

DELAWARE



A REPORT TO THE U.S. FOREST SERVICE

October, 2020

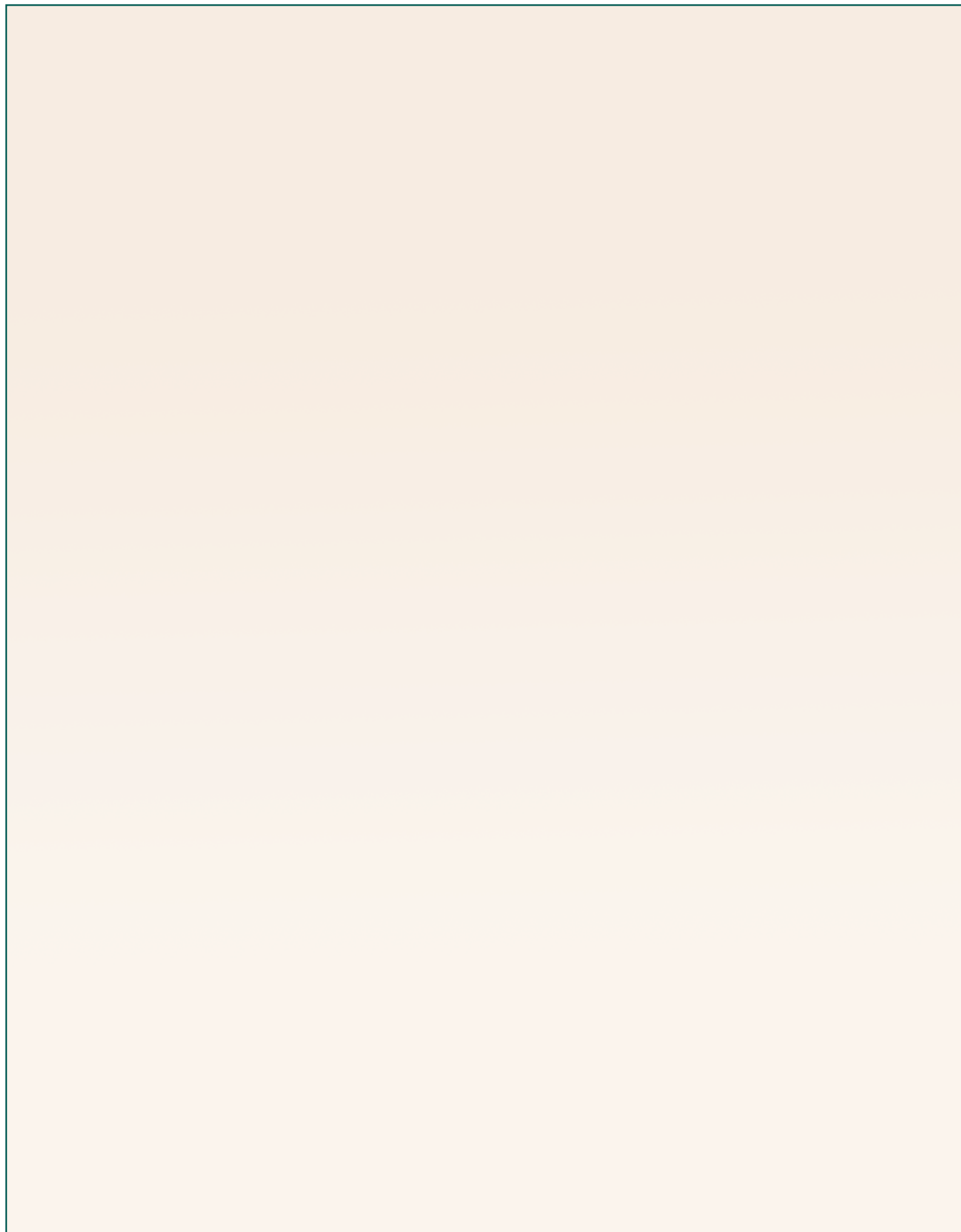
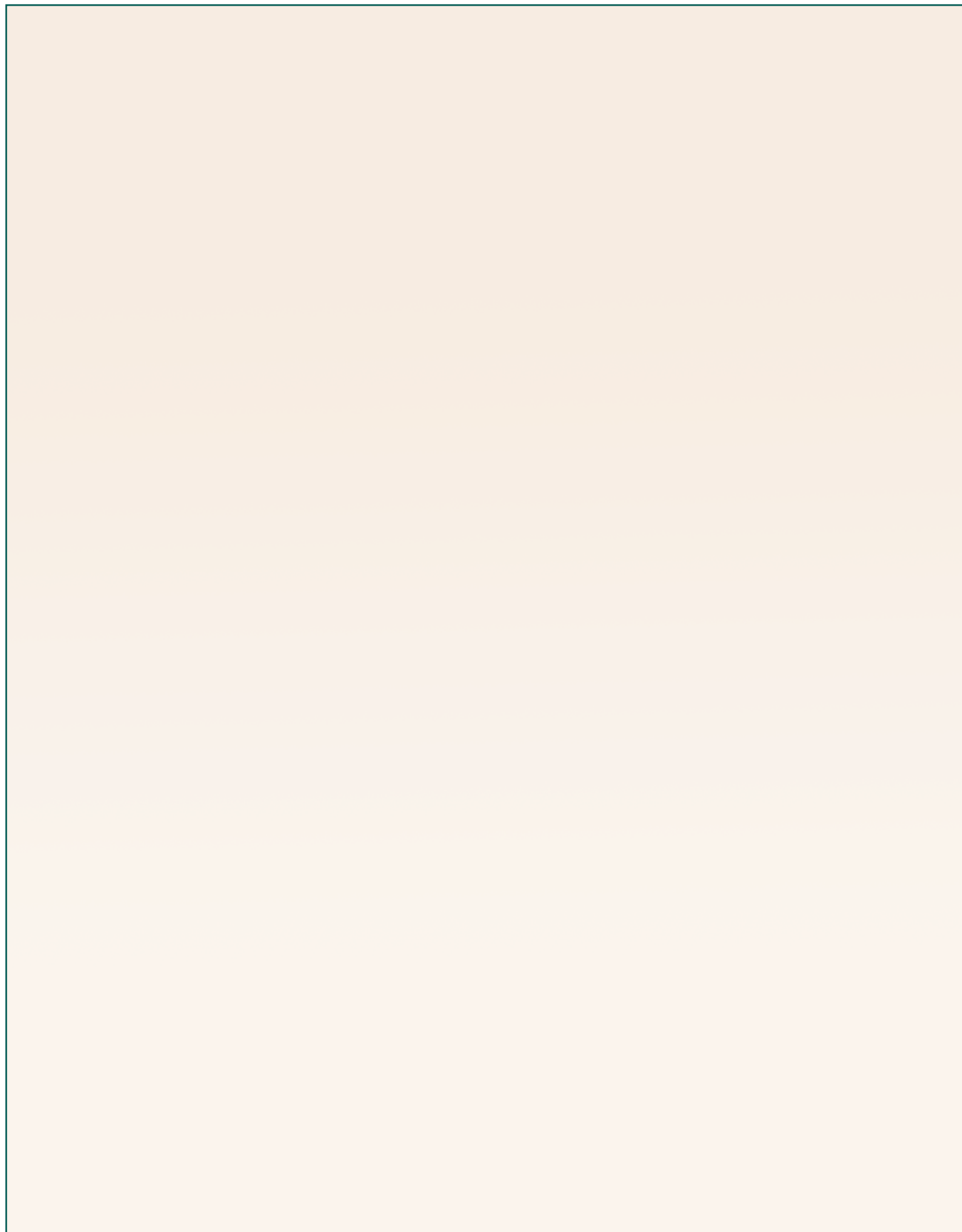


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DELAWARE STATEWIDE FOREST STRATEGY

I. INTRODUCTION

Delaware forests—rural and urban, public and private—play a critical role in maintaining a healthy environment and are a vital part of the state's natural infrastructure. Historically, this renewable resource provided the means for economic growth and stability as a source of essential raw materials. Wood products supported many industries including farming which became an early economic driver for the state. The Delaware Forest Service (DFS) has recognized the importance of healthy, productive forests for its entire existence of nearly 100 years. Therefore, our top priority is to conserve and protect forestland in Delaware. In doing so, all the natural benefits forests provide are also protected for those currently living in Delaware and, perhaps even more importantly, for future generations.

Accordingly, the DFS updated its *2010 Forest Action Plan* in an effort to reach the objective of conserving Delaware forests. This plan consists of two parts—the *Forest Resource Assessment* and the *Statewide Forest Strategy*. The strategy includes performance goals and action items that when enacted will help ensure the health of urban and rural forests for years to come. The assessment was completed under the guidance of the Delaware Forest Stewardship Committee and with input from many other stakeholders. It identifies the most current priority issues, threats, and opportunities regarding Delaware's forest resource. Additionally, priority urban and rural landscapes were identified in the assessment. A summary of the resource assessment is presented below but the entire document is available at [\[INSERT WEB ADDRESS FOR ASSESSMENT\]](#).

The DFS worked closely with a variety of stakeholders and conservation-minded organizations and concluded that the four overriding state issues developed for the *2010 Delaware Forest Action Plan* were still relevant today. The corresponding 19 comprehensive, long-term strategies were also retained but modified and updated where necessary and three new strategies were added. Each strategy contains multiple action items with performance goals to measure success. All previous 78 action items were also reviewed and updated. Participants in the review process made suggestions for additional performance goals related to the updated forest resource assessment. Twenty-seven new performance goals are included in this update. These were incorporated into the final strategy as well. Many of the action items will require years, if not decades, to achieve and also require partnering with one or more public and/or private organizations to accomplish. Nonetheless, we believe this updated strategy document is an excellent guide for the DFS to focus limited resources on the key issues facing Delaware's forests.

The 22 strategies are presented in this document in two formats. First, the strategies and corresponding action items are correlated with the seven criteria of forest sustainability, endorsed by the United States and 11 other countries in 1995 through the effort known as the Montréal Process and adopted by the Northeast-Midwest State Foresters Alliance covering the 20 northeastern states and the District of Columbia. This presentation is consistent with the forest conditions and trends information presented in the *2020 Delaware Forest Resource Assessment*. The seven criteria address all aspects of forests and their management—both biological and social—specifically, biological diversity, productive capacity, forest health and vitality, soil and water resources, global carbon cycles, socioeconomic benefits, and legal and economic issues.

Strategies are also presented in a matrix using the four issues identified within the forest resource assessment. This format includes actions the DFS will take to address each issue. The matrix also identifies various resources available to implement the actions as well as performance goals/measures for each action item. Specific performance goals help the DFS identify short-term (including annual) performance targets to implement strategies and monitor interim progress. Additionally, the matrix references each of the strategies to U.S. Forest Service, State and Private Forestry (S&PF) National Priorities and Objectives.

This strategy component of the *2020 Delaware Forest Action Plan* was completed by staff members within the DFS in consultation with a variety of stakeholders and with guidance from our State Forest Stewardship Committee [[Appendix for Stakeholder Involvement](#)]. While DFS staff wrote this document, we have attempted to capture the input and recommendations of all our stakeholders.

II. PRIORITY ISSUES AND LANDSCAPE AREAS


Priority Issues

For the *2010 Forest Action Plan*, the DFS used two processes to identify the highest priority issues, threats, and opportunities for Delaware's forests. First, the DFS completed a comprehensive five-year strategic plan in 2008 through a facilitated process with forty participants representing a variety of stakeholders, including other public (state, federal, local) agencies, landowners, nongovernmental organizations, consultant foresters, forest industry, and recreationalists. Through this effort, stakeholders identified critical issues facing Delaware's forests and then defined goals and objectives for the DFS to address in the subsequent five years (2009–2013).

Second, Delaware's Forest Stewardship Committee participated in a facilitated process in 2009 to identify current issues, threats, and opportunities facing the state's forests. Beginning with the issues from the earlier strategic planning process, the committee identified additional issues, and then outlined specific threats and opportunities. The results were very similar to the outcomes of the 2008 strategic planning process.

Once the issues, threats, and opportunities were drafted, the DFS shared them with other stakeholders through presentations/site visits and electronically to determine if any changes were appropriate. A relatively few number of substantive edits were received—they were subsequently incorporated into the final list.





Forests provide an abundance of natural benefits and it is crucial that Delaware maintain a sufficient acreage of healthy forests to perpetuate these benefits.

In 2010, four issues were identified—Forest Health and Functionality, Forest Markets, Sustainable Forest Management, and Public Awareness and Appreciation of Forests. In early 2019, in an effort to update the primary issues facing Delaware for the next ten years, an electronic survey was created and sent to hundreds of stakeholders. An overwhelming majority (92%) responded that there should be no deletions to the 2010 issues. A small percentage focused in on eliminating non-forest ecosystem services such as carbon credits because past efforts (e.g., Bay Bank) made little progress due to lack of interest. Additionally, when asked if there should be any additions to the 2010 issues, threats, or opportunities, about half of the respondents replied affirmatively and gave their suggestions.

Then in June 2019, Delaware's Forest Stewardship Committee participated in another facilitated process similar to that of 2009 to further identify current Delaware issues, threats, and opportunities facing the state's forests. The committee identified their own issues, and then outlined specific threats and opportunities. Once again, the results were very similar to the outcome of the electronic survey and, for that matter, also to the 2008 strategic planning process and subsequent *2010 Delaware Forest Resource Assessment*. Therefore, the DFS will use the same four primary issues as before but will incorporate virtually all the updated suggestions into the threats and opportunities sections. The four traditional Delaware forest resource issues will encapsulate all stakeholder concerns.

Lastly, once the issues, threats, and opportunities were drafted, the DFS shared them with other stakeholders through presentations/site visits and the Internet to determine if any changes were appropriate. As in 2010, very few edits were received, which were subsequently incorporated into the final list.

Below is an overview of each issue and its related threats and opportunities. The *Delaware Forest Resource Assessment* contains a more thorough review of this information.

ISSUE #1

Forest Health and Functionality

An adequate, healthy forestland base ensures the perpetual production of forest outputs—lumber and other wood products, wildlife habitat, recreational opportunities, water and air quality protection, carbon sequestration and storage, aesthetics, and energy savings through local climate modification.

Background

Forests provide an abundance of natural environmental and economic benefits and it is crucial that Delaware maintain a sufficient acreage of healthy forests to perpetuate these benefits. A full representation of forest types is needed to provide the habitat necessary for a diverse array of plant and animal species. Additionally, certain forests provide important environmental benefits such as improved water quality and quantity. A sufficient base of working forests is necessary to supply the timber needed to support a viable forest industry. Furthermore, strategically located afforestation (forest expansion) can provide significant environmental benefits, such as connecting large forested blocks and creating or expanding forested corridors and buffers.

Urban forests also provide numerous benefits and are important to a community's quality of life. Municipalities should include urban forestry management strategies in their long-term plans. In all cases—urban and rural—healthy forests are vital to maintaining their sustainability. Landowners and foresters must work to ensure that Delaware's forests are as free from forest pests and invasive species as possible. Future efforts must address all of these factors to help ensure the long-term health and viability of Delaware's forests and help the DFS meet one of the U.S. Forest Service, national S&PF priorities—*Protect forests from threats*.

THREATS

The long-term health and sustainability of Delaware's forests are threatened by multiple challenges:

Forest Loss, Fragmentation, and Parcelization

While Delaware has more forestland now than in 1900, its overall forested acreage is shrinking—primarily due to development. Forests slated for development will either disappear or become so fragmented that they no longer provide substantial natural benefits. Delaware's remaining forests are now comprised of smaller blocks. The number of large, contiguous forested blocks (>250 acres) is decreasing. Many riparian forests have also disappeared or been reduced significantly such that waterways are no longer buffered. Fragmentation not only causes forest management challenges, it also produces other effects that are less evident. There is also a loss of forested corridors that connect larger blocks of forestland. These areas provide protected travel routes for many wildlife species and are often located along waterways. Increased human population has produced more landowners and smaller forest ownerships. Public managers will have to rely on new approaches and new partnerships to reach this growing landowner base. Smaller forested parcels also increase the chance for the establishment of invasive plants.

Invasive Species

The cumulative effect of invasive species and non-native pests in Delaware's forests is significant and growing. Gypsy moth, Dutch elm disease, and chestnut blight are three examples of non-native species that have severely affected certain tree species within Delaware. The confirmed presence of the emerald ash borer in Delaware in 2016 is a death sentence for many rural and urban ash trees in the state unless they are aggressively protected from attack. The DFS continues to monitor for potential threats including exotic insects and invasive plants.

Destructive Native Species

There are also native threats to Delaware forests. An overabundance of white-tailed deer has degraded many forested areas. Bacterial leaf scorch, once considered a relatively minor nuisance in urban forests, has now caused widespread death and decline to several red oak species throughout Delaware. The southern pine beetle also has the potential to destroy thousands of acres of valuable loblolly pine forests.





Urban sprawl continues throughout much of Delaware and has resulted in a significant increase in the wildland-urban interface (WUI), particularly in coastal areas.



Forest Types

Statewide inventories ten years ago showed that certain types of forests were increasing, such as red maple and gum, while others were decreasing significantly, particularly softwood forests (such as loblolly pine, Atlantic white-cedar, and baldcypress) and hickory. This has repercussions not only for timber production but also wildlife habitat.

Wildfire

While wildland fire is not a substantial threat in Delaware, it is a concern in certain landscapes and forest types. Urban sprawl continues throughout much of Delaware and has resulted in a significant increase in the wildland-urban interface (WUI), particularly coastal areas where the invasive common reed, phragmites, is found in abundance.

OPPORTUNITIES

Many opportunities are available to address the threats to forest health and functionality:

Reduce Forest Loss, Fragmentation, and Parcelization

- Protect forested areas, particularly in high priority areas, through both public funding as well as private funding.
- Continue providing existing incentives for landowners to retain their forestland and explore other incentives for landowners to maintain their forestland.
- Encourage state, county, and local governments to incorporate forests and forest benefits into land-use planning processes as well as urban tree canopy goals.

Improve the Diversity of Forest Types

- Work with other agencies and organizations to establish reasonable goals for maintaining/restoring a representation of diverse and historic native forest types (species) and types of forestland (upland, floodplain/wetland, headwaters forests) while balancing the interests of landowners and society.
- Encourage active forest management on state-owned forestlands to create a mosaic of size and age classes, species compositions, and stocking levels.

Control Native Pests and Non-native Invasive Species

- Continue monitoring for both native and non-native destructive forest pests through aerial and ground surveys.
- Work with state and federal partners to quarantine and eliminate, if possible, initial populations of potentially damaging forest pests.
- Support efforts to control native deer populations.

Reduce Wildfire Risks

- Properly train and equip volunteer fire companies to fight wildland fires, utilize prescribed fire, and work with at-risk communities in the WUI to reduce the chance of catastrophic fires in that potential volatile environment.

ISSUE #2

Forest Markets

Adequate and diverse forest markets are available to landowners to satisfy their forest management goals.

Background

A stable, robust, and diverse market for forest products—not just for high quality timber but also for poor quality species and non-timber markets, such as carbon—contribute to Delaware’s economy and help ensure long-term sustainable forest management. Furthermore, landowners must have the ability to generate income from their forestland, otherwise they are much more likely to convert their forestland to other non-forest uses such as development. To foster these markets, it is vital that current, comprehensive inventories are available of the forest resource. Without a thriving wood products market, Delaware cannot achieve one of the key national S&PF priorities—*Conserve and manage working forest landscapes for multiple values and uses.*

THREATS

The long-term viability of forest markets in Delaware and on the Delmarva Peninsula face many threats:

Lack of Traditional Forest Markets

The economic downturn ten years ago further accelerated the decline of traditional forest products markets on the Delmarva Peninsula. Combined with a national decline in lumber prices due to the collapse of the real estate market and the overall economy, timber prices in Delaware declined as much as 50%. More recently, however, the economy has improved, and housing starts are increasing. Unfortunately, there are less than half of the sawmills from 25 years ago and this includes the closure of the largest pine sawmill in the region. Delaware is currently not in a good position to take advantage of a growing economy and an increased demand for wood products. A timely revival of the forest products industry is needed to protect many of Delaware’s working forests from conversion to non-forest uses.

Few Markets for Non-wood Forest Products

Markets for non-wood products are very important. Currently, hunting leases are the primary non-wood market for many forest landowners. However, markets continue to emerge for carbon sequestration and storage, wetlands mitigation and even endangered species mitigation and other “ecosystem services” but much work remains to bring them to fruition.

Poor Markets for Low-quality Wood

Currently, there is an overabundance of, but very little demand for, low-quality hardwood in Delaware. This lack of market has contributed to the proliferation of low-valued red maple and gum forests because these species are often not removed during timber harvests. Bio-energy is a developing market that could provide new demand for low-quality hardwoods, but Delaware’s existing incinerator law (7 Del. C. § 6003) severely restricts the use of wood for bio-energy purposes.



Studies on the availability of forest products should be commissioned on a regular basis to confirm that wood resources are being managed sustainably in Delaware.



Periodic Forest Biomass Inventories

To maintain and expand forest markets, it is vital that a state and/or region have accurate estimates of the forest resource and the amount of wood that the forest can produce sustainably. Encouraging new markets is only viable if there is a sufficient forest base to sustain both new and existing markets. Studies on the availability of forest products should be commissioned on a regular basis to confirm that wood resources are being managed sustainably in Delaware.

OPPORTUNITIES

Several opportunities could maintain and enhance Delaware's forest markets:

Accurate Forest Biomass (Wood) Inventories

- Improve and refine the state's forest inventory by working with the U.S. Forest Service and other partners to develop better acreage estimates of the various forest types/species and the amount of wood available for various markets.
- Coordinate with surrounding states when developing potential forest markets to ensure that any new wood markets are properly sized to the supply available.
- Commission periodic studies of biomass availability in Delaware and the surrounding region.

Improve Traditional Forest Markets

- Work with economic development and natural resource agencies, landowners, buyers, loggers, and wood producers and processors both in Delaware and neighboring states to maintain and support the traditional forest product markets.
- Seek to expand forest markets beyond lumber and pulp, such as animal bedding.
- Utilize the Governor's Council on Forestry to promote and attract new forest industry to Delaware.

Create/Expand Non-traditional Forest Markets

- Work with local artisans and entrepreneurs to develop niche markets using wood locally harvested in Delaware.
- Encourage the use of urban waste wood to take advantage of a diversity of species and large trees removed from communities.

Develop New Bio-energy Markets

- Develop new markets for the abundance of low-valued timber in Delaware and throughout the Delmarva Peninsula.

Non-wood Ecosystem Services Markets

- Promote and facilitate non-consumptive forest markets commonly referred to as ecosystem services. Support programs that help aggregate private landowners for potential ecosystem service payments. Support state and regional policies for ecosystem services that include forests and reward forest management, such as for carbon.

ISSUE #3

Sustainable Forest Management

Delawareans must sustainably manage their rural and forest resources.

Background

Ultimately, we must not only maintain sufficient forest acreage but also sustainably manage those rural and urban forests if Delawareans are to enjoy all of the many natural benefits we receive from forests. Furthermore, most of these forests are, and will continue to be, privately owned (or in the case of urban forests owned by homeowners or communities). Therefore, these landowners must have the knowledge, ability, and assistance to manage their forests so that everyone benefits. Additionally, owners often need financial assistance to help them complete important management activities. Technical (foresters and arborists) and financial assistance not only benefit the forest landowner, but also help ensure for future generations that our rural and urban forests are thriving and providing the numerous benefits we all currently enjoy. Without sustainable management, we cannot meet the national S&PF priorities to *Conserve and manage working forest landscapes for multiple values and uses* and *Enhance public benefits from trees and forests*

THREATS

The long-term sustainability of Delaware's rural and urban forests is threatened by two major concerns:

Lack of Technical Assistance

Many forest owners do not utilize professional forestry assistance. While foregoing the expertise of a professional forester does not always result in poor forest management, many times it produces poor-quality forests, such as high-graded forests. This situation is compounded in Delaware by a lack of markets for poor-quality timber. Urban and community forests face challenges similar to rural forests. Community leaders and citizens need access to technical assistance to help them understand the importance of forests not only aesthetically but for the numerous environmental benefits they provide. By working with professional foresters, landowners and communities can develop long-term plans for their forests, including comprehensive inventories and management plans.



Financial assistance combined with technical advice is a cornerstone for sound forest management and can ensure long-term sustainability of forests.

Lack of Financial Assistance

Financial assistance, such as cost shares for forest management activities, helps ensure that landowners can and will complete non-income generating activities, such as timber stand improvement, wildlife habitat enhancement, and water quality protection. Furthermore, many owners acquire woodlands that have been poorly managed in the past. They often find that the cost of improvement practices can be quite substantial. Likewise, funding also benefits cities and towns—often providing the means to purchase trees for planting, inventory the community's trees, or secure an arborist for tree care matters. Financial assistance combined with technical advice is a cornerstone for sound forest management. It is important that Delaware work with a variety of organizations (federal, state, private) to continue providing not only technical but also financial assistance to landowners to help ensure the long-term sustainability of our rural and urban forests.

OPPORTUNITIES

Opportunities to improve forest management include:

Rural Forest Management and Assistance

- Provide technical forestry assistance to landowners for a variety of forestry issues and coordinate with other natural resource professionals (such as wildlife biologists and hydrologists) to provide comprehensive landowner assistance.
- Seek ways to reach more landowners and offer professional forestry assistance.
- Explore the possibility of assisting landowners on a landscape scale, such as in a watershed, to help achieve larger-scale goals.
- Maintain and expand cost-share programs to help landowners complete forest management activities and enhance their forests (e.g., timber production, wildlife habitat enhancement, water quality protection, etc.).
- Maintain existing programs to encourage long-term forest management (e.g., property tax exemptions) and explore opportunities for new incentives.

Urban Forest Management and Assistance

- Providing technical forestry assistance to municipalities and civic associations to develop long-term plans for their urban forests, including a comprehensive inventory, maintenance plan, and tree canopy goals.
- Seek opportunities to reach more communities and civic associations to provide professional urban forestry assistance to them.
- Maintain and expand funding to support urban forest management activities such as tree planting and tree maintenance projects.
- Consider methods to provide a certified arborist/urban forester for municipalities.

ISSUE #4

Public Awareness and Appreciation of Forests

Delawareans must understand and appreciate the importance of forests and forest management.

Background

Everyone—landowners, homeowners, community and civic leaders, students—must appreciate and understand that forests and their proper management are necessary for an enhanced quality of life. Credible, current, easy-to-understand information and ongoing education, both student and adult, are needed for the general public to understand the broad array of natural benefits that forests provide, the intricacies of forest management, and the techniques and practices necessary to achieve the goals of management. Often, sound management techniques are not aesthetically pleasing, and this issue must be addressed in forest management education. If the public does not appreciate and understand forests and forest management, we will have great difficulty meeting the national S&PF priorities—*Conserve and manage working forest landscapes for multiple values and uses, Protect forests from threats, and Enhance public benefits from trees and forests.*

THREATS

Raising public awareness and understanding of forests and forest management has several challenges:

Student/Teacher Education

Student exposure is often limited to only a few disjointed forestry issues and concepts, and many times these lessons focus on forests that are not native to Delaware or even the United States. Similarly, opportunities for teachers and other educators to learn about forests and forestry in Delaware are very limited both during their formal education and continuing education experiences.

Landowner/Homeowner Education

Many forest landowners and homeowners have little or no forestry knowledge and are unaware of the professional assistance available to them. Similarly, the DFS has found that its programs continually reach the same small minority of landowners and communities. The DFS and its partners must find new methods to reach (and interest) more forest and tree owners.

Public Support for Forests and Forest Management

The public must understand and lobby for forests and forestry—public support leads to well-funded forestry programs and organizations. Public support is even more important if we are to complete the state strategies as the state and other government entities face increasing budget pressures.



Current, credible information and ongoing education, for both students and adults, are needed for the general public to understand the natural benefits forests provide.

Delaware's Diversity of Land Use Ideas

There is a wide diversity of strong ideas and interests regarding land use in Delaware. The DFS and its partners must understand these issues as the state strategies are implemented.

OPPORTUNITIES

Opportunities to raise public awareness and understanding of forestry issues include:

Student Education

- Encourage a comprehensive forestry/natural resource curriculum within schools, from elementary through high school, including the possibility of required classes for students in natural resource studies.
- Offer a variety of educational opportunities for all grades, encourage outdoor classrooms at schools, and assist with incorporating these classrooms into school curricula.
- Continue supporting natural resource educational programs outside of traditional school programs.

Teachers/Educators

- Work with partners to integrate Project Learning Tree (PLT) and its related curricula (Project Wet, Project Wild) into teacher continuing education courses and into teacher curriculum at local colleges.
- Partner with other organizations to increase natural resource learning opportunities outside the classroom, including outdoor classrooms on-site and the State Forest Education Centers.
- Explore avenues to reach more teachers and educators with forestry and other natural resource educational materials.

Forest Landowners

- Provide educational opportunities for landowners, including new methods and approaches, such as the electronic media and other landowners (e.g., Tree Farmers), to reach the large majority of forest landowners who have little or no forestry knowledge.
- Explore opportunities to provide forest management information to new landowners.

Communities and Municipalities

- Provide urban forestry education to municipal leaders and civic groups to increase their understanding of urban forests and the environmental benefits they provide so they include trees and other "green infrastructure" in their planning and budgeting processes.
- Explore opportunities to provide urban forestry educational opportunities to civic associations.

General Public

- Maintain and execute a marketing plan for the DFS that includes forestry education and promotes successes.
- Continue providing specific, message-focused educational opportunities in forestry to the general public.



RURAL PRIORITY LANDSCAPE AREA

The Delaware Forest Service (DFS) utilized separate Geographic Information System (GIS) analyses to identify critical rural and urban forest landscapes. The rural forest analysis involved the overlay of 21 data layers. Some layers were recommended by U.S. Forest Service guidelines, while other layers were added by DFS staff because of their relevance in Delaware. Additional layers were incorporated based on recommendations made by members of the State Forest Stewardship Committee, which subsequently assigned weights to the 21 input layers for the model (see *Delaware Forest Resource Assessment*, p. 99).

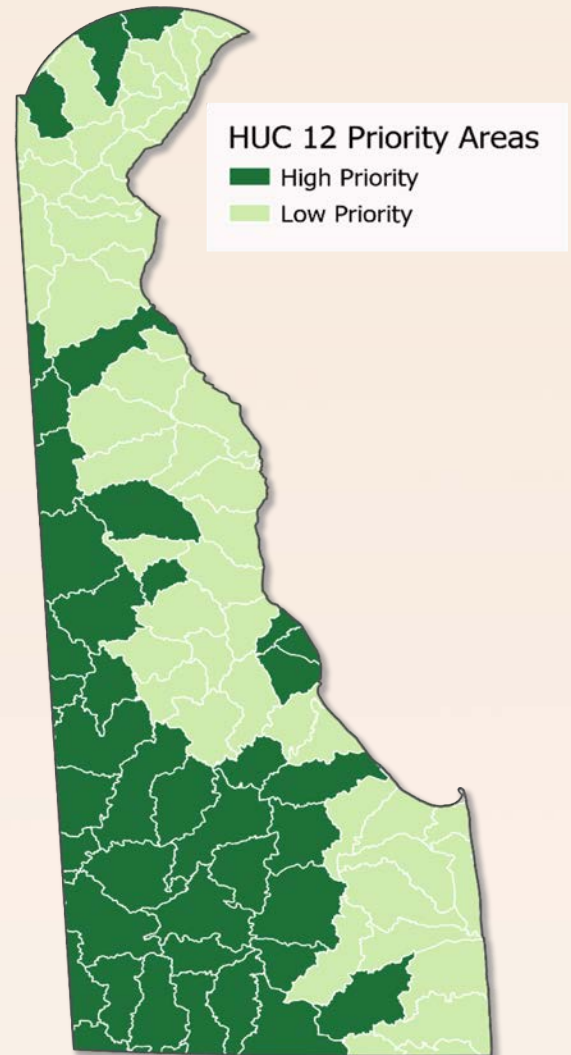
Following the initial GIS analysis, the composite scores were aggregated by USGS HUC 12* watersheds and a mean value was calculated for each watershed. An initial threshold value was established to identify the rural priority landscapes. The Delaware State Forest Stewardship Committee then removed and added several watersheds to better reflect the highest priority rural landscape based on similar efforts made during the *2010 Forest Action Plan* process and firsthand knowledge of the areas. Due to Delaware's small size and rather homogeneous land type, only one rural priority area was used (Figure 1).

However, the DFS divided the area into sub-areas, based on watersheds, to better describe the rural priority area. This division may also be used in some future strategies to help prioritize specific activities on the landscape. The five divisions within the rural priority landscape area are:

- Delaware Estuary
- Blackbird Creek
- Inland Bays
- Piedmont Basin
- Chesapeake Basin

A review of the rural priority landscape areas, including a discussion of each of the five major divisions, is included in the *Delaware Forest Resource Assessment*.

Figure 1. Rural Priority Landscape Area.

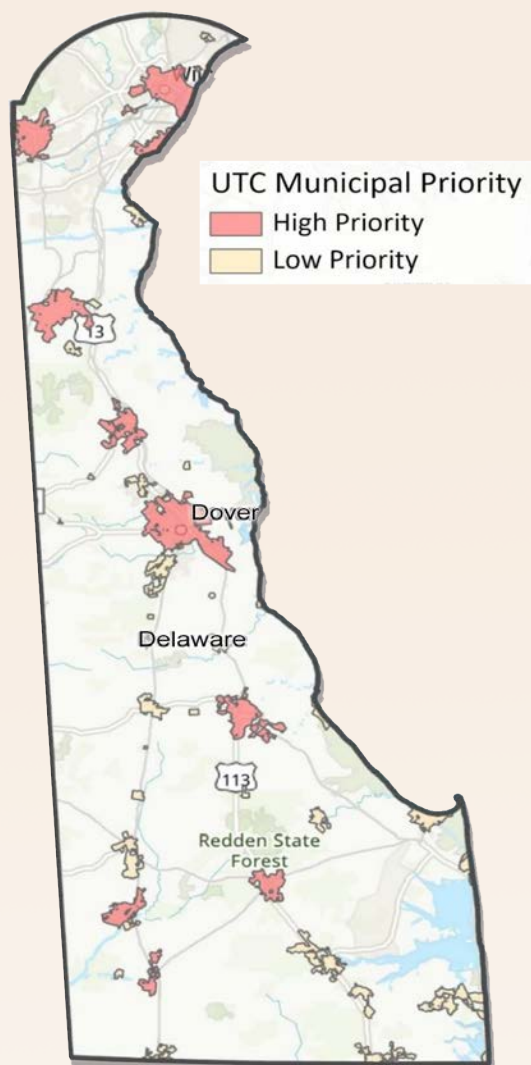


Source: Delaware Department of Agriculture

* U.S. Geological Survey, Hydrological Unit Code, "12" indicates a local sub-watershed level that captures tributary systems.



Figure 2. Urban Priority Landscape Areas.



Source: Delaware Department of Agriculture

URBAN PRIORITY LANDSCAPE AREAS

The DFS evaluated all of Delaware's 57 incorporated municipalities using GIS. The model for analysis used a formula that weighted each community according to the following criteria:

1. Percentage of urban tree canopy (UTC) (25%)
 - Total tree canopy (50% of UTC)
 - Roadside tree canopy (50% of UTC)
2. Impervious surface index (IMP) (25%)
3. Population index (20%)
 - Population density per square mile index (PD) (75% of PD)
 - Presence in census urban area (CUA) (25% of PD)
4. Opportunity zone presence (OPZ) (10%)
5. Pest risk index (PR) (10%)
6. Community investment score (CI) (10%)
 - A city manager (or equivalent) who can apply for and serve as point of contact for DFS urban forestry projects (25%)
 - Community-owned parks or community control of street trees (25%)
 - A municipal tree ordinance shows prior commitment to urban trees and can facilitate other factors in an urban forestry project (25%)
 - A municipal tree budget shows commitment to urban trees and increases a town's ability to provide match for grant programs (25%)

The result of the analysis yielded an indexed list of all 57 communities in Delaware ranging from zero to one hundred. Higher ranking indicates higher priority for U&CF program delivery. However, lower ranked communities will benefit with targeted U&CF resources. Of these 15 high priority areas determined by the DFS, four of the municipalities are in the Chesapeake Bay watershed (Figure 2). These areas are also experiencing growth and expansion. As communities grow it is important to consider water quality issues and working with the municipal governments to increase tree canopy and decrease impervious surfaces with the widespread development.

A majority of the 57 communities (nearly three-quarters), fall within Delaware opportunity zones. Including opportunity zones into the equation has allowed the DFS to better identify areas of resource need. This may provide the opportunity to incorporate urban forestry during mitigation planning to encourage the utilization of green infrastructure.

Wildfires pose a substantial risk to some Delaware communities. While Delaware does not often experience intense wildfires, there are two cover types that are susceptible to incendiary fires— areas dominated by the invasive reed, *Phragmites australis* (Fuel Model 3), and to a much lesser extent, young loblolly pine plantations. Knowledge of this potential danger allows the DFS to help those communities prepare for this risk. Wildland fire risk is estimated as the percentage of municipal land covered by each of the following datasets. The DFS examined these results to determine the high-priority communities for wildland fire preparedness (Table 1).



Communities were ranked using two U.S. Forest Service GIS layers: LANDFIRE Wildfire Hazard Potential and Wildland Urban Interface. Several other factors were taken into consideration for ranking communities including the following:

- Potential for fire spread to nearby structures,
- Access to evacuation routes,
- Fires over 10 acres in the last five years, and
- Fuels located just outside of municipal boundaries.

A more detailed review of the urban priority landscape areas, including a more detailed discussion of each the GIS input layers, is included in the *Delaware Forest Resource Assessment*.



Table 1. Wildland Urban Interface (WUI) priority communities.

Community	Total Acres	2010 Population	Pop Dens/ Sq Mi	Wildfire Hazard Acres	Wildfire Hazard %	WUI Acres	WUI %
Frederica	827	774	599	199	24	0	0
Lewes	2,199	2,747	800	166	8	25	1
Slaughter Beach	235	207	565	102	44	39	17
New Castle	1,821	5,285	1,857	44	2	168	9
Leipsic	101	183	1,157	35	34	0	0
Delaware City	1,164	1,695	932	34	3	21	2
Bowers Beach	109	335	1,971	29	27	53	49
Odessa	299	364	779	25	8	2	1
Bethany Beach	695	1,060	976	17	2	0	0
Rehoboth Beach	543	1,327	1,564	7	1	27	5
South Bethany	263	449	1,092	2	1	1	0
Henlopen Acres	149	122	523	0	0	70	47
Little Creek	60	224	2,397	0	0	51	85
Fenwick Island	189	379	1,283	0	0	0	0
Dewey Beach	198	341	1,103	0	0	0	0

Source: Delaware Forest Service

MULTI-STATE REGIONAL PRIORITY LANDSCAPE AREAS

In addition to the rural and urban forest priority landscape areas, the DFS also identified multi-state priority areas. A more thorough description of these regional priority landscape areas is included within the Delaware Forest Resource Assessment.

- Chesapeake Bay Watershed
- Delmarva Peninsula and Mid-Atlantic Coastal Plain
- Interstate 95 Corridor
- Delaware River Watershed
- Blackbird-Millington Corridor





III. STATE STRATEGIES

Delaware's *Forest Resource Assessment* identified four major issues facing Delaware's forests:

Forest Health and Functionality. A sufficient, healthy forestland base ensures the perpetual production of forest outputs (lumber, wildlife habitat, recreational opportunities, water quality protection, etc.).

Forest Markets. Adequate and diverse forest markets are available to landowners to satisfy their goals for their property.

Sustainable Forest Management. Delawareans must sustainably manage their rural and urban forests.

Public Awareness and Appreciation of Forests. Delawareans must understand and appreciate the importance of forests and forest management.

Within each of these four issues, related threats and opportunities were identified. To address these core issues, the DFS worked with its partner organizations and collectively determined to retain the 19 strategies (with some minor modifications and three new additions) developed for the *2010 Delaware Forest Action Plan*. The associated 78 performance goals/measures of success were scrutinized and updated or modified when necessary. Several completed goals were eliminated from the 2020 update, but 27 additional goals added are spread throughout the four core issues.

To help readers to better understand the strategies as they relate to the issues and the items described within the resource assessment, the 22 strategies are presented in two forms below.

The strategies are first presented using the seven criteria of forest sustainability, the same framework used for Delaware's *Forest Resource Assessment*. This helps readers understand how the strategies will address the items discussed within the assessment.

Secondly, the strategies are presented in matrix form by issue. It should be noted that strategies often address multiple issues.

Criterion 1 – Conservation and Biological Diversity

While there is information available on the total land area of forests over time, it is apparent that foresters and other professionals need additional information concerning specific forest types (historical presence, current acreage, etc.) to set reasonable goals for long-term forest cover and restoration. To that end, the DFS and its partners developed strategies that attempt to refine our current inventories, develop long-term restoration/protection goals, and actions to implement the restoration goals.

Establish reasonable goals for both forest protection and the long-term maintenance and restoration of a variety of forest types (species), including state rare forest types.

- Establish goals including prioritization process for forestland protection and conservation including headwater forests, large contiguous forest blocks, and forested wetlands (working with partners, such as the Delaware Department of Natural Resources and Environmental Control (DNREC) Division of Fish & Wildlife, U.S. Fish & Wildlife Service, etc.).

- Establish goals for maintaining and (where needed) restoring a variety of forest types and identify areas for possible enhancement/expansion of forest types, including state rare types such as baldcypress, Atlantic white-cedar, ancient sand-ridge oak forests, and Coastal Plain rich woods.
- Establish goals and identify areas on state-owned lands to manage for “old growth” characteristics.
- Identify critical forested blocks (landscapes) to connect using tree plantings (afforestation) to improve overall ecological quality and value.
- Support the establishment of a forest protection ordinance at the state and county levels to protect remaining forest corridors.

Protect forestland through conservation easements and, when appropriate, fee simple acquisition.

- Protect critical forests, primarily through conservation easements, using Forestland Preservation Program, Forest Legacy, Open Space, county, and nongovernmental funding sources, and maintain a process to annually inspect/review eased properties.
- Maintain dedicated funding for Delaware’s Forestland Preservation Program and seek other sources to augment the Forestland Preservation funding.
- Prioritize fee simple acquisition for lands containing riparian corridors, at-risk wildlife, and rare habitats.

Utilize prescribed fire for forest and wildlife habitat restoration and management.

- Continue providing prescribed fire expertise and assistance for silvicultural and wildlife habitat enhancement projects.
- Maintain and restore fire-adapted ecosystems. Maintain a statewide operational and safety standard for prescribed burning based on existing National Wildfire Coordinating Group (NWCG) standards (including State Fish & Wildlife and State Parks & Recreation).
- Establish a Delaware prescribed burn council in support of fire implementation on the landscape (state/federal agencies and private organizations).
- Seek to change the current burn law to allow specially permitted burning during the burning ban (May 1–September 30).

Maintain, enhance, and delineate wildlife habitat, particularly endangered and/or threatened plant and animal species habitat, during forest management activities.

- Incorporate the Delaware Wildlife Action Plan 2015-2025 and *species of greatest conservation need* into forest management, conservation, and protection activities.
- Work with partners (e.g., DNREC Division of Fish & Wildlife, U.S. Fish & Wildlife Service) to inventory, maintain, protect, enhance, and delineate habitat for federally listed threatened and endangered species and state rare species (plant and animal) that are forest dependent.





Criterion 2 – Maintenance of Productive Capacity of Forest Ecosystems

To maintain the productive capacity of Delaware forests, accurate information is required to determine the current net growth (and removals) of forest products and the amount available for ongoing, sustainable harvests. The DFS has identified the following strategies to provide a more detailed understanding of our forest harvests.

Maintain an updated, accurate inventory of Delaware's forests (public and private/rural and urban), including forest types/species, age, growth and removals.

- Periodically review the annualized U.S. Forest Service Forest Inventory and Analysis (FIA) data for updated estimates of forest types, species classes, and in particular loblolly pine acreage.
- Work with sawmills and timber buyers to maintain estimates of annual timber harvest removals (hardwood, pine, pulpwood, sawtimber).
- Maintain the urban and community forestry database that was established in 2019.
- Identify and delineate boundaries of remaining mature forests using aerial imagery from 1937.
- Support multi-agency efforts to create updated tree canopy data including crucial supporting datasets such as the most current aerial photography.

Criterion 3 – Maintenance of Forest Ecosystem Health and Vitality

Delaware's forests face a wide array of potentially damaging insects, diseases, and invasive species (both plants and animals). Additionally, while wildland fire is not a major threat, there is the potential for damaging wildland fires in certain forest types (e.g., young loblolly pine stands) and in the wildland urban interface (WUI) in coastal areas due to an abundance of incendiary phragmites. Long-term strategies are necessary to address these threats and minimize their potential impacts.

Maintain and, where possible, improve forest health.

- Maintain, and update when necessary, the DDA's Natural Disaster/Forest Health Response Plan for forest pests (native and non-native) and natural disasters (hurricanes, ice storms, etc.).
- Continue statewide and regional forest health programs, in cooperation with the U.S. Forest Service, APHIS, DDA Plant Industries Section, Cooperative Extension, and adjoining state agencies, to monitor forest pests, including exotic invasive pests (e.g., gypsy moth, emerald ash borer, and Asian longhorned beetle) as well as destructive native pests (e.g., southern pine beetle and bacterial leaf scorch). Activities shall include, but are not limited to, an annual statewide aerial defoliation survey, permanent plots, deer exclosures, and trap monitoring.

- Support cost-share programs for targeted efforts to stop new infestations or isolated infestations of forest pests including invasive plants.
- Continue to work with DNREC Division of Fish & Wildlife and other partners to stabilize the white-tailed deer population, such as by promoting quality deer management principles and continuing to participate of Delaware's Deer Management Advisory Committee.
- Continue assisting with research projects related to forest health issues, including the effects of diseases, insects, invasive plants and white-tailed deer.
- Consider research projects to maintain and improve forest productivity, such as utilizing excess poultry manure and/or municipal wastewater as fertilizers.

Minimize the impact of wildfires on public safety and forest health.

- Continue cooperative arrangement with the Delaware State Fire School to provide wildland fire training courses to volunteer firefighters and other interested individuals.
- Continue cooperative effort with the U.S. Forest Service to support and provide the Federal Excess Personal Property (FEPP) program in Delaware.
- Provide wildland firefighting educational programs to all fire companies within rural forest priority area and urban WUI priority area and refresher courses every five years.
- Provide wildland firefighting equipment grants to volunteer fire companies in high-risk wildland fire danger areas, including at least \$10,000 annually to VFCs within rural and urban WUI priority areas.
- Maintain a minimum of 50 NWCG-qualified wildland Firefighter Type II (FFT2) personnel for both out-of-state fire response and in-state prescribed burns.
- Update the 2014 Cooperative Wildland/Prescribed Fire Agreement between the DDA and DNREC.


Minimize the potential impact of wildfires on at-risk communities in the WUI.

- Develop Community Wildfire Protection Plans (CWPPs) for seven communities in WUI urban priority areas.
- Continue providing wildland fire mitigation grants (minimum \$1,000 allocation) to communities within high-risk wildland fire danger areas to reduce the chances for catastrophic fires.

Criterion 4 – Conservation and Maintenance of Soil and Water Resources

Forests play a vital role in protecting and improving soil and water quality. This role is particularly important in Delaware because nearly all of its waterways are considered impaired by the U.S. Environmental Protection Agency (EPA). Additionally, over one-third of Delaware is located within the nationally recognized Chesapeake Bay Watershed. Strategies to maintain and increase forest cover, particularly riparian forests, headwaters of watersheds, and critical groundwater recharge areas are very important.





Maintain and improve water quality through forest establishment, forested buffers, forest restoration, and protecting headwater forests.

- Permanently protect headwater and wetland forests.
- Restore wetland/floodplain forests within critical forest landscapes (working with NRCS, DNREC, etc.).
- Establish forested buffers along impaired waterways and isolated forested wetlands, particularly within critical forested landscapes, by working with partner organizations, such as the Delaware Wildlife Species Conservation & Research Program, USDA NRCS, and the U.S. Fish & Wildlife Service.
- Support the establishment of buffer ordinances at the state and county levels and include language on afforestation, restoration, maintenance, and monitoring.
- Support the establishment of forest protection ordinances at the state and county level.
- Continue monitoring forest management operations to ensure they do not degrade water quality.
- Support efforts designed to protect non-tidal freshwater wetlands.
- Develop a strategy to plant riparian forested buffers along tax ditches.
- Work to protect forested ground water recharge areas.

Criterion 5 – Maintenance of Forest Contribution to Global Carbon Cycles

The long-term effects of climate change could be dramatic within Delaware due to its location along the Atlantic seaboard and low mean elevation. The primary action widely promoted to combat the effects of climate change is reducing the concentration of atmospheric carbon dioxide. Sequestering carbon in wood is one method to achieve this reduction.

- Develop strategies for climate change/sea level rise impacts to coastal forests.
- Continue to work with DNREC to enhance the opportunity for forest management and urban forestry carbon credits through the Regional Greenhouse Gas Initiative (RGGI).

Criterion 6 – Maintenance and Enhancement of Long-Term Multiple Socioeconomic Benefits to Meet the Needs of Societies

Delaware's forests, both rural and urban, are critical to Delawareans' quality of life. Forests enhance recreational experiences, provide useful wood products, and forest industries employ thousands of people generating millions of dollars in wages. Most of Delaware's forests (78%) are privately owned. It is important that owners have opportunities to generate income from their forestlands. Maintaining existing forest markets and encouraging new ones is an important goal to help ensure the perpetuation of forestland. Additionally, continued investment in sustainable forest management and research is important to maintain and improve our knowledge and understanding of Delaware's forests.

Increase the percentage of managed privately-owned forests and landowners who are sustainably managing their lands.

- Continue to support and promote the Delaware Tree Farm Program.
- Work with forest industry, forest landowners, and other organizations to address unsustainable timber harvests (high-grading) through a combination of activities, including landowner education and improved markets for low-quality timber.
- Maintain and enhance cost-share and incentive payment programs for landowners (such as EQIP and CSP) to conduct forest management and enhancement activities, particularly within high-priority forest areas.
- Continue providing non-cost share incentive programs, such as property tax reductions and exemptions, and seek ways to better promote these programs.
- Develop new programs to reach small woodlot landowners.
- Complete a focused forest landowner survey to determine gaps in program effectiveness.
- Increase the number of forest landowners in Farmland Assessment with forest management plans.
- Continue providing forest management plans for farms in the Aglands Preservation Program.
- Maintain the comprehensive 2018 forest stewardship database that tracks state and private land forest management activities and accomplishments.
- Continue partnering with the University of Maryland Cooperative Extension Service and the Delaware Cooperative Extension to sponsor the Delmarva Forestry Seminar and other forest landowner education opportunities.
- Maintain technical assistance to landowners and increase the number of new forest stewardship plans within the rural priority area.

Increase the percentage of state-owned lands under an active forest management plan.

- Develop a shared stewardship agreement between the DDA and DNREC to expand agency expertise and management techniques to more state-owned forestlands.

Increase urban tree canopy.

- Work with communities to implement projects that address and highlight the benefits of trees (e.g., public health and quality of life, heat island effects mitigation, water quality protection, and numerous other social and environmental benefits).
- Incorporate/update tree canopy goals into UTC priority communities.
- Continue providing the community forestry matching grant program with annual funding as available.
- Afforest vacant open space managed by civic associations.
- Work with other state organizations and municipalities to promote storm water mitigation strategies using tree planting and forest conservation by providing technical assistance. Attempt to partner on projects in each county.





Increase the number of urban and community forests that are sustainably managed.

- Provide technical urban forestry assistance to municipalities. Increase the number of managing communities throughout the state, especially those communities within the UTC priority areas.
- Encourage urban forest management plans with professional tree inventories and establish an urban tree canopy goal for UTC priority communities.
- Assist civic associations with both guidance and technical assistance and encourage them to complete urban forest management plans.
- Post additional reference and technical information (and links) on the U&CF website.

Increase the number of traditional forestry professionals who operate in Delaware.

- Promote expansion of forest product markets in Delaware to increase the demand for professional forestry services.
- Encourage forest landowners to work with a professional forester during all forest management activities.

Increase the number of urban forestry professionals.

- Support an increase in the number of International Society of Arboriculture (ISA)-certified arborists registered in Delaware through training opportunities.
- Increase the number of municipalities with a certified arborist/urban forester on staff, with each UTC priority municipality having a certified arborist on staff or certified arborist on contract.

Promote the importance of Delaware's forests and forest industry.

- Complete a follow-up to the 2020 economic impact study of forests and the forest industry in Delaware.
- Complete a DFS marketing plan that includes a public campaign to promote forests and forestry.
- Continue coordinating with the U.S. Forest Service sawmill study and update as needed.
- Provide an annual forest industry status update to all state and federal legislators.

Maintain and expand the opportunities for traditional forest markets and operators (loggers, sawmills, etc.).

- Continue providing educational programs for forestry operators including the Maryland/Delaware Master Logger Volunteer Certification Program.
- Meet at least annually with forestry operators to discuss opportunities and challenges.
- Maintain and expand traditional wood markets (loggers, sawmills, chip mills, etc.) by working with other organizations such as the Delaware Prosperity Partnership, Delaware Forestry Association, USDA Rural Development, and the Maryland Forest Service.

- Explore opportunities to provide additional wood chips/shavings for animal bedding including poultry and horses.
- Encourage niche markets for forest products including U&CF waste wood. Establish an Internet-based marketing system for niche products.
- Require MD/DE Master Logger Volunteer Certification to harvest timber on state lands.
- Offer Master Logger training in Delaware.

Create markets for low-quality fiber and dedicated woody crops for biofuels.

- Review annualized FIA data every five years to update estimates of available low-quality timber.
- Address the restrictions on wood/biomass energy facilities by Delaware's incinerator law (7 Del. C. § 6003).
- Promote Fuels for Schools program. Attempt to have schools or other state-owned facility converted to wood for heating and cooling.
- Explore and promote biofuel plantation development.
- Develop a new market for low-value wood through promotion and facilitation to ensure these markets are properly sized for the available wood supply.

Create markets for non-traditional forest products (such as agro-forestry) and ecosystem services.

- Promote and facilitate markets for agro-forestry opportunities.
- Explore opportunities to include forest landowners in agri-tourism and eco-tourism.
- Explore opportunities for clean water initiatives wherever adequate forestland occurs.

Promote locally sourced wood use for state construction projects.

- Encourage legislation requiring that a certain percentage (to be determined) of Delaware-grown wood is used for all new state construction projects.

Criterion 7 – Legal, Institutional, and Economic Framework for Forest Conservation and Sustainable Management

To ensure the perpetuation of forests for the long term, governments must include provisions to promote forests and assist forest landowners in their policies, laws, and long-term planning processes. Governments also need to include forest protection and enhancement within their budgeting processes. The DFS, working with our partners, has identified the following strategies concerning the legal, institutional and economic framework for forest conservation.





Increase landowners' and governments' knowledge and appreciation of forests and forest management.

- Assist at least 50 new (or those who previously never worked with forestry professionals) forest landowners in the rural priority area and 5 community leaders and civic associations in urban UTC priority communities annually.
- Explore opportunities to provide forest and tree management information to new landowners, homeowners, and homeowner associations (HOAs).
- Provide educational opportunities for forest landowners via all avenues (print, media, Internet, etc.) and utilize State Forests as forest management demonstration sites.
- Incorporate forests and related issues into state, county, and local land-use planning.
- Provide urban forestry educational programs (land-use planning, tree care, etc.) to community leaders, civic associations, and homeowners.
- Consider legislation requiring certification for tree care professionals operating in Delaware.
- Promote the importance of forest markets and forest industry to state legislators and key decision makers.

Increase teachers' and students' understanding and appreciation of forests and forest management.

- Establish a working group to support new and existing school-based outdoor learning centers and develop best practices for their curriculum and use.
- Incorporate Children in Nature curriculum into schools.
- Maintain active participation in the Delaware Association for Environmental Education (DAEE).
- Incorporate the Project Learning Tree (PLT) curriculum into pre-service programs at Delaware college and university teaching programs.
- Assist with incorporating forestry into the implementation of the new statewide Environmental Literacy Program (ELP).
- Continue maintaining the two State Forest Education Centers and promote them for use in local school curricula.
- Continue providing forestry educational programs to elementary schools (Arbor Day, Smokey Bear, etc.).
- Work with partners and continue providing natural resource learning opportunities outside of the classroom, such as Envirothon, Science Olympiad, and Forestry 4-H programs.
- Participate in the development and implementation of the Delaware Master Naturalist Program as well as curriculum development where applicable.

IV. STRATEGY MATRIX

As discussed previously, below are the 22 strategies presented in matrix form by issue. Please note that strategies often address multiple issues. For each strategy, the matrix also includes:

- Priority Landscape Area(s),
- Other State Issues Addressed,
- Key Stakeholders,
- Resources Available/Required for Implementation,
- Performance Goals/Measures of Success, and
- National State and Private Forestry Objectives Supported.

This information allows the reader to view the strategies that will address each of the issues identified in the forest resource assessment, performance goal(s) for each strategy, what resources and other organizations will assist with the strategy, and how this strategy supports the national S&PF priorities.

As a reminder, below are the S&PF National Priorities and Objectives approved by the National Association of State Foresters. Please note that the objectives are identified by number (1.1, 1.2, 2.1, etc.) and these reference numbers are used in the matrix.

State and Private Forestry National Priorities and Objectives

1. Conserve and Manage Working Forest Landscapes for Multiple Values and Uses

- 1.1 Identify and conserve high priority forest ecosystems and landscapes
- 1.2 Actively and sustainably manage forests

2. Protect Forests from Threats

- 2.1 Restore fire-adapted lands and/or reduce risk of wildfire impacts
- 2.2 Identify, manage, and reduce threats to forest and ecosystem health

3. Enhance Public Benefits from Trees and Forests

- 3.1 Protect and enhance water quality and quantity
- 3.2 Improve air quality and conserve energy
- 3.3 Assist communities in planning for and reducing forest health risks
- 3.4 Maintain and enhance the economic benefits and values of trees and forests
- 3.5 Protect, conserve, and enhance wildlife and fish habitat
- 3.6 Connect people to trees and forests, and engage them in environmental stewardship activities
- 3.7 Manage trees and forests to mitigate and adapt to global climate change

Performance measures in **bold** are either core S&PF performance measures approved for the S&PF redesign process or directly related to those S&PF performance measures.

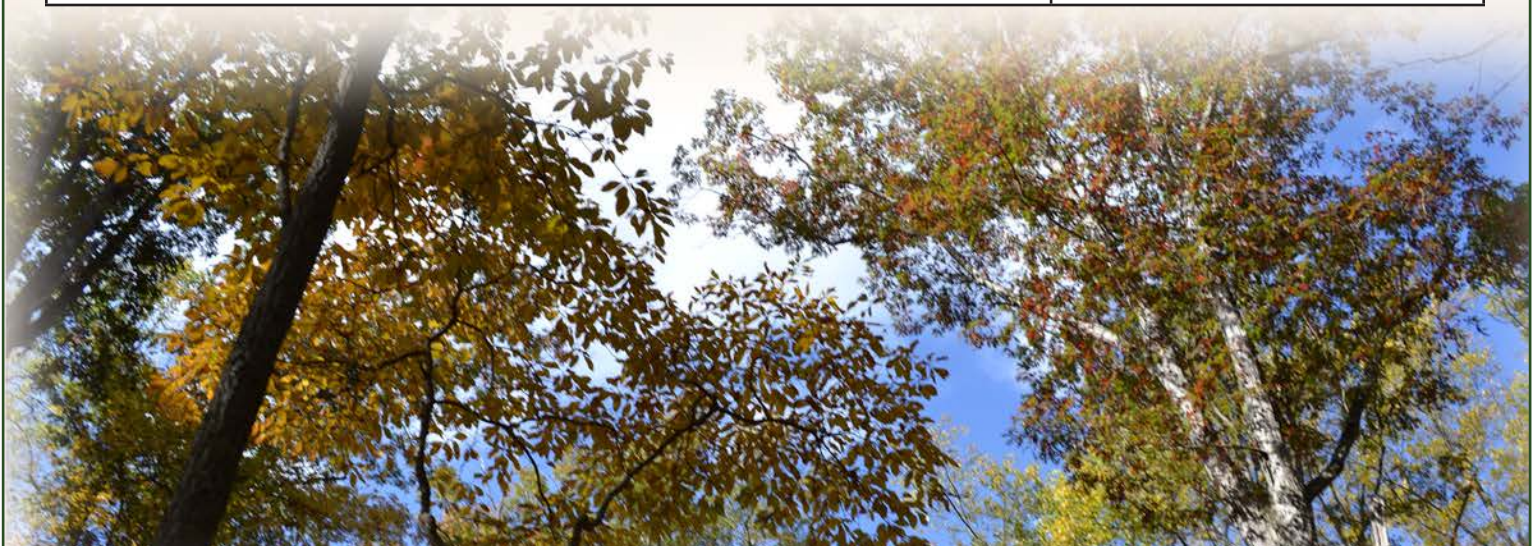


State Issue #1: Forest Health and Functionality

A sufficient, healthy forestland base ensures the perpetual production of forest outputs (lumber, wildlife habitat, recreational opportunities, water quality protection, etc.).

DE-1.1 Maintain an updated, accurate inventory of Delaware's forests (public and private/ rural and urban) including forest types/species, age, growth, and removals.

Priority Landscape Area(s)	Other State Issues Addressed	Key Stakeholders	Resources Available/ Required for Implementation
Rural and Urban	Forest Markets	USFS DNREC – Division of Fish & Wildlife, Wildlife Species Conservation & Research Program – Division of Climate, Coastal, & Energy Forest industry	Forest Stewardship Forest Health State funds USFS FIA program
Performance Goals/Measures of Success			National S&PF Objectives
DE-1.1.1 Periodically review annualized FIA data for updated estimates of forest types, size classes, and loblolly pine acreage.			1.1 Identify and conserve high priority forest ecosystems and landscapes 1.2 Actively and sustainably manage forests 3.4 Maintain and enhance the economic benefits and values of trees and forests
DE-1.1.2 Maintain annual estimates of timber harvest volumes.			
DE-1.1.3 Maintain U&CF database established in 2019.			
DE-1.1.4 Identify/delineate boundaries of remaining mature forests using aerial imagery from 1937. Complete by 2022, update by 2025.			
DE-1.1.5 Support multi-agency efforts to create updated tree canopy data including crucial supporting datasets (e.g., current aerial photography).			



DE-1.2 Establish reasonable goals for both forest protection and the long-term maintenance and restoration of a variety of forest types (species), including state rare forest types.

Priority Landscape Area(s)	Other State Issues Addressed	Key Stakeholders	Resources Available/ Required for Implementation
Rural	Sustainable Forest Management	USFS DNREC – Division of Fish & Wildlife, Wildlife Species Conservation & Research Program – Division of Parks & Recreation USFWS The Nature Conservancy USDA NRCS	Forest Stewardship Forest Health State funds DNREC Division of Fish & Wildlife The Nature Conservancy Chesapeake Bay Program
Performance Goals/Measures of Success			National S&PF Objectives
DE-1.2.1 Establish goals including prioritization process for forestland protection and conservation including headwater forests, large contiguous forest blocks, and forested wetlands. Complete goals by 2023, update by 2028.			1.1 Identify and conserve high priority forest ecosystems and landscapes
DE-1.2.2 Establish maintenance and restoration goals by 2023 for forest types including baldcypress, Atlantic white-cedar, etc.			3.5 Protect, conserve, and enhance wildlife and fish habitat
DE-1.2.3 Establish and identify areas on state-owned lands (DDA and DNREC) by 2023 to manage for “old growth” characteristics.			3.7 Manage trees and forests to mitigate and adapt to global climate change
DE-1.2.4 Identify critical forested blocks for connection using tree plantings to improve forest connectivity. Complete by 2022, update in 2027.			
DE-1.2.5 Support the establishment of a forest protection ordinance at state and county levels to protect forest corridors.			
DE-1.2.6 Develop strategies for climate change/sea-level rise impacts to coastal forests by 2023.			



DE-1.3 Protect forestland through conservation easements and, when appropriate, fee simple acquisition.

Priority Landscape Area(s)	Other State Issues Addressed	Key Stakeholders	Resources Available/ Required for Implementation
Rural	Sustainable Forest Management	Delaware Aglands and Forestland Preservation Programs USFS The Nature Conservancy The Conservation Fund County governments Land trusts	Delaware Aglands and Forestland Preservation Programs (state funds) Forest Legacy Program Open Space Council The Nature Conservancy The Conservation Fund Sussex County Land Trust Clean Water Advisory Council U.S. Dept. of Defense Readiness and Environmental Protection Integration (REPI) Program
Performance Goals/Measures of Success			National S&PF Objectives
DE-1.3.1 Protect 2,500 acres of forests within priority areas by 2028.			1.1 Identify and conserve high priority forest ecosystems and landscapes
DE-1.3.2 Maintain dedicated funding for the Delaware Forestland Preservation Program (including funds from the Clean Water Advisory Council).			1.2 Actively and sustainably manage forests
DE-1.3.3 Prioritize fee simple acquisition for lands containing riparian corridors, at-risk wildlife, and rare habitats.			3.4 Maintain and enhance the economic benefits and values of trees and forests
			3.5 Protect, conserve, and enhance wildlife and fish habitat



DE-1.4 Maintain and improve water quality through forest establishment, forested buffers, forest restoration, and protecting headwater forests.

Priority Landscape Area(s)	Other State Issues Addressed	Key Stakeholders	Resources Available/ Required for Implementation
Rural and Urban	Sustainable Forest Management	DNREC <ul style="list-style-type: none">– Division of Water– Division of Watershed Stewardship– Division of Fish & Wildlife USDA NRCSConservation DistrictsUSFWSTax ditch associationsThe Nature ConservancyDelaware Wild Lands, Inc.	Forest Stewardship ProgramChesapeake Bay ProgramUSDA NRCS EQIPState fundsUrban & Community ForestryEPA
Performance Goals/Measures of Success			National S&PF Objectives
DE-1.4.1 Permanently protect headwater forests—1,000 acres by 2025.			1.1 Identify and conserve high priority forest ecosystems and landscapes 3.1 Protect and enhance water quality and quantity 3.5 Protect, conserve, and enhance wildlife and fish habitat 3.7 Manage trees and forests to mitigate and adapt to global climate change
DE-1.4.2 Restore wetlands/floodplain forests—250 acres by 2025.			
DE-1.4.3 Establish forested buffers along impaired waterways and isolated wetlands—5 miles by 2030.			
DE-1.4.4 Work to protect forested ground water recharge areas.			
DE-1.4.5 Support the establishment of buffer ordinances at the state and county levels and include language on afforestation, restoration, maintenance, and monitoring.			
DE-1.4.6 Support the establishment of forest protection ordinances at the state and county levels.			
DE-1.4.7 Continue monitoring forest management operations to ensure they do not degrade water quality.			
DE-1.4.8 Support efforts designed to protect non-tidal freshwater wetlands.			
DE-1.4.9 Develop a strategy to plant riparian forested buffers along tax ditches.			



DE-1.5 Maintain, enhance, and delineate wildlife habitat, particularly endangered and/or threatened plant and animal species habitat, during forest management activities.

Priority Landscape Area(s)	Other State Issues Addressed	Key Stakeholders	Resources Available/ Required for Implementation
Rural	Sustainable Forest Management	DNREC Division of Fish & Wildlife, Wildlife Species Conservation & Research Program USFWS	Forest Stewardship State funds DEWAP
Performance Goals/Measures of Success			National S&PF Objectives
DE-1.5.1 Incorporate the Delaware Wildlife Action Plan and <i>species of greatest conservation need</i> into forest management, conservation, and protection activities.			1.1 Identify and conserve high priority forest ecosystems and landscapes
DE-1.5.2 Inventory, maintain, protect, enhance and delineate habitat for federally listed threatened and endangered species and state rare species (plant and animal) that are forest dependent.			3.5 Protect, conserve, and enhance wildlife and fish habitat



DE-1.6 Increase urban tree canopy.

Priority Landscape Area(s)	Other State Issues Addressed	Key Stakeholders	Resources Available/ Required for Implementation
Urban	Sustainable Forest Management Public Awareness and Appreciation	Municipalities Civic associations County government State Planning Office Nonprofits The Delaware Center of Horticulture Delaware Center for the Inland Bays DNREC Delaware Cooperative Extension	State funds U&CF funds Municipal and local funds Nonprofit funding Corporate funding (carbon credits) Urban and Community Forestry Local grants Chesapeake Bay Program
Performance Goals/Measures of Success			National S&PF Objectives
DE-1.6.1 Work with communities to implement projects that address and highlight the benefits of trees (e.g., public health and quality of life, heat island effects mitigation, water quality protection, and numerous other social and environmental benefits). Complete at least two projects per county by 2025.			1.2 Actively and sustainably manage forests
DE-1.6.2 Incorporate or update tree canopy goals into urban UTC priority communities by 2025.			3.1 Protect and enhance water quality and quantity
DE-1.6.3 Continue providing community forestry matching grant program with annual funding as available.			3.2 Improve air quality and conserve energy
DE-1.6.4 Afforest vacant open space managed by civic associations—5 acres in UTC priority communities by 2025.			3.6 Connect people to trees and forests, and engage them in environmental stewardship activities
DE-1.6.5 Work with other state organizations and municipalities to promote storm water mitigation strategies using tree planting and forest conservation by providing technical assistance. Look to partner on any projects in each county by 2025.			3.7 Manage trees and forests to mitigate and adapt to global climate change



DE-1.7 Maintain and, where possible, improve forest health.

Priority Landscape Area(s)	Other State Issues Addressed	Key Stakeholders	Resources Available/ Required for Implementation
Rural and Urban	Sustainable Forest Management	USFS APHIS DDA Plant Industries Section Delaware Cooperative Extension DNREC Division of Fish & Wildlife Delaware Forestry Association	Forest Health State funds APHIS Forest Stewardship Urban and Community Forestry
Performance Goals/Measures of Success			National S&PF Objectives
DE-1.7.1 Maintain, and update when necessary, DDA's Natural Disaster/Forest Health Response Plan for forest pests and natural disasters.			1.2 Actively and sustainably manage forests 2.2 Identify, manage, and reduce threats to forest and ecosystem health 3.3 Assist communities in planning for and reducing forest health risks
DE-1.7.2 Continue monitoring for forest pests (including plants) both invasive and native. Maintain periodic aerial/ground surveys.			
DE-1.7.3 Support cost-share programs for targeted efforts to stop new infestations or isolated infestations of forest pests including invasive plants.			
DE-1.7.4 Continue working with DNREC Division of Fish & Wildlife to stabilize the white-tailed deer population. Participate on Deer Management Advisory Committee.			
DE-1.7.5 Continue implementing and assisting with research projects on forest health issues, including the effects of diseases, insects, invasive plants, and white-tailed deer.			
DE-1.7.6 Consider research projects to maintain and improve forest productivity, such as utilizing excess poultry manure and/or municipal wastewater as fertilizers.			



DE-1.8 Utilize prescribed fire for forest and wildlife habitat restoration and management.

Priority Landscape Area(s)	Other State Issues Addressed	Key Stakeholders	Resources Available/ Required for Implementation
Rural	Sustainable Forest Management	USFS Delaware State Fire School Volunteer Fire Companies DNREC – Division of Fish & Wildlife – Division of Parks & Recreation USDA NRCS USFWS	State Fire Assistance Volunteer Fire Assistance State funds DNREC Division of Fish & Wildlife Forest Stewardship
Performance Goals/Measures of Success			National S&PF Objectives
DE-1.8.1 Continue providing prescribed fire expertise and assistance for silvicultural and wildlife habitat enhancement projects.			1.2 Actively and sustainably manage forests
DE-1.8.2 Annually treat at least 250 acres to maintain/restore fire-adapted ecosystems.			2.1 Restore fire-adapted lands and/or reduce risk of wildfire impacts
DE-1.8.3 Maintain a statewide operational and safety standard for prescribed burning based on NWCG standards.			2.2 Identify, manage, and reduce threats to forest and ecosystem health
DE-1.8.4 Establish a Delaware prescribed burn council by 2023 to support state and other agencies with fire implementation.			3.5 Protect, conserve, and enhance wildlife and fish habitat
DE-1.8.5 Support changing of current burn law to allow special permits during the burning ban (May 1–September 30).			



DE-1.9 Minimize the impact of wildfires on public safety and forest health.

Priority Landscape Area(s)	Other State Issues Addressed	Key Stakeholders	Resources Available/ Required for Implementation
Rural and Urban	Sustainable Forest Management Public Awareness and Appreciation	USFS Delaware State Fire School Volunteer Fire Companies DNREC Division of Fish & Wildlife	State Fire Assistance Volunteer Fire Assistance State funds Delaware State Fire School Conservation Education
Performance Goals/Measures of Success			National S&PF Objectives
DE-1.9.1 Continue cooperative agreement with Delaware State Fire School to provide wildland firefighting courses. Train 50 new students per year.			1.2 Actively and sustainably manage forests 2.1 Restore fire-adapted lands and/or reduce risk of wildfire impacts 2.2 Identify, manage, and reduce threats to forest and ecosystem health 3.3 Assist communities in planning for and reducing forest health risks 3.5 Protect, conserve, and enhance wildlife and fish habitat
DE-1.9.2 Provide wildland firefighting educational program to all fire companies within rural forest priority area and urban WUI priority area by 2025 and refresher courses every 5 years.			
DE-1.9.3 Provide wildland firefighting equipment grants to VFCs, including at least \$10,000 annually to VFCs within rural forest and urban forest WUI priority areas.			
DE-1.9.4 Maintain a minimum of 50 NWCG-qualified wildland Firefighter Type II personnel.			
DE-1.9.5 Continue to support and provide the Federal Excess Personal Property (FEPP) program.			
DE-1.9.6 Update the 2014 Cooperative Wildland/ Prescribed Fire Agreement between the DDA and DNREC. Complete by 2021 and update every four to five years.			



DE-1.10 Minimize the potential impact of wildfires on at-risk communities in the WUI.

Priority Landscape Area(s)	Other State Issues Addressed	Key Stakeholders	Resources Available/ Required for Implementation
Urban WUI	Sustainable Forest Management Public Awareness and Appreciation	USFS Delaware State Fire School Volunteer Fire Companies DNREC – Division of Fish & Wildlife	State Fire Assistance Volunteer Fire Assistance State funds Delaware State Fire School Conservation Education
Performance Goals/Measures of Success			National S&PF Objectives
DE-1.10.1 Develop CWPPs for seven (7) communities in WUI urban priority areas by 2025.			1.2 Actively and sustainably manage forests
DE-1.10.2 Continue wildland fire mitigation grants to communities within high-risk wildland fire danger areas—100 acres treated annually to reduce hazardous fuels.			2.1 Restore fire-adapted lands and/or reduce risk of wildfire impacts 2.2 Identify, manage, and reduce threats to forest and ecosystem health 3.3 Assist communities in planning for and reducing forest health risks



State Issue #2: Forest Markets

Adequate and diverse forest markets are available to landowners to satisfy their goals for their property.

DE-2.1 Promote the importance of Delaware's forests and forest industry.

Priority Landscape Area(s)	Other State Issues Addressed	Key Stakeholders	Resources Available/ Required for Implementation
Statewide	Forest Health and Functionality Public Awareness and Appreciation	Delaware Forestry Association Delaware Tree Farm Committee Forest industry Delaware Cooperative Extension Governor’s Council on Forestry	Delaware Prosperity Partnership Delaware Cooperative Extension USFS Forest Utilization & Marketing Conservation Education Forest Stewardship
Performance Goals/Measures of Success			National S&PF Objectives
DE-2.1.1 Complete a follow-up economic impact study of forests and the forest industry by 2026.			3.4 Maintain and enhance the economic benefits and values of trees and forests 3.6 Connect people to trees and forests, and engage them in environmental stewardship activities
DE-2.1.2 Complete a DFS marketing plan by 2023 that includes a public campaign to promote forests and forestry.			
DE-2.1.3 Continue coordinating with the USFS sawmill study and update as needed.			
DE-2.1.4 Provide annual status update to all state and federal legislators.			



DE-2.2 Maintain and expand the opportunities for traditional forest markets and operators (loggers, sawmills, etc.).

Priority Landscape Area(s)	Other State Issues Addressed	Key Stakeholders	Resources Available/ Required for Implementation
Statewide	Sustainable Forest Management	Delaware Forestry Association Delaware Tree Farm Committee Forest industry Delaware Cooperative Extension USDA Rural Development Governor's Council on Forestry	Delaware Prosperity Partnership DDA USDA Rural Development USFS Forest Stewardship Forest Utilization and Marketing Urban and Community Forestry
Performance Goals/Measures of Success			National S&PF Objectives
DE-2.2.1 Continue providing educational programs for forestry operators including MD/DE Master Logger Volunteer Certification Program.			1.2 Actively and sustainably manage forests 3.4 Maintain and enhance the economic benefits and values of trees and forests 3.6 Connect people to trees and forests, and engage them in environmental stewardship activities
DE-2.2.2 Meet at least annually with forestry operators to discuss opportunities and challenges.			
DE-2.2.3 Maintain and expand traditional wood markets.			
DE-2.2.4 Explore opportunities to provide additional wood chips/shavings for animal bedding (e.g., poultry, horses, etc.).			
DE-2.2.5 Encourage niche markets for forest products including U&CF waste wood. Establish an Internet-based marketing system for niche products.			
DE-2.2.6 Require MD/DE Master Logger Volunteer Certification to harvest on state lands.			
DE-2.2.7 Offer Master Logger training in Delaware.			



DE-2.3 Create markets for low-quality fiber and dedicated woody crops for biofuels.

Priority Landscape Area(s)	Other State Issues Addressed	Key Stakeholders	Resources Available/ Required for Implementation
Statewide	Sustainable Forest Management	Delaware Forestry Association Delaware Tree Farm Committee Forest industry Delaware Cooperative Extension USDA Rural Development Delaware Division of Climate, Coastal, & Energy Governor's Council on Forestry	Delaware Prosperity Partnership DDA USDA Rural Development USFS Forest Stewardship Forest Utilization and Marketing Urban and Community Forestry
Performance Goals/Measures of Success			National S&PF Objectives
DE-2.3.1 Review annualized FIA data every five years.			1.2 Actively and sustainably manage forests
DE-2.3.2 Address the restrictions on wood/biomass energy facilities by Delaware's incinerator law (7 Del. C. § 6003).			3.2 Improve air quality and conserve energy
DE-2.3.3 Promote <i>Fuels for Schools</i> program. Attempt to have schools or other state-owned facility converted to wood for heating and cooling.			3.4 Maintain and enhance the economic benefits and values of trees and forests
DE-2.3.4 Explore and promote biofuel plantation development.			3.7 Manage trees and forests to mitigate and adapt to global climate change
DE-2.3.5 Develop a new market by 2025 for low-value wood by promoting and facilitating new markets and ensure that these markets are properly sized for the available supply.			



DE-2.4 Create markets for non-traditional forest products (e.g., agro-forestry) and ecosystem services.

Priority Landscape Area(s)	Other State Issues Addressed	Key Stakeholders	Resources Available/ Required for Implementation
Statewide	Sustainable Forest Management Public Awareness and Appreciation	Delaware Forestry Association Delaware Tree Farm Committee First State RC&D Council Delaware Cooperative Extension Governor's Council on Forestry	DDA Marketing Program DNREC – Division of Air & Waste Management – Division of Climate, Coastal, & Energy Forest Stewardship Forest Utilization and Marketing
Performance Goals/Measures of Success			National S&PF Objectives
DE-2.4.1 Promote and facilitate markets for agro-forestry opportunities.			1.2 Actively and sustainably manage forests
DE-2.4.2 Continue working with DNREC to enhance the opportunity for forest management and urban forestry carbon credits through RGGI.			3.1 Protect and enhance water quality and quantity
DE-2.4.3 Explore opportunities for forest landowners in agri-tourism and eco-tourism.			3.4 Maintain and enhance the economic benefits and values of trees and forests
DE-2.4.4 Explore opportunities for clean water initiatives wherever adequate forestland occurs.			3.7 Manage trees and forests to mitigate and adapt to global climate change

DE-2.5 Promote locally sourced wood use for state construction.

Priority Landscape Area(s)	Other State Issues Addressed	Key Stakeholders	Resources Available/ Required for Implementation
Statewide	Sustainable Forest Management	Forest industry State of Delaware Governor's Council on Forestry	State legislators
Performance Goals/Measures of Success			National S&PF Objectives
DE-2.5.1 Encourage legislation requiring a certain percentage (to be determined) of Delaware-grown wood is used for all new state construction projects.			3.4 Maintain and enhance the economic benefits and values of trees and forests
			3.6 Connect people to trees and forests, and engage them in environmental stewardship activities

State Issue #3: Sustainable Forest Management

Delawareans must sustainably manage their rural and urban forests.

DE-3.1 Increase percentage of managed privately-owned forests and landowners who are sustainably managing their lands.

Priority Landscape Area(s)	Other State Issues Addressed	Key Stakeholders	Resources Available/ Required for Implementation
Rural	Forest Health and Functionality Public Awareness and Appreciation	Delaware Forestry Association Delaware Tree Farm Committee USDA NRCS DNREC Division of Fish & Wildlife Delaware Cooperative Extension	Forest Stewardship State funds EQIP and CSP State cost-share funds Chesapeake Bay Program
Performance Goals/Measures of Success			National S&PF Objectives
DE-3.1.1	Support the Delaware Tree Farm Program.		1.1 Identify and conserve high priority forest ecosystems and landscapes 1.2 Actively and sustainably manage forests 3.1 Protect and enhance water quality and quantity 3.4 Maintain and enhance the economic benefits and values of trees and forests 3.5 Protect, conserve, and enhance wildlife and fish habitat 3.6 Connect people to trees and forests, and engage them in environmental stewardship activities
DE-3.1.2	Work with industry and landowners to address high-grading.		
DE-3.1.3	Maintain and enhance cost shares for forestry activities. Continue EQIP, CSP, and state cost share funds for forestry.		
DE-3.1.4	Continue non-cost share incentives for forest management—such as property tax reductions—and seek ways to better promote these programs.		
DE-3.1.5	Develop new programs to reach small woodlot landowners (e.g., using cooperative model).		
DE-3.1.6	Complete focused landowner survey by 2025.		
DE-3.1.7	Increase number of landowners in Farmland Assessment with forest management plans.		
DE-3.1.8	Continue providing forest management plans for farms in the Aglands Preservation Program.		
DE-3.1.9	Maintain comprehensive 2018 database that tracks state and private land forest management activities and accomplishments.		
DE-3.1.10	Continue partnering with the University of Maryland Extension Service and Delaware Cooperative Extension to sponsor the Delmarva Forestry Seminar and other forest landowner education opportunities.		
DE-3.1.11	Maintain technical forestry assistance to landowners—new stewardship plans totaling 9,000 acres by 2025 (1,800 per year), including 6,500 acres within rural priority area.		

DE-3.2 Increase the percentage of state-owned lands under an active forest management plan.

Priority Landscape Area(s)	Other State Issues Addressed	Key Stakeholders	Resources Available/ Required for Implementation
Rural	Forest Health and Functionality	DNREC – Division of Fish & Wildlife – Division of Parks & Recreation	Forest Stewardship State funds
Performance Goals/Measures of Success			National S&PF Objectives
DE-3.2.1 Develop a shared stewardship agreement between the DDA and DNREC to expand agency expertise and management techniques to more state-owned forestlands. Complete agreement by 2025.			1.1 Identify and conserve high priority forest ecosystems and landscapes 1.2 Actively and sustainably manage forests

DE-3.3 Increase the number of traditional forestry professionals who operate in Delaware.

Priority Landscape Area(s)	Other State Issues Addressed	Key Stakeholders	Resources Available/ Required for Implementation
Statewide	Forest Health and Functionality Forest Markets	Forest landowners Forest industry	Forest Utilization and Marketing Forest Stewardship Governor's Council on Forestry
Performance Goals/Measures of Success			National S&PF Objectives
DE-3.3.1 Promote expansion of forest product markets in Delaware to increase the demand for professional forester services.			1.2 Actively and sustainably manage forests
DE-3.3.2 Encourage forest landowners to work with a professional forester during all forest management activities.			3.6 Connect people to trees and forests, and engage them in environmental stewardship activities



DE-3.4 Increase the number of urban forestry professionals.

Priority Landscape Area(s)	Other State Issues Addressed	Key Stakeholders	Resources Available/ Required for Implementation
Urban	Public Awareness and Appreciation	ISA Municipalities State Planning Office	State funds Municipal funds U&CF funds Urban and Community Forestry
Performance Goals/Measures of Success			National S&PF Objectives
DE-3.4.1 Support an increase in the number of International Society of Arboriculture (ISA)-certified arborists registered in Delaware through training opportunities—40 by 2025.			1.2 Actively and sustainably manage forests 3.1 Protect and enhance water quality and quantity
DE-3.4.2 Increase the number of municipalities with a certified arborist/urban forester on staff, with each UTC priority municipality having a certified arborist on staff or certified arborist on contract by 2025.			3.6 Connect people to trees and forests, and engage them in environmental stewardship activities



DE-3.5 Increase the number of urban and community forests that are sustainably managed.

Priority Landscape Area(s)	Other State Issues Addressed	Key Stakeholders	Resources Available/ Required for Implementation
Urban	Forest Health and Functionality Public Awareness and Appreciation	Municipalities Civic associations County government State Planning Office The Delaware Center of Horticulture Delaware Center for the Inland Bays DNREC Delaware Cooperative Extension	State funds U&CF funds Municipal and local funds Nonprofit funding Urban and Community Forestry
Performance Goals/Measures of Success			National S&PF Objectives
DE-3.5.1 Provide technical urban forestry assistance to municipalities. Increase the number of managing communities to 21 by 2025, including at least 10 within UTC priority communities.			1.2 Actively and sustainably manage forests 3.1 Protect and enhance water quality and quantity 3.2 Improve air quality and conserve energy 3.6 Connect people to trees and forests, and engage them in environmental stewardship activities
DE-3.5.2 Encourage urban forest management plans with professional tree inventories and establish an urban tree canopy goal for all UTC priority communities by 2025.			
DE-3.5.3 Assist civic associations with both guidance and technical assistance and encourage them to complete urban management plans.			
DE-3.5.4 Post additional reference and technical information (and links) on U&CF website.			



State Issue #4: Public Awareness and Appreciation of Forests

Delawareans must understand and appreciate the importance of forests and forest management.

DE-4.1 Increase landowners' and governments' knowledge and appreciation of forests and forest management.

Priority Landscape Area(s)	Other State Issues Addressed	Key Stakeholders	Resources Available/ Required for Implementation
Statewide	Sustainable Forest Management Forest Health and Functionality Forest Markets	Forest landowners Municipalities and county government Delaware Cooperative Extension Delaware Forestry Association State Planning Office General Assembly Governor's Office USFS Governor's Council on Forestry Homeowners	Forest Stewardship Urban & Community Forestry Conservation Education Delaware Cooperative Extension Colleges and Universities
Performance Goals/Measures of Success			National S&PF Objectives
DE-4.1.1 Assist at least 50 new (or those who previously never worked with forestry professionals) forest landowners in the rural priority area and 5 community leaders and civic associations in urban UTC priority communities annually.			1.2 Actively and sustainably manage forests 3.6 Connect people to trees and forests, and engage them in environmental stewardship activities
DE-4.1.2 Explore opportunities to provide forest and tree management information to new landowners, homeowners, and homeowner associations (HOAs).			
DE-4.1.3 Provide educational opportunities for forest landowners via all avenues (print, media, Internet, etc.) and utilize State Forests as demonstration sites.			
DE-4.1.4 Incorporate forests and related issues into state, county, and local land-use planning.			
DE-4.1.5 Provide urban forestry educational programs (land-use planning, tree care, etc.) to community leaders, civic associations, and homeowners.			
DE-4.1.6 Consider legislation requiring certification for tree care professionals operating in Delaware.			
DE-4.1.7 Promote the importance of forest markets and the forest industry to state legislators and key decision makers through annual forest industry status updates.			

DE-4.2 Increase teachers' and students' understanding and appreciation of forests and forest management.

Priority Landscape Area(s)	Other State Issues Addressed	Key Stakeholders	Resources Available/ Required for Implementation
Statewide	Sustainable Forest Management	Delaware Department of Education Colleges and Universities DAEE Children in Nature Initiative Project Learning Tree DNREC Delaware Nature Society Delaware Cooperative Extension Conservation Districts FFA 4-H	Conservation Education Delaware Department of Education Sustainable Forestry Initiative (SFI) Private funds Forest Stewardship Urban & Community Forestry Delaware Cooperative Extension School Districts
Performance Goals/Measures of Success			National S&PF Objective
DE-4.2.1 Establish a working group through DAEE to support new and existing school-based outdoor learning centers and develop best practices for their curriculum and use.			3.6 Connect people to trees and forests, and engage them in environmental stewardship activities
DE-4.2.2 Incorporate Children in Nature curriculum into schools.			
DE-4.2.3 Maintain active participation in the Delaware Association for Environmental Education (DAEE).			
DE-4.2.4 Incorporate Project Learning Tree (PLT) curriculum into pre-service programs at Delaware college and university teaching programs.			
DE-4.2.5 Assist with incorporating forestry into the implementation of the new statewide Environmental Literacy Program (ELP).			
DE-4.2.6 Continue maintaining the two State Forest Education Centers and promote them for use in local school curricula. Bring 2,500 students to both centers by 2025.			
DE-4.2.7 Continue providing forestry educational programs to elementary schools (Arbor Day, Smokey Bear, etc.). Reach 15,000 students annually.			
DE-4.2.8 Work with partners and continue providing natural resource learning opportunities outside the classroom (Envirothon, 4-H Forestry, etc.).			
DE-4.2.9 Participate in Delaware Master Naturalist Program development and implementation as well as curriculum development where applicable.			

V. IMPLEMENTATION: TRANSLATING STRATEGIES INTO ACTIONS

The DFS has identified 22 strategies and 105 action items to address the threats and issues and to target critical rural and urban forests identified within our state forest resource assessment. Many of these strategies include timelines for completion and/or performance measures to assess progress. The DFS plans to translate the strategies to actions as follows:

1. DFS staff members who routinely work with other natural resource agencies and organizations (including NRCS, U.S. Fish & Wildlife Service, DNREC, and The Nature Conservancy) will seek out collaborative efforts to accomplish specific state strategy goals and timelines where applicable to partner involvement.
2. Each year, DFS staff members will review the strategies and performance goals to determine progress-to-date (accomplishments-to-date for each performance measure) including any unforeseen challenges that have impeded progress, such as funding constraints, data gaps, etc.
3. Annual performance plans for each DFS employee will include performance goals, where applicable, listed in the state forest strategy document.
4. Every five years, the DFS will submit a *State Forest Action Plan Highlights Report* to the U.S. Forest Service Eastern Region State and Private Forestry. This report will update the status of all 105 action items and highlight select items that were overwhelmingly positive and/or exceeded expectations.

Investment of Resources

The Delaware Forest Service (DFS) is the primary recipient for S&PF funds in Delaware. The DFS will utilize these funds to implement the strategies to address the issues and threats identified in the state forest resource assessment. This investment of funds reflects the joint interests of and long-standing partnership with the federal government (USDA) and the State of Delaware, as envisioned in the Cooperative Forestry Act, P.L. 95-313:

“Congress finds that—most of the productive forest land of the United States is in private, State, and local governmental ownership, and the capacity of the United States to produce renewable forest resources is significantly dependent on such non-Federal forest lands;...” (Sec. 2.a.1)

“It is the policy of the Congress that it is in the national interest for the Secretary to work through and in cooperation with State foresters, or equivalent State officials, nongovernmental organizations, and the private sector in implementing Federal programs affecting non-Federal forest lands.” (Sec. 2.e)

To participate in the achievement of this broad and important national vision from a Delawarean perspective, the DFS utilizes S&PF and other federal funds, state resources, and the assistance of many committed partner organizations and individuals.



Allocation of S&PF Funding

Staffing:

Currently, the DFS annually receives approximately \$500,000 of S&PF funds (excluding Forest Legacy Acquisition funding). The DFS anticipates that it will continue to use approximately one-half of these funds to support portions of five DFS positions (salaries, other employee costs, and indirect costs) that assist with implementation of the state strategy. These positions will assist with a broad range of activities identified in the state strategies, including:

- Technical forestry assistance to private landowners and forestry operators,
- Technical forestry assistance to communities, civic associations, and homeowners,
- Forest health monitoring and management,
- Wildland fire suppression and education, and
- Developing strategies, implementation plans, and performance goals for long-term strategies.

S&PF funds currently provide the salaries for a portion of five positions within the DFS (one forester position, ½ of three additional forester positions, and ½ of a community relations position). These five positions are vital to the DFS and necessary to address and complete the state strategies.

Grants:

Other S&PF funds will be utilized for grants to communities and other organizations as specified within the state strategies. Currently these grants total approximately \$125,000. Specifically:

- Community Forestry Grants – matching grants to communities and civic associations to implement urban forest management plans including efforts to attain urban tree canopy goals.
- Rural Volunteer Fire Company Grants – matching grants to rural volunteer fire companies to purchase wildland firefighting equipment, tools, and gear.
- Wildland Fire Mitigation Grants – matching grants to rural communities to mitigate wildland fire danger.
- Delaware State Fire School – funding to continue the partnership to provide wildland firefighting courses annually to volunteer fire fighters and other interested individuals.
- Education Grants – grants to schools to develop outdoor classrooms and associated forestry curriculum (such as Project Learning Tree).

Special Projects:

The DFS will use additional S&PF funds for special projects described within the strategies, as funding permits. The DFS anticipates using approximately \$100,000 annually—given the current S&PF budget level—for S&PF special projects. These projects would include, but are not limited to:

- Forest Inventory Studies – projects to further refine Delaware's forest inventory data (GIS analysis, etc.) and work with partners to develop goals for acreage totals for various forest types and restoration efforts (e.g., baldcypress and Atlantic white-cedar restoration).





- Economic Analysis – study to update the estimated impact of forests and the forest industry on Delaware’s economy.
- Chesapeake Bay – funding to assist with achieving EPA’s TMDL for the Chesapeake Bay watershed, including implementation of various forestry best management practices (BMPs), such as riparian buffers, urban tree canopy expansion goals, and forested wetland restoration.
- Invasive Species Control/Forest Health Improvement – funding to assist with targeted efforts to remove invasive species and/or improve forest health. This program would focus on stopping infestations of new pests to Delaware/Mid-Atlantic region or eradicating isolated infestations of invasive species.

Operating Budget:

The DFS anticipates using the remaining funds for supplies, contractual services, and travel expenses related to our S&PF programs. Expenses include field equipment, office supplies, telephone and computer service, fuel, printing and shipping, and other general expenses.

Increased Funding Scenarios:

The DFS would use increased S&PF funding, regardless of the amount, for grant programs and additional special projects. Such increases/new projects could include:

- Funding to work with other agencies and organizations to establish long-term goals for forest types and, funding permitting, assist with restoration projects to meet these goals,
- Additional funds for the community forestry grant program (tree planting and tree maintenance), particularly within urban priority forests,
- Additional funding for grants to establish outdoor classrooms at public and private schools, and
- Further analysis of Delaware’s FIA data to develop better estimates of forest types and inventories.

Increased budgets would likely not result in additional positions, except perhaps for casual/seasonal employees to assist with special projects (e.g., summer interns to assist with field work, GIS analysis, etc.). Establishing additional full-time positions within the DFS is very difficult because the DFS must demonstrate long-term funding (minimum of three years) for any new position.

Stakeholder Engagement:

Included within the strategy matrix there is a list of key stakeholders that the State Forest Stewardship Committee determined would be essential for addressing each of the 22 strategies. DFS staff members routinely work with virtually all of these stakeholders throughout the year. Collaborative efforts between agencies/organizations is standard operating procedure for the DFS. The updated *2020 Delaware Forest Action Plan* merely seeks to expand these ongoing efforts. DFS foresters and supporting staff members are up for the challenge and will strive to meet or exceed all the listed goals for the benefit of all.

Summary:

The DFS, working with the Delaware Forest Stewardship Committee and other partners, identified four primary issues facing Delaware's forests and classified rural/urban forest priority areas within the Delaware Forest Resource Assessment. Likewise, the DFS and its partners identified 22 strategies and 105 action items, including performance measures and accomplishment targets, to address the four primary issues. These strategies and action items represent an ambitious plan to protect and enhance Delaware's forests, utilizing S&PF funds, state funds, and other funding. The DFS will monitor progress, address data gaps, adjust performance measures and targets, and update the assessment and strategy as necessary. By continuing our work with partners—both public and private organizations—we can achieve the goals described in the forest resource assessment and statewide forest strategy and achieve our mission: *to conserve, protect, and enhance Delaware's forests through education, management, and professional assistance.*

VI. APPENDICES