bay area, and signage has been done to inform people of why practices have been put in place and how they can help achieve the Chesapeake Bay goals. A timber harvest is being conducted in cooperation with a local 4-H camp with the plan for this to become a demonstration area to educate the public of harvests and their role in the Bay's water quality. Over the past five years, 30,340 feet or 5.75 stream miles have been planted, with over 10,000 trees planted.

The *State Forests* have been conducting public walks to help educate local individuals about why the State Forests are there and their benefits. Usually this happens before a harvest. Another thing that has been accomplished is the placing of signage in the forest area to educate the public of attributes of the forest during and after a harvest.



Interpretive signage informing the public of recent harvest activities.

State Issue 3 Addressed: Sustainability of Forest Resources in West Virginia

Sub-Issue 3.1 Addressed: Growth ,Yield, and Management	
Long-term Strategy	Measure of Success
3. Bring more NIPF lands into the Stewardship Program at a faster rate and retain these lands as "current" stewardship plans.	Improvement in retention rates of "stewardship plan" landowners, and increase in rate of new plans being prepared.

Strategy Narrative:

WVDOF foresters, private consultants, and WVU Extension will identify ways to focus efforts on stewardship planning. The WVDOF will work closely with the USDA Forest Service to implement the new Stewardship Project which will become effective in 2011 or 2012. The WVDOF will also work closely with the Natural Resource Conservation Service (NRCS) Environmental Quality Incentives Program (EQIP) to identify ways to work together on this long-term strategy.

All program areas and identified issues will benefit from this information, as will all stakeholders interested in the forests of West Virginia.

This strategy will require personnel from state and federal agencies cooperating closely with consultants, university researchers, and other interested parties. State funds and federal grants will be necessary to implement this strategy.

Strategic Accomplishment:

- Twenty Quarterly Forest Stewardship Plan Writer workshops were held.
- WV Welcome Wagon exposed new land owners to various resources and options for forest management – 2,401 new landowners contacted.
- Meet Your Forester seminars – 14 seminars held with 235 participants.
- Walk in the Woods peer-to-peer sharing of forest management activities – 34 Walks in the Woods with 748 participants.
- Successful implementation of SMART through new hardware and software, training for forestry staff, training to consultant forester plan writers, and GIS Manager involvement with SMART development team.
- Assistant state forester chairs the Forestry Committee for the NRCS State Technical Committee and quarterly LOA meetings with the state NRCS forester.
- Development of internal standard operating procedures, plan checklists, and spreadsheets to track plan from initial application to developed Forest Stewardship plan.
- Thirteen West Virginia Forest Stewardship newsletters online & published editions.
- Five landscape feasibility workshops held with 57 participants.
- Five monitoring surveys conducted by WVU extension.

Sub-Issue 3.5: Habitat Diversity and Conservation	
Long-term Strategy	Measure of Success
2. Participate in Fire Learning Network to better understand the importance of and uses for prescribed fire in certain types of silvicultural and ecological habitats.	Prescribed fire benefits are well understood and used to achieve specific goals when applicable.

Strategy Narrative:

Prescribed fires, under carefully controlled and monitored conditions, can have important silvicultural, habitat diversity, and other ecological benefits. While prescribed fire has been common in other parts of the country for many years, it is somewhat new to West Virginia.

WVDOP is interested in working with public agencies, universities, NGOs, and others to begin implementing prescribed fire projects where it is determined to be beneficial. A certain degree of education and acceptance will be necessary for all parties to become fully engaged in these activities.

The Conservation Education, Fire, and Forest Health programs will be highly involved initially. Federal grants, state budgets, and other funding sources will be necessary. Research entities and Extension will have roles, as will forestry-related companies, consultants, NGOs, and private landowners.

Strategic Accomplishment:

- Bi-annual prescribed fire practice on WVU Research Forest to enhance oak regeneration.
- Assist WVDNR with prescribed fire to maintain certain vegetative communities on Wildlife Management Areas.
- Allow WVDOP staff the option to complete Prescribed Fire Burn Boss training.



Prescribed burn project.

Sub-Issue 3.6: Public Lands	
Long-term Strategy	Measure of Success
2. Cooperate with other public agencies to achieve forest management goals.	Active interagency projects are occurring.

Strategy Narrative:

The state lands manager is working with other agencies on three specific working groups, all dealing with forest health issues: the Gypsy Moth Working Group, the Hemlock Conservation Group and the Invasive Species Working Group. In addition, other cooperative efforts are occurring with the CWPMA, the Fire Learning Network, High Elevation Restoration Working Group (name changed to Central Appalachian Spruce Restoration Initiative – CASRI), the Monongahela National Forest, and other potential partnerships.

Strategic Accomplishment:

The State Lands Manager continues to meet with the working groups dealing with forest health issues. The Gypsy Moth Working Group has decided not to meet regularly due to the downturn in the gypsy moth activity, although that has picked up again recently and the group may reconvene. In the spring of 2015, the WVDA survey on Seneca State Forest, showed 2,961 acres met the egg mass threshold and were treated to prevent gypsy moth defoliation.

Other forest health issues include an unknown malady killing dominate and codominant red oak in Greenbrier and Pocahontas Counties. The DOF discovered this on State Forests and contacted the WVDA, the USDA Forest Service State & Private and WVU. Samples have been collected and various laboratories are working to identify the causal agent.

The state lands manager actively participated in the development and review of the state strategic plan on invasive species, along with the WVDNR, WV Dept. of Agriculture, NRCS, WVU Extension and other partners.

The WVDOF provided input and professional opinions on the Ty Chest project on the Monongahela National Forest. It was discussed to try using the Good Neighbor Authority to get the WVDOF involved in implementing this project but it didn't go anywhere. It now looks like the USFS timber program is going to eventually get this project started.

The WVDOF continues to participate in the CWPMA.

Through the West Virginia Restoration Venture, our local Two Chiefs' Project, some funds were used to construct a bike wash station on Greenbrier State Forest with interpretive information to educate the public on invasive plant species.

CASRI – the WVDOF continues to actively participate in this project and provided a tour September 16, 2014, on Kumbrabow State Forest for the partner agencies. There were 25 attendees, and they covered soils associated with spruce forests, commercial spruce release, and associated issues.

State Issue 5 Addressed: Wildfire Management, Resource Protection, and Public Safety

Sub-Issue 5.1 Addressed: Prevention, Preparedness, and Suppression	
Long-term Strategy	Measure of Success
1a. Continue to provide timely and effective wildfire suppression services for the citizens of West Virginia. 1b. Continue to provide education and training in efforts to reduce overall fire occurrence and acres burned. 1c. Continue to provide advanced training opportunities.	Fewer fires and less acreage burned.

Strategy Narrative:

The prevention, preparedness, and suppression program covers the entire state. There is the potential for wildland fires to occur in every county. The WVDOP will continue to use federal and state funds and work with federal, state and local authorities to provide the most efficient wildland fire suppression services to the citizens of the state.

Strategic Accomplishment:

Most front line vehicles have been replaced, resulting in more reliable response to wildfires. Significant replacement of fire suppression equipment has been accomplished and the fire cache restocked. Wildfire suppression training was provided to 3,500 individuals with emphasis on volunteer fire departments. Over \$300,000 in equipment has been provided to volunteer fire departments. About 1300 prevention programs were presented to more than 250,000 individuals. Advanced training was provided to agency personnel as needed. These measures have increased wildfire suppression capacity and effectiveness, wildfire prevention awareness, and trained personnel. The number and size of wildfires has decreased over the 2010-2015 period when compared to the 10-year average.

Sub-Issue 5.2 Addressed: Southern Coal Fields "Predictive Burn Area"	
Long-term Strategy	Measure of Success
1. Continue strong prevention, education and suppression presence in this area. Maintain investigative abilities in fire prone areas. Work with VFDs and local authorities to reduce number of fires and acres burned.	Prompt suppression efforts with decreased acres burned, and fewer fires.

Strategy Narrative:

In this 14-county area of the state, 57 percent of West Virginia’s wildfires occur, as well as 95 percent of the state’s total acres burned. With this amount of wildland fire activity, there will be a constant presence of WVDOP personnel. The WVDOP uses federal grant funds to help train and equip local fire agencies. The WVDOP will continue emphasis in this area in efforts to reduce the number of wildland fires and decrease the size of the fires that do occur.

Strategic Accomplishment:

There has been a 20 percent reduction in the number of fires and acres burned over the time period when compared to the 10-year average. However, wetter than average fire seasons during the period have also contributed to this reduction. Two wildland fire investigators with canines continue to be stationed in the area.

Sub-Issue 5.3 Addressed: Mine Breaks	
Long-term Strategy	Measure of Success
1. Locate, monitor, and contain exposed coal seams that are burning.	Work with coal companies to locate and establish control lines; reduce size and number of fires.

Strategy Narrative:

In the past, grant funds have been available to treat mine breaks in efforts to reduce the number of fires and acres burned by their occurrence. Through similar means of funding and working with local mining and land companies, new and existing mine breaks need to be treated or re-treated.

Strategic Accomplishment:

All burning coal seams have been located and mapped. Mitigation measures have been installed on six of the most hazardous and critical seams. Numerous land ownership transfers have taken place over the period that have delayed additional mitigation. Negotiations with present owners continue to progress.

Sub-Issue 5.4 Addressed: Identify Existing and New Wildland-Urban Interface (WUI) Areas	
Long-term Strategy	Measure of Success
1. Provide educational information and assistance to communities for development of CWPP plans; Assist with the implementation of existing plans; Expand the availability of the WUI program beyond the current Priority areas.	Increased acres and communities involved in program and successful implementation of existing plans.

Strategy Narrative:

The WVDOP currently has a successful WUI/CWPP program in the Eastern Panhandle area of the state. As population increases and land-use changes occur throughout the state, the need to expand the WUI/CWPP program to other developing areas of the state is becoming apparent.

Strategic Accomplishment:

During the period 2010-2015, 190 WUI assists were made, 10 new Community Wildfire Protection Plans were prepared covering 3,172 acres, and five state facility plans were revised covering 21,495 acres. Hazard mitigation projects were conducted on four communities and four communities performed prevention projects.



WVDOP western fire crew, 2015.

Sub-Issue 5.5 Addressed: Location of Volunteer Fire Department Coverage in Forested Areas	
Long-term Strategy	Measure of Success
1. Work to improve training and response capabilities of rural fire departments throughout the state.	Increase or continue cooperation with VFDs; Provide more timely and effective wildfire response; Fewer gaps in response areas.

Strategy Narrative:

The WVDOP works closely with VFDs throughout the state to improve response capabilities. With the assistance of federal grant funds, the WVDOP is able to train VFD members and supply them with wildland firefighting clothing and equipment. This program must continue and it must expand in certain geographic areas in order to meet response time capabilities.

Strategic Accomplishment:

The locations of all fire departments have been incorporated into our GIS system. Available equipment lists have been prepared for most cooperators. During the period, 153 wildfire suppression training programs were given to over 1,900 volunteer firefighters. Over \$300,000 in equipment was provided through VFA and SFA grants to increase suppression capacity. Over \$1,000,000 in FEPP and FFP equipment has been obtained for fire departments during the period.

Sub-Issue 5.6 Addressed: Wildfire Fuels / Fire Potential	
Long-term Strategy	Measure of Success
1. Monitor wildland fire fuels to predict or prevent catastrophic fire activity. Locate and map potential "problem" areas.	Map all high risk fire areas in the state.

Strategy Narrative:

West Virginia has approximately 12 million forested acres within its boundaries. The majority of these forests are of the oak/hickory and mixed hardwood timber types. Combined with increased timber activity throughout the state, there is potential for wildland fire to occur statewide. The WVDOP will monitor and locate areas of increased potential and areas of known higher fire occurrence, and take appropriate action.

Strategic Accomplishment:

The Division of Forestry continues to operate and maintain 13 RAWS sites. All fire origins are incorporated into our GIS system to identify high fire occurrence areas. The entire state has been mapped for risk potential. Land ownership data and boundaries are being incorporated into our GIS system. Storm, insect, and disease damage areas are evaluated for wildfire risk potential when they occur.

Sub-Issue 5.7 Addressed: Lack of Public Understanding of Prescribed Fire and WVDOF Participation in the "Fire Learning Network"	
Long-term Strategy	Measure of Success
1. Assist and support other state and federal agencies and NGOs in prescribed fire activities; WVDOF will participate in the FLN.	Partnerships with TNC, USFS, Other agencies; Increased public understanding of the role of fire in ecosystem management; Plan and conduct a prescribed burn on a State Forest.

Strategy Narrative:

The WVDOF does not currently conduct prescribed burning on its properties, but will begin to consider implementing prescribed fires on State Forest land. The WVDOF will assist state and federal agencies, as well as NGOs, with their prescribed fire activities. Begin explaining the ecosystem benefits of fire in the WVDOFs public education activities, when appropriate. Wildfire and arson related problems are prevalent in certain parts of the state, and have been historically. Prevention and rapid response for suppression, as well as law enforcement actions, have been the focus of the WVDOF Fire Program for decades. Therefore, the agency must carefully consider how and where to begin implementing a prescribed burn program in West Virginia.

Strategic Accomplishment:

The WVDOF has worked with other state and federal agencies to support their prescribed fire programs by reviewing burn plans and issuing burning permits where warranted. Monitoring assistance is also provided upon request on burn days. The WVDOF participates in the Fire Learning Network. A prescribed fire for wildlife enhancement has been performed on a State Forest.

Sub-Issue 5.8 Addressed: Silvicultural Benefits of Prescribed Fire	
Long-term Strategy	Measure of Success
1. Continue to assist and support other State and Federal agencies in their prescribed fire activities; Plan and conduct a prescribed burn on State Forest land.	Increased cooperation with USFS, WVDNR Wildlife, TNC, on prescribed fires; Increased public understanding; Completion of a prescribed burn on a State Forest.

Strategy Narrative:

The WVDOF does not currently practice prescribed burning on its own lands. The WVDOF will assist state and federal agencies with their silviculturally related prescribed fire activities. Identify at least one potential area on State Forest lands for a prescribed burn to achieve silvicultural objectives.

Strategic Accomplishment:

The WVDOF has worked with other state and federal agencies to support their prescribed fire programs.

Sub-Issue 5.9 Addressed: Property Values in the Wildland-Urban Interface	
Long-term Strategy	Measure of Success
1. Monitor and evaluate the value of damage caused by wildfires throughout the state as populations grow and land uses change.	More accurate property damage values from wildfire assessed, especially in WUI areas.

Strategy Narrative:

The WVDOT is the primary response agency for all wildfire incidents on state- and privately-owned forest lands. By monitoring property values and land use changes, the WVDOT will be able to determine the value of property damage loss caused by wildfire and the expenses incurred in suppressing these fires.

Strategic Accomplishment:

The property value assessments for several counties have been obtained from assessor’s offices and incorporated into the WVDOT GIS system. Efforts to obtain and add this information to the GIS system continues.

State Issue 6 Addressed: Sustainability of Urban Forests

Sub-Issue 6.4 Addressed: Air quality	
Long-term Strategy	Measure of Success
1. Increase the capacity of trees within urban areas and surrounding forests to filter and reduce airborne pollutants.	Increase in canopy cover within urban areas and conservation of surrounding forest land buffering communities.

Strategy Narrative:

Priority areas correspond with regions of concentrated industrial development, manufacturing, and mineral extraction located in the I-64 corridor from Charleston to Huntington; the Upper Ohio River Valley from Parkersburg to Weirton; larger communities in the Potomac River drainage; the Upper I-79 Corridor; and the southern coalfield counties. Strategies to increase canopy cover and maintain the buffering capacity of surrounding forest land in these regions will include:

1. Encourage and fund communities to conduct canopy cover assessments, set canopy cover goals and perform UFORE analysis of canopy benefits. UFORE is an acronym for "Urban Forest Effects" and refers to a computer model that calculates the structure, environmental effects, and values of urban forests.
2. Assist communities with the identification of high priority planting areas.
3. Provide funding and trees through Demonstration City, Chesapeake Bay Grants and Mountaineer Treeways to support strategic tree planting projects.

4. Promote Project CommuniTree to increase planting efforts on a regional scale.
5. Strengthen partnerships with electric utilities to expand tree planting through the Municipal Tree Restoration Program.
6. Support Forest Legacy efforts to identify and preserve critical forest land in the urban interface.
7. Support Wildland Urban Interface initiatives to reduce wildfires that pose serious threats to air quality on a regular basis.

Potential exists for the development of more extensive partnerships with the chemical, coal, and manufacturing industries to gain joint support for projects that enhance canopy cover and air quality. Current trends toward “carbon-neutral” manufacturing and energy production will provide additional opportunities for industry-funded tree planting and conservation projects in surrounding communities.

Strategic Accomplishment:

Mountaineer Treeways - Financial support from private sources allowed us to provide additional tree planting opportunities through the *Mountaineer Treeways* program that address multiple planned objectives. Trees planted through this program are primarily located in urban areas and will yield significant benefits to air quality in future years. Over the past five years, the *Mountaineer Treeways* program involved 100 communities and volunteer organizations and resulted in the planting of 10,858 trees.



Volunteers of the Mountaineer Treeways Program.



Sub-Issue 6.5 Addressed: Public drinking water quality/quantity	
Long-term Strategy	Measure of Success
1. Enhance water quality and public benefits by increasing tree canopy to impervious surface ratios in urbanized areas.	Increase in canopy cover and permeable surface area within urbanized areas.

Strategy Narrative:

The geographic regions of prime concern for water quality issues are the counties in the Potomac River watershed that drain into the Chesapeake Bay; the Upper Ohio River corridor; the Kanawha River Valley; the I-64 corridor; and the Monongahela River watershed along the Upper I-79 corridor. Urban watersheds within these regions will be the focus of the following strategies:

1. Encourage and fund communities to conduct canopy cover and impervious surface assessments, and set targets for canopy cover and impervious surface percentages.
2. Assist communities with the identification of potential planting sites in areas with greater than 15 percent impervious surface coverage.
3. Provide funding and trees through Demonstration City, Chesapeake Bay Grants and Mountaineer Treeways to support strategic tree planting projects.
4. Promote municipal policies and projects that increase permeable surface area, storm water retention, and ground water recharge.
5. Promote Project CommuniTree to increase planting efforts within the tributaries of the Chesapeake Bay.
6. Support Forest Legacy efforts to identify and preserve critical forest land in the wildland urban interface (WUI).

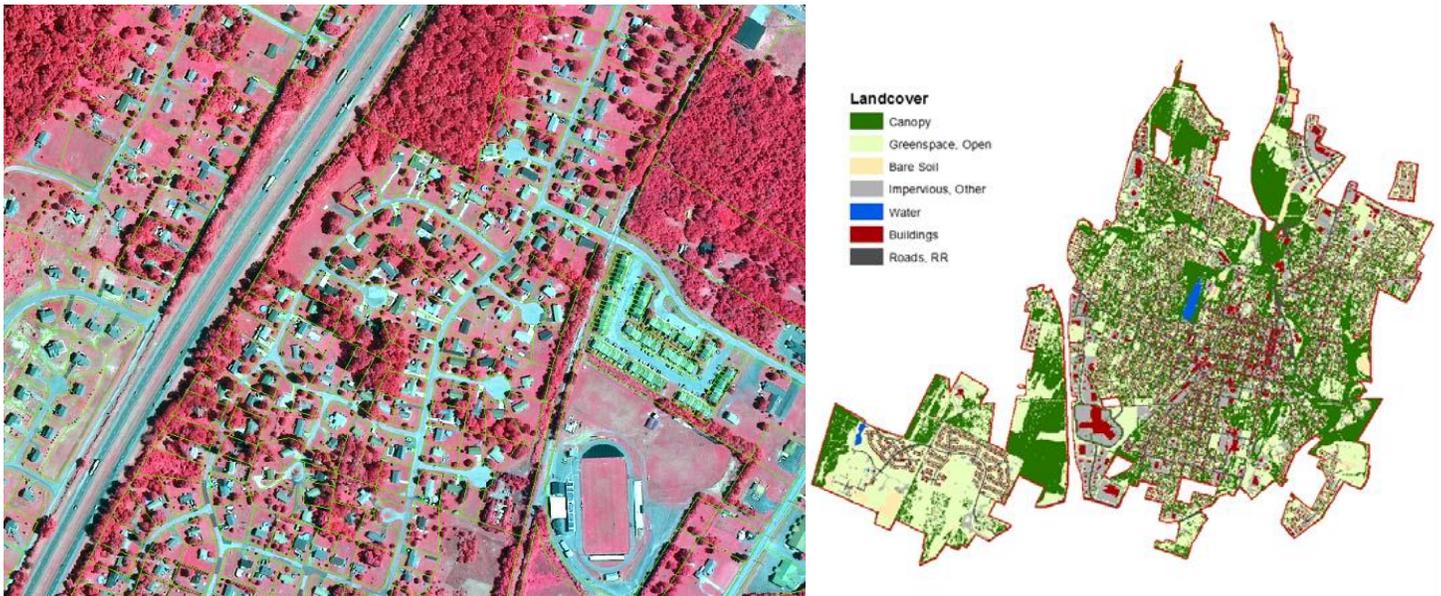
Initial focus will be to create “Demonstration Projects” within communities in the Potomac River Watershed. Key partners will include the Chesapeake Bay Program, WV Stream Partners, Canaan Valley Institute, and Basin Coordinators from the WV Department of Environmental Protection. Projects to promote best practices for storm water management and impervious surface area reduction will be identified and developed.



Lost River State Park - Hardy County, WV.

Strategic Accomplishment:

UTC Assessments and Plans - Utilized UTC assessments to identify high priority forest land and develop land management strategies at county and municipal levels. Management strategies will involve setting canopy cover goals, determining high priority planting areas and fostering tree planting initiatives within CBW to increase public benefits from both urban trees and surrounding forest land.



Urban tree canopy assessment results.

Strategic Accomplishment:

Chesapeake Bay Community Grants - Eleven Chesapeake Bay Community grants, totaling \$82,839, were administered to communities, county governments and schools to fund canopy cover and watershed enhancement projects. The main goals of this grant program as identified in the urban forestry portion of our assessment are:

- Encourage and fund communities to conduct canopy cover and impervious surface assessments and set targets for canopy cover and impervious surface percentages.
- Encourage and fund communities to identify potential planting areas consisting of greater than 15% impervious surface coverage.
- Provide funding to support strategic tree planting projects on identified sites.
- Strengthen existing and create new municipal tree care programs.

State Issue 7 Addressed: Forest Health Strategy

Sub-Issue 7.3 Addressed: Pest Management and Eradication	
Long-term Strategy	Measure of Success
1. Protect high value trees.	Post treatment survival.

Strategy Narrative:

Pest management and eradication activities are continually conducted for emerald ash borer (EAB), gypsy moth, hemlock woolly adelgid, and mile-a-minute weed. These pests are considered major problems. West Virginia has initiated control measures for the emerald ash borer and has an active suppression program for gypsy moth, hemlock woolly adelgid, and mile-a-minute weed. The gypsy moth program is conducted on public and private lands statewide, while the hemlock woolly adelgid program is statewide but only on public lands. The mile-a-minute weed suppression program is a biological control program that occurs only in those counties where mile-a-minute weed is known to grow on both public and private lands. EAB has been detected in three counties in West Virginia as of May, 2010 – Roane, Fayette and Morgan; surveying and monitoring continues.

Strategic Accomplishment:

Hemlock Woolly Adelgid

Every year WVDA personnel conduct surveys for high-value and high-profile hemlock trees on state lands that are infested with hemlock woolly adelgid (*Adelges tsugae*). The purpose of the survey is to locate candidates for chemical intervention to reduce HWA populations and decrease the aesthetic, economic, and environmentally adverse impacts caused by defoliation, dieback, decline, and resulting mortality.

Since 2004, the WVDOF has been conducting chemical suppression treatments on state lands. In 2010, we expanded the program to include federal lands, which has resulted in the treatment of 824 trees on said lands and 9,643 trees treated on state lands.

Since 2011, WVDA has accepted applications from private landowners for participation in the Hemlock Woolly Adelgid Cooperative “Pilot” Project, a Cooperative effort among landowners, WVDA and USDA-FS, NPS, and WV-DOF.

Under this program, WVDA staff visits the landowners and find out what trees the landowner wants to be treated. Staff then makes recommendations for the type of chemical treatments. Trees are located, flagged, and have diameters and GPS coordinates recorded. Landowners then receive an invoice for payment, and treatments commence. Since its initiation, the program has resulted in 2,223 trees being treated on private lands.

Treated trees are monitored post treatment to measure the effectiveness of the suppression efforts.

Another method of controlling the hemlock woolly adelgid that we have been using since 1999 is biological control through predacious beetles. So far, we have implemented four different species of predators in different areas of the state. As of yet, we have not been able to recover any of our predators but we have seen improvement in the infested areas where they have been released.



Applying Coretect to infested Hemlocks at Cathedral State Park.



Measuring the DBH and tagging the hemlock for treatment.

Strategic Accomplishment:

Emerald Ash Borer

The highly destructive exotic pest emerald ash borer (EAB), *Agrilus planipennis*, was first discovered in Fayette County in 2007. To date, 48 counties scattered across the state are infested with EAB. In cooperation with the West Virginia Department of Natural Resources (State Parks and State Forests), the West Virginia Department of Agriculture (WVDA) has developed a strategy to protect select stands of green (*Fraxinus pennsylvanica*) and white ash (*Fraxinus americana*) trees in areas with high recreational use or outstanding ecological values in the state.

Potential treatment sites in the parks were identified based on hazard tree potential and ecological significance of forest stands. These sites were treated chemically with the pesticide Tree-age. So far 204 ash trees have been treated in nine state parks.

Post treatment effectiveness monitoring will continue to be performed.



Chemical treatment of ash tree in Babcock State Park.

National Priority 3

Enhance Public Benefits from Trees and Forests

State Issue 2 Addressed: Communication and Education

Sub-Issue 2.3 Addressed: Lack of Internal Formal Training	
Long-term Strategy	Measure of Success
1. Train selected WVDOF personnel on Project Learning Tree Program.	Increase in the number of WVDOF (2-3) personnel who will become PLT facilitators/trainers in each WVDOF region.

Strategy Narrative:

The priority landscape area: statewide.

Strategies to build capacity include:

1. The WVDOF will coordinate with the Project Learning Tree Steering Committee and WVFA to set up training for selected WVDOF personnel as well as other interested personage on how to effectively present programs to teachers, students, and various other groups.
2. Provide materials that will assist non-formal educators to accomplish educating teachers on the natural resource content and helping them better understand their natural world.
3. Maintain an active role in educational opportunities around the state. These can be school sponsored events, camps, parades, festivals.

Awareness can be developed through local events, such as volunteer tree planting projects, and strengthened through personal contact with WVDOF staff.

Strategic Accomplishment:

Boys Scouts Jamboree – The WVDOF has been involved in the preparation for the Boy Scout Jamboree at the Summit Bechtel Center in Fayetteville, WV. The Jamboree introduced the new facility to more than 40,000 scouts, leaders and the public. The WVDOF worked with the Scouts to develop a Conservation Trail. They had a venue set up and an interactive Conservation Trail Challenge to utilize technology and find answers to questions. The WVDOF venue also assisted several Scouts who were looking for information to aid them in getting a Forestry Merit Badge.

Residential camps – Over 1,700 young people have attended residential camps that have all involved WVDOF personnel in teaching positions.

Cooperative Weed and Pest Management Area (CWPMA) – A teacher in Petersburg has been working with the CWPMA on a Citizen Science project that includes her fifth and sixth grade science classes. Over the past five years, Julie Colaw worked with the CWPMA’s Education and Outreach Committee (which WVDOF is a member of and participates in this endeavor) to educate her 700 students in the identification of invasive species (garlic mustard, autumn olive, tree-of-heaven, Japanese knotweed, and stilt grass).

Through a grant from Toyota, the students were able to purchase equipment that aided their research. They have learned to identify invasive species, use GPS, and map where garlic mustard occurred in their area. The

four-week classes culminated in garlic mustard pulls at Seneca Rocks Discovery Area. The students pulled more than 19,000 pounds of the invasive weed.

WV Environmental Educators Association (WVEEA) – This group was formed to promote the Environmental Education initiative in West Virginia by gathering like-minded groups to deliver factual information. It was working well until the coordinator took another job and there was no one to fill the vacancy. Many collaborations and programs were initiated by this group. In 2015, the revitalization of the group is at hand, and the WVDOF is working with it to continue the good works. This group utilizes North American Association of Environmental Education (NAAEE) guidelines.

Sub-Issue 2.4 Addressed Not taking Advantage of Current/Future Technology	
Long-term Strategy	Measure of Success
1. Identify opportunities to improve communication strategies through existing and new technologies.	Increased use of web, social media and other evolving communication outlets to inform and educate the public about forestry issues.

Strategic Accomplishment:

Communities statewide benefit the most from improving communication:

We are creatures of habit and while newspapers, radio and TV spots have their place; our technology has outpaced our ability to keep up. We need to survey or study better means of communicating to the public through new and different media such as webinars, podcasts, videoconferencing, and social networking sites.

Using the WV Department of Commerce’s Communication Division, WVDOF has a Facebook page and Twitter account (wvforestry). These allow the public to see current events and share their thoughts. It also allows them easier access to the WVDOF to find out information they are seeking.



Students at Petersburg Elementary recently learned how invasive species change the "Web of Life."

State Issue 3 Addressed: Sustainability of Forest Resources in West Virginia

Sub-Issue 3.1 Addressed: Growth ,Yield, and Management	
Long-term Strategy	Measure of Success
1. Gather data and information from FIA on forest growth and yield so as to monitor forest conditions in WV and make sound management recommendations.	Accurate and complete data will be available in order to make informed management recommendations and decisions.

Strategy Narrative:

The WVDOP will work closely with the Forest Service’s Northern Research Station Forest Inventory and Analysis (FIA) unit to analyze and interpret the data they collect about the condition of the forest resource in West Virginia. This information will heavily influence the administration of the Forest Stewardship Program.

Interaction will occur with the Forest Legacy, Conservation Education, Water Quality, Fire, Forest Health, and other programs. Most notably, there will be considerable interaction with the Utilization, Marketing, and Economic Development program.

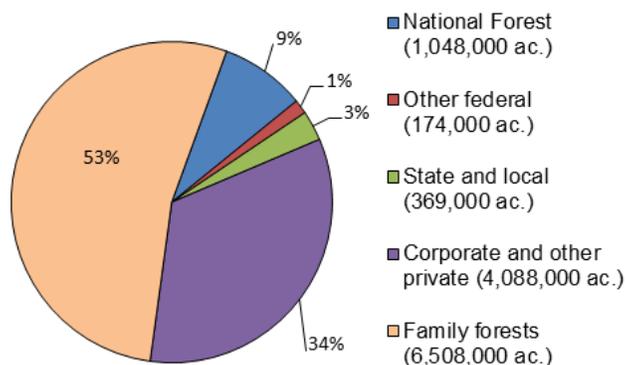
Stakeholders with a high interest in this activity will include NIPF landowners, public land management agencies, and the forest products industry.

This strategy will require personnel from state and federal agencies cooperating closely with consultants, private sector foresters, and university researchers. State funds and federal grants will be necessary to implement this strategy.

Strategic Accomplishment:

The most recent inventory shows that the net volume of trees continued to increase, and the annual net growth in volume continued to outpace annual removals. Average annual removals on timberland over the current five-year period decreased by nearly a third from the previous five-year average, reflecting the downturn in the economy that occurred after 2008.

Information about the FIA program is available online at <http://fia.fs.fed.us>. Since 2004, FIA has implemented an annual inventory in West Virginia. For the 2013 inventory, estimates for current variables, such as forest area, volume, and biomass, are based on 2,370 plots (both forest and nonforest) inventoried 2009-2013.



Forest Inventory and Analysis land ownership breakdown for West Virginia.

Sub-Issue 3.3 Addressed: Reforestation of Mined Lands and Other Lands

Long-term Strategy	Measure of Success
3. Maintain a viable nursery to produce seedlings compatible for planting in West Virginia.	Clements Nursery remains viable and produces adequate variety and numbers of seedling species to supply all needs in West Virginia.

Strategy Narrative:

WVDOF will work to ensure Clements Nursery remains economically viable, producing enough quality seedlings each year to meet the state’s planting needs. This will benefit all WVDOF programs and impact several of the multi-state projects. All categories of stakeholders interested in forestry will be involved in this. WVDOF staff, other state and federal agencies, and others will be involved at some level. It is the WVDOF’s goal for the nursery operations to be self-sufficient.

Strategic Accomplishment:

YEAR	Seedlings Sold	Improved Seed Collected (lbs.)
2010	521,647	170
2011	769,303	1,647
2012	540,850	335
2013	779,340	122
2014	482,880	561
2015	557,012	N/A



WVDOF staff working with seedlings produced at Clements Nursery.

Sub-Issue 3.6 Addressed: Public Lands	
Long-term Strategy	Measure of Success
7. Provide diverse wildlife habitat.	Each new project provides approximately 10 percent of area specifically for wildlife.

Strategy Narrative:

One of the mandates for the management of State Forests is to demonstrate sound, scientific, multiple-use management. To that end, providing diverse wildlife habitat is important. This is accomplished through working with other land management agencies and obtaining funding from outside sources, including the National Wild Turkey Federation (NWTF) and the Ruffed Grouse Society (RGS). This work is primarily for early successional habitat and/or savannah development that will provide age class diversity, and other important habitat

Strategic Accomplishment:

In the past five years there have been 17 harvest projects started on State Forests, they have:

- Contained 2,684 acres
- Created 155 acres of clear cut that will be allowed to regrow (currently early successional habitat)
- Created 10 acres of wildlife clearings that will be maintained as clearings (early successional habitat)
- Created 36 acres of oak savannah habitat
- Created 369 acres of other early successional habitat such as cut back borders, shelterwood and deferment cuts
- Total early successional habitat created amounts to 570 acres or 21 percent of the total area harvested, which exceeds our 10 percent goal

These projects were designed with the help of local DNR Wildlife Resources Section Wildlife Managers.

Funding help was provided by the NWTF, primarily by purchasing lime, seed, and fertilizer for oak savannah development and for some maintained wildlife clearings.

NWTF Superfund Expenditure/Cost Share Projects with Division of Forestry

2015

\$7,000.00 – (Calvin Price State Forest) Paid to Hamilton Legacy for stump grubbing and final site prep on 3.7 acre - and 1.3 acre - clearing creations on Yellow Gate Sale.

\$817.00 – Paid to Boxley Aggregates for 21.7 tons of agriculture lime

- WVDOF cost share - \$1,380.00
- DNR Wildlife Resources cost share - \$4,800.00 **Partnership value: \$13,997.00**

\$848.00 – (Camp Creek State Forest) Paid to Angell’s Feed & Supply for 1.5 tons of fertilizer to be applied to 10 acres of newly created wildlife clearings.

- WVDOF cost share - \$1,200.00
- DNR Wildlife Resources - \$1,200.00 **Partnership Value: \$3,248.00**

\$3,284.68 – (Kumbrabow State Forest) Paid to Liggett’s Supply for lime and fertilizer for application to seven acres of new and refurbished wildlife openings.

- WVDOF cost share - \$1,865.00
- DNR Wildlife Resources cost share - \$1,320.00 **Partnership Value: \$6,469.68**

2014

\$4,396.96 – (Seneca State Forest) paid to Southern States Cooperative Marlinton for lime, fertilizer, and seed for seven acres of new wildlife opening creation.

- WVDOF cost share - \$6,200.00 for grubbing
- DNR Wildlife Resources cost share - \$2,860.00 **Partnership Value: \$13,456.96**

\$2,089.48 – (Kumbrabow State Forest) paid to Liggett’s Supply for lime to be applied to eight acres of newly created wildlife openings.

- WVDOF cost share - \$865.00
- DNR Wildlife Resources – \$1,073.00 **Partnership Value: \$4,027.48**

2012

\$4,000.00 – (Coopers Rock State Forest) paid to Bruceton Farm Service for lime, fertilizer, and seed for 8.5 acres savannah created.

- WVDOF cost share - \$6,000.00
- DNR Wildlife Resources / State Park section cost share - \$4,800.00 **Partnership Value: \$14,800.00**

The Ruffed Grouse Society has purchased a Caterpillar 299D xhp tracked machine with a mulching head. This will be used to create and maintain linear openings, border cuts and wildlife clearings on Kumbrabow State Forest and two areas of the Monongahela National Forest. The DOF contributed professional forestry expertise to the partnership with the WVDNR and USFS to obtain this equipment.

State Issue 4 Addressed: Water Quality Strategy

Sub-Issue 4.1: Sedimentation of Streams	
Long-term Strategy	Measure of Success
1. Continue to improve/enforce LSCA.	Number of valid LSCA complaints decreased.

Strategy Narrative:

In a state with a mandatory best management practice (BMP) compliance, licensing for loggers, and a regulatory inspection system for the state’s harvesting operations, West Virginia’s forest industry is required to meet legislatively mandated performance standards. However, the WVDOF has reorganized the program to go above and beyond legislative requirements with positive and measurable results. The WVDOF will continue to improve and refine efforts as funding and personnel allow.

Interaction with other programs is minimal, with the WVDOF LSCA/Water Quality program bearing the majority of the inspection and enforcement workload. Fire and landowner assistance personnel assist as workloads allow.

Stakeholders with a high interest in this activity include landowners, public land management agencies, the forest products industry, the West Virginia Department of Environmental Protection, and the Environmental Protection Agency.

This strategy will require personnel and cooperation from state and federal agencies and an increased presence and recognition from the USDA Forest Service. The program has great potential for tracking harvesting trends and monitoring sustainability criteria, as well as the obvious water quality improvements.

Strategic Accomplishment:

In the last five years, the WVDOF has introduced and received two new pieces of legislation that help to strengthen and enforce the states logging sedimentation laws. In addition we developed and introduced a new web based electronic database and tracking system for all logging operations, related inspections, and enforcement actions. This new web-based system is known as LONIE and has been an invaluable data tool for real time tracking and focusing our efforts to problem operators and areas. As a result of the above actions our number of valid complaints decreased to 90 in FY 2015. This is down from a high of 484 in 2003 and 110 five years ago.



WVDOF display at the Mountain state Forest Festival - Elkins, WV.

Sub-Issue 4.4: Protection of Public Drinking Water

Long-term Strategy	Measure of Success
1. Protect forested headwaters in watersheds with public intakes	Increased water quality at intake point

Strategy Narrative:

Though this is a very broad strategy, it will be applied to very specific watershed areas. Protecting forested headwaters could incorporate any number of strategies already mentioned, such as reforestation of abandoned mine lands, increased BMP monitoring of logging operations, or seeking to develop new conservation easements to keep the land in forest. Forest management produces some of the cleanest water of any land use. The cleaner the water coming into the public intake, the cheaper and easier it is to treat for human consumption and other uses.

The primary programs that will be involved within the WVDOP are the Water Quality and Landowner Assistance programs. These programs will educate other stakeholders and provide advice and oversight to ensure that forestry operations are properly planned and implemented for maximum return on the investment of funds and time. The Forest Legacy program will likely purchase some conservation easements in forested headwaters, and the Fire program will target many of these watersheds for increased fire prevention activities. Stakeholders with a high interest in this activity include municipalities and local governments, various citizen action groups, public land management agencies, conservation organizations, WVDEP, the USDA Forest Service, the Environmental Protection Agency, and the West Virginia Department of Health and Human Resources.

Strategic Accomplishment:

The WVDOP’s stepped-up inspections program helped to greatly reduce the numbers of turbid drinking water complaints in the state over the last five years. For FY 2015, there were only four complaints of sediment affecting drinking water and all were private spring boxes gathering surface water. We had a fifth complaint concerning grass drawing deer in which increased bacterial load. Although this may be a valid complaint in its own right, it was not related to sedimentation.



Seneca Rocks - Pendleton County, WV.

Sub-Issue 4.5: Chesapeake Bay Watershed	
Long-term Strategy	Measure of Success
1. Continue support for the Chesapeake Bay Program	Stream miles improved and forested riparian acres increased

Strategy Narrative:

The key to this strategy is to increase public interest and support for the program. The Chesapeake Bay is high-priority for water quality improvement efforts. As such, significant funding is available and there is a higher-than-normal level of public awareness. Even so, there is still difficulty in finding landowners willing to participate in conservation efforts. Very high land values in the area make conservation and preservation efforts economically unattractive to many landowners.

The WVDOF’s Chesapeake Bay Forester position, cooperatively funded by USFS, WVDEP and WVDOF, has made a positive impact upon the state’s efforts by improving education and conservation activities in watershed tributaries. The WVDOF can continue to provide specialized forestry education and advice to cooperators and interested parties and increase awareness and interest in the program.

The primary programs that are involved within the WVDOF are the Water Quality and Landowner Assistance programs. These programs will educate other stakeholders and provide advice and oversight to ensure that forestry operations are properly planned and implemented for maximum return on the investment of funds and time. The Forest Legacy program has significant impact by purchasing conservation easements in the area.

Stakeholders with a high interest in this activity include municipalities, local governments, various citizen action groups, public land management agencies, conservation organizations, the WVDEP, the USDA Forest Service, and the Environmental Protection Agency. The consequences of the activities affect areas outside the state, since this is part of a multi-state program.

Strategic Accomplishment:

High Priority watersheds were identified in cooperation with the WVDEP and a forester was allocated to locate, plan and coordinate plantings within these watersheds. To date the WVDOF has directly established 30,340’ or 5.75 stream miles of new riparian buffer in those watersheds. This position also provides enormous benefit in the form of technical expertise to other agencies and organizations who are also working on protection projects and utilize the WVDOF’s services. In total, we average 5,700 man hours per year in this program alone.



Middle Falls of Hill Creek - Pocahontas County, WV.

State Issue 6 Addressed: Sustainability of Urban Forests

Sub-Issue 6.1 Addressed: Building program capacity at the community level	
Long-term Strategy	Measure of Success
1. Target larger urbanized areas with technical and financial assistance to build successful urban forestry programs.	Increase in the number of large, priority communities achieving 'Developing' and 'Managing' status in 'CARS'

Strategy Narrative:

Priority landscape areas include smaller communities in the I-79 Corridor between Charleston and Morgantown; coalfield counties south and west of Charleston; the Upper Ohio River Valley; and the Eastern Panhandle counties in the Potomac River drainage. Strategies to build successful urban forestry programs in less populated municipalities will parallel those employed with larger cities, including:

1. Provide technical assistance to communities to foster new tree advocacy groups and support existing tree boards.
2. Provide sample public tree ordinances and technical assistance to communities developing urban forestry programs.
3. Provide a variety of training courses to tree advocacy groups and municipal employees to improve local knowledge and tree care skills.
4. Provide grants to allow communities to conduct inventories and develop management plans.
5. Utilize the Mountaineer Treeways Programs to facilitate volunteer-based tree planting projects.
6. Utilize Arbor Day events and Tree City USA awards to increase public awareness of the important role trees play in their communities.

Most small communities in West Virginia are surrounded by abundant forest land. This creates a challenge for the WVDOF when promoting urban forestry initiatives in these communities. Many citizens and community leaders take trees for granted and it is often very challenging for these small communities to establish adequate budgets for tree planting and care. Awareness can be developed through local events, such as volunteer tree planting projects, and strengthened through personal contact with WVDOF staff. Components to success will involve the WVDOF’s Partnership Coordinator, private sector donations, USFS funding, Project CommuniTree, and West Virginia State University assistance.

Strategic Accomplishment:

Financial Assistance - Administered 25 Demonstration City grants totaling \$199,890 that yielded municipal tree inventories, management plans, UTC assessment, and various public tree care improvements, and mitigating significant damage to public trees following Hurricane Sandy.

Strategic Accomplishment:

Mountaineer Urban Tree Minders - state certification program is being developed to provide focused and comprehensive training opportunities to ensure that communities have sufficiently trained staff and volunteers to perform quality work to keep our state’s urban canopy healthy. This three-tiered program will allow interested individuals to watch informational webinars online presented by various experts. Topics will range from tree selection, planting and pruning to hazard tree assessment to writing ordinances and conducting street tree inventories. Participants will participate in online quizzes and additional hands-on training before becoming a Certified Mountaineer Tree Tender. Additionally, the urban program has provided 10,945 training hours during workshops and training opportunities to communities covering diverse urban forestry and conservation education topics since 2010.

Sub-Issue 6.2 Addressed: Climate Change Mitigation and Energy Conservation	
Long-term Strategy	Measure of Success
1. Promote urban canopy cover assessment, goal setting and enhancement.	Increased canopy cover in areas with high population density and impervious surface area.

Strategic Accomplishment:

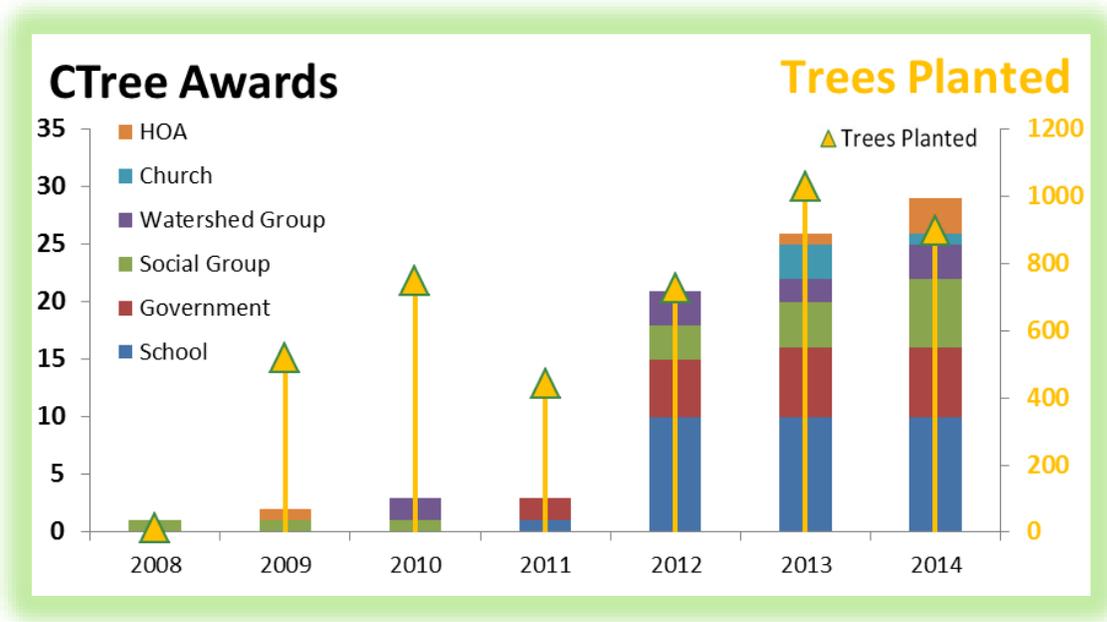
Communities identified as benefitting the most from increasing canopy cover are found in essentially the same four geographic regions previously described in Sub – Issue 1. These areas include the Upper Ohio River Valley; Kanawha River Valley; the upper half of the I-79 corridor; and Eastern Panhandle counties within the Chesapeake Bay Watershed. Specific strategies within these regions are:

- Encourage and fund communities to conduct canopy cover assessments and set canopy cover goals.
- Assist communities with the identification of high priority planting areas.
- Provide funding through Demonstration City and Chesapeake Bay grants to support strategic tree planting projects.
- Promote Project CommuniTree to increase planting efforts on a regional scale.
- Strengthen partnerships with electric utility companies to expand tree planting through the Municipal Tree Restoration Program.
- Support Forest Legacy efforts to identify and preserve critical forest land in the wildland urban interface (WUI).

Limited staff and financial resources will make an annual prioritization of target communities necessary. Redesign funds will be applied to support canopy assessments, goal setting, and strategic plantings. WVU, the Canaan Valley Institute, and the WVDOP’s GIS specialist will also provide valuable support for these assessments.

Strategic Accomplishment:

WV Project CommuniTree - promotes tree planting and education on public land through volunteerism in the Potomac Headwaters of West Virginia. This volunteer-based program also focuses on enhancing and promoting awareness of watershed and riparian area needs such as storm water management, water quality issues, buffer zone planting and soil erosion.



Sub-Issue 6.3 Addressed: Population Dynamics and Resource Allocation	
Long-term Strategy	Measure of Success
1. Target small, rural communities with technical and financial assistance to build successful urban forestry programs.	Increase in the number of rural, priority communities participating in urban forestry and achieving 'Developing' status in 'CARS'.

Strategy Narrative:

Priority landscape areas include smaller communities in the I-79 Corridor between Charleston and Morgantown; coalfield counties south and west of Charleston; the Upper Ohio River Valley; and the Eastern Panhandle counties in the Potomac River drainage. Strategies to build successful urban forestry programs in less populated municipalities will parallel those employed with larger cities, including:

1. Provide technical assistance to communities to foster new tree advocacy groups and support existing tree boards.
2. Provide sample public tree ordinances and technical assistance to communities developing urban forestry programs.

3. Provide a variety of training courses to tree advocacy groups and municipal employees to improve local knowledge and tree care skills.
4. Provide grants to allow communities to conduct inventories and develop management plans.
5. Utilize the Mountaineer Treeways program to facilitate volunteer-based tree planting projects.
6. Utilize Arbor Day events and Tree City USA awards to increase public awareness of the important role trees play in their communities.

Most small communities in West Virginia are surrounded by abundant forest land. This creates a challenge for the WVDOF when promoting urban forestry initiatives in these communities. Many citizens and community leaders take trees for granted and it is often very challenging for these small communities to establish adequate budgets for tree planting and care. Awareness can be developed through local events, such as volunteer tree planting projects, and strengthened through personal contact with WVDOF staff. Components to success will involve the WVDOF's partnership coordinator, private sector donations, USFS funding, Project CommuniTree, and West Virginia State University assistance.

Strategic Accomplishment:

Technical Assistance - The Urban and Community Forestry program's objective is to establish long-term tree care programs in municipalities throughout the state to protect and effectively manage the most valuable trees in West Virginia. Our program delivers the necessary knowledge and tools to communities to make comprehensive urban forestry management successful. Since 2010, 1,332 technical assists have been provided to communities and volunteer organizations to support existing municipal tree care programs and to encourage additional communities to begin actively managing urban forests, while positively impacting an average of 485,535 West Virginians each year.



Volunteers of Project CommuniTree.

State Issue 7 Addressed: Forest Health Strategy

Sub-Issue 7.4 Addressed: Building program capacity at the community level	
Long-term Strategy	Measure of Success
1. Increase public awareness of issues surrounding native and exotic pest species.	Increased public awareness.

Strategy Narrative:

The public education segment of the Forest Health Program exists to raise public awareness about issues surrounding native and exotic pest species. Information is disseminated via a variety of outlets such as news releases, Market Bulletin articles, and Pest Alerts. Presentations are given to Master Gardener classes, various school groups, and public meetings. The WVDA also coordinates campaigns such as “Don’t Move Firewood,” and prepares displays for fairs and festivals throughout the state, as well as Agriculture Day at the Legislature.

Strategic Accomplishment:

1. The WVDA Plant Industries Division continues to perform:
 - News releases via newspaper, website, television, and radio
 - Annual forest health calendars distributed to the public
 - Market Bulletin articles
 - WVDA Pest Alerts and other literature sent to State Parks and Forests, landowners, and WVU Extension agents
 - Pest Alerts published on the WVDA website
 - Master Gardener/Naturalist programs
 - Educational presentations for various school groups
 - Participation in the WV State Fair, as well as local county fairs, the Mountain State Forest Festival, and Agriculture Day at the Legislature
 - Public meetings regarding gypsy moth
 - Campaigns such as the “Don’t Move Firewood”
 - Processing of specimens sent by landowners, and house calls by WVDA specialists to diagnose tree problems or assess hazard trees
 - Participation in projects among members of the West Virginia Invasive Species Working Group
2. Forest Pest Outreach Survey Grant

A Forest Pest Outreach Survey grant, funded by the Farm Bill was given to the Plant Industries Division. These efforts serve to educate the public about Asian longhorned beetle (ALB), emerald ash borer (EAB) and other exotic, invasive forest pests as well as provide valuable data to the WVDA and USDA-APHIS-PPQ. Educating the public may lead to the early detection of Asian longhorned beetle (ALB) which has not yet been found in the state. WVDA staff make presentations to disseminate information about these forest pests and promote the Hungry Pests website to groups such as The Nature Conservancy, 4-H, Boy Scouts, Girl Scouts, Master Gardeners, Master Naturalists, WV Forestry Association, WV Nursery and Landscape Association (WVNLA), WV Christmas Tree Growers Association (WVCTGA) and WV public schools throughout the state. Potential

cooperators are not limited to these groups. WVDA staff contact as many organizations as possible in order to maximize outreach efforts and increase participation. Staff dispense bags of pest information to State Parks throughout West Virginia. These bags are distributed to the public when they visit the nature centers located at each State Park. When the public is informed and aware of these pests they are more confident in contacting officials when they suspect an infestation. The goal of this grant is to organize citizen volunteers throughout the state.



Invasive species display at the Clay Center.



North Bend State Park Youth Environmental Day.

State Issue 8 Addressed: Utilization, Marketing and Economic Development

Sub-Issue 8.1: Infrastructure/Transportation	
Long-term Strategy	Measure of Success
1. Develop infrastructure to encourage growth of primary and secondary forest industries.	Expansion of the forest industry and economic development.

Strategy Narrative:

West Virginia lacks sufficient resources to expand the transportation system which would aid growth of the forest products industry. The state also lacks industrial sites suitable for development due to topography and a lack of adequate infrastructure. There is also unwillingness among some residents and the environmental community to accept expansion of forest-based industries or the transportation networks that serve them. The West Virginia forestry community must work together to ensure the continued development of transportation networks that serve the forest products sector.

Strategic Accomplishment:

- Coordination between the WVU Appalachian Hardwood Center and the WV Development Office to secure low interest funding resulted in one new plant in the Hazelton, WV, Business Park.
- The WV Hardwood Alliance Zone worked with the Corridor-H Development Authority to expedite the completion of Corridor-H, which is vastly important to the forest products industry.

Sub-Issue 8.2: Ecological Services	
Long-term Strategy	Measure of Success
1. To diversify and strengthen forest-based ecological services and educate landowners about developing ecological services markets.	Diversity of forestry markets, acres certified, increased forest, wildlife, and recreation related economic development.

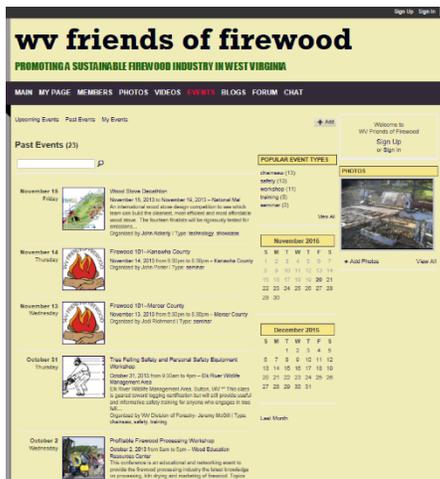
Strategy Narrative:

The management of the entire forest resource is important for diversifying and strengthening the state's forest-based industries. Ecological services that are not traditionally included in forest-based industries' portfolios must be incorporated in the future if the wood products industry is to remain viable. Many of these services are not well known by traditional industry representatives; however, their importance to the public cannot be understated. The WVDOP will help identify and encourage the development of new markets related to ecosystem services to aid in the management of the state's forests.

Strategic Accomplishment:

- The *Friends of Firewood* project began in 2013 to promote a sustainable firewood industry in WV.
- Advertising for the new program consisted of a website for networking and 437 - :30 second radio spots on 23 radio stations statewide.

- A total of 10 training classes and firewood processor demos were held with 224 participants and an estimated 5,000 indirect contacts.



Friends of Firewood networking website and training class participants.

Sub-Issue 8.3: Biomass Energy Potential	
Long-term Strategy	Measure of Success
1. Increase utilization of forest resources for biomass energy production and improve biomass energy marketing efforts	More use of resources available, economic development (new facilities established)

Strategy Narrative:

West Virginia has abundant biomass resources. The state produces approximately 2.4 million dry tons of wood residues per year, including 1.4 million dry tons of logging residue; 941,868 dry tons of mill residues; 67,415 dry tons of urban tree residues; and 26,241 dry tons of solid wood material from construction and demolition waste. There are also opportunities to procure additional woody biomass feedstock through increased management of the state's forest resource. As new markets develop around woody biomass, landowners will have more access to markets that will help them properly manage their forests. This will also help to strengthen and ensure the long-term sustainability of the forest products sector.

Strategic Accomplishment:

- Working with the chicken industry, one chicken house has been converted to wood, made possible by a USDA Forest Service grant approved by the State Forester.

Sub-Issue 8.4: Timber Quality	
Long-term Strategy	Measure of Success
1. Reduction of low grade species and improved quality of major species.	Increased grade #1 logs and location of veneer mill in state.

Strategy Narrative:

West Virginia’s forests comprise a large percentage of trees in the larger diameter classes and have been losing trees in the lower diameter range, consistent with the maturing nature of the state’s forests. The majority (70 percent) of WV forest trees are of sawtimber size, with more than 25 percent considered prime sawlogs. This resource base is increasingly valuable and helps position WV as a leading producer of high-quality hardwoods. At the same time, there is considerable concern being voiced by professional foresters about the long-term effects of various types of diameter limit and “high-grading” harvest practices. Strategies will include:

- 1) Encourage the professional management of the timber resource.
- 2) Maintain the health and quality of the forest resource.
- 3) Discourage cutting practices that are not silviculturally sound.

Strategic Accomplishment:

WVU Appalachian Hardwood Center has funded research through the Bowlby Family Hardwood Research Trust with industry match on improving growth of hardwoods in WV.

Sub-Issue 8.5: Workforce Development	
Long-term Strategy	Measure of Success
1. 1. Substantially increase production in the primary and secondary wood products sectors.	Goal: Utilization and marketing of 80 percent of annual growth.

Strategy Narrative:

The West Virginia forest products industry is currently in one of the worst economic downturns in modern times, although signs of recovery are beginning to appear. As markets retracted during the recent downturn, significant timber volumes were not harvested from many of West Virginia’s forests. This, in turn, increased the threat of forest land conversion to non-forest use.

Some portions of the wood products sector have remained strong during these challenging times. While many of the state’s traditional forest products producers have taken an indifferent attitude towards new technology and new market opportunities, others have not. These companies have sought new markets and their businesses have actually expanded during the recent downturn. They have focused their model on innovation and delivering a product that the global consumer is demanding. This has been accomplished through the expanded use of technology, digital outsourcing, market exploration, and exporting.

It is important to encourage traditional forest products-based businesses to develop skill sets around technology and new market opportunities. By combining knowledge of traditional forest management and product development, with information on technology and new marketing concepts, the future of West Virginia’s forest products industry will be ensured.

Strategic Accomplishment:

- The *Friends of Firewood* project began in 2013 to promote a sustainable firewood industry in WV.
- Advertising for the new program consisted of a website for networking and 437 - :30 second radio spots on 23 radio stations statewide.

- A total of 10 training classes and firewood processor demos were held with 224 participants and an estimated 5,000 indirect contacts.

Sub-Issue 8.6: Workforce Development	
Long-term Strategy	Measure of Success
1. Increase the availability of quality employees for both the logging and forest products sectors, as well as develop a logger training academy	Increased opportunities and professionalism, adequate numbers of trained employees available

Strategy Narrative:

West Virginia has a diverse wood products employment base. The majority of employment is in sawmills, wood preservation, and secondary wood products manufacturing. Employment in logging has declined over the last decade. The average age of loggers has increased while the number of new loggers has declined. Logging is a critical component of the forest products supply chain. Without a strong logging sector, the forest products industry cannot flourish. Currently, there are approximately 4,900 employees in the logging sector, which includes over 1,300 certified loggers. There are nearly 9,000 employees statewide directly employed by the forest products sector (refer to table 8.2 of the Assessment). In order to maintain the health of the forest resource and the strength of the forest-based economy, there must be continued development of both the logging and forest products sectors.

Strategic Accomplishment:

- In 2013 the Loggers Roundtable was formed to include key industry leaders to identify issues/barriers of entry into the logging profession. Two meetings were held in 2013 and 2014 with 43 members from the forest products industry, WVFA, WVDOF, Workforce WV, and WVU AHC with other higher education/vocational partners. An action plan was developed.
- Logger certification BMP workshops and chain saw safety classes 2010-2015.

Year	Yearly Classes/Workshops Held	Annual Number of Attendees
2010	79	1,265
2011	67	1,285
2012	126	813
2013	83	1,562
2014	73	1,487
2015	70	2,241

