In These Woods

2023 Summary

Cornell Cooperative Extension
Columbia and Greene Counties

Thank You for Reading In These Woods!

Thank you all for participating in the annual newsletter series, "In These Woods"! We hope you enjoyed the 2023 collection and the information deepened your understanding and connection to your forest resources.. This summary issue includes a few winter activities, two articles and the key resources highlighted this year. We look forward to seeing you again for "In These Woods 2024!"

2023 Issues:

About Us

The mission of Cooperative Extension is to enable people to improve their lives and communities through partnerships that put experience and research knowledge to work. Extension staff and trained volunteers deliver education programs, conduct applied research, and encourage community collaborations. Our educators connect people with the information they need on topics such as commercial and consumer agriculture; nutrition and health; youth and families; finances; energy efficiency; economic and community development; and sustainable natural resources. Our ability to match university resources with community needs helps us play a vital role in the lives of individuals, families, businesses, and communities in our region.

You can learn more about the programs and services we provide on our website. You can also contact us directly to help overcome a challange, share stories and gather tools to help you achieve your goals. Below is the contact information for our two offices. We look forward to hearing from you.

Acra (Greene County)

Agroforestry Resource Center
6055 Route 23
Acra, New York 12405
(518) 622-9820

Hudson (Columbia County)

Extension Education Center
479 Route 66
Hudson, New York 12534
(518) 828-3346

In These Woods Woodland Stewardship Series is a collaboration among Cornell Cooperative Extension of Columbia & Greene Counties, New York City DEP, USDA Forest Service, and the Watershed Agricultural Council's Forestry Program

Cover photo by Hans Isaacson. National Association of State Foresters. Siuslaw Model Forest. 2021

CCE Columbia & Greene's

Agroforestry Resource Center

Cornell Cooperative Extension's Agroforestry Resource Center (ARC) was established in 2003 to help sustain the vast, privately-held forest resources in the Hudson Valley, Catskill Mountains and surrounding region. It is home to the Agriculture and Natural Resources team who focus on regional education and outreach in all woodland and working landscape subject areas.

Agroforestry is defined as the combination of agriculture and forestry practices that create integrated, productive and sustainable land-use systems. These practices can include ginseng, mushrooms, maple and other high-value products.

Through a variety of programs and partnerships, CCE offers land stewards economically viable and ecologically sustainable practices to help preserve and manage woodlands. The ARC includes a diverse and talented group of natural resource educators, an interactive indoor space and a 142-acre model forest that supports an outdoor "laboratory" for demonstration, research and hands-on workshops.

To learn more about the Agroforestry Resource Center, visit:
Agroforestry Resource Center

Siuslaw Model Forest

Siuslaw (Sy-use-luh) Model Forest is our 142-acre living classrom. It's one of our greatest educational resources and sits right across the street from the Agroforestry Resource Center in Acra. Our Natural Resources team and its partners manage this diverse property for all to experience. It's home to innovative demonstration sites, habitat, trails, and real-world examples of woodland stewardship principles and best management practices.

Siuslaw as a Model

In 2007, Siuslaw was designated a NYC Department of Environmental Protection Model Forest. Siuslaw is one of four model forests in the region that all demonstrate the importance of sustainable land stewardship, forest health and water quality protection through education.

Today, Cornell Cooperative Extension hosts many public education programs in the forest and partners with researchers, ecological monitors, and other institutions and organizations like SUNY ESF and the Watershed Agricultural Council's Forestry Program to bring these resources to the community.

The Siuslaw Model Forest is open to the public during our regular business hours (8:30-4:00 Mon-Fri). There are miles of trails for non-motorized recreation and many interpretive signs that educate around best management practices and activities you can bring home to your woods.

Agroforestry

Check out our tree and understory crop demonstrations, along with the shiitake and oyster mushroom laying yard - great inspiration for your backyard or small commerical operation.

Timber Stand Improvement (TSI)

See the different stages of growth and practices employed to restore habitat or thin dense stands of trees to encourage healthy forest conditions.

Best Management Practices (BMP)

Walk the woods roads and learn about open topped culverts, broad based dips, water bars and other techniques for preventing erosion and protecting water.

Enhancements

There are bird nesting boxes, pollinator houses, American chestnut restoration planting, habitat thinnings and plenty of tree identification markers to keep you learning!

Winter Activities from MyWoodlot

Every season in the woods brings new sights and sounds to enjoy. The winter weather may not be as comfortable, but it sure is beautiful out there. It's a great time to explore your dormant understories and canopies. It's also a perfect opportunity to plan for next year. Here are a few ways to be outside, stay engaged and stoke the fire of your woodland goals.

Activities & Learning Resources

Tap a Maple Tree!

Go Snowshoeing!

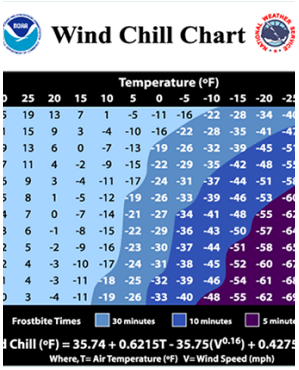
Shoot a Snow-scape!

Blogs

Post-season winter scouting for deer in the Catskills

Kris Brown
December 30, 2018.

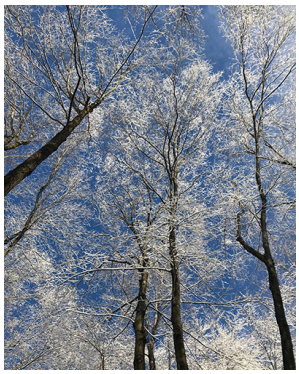
Link to Blog



Winter Night Hike

Andrew Krutz February 19, 2020

Link to Blog



Winter Wonderlands

Jessica Alba January 29, 2020

Link to Blog

Sensitive Fern Sign in Winter

Karl VonBerg
February 5, 2020

Link to Blog

To read more blogs like these, visit MyWoodlot to learn about many other activities. You can also visit our website or call for information about maple production, stewardship fact sheets, events and other programs that can help you enjoy the winter season from start to finish!

Winter Projects in Siuslaw Model Forest

Maintain water quality best management practices for thaw and snow events. (New skidder bridge above)

Clean facilities and organize for spring events. (The team cleaning the greenhouse for spring programs)

Maintain demonstrations and trails for visitors - deer use them too!

Installing a new deer exclosure to monitor forest re-generation and the impacts of deer browse.

Pruning, maple sugaring and agroforestry planning.

Monitoring winter ecosystems and activity.

Forests & Fall Bird Migration

By Pammi Price, CCE Columbia & Greene
Environment & Natural Resources Program Coordinator
Featured on www.mywoodlot.com, November 2021

In New York, migrating birds can be seen flying south in fall on their way to wintering grounds in the southern United States, Central and South America. Birds migrate to fulfill two primary resource needs – food and nesting locations. In fall, available insects and other food sources decrease, so some birds migrate to areas with higher amounts of food resources.

Approximately 70% of North American birds migrate and an estimated 80% of them migrate at night! Birds migrate at night because the atmosphere is more stable, temperatures are cooler – helping birds avoid overheating. The cover of darkness protects many birds from predators during their journey. Many of our favorite songbirds migrate using the moon and stars for navigation, a good reason to reduce light pollution by turning off unnecessary lights at night during peak migration times.

Birds follow certain cues to determine departure from their northern habitats such as light levels, sun angles, temperatures, precipitation and food availability. Two other major fall migration factors are where the bird is starting its journey, and whether the juvenile birds are ready for the trip to their winter homes. These two indicators mean birds nesting in the Arctic may move south in June or July while their friends breeding in New York State might not start their migration journey on the Atlantic Flyway until September or as late as December, even into early January! Flyways are established routes migrating birds use regularly. There are four flyways in North America – Atlantic, Mississippi, Central and Pacific. The Atlantic Flyway stretches from the Arctic Tundra to the Caribbean and follows the east coast of the United States. The Atlantic Flyway includes forests, wetlands, beaches, and other bird friendly habitats.

Red-breasted Nuthatch by Pammi Price

Birds Use Forests

Many migrating bird species use forests as stop over points. This provides them with their basic needs including food, water, shelter, roosting and perching sites. These same forests also provide important winter habitat for the bird species that do not migrate each winter.

Wild Forest Birds

Black-capped Chickadee by Pammi Price

The bird species that remain in the northeastern forests take advantage of winter food sources like nuts, seeds and berries. They may stay to maintain their territory year-round, or to avoid the many hazards of migration, but winter birds have to endure the winter cold. Birds who stay for the winter have several survival strategies to survive by working to minimize energy spent and maximize calories they take in. They hang around in flocks to reduce predation, shiver, fluff their feathers, tuck in their feet and bills, and roost or cuddle together for warmth. Some smaller birds, like chickadees and doves, can even spend frigid winter days in torpor – a state of short-term hibernation to maintain body heat and conserve energy.

Favorites You'll Likely Find in Your Woods

Winter forest birds include the Black-capped Chickadee who prefers mixed woods containing both broadleaf and conifer species where they can find winter seeds and berries. Many small songbirds seek and hang out with Black-capped Chickadee flocks when migrating through unfamiliar territory.

Northern Cardinals by Pammi Price

The Northern Cardinal doesn't migrate and keeps its beautifully colored plumage throughout the winter months. Look for them in the brushy edges along woodlands foraging on or near the ground for seeds, fruits and the larvae of insects. They look for high perches to sing. Fun fact, during breeding season female Northern Cardinals sing too, as a clue for males to bring food to the nest!

Another winter resident is the Tufted Titmouse who prefers mature deciduous forests and the seeds and insects it finds there. They hoard food in fall and winter, often storing seed from feeders for later. In winter, male and female Tufted Titmouse divide up where they search for food with males feeding on small branches and weed stems, while larger branches and trunks are preferred by the females. The Tufted Titmouse is dependent on dead trees, using holes excavated by woodpeckers for nesting cavities.

Tufted Titmouse by Pammi Price

Downy Woodpecker by Pammi Price

Woodpeckers love the bounty of the forest with plentiful insects beneath the tree bark. Winter forest woodpeckers include the Downy Woodpecker who prefers patches of brush and mid-story trees where they feed on insects, seeds and berries.

The Pileated Woodpecker creates distinctive rectangular or oblong-shaped holes in trees where they find the ants they desire. The forest echoes with the sound of Pileated Woodpeckers excavating holes in dead trees with the powerful chopping sound heard from far away. Standing dead trees and downed wood are staples of their habitat, where they can be found foraging on fallen logs for their favorite insects.

Pileated Woodpecker holes by Pammi Price

Owls also call the forest home in winter, including the Barred Owl who lives in mixed species forests, hardwood swamps, and riparian woodlands where they hunt for small mammals and rodents. Barred owls don't migrate and don't move around much – one study of 158 birds found when they did move, it was less than 6 miles from their original spot.

Barred Owl by Pammi Price

Creating Healthy Habitat

To help forest birds, creating a healthy and diverse forested landscape is key. With 63% of New York State being forest covered, the way forests are managed can impact bird populations considerably. Factors include providing multiple tree species, different age classes of trees and shrubs, canopy openings, multiple forests layers aka vertical structural diversity, and having differing forest stands on the landscape to provide diversity. In fragmented landscapes where forested areas are small, maintaining existing forests is important.

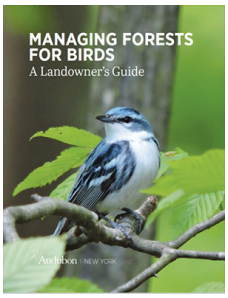
Native species are most valuable to wildlife, supporting all parts of the native insect life-cycles, and providing more nutritious mast (fruit, nuts, and seeds) for forest birds. Interfering vegetation, which can be native or non-native, can inhibit the growth of important native species, so these species should be controlled to allow the natives to thrive and regenerate year after year. Other important habitat needs include providing standing dead trees or snags, downed woody material, leaf litter and duff for nesting, roosting and foraging habitat.

Once you decide on your forest management goals, connect with a professional forester to develop a forestry management plan for long-term health and resilience, then implement the recommendations when you are ready. Remember to check on available incentive programs that may help defray costs.

Management Resource:

Audubon New York
Managing Forests for Birds:
A Landowners Guide

Click here for the resource



Aren't They All Just Pines? How to ID Needle Bearing Trees

Peter Smallidge, NYS Extension Forester and Director, Arnot Teaching and Research Forest
Department of Natural Resources, Cornell University Cooperative Extension, Ithaca, NY

Fall and winter are great seasons to learn about the needle-bearing trees that most people call "pines." These trees have needles, and may also be called evergreen. Most are within the pine family (Pinaceae), but not all. These types of trees have several common features, but not all species easily fall under these labels. These species can be separated into groups and fairly easily described, but first let's discuss some of the commonly used labels.

Evergreen is commonly used to describe these trees. This label generally applies because most of the species have green foliage throughout the year. An exception is the eastern larch, or tamarack (Larix laricina). In the context of "evergreen", it is worth noting that although some needles are green throughout the year, all species will slough or drop some needles each year. At some point you will see brown and dying needles. This is to be expected.

Conifer is another common label for these trees. Here again this usually applies because the fruit for most of these species is a cone. However, two species in the cedar family (Cupressaceae) have a fruit that to most people looks like a berry. The fruit of eastern red cedar (Juniperus virginiana) and pasture juniper (J. communis) is technically a berry-like cone, with fleshy scales that have grown together.

These needle-bearing trees are within the pine and cedar families. All plants are classified by genus and species within a family. In NY and most of the Northeast, the genera within the pine family include: pine (Pinus spp.), spruce (Picea spp.), fir (Abies spp.), hemlock (Tsuga spp.), and larch or tamarack (Larix spp.). Similarly, the genera within the cedar family include: cedar (Thuja) and juniper (Juniperus). Each of these genera have distinguishing characteristics. All the species of these genera typically have more than one common name. Any good tree identification book will list the variety of common names. Similarly, full details of identification to the species level are left to a good book, such as referenced below.

PINE

The most definitive feature of pines is that the needles occur in clusters of 2, 3 or 5. A cluster of pine needles is called a fascicle. One subgroup of pines are the hard pines and include Scotch pine (Pinus sylvestris), jack pine (P. banksiana), black pine (P. nigra), and red pine (P. resinousa) with 2 needles per fascicle (Figure 1) and pitch pine (P. rigida) with 3 needles per fascicle. The fascicle of the hard pines is wrapped at the base with a paper-thin layer that persists for the life of the fascicle.

Figure 1. Red pine has two needles per fascicle, a persistent fascicle sheath, and a bulbous bud Courtesy of Peter Smallidge

The only soft pine in the Northeast is eastern white pine (P. strobus). The soft pines have a fascicle sheath, but it is deciduous so it sloughs off during the first growing season of the fascicle (Figure 2). Pine cones have relatively few scales when compared to other genera of Pinaceae. All of the pines are intolerant or mid-tolerant of shade, so will typically require moderate to high levels of sunlight to survive.

Figure 2. Eastern white pine, a soft pine, has a deciduous fascicle sheath which gives the tree a soft appearance. By Peter Smallidge.

SPRUCE

The distinguishing feature of all spruce is the presence of sterigmata. Sterigmata are post-like structures or projections on the stem to which the needles attach (Figure 3). These structures are most easily seen on sections of twigs closest to the main stem, after the needles have dropped. They are visible with the naked eye at approximately 1 mm (1/32″) long. Spruce are also identified by having a four-sided needle, and needles that occur singly on the sterigmata (not clusters as do the pines). Spruce have a greater density of scales on the cone than do pine, and cone length helps differentiate among the species. From smallest to largest cones, native spruce include: black spruce (Picea mariana), red spruce (P. rubens), and white spruce (P. glauca). From other areas and common in yards are blue (P. pungens) and Norway (P. abies). The odor of spruce is commonly described as pungent to fetid. The spruces tend to be more tolerant of shade than the pines, though they grow well in sunlight.

Figure 3. The foliage of red spruce (pictured) and all spruce are connected to the twig on a sterigmata. The sterigmata persist after needles drop and appear as peg-like projectcions. Courtesy of Peter Smallidge.

FIR

The needles of fir are similar to spruce in their singular attachment, not clustered, to the twig. One distinguishing feature of fir is that the needles are attached directly to the twig, and when they drop they leave behind a slightly raised circular pad. Another feature of the genus, and thus of New York's one native and common fir, balsam fir, (Abies balsamea), is the 3 inch upright cone with deciduous scales (Figure 4). As the cones mature they are apparent in an upright or erect position on the branches, but when mature, the scales drop away leaving a naked cone stalk. The needles are flat, and typically two-ranked or attached on the sides of the twig as wings on a plane. The odor of firs is often that of citrus, though the odor of balsam has a less pronounced citric component that others species in the genus. Balsam fir up to a few inches in stem diameter will have resin blisters on the stem that contain a sticky and aromatic pitch. Balsam fir is tolerant of shade and often grows in the understory

Figure 4. The cones of balsam fir are erect, and at maturity the scales break away and leave a central stalk. Courtesy of Bill Cook, MSU.

HEMLOCK

Eastern hemlock (Tsuga canadensis) is common in much of New York and occurs in all parts of the state. Hemlock will resemble balsam fir except for three distinguishing characteristics. First, the cones of hemlock are marble-sized, pendant, and the scales remain attached. Second, the foliage has a "piney" (actually "hemlocky") odor, but not any hint of citrus. Third, the needles, especially on eastern hemlock, are two-ranked, but also include miniature-sized needles that are attached sporadically on the upper side of the twig (Figure 5). The central leader often droops, and a purplish zone separates the layers of bark. Much notoriety surrounds hemlock because of the introduced hemlock woolly adelgid. Hemlock, like balsam fir, is tolerant of the shade.

Figure 5. The two-ranked foliage of eastern hemlock includes dwarfed needles arranged on the upper side of the twig. Courtesy of Peter Smallidge.

LARCH

Figure 6. Eastern larch with foliage on spur shoots. By Joseph O'Brien.

As mentioned, eastern larch (Larix laricina) is distinctive by its deciduous foliage. Like black spruce it may be found growing in the saturated soils of bogs. The foliage may appear to be clustered on stubs, known as spur shoots (Figure 6). However, the clustered foliage is a result of a branch that does not extend; the foliage that would be otherwise arranged singly on the stem are compressed into a cluster on the spur. The cones are approximately the size of those on eastern hemlock, but are held erect. Many plantations of larch occur on former farms throughout New York, but those plantations are most commonly European larch (L. decidua) or Japanese larch (L. kaempferi), both having much larger cones than the native species

JUNIPER

The junipers have two types of needle structures, one is linear and awl-like and the other is scale-like (Figure 8). Juvenile and vigorous shoots tend to have awl-like foliage. Eastern redcedar (Juniperus virginiana) will attain tree size and occurs in most counties of the eastern United States. Pasture juniper (J. communis) only occurs as a shrub, usually on infertile soils, and only has the awl-like foliage and in whorls of three. The berry-like cone of pasture juniper may be twice the size of that of eastern redcedar.

Figure 8. The foliage of redcedar may be scale-like as the upper-end of the left branch, or awl-like. Courtesy of Peter Smallidge.

CEDAR

Northern white-cedar (Thuja occidentalis), as all members of the cedar family, are distinguished from the pine family by the modified needles. The modified needles are described as keeled, meaning the needle is flatten and folded to create an edge along the center of the needle (Figure 7). A written description that provides visualization is challenging; perhaps consider a dense strand of green waxy beads, melted and pressed flat. The cones are distinctive, and to some appear as miniature wooden roses. Northern white-cedar is common in bogs and on dry ground, and is tolerant of shade. It may grow in dense stands that provide winter cover for deer, and is browsed heavily by deer. The wood is light and the most rot resistant of the conifers. Atlantic white-cedar (Chamaecyparis thyoides) is restricted to coastal areas of the state.

Figure 7. Foliage of northern white cedar is glossy and succulent in appearance. Courtesy of Peter Smallidge

Tree identification can provide countless hours of fun, and maybe a bit of frustration. Start with a good book, practice on specimens you know, and make a collection of numbered twigs to test yourself and friends that come to visit.

This "How To" was prepared by Peter Smallidge, NYS Extension Forester and Director, Arnot Teaching and Research Forest, Department of Natural Resources, Cornell University Cooperative Extension, Ithaca, NY 14853. Support for ForestConnect is provided by the Cornell University College of Agriculture and Life Sciences and USDA NIFA.

OTHER RESOURCES

- Numerous publications are available via ForestConnect.com A social network is also accessible for owners at CornellForestConnect.ning.com and includes an events page, blogs, questions and answers, and a place to post pictures of what you are doing in your woods.

- Archives of tree identification webinars are available at youtube.com/ForestConnect Search for "identification."

- A free online book "Know Your Trees" published by Cornell Cooperative Extension is at cortland.cce.cornell.edu/resources/know-your-trees or an update version may be purchased at smallfarms.cornell.edu/dnrcce/

- Donald J. Leopold. Trees of New York State: Native and Naturalized. 2003. Syracuse University Press. 322 pages.

2023 Resources

Mapping Resources

Native Lands Digital

An important starting point when exploring the woods is acknowledging the history and story behind a property. This tool is a very easy-to-use visual aide to help begin that learning process. The map allows you to see any location based on contemporary infrastructure markers alongside the approximate territories, treaties and languages of indigenous populations of the region. This map is made available by Native Lands Digital, a Canadian non-profit.

Native Lands Digital Map

NYS DEC Environmental Resource Mapper

The New York State Department of Environmental Conservation hosts this free mapping tool that includes over 70 "layers". Layers are digital representations of information. They often highlight specific areas of interest or features that you can add or take off your map to see the resources you want.

NYS DEC Environmental Resource Mapper

MyWoodlot NYC Watershed Mapping Tool

MyWoodlot is an interactive website for all those who own, steward, or enjoy woodlands. It is a great collection of resources often referenced throughout In These Woods. It is a project of the Watershed Agricultural Council's (WAC) Forestry Program. WAC works with farm and forest landowners and professionals in the New York City Watershed to protect water quality.

MyWoodlot also has a great mapping tool to learn about the watershed and its resources.

A unique feature is the WAC Forest Stewardship Projects layer. WAC's Forestry Program has a Management Assistance Program (MAP) that provides financial assistance and technical support to landowners who wish to conduct certain stewardship activities on their forestland. This layer shows WAC's current stewardship activity portfolio. Funding is only available to landowners in the NYC watershed region.

To use this map, visit:
MyWoodlot Mapping Tool

To learn more about funding opportunities, visit:
Management Assistance Program

Web Soil Survey

Web Soil Survey (WSS) provides soil data and information produced by the National Cooperative Soil Survey. It is operated by the USDA Natural Resources Conservation Service (NRCS) and provides access to the largest natural resource information system in the world.

Forest Ecology & Stewardship

Forest Management Support

Working with a professional to begin or enhance your forest management planning process can be an incredibly valuable investment of both time and resources. There are multiple public programs available to landowners who want to explore their options. Some of these services are free and can help start you on a path toward deliberate and sustainable decision-making.

Forest Stewardship Program - NYS Dept. of Environmental Conservation
Management Assistance Program - Watershed Agricultural Council
(WAC's MAP Program for New York City Watershed only)

Working With A Forester

Working with a forester to develop a management plan or help with a significant project, like a timber harvest, is an important part in protecting your woods and your assets. When hiring any trained professional, it's important to do your homework. These resources provide a background on how to find, choose and develop that relationship based on your particular needs.

Choosing a Forester - CCE Columbia & Greene
Finding a Forester - New York Forest Owners Association
Cooperating Forester Program - NYS Dept. of Environment Conservation

Natural Resource Inventories (NRI)

NRI's provide a glimpse into the natural resource of any given area. They are essentially an assessment of ecological features, species and other important resources. They can be used to prioritize conservation efforts or summarize the wonderful world around us. As you consider the bigger picture of the woods both regionally and locally, these are helpful tools to guide your curiosity.

Greene County Natural Resource Inventory & Story Map
Columbia County Natural Resource Inventory

Species Identification

Learning how to identify species, understand suitable conditions and habitats can broaden your experience and help guide your decisions. Here are multiple tools to get you started. You can also choose from a wide array of field guides focused on the Northeast region.

Know Your Trees, 50 Common Species in New York - Cornell Cooperative Extension
iNaturalist App - an online community platform for reporting and identifying species

Forest Health and Resiliency

Managing healthy forests is a priority for many woodland owners. The pressures our woods face can vary in scale and intensity. They can also be unpredictable as we've seen with increased storm severity, pests and diseases. Building resiliency into your woodlands is one the best ways to ensure your woods can bounce back and adapt.

The Nature Conservancy, in partnership with our colleagues at CCE Onondaga, designed a tool that landowners can use with their forester and peer-to-peer network to help understand the condition of their forest and identify areas to improve health.

The Nature Conservancy NIACS Cornell Cooperative Extension Onondaga County Cornell Cooperative Extension Columbia and Greene Counties

The "Keep Forests Healthy" tool is an easy-to-use guide that provides helpful information on pressures, practices and goals. This scorecard is broken out into 4 main categories that identify major features of healthy forests. You can explore your property with the tool in-hand and do an exploratory assessment. Then you can share this tool with your forester to inform management decisions and vulnerabilities.

The 4 categories are:
1. Diversity and Composition
2. Structure
3. Regeneration
4. Site Level Risks

Click here to check out the Keep Forests Healthy Tool

Wildlife

CCE's NYS Master Naturalist Program

CCE's NYS Master Naturalist Program is a high-quality, science-based training program designed to teach adults about New York's natural resources, empowering them to educate others and participate in on-the-ground conservation and monitoring projects.

Curriculum, Fact Sheets and Learning Resources
Wildlife Habitat and Ecosystem Conservation, Enhancement and Management
Master Naturalists in Your Area

Wildlife & Habitat Enhancements

Wildlife Habitat and Ecosystem Conservation, Enhancement and Management:

NY Master Naturalist Program (Cornell University & Cornell Cooperative Extension):

All About Birds! The Cornell Lab of Ornithology

NY Audubon Society - Managing Forests for Birds: A foresters guide

Wildlife Damage & Invasive Species

Wildlife Damage Fact Sheets from Cornell University & CCE
CCE Columbia & Greene Invasive and Nuisance Species

Government Funded Conservation Programs

NYS Dept. of Environmental Conservation Habitat Management Assistance Program
USDA Farm Service Agency Conservation Reserve Program
USDA Natural Resources Conservation Service Environmental Quality Incentives Program

New York Nature Explorer

A Gateway to Biodiversity Information

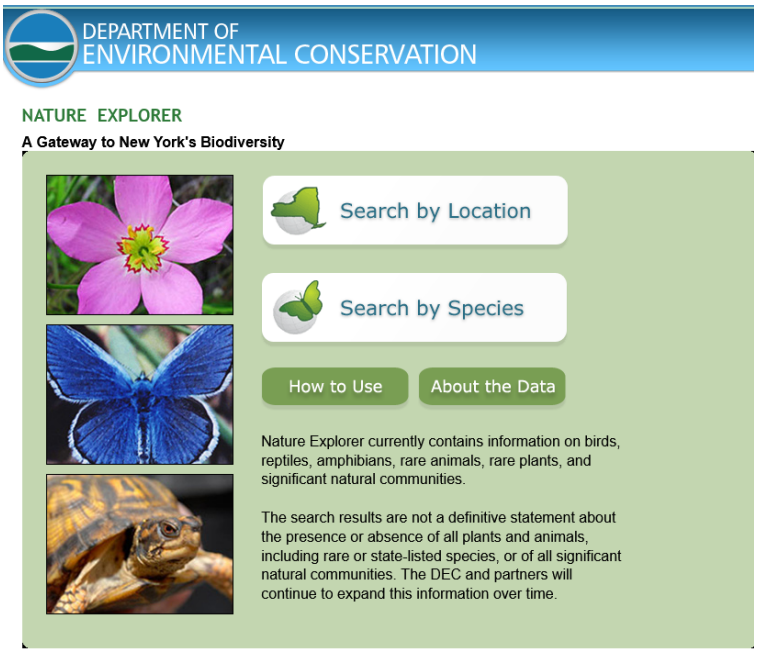
New York Nature Explorer is an online tool for finding out about the animals, plants and habitats in your neighborhood or in your area of interest.

As a gateway to biodiversity information, New York Nature Explorer is intended for:

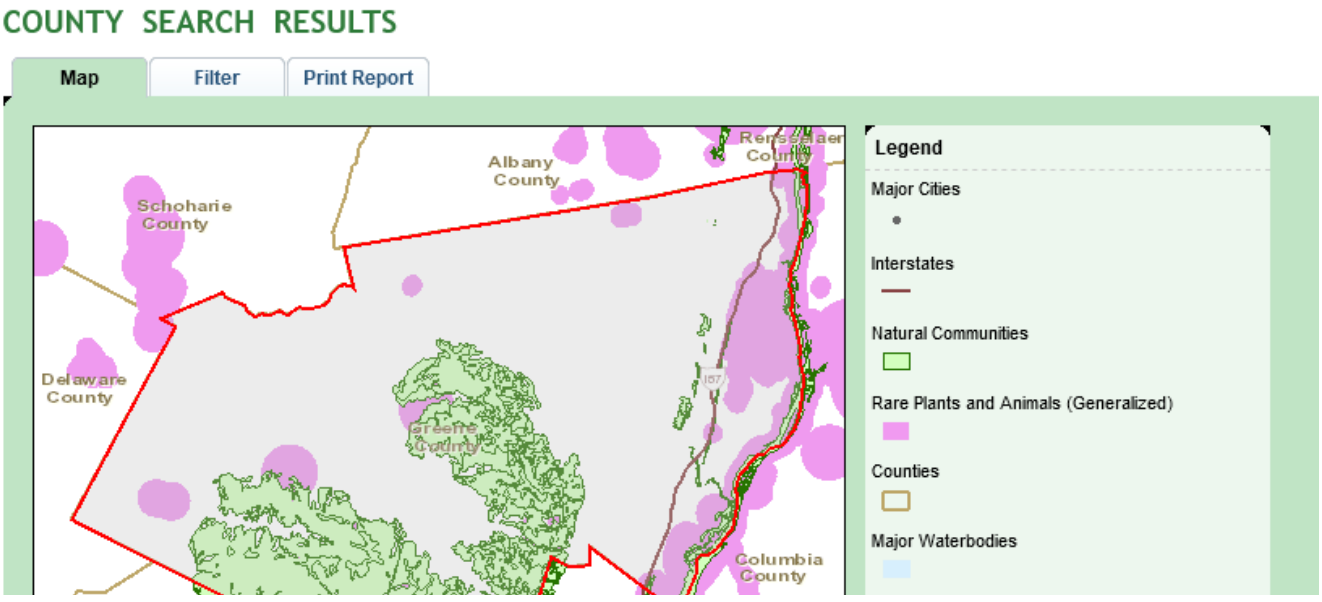
landowners and land managers; citizens; municipal officials, planners, consultants; project developers; researchers; students and; anyone else interested in the natural world.

Nature Explorer can be used in two ways:

- Users may choose a county, town, or watershed, or they may specify their own location on a map. They will then receive a list of the animals, plants, and significant natural communities that have been found there, as documented in databases maintained by NYS DEC.
- Users may also choose a specific animal, plant, or natural community type, and then get a list of the counties, towns, or watersheds where it has been found. dec.ny.gov/animals/57844.html



[Click here to check out this amazing tool to see what's in your woods!]



Trail Enhancement Resources

A good first step in trail building and maintenance is understanding what kind of activity you want to pursue. This allows you to evaluate existing paths and roads and understand what new features might be needed. Below are resources on different trail types and the Best Management Practices to ensure long lasting enjoyment.

Sustainable ATV Trails:

The US Forest Service has a great, interactive resource for designing, building and managing trails for motorized vehicles. Use this tool to learn everything about sustainable ATV trail systems.

fs.fed.us/t-d/atv_trails_site/learn/index.html

BMP Guide to protect water quality from New York State highlights great techniques that can be applied to trails and forest roads. Even with no active forestry projects, these BMPs can still be implemented!

dec.ny.gov/docs/lands_forests_pdf/forest-rybmp.pdf

Understanding BMPs:

My Woodlot has a collection of BMP resources that help us understand what practices apply to our situation and how to navigate implementation. Visit to learn more about BMPs and the wonderful world of forest roads and trails.

mywoodlot.com/item/understand-best-management-practices

Agroforestry

General Agroforestry

Cornell Small Farms Program
USDA National Agroforestry Center
MyWoodlot

Forest Farming

CCE Columbia & Greene County Agroforestry Resource Center

Maple

CCE: Getting Started with Small-Scale Maple Production

Cornell Maple Program: Maple Syrup Production Beginner's Notebook

Cornell Maple Program: Sugarbush Management Notebook

Silvopasturing

Silvopasturing in the Northeast:
An Introduction to Opportunities and Strategies for Integrating Livestock in Private Woodlands

ForestConnect: Evaluating the Potential of a Site for Silvopasture Development

Multifunctional Riparian Buffers

USDA Working Trees: Why add edible and floral plants to riparian forest buffers?

Penn State Extension: Multifunctional Riparian Forest Buffers - more than just trees

Alley Cropping

USDA National Agroforestry Center
Alley Cropping: An Agroforestry Practice

Windbreaks

USDA National Agroforestry Center
Windbreaks: Resources and Case Studies

USDA National Agroforestry Center: Working Trees

The USDA National Agroforestry Center manages a large collection of agroforestry-related tools and information sources for those who want to learn, discover, teach others, and share. This wide range of general, technical, and research publications are available for download free of charge. Print copies of selected publications are also available upon request. The Working Trees series includes detailed brochures as well as information sheets. Here are just a few of the resources you can use to implement agroforesty practices in your woods!

Click here to see the complete list: [USDA National Agroforestry Center Resources]


Working Trees

Info

Why add edible and floral plants to riparian forest buffers?

Multifunctional riparian forest buffers (MRFBs) offer the opportunity to produce perennial crops of native fruits and nuts, as well as floral trees and shrubs.

These products can be harvested and sold at retail or wholesale markets, and used at home. This information sheet provides examples of how these plants can be added to riparian forest buffers in the Appalachian region.

As their name implies, MRFBs have a wide range of functions. They filter runoff and keep stream banks stable, helping to improve water quality by reducing the amount of nutrients and sediment that flows into waterways. They also shade the water, providing habitat for some cold water-dependent fish species. MRFBs provide habitat for wildlife, including pollinators, and can act as wildlife corridors, providing cover and food sources. Providing habitat for beneficial insects may reduce the need for pesticides, which may have an additional environmental benefit.

Multifunctional buffers also have social benefits. By protecting water quality, MRFBs contribute to safe, clean drinking water for all that live downstream. Increased wildlife habitat means more opportunities for people to enjoy the outdoors through hunting, fishing, bird watching, and water sports.

Riparian buffers planted with a rich diversity of native fruits, nuts, and florals offer the grower a special connection with local tradition, culture, and folklore. Pawpaws, for example, are rarely found on supermarket shelves, but have long been a delicacy. Older fans of pawpaws may buy them at farmers markets to savor a taste from their youth, while those new to pawpaws might further their appreciation of the land where they grow wild. American persimmon, when tasted at peak ripeness in the late fall or early winter, has an unparalleled flavor and is a traditional holiday treat. Serviceberry, also known as sarvis, Saskatoon, or juneberry, has an underappreciated blueberry-like fruit, and everyone loves the clouds of white flowers born in early spring. Native fruits, nuts, and florals are a part of what makes a region unique. Each region has its own set of native fruits, nuts, and florals with potential to be incorporated into MRFBs.

Elderberries can be a component of multifunctional riparian forest buffers. (Photo credit: Katie Commender/Virginia Tech)

Multi Funotional Riparian Forest Buffer Design

Zones 2 and 3 can be planted with different species and at expanded widths to incorporate perennial crops of fruits, nuts, and floral trees and shrubs.


Edibles and florals harvested from multifunctional riparian forest buffers*

Pawpaw	Persimmon	Elderberry
Market Opportunities	**Market Opportunities**	**Market Opportunities**
With a tropical flavor, custard texture and high nutrient content, America's forgotten fruit can be eaten fresh or made into desserts.	The "Fruit of the Gods," sweet persimmon can be sold fresh or made into pudding, jam, dried fruit and even beer.	Coined "Nature's Medicine Chest" for its immune boosting properties, elderberries can be made into syrup, cough drops, juice, wine, jam and food coloring.
Average Prices	**Average Prices**	**Average Prices**
Fresh fruit: $2/lb wholesale $3+/lb retail Frozen pulp $6/lb retail Jam $6/oz jar retail	Fresh fruit: $2.75/lb retail Frozen pulp: $8+/lb retail Dried fruit: $11+/lb retail	Juice: $15-$17/11oz jar Syrup: $18/4oz jar retail Wine: $10-$13/bottle retail Cough drops: $2.50/15 retail
Hazelnut	**Woody Florals**	**Black Walnut**
Market Opportunities	**Market Opportunities**	**Market Opportunities**
A great source of fiber and 'good' fats, hazelnuts can be sold in shell or shelled and made into flours, oandles, butters and oils.	Woody florals, such as pussy willow and red and yellow twig dogwood, can be coppiced every 2-3 years and sold to the floral industry or used in crafts.	This multi-use tree produces valuable timber and heart-healthy nuts sold in shell or shelled.
Average Prices	**Average Prices**	**Average Prices**
In shell: $3/lb wholesale Shelled: $6/8oz retail Oils: $8/8oz jar retail	Cuttings: $0.37-0.45/stem retail Wreaths: $45+ ea retail	In shell: $9.25/lb retail Shelled: $12/lb retail

*Prices can vary considerably by season and local markets.

APPALACHIAN sustainable DEVELOPMENT

Forest Resources & Environmental Conservation

USDA National Agroforestry Center


Working Trees

Info

How can agroforestry increase carbon sequestration?

The tree and shrub components of agroforestry practices contribute to carbon sequestration by using carbon dioxide for photosynthesis and storing carbon above ground in tree trunks and branches, as well as below ground in roots and the soil. This carbon can stay in the tree or soil for a long time. If the tree is harvested for wood products, this carbon remains sequestered for the life of the product created, such as in buildings or furniture. Additionally, agroforestry systems can also produce feed, unlike timber plantations and woodlot plantings.

Carbon in wood products (biofuels, long-lived products)

Carbon in tree

Carbon in crops

Soil carbon from trees

Soil carbon from crops

Carbon is stored in many parts of agroforestry systems, including in the soil, tree biomass, crop biomass, and wood products.

Here are some examples of how these inexpensive agroforestry practices can be designed to maximize carbon sequestration on agricultural lands:

Alley cropping

In addition to rows of trees, other perennial crops can be selected to plant in the alleys, increasing the system's total above and below ground sequestration capacity.

Silvopasture

Choosing silvopasture systems that add trees to pastures generally sequesters more carbon than cutting trees to create silvopastures.

Windbreaks

Adding additional rows to a windbreak design, selecting species that grow biomass quickly, or selecting species that are used in wood products can increase the sequestration potential of a windbreak system.

To estimate carbon sequestration potential of current or future management practices, land managers and technical assistance providers can use modeling tools. These tools include COMET-Farm and COMET-Planner, which allow the user to generate reports that estimate carbon changes and greenhouse gas emissions from different management choices for a field or farm. Agroforestry practices provide important ways to increase carbon sequestration while also providing other production and conservation benefits. This makes agroforestry a good option for farmers and land managers interested in increasing carbon sequestration while diversifying their operations.

For more information on climate change, visit: www.fs.usda.gov/nac/topics/climate_change.php


Agroforestry

Working Trees for Communities

Working Trees

Info

What are agroforestry's income opportunities?

Agroforestry is an approach to land use that incorporates trees and shrubs into agricultural systems and allows for the production of trees, crops and/or livestock from the same piece of land. It offers ways to take advantage of profitable product markets and, at the same time, helps improve the land and the environment.

Look at the fields, woods, streamsides and fence rows around a farm or ranch. Are any of these areas under utilized? There are many opportunities for farmers and ranchers to introduce agroforestry practices on their land, which may open up new income possibilities while adding conservation benefits. Get started by taking a closer look at your land.

Does your farm or ranch have ... unsheltered farmsteads and livestock areas, fence lines or degraded windbreaks?

Income Opportunities:

Wood fiber, lumber, specialty forest products, food

Agroforestry Practice: windbreaks

Multiple row windbreaks are places to produce marketable products like hybrid poplar, wood, nuts, apples, cherries, blackberries and woody floral products. Evergreens can be sold as Christmas trees, boughs for seasonal floral products or as landscaping plants, while adding color to farms and providing protection for birds and other wildlife.

Does your farm or ranch have ... neglected or under utilized woodlots?

Income Opportunities:

Wood for energy, lumber, specialty forest products, food

Agroforestry Practice: forest farming

Well-managed woodlots can potentially produce high quality lumber, firewood and valuable specialty forest products like maple syrup, ginseng and other medicinal plants, which are grown under shade. Pine straw may be another income-generating option from loblolly or longleaf pine plantations where there are markets.

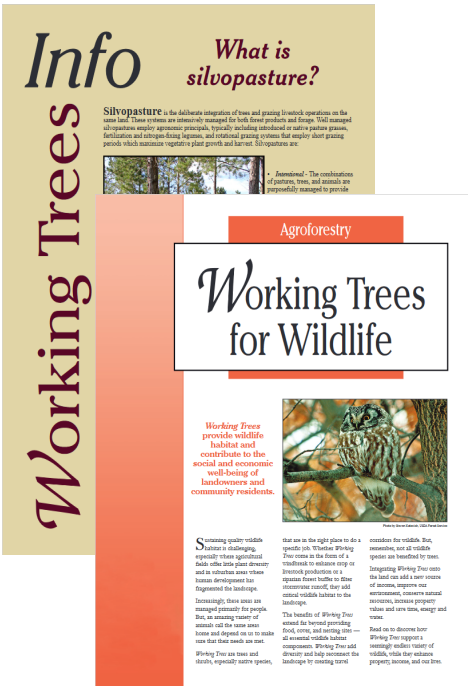
Does your farm or ranch have ... marginally productive fields?

Income Opportunities:

Wood fiber, lumber, fruit, nuts and many other crops

Agroforestry Practice: alley cropping

Blueberries, chokecherries, elderberries, chestnuts, hazelnuts, and many others have great potential when marketed as locally grown products. Possible inter-crops include vegetables, horticultural plants, forages and traditional row crops. This system will be producing valuable products while protecting the land.


Working Trees

Info

What is silvopasture?

Silvopasture is the deliberate integration of trees and grazing livestock operations on the same land. These systems are intensively managed for both forest products and forage. Well managed silvopastures employ agronomic principals, typically including introduced or native pasture grasses, fertilization and nitrogen-fixing legumes, and rotational grazing systems that employ short grazing periods which maximize vegetative plant growth and harvest. Silvopastures are:

- *Intentional* - The combination of pastures, trees, and animals are purposefully managed to provide

Agroforestry

Working Trees for Wildlife

Working Trees provide wildlife habitat and contribute to the social and economic well-being of landowners and community residents.

Sustaining quality wildlife habitat is challenging, especially where agricultural fields offer little plant diversity and in suburban areas where human development has fragmented the landscape.

Increasingly, these areas are managed primarily for people. But, an amazing variety of animals call the same areas home and depend on us to make sure that their needs are met.

Working Trees are trees and shrubs, especially native species, that are in the right place to do a specific job. Whether Working Trees come in the form of a windbreak to enhance crop or livestock production or a riparian forest buffer to filter stormwater runoff, they add critical wildlife habitat to the landscape.

The benefit of Working Trees extend far beyond providing food, cover, and nesting sites — all essential wildlife habitat components. Working Trees add diversity and help reconnect the landscape by creating travel corridors for wildlife. But, remember, not all wildlife species are benefited by trees.

Integrating Working Trees onto the land can add a new source of income, improve our environment, conserve natural resources, increase property values and save time, energy and water.

Read on to discover how Working Trees support a seemingly endless variety of wildlife, while they enhance property, income, and our lives.

Timber Management

Watershed Agricultural Council Forestry Program:

The WAC Forestry Program provides many resources on their programs as well as a list of resources on forest management planning, qualified loggers and more:
nycwatershed.org/forestry

Foresters:

CCE Columbia & Greene – Choose a Forester:
ccecolumbiagreene.org/natural-resources-and-the-environment/choosing-a-forester

NYS DEC – Find a Cooperating Forester:
dec.ny.gov/lands/5230.html

Loggers:

New York Logger Training:
newyorkloggertraining.org/

Woodlot Management Resources:

This link includes articles on developing stewardship plans, improving your woodlot for firewood, managing small woodlots and more.
ccecolumbiagreene.org/natural-resources/forestry/agroforestry-resource-center/woodlot-management/woodland-stewardship/woodlot-management

DEC Forest Utilization Program:
dec.ny.gov/lands/4963.html

The US Forest Service Eastern Region State and Private Forestry resources:
fs.usda.gov/naspf/

Climate Change Response Framework:

Keep Forests Healthy Scorecard:
forestadaptation.org/learn/resource-finder/ny-checklist

Tree Species Risk Projections:
forestadaptation.org/assess/tree-species-risks

Invasive Species

Finding an Arborist

As the old saying goes, Foresters care for the whole forest and Arborists care for the individual tree. For tree treatment or tree health assessments, you can find a certified arborist from the New York State Arborists Chapter of the International Society of Arboriculture:
nysarborists.com

NYS Pesticide Applicator Regulations:

Some invasive species treatment calls for chemical application. It's important to know the applicable rules and regulations as well as safe handling practices.
dec.ny.gov/permits/209.html

New York State Policies and Programs:

Invasive Species Regulations:
dec.ny.gov/animals/99141.html

NYS Firewood Transport Rules:
dec.ny.gov/animals/28722.html

NYS Invasive Species Comprehensive Management Plan: November 2018
dec.ny.gov/docs/lands_forests_pdf/iscmpfinal.pdf

New York City Department of Environment Conservation
Invasive Species in the NYC Watershed:
nyc.gov/site/dep/environment/invasive-species.page

New York Invasive Species (IS) Information

New York State's gateway to science-based invasive species information:
nyis.info/

Cornell University Invasive Species Research Institute:
nyisri.org/

Forest Assets

Wetland Resources

New York State Dept. of Environmental Conservation

Freshwater Wetlands Program
Freshwater Wetlands Mapping
Tidal Wetlands
Wetlands Conservation Factsheet

US Environmental Protection Agency:

Wetlands Regulations
Wetlands Protection & Restoration

Army Corp of Engineers New York District
Wetlands Identification

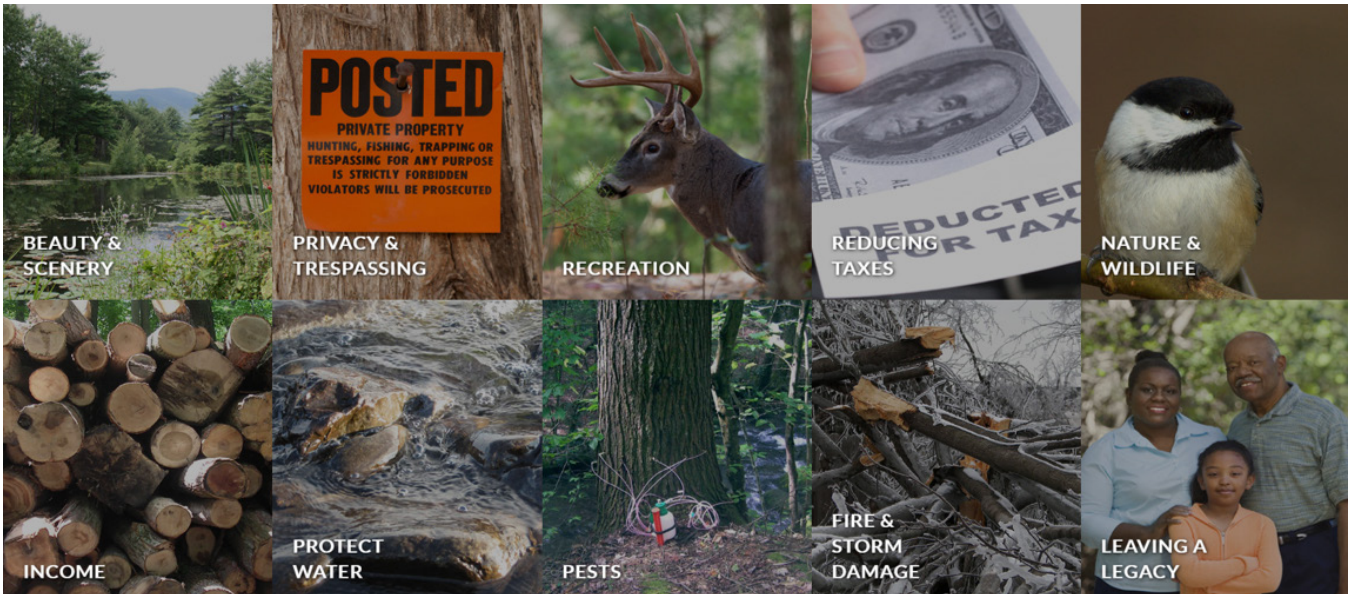
Your Land, Your Legacy New York:
Information on land conservation, finances, estate and legacy planning.

New York State 480(a) Forest Tax Law
NYS Resources

Best Management Practices Guide for Water Quality
NYS Resources & Link

Timber Theft Protection and Reporting
NYS Timber theft on private land resources

Resource Collections



MyWoodlot

As highlighted above, MyWoodlot offers a wide selection of resources on woodlands. There are activities and blogs from professionals and other landowners that highlight projects and ideas that you can actually implement. The activities broadly include beauty and scenery, privacy and trespassing, recreation, reducing taxes, nature and wildlife, income, protecting water, pest, fire and storm damage, and leaving a legacy.

Create your MyWoodlot profile for free to save and organize activities and resources that match your goals. Follow the link below to begin exploring all these resources and keep up to date with new activities that are added weekly!

Visit MyWoodlot

ForestConnect

A Cornell University resource to connect woodland users to the knowledge and resource needed to ensure sustainable production and ecological function on private woodlands. The site houses information for woodland stewards, educational resources and offers countless webinars on a wide variety of woodland topics.

Visit ForestConnect

CCE Columbia & Greene

Visit our site to find resources and more information on upcoming events. Our Natural Resoures Team is also ready to support you in all your woodland stewardship goals. Please reach out if you're looking for specific information, have questions about your woods, or need assistance in determing next steps.

Woodland Owner Networks

Women Owning Woods

We are a group of women landowners and natural resource professionals from the Catskills and the Hudson Valley region of New York. We've organized this group of professionals and landowners as a way to foster learning experiences and discussions about forest property. Details about gatherings will be sent out via email in our eNewsletter. To subscribe to that list you can email wow@nycwatershed.org to join.
Follow us on Facebook to stay connected, share your stories, and learn from your peers.

Find WOW on Facebook

Master Forest Owner Volunteers

The Master Forest Owner (MFO) program provides private woodland owners of New York State with the information and encouragement necessary to manage their forest holdings wisely. Since its inception in 1991, MFOs of Cornell Cooperative Extension have helped over 1,000 landowners. The term "Master" Forest Owner implies education as in "School-Master". Experienced and highly motivated volunteer MFOs are available statewide, ready to assist neighbor woodland owners with the information needed to start managing their woodlands, through free site visits to landowners properties. The training volunteers receive complements their experience as forest owners.

Learn more about the MFO Program

Catskill Forest Association

The Association was formed for the purpose of promoting knowledge and understanding of forest ecology and economics; to promote long-term forest management; to educate the public and enhance the economy of the Catskill region; to demonstrate economically feasible and environmentally sound forest practices: to serve as a source of information about forest management; to serve private landowner rights; and to identify and manage private forest lands dedicated to the demonstration and practices of high standards of forestry.

Learn more about the CFA

New York Forest Owners Association (NYFOA)

The mission of the New York Forest Owners Association (NYFOA) is to promote sustainable forestry practices and stewardship on privately owned woodlands in New York State.

Learn more or join NYFOA

Cornell Cooperative Extension
Columbia and Greene Counties

Agroforestry Resource Center
6055 Route 23
Acra, New York 12405

Postage

Connect

Website: ccecolumbiagreene.org
Email: columbiagreene@cornell.edu
Phone: 518-622-9820

@CCEColumbiaGreene

@ccecgc

Mission

Cornell Cooperative Extension Columbia and Greene Counties puts knowledge to work in pursuit of economic vitality, ecological sustainability, and social well-being. We bring local experience and research-based solutions together, helping Columbia and Greene County families and communities thrive in our rapidly changing world.

CCE Columbia and Greene Counties is a registered 501(c)(3) nonprofit.