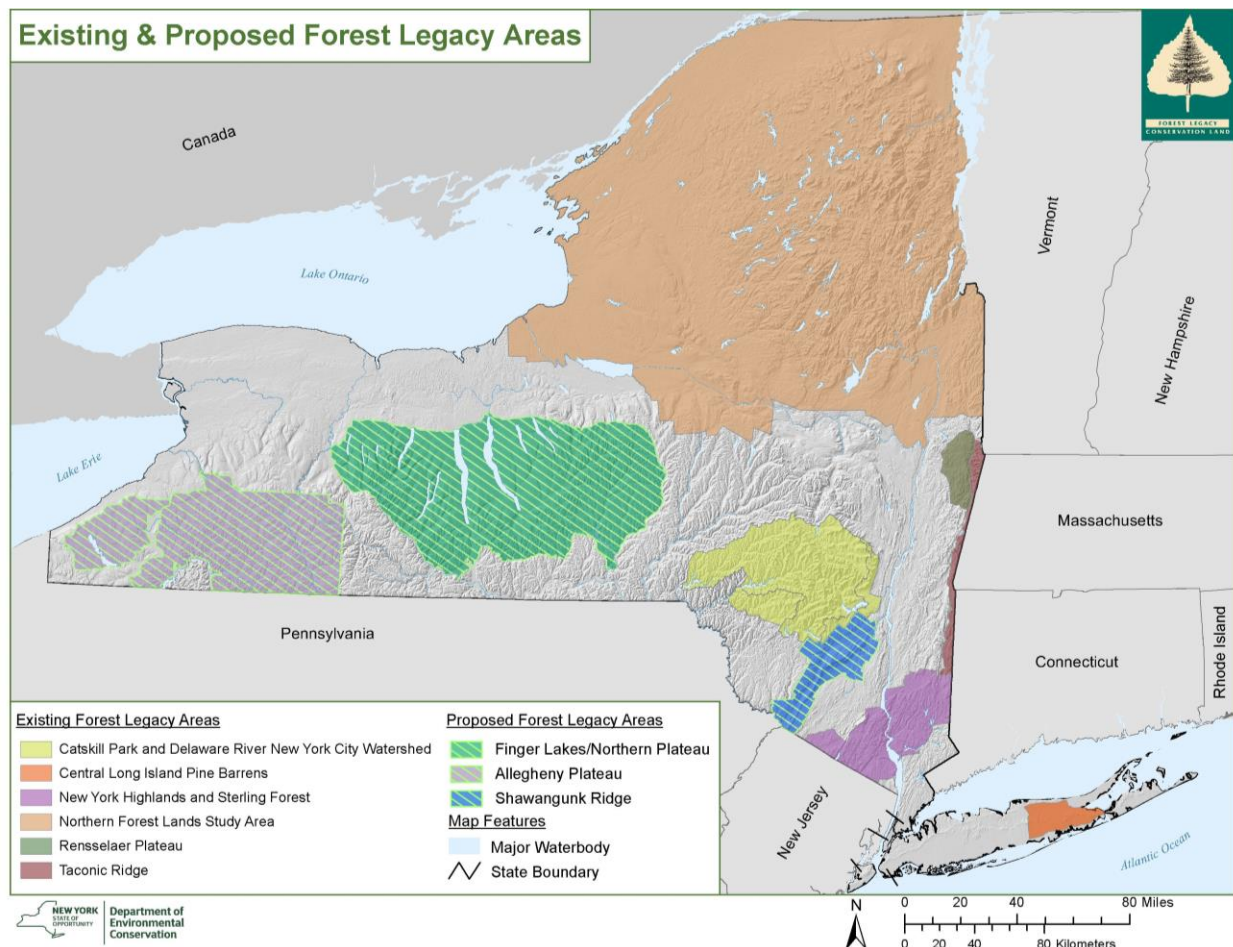


Appendix A: Forest Legacy Program's Assessment of Need

Introduction



Development of the nation's forested areas poses an increasing threat to maintaining the integrity of our country's valuable forest lands. Intact forestlands supply timber products, wildlife habitat, carbon sequestration, soil and watershed protection, aesthetics, and recreational opportunities. However, as these areas are fragmented and disappear, so are the benefits they provide.

The purpose of the Forest Legacy Program (FLP) is to protect environmentally important forest areas that are threatened by conversion to non-forest uses. The FLP is a partnership

between participating states and the U.S. Forest Service, an agency of the U.S. Department of Agriculture. These two entities work together to identify important forest lands and protect them for future generations. The State Forest Stewardship Coordinating Committee (SFSCC) authorized the Forest Legacy Subcommittee to act on behalf of the full SFSCC on all Forest Legacy matters. The Forest Legacy Subcommittee provides guidance on the Assessment of Need and prioritizes a state's submission of annual projects to the U.S. Forest Service.

Conservation easements are the primary tool used to achieve this goal. Priority is given to lands that have important scenic or recreational values, such as riparian areas; fish and wildlife values, including threatened and endangered species; or other ecological values.

Designed to encourage the protection of privately owned forest lands, the FLP is an entirely voluntary program. It encourages and supports acquisition of conservation easements, legally binding agreements transferring a negotiated set of property rights from one party to another, without removing the property from private ownership. Most FLP conservation easements restrict building development, require sustainable forestry practices, and protect other values. The FLP also supports fee-title land purchases in a limited number of situations, where necessary to accomplish the program's objectives.

Current Forest Legacy Areas:

- Northern Forest Lands Study Area (1994 AON)
- Taconic Ridge (1994 AON)
- New York Highlands and Sterling Forest (1994 AON)
- Central Long Island Pine Barrens (1994 AON)
- Catskill Park and Delaware River New York City Watershed (1998 Amended AON, expanded 2010)
- Rensselaer Plateau

Proposed Forest Legacy Areas:

- Allegheny Plateau
- Finger Lakes/Northern Plateau
- Shawangunk Ridge

In order to participate in the FLP, each state is required to develop an Assessment of Need (AON) that documents its need for inclusion in the FLP through an evaluation of current forests, forest uses, and the trends and forces causing

conversion to non-forest uses. Additionally, the AON must define eligibility criteria that the State will use to identify and delineate important forest areas as Forest Legacy Areas, identify goals for each FLA, and outline the State's project evaluation and prioritization procedures. As required by the 2008 Farm Bill, New York has included the AON in its Forest Action Plan as an appendix. The AON references sections of the Forest Action Plan and several state policy documents for additional information.

Forest Resources and Benefits

Scenic Values

Forests figure prominently in scenic values across New York, from the Long Island Pine Barrens, the Hudson Valley and Hudson Highlands, Catskill and Adirondack Parks, Rensselaer Plateau, Taconic Ridge, Tug Hill, Finger Lakes, Delaware Highlands, Southern Tier to Allegany State Park. Scenic resources are a tourism driver throughout the state. Forests support Wild, Scenic and Recreational Rivers, Scenic Byways, Scenic Areas of Statewide Significance, and long-distance recreational trails, as listed in the State's Open Space Conservation Plan.

The archaeological, scenic, historic and cultural resources of our state provide residents and the country with tangible reminders of the importance of our region's rich and varied heritage. Whether they are rural communities, urban streetscapes, historic working landscapes, or archaeological sites, the presence and knowledge of such resources provide a community and its citizens with continuity and context for their daily lives, and contribute to the overall quality and enjoyment of life. They also can give our communities unique characteristics and a special sense of place, fostering pride in the areas where we live.

The "cultural landscape" created by our historic and cultural resources provides a context for land preservation that goes beyond natural resources and helps strengthen the case for open space protection. Using our landscape as inspiration, Hudson River School painters

created a uniquely American appreciation for nature, and New York has been in the vanguard of the environmental movement ever since. The collective efforts to protect our resources are an important part of our heritage in New York, and the policies within this plan will help our state live up to that legacy. (2016 Open Space Conservation Plan)

Fish and Wildlife Habitat

The State Wildlife Action Plan (SWAP) describes the varied forest habitats in New York, and the diverse wildlife species that these forest habitats support. Almost half of the 366 species identified as Species of Greatest Conservation Need (SGCN) in the SWAP depend on forest habitats, totaling 180 different species. This includes representatives of all taxonomic groups that rely on terrestrial habitats, as shown in Table “Forest Habitat-dependent Species of Greatest Conservation Need” on this page. The species assessment documents developed for the SWAP include details on forest habitat needs of these SGCN, such as tree species, canopy or ground layers, edge or interior, and size of forest blocks. The species assessments are available at <https://www.dec.ny.gov/animals/7179.html>. Of the forest dependent SGCN, 17 are **endangered**, six are **threatened** and 29 are of **special concern** (state designations). Of New York’s forest dependent species, 2 are federally listed endangered, and 3 are federally listed threatened. (Note: numbers do not include vascular plants – vascular plants are discussed later in this AON) *See Table Federal and state listed endangered and threatened forest dependent species for additional information.*

Seventeen forest habitat types that support SGCN were identified (*see table Forest Dependent Species of Greatest Conservation Need*), but this does not include some early successional forests categorized as shrublands, nor aquatic habitats in streams flowing through forests. Some of these forest habitats, especially those restricted to coastal locations, are limited in distribution, while other forest types are widespread throughout the state.

| Class | # of forest habitat-dependent SGCN |
|-----------|------------------------------------|
| Amphibian | 10 |
| Birds | 42 |
| Insect | 92 |
| Mammal | 18 |
| Reptile | 18 |

Forest Habitat-dependent SGCN,
NYSDEC Fish and Wildlife Division

| Forest Habitat | # of SGCN |
|-----------------------------------|-----------|
| Atlantic White Cedar Swamp | 4 |
| Boreal Forested Peatland | 15 |
| Boreal Upland Forest | 2 |
| Coastal Coniferous Barrens | 19 |
| Coastal Hardwoods | 7 |
| Coastal Red Maple-Black Gum Swamp | 3 |
| Conifer Forest Swamp | 6 |
| Floodplain Forest | 16 |
| Hardwood Swamp | 7 |
| Mixed Hardwood Swamp | 6 |
| Mixed Northern Hardwoods | 20 |
| Mountain Spruce-Fir Forest | 3 |
| Northeast Upland Forest | 11 |
| Oak Forest | 12 |
| Oak-Pine Forest | 22 |
| Pine Barrens | 20 |
| Riparian Forest | 7 |

Forest Habitats that support SGCN,
NYSDEC Fish and Wildlife Division

Protection of large blocks of forested land is an important component of wildlife conservation in New York, but connectivity of these protected forest habitats is also crucial to provide wildlife the opportunity to move across the landscape. Habitat connectivity is important on many

geographic scales, from the local scale of seasonal migration of amphibians between breeding pools and upland habitats, to the regional range expansion of moose between northeastern states. The unimpeded movement of animals is important to maintain genetic diversity in protected areas, and allows wildlife to move to suitable habitats, which is an important adaptation strategy to climate change. The SWAP identified “Promote habitat connectivity for SGCN” as an objective, and listed actions for both aquatic and terrestrial connectivity, including dam removal and culvert replacement, and to restore and maintain natural habitats in linkage areas to foster Northeast regional habitat connectivity.

Protection of key forested lands through purchase of fee title or conservation easement is a recommended action in the SWAP. Protection of floodplain forests is especially important for the multiple conservation benefits that these riparian areas provide: habitat, flood protection, and connectivity.

The process of drafting the SWAP assessed threats to species but did not directly evaluate threats to habitats. Loss of habitats, including forest habitats, is one of the major threats to the populations of SGCN. Most often, forest habitat is lost to development, but for species that depend on young forests, habitat is also lost to natural forest succession. Natural system modifications through alteration of fire regimes threatens 35 SGCN, especially those dependent on pine bush habitats. Logging is a threat to 51 SGCN, mostly related to siltation of aquatic habitats that can result from improper silviculture practices. Other threats to forest-dependent SGCN include gypsy moth, spruce budworm, and hemlock woolly adelgid infestations; deposition of atmospheric pollutants; invasive species, climate change-induced habitat shifts; excessive human recreation; and overabundant white-tailed deer. (Forest Action Plan Assessment: Status of forest biodiversity; Connectivity of forests.)

Public Recreation Opportunities

Understanding the environment is critical to our future. Today, children spend far less time outdoors than their parents did. Often, children learn more about nature from television and the internet rather than from direct contact and observation. Efforts to connect New Yorkers to nature described in the Open Space Conservation Plan include:

- Providing access to nature where people live,
- Increasing environmental literacy,
- Showing how contact with nature enhances public health and the quality of life, and
- Involving the next generation in caring for the environment and protecting our open spaces. (2016 OSP)

Approximately 52 percent of state residents participate in some form of non-motorized recreation annually. This generates approximately \$41.8 billion in consumer spending in New York each year, directly supporting 313,000 jobs, providing \$14 billion in wages and salaries, and producing about \$3.6 billion in state and local tax revenue. New York State has historically invested in recreational access. It will continue to provide greater access to state lands, improve the availability of recreation information, and improve the economic, social, and environmental benefits of those investments.

Through the Forest Legacy Program, New York State seeks to provide access to recreational opportunities, when possible and appropriate. This includes protecting existing recreational opportunities, such as hiking and snowmobile trail routes, in perpetuity. Recreational opportunities include, but are not limited to, traditional recreation, such as hunting, fishing, trapping, and wildlife opportunities, as well as canoeing/kayaking, hiking, cross-country skiing, snowshoeing, mountain biking, and light motorized recreation, i.e. snowmobiling.

Immersion in the beauty and diversity of New York's forests, as well as opportunities for a wilderness experience, are among the main draws of long-distance trails in our state. New York is fortunate to be home to several, including ones that connect our state to its neighbors or to multistate landscapes.

Approximately one in five Americans has a disability. An increased focus on providing universally accessible amenities on DEC and OPRHP lands in recent years has resulted in the creation of wheelchair-accessible trails, designated parking, and accessible restrooms, picnic areas, campsites, fishing piers, horse-mounting platforms, and boat launches, as well as increased efforts to make all programs and services inclusive. This welcomes people of varying abilities to become active in outdoor recreation, which in turn, supports a healthy quality of life for all our citizens. (Forest Action Plan: Assessment: Economic benefits of outdoor recreation; Priority Landscapes: Recreational hotspots and long-distance trails)

Geology and Soil Productivity

Soil is important to forest sustainability since it is, literally, what supports trees. Natural soil conditions and their ability to support tree and forest growth are negatively impacted by a variety of factors, including acid deposition, compaction, development and "hard-surfacing", erosion, land cover, fire, and even non-native earthworms.

Geology

Bedrock geology forms the framework of the landscape, influencing soil and water chemistry, drainage patterns, the shape and orientation of much of the topography and the resulting local climate patterns.

The topography of New York has been shaped by a complex and turbulent geologic history, including multiple tectonic plate collisions, uplift and erosion of several mountain ranges, volcanic activity, earthquakes, igneous intrusions, regional metamorphism, and advancing and retreating sea levels. Against this changing backdrop, plants and animals evolved, first in the ocean

and later on land. New York has one of the world's best fossil records of the Devonian Period (408 to 360 million years ago), with remarkably well-preserved marine sequences, and also non-marine fossils that show the transition to land. Most of the bedrock in New York is over 250 million years old, with younger rocks having been almost completely removed by erosion.

New York's present landscape is dominated by the impacts of the last ice age, which ended 15,000 years ago. Only a small area of the southwestern part of the state—the southwest corner of the High Allegheny Plateau Ecoregion—escaped glaciation. Glaciers shaped the high peaks in the Catskills and Adirondacks, created Long Island, formed huge lakes, changed hydrology, and covered much of the state with a layer of glacial till. Where huge glacial lakes once held meltwater, there are now thick sand and clay deposits, such as those in the Hudson Valley and parts of Central New York. The remnants of ice age features—such as sand dunes, river sand and gravel deposits, and muck-filled bogs—can be found in many parts of the state. The most ubiquitous material left behind as the ice retreated is glacial till, the rough mixture of rocks, sand, and clay scraped up and bulldozed by the glacier's ice.

Soils and Associated Tree Species

Glaciers of the last ice age erased the existing forests and landforms of New York so thoroughly that there is almost no trace of the pre-glacial ecology. New soils slowly began to develop as organic matter accumulated, laying the foundation for plant succession. About 11,000 years ago, tree species, led by spruce, migrated back north from their glacial refuges. Some of the early trees arriving soon after white spruce included black spruce, elm, and black ash. One of the last major species to arrive in New York was chestnut, reaching the state about 2,000 years ago.

Most of the bedrock in New York, including shale, sandstone, and most metamorphic rock, produces acidic soils. Where the bedrock is limestone or marble, soils are high in calcium. The difference between forest types growing on acid soils and calcareous soils can be dramatic. Where sandstone bedrock is next to limestone bedrock, the change in vegetation is often abrupt. Pitch pines, chestnut oaks, blueberries, and other acid-loving plants do not grow well on limestone. Other species are more tolerant, notably red cedar, which grows well on rocky sites. For red cedar, lack of shade from competition is a more important factor than soil chemistry.

Many elements of a site affect a tree, including soil thickness and rooting depth, frost effects, soil chemistry, elevation, moisture availability, wind exposure, etc. Different species have different site requirements, and their health and vigor ultimately depend on where they grow. For example, sugar maple growing on a south facing dry slope is likely to be stressed by drought and heat, and more susceptible to insects and disease. However, many oak species would thrive on such a site since they generally prefer warm, well-drained conditions.

Forest Management Implications

Encouraging the growth of tree species on sites with optimal conditions is one of the important benefits of wise forest management. Foresters must rely on their knowledge of what each tree and forest community requires so their management efforts result in resilient and healthy forests. A harvest on a south facing dry slope would focus on perpetuation of species that do best in those conditions, such as oak. This purposefully parallels what we observe on the landscape and know about species requirements for optimal growth.

Long-term Effects of Acid Rain on Forest Soils

In the 1980s, the worst pollutants from coal-burning utility plants in the Midwest, sulfur dioxide (SO₂) and oxides of nitrogen (NO_x), were deposited across the Northeast in the form of acid rain or as dry acid particles.

Unfortunately, many forests in the Catskills, Adirondacks, and Hudson Highlands grew on naturally acid soils with no buffering capacity to neutralize the acid deposition. Soils became even more acidic, leading to the release of unbound aluminum from soil compounds. Hundreds of lakes became too acidic and poisoned by aluminum to support any life, and the high-elevation forests were dying, their roots damaged by free aluminum in the thin acid soil.

New York passed the 1984 State Acid Deposition Control Act, which was followed by Article IV of the 1990 EPA Clean Air Act, known as the Acid Rain Program, which required utilities to reduce emissions of SO₂ and NO_x. As precipitation became less acidic, forests began to recover.

Today, the impact of acid rain has not gone away. Long-term studies of forest soils show that acid rain has caused major changes in ecosystem cycling of nitrogen, calcium, and carbon. Nitrogen deposition may be lower than it was before state and federal legislation was enacted, but it continues to accumulate in forest soils. Continued nitrogen deposition is especially destructive. Even when it merely fertilizes hemlocks, it has been linked with increased vulnerability to adelgids. Soils can become saturated with nitrogen to the point that plants can no longer absorb it, and the excess nitrogen leaches out of the soil to contaminate water. Calcium leaching from acidic soils is a particularly serious problem, not only because soils become even more acidic, but also because calcium is critical for so many plant processes. Reduced soil calcium levels have been implicated in increased frost injury and long-term decline in New York's sugar maples and red spruces.

Effects of Climate Change on Forest Soils

Forest soils formed as a result of particular temperature and precipitation regimes, which, in turn, affected forest development, composition, and productivity. Climate change impacts observed in New York are expected to continue to include rising temperatures and altered precipitation patterns. The resulting changes in soil temperature regimes have the potential to undermine the resilience of our forest species, both trees and understory plants. Shorter, warmer winters may not provide timely or sufficient cold periods for trees to become frost hardened, and frequent thaw-freeze cycles during winter may affect dormancy and essential early spring nutrient-uptake cycles. High temperatures and a potential lack of precipitation in the growing season may increase drought stress and the potential for non-native, drought-tolerant species to establish and outcompete native ones. (Forest Action Plan – Assessment: Soil resources in forests)

Note: The benefit of soils storing carbon is discussed under Forest Action Plan Goal #1, 'Assessment: Valuing forests for carbon storage and community adaptation.'

Forest Products and Timber Management Opportunities

New York's forest products industry is as diverse as any that in other state in the country, with businesses ranging from pulp-, paper-, and sawmills to biomass energy plants and secondary manufacturing of almost every type, as well as the foresters and logging/trucking contractors who produce raw materials and deliver them to a market.

New York's forest-based recreation contributes significantly to the overall economy of the state. These opportunities are categorized as purchases at food and beverage stores, service stations, lodging places, eating and drinking establishments, and a host of other retail trade and service sectors. Wildlife viewing is the largest contributor with over 38 percent of the total sales in 2011, and is followed by, in order:

hunting, camping, downhill skiing, hiking, cross-country skiing, fall foliage viewing, and snowmobiling.

The data below, from the forest product and forest-based recreation industry, highlights some economic benefits in New York:

- In 2017, the direct contribution of the forest products industry to the New York economy was over \$13 billion*.
- In 2017, the forest products industry directly employed 40,000 people, and paid \$3.2 billion in direct labor income*. The average salary for workers in this industry is over \$79,000 dollars.
- In 2011, forest-based recreation and tourism provided 31,926 jobs and generated payrolls of \$936 million**.
- In 2011, revenues from forest-related recreation and tourism activities totaled \$8.2 billion**.
- In 2011, New York rural landowners received estimated stumpage revenue of over \$250 million**.
- In 2018, New York was the second leading maple syrup producer in the United States, with the value of maple syrup production totaling over \$26 million.

* "New York State Forest Industry-An Economic Overview-2017 Draft," written by Marial Cavo, John Wagner, and David Newman on behalf of the New York State Wood Products Development Council.

** The Economic Importance of New York's Forest Based Economy. 2013. Northeast State Foresters Association; https://www.dec.ny.gov/docs/lands_forests_pdf/economicimportance2013.pdf.

*** National Agricultural Statistics Service report: https://www.nass.usda.gov/Statistics_by_State/Pennsylvania/Publications/Survey_Results/2019/Maple%20Syrup%202019.pdf

Threats and challenges

For the forest products industry, challenges are persistent and require innovation by not only investing in new equipment, but also investing in the training and development of employees. Challenges experienced by all sectors result from global competition, high energy costs, and other business-related expenses. The current workforce shortage in logging - trucking in particular - is a major challenge for the industry. Natural factors also provide challenges. For example, quarantines as a result of exotic and invasive forest pests make it more difficult to operate a business as usual. Those in the industry who continue to do well have the flexibility to try new methods, invest in the latest equipment, and seek out and hire the best employees. (Forest Action Plan Assessment: Economic Impact of New York's Forest)

Availability, diversity, and viability of markets for forest products

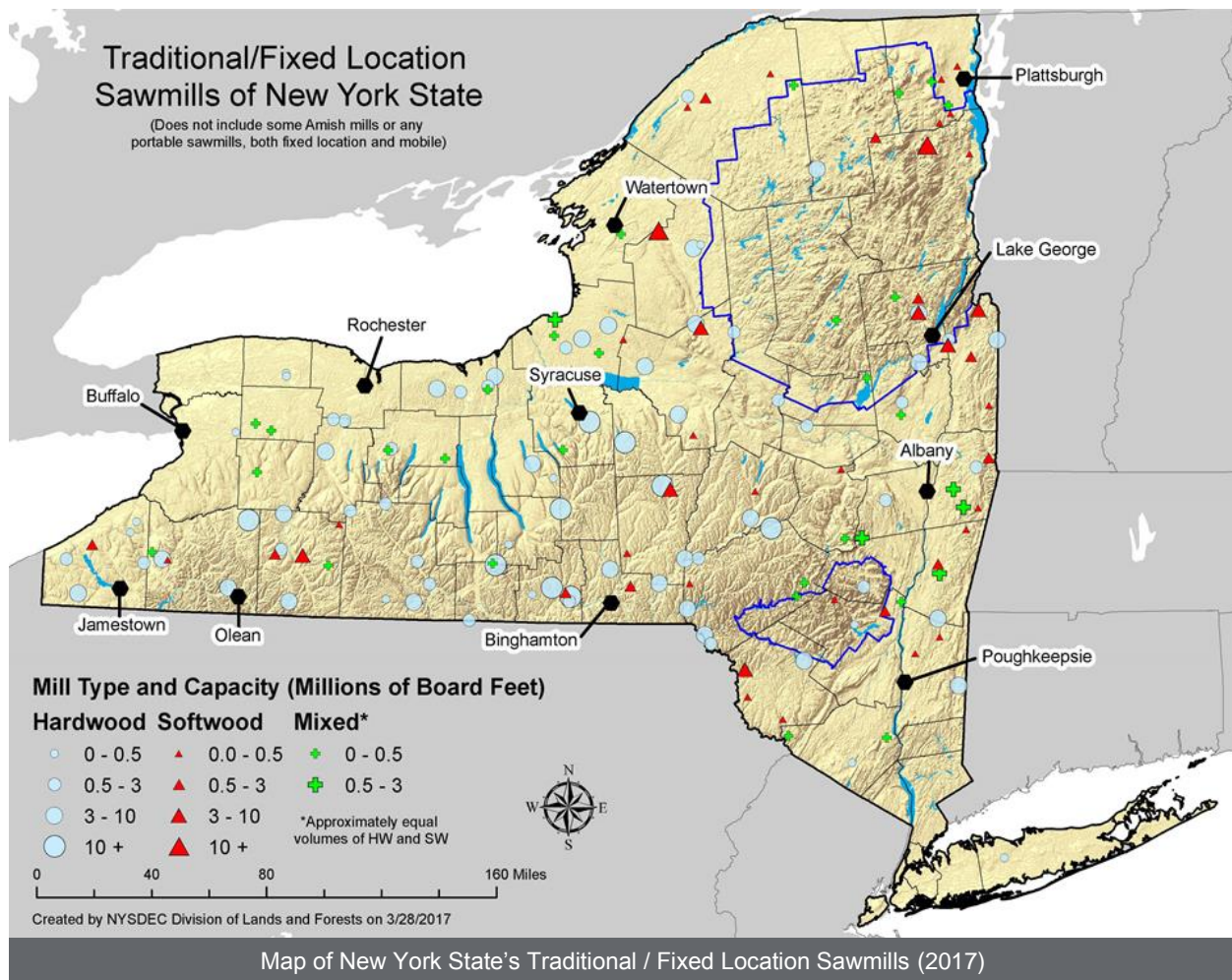
Wood products are environmentally friendly and renewable, and the proper management of their raw source, trees, helps sequester and store carbon. Wood products also provide economic benefits in the form of jobs and manufacturing. Markets for the goods and services derived from forests are essential to generating revenues and returns on investments. Markets need to be diverse, distributed across the state, and accessible to all viable forest owners. Access to markets should not be unduly restricted by regulations, policies, or laws. These preferred conditions support and sustain private forest ownership, retention, and management.

Traditional markets for wood products include sawmills, veneer mills, pulp and paper manufacturers, pallet mills, and firewood. These users are often called “primary markets,” as they take logs from the woods in round form and convert them into products. Over the last two decades, as pulp- and paper mills closed or switched to imported/purchased pulp, and numerous sawmills closed or consolidated, New York and much of the Northeast have seen

a decline in the number and diversity of traditional primary wood markets. Loss of these markets has limited management options for forest owners and managers, as well as reduced potential returns. Losses also occurred among secondary wood products manufacturers that buy local lumber and turn it into furniture, cabinetry, flooring, tool handles, and other finished or semi-finished goods. These manufacturers are essential in providing the next link in the economic chain, keeping local mills and harvesters in business.

Some wood products markets are ‘emerging,’ such as those for energy biomass or chemical production, but these markets are not yet well developed or geographically dispersed in New York. In addition to using logs, many of these markets also rely on byproducts of other wood-processors, including bark, chips, slabs, edgings, and even papermill sludge. These users can provide an important secondary revenue stream for sawmills, pulp mills, and timber harvesters, which helps them stay viable. However, the biomass users’ viability may depend on the mills staying in business and continuing to generate affordable byproducts. Whether those businesses can survive is often dictated by other market conditions far beyond the biomass users’ control.

Currently, most harvesting of low-grade timber products takes place in the 14-county North Country region of New York. These markets provide direct economic benefits to landowners by allowing them to sell low-value trees. These markets also provide long-term benefits by 1) improving the overall quality and health of the residual forest by removing poorly formed, diseased, and underperforming trees; and 2) stimulating the regeneration of seedlings and saplings by allowing light to hit the forest floor. Further diversification of markets could safeguard the ability to continue harvesting low-grade timber at high levels. The expansion of low-grade markets into other parts of the state will improve the overall health and productivity of our managed forests.

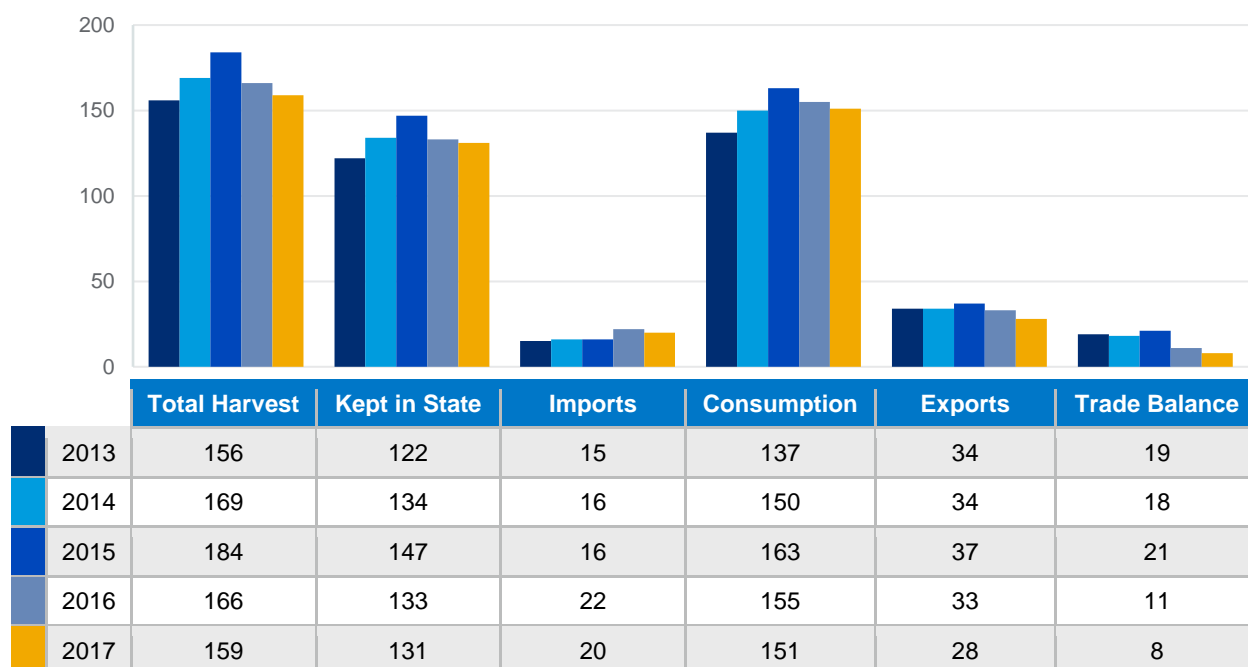
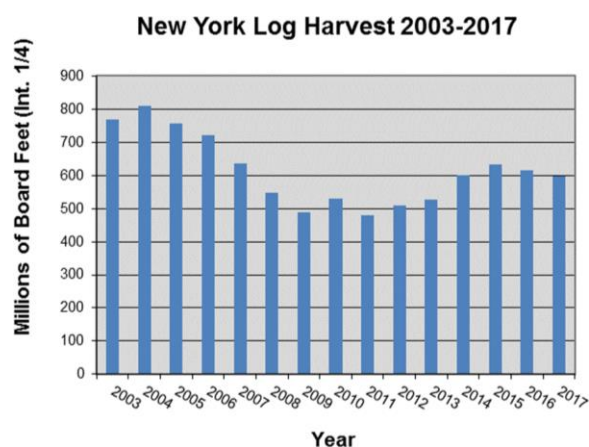


There is a growing interest and need to explore new economic opportunities for forest landowners, typically called “non-traditional markets.” These opportunities can range from recreational or hunting leases to special forest products, such as ginseng, mushrooms, nuts, fruits, and decorative botanicals, to payments for ecosystem services, such as carbon sequestration, wildlife habitat conservation, or water quality protection. Forestland leasing has been a historic practice in many areas of New York, especially on large ownerships formerly held by forest products industries. Payments for ecosystem services are starting to receive a great deal of attention as a method for landowners to monetize these services on par with traditional forest product markets. If issues of quantification, verification, permanence, valuation, and funding sources can be worked out, this approach could provide significant

economic motivation and compensation for forest owners to retain and sustainably manage their woodlands.

In 1999, DEC’s Forest Utilization Program initiated an industrial timber harvest production and consumption reporting program to account for timber product harvest and disposition on an annual basis. This report provides an enhanced understanding of the forest industry’s economic contribution to rural New York, and augments information provided by U.S. Forest Service’s FIA Program. The report is widely distributed to forestry partners and industry in New York and it is made available to the forestry research community, as well as the general public. In recent years, the report has been utilized effectively by potential developers of biomass energy facilities investigating woody biomass feedstock availability.

After high levels of harvest in the early 2000s, New York saw a decrease in the level of log harvest during the Great Recession years of 2007 through 2012. Steady annual increases occurred through 2015, with slight decreases in annual harvest levels in 2016 and 2017. Prices stabilized after the recession years, creating a favorable market for landowners to sell their wood products. Most of the total amount of wood harvested in New York is kept in-state and consumed by state mills. There is a steady export market to China for light colored hardwoods, such as ash and maple. (Forest Action Plan Assessment: Forest product manufacturing)



Wood and wood product production, consumption, and trade

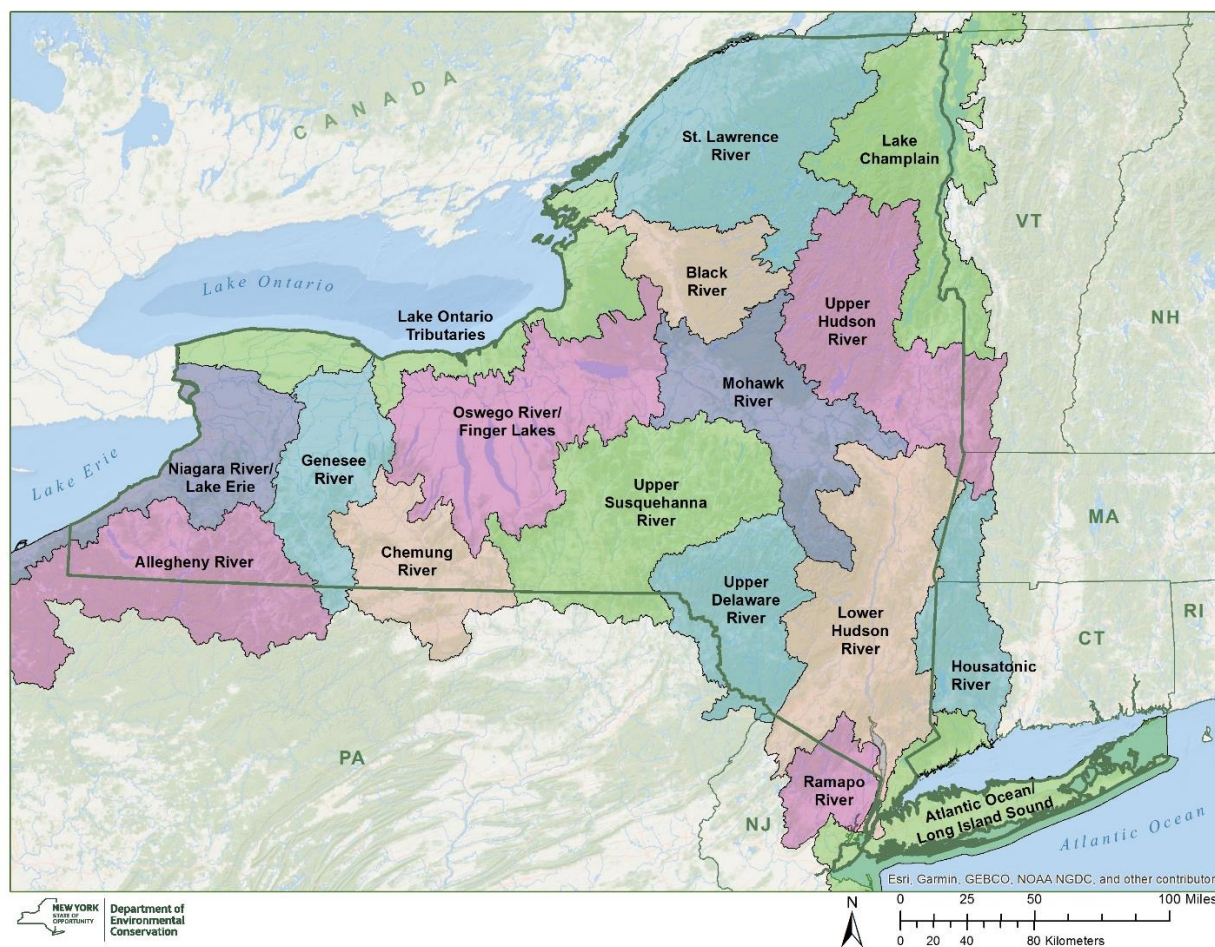
Watershed Values Including Water Quality Protection

In addition to being a forest-rich state, New York also has an abundance of clean, high quality water.

Drinking Water Quality and Supply

Forests are the first line of defense when protecting water quality, an essential resource for people and all living organisms. Forests and their soils act like huge sponges, soaking up

enormous amounts of precipitation. By the time rain and snowmelt seep through forest soil into groundwater or nearby surface water, the water has been cleaned and purified. Forested watersheds also moderate water quantity by slowing surface runoff and increasing the infiltration of water into the soil. The result is less flooding, cleaner water downstream, and greater groundwater reserves (Ernst, Caryn, 2004). Watershed protection is the first and most fundamental step in a multiple-barrier approach to protecting drinking water.



Map of New York State's Watersheds

New York State's involvement in land acquisitions in critical watersheds has been essential to protecting drinking water quality throughout our state. Protecting natural ecosystems and the drinking water they provide is easier, more efficient, and more cost effective than the engineered alternative. When communities invest in land protection to protect their drinking water, they are investing in the long-term health and quality of life of their residents – guiding growth away from sensitive water resources, providing new parks and recreational opportunities, protecting farmland and natural habitats, and preserving historic landscapes. Many communities don't realize the cost-saving benefit of source protection and the potentially dramatic increase in treatment costs that can result from the loss of forests and the natural filtration they provide. (Ernst, 2004)

New York State has taken many actions to protect forests in order to maintain and enhance water quality, including the creation of the Adirondack and Catskill Forest Preserve, as well as the establishment of New York City's surface reservoir system, along with the forest protection component of their Filtration Avoidance Determination.

Example – New York City

The primary source of New York City's drinking water is the Catskill area watershed, so the City works to restore and protect this watershed rather than build a multi-billion-dollar water filtration plant. New York City estimated the cost of installing filtration alone to be nearly \$7 billion, with over \$300 million in annual operating costs. Instead, New York City chose to support the quality of land management in its source watershed in order to sustain high water quality

for a substantially lower investment. New York City manages almost 55,000 acres in the Catskills. In addition, New York State manages more than 200,000 acres in the Catskill watershed. Jointly, New York City and New York State also encourage private owners in the New York City watershed to keep forests as forests, and to implement forestry practices that restrict runoff, reduce sedimentation, and take up contaminants.

Example – Long Island

Similarly, the Long Island Pine Barrens and its underground aquifer provide virtually all the Island's drinking water, supplying millions of people. Two hundred years ago, the Pine Barrens blanketed a quarter of Long Island. Today, most of that land is developed. The approx. 102,500 acres remaining Pine Barrens have been divided into two categories by the New York State Central Pine Barrens Commission: Core Preservation Area (55,000 acres) and Compatible Growth Area (47,500 acres). The federal Environmental Protection Agency designated this aquifer system as the nation's first sole source aquifer, requiring special protection. It is managed jointly by state, county, and local governments.

Threats and Challenges

Most people do not make the connection between forested watersheds and the water coming from their faucet, or stormwater and flood mitigation. Similarly, the public is generally unaware of the threats to their water supplies. Considering that the majority of New York's forests are privately owned, a similar statement can be made: most people don't make the connection between privately owned forests and the water coming from their faucet. This lack of public awareness can lead to poor management decisions and lack of support for forest retention and management.

This lack of support, in turn, leads to urban and suburban sprawl, or conversion of forests to agricultural use. The resulting loss of forested cover:

- Undermines the land's capacity to absorb and hold water,
- Increases pollutant runoff from paved surfaces, rooftops, treated lawns, agricultural lands, etc., and
- Disrupts the natural hydrology of water flows, volumes, rates, retention, and storage.

Protecting and managing forests in source watersheds is an essential part of future strategies for providing clean, safe drinking water that citizens can afford. One of the main reasons why suppliers are revisiting the idea of source protection is the growing realization that allowing untreated water quality to degrade also increases treatment and capital costs. (Forest Action Plan Assessment: Drinking Water Quality and Supply)

Present and Future Threats of Forestland Conversion

Land use trends and drivers of forestland conversion

Forest parcelization and fragmentation are two land use trends that cause several problems and result in degraded forest health. Unfortunately, we expect these trends to continue in New York State, at least in the next 10 years. These fragmented landscapes support higher deer populations and make the forest more susceptible to invasive species as well, which further undermine forest health.

Parcelization occurs when large parcels of land are divided up into smaller ones. Parcelization results in an increase in the number of owners. Fragmentation occurs when continuous forest is broken up by development of roads, homes, commercial uses, and agricultural purposes

The consequences include the spread of invasive plant species, which tend to establish around forest edges, often out-competing native plants and disrupting entire forest ecosystems. Parcelization can – and fragmentation does – result in less interior forest for plants and

animals that require this specific habitat. Parcelization also increases the number of forest landowners and can make the task of managing the forest resources of the state more difficult overall. Stewardship efforts must be of sufficient scale to target the large number of landowners responsible for managing these small woodlots. For the forest industry, parcelization increases the costs and complexity of doing business with private forest owners. For example, instead of negotiating for a timber sale on 200 acres with one owner, they may have to work with 5 different owners to access the same timber resource.

Forest Loss in New York

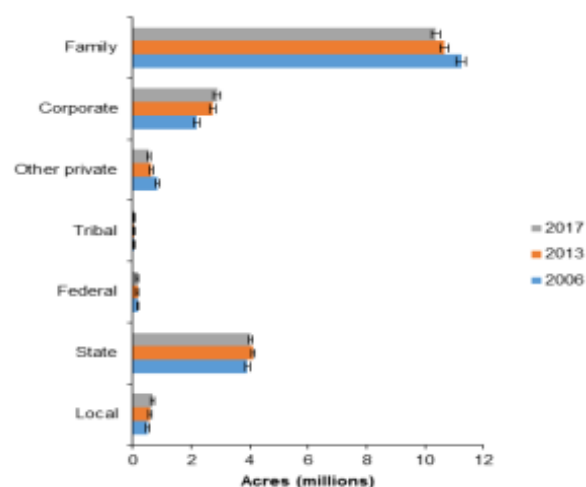
According to recent data released by the U.S. Forest Service Forest Inventory and Analysis Program, there was a slight net forest loss in New York State of about 1 percent from 2012 to 2017. Around 390,000 acres of gross loss of forestland changed classification to non-forest. Conversely, 250,000 acres reverted back to forestland. Almost half of this gross loss can be explained by conversion to agriculture, while a third is attributed to development. However, most of the land classified as agriculture was defined as idle agriculture and may not yet meet the U.S. Forest Service definition of forestland under the FIA sampling regime.

In New York State, parcelization and fragmentation due to development is concentrated around rural-suburban interfaces in the Hudson Valley bedroom communities of New York City and Long Island, as well as around some upstate cities. These forests are generally less healthy and productive than unfragmented forests and face a variety of threats from invasive plants and pests, and overbrowsing by white tailed deer.

What this means

The net loss of forestland reported in this inventory is small, with gross loss of forest partially offset by gross gain. Since the previous inventory, New York has seen a statistically significant loss of forestland, with a 0.29 percent average annual rate of decline, and a

statistically significant gain in non-forest, with a 0.05 percent average annual rate of increase. These changes have more than offset the gains that culminated in the maximum extent of forestland seen in the 2012 inventory, resulting in a 1 percent net loss over the past decade. Gains and losses from multiple causes are driving land use change dynamics in New York. Movement between forest and non-forest classifications may be a result of land meeting or not meeting FIA's definition of forestland, due to small changes in understory disturbance, forest extent, or forest cover. Such changes are generally not permanent and may be more prevalent in stands of small diameter trees. Additionally, the definition of forestland changed in 2013 from a minimum of 10 percent stocking to a minimum of 10 percent canopy cover. Over half of the forestland acreage lost to agricultural land uses (112,000 acres) was classified in the latest inventory as idle farmland, a land use defined as areas taken out of agricultural production, but not yet reverted to forestland. It is likely that much of the change was due in part to procedural changes in forestland classifications rather than true on-the-ground land conversion. Monitoring this issue into the next inventory cycle should bring clarity to the question about what the true trend is in forest extent. (Forest Action Plan Assessment: Land use trends and drivers of forestland conversion)



Area of forestland by ownership group, 2006, 2013, and 2017 (New York Forest, 2017)

Private forestlands

Family forest owners hold 75 percent of all private forestland and 56 percent of all forestland in the state. Other private owners, including corporations, conservation organizations, and unincorporated clubs and partnerships, own the remaining 25 percent of private land in the state. The amount of acreage classified as family forest decreased by 880,000 acres from 2006 through 2017, representing a 6 percent decline. The number of family ownerships also fell by an estimated 11.9 percent.

Family forest owners find it increasingly difficult to keep their forests as forests. The reasons for these difficulties are numerous. There are many economic factors related to the costs of buying, holding, and managing forestland. Property values, mortgage interest rates, taxes, costs of management, and management services are all important drivers. Local, national, and global market factors also affect the returns from direct investments in forestlands. Availability and viability of buyers and consumer trends for all manner of forest products, market preferences, and housing starts all influence wood markets and economic returns.

According to the National Woodland Owners Survey responding landowners ranked scenic beauty (97%), wildlife habitat (94%), and privacy (88%) as reasons why family forest owners in New York own their lands. Managing specifically for forest products ranked fairly low (48%) as a reason that landowners own land in New York. However, advice on timber management was the number one reason landowners sought the advice of a forester. Most often, harvests are conducted out of financial necessity or opportunity without the assistance from a forester or the guidance of a forest management plan.

Many landowners created limited liability corporations (LLCs) as legal protection for their assets, including forestland. This could explain some of the rise in the number of acres categorized as corporate. These LLC's essentially operate as "family forests," but it is difficult to differentiate between this category

and true corporate ownership, such as a Timber Investment Management Organization or lumber company.

Regulatory factors can affect what family forest owners can and cannot do with their forests, and the benefits they might receive from them. Societal factors come into play as the attitudes of neighbors and others who do not own forestland weigh in on whether they support or even accept tree cutting within their sight or knowledge. Ultimately, some factors are individual, related to the age of the forest owner, their personal and financial situation, and the interest of their heirs in continuing to own the family forest and keep it as forested open space.

Threats

Increasing property ownership burdens, especially the traditional practice of assessing land for "highest and best use." This makes buying and holding on to forestland expensive for private citizens, and it can pressure current owners to sell their forestland to capture that value and reallocate the assets into other investments or uses.

When forests are valued or assessed for their "highest and best use," that use is generally not considered to be as forest. New York's Forest Tax Law seeks to address this issue; however, not all forest landowners are eligible, and many have different goals for their forestland than the law currently provides. Other ownership costs, including maintaining boundary lines and property security, preparing and following management plans, timber stand improvement, and invasives control, as well as developing and maintaining forest infrastructure, also add up and increase over time.

The lack of professional forest management on private forestlands is a threat to the long-term economic viability and health of private forests. All too often decisions about harvesting are made when opportunity arises, but the landowner does not seek the assistance of a forester. Only 25 percent of private landowners have used a forester (NWOS, 2017). Harvesting as directed by a professional forester can be an

important tool to manage for many goals, such as wildlife habitat, privacy, or maintaining a resilient forest.

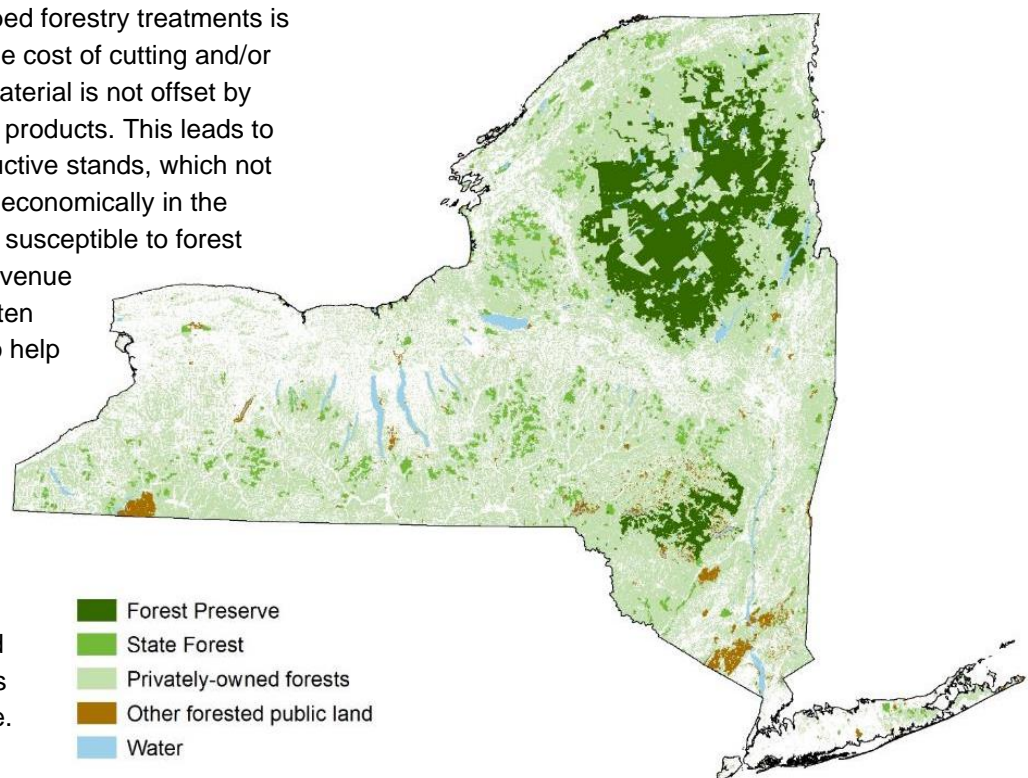
Even if a landowner is not planning a harvest, an examination of a woodlot can lead to early detection of forest health issues, including the detection of invasive species. This can help protect the forest resource from damage and help landowners avoid financial loss or incur expensive treatments to protect their woodlot. Having a professional forester involved in forest management activities on private land increases the likelihood of deliberate forest management with long-term goals that are addressed with the landowner.

The availability of forest product markets is the single most important driver of active forest management on working private forest. Once the decision to conduct forestry activities is made, the ability of forest landowner to profit from the sale of forest products often dictates if a treatment can be completed and how that treatment is executed. In other words, “No Markets, No Stewardship.” If there is a lack of low-grade markets, the landowner’s ability to conduct some prescribed forestry treatments is diminished because the cost of cutting and/or removing low-grade material is not offset by the ability to sell those products. This leads to less healthy and productive stands, which not only will be worth less economically in the future but will be more susceptible to forest pests and disease. Revenue from timber sales is often used by landowners to help offset the costs of ownership, as well as stewardship. Without diverse, strong forest product markets, a major tool for managing private forestlands is removed from forest landowners and policymakers alike.

State and federal income tax policies that favor or support development and change of land use away from forested open space often influence or drive behaviors and investments in ways that conflict with forest retention, especially retention of large, unfragmented forest blocks.

Federal capital gains tax policies affecting timber assets and income, as well as timber investment tax treatment, have also been cited as potential threats to long-term private forest ownership.

An aging landowner population is illustrated in U.S. Forest Service Forest Landowner Survey data, and it largely follows overall demographic trends. Recent statistics indicate that the average New York private forest owner is 61 years old. Similar to demographic issues facing farmers and agriculture, our state is rapidly approaching a significant “intergenerational transfer” of forestland ownership. As estates pass to heirs or are sold off to cover increased medical expenses of aging owners, the descendants of forest owners do not share the interest in holding onto the family forest or practicing sustainable management.



Map of New York State's Forests by Ownership

Invasive forest pests also pose significant threats to forest retention and other forest values articulated elsewhere in this report. In urban forests especially, pests like the emerald ash borer or Asian longhorned beetle can cause extensive losses of trees and forest canopy. Rural forests are also threatened economically and ecologically by invasives, which have the potential to wipe out entire tree species.

Competing and incompatible land uses are also increasing as threats to forest retention and the perpetuation of forest benefits and values. Oil and gas exploration and extraction have been common across parts of New York State, and have been impacting forest stands for decades. Exploration and extraction, with the associated road construction, well-site clearing, and transportation pipeline development, can impact the integrity of forests and lead to direct loss in some cases. Finally, surface mineral extraction and expansion of existing mines for sand, gravel, bluestone, and other mineral resources may also impact forest retention and integrity through long-term, land use change. Similar to traditional energy projects, the increase in demand for renewable energy can impact forests. Installation of renewable energy infrastructure in the future may require the clearing of forest land. Society needs to weigh the benefits of renewables with those of our forests, which are a net sink for carbon and a natural mitigation against climate change.

Lack of public awareness and support. The public uses the ecosystem services provided by private forests but may be unaware of what it takes to keep private forests as forests and the critical role that sustainable forest management plays. The pressures and threats identified above mean that privately owned forests won't always just stay as forests unless landowners can afford to keep them as such. Laws or local regulations that limit the ability of owners to practice sustainable forest management, or significantly increase the costs of doing so, can have the opposite result from what was intended. Educating officials and representatives about the important role private forests have in providing a broad range of economic and

ecological benefits that society receives free of charge from forest landowners is pivotal to advancing effective forest management policies adopted in New York.

Potential adverse impacts

The threats articulated by New York forest stakeholders all have the potential, at their core, to change land use away from forested open space. Even if forests remain, they may be impacted in a variety of ways that reduce their ability or capacity to sustainably provide benefits and services. Forested open spaces may be parcelized (namely, single large ownerships broken up through subdivision and sale into multiple parcels with individual owners), fragmented (solid blocks are broken apart by deforested areas, such as farm fields, roads, or developments), or perforated (where smaller holes are punched in a contiguous forest canopy for dispersed house lots).

Loss of forestland or changes within forests can have a wide variety of impacts. New York stakeholders have identified the following imminent impacts of concern to New York's forest:

- Increased risk of introduction and spread of invasive species;
- Increased tree mortality;
- Reduced water quality and altered hydrology (quantity and flow issues);
- Long-term modifications to and reductions in water quality, hydrology, and aquatic diversity;
- Alterations in forest structure and function that can derail ecological processes on which forests and forest dwellers depend;
- Decreased native fish and wildlife populations and habitats;
- Decreases in timber production and associated direct and multiplier economic activity;

- Landowners selling their forestland for development.
- Increased fire risk because increased housing densities in forested landscapes generate more potential for ignitions; make firefighting and fire preparedness in such areas more difficult, dangerous, and expensive; and restrict available management options for mitigating threats to forestlands;
- Increased wildfire impacts and associated losses (ecological, social and economic);
- Changes in scenic qualities and related social and economic benefits; and
- Changes in quantity, quality, diversity, and cost of forest-based recreational opportunities.

(Forest Action Plan Assessment: Private forestlands)

Historic and Traditional Uses of Forest Areas

New York defines "Traditional forest uses" as activities commonly associated with the use of forestland in New York. These activities include, but are not limited to: public access, hiking, camping, hunting, timber harvesting, trapping, snowmobiling, and cross-country skiing.

Forest land leasing has been an historic practice in many areas of New York, especially on large ownerships formerly held by forest products industries and now held mostly by Timber Investment Management Organizations (TIMOs). Like hunting, fishing is a traditional outdoor sport, and New York is recognized around the world for having an amazing range of freshwater and marine fishing opportunities. On public lands and easements, it is possible to fish for native brook trout, large- and smallmouth bass, panfish, and many other species. It is a stated goal of the State's Open Space Conservation Plan to protect habitat to sustain the traditional pastimes of hunting, fishing, trapping, and wildlife viewing. Lands protected through the FLP help to meet that goal.

Forest land conversion and changes in ownership patterns have impacted traditional forest uses (*see sections on those topics for more details*). New York State, through its land acquisition of fee and conservation easements, has worked to protect and continue traditional uses of forestlands and will continue to do so into the future, using both state and federal funding sources.

One potential future forest use is for carbon sequestration to mitigate the effects of climate change. In 2019 New York passed the Climate Leadership and Community Protection Act (CLCPA). Implementation of CLCPA will inform and determine the role New York's forests will play in addressing climate change, potentially through participation in carbon markets and/or forest management practices to sequester carbon and adapt to climate change.

Current Ownership patterns and size of tracts, and trends and projected future ownership patterns

See Private Forestland section above.

Cultural Resources That can be Effectively Protected

Human occupation of New York State extends as far back as immediate post-glacial times, perhaps as early as 15,000 years ago. Evidence of the human past includes a wide range of resources, ranging from pre-contact Native American camps and villages to Euro-American homesteads, cemeteries, and graves, as well as mills and other industrial sites. Such sites can be entirely subsurface or can contain aboveground remains, such as foundation walls or earthwork features. Although Native American (pre-European contact) people focused their activities close to river and lake basins, upland areas were exploited on a seasonal basis for specific food resources and raw materials. These sites were small and for short-term occupation.

Many episodes of life in the historic period of settlement (post-European contact), such as farming, commerce, industry, and transportation, exist today only as archeological sites. Evidence

of these types of activities is typically contained within upper layers of soil or buried within floodplain deposits. Entire communities and thousands of isolated farmsteads lie abandoned throughout the state. The most noticeable remnants of these are often cellar holes and stone walls. These sites are fragile, nonrenewable resources and are often our only source of information regarding how people adapted to various changes. Due to the predominance of private lands in New York, a great deal of this pre-contact and historic information is held on forested private lands.

When siting recreation and timber harvesting infrastructure, and any other substantive land disturbance activity, on parcels protected through fee or conservation easement purchase, cultural resources will be protected through a site assessment, followed by steps to minimize the impact of the infrastructure on any cultural resources found on the site.

Forest-dependent Threatened and Endangered Species

Many of the plants and animals tracked in the New York Natural Heritage Program databases are dependent upon or associated with forests (Table 1, below). At minimum, there are 369 species of forest-dependent plants and animals tracked in the program's databases that are currently listed as Imperiled (S2) and Critically Imperiled (S1) in New York, as determined by expert opinion and the intersection of their occurrences with known forested lands.

Heritage-tracked animals include all species ranked as Critically Imperiled (S1) or Imperiled (S2), and select Vulnerable (S3) species, and plants include all species ranked S1 and S2. This information is incomplete, however, as additional tracked species not found in these two data sources may be forest associates.

| Taxonomic Group | # of Imperiled and Critically Imperiled Species |
|----------------------------|---|
| Animals (class) | |
| Mammals | 10 |
| Birds | 23 |
| Reptiles | 9 |
| Amphibians | 5 |
| Gastropods | 1 |
| Insects | 118 |
| Plants (subkingdom) | |
| Non-vascular plants | 13 |
| Vascular Plants | 190 |
| TOTAL | 369 |

The number of forest-dependent rare species tracked by taxonomic group, NYNHP

In addition, species occurring in non-forested ecosystems *within forested landscapes* may depend upon the surrounding forest to a considerable extent. For example, aquatic species in streams, rivers, and ponds depend on adjacent forest as a buffer from development and protectant of water quality. Deposits of coarse woody debris in aquatic ecosystems provide cover and oviposition sites for aquatic animals. Grassland plants may be pollinated by insects that emerge from the adjacent forest. Even marine and estuarine animals may benefit from nutrient uptake in adjacent forests, which prevents chemical changes due to runoff from developed areas. (Forest Action Plan Assessment: Status of forest biodiversity)

Of New York's forest-dependent species, two are federally listed endangered, and six are federally listed threatened. Additionally, 135 are state listed endangered, 65 are threatened, and 22 are species of special concern. *See Table: Federal and state listed endangered and threatened forest dependent species for additional information.*

| | Federal Status | | State Status | | |
|-----------------|-------------------|-------------------|--------------|------------|-----------------|
| | Listed Endangered | Listed Threatened | Endangered | Threatened | Special Concern |
| Amphibians | 0 | 0 | 2 | 0 | 2 |
| Birds | 0 | 0 | 3 | 2 | 7 |
| Gastropods | 0 | 0 | 0 | 0 | 0 |
| Insects | 1 | 0 | 7 | 1 | 10 |
| Mammals | 1 | 1 | 2 | 1 | 2 |
| Reptiles | 0 | 2 | 4 | 3 | 1 |
| Vascular Plants | 0 | 3 | 117 | 58 | 0 |
| Total | 2 | 6 | 135 | 65 | 22 |

Federal and state listed endangered and threatened forest-dependent species, NYNHP

Carbon storage

Forests are the most productive terrestrial vegetation able to absorb carbon from carbon dioxide, and they have the greatest potential for keeping that carbon out of the atmosphere long term. New York's forests help to control global climate change and in doing so, they are providing a critical service to all New Yorkers and the global community. Carbon sequestration in New York's forests is also vital to achieving the State's net zero carbon emissions goal.

Forestlands are under pressure from development in some parts of the state. The installation of infrastructure can result in forest clearing and contribute to forest loss. There are many questions with regard to the impact on our forests and forest resources. As in the case of land conversion for development, the impacts of energy infrastructure could be managed if the values that forests provide are recognized fully and balanced appropriately.

Based on Forest Inventory and Analysis data, New York's forests are storing approximately 1,976 million metric tons of carbon. However, according to the FIA, the net amount of carbon dioxide absorbed each year by New York's forests has been steadily decreasing in recent decades. If this trend were to continue, the

annual uptake of carbon dioxide would be 20 percent lower in 2050 compared to 1990. This trend could reflect both decreasing forest area and reduced productivity. The latter may be caused by various factors, including invasive species and unsuccessful regeneration.

As the value of carbon sequestration for reducing greenhouse gas levels is becoming better understood, the role of forests in addressing climate change is gaining widespread attention. During photosynthesis, plants use carbon sequestered from the air to grow new tissue, effectively storing carbon. That carbon stays locked up in the plants as they grow, and in the case of wood products, long after the plants have been harvested. When forest biomass is combusted, such as in a wildfire or as a fuel source, this releases the carbon that had been stored. The proper management of combustion is also a key component of maintaining carbon sequestration levels.

Forest stewardship to protect forests from land use changes and encourage productive forest growth and regeneration could increase carbon sequestration. Stewardship actions already taken by DEC include dual certification through both the Forest Stewardship Council (FSC) and Sustainable Forestry Initiative (SFI) on public

lands that are not part of the Forest Preserve. Forests are the most productive terrestrial vegetation able to absorb carbon from carbon dioxide and they have the greatest potential for keeping that carbon out of the atmosphere long term. New York's forests help to control global climate change and in doing so, they are providing a critical service to all New Yorkers and the global community. Carbon sequestration in New York's forests is also vital to achieving the State's net zero carbon emissions goal.

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Community adaptation

Many New Yorkers place a high value on forestlands, whether for recreation; human health; watershed protection; and diversity of plants, wildlife, and habitats; or for preserving local markets for forest products, such as timber. Forests also aid community adaptation and resilience to climate change. (See also *Carbon markets and TNC's Working Woodlands Program*; <https://www.nature.org/en-us/about-us/where-we-work/united-states/new-york/stories-in-new-york/new-york-working-woodlands/>.) Sometimes the value of the land may be treated as higher than the forest that grows on it, such as when assessing the property for development or conversion to other uses. Unfortunately, this disregards the cumulative value that forests provide to local and global communities alike for centuries. For example:

- Forests stabilize the surrounding air temperatures and alleviate extreme heat and desiccation for nearby buildings by providing shade and moisture from evapotranspiration.

- For communities, forests are buffers because they absorb stormwater, reduce flooding, and create windbreaks against damaging gusts. Heavy precipitation and extreme weather events are projected to become more frequent in New York.⁶
- Forests reduce coastline flooding and erosion by anchoring soil and absorbing water; thus, they protect threatened communities. If sea-level rises 0.33 to 0.63 meter between 2080 and 2100, as it is projected to increase under the RCP 6.0 scenario, there will be approximately 1,886,000 people living under the high-tide lines in New York,⁷ based on 2010 census data.

(Forest Action Plan, Assessment: Valuing forests for carbon storage and community adaptation)

Importantly, the value of carbon sequestration is additive—it is a benefit that forests and forest products naturally provide, in addition to all other social, health, environmental, and economic benefits.

This means that the total value of healthy forests is that much higher. It also means that the same strategies that are described throughout this Plan to preserve healthy forests are also strategies for maintaining carbon sequestration.

Mineral Resources

New York State is rich in minerals, which are extracted for industrial and construction uses throughout the state. Sand and gravel account for the vast majority of the state's 2,200 active mines. Oil, gas, and solution salt-mining wells are also economically important in New York State, with more than 75,000 wells drilled in the state since the late 1800s, including about 14,000 that are still active, and new drilling continues.

Minerals and Property Rights – The “Split Estate” Case – Minerals, as with any other property right, can be severed from the fee estate. This is usually done by means of a mineral deed or mineral rights reservation, thus creating a split estate. (Leases do not confer permanent rights to the lessee. A deed or reservation, on the other hand, permanently transfers rights from the grantor to the grantee.) In these situations, mineral rights are considered the dominant estate, meaning they take precedence over other rights associated with the property, including those associated with controlling the surface. However, the mineral owner must show due regard for the interests of the surface estate owner and occupy only those portions of the surface that are reasonably necessary to develop the mineral estate. In some areas of the state, there are significant issues with “split estate” mineral control. When another party controls the subsurface minerals, there is potential for impacts to the surface estate, including forests.

Exploration and Production of Oil, Natural Gas, and Solution Salt

Oil, natural gas and solution salt drilling has been historically centered in the southern tier of western New York.

⁶ New York State's 'ClimAID' report is the authoritative resources for observed and projected climate change in the state and is updated based on the global models produced by the Intergovernmental Panel on Climate Change.

⁷ Strauss, B. H., Kulp, S., & Levermann, A. 2015. Carbon choices determine US cities committed to futures below sea level. *Proceedings of the National Academy of Sciences*, 112(44), 13508-13513. doi:10.1073/pnas.1511186112

Oil

The first commercial oil well drilled in New York was the “Job Moses #1” well, drilled in 1864, near Limestone (Cattaraugus County). The oil industry expanded rapidly in the late nineteenth century, leading to the development of numerous oil wells across the landscape, especially in Cattaraugus and Allegany counties. In the early days of the industry, these wells were unregulated and not inventoried.

Natural Gas

Oil and gas exploration and extraction have been common across parts of New York State, and have impacted forest stands, for decades. Exploration and extraction, with its associated road construction, well-site clearing, and transportation pipeline development, can impact the integrity of forests and lead to direct loss in some cases.

Recent economic and global energy conditions have led to a surge in interest in exploiting the Marcellus Shale formation, which underlies much of New York State south of the New York State Thruway and west of the Hudson River. Marcellus shales are not naturally porous enough for gas to be extracted without employing horizontal drilling and high-volume hydraulic fracturing.

Questions have been raised about possible environmental and natural community impacts of horizontal drilling and high-volume hydraulic fracturing. Most concerns are related to water use and management, and the composition of the fluids used for fracturing the shale. In 2014, Governor Cuomo instituted a ban on high-volume hydraulic fracturing.

Solution Salt

Solution salt mining is a process whereby salt is removed from underground reservoirs using water that is pumped in and out. The first solution salt well in New York drilled to exploit salt as a mineral resource was drilled near Syracuse. Solution salt mining is currently happening in the western part of the state.

Mining

New York is rich in minerals that are mined for industrial and construction uses. Historically, “common variety” minerals, including limestone, sand, gravel, shale, and other aggregate materials, have been produced.

Metal ores and gem minerals, such as garnet, are mined chiefly in mountainous regions. Salt is extracted from rich deposits in central and western New York, where extensive mines occur, both active and historic. Zinc, fibrous talc, and wollastonite are still being actively mined in the North Country region. Underground mining of lead, iron (in several forms), and graphite also occurred in both the North Country and Hudson Valley regions. Historically, some limestone (used for cement) was mined from underground locations in the Hudson Valley region.

(Strategic Plan for State Forest Management)

Protected Lands – Federal, State, Municipal

New York State has a long and impressive history of forest resource protection that traces its origins to the Forest Preserve legislation of 1885, the intent of which was later included in Article XIV of the State Constitution. Any changes to Article XIV require a Constitutional amendment. In addition to dedicating the Adirondack and Catskill Forest Preserve as “forever wild,” that early legislation also called for state-provided technical forestry assistance to private landowners. Throughout the twentieth century, these early measures have been expanded to include an active land acquisition program, forest tax laws and land use regulations, participation in federal cost-share programs, and a growing cooperation with New York’s not-for-profit land conservation community.

Today, more than 63 percent of New York State is forested, up from 25 percent in 1900 and up by nearly 30 percent in the last 40 years alone. Twenty percent of this forested land is in protected public ownership, while the balance remains in private hands. Other protected forest land in the state is owned and/or managed by

the U.S. Forest Service, U.S. Fish and Wildlife Service, municipal governments, and not-for-profit organizations, including land trusts, private nature preserves, and universities.

State

For more than a century, New York State has had an active land acquisition program that has resulted in expansion of the Forest Preserve, as well as the creation of new wildlife management, reforestation, and multiple use areas throughout the state. Today, DEC manages nearly 3 million acres of forest preserve, 202,000 acres of wildlife management areas, and more than 800,000 acres of reforestation areas. OPRHP manages more than 341,000 acres, a significant portion of which is forested. From the 1970s through the 1990s, New York funded its forest acquisitions, both fee and easement interests, with funds from Environmental Quality Bond Acts (EQBA). The last EQBA passed in 1996. In 1993, New York State created the Environmental Protection Fund (EPF), which currently provides the bulk of state land acquisition funding.

Environmental protection, land use, and conservation-related legislation, both state and federal, often result in the protection of New York's forest resources. These include the Water Resources Law; Stream Protection Act; Wild, Scenic and Recreational Rivers Act; Endangered Species Act; Freshwater Wetlands Act; and Environmental Quality Review Act.

Real Property Tax Law, Section 480 and 480a: Section 480 was enacted in 1926 (and properties could enroll through 1974) to encourage reforestation of abandoned farmlands. It is a yield tax, where tax payments on timber are deferred until the time of harvest, with a modified assessment. The value of standing timber is excluded from the annual assessment of property taxes, and the tract is assessed on its bare land value. A six percent yield tax is assessed in a year when timber is harvested. Since the yield tax is usually lower than the annual tax on timber value, the law provides some tax reduction to forest landowners with a minimum of 15 acres.

Forest Tax Law or RPTL Section 480a was enacted in 1974 to bolster a faltering forest products industry by incentivizing private forest landowners to harvest their timber under the supervision of a professional forester through a DEC-approved forest management plan. The eligibility requirements are somewhat stricter: tracts must be at least 50 acres and committed to a 10-year management plan. Forest owners can apply for a partial property tax exemption of up to 80 percent; the 6 percent yield tax still applies. There is a penalty for withdrawing from the program, converting the land use, or failing to harvest according to the management plan.

New York State Open Space Conservation Plan (OSP): New York's Open Space Conservation program began in 1990. It was designed to ensure citizen input on the land acquisition decisions made by DEC and OPRHP. Since its beginning, the program developed a comprehensive statewide OSP that represents current open space conservation actions, tools, and programs administered by New York State's DEC, OPRHP, Department of State (DOS), Adirondack Park Agency (APA), Department of Agriculture & Markets (DAM), and Department of Transportation (DOT). The OSP has become an important and popular advocacy voice for conserving our state's open spaces, and the quality of life they provide. Any state land acquisition that uses funding from the Environmental Protection Fund must be within a priority conservation project listed in the Open Space Conservation Plan.

Federal

In general, federal ownership is relatively limited in New York State, totaling only 260,000 acres among the U.S. Fish and Wildlife Service, National Park Service, Forest Service, and Department of Defense. Federal land with significant forested acres includes the Finger Lakes National Forest (U.S. Forest Service, 16,212 acres), Montezuma National Wildlife Refuge (U.S. Fish and Wildlife Service, 7,068 acres), West Point (U.S. Army, 12,736 acres), and Fort Drum (U.S. Army, 107,265 acres).

Nonprofit

New York State enjoys a well-established, active, and effective not-for-profit land conservation community. New York is home to approximately 90 local land trusts; state and regional organizations, such as the Open Space Institute and Scenic Hudson; and several national organizations, including The Nature Conservancy, the Conservation Fund, and the Trust for Public Land. Included in that number are 38 accredited land trusts, the greatest number of accredited land trusts in any state except California. These organizations own, advocate for, and participate in joint efforts to protect forestland throughout the state. In total, land trusts own more than 505,000 acres in fee and more than 706,000 acres of conservation easements (2015 Land Trust Census), much of which is forested. Land trusts have been partners with New York State on several Forest Legacy Projects, including The Nature Conservancy, the Open Space Institute, and the Rensselaer Plateau Alliance.

Issues Identified by the State Forest Stewardship Coordinating Committee and Through Public Comment Process

New York's forested landcover

The most heavily forested parts of the state remain the Western Adirondack, Eastern Adirondack, and the Northern Adirondack/St. Lawrence regions. Other large forest blocks include the Catskills and Allegany areas.

Forest composition and structure

New York's forests are almost entirely of natural origin, meaning they developed from seed dispersed by surrounding mature forest or from seed sources stored in the soil. Over 100 species of trees (commercial and non-commercial) populate New York's forests. New York forestland continues to be dominated by the maple/beech/birch (55 percent), followed by the oak/hickory group (18 percent), with the remaining types each having less than

10 percent of the area. The maple/beech/birch type can be found in all inventory units across the state, but it is most prevalent in the Adirondack Unit (71 percent). Oak/hickory is most ubiquitous in the Lake Plain, Capital District, and Catskill units where the maple/beech/birch type are least dominant.

Approximately 66 percent of New York's forests are in a large-diameter size class (minimum 11.0-inch dbh for hardwoods and 9.0-inch dbh for softwoods); 25 percent are classified as medium-diameter size class (5.0- to 10.9-inch dbh. for hardwoods and 5.0- to 8.9-inch dbh for softwoods); only 8 percent are in a stage where seedling- and sapling-size trees (less than 5.0-inch dbh) predominate. This indicates that New York's forests are growing and maturing. The low percentage of seedling- and sapling-size trees can affect the balance of other forest attributes such as wildlife populations.

Specifically, the lack of early successional stages has led to the decline in bird populations, such as the golden-winged warbler, whip-poor-will, Canada warbler, yellow-breasted chat, American woodcock, and ruffed grouse.

This condition can be due to the prevailing timber management methods utilized in the state, the slowdown in acres reverting from an idle condition into a forested condition, and the high value of agricultural land remaining in cultivation.

Timberland is defined by the FIA Program of the Forest Service, U.S. Department of Agriculture, as forestland producing or capable of producing crops of industrial wood (more than 20 cubic feet per acre per year) and not withdrawn from timber utilization (i.e., not in reserved forest status). Approximately 83 percent of all forestland in New York is currently considered timberland. This is an important distinction to make for policymakers, landowners, and land managers, as this is the percentage of forest resource that potentially could produce timber.

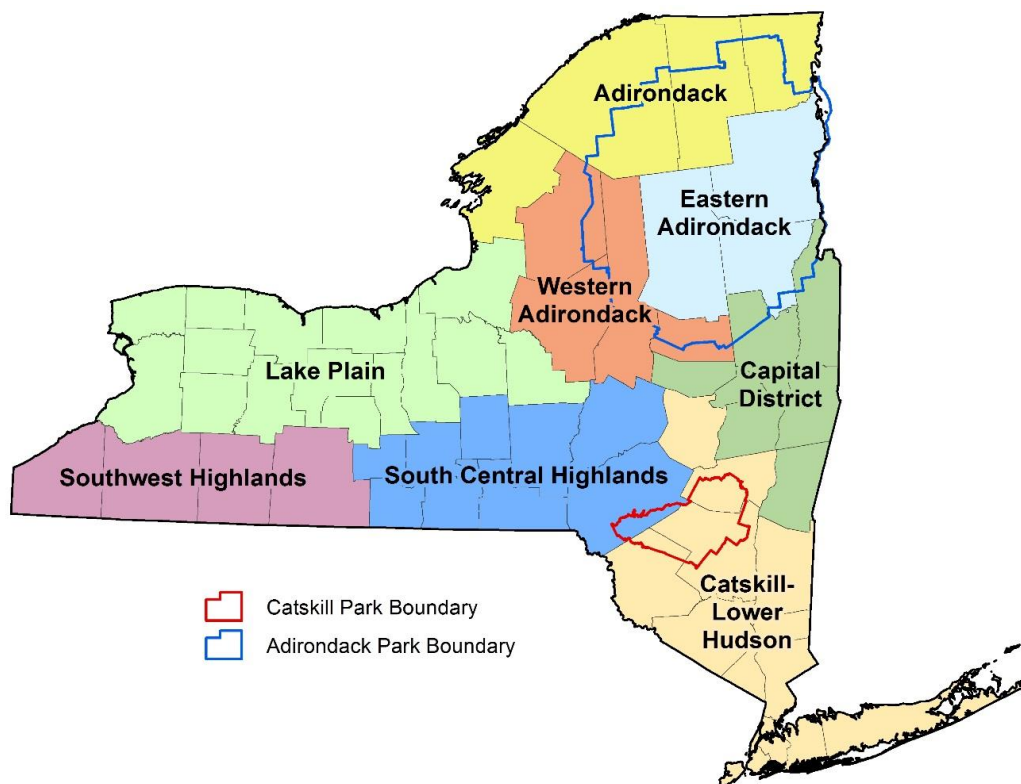
Privately-owned forestlands cover 13.62 million acres and represent 74 percent of New York's forests, with 10.2 million acres considered family-owned or non-corporate

forests. Nearly 700,000 private forest landowners provide the public with the benefits of clean air and water, carbon sequestration, wildlife habitat, and a forest-based economy. Around 187,000 landowners own 10 acres of forestland or more. It is most practical to conduct forest stewardship and forest management and conservation practices on these lands.

State-owned forestlands. Since 1885, New York State has invested in acquiring and managing a significant amount of forested land in all regions of the state. These state lands are held as state forests, wildlife management areas, forest preserve, and state parks—each providing its own unique and complementary benefits, values, and public good. The Adirondack and Catskill Forest Preserve (managed by DEC) and the New York State Park system (managed by OPRHP) provide nearly 3.1 million acres of mostly forested open space on which timber harvesting is not allowed. Forest preserve lands are constitutionally protected from harvesting, and state parks in New York are protected, under policy, from commercial tree cutting.

DEC manages more than 787,000 acres of State forests. State forests are located throughout New York – excluding the Adirondack and Catskill Preserves – and include reforestation areas, multiple-use areas, unique areas, nature preserves, and historic preserves. On some of these lands, timber management is used as a tool to enhance biodiversity and to create habitat features that might be lacking in the landscape. Managed State forests provide timber for various markets, and in turn, jobs ranging from loggers to finish carpenters. Timber harvesting also creates additional financial opportunities.

Less than 1 million acres of forest originated as plantations planted by various landowners, mostly from the 1930s through 1970s. Approximately 350,000 acres of those plantations exist on state reforestation, unique, and wildlife management areas. The number of acres planted has waned substantially in recent decades, and some older plantations are being converted back to a natural forest condition. (State Forest Action Plan Assessment: New York's Forested Landcover)



Map of New York State's Inventory Units, U.S. Forest Service, Forest Inventory and Analysis Program

Forest Legacy Eligibility Criteria

The New York State Stewardship Coordinating Committee established a Forest Legacy Committee to work with DEC on matters related to the Forest Legacy Program. Six members of the Stewardship Committee also serve on the Forest Legacy Committee.

The Forest Legacy Committee and DEC have determined that the Forest Legacy Program in New York should focus on acquisition of development rights and other such rights and interests that, if exercised, could threaten the traditional uses and values of the forests, including timber harvesting, public recreation, water and scenic quality, and wildlife habitat. With these objectives in mind, it was determined that a Forest Legacy Area in New York should:

1. include forested land threatened by present or future conversion to a non-forest use;
2. provide opportunities for the continuation of traditional uses;
3. contain three or more of the following public values:
 - a. Timber and other forest commodities;
 - b. Scenic resources;
 - c. Public recreation opportunities;
 - d. Riparian areas;
 - e. Fish and wildlife habitat;
 - f. Known threatened and endangered species;
 - g. Known cultural resources,
 - h. Other ecological values;
4. contain at least 50 percent land that meets the definition of forest land; and
5. be identified in the State Open Space Plan as a priority conservation project.

"Threatened by conversion to non-forest use"
Land which has characteristics that make it attractive to changes such that traditional uses

and values of the property are reasonably expected to be at risk. These characteristics may include, but are not limited to: proximity to roads, short travel time to population centers, existence of water resources, and the presence of outdoor recreation opportunities.

"Environmentally important forest area" Land which includes at least three of the public values listed in 3.a through 3.g. above.

"Traditional forest uses" Activities commonly associated with the use of forest land in New York. These activities include, but are not limited to: public access, hiking, camping, hunting, timber harvesting, trapping, snowmobiling, and cross-country skiing.

"Forest land" Land capable of growing a regular crop of trees but not including ledge, marsh, open swamp, bog, slopes of more than 35 percent, fields, rock outcrops or similar areas.

Goals and objectives of Forest Legacy Program in New York

The goal of New York's Forest Legacy Program is to implement the goals of New York's Forest Action Plan, including to maintain forestlands at risk of conversion to other uses, primarily using conservation easements with willing owners. The overall purpose of the program is to sustain the economic, ecological, and social values of forests, including productive working forests; habitats and natural communities for native plants and wildlife; clean water and fish habitat; capacity to mitigate and adapt to climate change; public recreational opportunities, including fishing and hunting; culturally significant resources; and scenic landscapes.

Project Evaluation Process

Forest Legacy Acquisitions in New York must:

1. be located within an approved Forest Legacy Area
2. be included in a Priority Conservation Project in the State's Open Space Conservation Plan

3. include forested land threatened by present or future conversion to a non-forest use;
4. provide opportunities for the continuation of traditional uses;
5. contain three or more of the following public values:
 - a. Timber and other forest commodities;
 - b. Scenic resources;
 - c. Public recreation opportunities;
 - d. Riparian areas;
 - e. Fish and wildlife habitat;
 - f. Known threatened and endangered species;
 - g. Known cultural resources;
 - h. Other ecological values; and
6. be nominated by the landowner, in writing, or with the written permission of the landowner.
7. be approved by the local government
8. have a forest stewardship plan or other similar multiple use management plan in place at the time of closing if a landowner is retaining the right to harvest timber or the right to conduct other land or resource management activities. A management plan will not be required if the aforementioned rights are not retained. If a fee interest is being acquired, the state will incorporate the parcel(s) into its management planning. Preparation of the plan is the responsibility of the landowner.

Parcels meeting the above criteria will be prioritized based on the Resource Value Rating System included in the current New York State Open Space Conservation Plan (<http://www.dec.ny.gov/lands/317.html>).

Forest Legacy Areas

The Open Space Plan identifies the state's regional priority conservation projects and recommends that land protection efforts in New York be concentrated in those areas. The priority projects that meet FLP eligibility criteria are listed here and shall constitute the New York Forest Legacy Areas (FLAs), which have been approved by the Forest Legacy Sub-committee of the State Stewardship Coordinating Committee.

Current Forest Legacy Areas:

1. Northern Forest Lands Study Area (1992)
2. Taconic Ridge (1994)
3. New York Highlands and Sterling Forest (1993)
4. Central Long Island Pine Barrens (1994)
5. Catskill Park and Delaware River New York City Watershed (1998, 2010)
6. Rensselaer Plateau (2010)

Proposed Forest Legacy Areas:

1. Allegheny Plateau
2. Shawangunk Ridge
3. Finger Lakes/Northern Plateau

Notwithstanding limitations within specific FLAs, the FLP in New York will employ a full range of conservation tools, including fee acquisition, restricted deeds, and conventional conservation easements, including development rights, recreation rights, and other such rights necessary to achieve the goals of each of the FLA.

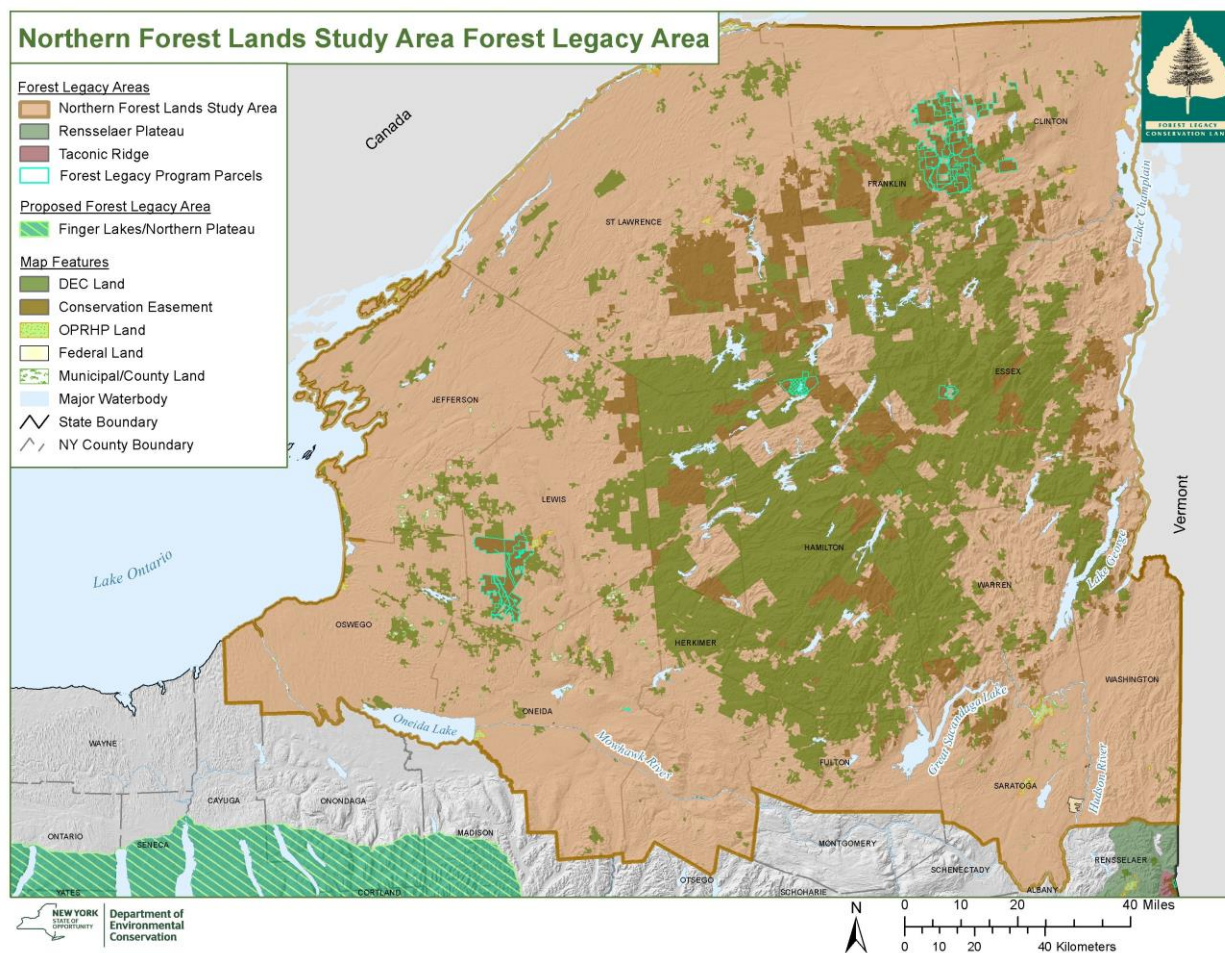
Northern Forest Lands Study Area Forest Legacy Area

The 26 million-acre Northern Forest Lands Study Area, which stretches from Lake Ontario in New York to Maine's Atlantic coast, is one of the largest tracts of continuously forested land in the nation. It is characterized by expansive, remote tracts of transitional spruce-fir and hardwood forest, rugged mountain ranges, pristine lakes,

ivers, and streams, and a vast abundance and variety of wildlife. New York's portion encompasses 7.6 million acres in 14 counties: Clinton, Franklin, St. Lawrence, Jefferson, Herkimer, Hamilton, Essex, Warren, Saratoga, Washington, Lewis, Oswego, Oneida, and Fulton.

The health and future of New York's Northern Forest is seriously threatened by increasing demands for recreational property, escalating land values and economic pressure facing the

region's landowners. These trends are causing traditional uses, such as open space, forestry, farming, and public recreational use, to give way to residential and private recreational development. Land with access to lakes, rivers, and scenic ridges or near interstate highways and secondary roads is particularly vulnerable. The result is fragmentation of huge forest holdings, reduced public recreation opportunities, and degradation of the water, habitat, and scenic quality of the region.



Environmental values and how they will be protected

The transitional spruce-fir and hardwood forest is a unique ecosystem in the United States and is ecologically significant on an international scale. The Lake Champlain basin and large portions of the Adirondacks are part of an 11-million-acre International Biosphere. Acquisition of fee and easement interests will

help prevent fragmentation, development, and other deleterious land uses that would compromise this unique ecosystem or degrade its component natural resources.

The forest is interspersed with wetlands, bogs, rocky ridges, glacial erratics, lakes, rivers, and distinct mountain ranges, making it one of the wildest and most scenic areas in the country. Employment of various FLP mechanisms, including

the purchase of development rights⁸, which will prevent construction on mountainsides and in river valleys that would ruin panoramic views and the wilderness setting of the Northern Forest.

Recreational opportunities include, but are not limited to, fishing, hunting, trapping, hiking, primitive camping, swimming, whitewater rafting and canoeing, snowmobiling, and cross-country skiing. The spectacular landscape offers clean rivers, pristine lakes, and many of the most rugged mountains in the Northeast. Forest Legacy acquisitions, whenever possible and appropriate, will provide for public access to rivers, lakes, trails, mountains, and forests for recreational purposes.

List of public values

In addition to fostering continuation of traditional uses as defined in the Act, the FLP in the Northern Forest will protect or expand the following public values:

1. recreational opportunities
2. riparian areas/wetlands
3. important fish and wildlife habitat
4. other ecological features (International Biosphere)
5. scenic resources
6. important plant communities

Forest Legacy acquisitions will be undertaken anywhere within the 14 county Northern Forest Lands Study Area, but priority will be given to projects within three focus areas: the Adirondack Park, Tug Hill Plateau, and the Battenkill Corridor.

Adirondack Park

The Adirondack Park is a contiguous geographical entity consisting of six million acres in 12 counties. It is the largest wilderness area east of the Mississippi River; has gained fame

worldwide as an International Biosphere; and is the largest reserve of natural communities of plant and animal life in the eastern United States. The largest percentage of both industry-owned and publicly owned forestlands in New York State is in the Adirondacks, where they contribute greatly to the economy of the region.

The Adirondack Park faces the same economic factors and land use changes as the larger Study Area. In the last 20 years, 50,000 to 60,000 newly subdivided parcels were created in the Park, as second home buyers/builders scrambled for lots adjacent to or near “forever wild” forest preserve land. Homes, condominiums, lawns, septic systems, and boat ramps are degrading or destroying water quality, habitat, and the scenic landscape. Public access to rivers and lakeshores can be impacted by subdivision of larger parcels. Large private and commercial tracts that, in the past, were open to the public for recreation, are now closed to recreational users under the new, smaller ownership pattern.

Acquisition of conservation easements - including, where necessary, development, recreation, scenic, access, and timber rights - will help individual and commercial landowners to continue traditional uses and will protect the great wilderness setting of the Adirondacks.

Management responsibility for FLP easements/ interests acquired in the Adirondack Park may be assigned to DEC or to local government. Monitoring responsibility may be shared by local organizations qualified to conduct monitoring according to LTA Standards and Practices.

Tug Hill Plateau

Tug Hill is a 2,000-square mile region of working farm and forest lands located in northern New York, between Lake Ontario and the Adirondack Park. It includes portions of four counties - Jefferson, Lewis, Oneida and Oswego - and is among

⁸ development rights - The purchase of development rights may vary depending upon the goals for the Forest Legacy Areas and the importance of those goals to an individual tract. In the strictest sense, the acquisition of development rights thru a conservation easement could prevent any subdivision and improvements of any kind. This will not be necessary on all tracts. In all cases, the extend of development restrictions must be reviewed with and approved by the Forest Service and the State Stewardship Committee.

New York's most rural and remote places. Its vast core forest is known for its remote headwaters, wild rivers, gulfs (a local term for gorges several hundred feet deep), scattering of prime farmland, and historic sites that tell the story of how the land was settled and worked. Connecting all are Tug Hill's pristine waters (fed by an average 20 feet of snow each winter) – wetlands, ponds, rivers and groundwaters that sustain the forests, plant and animal habitats, and the livelihoods of those who live in the region. The unbroken Tug Hill forest/watershed is surrounded by small rural communities whose economic survival depends on the area's natural resources: forests, farmland and water. Most of Tug Hill is privately owned forestland in parcels of several hundred to several thousand acres, much of it managed for hunting, fishing, recreation, and timber production.

Like most regions within the Northern Forest Lands Study Area, Tug Hill is in constant danger of having its lands converted to nontraditional uses. Through the acquisition of development and recreation rights⁹ and the institution of timber management plans, the Forest Legacy Program will promote the continuation of traditional uses, while permanently protecting water quality and wildlife habitat, public recreational access, and the scenic and rugged character of the area that attracts tourists and recreational users. Fee acquisitions will not be undertaken in Tug Hill without the express approval of the Town Board.

Management responsibility for FLP easements/ interests acquired in the Tug Hill Region may be assigned to the Department of Environmental Conservation or to the local government. Monitoring responsibility may be shared by local organization qualified to conduct monitoring according to LTA Standards and Practices.

Battenkill Corridor

The Battenkill River corridor, which is in the Washington County towns of Jackson and Salem on the New York/Vermont border, has been recognized by the U.S. Department of the Interior's Nationwide Rivers Inventory (NRI) for its exceptional fisheries, scenic, geologic, historic, and wild values. According to NRI, for this physiographic section of the country, the Battenkill is the most significant natural trout and trout spawning habitat, and it is a rare example of a "sparsely developed, free-flowing, medium order river." The fish and wildlife habitat is exemplary -- several threatened and endangered species have been identified within the project area, including the black-backed woodpecker, osprey, northern harrier, trailing juniper, roseroot, lyre leaved rock cress, and Hooker's orchid, and moose are frequently sighted in the wetlands and marshes along the river's edge. The river is heavily used for recreational canoeing and fishing.

Unfortunately, land along the Battenkill is particularly threatened with conversion to nontraditional uses because of its proximity to population centers in Vermont, Massachusetts, and New York (it is within commuting distance of Albany) and to prime outdoor recreation lands in the Adirondacks, the Green Mountains, and the Berkshires and the Taconics. The highly desirable riverfront properties are subject to subdivision and sale as riverfront lots for houses, condominiums, and for private recreational purposes.

Through FLP, the purchase of development rights along the Battenkill will allow the continuation of forestry and recreational activities traditionally carried out in the valley. The conservation easement language will also protect the river's scenic integrity, maintain water quality, and prevent degradation of wildlife habitat. FLP acquisitions in the Battenkill will be limited to the acquisition of development rights, unless otherwise authorized by the Town Board/s.

⁹ recreation rights - The purchase of recreation rights must vary depending upon the goals for the Forest Legacy Areas and the importance of those goals to an individual tract. In some cases, the Forest Service should acquire the right to allow the public to pursue all traditional and legal recreational activities. In other cases, some recreational uses by the public would be inappropriate and in conflict with the goals for the Legacy Area and the surrounding community. In all cases, the specific recreational rights to be acquired or restricted must be reviewed with and approved by the Forest Service and the State Stewardship Committee.

The Northern Forest Study Area FLA is included in the 2016 New York State Open Space Conservation Plan in a number of Priority Project Areas listed for DEC Regions 5 and 6.

It is anticipated that management responsibility for FLP easements acquired in the Battenkill Corridor will be with DEC. Monitoring responsibility may be shared by a local organization qualified to conduct monitoring according to LTA Standards and Practices.

Public Involvement Process

From New York's 1994 Modified Assessment of Need:

The Open Space Plan.

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Regarding Forest Legacy, the draft plan stated, "Recently, as an outgrowth of the Northern Forest Lands Study, it appears that funds may be appropriated for land acquisition (conservation easements) on a matching basis, through the U.S. Forest Service. This would be a special program to help stabilize the vast forest lands that lie across the northern tier of New York, Vermont, New Hampshire and Maine." The draft plan went on to say, "The State also endorses implementation of some form of the Forest Legacy Program of the U.S. Department of Agriculture which is designed to assist in conservation of working forest lands."

On January 15 and 16, 1992, 13 public hearings on the draft plan were held. These hearings were well advertised and held in all regions of the state. As a result, 2,026 people provided comments on the draft plan.

New York's Final Open Space Plan was completed on June 19, 1992, and a second printing was completed on January 4, 1993. A total of 4,500 copies of the final plan were

distributed to interested citizens. In the final plan, the Forest Legacy Program is discussed on pages 194 and 195. The plan was approved by New York State Governor Mario M. Cuomo.

A revised and updated Open Space Plan is currently being prepared and following public hearings will be finalized later in 1994. The Forest Legacy Program will be discussed specifically and in detail as an appropriate and valuable tool for protecting New York's forest resources.

It is the determination of the State Stewardship Coordinating Committee that the project selection and public participation processes employed during the development of New York's Open Space Plan constitutes sufficient scoping for implementation of the Forest Legacy Program in New York State. The Plan's resource area inventory, priority acquisition list and discussion of conservation methods were compiled using information and public opinion gathered from the nine regional open space advisory councils (lists of members are included in the Plan), dozens of public meetings, and thousands of cases of written and spoken testimony from the public hearing process.

Public Informational Meetings

Public informational meetings on the Forest Legacy Program were held at eight locations in New York during January and February 1994. The meetings were advertised in local newspapers and detailed presentations of the Program were made at each of the meetings.

Municipal Resolutions

Adirondack Park: The Town of Indian Lake, Hamilton County has approved FLP acquisition of land and easements on a 180- acre parcel.

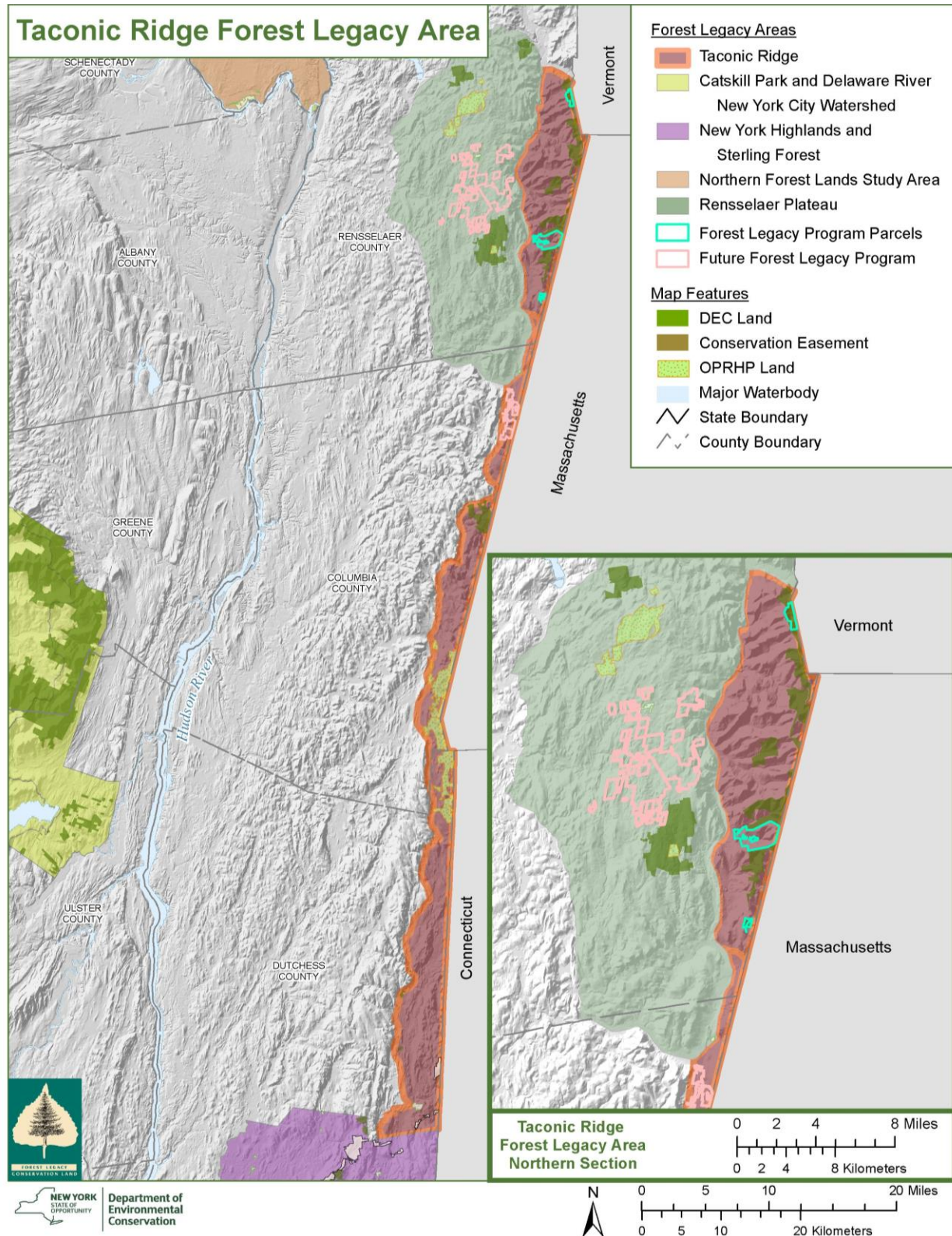
Tug Hill: The Town of Trenton, Oneida County has approved FLP acquisition of the Judson-Brown tract.

Battenkill Corridor: The Towns of Jackson and Salem in Washington County have passed resolutions approving the Forest Legacy Program with the provisions that 1) the acquisition process began no later than December 31, 1994 and 2) only development rights be purchased.

Taconic Ridge Forest Legacy Area

The Taconic Ridge lies along a portion of New York's border with Vermont and Massachusetts. It includes nearly all the eastern

boundaries of the Towns of Petersburg, Berlin, and Stephentown in Rensselaer County. The Forest Legacy Area boundary is defined by Route 22 on the west, the state line on the east, Route 346 on the north and Route 43 on the south.



The Taconics are truly representative of a working forest. Much of the private land within the Forest Legacy Area is owned or managed for timber production. Several timber and forest products companies base their operations in or near the Forest Legacy Area, and they contribute greatly to the economy and cultural landscape of the region.

Unfortunately, hard economic times have forced many landowners to use, lease, or market their lands for nontraditional purposes. In keeping with the true spirit and purpose of the Forest Legacy Program, the purchase of development and recreational rights in the Taconics will provide landowners with the capital they need to keep their land in private, timber producing ownership, while protecting the scenic and recreational values of the area.

Environmental values and how they will be protected:

- Most of the land in the proposed area is currently in timber production. The area was severely cut in the past due to the local charcoal and tanning industries. The disappearance of these industries from the area has allowed the forest to return, with much of it managed for sustained timber production. Most of the forest is hardwood with patches of spruce on the ridge. There are some scattered softwood plantations. The area between Route 22 and the ridge includes some farmland. Implementation of FLP in the Taconics will enable timber harvesting to continue.
- The Taconic Ridge receives a great deal of public attention and use due to the Taconic Crest Trail, which runs the entire length of the ridge. The area provides good hunting for deer and wild turkey. The Little Hoosic River, which provides excellent trout fishing, is included within the proposed area. Acquisition of fee and easement interests, including recreational rights, will ensure public access to the Taconic Crest Trail and other trails, and provide new recreational opportunities and easier access to existing public lands.
- Over 450 plant species exist within the project area, including rare Tinged Sedge Grass. Twelve species of amphibians, 8 reptile species, 117 bird species, and 46 mammal species are known to inhabit the area. Recent years have seen increased presence of black bear and moose, and migrations of eagles and osprey. Conservation easements will preclude or limit development and will define acceptable timber management practices so that sensitive habitats are not disturbed or destroyed.
- The Taconic Mountains are situated between the Green Mountains of Vermont, the Adirondacks, the Berkshires and the Catskills. From the Crest Trail, on a clear day, hikers enjoy spectacular views of these neighboring ranges and the scenic valleys between them. Acquisition of development rights will prevent development on the mountainsides, protecting the views from the trail and the Route 22 corridor. In addition, forest management plans may restrict cutting in the viewsheds.
- Throughout the Taconic's forests are the archeological remains of eighteenth and nineteenth century agricultural settlements, including farm foundations, old stone walls, charcoal works and carriage paths. Many of the geologic features of the ridge are the subject of local lore, including the Snow Hole, an ancient cleft in the earth's surface deep enough to contain snow year-round, and the White Rocks, which were used as milepost by valley travelers from the Revolutionary War days. FLP implementation will ensure that these cultural assets are accessible and intact for continued enjoyment by the public.
- The Taconic Ridge FLA is included in the 2016 New York State Open Space Conservation Plan in the Priority Project Area Taconic Ridge/Harlem Valley {43}.

List of public benefits to be derived

Most importantly, FLP implementation in the Taconics will keep large portions of the ridge in timber production. Other public values that will be protected and/or expanded include:

1. recreational opportunities
2. important fish and wildlife habitat
3. scenic resources
4. historic
5. important plant communities

Management

Management responsibility for FLP easements/ interests acquired in the Taconic Mountains may be assigned to the Department of Environmental Conservation or to local government. Monitoring responsibility may be shared by local organization qualified to conduct monitoring according to LTA Standards and Practices.

Public Involvement Process

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Municipal Resolutions

During 1992, the Forest Legacy Program was approved by the Town Boards of Petersburg, Berlin and Stephentown in Rensselaer County. The Town Supervisors wrote letters to Congress expressing their support of the Program and requesting Forest Legacy funding (\$2 million) for the Taconic Ridge acquisitions.

Public Informational Meetings

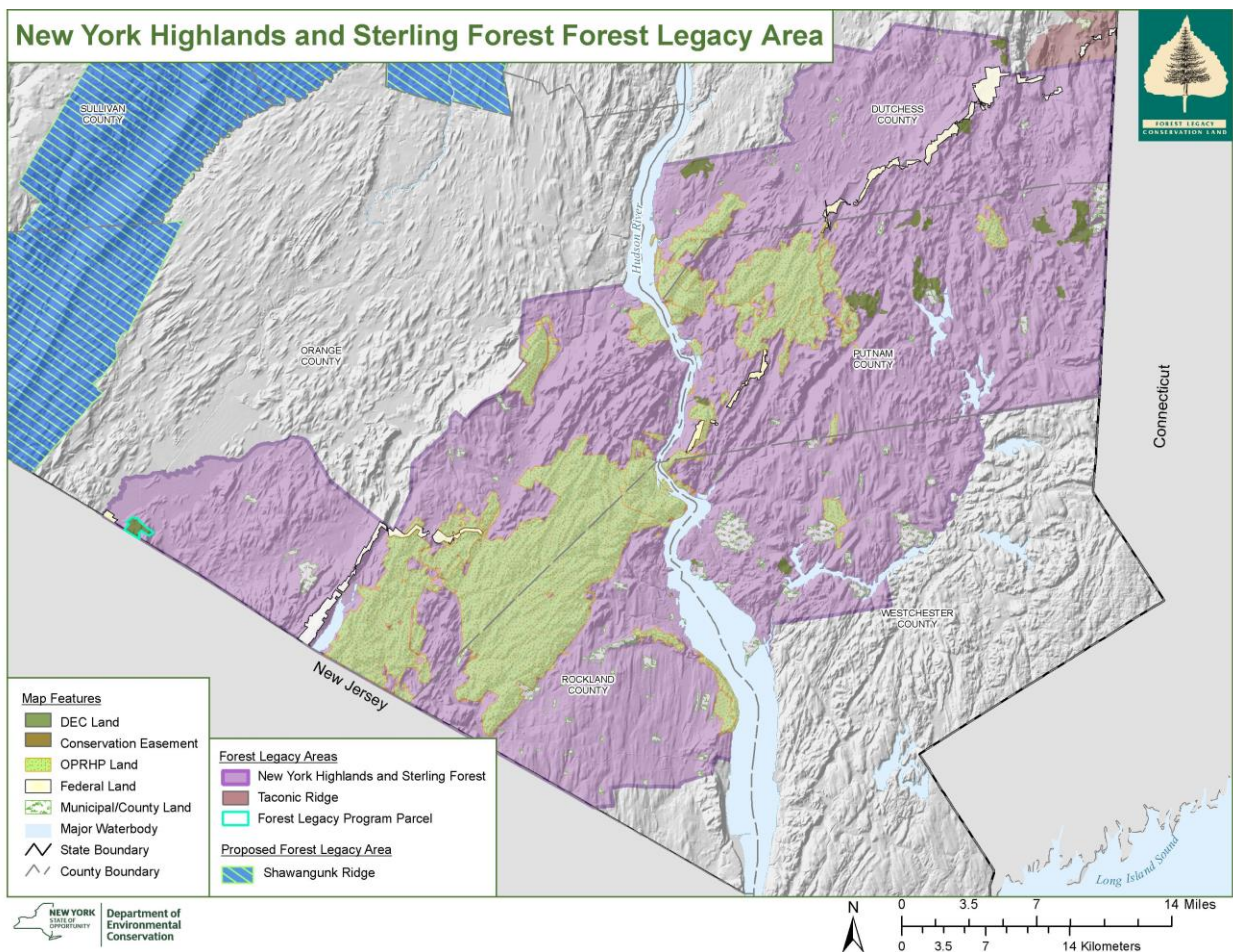
Public informational meetings on the Forest Legacy Program were held at eight locations in New York during January and February 1994. The meetings were advertised in local newspapers and detailed presentations of the Program were made at each of the meetings.

New York Highlands and Sterling Forest Legacy Area

The New York Highlands are part of the larger 1.1 million-acre New York/New Jersey Highlands Region, which lies between the Hudson and Delaware Rivers. The Highlands are comprised of mountains, valleys, river corridors, and wetlands, all within 50 miles of the New York metropolitan area. According to the New York-New Jersey Highlands Regional Study, they offer "the last opportunity to provide shape and form to the metropolitan region, delineating where the pavement ends and nature begins."

Important environmental values and how they will be protected:

- Within the Highlands there are 147,800 acres of public open space, which host eight million recreational users each year. Perhaps the most important recreational attraction is a segment of the Maine-to-Georgia Appalachian Trail, which bisects the Highlands and Sterling Forest. FLP implementation will ensure permanent public access to the Appalachian Trail and other hiking trails, will buffer existing public land from encroaching residential and commercial development, and will provide increased public access for recreational opportunities to the 20 million residents of the tri-state region.
- The Highlands' watersheds provide drinking water to 3.8 million residents of New York and New Jersey. Through various FLP protection mechanisms, development on or near waterbodies and drainage systems will be limited or prevented, thus preserving water quality.
- The lands and waters of the Highlands harbor significant populations of fish and wildlife. This includes over 40 species of nesting birds, migrating raptors, and waterfowl; large mammals like bobcat, black bear and river otter; and wild trout fisheries. Threatened and endangered species include the timber rattlesnake, wood turtle, red-shouldered hawk, barred owl, osprey, great blue heron, and eastern wood rat. The presence of this wildlife is more remarkable because of its location at the periphery of the nation's largest city. FLP acquisition of fee interests, development and timber rights will control development and timber harvesting in the Highlands, thus preserving these important natural communities. Public access may be limited in some areas or at certain times of the year if the habitat is sensitive or easily disturbed.
- The Highlands has many prehistoric archeological sites, as well as historic links to the American Revolution and Civil War. FLP easements can prevent deleterious development that would disturb and degrade these archeological and historic sites.
- From the Appalachian Trail and other trails and roads in the Highlands, visitors enjoy seemingly endless views of nature, despite their proximity to New York City. By limiting development in important viewsheds, the high scenic value of the Highlands will be maintained.



Public benefits

Implementation of the FLP in the Highlands will protect highly threatened land from conversion to nontraditional uses, namely large-scale development. FLP will also protect/expand the following public values:

1. recreational opportunities
2. riparian areas/wetlands
3. important fish and wildlife habitat
4. other ecological features (International Biosphere)

5. cultural resources
6. scenic resources
7. important plant communities
8. water quality/quantity

Management responsibility for FLP easements/ interests acquired in the New York Highlands may be assigned to the Palisades Interstate Park Commission, the Department of Environmental Conservation, or to local government. Monitoring responsibility may be shared by local organization qualified to conduct monitoring according to LTA Standards and Practices.

Public Involvement Process

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A revised and updated open Space Plan is currently being prepared and following public hearings will be finalized later in 1994. The Forest Legacy Program will be discussed specifically and in detail as an appropriate and valuable tool for protecting New York's forest resources.

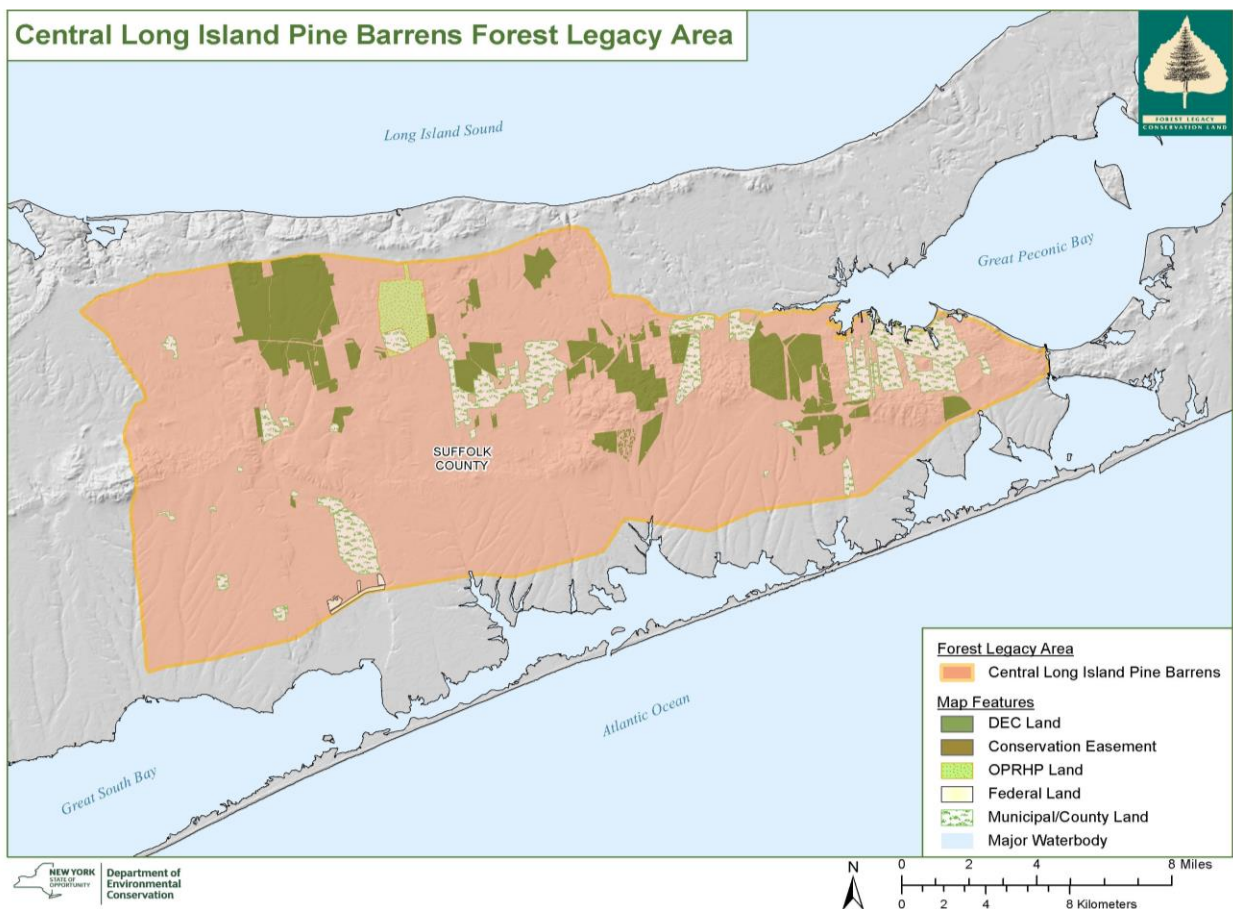
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Public Informational Meetings

Public informational meetings on the Forest Legacy Program were held at eight locations in New York during January and February 1994. The meetings were advertised in local newspapers and detailed presentations of the Program were made at each of the meetings.

Central Long Island Pine Barrens Forest Legacy Area

The Pine Barrens Forest Legacy Area encompasses 100,000 acres in the eastern Long Island towns of Brookhaven, Riverhead, and Southampton. The total acreage of the Long Island Pine Barrens has been significantly reduced over the past century, and most of what remains has been exploited in some way. The hills of the barrens, some of the highest in Suffolk County, are being used for radar and communications facilities. Several electrical transmission corridors pass through the barrens, as do many roads, highways, and the Long Island Railroad. Unplanned development, sand and gravel mines, tree poaching, golf courses, off-road vehicles, and illegal dumping have all degraded or destroyed areas of the Pine Barrens and continue to threaten the remaining forest.



Important environmental values that will be protected include:

- Pine barrens are a rarely occurring forest type in New York State and are extremely important to the state's biological diversity. The pitch pine range in height from 4 feet (dwarf pitch pine) to 60 feet, and oak species include scrub or bear oak, post, chestnut, scarlet, and white oak. The understory usually includes black huckleberry and blueberry, while ground cover includes hudsonia, bearberry, wintergreen, joint weed, stiff-leaf aster, and orange grass. Acquisitions of fee interests, development rights, and timber rights will safeguard the unique plant communities of the Pine Barrens in perpetuity.
- Wetlands, which are common through the forest, include red maple swamps and white cedar bogs. FLP acquisitions will prevent or limit land uses that would negatively impact the wetlands and streams of the Pine Barrens.
- Animals include fox, deer, rabbit, toads, snakes, and insects. It is a favored nesting area for prairie warbler and brown thrasher; pine warbler and ovenbird are other characteristic birds. The community also provides habitat for the buck moth. In fact, New York's most dense population of buck moths occurs in the Long Island Pine Barrens. Fee and easement acquisitions will prevent uses that would destroy habitat; restrictions on human activities may be instituted, when necessary, to protect critical and sensitive areas.
- The Upper Glacial and Magothy Aquifers. These have been tapped for drinking water and they are Long Island's last major reservoirs of uncontaminated groundwater. Acquisition of fee and easement interests will prevent development and other practices that could degrade water quality.

- The scrub forest, berry-laden understory, and sandy forest floors are a uniquely beautiful hallmark of Long Island's east end; they provide a welcome and dramatic visual contrast to nearby residential subdivisions, golf courses, and tourist hubs. By limiting development and other construction within the pine barrens, the Forest Legacy Program will ensure the aesthetic integrity of the region.
- There are several state- and county-owned parks within the proposal area. Acquisition of fee interests and recreational rights will expand existing parkland; acquisition of development rights will buffer parkland from encroaching development.
- The Central Long Island Pine Barrens FLA is included in the 2016 New York State Open Space Conservation Plan in Priority Project Area Central Pine Barrens {2}.

List of Public Benefits

The Forest Legacy Program will help prevent conversion of the Pine Barrens to nontraditional uses. In addition, the following public values will be protected:

1. recreational opportunities
2. riparian areas/wetlands
3. important fish and wildlife habitat
4. other ecological values (aquifers)
5. scenic resources
6. important plant communities
7. groundwater

Management responsibility for rights/interests acquired under FLP in the Pine Barrens may be assigned to DEC, Suffolk County or the towns of Brookhaven, Riverhead, and Southampton. Monitoring responsibility may be shared by local organization qualified to conduct monitoring according to LTA Standards and Practices.

Public Involvement Process

From the New York's 1994 Modified Assessment of Need:

The Open Space Plan.

On November 2, 1991, the State of New York distributed 500 copies of its Draft Open Space Plan to the public thru direct mailings and providing copies to hundreds of public libraries as well as State offices. Press releases throughout the State advised the public where copies of the draft plan were available. Regarding Forest Legacy, the draft plan stated, "Recently, as an outgrowth of the Northern Forest Lands Study, it appears that funds may be appropriated for land acquisition (conservation easements) on a matching basis, through the U.S. Forest Service. This would be a special program to help stabilize the vast forest lands that lie across the northern tier of New York, Vermont, New Hampshire and Maine." The draft plan went on to say, "The State also endorses implementation of some form of the Forest Legacy Program of the U.S. Department of Agriculture which is designed to assist in conservation of working forest lands."

On January 15 and 16, 1992, thirteen public hearings on the draft plan were held. These hearings were well advertised and held in all regions of the state. As a result, 2,026 people provided comments on the draft plan.

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Municipal Resolutions

On November 24, 1992 the Southampton Town Board passed a resolution in support of the Pine Barren's inclusion in the Forest Legacy Program.

Public Informational Meetings

Public informational meetings on the Forest Legacy Program were held at eight locations in New York during January and February 1994. The meetings were advertised in local newspapers and detailed presentations of the Program were made at each of the meetings.

Catskill Park and Delaware River New York City Watershed Forest Legacy Area

A) Description

The New York City water supply system is an engineering feat of vast proportions. New York City's water supply system provides more than 1 billion gallons of safe drinking water every day to more than 8.4 million residents of New York City; 1 million people living in the counties of Westchester, Putnam, Orange, and Ulster; and more than 60 million tourists and commuters who visit the five boroughs throughout the year. (NYCDEP, 2019). The 1,580-square mile Catskill/Delaware watersheds, located west of the Hudson River, contribute approximately 93 percent of New York City's water supply (NYCDEP, 2019).

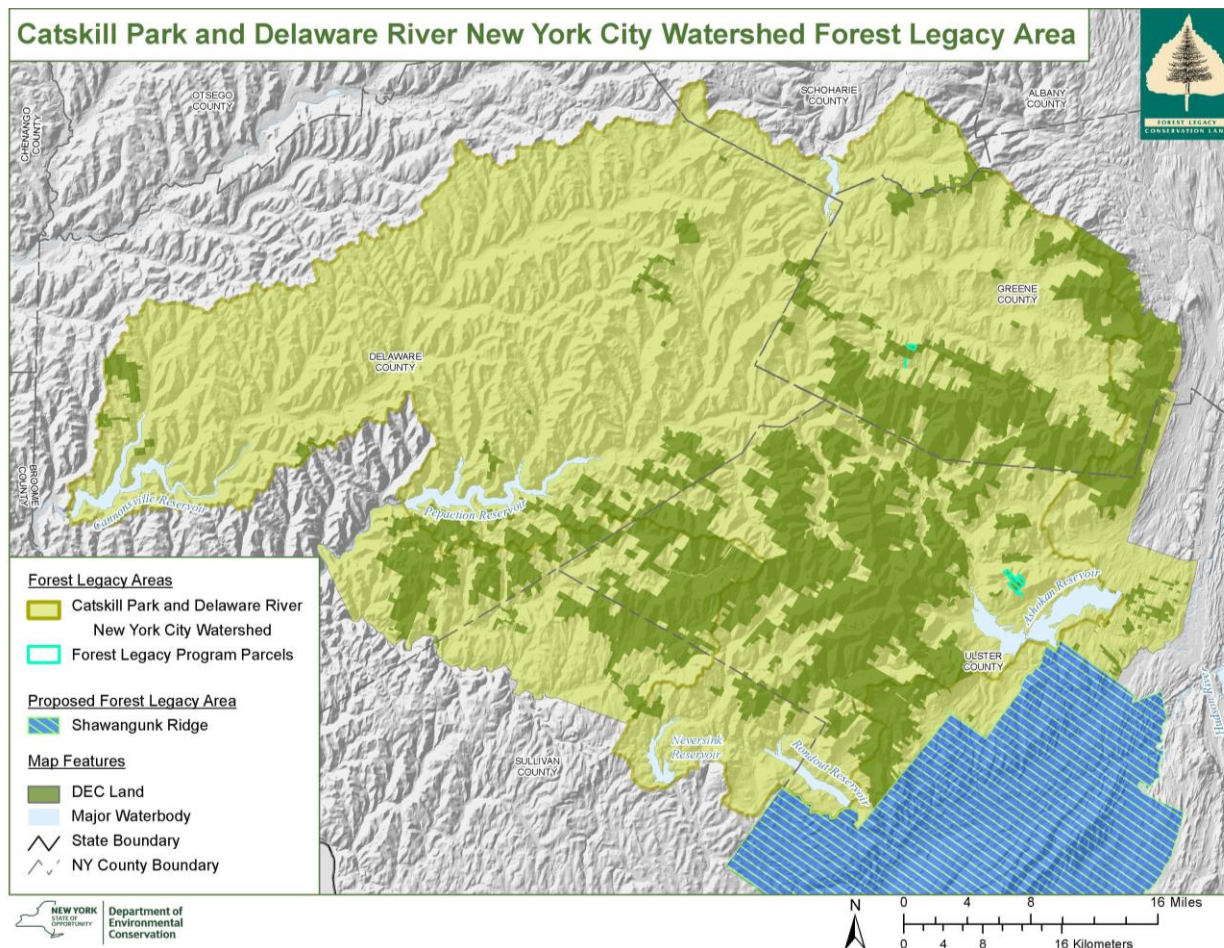
In 2010 the FLA was expanded to include the remaining portions of the Catskill Park. The expansion is located on the southwest and eastern edges of the Park and adds the headwaters of the famous Beaverkill and Willowemoc trout streams and the Great Rondout Wetlands to the existing FLA. *See the table for the watersheds and their 11-digit HUC code.* The outer boundary is the Catskill Park Blue Line, established by statute in New York's Environmental Conservation Law (ECL) section 9-0101(2). The boundary modification increased the size of the FLA by 376.4 square miles.

| II. | HUC_11 | Watershed Name | |
|-------|-------------|----------------|-------------------------------------|
| III. | 02020006140 | IV. | Upper Catskill Creek |
| V. | 02020006150 | VI. | Kaaterskill Creek |
| VII. | 02020006200 | VIII. | Middle Esopus Creek |
| IX. | 02020006210 | X. | Cementon, New York to Rondout Creek |
| XI. | 02020007120 | XII. | Vernooy Kill |
| XIII. | 02020007130 | XIV. | Vernooy Kill to Rochester Creek |
| XV. | 02040102020 | XVI. | Middle East Branch Delaware River |
| XVII. | 02040102030 | XVIII. | Upper Beaver Kill |
| XIX. | 02040102040 | XX. | Willowemoc Creek |
| XXI. | 02040102050 | XXII. | Lower Beaver Kill |

The population of these watersheds consists of nearly 80,000 permanent residents located in portions of Delaware, Greene, Schoharie, Sullivan, and Ulster counties. Forest-based recreation, such as hiking, hunting, trapping, and fishing, attracts thousands of tourists each year, predominantly from New York City, but also from other northeastern cities.

Forests constitute 75 percent of the total land area in the five Catskill/Delaware watershed and Catskill Park counties (Alerich and Drake, 1995). These forests are characterized by steep slopes and deep, V--shaped valleys. The Catskill Mountains are the remains of a high plateau deeply carved by water erosion. The bedrock, chiefly sandstone and shale, is of sedimentary origin. Soils are exceedingly stony, acidic, arid of medium to low fertility (Stout, 1953).

The watershed forests are commonly referred to as Northern hardwoods (Alerich and Drake, 1995). The principal species include beech, sugar maple, red maple, white ash, black cherry, yellow birch, and red, white, and chestnut oak (NYSDEC, 1981). Hemlock, once plentiful, now grows mainly in ravines; white pine and red spruce can be found growing at higher elevations (Eyre, 1980).



B) Map of Proposed Area

List of communities:

- **Delaware County**

- Town of Andes
- Town of Bovina
- Town of Colchester
- Town of Delhi

- Town of Deposit
- Town of Franklin
- Town of Hamden
- Town of Harpersfield
- Town of Kortright
- Town of Masonville
- Town of Meredith

- Town of Middletown
- Town of Roxbury
- Town of Sidney
- Town of Stamford
- Town of Tompkins
- Town of Walton
- Village of Andes (Andes)
- Village of Delhi (Delhi)
- Village of Fleischmanns (Middletown)
- Village of Hobart (Stamford)
- Village of Margaretville (Middletown)
- Village of Stamford (Stamford)
- Village of Walton (Walton)
- **Schoharie County**
 - Town of Broome
 - Town of Conesville
 - Town of Gilboa
 - Town of Jefferson
- **Greene County**
 - Town of Ashland
 - Town of Cairo
 - Town of Catskill
 - Town of Durham
 - Town of Halcott
 - Town of Hunter
 - Town of Jewett
 - Town of Lexington
 - Town of Prattsville
 - Town of Windham
 - Village of Hunter' (Hunter)
 - Village of Tannersville (Hunter)

- **Sullivan County**
 - Town of Fallsburgh
 - Town of Liberty
 - Town of Neversink
 - Town of Rockland
- **Ulster County**
 - Town of Denning
 - Town of Hardenburgh
 - Town of Hurley
 - Town of Kingston
 - Town of Marbletown
 - Town of Olive
 - Town of Rochester
 - Town of Shandaken
 - Town of Ulster
 - Town of Wawarsing
 - Town of Woodstock
 - City of Kingston

C) Eligibility Criteria

1. Include Forested Land Threatened by Present or Future Conversion to a Non-Forest Use:

Forest lands in the watershed face extreme pressure of conversion to other uses. Owing to the proximity of the watershed to the New York City metropolitan area, the watershed region has historically been subject to periods of intense land speculation and subdivision. Speculative development resulting from proposed casinos in the region and an increasing desire for safe haven from the metropolitan region since September 11, 2001 have resulted in increased rates of forest land conversion. The Watershed Forest Ad Hoc Task Force Policy Recommendations (July 1996) reported that 90 percent of the timberland in the Catskill/Delaware watershed counties is

privately owned. Property tax rates, at four times (4x) the forestry revenues, push landowners to convert land to more profitable uses. One study by the Catskill Center for Conservation reported that ninety-seven (97) parcels of land containing a total of 7,913 acres were subdivided into 1,219 parcels over a six-year period. Looking to the future, large tracts of undeveloped forest land are required for economically viable management. The Watershed Task Force report notes that well-managed forests provide the most beneficial land cover for watershed protection. If development converts significant amounts of forest land, or fragments large blocks of forest land, the economic viability for forest management could be jeopardized, which in turn, could affect the ability of the Catskill/Delaware Watershed to perform its watershed function.

2. Provide Opportunities for the Continuation of Traditional Uses:

An Act of the Legislature created the Forest Preserve in 1885 to preserve forest land, thus protecting the headwaters of many of the state's major rivers. Within Catskill State Park, there are 288,240 acres of forest preserve land and 546 acres of conservation easements. Outside the Catskill Park, but in the four Catskill Forest Preserve counties, are 7,803 acres of forest preserve. The forested landscape of the Catskills supports a stable forest industry. According to the Watershed Forest Ad Hoc Task Force Policy Recommendations (July 1996), at least 27 primary producers within the watershed counties process approximately 61.2 million board feet of softwoods annually from sources both within and outside the watershed. In addition, at least 34 secondary producers are within the watershed. More than 130 timber harvesters have expressed their interest in logging within the watershed region.

FLP conservation easements will ensure traditional uses of forest land such as timber production, water supply, agriculture, and outdoor recreation and tourism, and may be targeted toward providing greater access to existing state- and city-owned lands in the watershed.

3. Contain Three or More of the Following Public Values:

The New York Watershed contains at least four public values.

1. **Recreation Opportunities:** The watershed region has long been known as a major recreational resource area for New York City and New York State. Forest-based recreation, such as hiking, hunting, trapping, and fishing, attracts thousands of visitors each year, predominantly from New York City, but also from other northeastern cities. DEC maintains an extensive trail system within the Catskill Park. The New York State Open Space Conservation Plan identifies one as an important trail: Long Path covers 215 miles, from the George Washington Bridge to the northern limit of the Catskill Park. It crosses some of the Catskill's highest peaks. The area outside the NYC watershed includes the headwaters of the Beaverkill and Willowemoc, which aids in the protection of these nationally renowned trout streams.
2. **Riparian areas/wetlands:** As the source of water for six New York City reservoirs, this region contains riparian areas and wetlands that serve as critical filters for 90 percent of the drinking water for nine million metropolitan residents. The area outside the NYC watershed includes several priority wetlands, including the Great Rondout Wetlands.
3. **Important fish and wildlife habitat:** The region contains fly fishing sites, including world-class trout streams, and hunting opportunities that reflect extensive fish and wildlife habitat.
4. **Scenic Resources:** The Catskill Mountains are recognized as a scenic resource for New York State. Scenic resources are areas exhibiting outstanding arrangements of natural or manufactured features, including water features and/or landforms and/or vegetative patterns that provide inspiration, hold interest, and command attention of the

viewing public. A 6.8-mile section of New York State Route 214 in the Town of Hunter is designated as a state scenic highway. The Catskills provide major scenic resources to New York State and serve as the backdrop for the scenic beauty of the entire Hudson Valley region.

4. Contain at Least 50 Percent Land that Meets the Definition of Forest Land:

The Catskill/Delaware Watershed is 75 percent forested, which is 14 percentage points higher than the statewide forested percentage of 61 percent. Forest coverage within the portion of the FLA outside the NYC watershed is 87%.

5. Be Identified in the State Open Space Conservation Plan as a Priority Conservation Project:

The New York State Open Space Conservation Plan is in its seventh iteration. The 2016 plan includes 140 priority conservation projects. The Forest Legacy Area is in the New York City Watershed Lands project area. The Catskill/Delaware Region includes New York City's seven primary water supply reservoirs, the Catskill Park and Forest Preserve, and the Upper Delaware River. Protecting farmland and working forests, as well as promoting clean water and the uses of water resources are key parts of the priority conservation project. The area outside the New York City Watershed and inside the Catskill Park include two Priority Project Areas: Great Rondout Wetlands {26} and the Catskill River and Road Corridors {39}.

D) Environmental Values that will be Protected

The Catskill/Delaware watersheds and Catskill Park consist primarily of extensive forested areas that are interlaced with natural water systems, including wetlands, tributaries, and highly regarded trout streams. These water systems serve as the supply source for six reservoirs supplying 90 percent of the water for the New York City water supply system.

In addition to serving as filter forests for the New York City water supply, these woodlands

provide scenic and recreation resources for the entire southeastern region of New York State, including the metropolitan region. The forested lands of the watershed are renowned for the fishing, hunting, and hiking opportunities they provide. Conservation easements can be used to protect critical recreation areas and to provide greater access to publicly owned lands.

Because of the extreme size of this watershed, just over one million acres, and because land values are inflated due to their proximity to New York City, long-term watershed protection can only be accomplished by instituting a partnership that promotes sound stewardship of private land. Conservation easements can leverage stewardship funds to a much greater degree than fee acquisitions alone.

E) Conservation Goals and Means for Protection

- Acquisition of conservation easements is the preferred alternative for long-term forest protection.
- Acquire development rights on all tracts, especially the rights to subdivide, build buildings, and control utility right-of-way locations.
- Timber rights retained by the landowner should be conditioned by using BMPs for alleviating soil erosion. All timber harvesting that is allowed shall require a stewardship plan that includes a timber harvesting plan prepared in consultation with a professional forester and accepted by DEC.
- If the seller has no interest in selling a conservation easement, and wishes to sell the fee title, the legacy state grant option provides that ability to the purchasing state government.

- To restrict the development of mining, drilling of material and sand and gravel pits must adhere to the restrictions and conditions in the State's Mined Land Reclamation Law, Environmental Conservation Law, Article 23, Title 27. (See Appendix D b.)
- No disposal of waste or hazardous material will be allowed on properties.
- Existing dams or water impoundments, or similar structures, shall be allowed to remain and be maintained. No new construction of dams, impoundments, or other water resource development shall be allowed unless a case-by-case analysis can prove the benefits of such construction to wildlife, forests, and people in the area.
- Industrial, commercial, and residential activities, except forestry and limited mining uses, are prohibited as outlined in the easement language for each individual parcel. Agricultural activities conducted in conformance to a whole farm plan with strict adherence to agricultural BMPs are acceptable. Forest Legacy acquisitions will not include extensive pasture (generally more than 10 percent of the total tract acreage) or cultivated farmland. Instead, farmland protection programs should be used to conserve farmland pasture and similar land uses.
- Increase protection of a quickly decreasing, unfragmented forest ecosystem within the Catskill region and existing FLA.
- Maintain the area's large, relatively undisturbed forest that features extensive hiking trails and historic carriage trails overlooking vistas of unsurpassed scenery.
- Sustain the balance of public and private ownership within the FLA in order to enhance and maintain the recreational and tourism opportunities in the area.

- Long-term protection of several priority Open Space Conservation Plan wetlands, including the Great Rondout Wetlands.

F) Public Benefits from establishing the New York City Watershed as a Forest Legacy Area

1. Enhanced protection of filter forests that maintain pristine drinking water supply for nine million metropolitan residents.
2. Reduced drinking water treatment costs resulting from maintained or improved quality of raw water.
3. Economic activity and the scenic viewshed and appeal of the region, which draws tourists to this area, will be maintained through the acquisition of key projects within the proposed expansion of the FLA.
4. Acquiring public recreation rights when purchasing conservation easements from willing sellers directly enhances public benefits by maintaining and improving recreational opportunities for the region.
5. Economic activity on the forest land through timber harvesting and recreational uses can be permanently maintained by continued private land ownership and sales of working forest conservation easements to New York State.
6. Keeping a regional forested landscape intact provides for significant wildlife habitat, water quality, and biodiversity protection.

G) Watershed Agreement Easement/Assigned Management Responsibilities

The easements and fee ownership guidelines are thoroughly explained in the Memorandum of Agreement for the New York City Watershed, signed and dated January 21, 1997. Paragraphs 82 & 83 address these details, which are summarized in the following paragraph.

The City of New York is acquiring easements and fee rights in the watershed already. Details on the land acquisition program run by NYCDEP are also contained within the 2017 Filtration

Avoidance Determination, section 4.2. These will complement lands acquired by the NYSDEC and FLP. On lands where the City acquired an easement, it has the inspection responsibility. On lands it buys in fee, the City has the management responsibility and DEC holds an easement, which is enforced by the U.S. Environmental Protection Agency and the New York State Department of Health. In compliance with the MOA, DEP automatically grants DEC these easements, which are recorded. DEP needs to take the affirmative action to prepare the easement and get it recorded, and to provide DEC with the easement for its records.

H) Legacy Easements/Assigned Management Responsibilities

FLP is designed to keep forest lands from being converted to non-forest uses. The New York City Watershed Agreement is designed to protect the City's water supply through the application of sound land management techniques. Land treatment is the "battle cry" as opposed to multiple trillions of dollars for water treatment facilities.

The important point to remember about FLP tracts is they'll be around long after the City's watershed agreement has settled the debate over whether land treatment techniques or water treatment plant facilities provide the best protection for public drinking water supplies.

FLP easements are forever. Forested tracts are protected forever. Easement responsibilities and management responsibilities, as designed, now rest with DEC. Monitoring responsibility may be shared by local organizations qualified to conduct monitoring according to LTA Standards and Practices.

The FLP fits the New York City Watershed area perfectly. It protects important forests from non-forest uses. Forests protect soils and, subsequently, the water quality. Important forests provide wildlife habitat, water quality protection, offer outstanding recreation opportunities, afford outstanding views, are home to historic sites, and/or provide the chance

to continue traditional forest uses. A Federal-State partnership allows landowners to keep their land private, while ensuring it remains forest forever under conservation easements.

I) Management of Lands Enrolled in FLP & the Existing Lands Already in State Ownership

FLP lands would complement existing lands with conservation easements, and lands owned by New York State and the City. DEC already actively manages 8,000 acres of working state forest and 200,000 acres of forest preserve in the watershed. Timber, wildlife habitat, recreation, and watershed protection are the foundation of the state forest program. Forest protection through preservation and the State Constitution, Article 14 guide forest preserve management. These 208,000 acres complement the present City ownership and serve as a sound basis for additional lands that FLP can assemble.

Timbering is prohibited on a forest preserve, but this in no way prohibits harvesting FLP conservation easement properties. FLP can serve to complement those holdings and contribute nicely to the working forest philosophy. The working forest is a necessary component of keeping the area economically viable. The economy and landownership patterns in the watershed can't remain viable by relying exclusively on outdoor recreation enthusiasts. Local, year-round natural resource-based industries will keep the area viable and competitive while still protecting water quality. Timbering, as well as recreational pursuits, are critical to the region's economy. Timber harvests can even be tailored to improve wildlife habitat and recreational uses. These are the preferred uses in the area.

A perpetual forested landscape is guaranteed by the partnering of NYSDEC, the New York City Department of Environmental Protection, the FLP, and private woodland owners. A balance of timbering, recreational uses, and preservation ensures high quality water, while allowing for forestry activities and a stable ecosystem.

Acquisition and management of the FLP easements should reside within the realm of DEC's Division of Lands & Forests.

Public Involvement Process & Analysis of Issues

The original FLA was established in 1998 and covered the NYC drinking water watershed west of the Hudson River. At that time, elected officials in the covered municipalities were notified by letter and comments were received. The New York Stewardship Committee approved the FLA and assigned associated responsibilities to a Forest Legacy subcommittee, which gave clearance to proceed with the amendment to the AON to add the FLA.

In 2010, the FLA was expanded to include remaining lands within the Catskill Park boundary. All municipalities affected by the boundary modification were notified by letter and contacted by phone by DEC's Region 3 and Region 4 Regional Directors. In addition, the proposed boundary modification has been approved by the FLP Sub-committee of the New York State Forest Stewardship Coordinating Committee. The priority project areas located within the Catskill Expansion were subject to public comment through the 2006 and 2009 OSP Regional Advisory Committee and public hearings. Comments received during the 2006 review, pertaining to projects within the proposed FLA expansion, urged the State to "fully participate in protecting the Catskill River and Road Corridors, as the purchase of these watershed holdings along major road corridors like Route 28, 23, 30 and 10 will protect water resources, improve scenic vistas for visitors to the Catskills, and safeguard critical riparian buffer land." No comments were received that expressed non-support of the listed priority conservation projects within the expansion area.

Rensselaer Plateau Forest Legacy Area

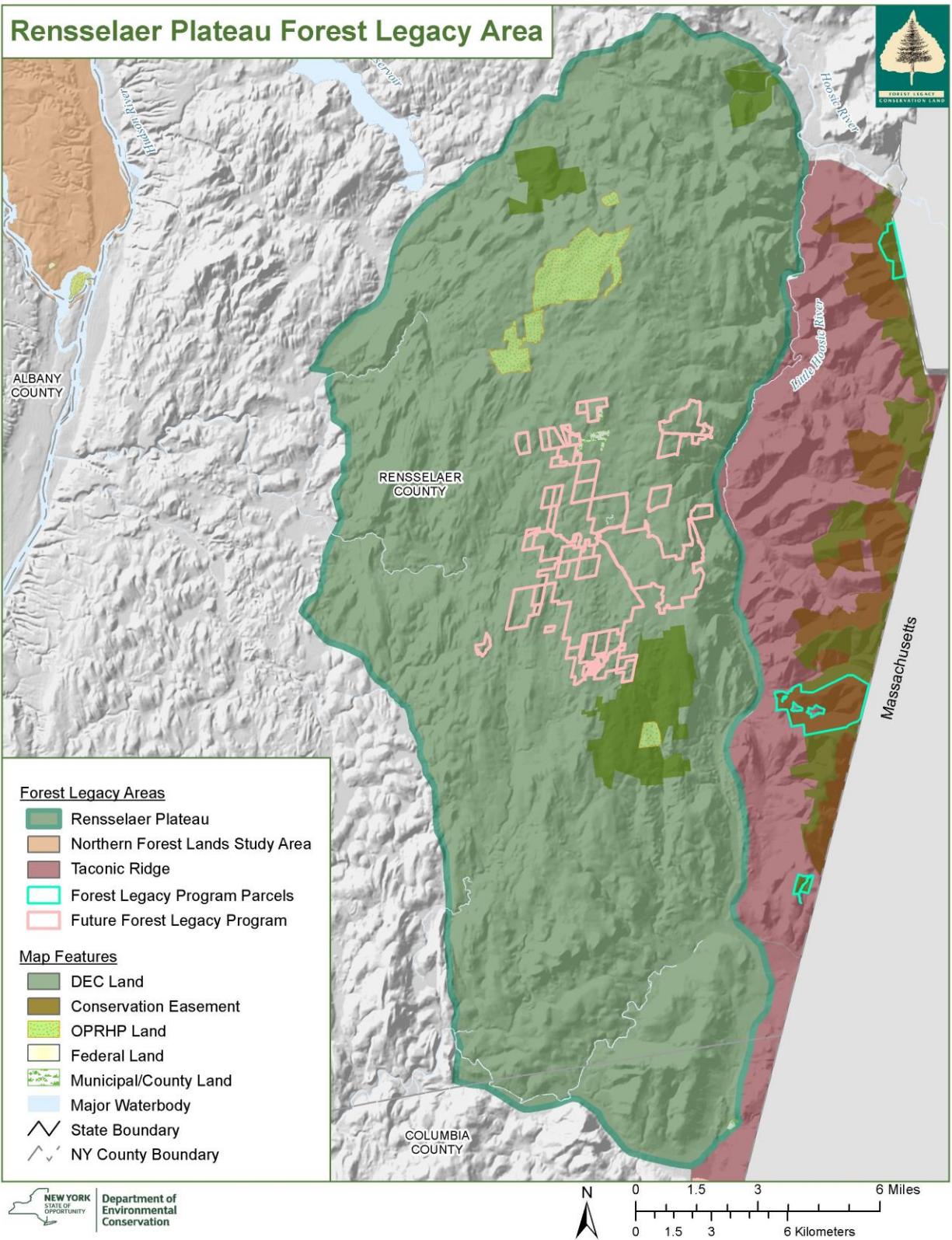
Location & Boundary Description

The Rensselaer Plateau (Plateau) encompasses 196,000 acres of forests east of the Hudson River Valley and west of the Taconic Mountains. Located 10 miles east of Albany, within central and eastern Rensselaer County, the Plateau extends 20 miles north to south and 9 miles east to west (see *Map 1*). The proposed FLA would start at the junction of State Rte. (SR) 22 and the Washington County line, go west to Co. Rte (CR) 114, south to CR 111, south on Parker School Rd to CR 129, southwest to SR 2, east to SR 351, south to SR 66, southeast to US Rte 20, east to SR 22, north to SR 346, east to the Vermont border, north to the junction with the Washington County line, and then west, ending west at the SR 22 starting point.

Towns with jurisdiction in the proposed Rensselaer Plateau FLA include: Berlin; Brunswick; Grafton; Nassau; Hoosic; Petersburg; Pittstown; Poestenkill; Sand Lake; Schaghticoke; and Stephentown in Rensselaer County; and New Lebanon in Columbia County.

Eligibility Criteria Analysis

1. Threats of conversion to non-forest uses.
 - a. Residential Development Pressure
 - Close proximity (20-minute drive) and an easy commute from the area to the state's capital city, Albany, and nearby cities, Troy and Schenectady.
 - Presence of research and development centers at Rensselaer Polytechnic Institute (RPI), located on the Plateau, and the nearby State University at Albany has drawn high tech businesses to the area.



- Small towns are becoming bedroom communities for the Capital District Area and development pressure is likely to become even more intense as the “Tech Valley” attracts more businesses.
 - The area is located in the heart of New York’s Capital Region, a region JP Morgan cites as one of the fastest expanding metros in New York State.
 - Second home development, often built on multi-acre lots, can produce a particularly insidious form of fragmentation, where sprawl increases disproportionately to population levels, and has gradually been moving farther north of the Hudson River into Rensselaer County from Columbia County.
 - A 2-3 hour driving distance from both the New York City and Boston metro areas makes it attractive to buyers who have been priced out of Dutchess and Columbia counties.
 - Recent ownership changes of large working forest properties may mean conversion to development.
- b. Growing Highway Construction Demand for Rensselaer Greywacke Bedstone**
- Rensselaer Greywacke, the geological formation of the Plateau, is an increasingly valuable commodity for highway construction because of its hardness, durability, and exceptional skid resistance, making it frequently specified for critical traffic areas such as highway interchanges.
 - Six operating mines, totaling 465 acres of permitted surface disturbance during the lifetime of the mines, are currently located on the eastern side of the Plateau, with pressure to open other mines.
 - Potential wider environmental impacts are associated with Greywacke mining because of the frequent and heavy blasting used to extract this hard rock.
- 2. Provides opportunities for the continuation of traditional forest uses.**
- a. Timber Products**
- Presently, there are five sawmills in Rensselaer County that use wood from the Plateau and other sources.
 - A major heat-treated firewood producer that is a supplier to a regional chain convenience store uses wood primarily from the Plateau.
 - Wood from the Plateau is transported to mills in neighboring states and Canada.
 - Timber on the Plateau supports logging jobs in the associated rural communities.
- b. Water Supply & Mill Power**
- Streams within the watersheds intersect on the Plateau and provide drinking water serving more than 100,000 people.
 - In the past, waterfalls at the edge of the Plateau were used to power mills.
- c. Public Access on Private Land**

- The Rensselaer County Regional Chamber of Commerce Tourism and Travel website portrays the county, including the Plateau, as: “Life Looks Good From Here,” “Stretching for 30 miles along the scenic and historic Hudson River, [the county]... boasts thousands of acres of parks, miles of hiking and walking trails, scores of lakes and ponds ... nature trails, ... [and] cross country ski trails...[that] highlight the beauty of the County.”

3. Contains at least 50 percent land that meets the definition of forest land.

Throughout the Plateau, opportunities for forest connectivity are high because the landscape is 95 percent forested, and there are many landowners with over 1,000 contiguous acres in holdings. Opportunities exist to connect forested corridors from the proposed FLA to the Taconic Ridge FLA on the east of US Rte 22.

4. New York State Open Space Conservation Plan Identification.

The Plateau is recognized as “Priority Conservation Project” {55}, on p. 121 of the 2016 Plan.

5. Contains three or more of the identified public values.

- a. Important Plant Communities/Natural Communities & Forest Types

Because of the erosion-resistance of the underlying Rensselaer Greywacke bedrock, the Plateau has a steep eastern escarpment with many cliffs. The Plateau ranges from 1000 to 1800 feet in elevation and the summit is hundreds of feet higher than the surrounding areas. Although it is geologically part of the Taconic area, its comparatively level summit is quite different from the more jagged peaks of the Taconic Range. The broad

summit has relatively little topographic relief and is mostly covered by glacial till of varying depths. Soils are mostly frigid, acidic, and rather poorly drained. Shallow soils are close to bedrock, and deeper soils may have a fragipan. There are numerous ponds and wetlands, especially fens, and these support many unusual communities. The shallow acidic soils and the cooler climate zone support vegetation closer in type to that of the Adirondacks than to the surrounding lowlands. Despite its location near the cities of Troy and Albany, the forest cover of the Rensselaer Plateau has remained surprisingly unfragmented.

The New York Natural Heritage Program identifies the following communities and species found on the Plateau as significant:

- **Communities:**

- Thalus Cave Community
- Hemlock Northern Hardwood Forest
- Oligatropic Dimictic Lake
- Spruce – Northern Hardwood Forest
- Black Spruce Tamarack Bog
- Spruce Fir Swamp
- Inland Poor Fen
- Beech - Maple Mesic Forest
- Shallow Emergent Marsh
- Dwarf Shrub Bog
- Spruce Flats

- **Species:**
 - Michaux’s Blue-eyed Grass
 - Farwell’s Water Milfoil
 - Marsh Arrow Grass

- **Historic:**
 - New England Cottontail

b. Important Fish & Wildlife Habitat w/known Threatened & Endangered Species

The Plateau has been designated as an Important Bird Area by the National Audubon Society. The area supports a great abundance and diversity of forest breeders, including many at-risk species—Cooper’s Hawk, Northern Goshawk, Red-shouldered Hawk, Wood Thrush, and Canada Warbler to name a few—and a characteristic assemblage of more common forest species. Eighteen species of warbler are known to breed in Plateau forests. In addition, Red Crossbill, White-winged Crossbill, Pine Siskin, and Evening Grosbeak have been identified here; and Bicknell’s Thrushes use the area during migration.

Large unfragmented interior forested blocks provide habitat for native mammals that need large continuous ranges, such as bear, bobcat, fisher, and moose. These large blocks also support biodiversity and scope for natural disturbance to play out in a series of normal ecological processes and plant community successions. Unfragmented forest areas have minimal edge areas and corridor zones, which help protect them from invasive forest pests, diseases, and plants. Fragmentation in the form of roads and development inevitably leads to exploitation by opportunistic invasive species.

c. Other Ecological Values / Ecological Connectivity

Only a few miles of rural land separate the Plateau and the Taconic Ridge from the Northern FLA of both New York (Washington County) and the State of Vermont. The Hoosic River Corridor at the northern portion of the FLA extends through northern Rensselaer County, thereby linking these important forest communities. Although this corridor is predominately in agricultural use, with sizeable patches of forest, it represents the best connectivity between the extensive FLA forests. In the future, as plant and animal populations and biotic communities respond to rising temperatures due to global climate change, we expect species range expansions and contractions. Habitat connectivity will be important for them in making those temperature range adjustments.

Important Environmental Values

Environmental Values to be Protected

- Intact forest landscape – ecological value
- Plateau watershed - recharge area; wetlands and streams; hydrological value
- Biodiversity value to New York State and the region
- Forested Landscape value to large mammal populations
- Interior nesting birds/Important Bird Area
- Open space value to population centers

Economic Values to be Protected

- Forest products economy
- Outdoor recreation, hunting, fishing, trapping, cross-country skiing, camping, horseback riding, biking
- Other rural economic activities

Conservation Goals & FLA Objectives

Conservation Goals

- Maintain and enhance New York State's 5th largest unfragmented forest and its extensive range of unique wetland communities, including sedge meadow, dwarf shrub bog, spruce-fir swamp, and kettle hole bog.
- Long-term protection of mammal diversity that is atypical of the greater Capital District region, including black bear, fisher, otter, bobcat, and moose.
- Long-term protection of diversity and abundance of forest bird breeders, including many state-listed species.
- Protect the Tomhannock Reservoir Watershed, which provides water to over 100,000 Rensselaer County and Columbia County residents.
- Develop the long-range and shared vision of several organizations to establish a public open space corridor and trail system across the area, connecting Dyken Pond Center to Grafton Lakes State Park, Pittstown State Forest, the Capital District Wildlife Management Area, and Dickinson Hill Fire Tower.
- Link the Plateau FLA (54,000-acre area northern portion, referred herein as the Hoosic River Corridor) to existing Northern FLA and adjacent Taconic Ridge FLA.
- Utilize current public and local political support with the potential for open space acquisition funding for the FLA.

FLA Objectives

- Acquire conservation easements and working forest conservation easements for long-term forest protection.

- Establish north-south forest connectivity to provide commuting and migration corridors for boreal and high elevation species, which are especially vulnerable to the effects of climate change.
- Link New York State land through forested corridors of private land with existing working forest conservation easements to enhance public recreation opportunities, retain biodiversity, support mammals requiring a large home range, and retain blocks for interior forest nesting bird species.
- Acquire fee title to parcels where:
 - i. the willing seller of a priority parcel has no interest in retaining the property with an easement;
 - ii. properties would be a significant asset to nearby, existing state-owned land; or
 - iii. properties contain significant natural communities and rare species where preservation is the only alternative for protecting the identified elements of biodiversity.

Public Benefits

- Economic activity on the forest land through timber harvesting can be permanently maintained by continued private land ownership and sales of working forest conservation easements to New York State.
- Acquiring public recreation rights when purchasing conservation easements from willing sellers directly enhances public benefits.
- Keeping a regional forested landscape intact provides for significant wildlife habitat, water quality, and biodiversity protection.
- Retaining the rural forested character of the Rensselaer Plateau and Escarpment contributes to the local culture and heritage of eastern Rensselaer County.

Existing Public Lands within FLA at time of establishment

- Two state parks: Grafton State Park (2,311 ac.); Cherry Plain State Park (150 ac.)
- Capital District Wildlife Management Area (4,043 ac.)
- Two state forests: Pittstown State Forest (1,191 ac.); Tibbits State Forest (822 ac.)
- Bennington Battlefield State Historic Site (276 ac.)

Public Involvement Process & Analysis of Issues

Prior to DEC's consideration of adding the Rensselaer Plateau to the NYSFLP, all municipalities affected by the proposal were consulted by letter and phone by DEC's Region 4, Regional Director, Gene Kelly. Upon receiving a majority of support from the potentially affected municipalities and local nonprofit land conservation organizations, DEC publicly noticed a request for public comment and also issued notification of a local public meeting on the proposal through its weekly Environmental Notice Bulletin (ENB) on its website (http://www.dec.ny.gov/enb/20100317_not4.html). The public information meeting was held on March 24, 2010, with approximately 100 people in attendance. Nine comments were received and recorded at this meeting and added to the 30-day public comment period summary.

During the public comment period, March 17, 2010 to April 16, 2010, 88 comments were received: 79 written comments and nine oral comments from the public meeting. The 79 comments received were in support of the proposal- three from potentially affected municipalities, 21 from landowners, and 13 from special interest groups. Support comments requested DEC to designate the Plateau as an FLA, with a majority of comments expressing the need for future protection of the area's unfragmented forests from development pressure.

Nine comments received did not support the proposal, of which five were received from potentially affected landowners, two from municipalities and one citizen and one special

interest group. Their comments expressed disagreement or concern over: i) the use of government funds for open space conservation; ii) increased land restrictions imposed on a designated FLA; iii) the tax burden shifting to other landowners; and iv) development pressure was not seen as a reasonable threat to the area. To address these concerns, DEC provided a response to public comments, i continuing to stress the voluntary nature of the FLP.

In addition, DEC received from the Town of Grafton, Rensselaer County, "Resolution #44 of 2010 - Resolution Opposing the Application to the U.S. Forest Service by DEC for Designation of the Rensselaer Plateau as a Forest Legacy Area," made on April 15, 2010. In response, New York State maintains a long-standing history of working with private landowners willing to sell their lands to the State and with the affected local municipality(ies), as established in the State's Open Space Conservation Plan. Further, New York State Environmental Conservation Law, Article 49, Title 2, requires the State to notify all affected municipalities in advance of a private landowner's desire to sell to the State, where the State may not use New York State Environmental Protection Funds (EPF) to purchase the parcel if one of the affected municipalities does not approve.

In the face of the Town of Grafton's Resolution, should any future FLP project be proposed within the town's jurisdiction, DEC and the private landowner will consult with the town and provide them with the appropriate information to consider. Should the town continue to oppose any FLP project within its jurisdiction after consulting with the willing seller, DEC will not proceed with the acquisition.

Further, the proposed FLA was a priority project identified in the 2009 OSP and was subject to a 45-day public review and comment period in early 2009. From this comment period, DEC received over 100 emails and letters from the public and regional land conservation groups in support of the protection of the Rensselaer Plateau and its inclusion in the 2009 OSP. No comments against its inclusion in the 2009 OSP were received at that time.

Proposed Forest Legacy Areas

Allegheny Plateau FLA

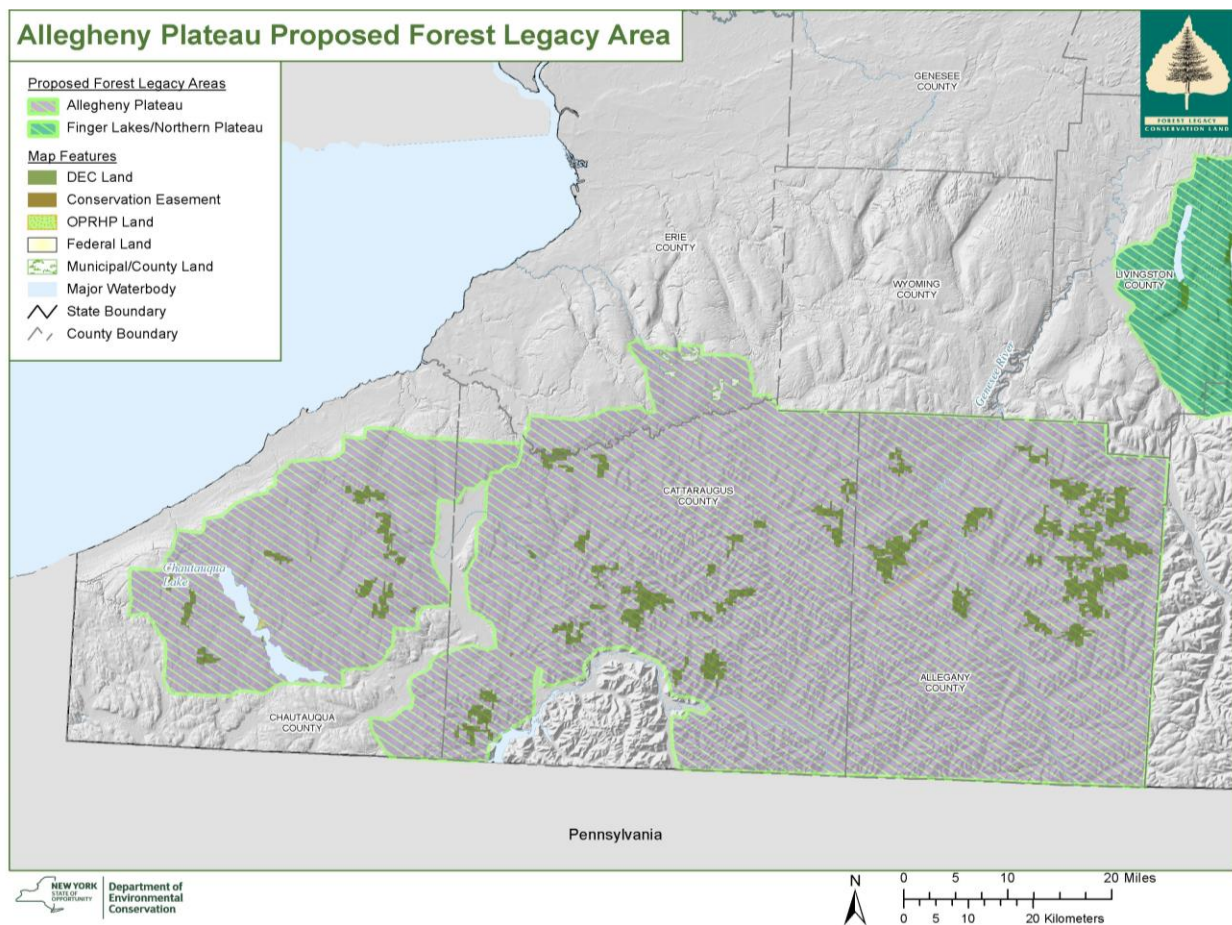
Description

The Allegheny Plateau forests of western New York State are diverse and robust. Common community types found in this landscape include rich mesophytic forest, hemlock-northern hardwood forest, beech-maple mesic forest, and maple basswood rich mesic forest. While oak-hickory forests are not present as a forest type and do not dominate the overstory at the stand level, both species are smaller components of each of the hardwood types listed above. Albeit less common, other significant community types represented in this forest area are: the Allegheny oak forest found on unglaciated summits; floodplain forests along the rivers; and several open wetland types.

The soils of the Allegheny Plateau region could be considered some of the most productive left in native forest cover in the state, in terms of

high plant abundance and rigor. These factors, along with landforms and climate, combine to allow for both northern and central Appalachian plants to thrive, providing for a rich diversity of species in both the overstory and understory. Some plant species of note include cucumber magnolia tree, yellow mandarin, black snakeroot, tulip tree, sugar maple, black cherry, and round-leaved orchids. Several rare species also occur here, including state endangered mountain watercress and wild sweet-william.

The juxtaposition between the central hardwood and northern hardwood forest types is an important consideration in creating an Allegheny Plateau FLA. With components of both, the Allegheny Plateau forests may prove to be of crucial importance in a world dominated by the effects of climate change, providing the necessary connectivity to both plant and animal species as their home ranges move northward.



Within the boundaries of the Allegheny Plateau FLA is one of the four largest intact forested landscapes in the state. Animals species of note in these forestlands include black bear, osprey, timber rattlesnake, goshawk, a diverse array of salamanders (including the rare Wehrle's, Longtail and Hellbender salamanders), and neo-tropical migratory warblers, including the uncommon cerulean, hooded, and yellow throated warblers. Here also lie important tributaries to the Allegheny River. The Allegheny River watershed supports the most diverse stream fish assemblages in New York State and harbors a variety of mussels, including several rare species such as the endangered clubshell mussel and the wavy-rayed lampmussel.

The economic stresses of the region are putting added burdens on its forests. FLP can help provide both immediate relief and long-term stability for forest products-based companies by committing lands to sound forest management principles.

The Allegheny Plateau FLA has been identified by several conservation groups, including The Nature Conservancy, Audubon, the Western New York Land Conservancy, and the Nature Sanctuary Society of Western New York, as an important or high priority conservation area. In addition, the Allegheny Plateau region is valued by New Yorkers and non-New Yorkers alike, as reflected in tourism activity within the region's economy. Attracted in large measure by the natural resources and scenic beauty of the area, tourism in the Allegheny Plateau FLA generates 7.5 percent of all labor income, with this sector accounting for 11 percent of all employment. Tourism in this area generates \$138 million in direct labor income and \$234 million when including indirect and induced impacts. This provides \$64 million in state and local taxes, with sales, property, and hotel bed taxes totaling over \$32 million locally (Tourism Economics, Chautauqua County, 2008).

The FLA is approximately 1.8 million acres and contains all or portions of four counties in western New York. Forest-based recreation, such as hunting, fishing, and hiking, attracts thousands of visitors to the region each year and is vital to the region's economy. Traditional forest products industries report an estimated \$40 million from stumpage values alone to New York's economy (2008 estimate of stumpage values).

Map of Proposed Area

The map shows land cover types, interstates, and the location of public lands and large cities. Boundary lines follow public roads or rights-of-way to be consistent with eligibility criteria and be identifiable on the ground.

Environmental Values that will be Protected

Forests of the Allegheny Plateau region face multiple threats. Unsustainable forest practices threaten to substantially reduce the supply and quality of forest products, as well as degrade water quality through higher volumes and faster flow rates of overland water. Retention of forest cover slows overland flows and aids water infiltration and percolation into the soils, reducing soil erosion and stream sedimentation. Forest loss has implications for fish habitat quality, as well as consumptive water use. Compromises in forest health can very quickly translate to human health and economic concerns, affecting potable qualities, sport fishing, and other water-related recreational activities. These environmental values are protected when our forests are protected.

Fragmentation of native forest cover, which hastens without forest protection incentives, has negative consequences for fish, wildlife, and human needs. A designated FLA in the region will promote sustainable management of our forests, allowing them to realize their maximum potential for ecological and social values. Legacy Forests will help provide needed incentives to usher in a new era of forest stewardship regionally and solidify the intergenerational stability of our natural resources.

Atmospheric deposition, climate change, and the advent of new pests and pathogens, whose arrival to our forests is already occurring, will have more dramatic negative consequences when combined with other stresses. Reducing preventable stress by managing for healthy forests and sustainable practices will help the woodlands of the Allegheny Plateau be resilient in the face of the numerous challenges that lie ahead. The Allegheny Plateau forests also occupy the transition area from Appalachian hardwoods to northern hardwoods. This connectivity area may prove critical for the successful northward movement of species over the coming decades as a changing climate redraws home range maps. It is imperative that we maintain and protect the forests of this region, and thus, the interface zone between major forest types.

Means for Protection

Acquisition of conservation easements or working forest conservation easements, which extinguish all development rights on tracts, is the preferred forest protection strategy. Timber rights may be retained by the owner and should be conditioned by the State of New York's BMPs to minimize soil erosion. Easements that allow timber harvesting shall follow the prescriptions outlined in a timber management plan prepared by a professional forester and accepted by DEC. Easements shall restrict the pursuit of mining, drilling, and excavation of natural resources subject to the regulations established by the State's Mined Land Reclamation Law and Environmental Conservation Law (Article 23, Title 27), as well as revised laws. Easements shall prevent disposal of hazardous waste or material on subject properties. Easements shall also prevent construction of dams, impoundments, and other water resource developments unless there are proven benefits to wildlife, forests, and the people of the area. If a seller only wishes to sell fee title, the Legacy Program allows the State to purchase landholdings for inclusion into State ownership.

Public Benefits in Establishing the Allegheny Plateau FLA

1. Enhanced protection of forests that maintain quality drinking water for millions of regional residents.
2. Reduced drinking water treatment costs resulting from improved quality of untreated water.
3. Maintenance of the scenic appeal of the region, which is vital to its economy.
4. Protection of lands critical to maintaining and improving recreational opportunities, such as hunting, fishing, and hiking.
5. Protection of economic benefits provided by the region's forests, such as timber production and recreation.
6. Protection of important fish and wildlife habitat.

Management Responsibilities

The management of lands protected with Forest Legacy funding in New York State rests mostly within the DEC at the present time. In the FLA, the State of New York currently manages approximately 110,000 acres. As additional properties are protected, monitoring responsibility may be shared by local organizations qualified to conduct monitoring according to LTA Standards and Practices. This precedent has already been established with the Tug Hill Tomorrow Land Trust monitoring the Brown Tract on the Tug Hill Plateau.

Eligibility Criteria

The Forest Legacy Subcommittee and DEC established Eligibility Criteria, which the USDA Secretary of Agriculture approved in the modified Assessment of Need. Eligibility Criteria include:

1. be located within an approved Forest Legacy Area
2. be included in a Priority Conservation Project in the State's Open Space Conservation Plan
3. include forested land threatened by present or future conversion to a non-forest use;
4. provide opportunities for the continuation of traditional uses;
5. contain three or more of the following public values:
 - Timber and other forest commodities,
 - Scenic resources,
 - Public recreation opportunities,
 - Riparian areas,
 - Fish and wildlife habitat,
 - Known threatened and endangered species,
 - Known cultural resources,
 - Other ecological values.
6. be nominated by the landowner in writing or with the written permission of the landowner.
7. be approved by the local government
8. have a forest stewardship plan or other similar multiple use management plan in place at the time of closing if a landowner is retaining the right to harvest timber or the right to conduct other land or resource management activities. A management plan will not be required if

the aforementioned rights are not retained. If a fee interest is being acquired, the State will incorporate the parcel(s) into its management planning. Preparation of the plan is the responsibility of the landowner.

Criteria 2: Identified in the New York State Open Space Conservation Plan as a major resource area and/or protection opportunity.

The Allegheny Plateau region has been identified in the New York State Open Space Conservation Plan as a major resource area, and has been recommended as an amendment to the eligible FLA in New York State

Criteria 3: Forestland threatened by present or future conversion to a non-forest use.

Forestlands in the Allegheny Plateau region face extreme pressure of conversion to non-forest uses. Developed recreation sites and new entertainment venues, coupled with the scenic beauty of region, make it highly susceptible to primary and secondary home development. Property taxes in the region are considerably higher than forestry revenues, forcing landowners to convert land to more profitable uses. If large amounts of forestland in the region continue to be converted or fragmented, the ecological viability of the forest resource is in jeopardy. As such, the ability of the forests in the region to maintain water quality is compromised.

Criteria 4: Provide opportunities for the continuation of traditional uses.

The forested landscape of the proposed region supports a stable forest industry. The forest products industry in the FLA produces an estimated 92 million board feet of lumber annually (Directory of Primary Wood Using Industries; DEC 2008). In addition, there are business listings for 78 secondary wood users in the region (Directory of Secondary Wood Using Industries; DEC 2008). Funds from the FLP would help ensure the continuation of economically vital traditional uses of forestlands in the region.

Criteria 5: Contain three or more public values.

The Allegheny Plateau region contains at least five public values.

- **Recreation opportunities:** The Allegheny Plateau region ... "lies within a day's drive of 1/3 of the nation's population" (USDA Allegheny National Forest, 2008), and is utilized by many Canadian visitors as well. It is renowned for its recreational opportunities. Forest-based recreation, such as hunting, world-class fishing, and hiking, attracts millions of visitors to the region each year and is vital to the economy.
- **Riparian areas and wetlands:** The FLA contains numerous riparian areas and wetlands that are vital to maintaining water quality for consumption by millions of people living throughout western New York.
- **Important fish and wildlife habitat:** The Allegheny River, Cattaraugus Creek, and the forests of the Allegheny Plateau region provide some of the best sport fishing and hunting in the United States. Area forests are also critical staging areas for migrating songbirds, as they rest and recharge before and after they cross the Great Lakes. In addition, the region supports many federally listed, forest dwelling animal and plant species, such as the spreading globeflower, bald eagle, and Indiana bat.
- **Important plant communities:** Several rare plant communities can be found in the region, such as the Appalachian oak-hickory forest, rich fens, and peat swamps.
- **Scenic resources:** The Allegheny Plateau is recognized as a scenic resource for New York State. Scenic resources are areas exhibiting outstanding arrangements of natural or manufactured features, including water

features and/or landforms and/or vegetative patterns that provide inspiration and hold interest and command attention of the viewing public.

Shawangunk Ridge FLA

Description

General Description

The Shawangunk Mountains are the roughly 50-mile-long northern section of a 256-mile-long Kittatinny-Shawangunk Ridge and Corridor that runs north from Pennsylvania through New Jersey and into southeastern New York. The proposed Shawangunk Ridge FLA covers roughly 394,000 acres along the spine of the Shawangunks in Ulster, Sullivan, and Orange counties, as well as portions of the adjacent Neversink River, Rondout Creek, and Wallkill River valleys. The area includes one of few remaining ridgetop dwarf pine barrens in the world, one of the largest intact expanses of chestnut oak forest in the state (38,000 acres), and numerous high-quality freshwater streams and rivers.

The Shawangunks have long been recognized as one of the highest priority landscapes for biodiversity conservation in the Northeast and have been designated as one of Earth's "Last Great Places" by The Nature Conservancy. This highly varied landscape, with its unique geological features, sustains a great diversity of habitat types—including high elevation pine barrens, expansive hardwood forest, grasslands, high gradient headwater streams, and a variety of riverine and wetland habitats. The landscape is more than 80 percent forested and includes several large unfragmented forest blocks that provide interior forest habitat for species such as bear, bobcat, coyote, and fisher. The incredible diversity of forest dwelling, shrubland and grassland bird species has led to designation of three Audubon Important Bird Areas and two New York State Bird Conservation areas within the proposed FLA. The ridge is also part of the Appalachian Raptor Migration Corridor. In addition, the wealth of scenic vistas and cultural historical sites around the ridge has led to

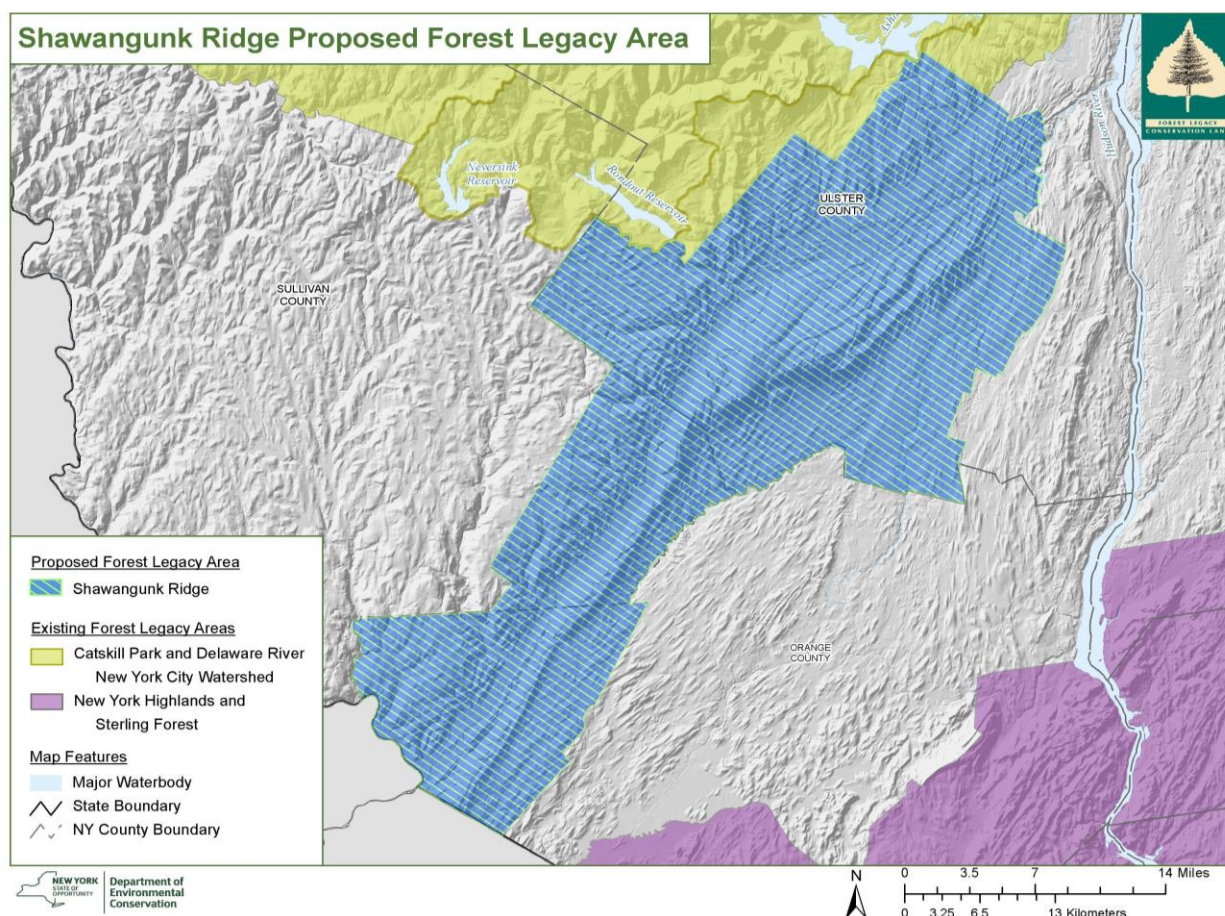
New York’s designation of an 88-mile scenic byway around the Northern Shawangunks. The 2016 New York State Open Space Conservation Plan specifically identifies the Shawangunks and several other sites within the FLA as Regional Priority Project areas.

Vast areas of large, undisturbed forest laced with hiking trails, historic carriage roads, and climbing cliffs make the ridge a popular destination for many outdoor enthusiasts; more than 500,000 people visit the northern Shawangunks annually. Conservation efforts over the last one hundred years have resulted in more than 30,000 acres of protected and publicly accessible land in the northern Shawangunks, including Mohonk Preserve, Minnewaska State Park Preserve, Witch’s Hole State Forest, and Sam’s Point Preserve. Important protected lands along the southern portion of the Shawangunks in New York include Shawangunk Ridge State Forest, Wurtsboro Ridge State Forest, Bashakill Wildlife Management Area (WMA), Huckleberry Ridge State Forest, and others.

Ecological Significance

The FLA includes more than 100 different species and ecological communities tracked by the New York Natural Heritage Program, including 64 plant and animal species classified as Endangered, Threatened, or Special Concern in New York. At least 20 ecological communities also exist here that are identified as rare or uncommon in the state (state ranking of S1, S2 or S3). Particularly significant ecological resources include three federally listed animal species—dwarf wedgemussel (endangered), Indiana bat (endangered), and bog turtle (threatened)—the globally rare dwarf pine ridge ecological community, and other unique community types, such as ice cave talus, Atlantic white cedar swamp, pitch pine-blueberry peat swamp, and riverside ice meadows.

The landscape includes huge variations in topography, bedrock, soil types, and a disturbance history that have resulted in several particularly significant ecological features within



the FLA. High elevation ridgetop pine barrens habitats exist on thin, acidic soils underlain by conglomerate bedrock at Minnewaska State Park Preserve and Sam's Point Preserve. This highly unique ecological setting includes abundant exposed bedrock and provides habitat for timber rattlesnakes and a huge diversity of shrub nesting bird species, three rare moths, and the only known New York occurrences of the northern barrens tiger beetle and broom crowberry. Adjacent cliff habitats provide nesting sites for peregrine falcons.

The Bashakill wetland complex, including the Bashakill WMA, covers nearly 3,000 acres at the base of the Shawangunk Ridge in eastern Sullivan County. One of the largest freshwater wetlands in southeastern New York, this area provides habitat for over 200 bird species, most notably pied-billed grebe, American bittern, least bittern, osprey, bald eagle, northern harrier, and northern goshawk. The wetland also hosts large migratory populations of numerous waterfowl species, including ring-necked duck, wood duck, and Canada goose. Several other rare species, including long-tailed salamander, blue-spotted sunfish, ironcolor shiner, and spreading globeflower, inhabit the area.

The Shawangunk Grasslands National Wildlife Refuge covers nearly 600 acres near the village of Wallkill in Ulster County. This is one of only two remaining areas in the Hudson Valley region that support the full assemblage of northern grassland birds, and it is an important habitat for wintering raptors. Species of particular note found here include upland sandpiper, Henslow's sparrow, northern harrier, and short-eared owl.

The Shawangunk region also includes portions of several significant river systems, most notably the Esopus Creek, Rondout Creek, Wallkill River, Shawangunk Kill, and Neversink River. Portions of the Delaware River and Mongaup River also lie along the FLA boundary. These waterways provide habitat for important migratory fish, such as the American eel and American shad, as well as rare freshwater mussels, including the dwarf wedgemussel and brook floater.

| Table 1. List of significant ecological communities found in the Shawangunk Ridge FLA. | | |
|--|--------------------|-------------------|
| Ecological Community Type | Global Rarity Rank | State Rarity Rank |
| Acidic talus slope woodland | G4? | S3 |
| Calcareous talus slope woodland | G3G4 | S3 |
| Chestnut oak forest | G5 | S4 |
| Cliff community | G5 | S4 |
| Confined river | G4 | S3S4 |
| Dwarf pine ridges | G1G2 | S1 |
| Dwarf shrub bog | G4 | S3 |
| Floodplain forest | G3G4 | S2S3 |
| Hemlock-hardwood swamp | G4G5 | S4 |
| Hemlock-northern hardwood forest | G4G5 | S4 |
| Highbush blueberry bog thicket | G4 | S3 |
| Ice cave talus community | G3? | S1S2 |
| Inland Atlantic white cedar swamp | G2G3 | S1 |
| Limestone woodland | G3G4 | S2S3 |
| Perched bog | G3G4 | S1S2 |
| Pitch pine-blueberry peat swamp | G3? | S1 |
| Pitch pine-oak-heath rocky summit | G4 | S3S4 |
| Pitch pine-oak-heath woodland | G3G4 | S2S3 |
| Red cedar rocky summit | G3G4 | S3 |
| Red maple-hardwood swamp | G5 | S4S5 |
| Red maple-tamarack peat swamp | G3G4 | S2S3 |
| Riverside ice meadow | G2G3 | S1 |
| Shale talus slope woodland | G3G4 | S3 |
| Spruce-fir swamp | G3G4 | S3 |
| Vernal pool | G4 | S3S4 |
| Limestone woodland | G3G4 | S2S3 |

**Table 2. List of New York State-listed species documented (current and historical)
by New York State Natural Heritage Program from the proposed Shawangunk Ridge FLA**

| Species | New York Listing | | Species | New York Listing |
|---------------------------------|------------------|--|----------------------------|------------------|
| Allegheny Woodrat | E | | Longtail Salamander | SC |
| Alpine Cliff Fern | E | | Lowland Yellow Loosestrife | E |
| Appalachian Sandwort | T | | Michaux's Blue-eyed-grass | E |
| Appalachian Shoestring Fern ddd | E | | Mock-pennyroyal | T |
| Arctic Rush | T | | Mountain Spleenwort | T |
| Bald Eagle | T | | Narrow-leaved Sedge | E |
| Beakgrass | E | | Northern Cricket Frog | E |
| Black-edge Sedge | E | | Northern Harrier | T |
| Bog Turtle | E | | Northern Running-pine | E |
| Bradley's Spleenwort | E | | Northern Wild Comfrey | E |
| Brook Floater | T | | Ovate Spikerush | E |
| Broom Crowberry | E | | Peregrine Falcon | E |
| Button-bush Dodder | E | | Pied-billed Grebe | T |
| Carey's Smartweed | T | | Prairie Wedgegrass | E |
| Clustered Sedge | T | | Primrose-leaf Violet | T |
| Cut-leaved Evening-primrose | E | | Puttyroot | E |
| Davis' Sedge | T | | Reflexed Sedge | E |
| Downy Lettuce | E | | Rhodora | T |
| Dwarf Sand-cherry | T | | Riverbank Quillwort | E |
| Dwarf Wedgemussel | E | | Riverweed | T |
| Eastern Small-footed Myotis | SC | | Roseroot | E |
| Extra-striped Snaketail | SC | | Rough Avens | E |
| Frank's Sedge | E | | Scarlet Indian-paintbrush | E |
| Georgia Bulrush | E | | Sedge Wren | T |
| Golden-seal | T | | Short-eared Owl | E |
| Henslow's Sparrow | T | | Swamp Buttercup | E |
| Hyssop-skullcap | E | | Timber Rattlesnake | T |
| Indiana Bat | E | | Upland Sandpiper | T |
| Inland Barrens Buckmoth | SC | | Violet Wood-sorrel | T |
| Ironcolor Shiner | SC | | Wood Reedgrass | E |
| Large Twayblade | E | | Woodland Rush | E |
| Little-leaf Tick-trefoil | T | | | |

Geology

The Shawangunk Mountains are widely known for the dramatic white cliff faces, deep ice cave crevices, and expansive talus fields. The characteristic Shawangunk conglomerate rock that makes up the spine of the Shawangunks was formed over 400 million years ago, as sand and pebbles eroded from the ancient Taconic Mountains were deposited at the edge of a shallow inland sea. As the inland sea level rose, these sediments were buried by a thick layer of limestone, before a series of folding and faulting events lifted and eventually exposed the resulting quartzite conglomerate. Subsequent glaciation removed any remaining soil and less resistant rock, revealing the stunning landscape that we see today. Conglomerate rocks in many areas of the ridge bear direct evidence of the most recent glaciation in the form of glacial striations and chatter marks.

Erosion of the soft shale underlying this extremely hard and erosion-resistant conglomerate rock—along with weathering and faulting of the conglomerate itself—has created numerous fissures and ice caves. These unique geological features retain snow and ice well into the summer months, creating micro-climates similar to higher peaks in the nearby Catskill Mountains. Exposed cliff faces and associated ledges and talus slopes are also ecologically important, providing niche habitat for a variety of plants and animals, such as peregrine falcons and the rare Appalachian sandwort.

A limestone karst system also runs along the base of the Shawangunks through the Roundout Creek Valley. This formation includes numerous caves, which provide important hibernacula for bats, and also provides an avenue for replenishment of natural aquifers in the region.

Human Use

The Shawangunks have a long history of human use and cultural significance, dating as far back as 8,000 years or more. There are numerous early Native American rock shelter sites, as early inhabitants of the landscape frequently used the ridge areas for hunting and gathering

important food items—such as chestnuts, acorns, blueberries, huckleberries, and others. Following European settlement, forests of the Shawangunks were cut extensively to support the tanning, barrel making, and charcoal industries, and the durable conglomerate rock was quarried in many areas to make millstones. Groups of residents would also set up seasonal camps on ridgetop areas to pick blueberries, often setting fire to vast swaths of forest and barrens to enhance the crop for future years. In the late 1800s and early 1900s, the Delaware & Hudson Canal was actively used to move coal from Pennsylvania to the Hudson River, supporting a number of small communities in the Neversink River and Roundout Creek valley areas.

At just over an hour from New York City, the Shawangunks have long been a destination for those seeking outdoor recreation. Since the mid-nineteenth century, numerous hotels and resorts have dotted the landscape. Only a small few remain, the most prominent of which is the Mohonk Mountain House, which sits atop the ridge just outside New Paltz. The Shawangunks are still widely visited as a recreational destination, with abundant opportunities for hiking, biking, world class rock climbing, and cross-country skiing. In addition to the numerous historic carriage roads at Mohonk Preserve and Minnewaska State Park Preserve, two long-distance trails—the Long Path and the Shawangunk Ridge Trail—span nearly the entire length of the Shawangunks. The Neversink, Delaware, and Wallkill rivers, Esopus and Rondout creeks, and numerous tributaries provide exceptional fishing and boating opportunities as well. Other more limited recreational activities include hunting, trapping, and snowmobiling. Recreational activity centered on the Shawangunks is still a major economic driver in the region, and many communities actively promote eco-tourism opportunities as a means of supporting local economies.

Lower lying areas in the Wallkill and Rondout valleys have been extensively cultivated for agriculture, and many areas are still actively farmed. Some timber harvesting does occur in

the proposed FLA, but it is limited in scope and mainly takes place on relatively small privately-owned lands in addition to some state lands. Thin acidic soils in most of the upland areas are not particularly productive in terms of timber growth, except where topographic features have allowed deeper soils to develop over time.

Ecological Connectivity

The Shawangunk region has significant value at a regional and continental scale as a wildlife migration corridor, particularly with respect to migrating raptors. The mountain chain—which extends through New Jersey and into Pennsylvania—also functions as a critical linkage between central Appalachian landscapes and large forest blocks to the north and east, including the Delaware/Catskill FLA, Taconic Ridge FLA, and New York-New Jersey Highlands FLA. This kind of ecological connectivity is expected to enhance the ability of wildlife and plants to migrate and disperse to new habitats in response to climate change. In recognition of this, the Wildlands Network has identified the “Shawangunk to Catskills Greenway” as one of 16 essential habitats in the Eastern U.S. in need of protection to link together a 2,500 mile “Wildway” that spans from Florida to maritime Canada.

Significant Threats to Forests in the FLA

Development poses the most urgent and direct threat to forests in the proposed FLA area, particularly along unprotected ridgetop areas in the southern portion of the FLA and in the US Route 209 corridor that flanks the ridge to the west along its entire length. Several significant residential development proposals have been submitted in recent years for areas along the spine of the ridge south of Ellenville. Maintenance of forest cover in these areas is critical for maintaining high quality watersheds for the Bashakill Wetlands and Neversink River. Dispersed suburban and exurban residential development from the city of Middletown also continues to expand into areas to the east of the Shawangunks in the southernmost portion of the proposed FLA.

In addition, commercial development continues to expand along Route 209 in Wawarsing and Rochester, threatening some of the most viable routes for connectivity between the Shawangunk Ridge and Catskill Mountain landscapes. Planned expansions to include gaming activities at one or more resort hotels in Ulster and Sullivan counties may also result in dramatic increases in both commercial and residential development pressure along the ridge, as well as expansion of existing road corridors (Route 17 and Route 209) to accommodate increased vehicle traffic.

Criteria Analysis summary

According to New York’s initial AON for the FLP, any FLA designated in the state must meet five criteria. These criteria are listed below with a brief summary description of how the proposed Shawangunk Ridge FLA meets the criteria.

- 1. Encompasses forests that are threatened by present or future conversion to non-forest uses:** The close proximity of the landscape to New York City, recent population growth trends, and development threats described above all contribute to the significant risk of forest conversion in the Shawangunk region.
- 2. Provides potential opportunities for the continuation of traditional land uses:** A heavy focus of potential future acquisitions would be to enhance and/or expand existing recreational opportunities, particularly long-distance trail corridors in the southern portion of the Shawangunks, and to provide increased access and trailhead areas. The DEC Draft Shawangunk Ridge Unit Management Plan also includes the continuation of timber harvesting on state forest lands in this region, and it is expected that timber harvesting would occur on newly acquired state forest lands or easements, where appropriate and compatible with protection of sensitive ecological resources.

3. Contains at least 50 percent lands that meet the definition of forest land:

Approximately 81 percent of the land within the proposed FLA meets the definition of “forest land” as described in the AON.

4. Identified in the most recent version of the Open Space Conservation Plan as a major resource area and/or priority project area:

According to the 2016 New York State Open Space Conservation Plan, the Shawangunk Ridge FLA contains the Shawangunk Mountains Region Priority Conservation Project area, and overlaps portions of nine others—Neversink Highlands, Lower Neversink River Valley, Karst Aquifer Region, Great Rondout Wetlands, Plutarch/Black Creek Wetlands, Bashakill Wetland System, Hudson Valley/New York City Foodshed, New York Highlands, and the Wallkill Valley.

5. Contains three (3) or more of the following identified public values:

- public recreation opportunities
- riparian areas and wetlands
- important fish and wildlife habitat with known threatened and endangered species
- cultural areas such as areas of historical or archeological significance
- other ecological values
- scenic resources
- important plant communities

As detailed in the FLA description above, the proposed Shawangunk Ridge FLA contains outstanding examples of each of these seven identified public values. Designation as an FLA would provide support to further enhance these values and the benefits they provide to local communities.

Boundary of the Shawangunk Ridge FLA

With the exception of Wawarsing and Rochester, the FLA boundary follows the municipal boundaries of the towns listed below. Wawarsing and Rochester are already partially included in the Delaware/Catskills FLA, and therefore, only the portions of these towns that fall outside of the Delaware/Catskills FLA will be considered in the Shawangunk Ridge FLA. This includes any parts of these towns not within either the New York City watershed area or the Catskill Park boundary (i.e. the “Blueline”).

List of Towns in the Proposed Shawangunk Ridge FLA

- Marbletown
- Rosendale
- New Paltz
- Gardiner
- Shawangunk
- Rochester (not including areas within the New York City Watershed or Catskill Park boundary)
- Wawarsing (not including areas within the New York City Watershed or Catskill Park boundary)
- Mamakating
- Mount Hope
- Greenville
- Deer Park

Means of Protection

The preferred method of protection would be acquisition of conservation easements or working forest conservation easements by DEC. Fee acquisition of property may also be appropriate when a) the seller of a priority parcel does not wish to retain any ownership interest in the property; b) the parcel represents a worthwhile addition to existing state-owned land; or c) significant natural communities or rare species exist on the property and fee acquisition represents the only viable means of protection.

Goals & Benefits of the Shawangunk Ridge FLA

The overarching goal of the Shawangunk Ridge FLA is to maintain high levels of forest cover within the FLA (>75 percent), with a focus on expanding and connecting important forest blocks in order to protect important forest habitats and maintain water quality.

Ecological & Public Benefits of the Shawangunk Ridge FLA

The Shawangunk Ridge FLA and maintenance of a high level of forest cover via expanded land protection efforts would protect and/or enhance the myriad benefits that forest lands currently provide in the region, including habitat for wildlife, clean air and water, quality-of-life attributes, and economic returns for local communities. Specifically, additional protected lands within the FLA would substantially contribute to the following:

- Expansion of core forest habitat for wildlife and species migration/dispersal routes within the FLA landscape and with adjacent landscapes
- Protection of high-quality drinking water sources and important aquifer recharge areas
- Protection of water quality and biodiversity in headwater tributaries, wetlands, and critically important waterways (i.e., Neversink River, Delaware River, Shawangunk Kill, Wallkill River, Esopus Creek, Rondout Creek) within the FLA and in downstream areas
- Maintenance of important ecological communities and rare species that exist within the FLA and contribute to regional and continental scale biodiversity
- Enhancement of existing high-quality recreational experiences, including unfragmented, long-distance trail corridors and connections with adjacent communities and off-ridge recreational resources, such as rail trails and the D&H Canal corridor
- Where appropriate and compatible with protection of ecological resources, maintenance of working forest landscapes and sound timber management practices that facilitate forest regeneration.

Existing State-Owned Conservation Lands in the Proposed FLA

There are a number of existing state-owned conservation lands within the proposed Shawangunk Ridge FLA area, including:

- Minnewaska State Park Preserve and Sam's Point Preserve (New York State Office of Parks, Recreation & Historic Preservation/Palisades Interstate Park Commission)
- Huckleberry Ridge, Graham Mountain, Wurtsboro Ridge, Roosa Gap, Shawangunk Ridge, and Vernooy Kill State Forests (DEC)
- Witch's Hole, Shawangunk, Oak Ridge, and Painter Hill Multiple Use Areas (DEC)
- Bashakill, Cherry Island, and Mongaup Valley Wildlife Management Areas (DEC)
- Several detached parcels of forest preserve (DEC)

Public Involvement Summary

The amendment to the New York State Forest Legacy Program Assessment of Need to include a Shawangunk Ridge Forest Legacy Area was subject to public comment through the hearings conducted during the development of the 2016 New York State Open Space Conservation Plan. Descriptions of the Forest Legacy Program are found in the document's *Chapter VII. Resource Inventory / Programs & Partnerships*. This proposed FLA designation was reviewed and approved by the New York State Forest Legacy Subcommittee of the State Stewardship Advisory Committee.

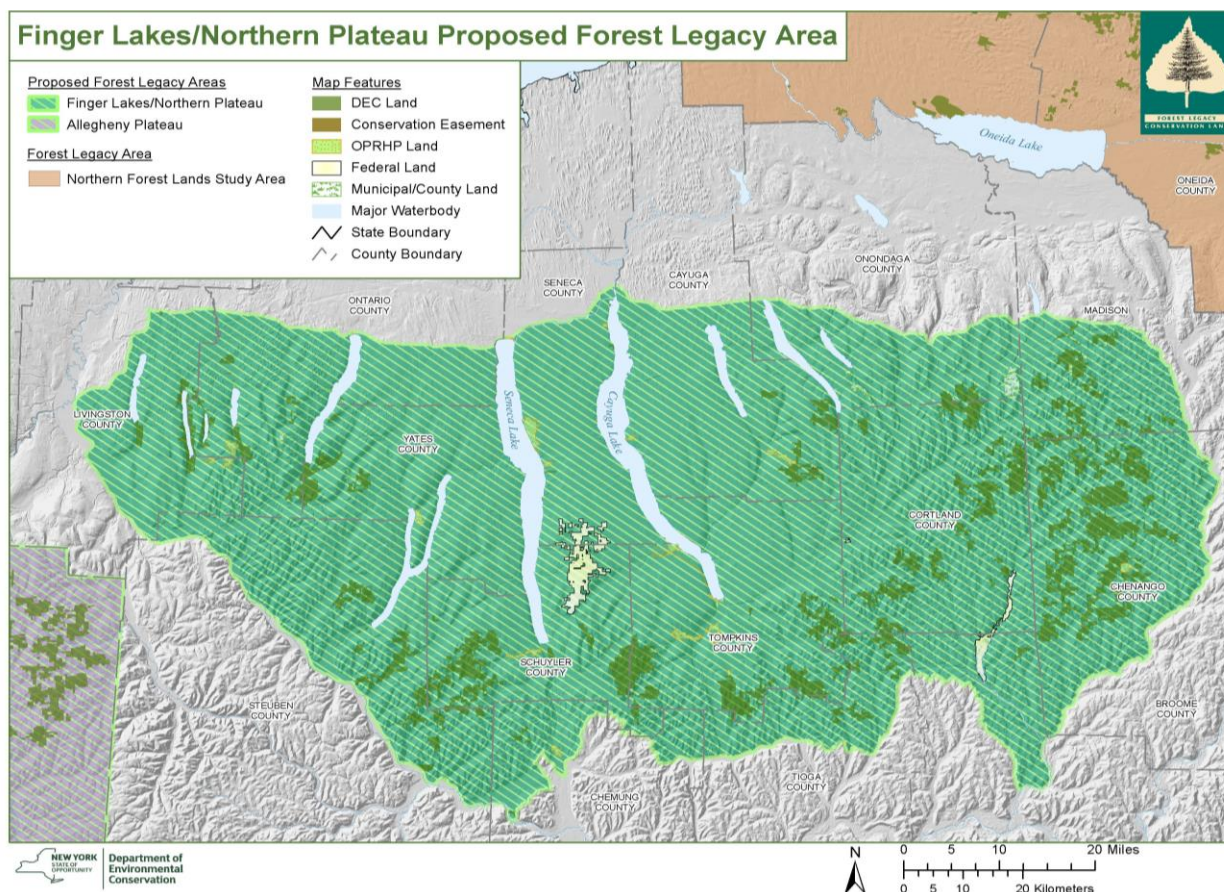
Finger Lakes/ Northern Plateau FLA

Description

The Finger Lakes in central and western New York State feature glacier-formed lakes that provide important ecological and economic benefits to the region, the State of New York, and the United States as a whole. The Finger Lakes provide a clean and reliable source of drinking water for numerous municipalities, including Rochester, Syracuse, and Auburn. While the approximately one million people in the proposed area do not all reside within the Finger Lakes Watershed, they are within commuting distance of the lakes. In addition, the Finger Lakes region is valued by even greater numbers of New Yorkers, as well as non-New Yorkers, as reflected in tourism activity within the region's economy. Attracted in large measure by the natural resources of the area, tourism in the Finger Lakes Region generates

roughly \$1.5 billion annually, with approximately 22 million visitations per year (Finger Lakes Association, 2003).

The Finger Lakes lie mostly within the Great Lakes Plain ecoregion, consisting of moderate to very steep slopes separated by creeks and narrow valleys with stately bluffs. Many of the area's creeks have cut deep gorges through the shale bedrock. The northern region of the High Allegheny Plateau ecoregion (Northern Plateau hereafter) is characterized by low- to mid-elevation hills whose summits form a plateau, dissected by numerous rivers and small streams. This region forms the headwaters region of the Genesee and Susquehanna Rivers. The forest community types are commonly referred to as Northern Hardwoods, with principal species including beech, red and sugar maple, white ash, black cherry, and northern, white, and chestnut oak (NYSDEC, 1981). Hemlock grows mostly in ravines, and white pine can be found growing at higher elevations.



The Forest Legacy Area is approximately 3 million acres and contains all or portions of 15 counties in central and western New York. Forest-based recreation, such as hunting, fishing, and hiking, attracts thousands of visitors to the region each year and is vital to the region's economy. Recent polling results indicate people of the Finger Lakes are most concerned about maintaining clean air and water, productive farms and vineyards, healthy communities, scenic vistas, and some of New York's finest opportunities for outdoor recreation.

Map of the FLA

The western boundary is primarily Interstate 390; the northern boundary is Interstates 5, 20, and 20A; the eastern boundary includes the headwaters region of the Chenango River (Susquehanna River system); and the southern boundary includes portion of Interstate 88 and the southernmost extent of the Finger Lakes Watershed.

Environmental Values that will be Protected

The ecology and nationally significant forest communities in the Finger Lakes region are under considerable stress. Water quality is being degraded and forests are being lost in the Finger Lakes region to incompatible agricultural, development, and forestry practices. These practices are also rapidly fragmenting the forested landscape important to fish and wildlife. The U.S. Fish and Wildlife Service and the U.S. Geological Survey have issued a preliminary report that identifies three primary Finger Lakes watershed issues: degraded water quality, degraded fish and wildlife habitat, and danger of flooding. Many of the streams that flow into and out of Finger Lakes also contain forested wetlands that are important to maintaining water quality.

Means for Protection

Acquisition of conservation easements or working forest conservation easements which extinguish all development rights on tracts is the preferred forest protection strategy. Timber rights may be retained by the owner and should be conditioned by the State of New York's BMPs to minimize soil erosion. Easements that allow timber harvesting shall follow the prescriptions outlined in a timber management plan prepared by a professional forester and accepted by DEC. Easements shall restrict the pursuit of mining, drilling, and excavation of natural resources subject to the regulations established by the State's Mined Land Reclamation Law and Environmental Conservation Law (Article 23, Title 27). Easements shall prevent disposal of hazardous waste or material on subject properties, and also prevent construction of dams, impoundments, and other water resource developments unless there are proven benefits to wildlife, forests, and the people of the area.

- If seller only wishes to sell fee title, FLP allows the State to purchase land holdings for inclusion into State ownership.

Public Benefits in Establishing Finger Lakes/Northern Plateau FLA

- Enhanced protection of forests that maintain quality drinking water for millions of regional residents.
- Reduced drinking water treatment costs resulting from high quality of untreated water.
- Maintenance of the scenic appeal of the region, which is vital to the region's economy.
- Protection of lands critical to maintaining and improving recreational opportunities, such as hunting, fishing, and hiking.
- Protection of economic benefits provided by the region's forests, such as timber production and recreation.
- Protection of important fish and wildlife habitat.

Management Responsibilities

The management of lands protected with FLP funding in New York State rests mostly within DEC at the present time. In the proposed area, the State of New York currently manages approximately 250,000 acres and the U.S. Forest Service manages approximately 16,000 acres in the Finger Lakes National Forest. It may evolve over time that, as additional properties are protected, an easement could be monitored by one of many land trusts that own property in the area. This precedent has already been established with the Tug Hill Tomorrow Land Trust monitoring the Brown Tract on the Tug Hill Plateau.

Eligibility Criteria

The Eligibility Criteria, established by the Forest Legacy Subcommittee and DEC and also approved by the U.S. Secretary of Agriculture, include:

1. be located within an approved Forest Legacy Area
2. be included in a Priority Conservation Project in the State's Open Space Conservation Plan
3. include forested land threatened by present or future conversion to a non-forest use;
4. provide opportunities for the continuation of traditional uses;
5. contain three or more of the following public values:
 - a. Timber and other forest commodities;
 - b. Scenic resources;
 - c. Public recreation opportunities;
 - d. Riparian areas;
 - e. Fish and wildlife habitat;
 - f. Known threatened and endangered species;
 - g. Known cultural resources,
 - h. Other ecological values; and also meets the following criteria:
 6. be nominated by the landowner in writing, or with the written permission of the landowner.
 7. be approved by the local government.
 8. have a forest stewardship plan or other similar multiple use management plan in place at the time of closing if a landowner is retaining the right to harvest timber or the right to conduct other land or resource management activities. A management plan will not be required if the aforementioned rights are not retained. If a fee interest is being acquired, the State will incorporate the parcel(s) into its management planning. Preparation of the plan is the responsibility of the landowner.

Criteria 2

Identified in the New York State Open Space Conservation Plan as a Priority Conservation Project. The Finger Lakes region has been identified in the 2016 New York Open Space Plan in several priority conservation projects: Southern Skaneateles Lake Forest and Shoreline {100}, State Parks Greenbelt/ Tompkins County {101}, Summerhill Fen & Forest Complex {102}, Emerald Necklace {103}, Finger Lakes Shorelines and Riparian Zones {104}, High-Tor/Bristol Hills/Bare Hill State Unique Area {108}, Seneca Army Depot Conservation Area {109}, Wolf Gully {111}.

Criteria 3

Forest land threatened by present or future conversion to a non-forest use. Forest lands in the Finger Lakes region face extreme pressure of conversion to non-forest uses. Rich soils and gently rolling topography make the area a prime site for agriculture. The scenic beauty of region makes it highly susceptible to primary and secondary home development. Property taxes in the region are considerably higher than forestry revenues, forcing landowners to convert land to more profitable uses. If large amounts of forest land in the region continue to be converted or fragmented, the economic viability of the forest resource will be in jeopardy. As such, the ability of the forests in the region to maintain water quality are compromised.

Criteria 4

Provide opportunities for the continuation of traditional uses. The forested landscape of the proposed region supports a stable forest industry. The forest products industry in the proposed area employs approximately 4,500 people at more than 140 establishments. The largest industry sector is lumber and wood products, with more than 1,500 employees (SUNY ESF, 2014). Funds from the Forest Legacy Program would help ensure traditional uses of forest land in the region.

Criteria 5

Contain three or more public values.

The Finger Lakes/Northern Plateau region contains at least five public values.

1. Public recreation opportunities: The Finger Lakes region is world-renowned for its recreational opportunities. Forest-based recreation, such as hunting, fishing, and hiking attracts thousands of visitors to the region each year and is vital to the region's economy. The Finger Lakes Trail Conference maintains a 562-mile long trail that connects the Catskill Mountains with the Allegheny Mountains by passing through remote areas of the Southern Tier of New York State.

2. Riparian areas: The FLA contains numerous riparian areas and wetlands that are vital to maintaining water quality for consumption by millions of people living throughout central and western New York.
3. Fish and wildlife habitat: The Finger Lakes and the Chenango River provide some of the best sport fishing and hunting in the United States. The Finger Lakes are also critical staging areas for migrating waterfowl. In addition, the region supports many federally listed, forest dwelling animal and plant species, such as the spreading globeflower, bald eagle, and Indiana bat.
4. Other ecological values: Several rare plant communities can be found in the region, such as the Appalachian oak-hickory forest, silver maple-ash swamp, rich fens, peat swamps, perched swamp white oak, and spruce fir swamp.

Scenic resources: The Finger Lakes are recognized as a scenic resource for New York State. Scenic resources are areas exhibiting outstanding arrangements of natural or manufactured features, including water features and/or landforms and/or vegetative patterns that provide inspiration and hold interest and command attention of the viewing public.

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