

Wise Use

A Stewardship Guide for the Forest Reservations Owned and Managed by the Forest Society



Photo: Public Harvest Tour at Heald Tract in Wilton, NH 2019

Society for the Protection of New Hampshire Forests

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Preface

The Board of Trustees of the Forest Society adopted this mission statement in 1904, which remains our standard today: *“The Forest Society is a forestry association seeking to perpetuate the forests of New Hampshire through their wise use and their complete reservation in places of special scenic beauty.”*

The Society acquired Lost River in 1912 as our first permanent forest reservation, to protect an old mixed hardwood/softwood forest growing near a river buried beneath large glacial boulders just to the east of Kinsman Notch in North Woodstock. Today we own and manage more than 185 reservations, in more than 100 New Hampshire municipalities, totaling over 57,000 acres. These holdings make us the third largest private landowner in the state.

We develop a management plan for each of our reservations, identifying the history of our ownership of the land, the land’s historic use, its natural assets and attributes, its boundaries, and how we plan to manage the land’s resources including its timber, wildlife habitat, recreational features and water resources. To complement these individual plans, the document you are reading (“Wise Use”) is intended to be an overarching guide for the stewardship of all Forest Society reservations. It provides the larger context for our land management as an organization. It provides the Society’s Board of Trustees, its staff, our volunteer Land Stewards and our members a common reference for the principles and practices we use to guide our land management.

Wise Use is designed to be used as an electronic document, as much of the referenced documentation is in the form of hyperlinks to more regularly updated information. More infrequently updated internal policies are included as Appendices. Each of the appendices is updated when formal changes are made to that appendix.

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- F. Table of Contents for Forest Society Forest Management Plans (2019)

Goals and Objectives of Forest Society Land Ownership

The Forest Society's objective in owning land is to conserve the many values and services that forests provide to New Hampshire's quality of life and to promote the wise use of forest resources. Our land management planning is guided by these goals and objectives:

- o To permanently protect and manage land owned by the Forest Society as open space, preferably as publicly accessible open space;
- o To use Forest Society reservations as a catalyst for growing support of the Society's mission;
- o To provide forest products from sustainably managed forests to local and global markets;
- o To demonstrate the practice of ecologically sustainable forestry, to promote the voluntary forest management practices recommended in *Good Forestry in the Granite State*, and to explore new silvicultural techniques;
- o To provide a range of recreational opportunities for Forest Society members and the general public;
- o To provide opportunities for scientific research and education;
- o To protect and manage important and unique ecological resources by establishing Ecological Reserves;
- o To mitigate the adverse impacts of climate change;
- o To provide a diverse mix of wildlife habitats;
- o To preserve water quality and the integrity of wetlands;
- o To protect and safeguard historically or culturally significant sites;
- o To generate revenue critical to the Forest Society's operating fund through the management of our lands;
- o To sustain forest certification by meeting the PEFC Standards and Practices as administered by the American Tree Farm System (ATFS).

Sustainable Forestry

The Forest Society was established in an era when forests in the northeast were not being scientifically or sustainably managed. In contrast, the foundation of the Forest Society's reservation stewardship has been sustainable forest management, using scientifically informed forestry practices. Our timber harvesting is designed to perpetuate and enhance the natural ecological processes of the land, while bringing products from the renewable natural resource to the market.

As a forestry organization, the Forest Society advocates for and practices growing, harvesting and selling a range of forest products from its reservations in a sustainable manner. Using professionally accepted natural resource inventory techniques, the staff inventories and collects data to analyze forest conditions and prescribe future treatments to achieve the organization's land management goals.

Timber harvesting is the most impactful activity we conduct on our lands. All harvesting practices on Forest Society lands are sustainable and only operable areas (see Operable Lands as defined by Forest Society guidelines below) are considered available for harvesting, thus ensuring the capacity of the underlying soils to support a viable forested environment.

Silviculture

Silviculture is the art and science of establishing and tending trees and forests to accomplish land management objectives. Silvicultural practices on Forest Society lands are guided by the most current scientific research on the forest types and tree species found in New Hampshire. Staff foresters regularly attend professional development workshops and meetings to stay up to date on the latest in forestry research, and apply this knowledge in managing Forest Society lands. The Forest Society's inventory and management planning process is aimed at bringing this silvicultural knowledge to practice on each reservation. Forest biodiversity is encouraged in several different ways through active management; trees of different species, genetic composition, ages, and sizes can make our forests more resilient to pests, diseases, and future climate conditions.

The Forest Society's timber harvesting guidelines are followed when planning a timber harvest, and in communicating the Forest Society's reservation management:

- Identify and protect important, sensitive or unique habitat features such as: overstory inclusions, deer wintering areas, mast producing stands, unique forest community types, rare plants, vernal pools, seeps, raptor nests, and old growth forests;
- Use intermediate silvicultural treatments to favor desirable trees and remove undesirable ones;
- Regenerate a mix of desirable species using the most appropriate silvicultural methods;
- Favor a diversity of species where possible;

- o Discourage off-site species, favoring both tree species and individual trees that are best suited to site conditions;
- o Remove poorly formed, low quality, disease affected trees, and favor better form, high quality, healthy, well-developed trees;
- o Remove trees that exhibit various stages of decline/defect/damage that still possess economic value;
- o Retain trees with wildlife habitat value, including cavity/snag/den trees with little or no economic value;
- o Retain and/or increase large downed woody debris;
- o Consider additional stand and site conditions in prescription development including stocking level (average basal area), stand diameter, volumes per acre, percent of volume by product class; and
- o Consider also: operating conditions/restrictions, ecological considerations, wildlife habitat, existing or potential recreational opportunities, visual resources, water resources, cultural features, the presence of seed/mast/ and/or advanced regeneration, and the economic feasibility of operating due to product markets, logger availability and access.

Operable Lands for Timber Harvesting

Harvests are carried out using the best available scientific research and according to the current guidelines for best forest management practices. Many of these documents that help guide our management can be found listed in the References section of this plan. On occasion, to advance the art and science of forestry, we may implement new or experimental harvest techniques on our lands. Additionally, only land that meets the following definition of operable forestland will be considered available for harvesting activities associated with commercial forest management. Wildlife habitat, view shed improvement, and recreational opportunities may often exist within areas classified as inoperable forestland.

Areas typically considered as operable by the Forest Society include lands that are:

- o Located outside of protected wetlands, water courses, ponds and lakes and their associated buffers;
- o Located outside all designated Category I Ecological Reserves;
- o Located outside areas set aside from harvesting by federal or state or local government, including, but not limited to, meeting habitat requirements for specific species of wildlife, plant life, or wetlands designated;
- o Located under 2000 feet of elevation;
- o Located on slopes generally less than 35%;
- o Accessible by current forestry equipment; and
- o Not restricted from timber harvesting due to deed, donor, or conservation easement limitations.

Timber Harvest Operations

Timber Harvest informational signs are installed at reservations with a scheduled harvest planned and remain on-site after the harvest for a reasonable period of time. This signage provides the public an opportunity to understand that the disturbance and change they are seeing had a thoughtful plan behind it and gives an opportunity for them to contact a staff forester.

Forestry operations are planned and informed by the forest management plans. Potential harvest areas are closely field checked by staff foresters and then walked with a consulting forester. The consulting forester is provided a copy of the management plan and provides input to the prescriptions and operation through a collaborative process with the staff foresters. At times, other specialists, particularly wildlife biologists or county foresters, may be brought in to consult about management activities.

An operational plan that outlines prescriptions is developed for each harvest. This may be a written one-page summary and map or as simple as a map only, with prescriptive and operational information displayed on it. These plans also address any actions related to wildlife habitat, or cultural, historic, aesthetic, recreational, or ecological resources noted within the sale area. Access, landings and main skid roads including stream and wetland crossings, any buffers, cutting unit boundaries and any sites of concern should be included in these maps.

All timber harvesting operations are supervised by a staff forester or consulting forester. Active timber sale operations are visited with the necessary frequency to ensure compliance with all articles in the contract.

All timber to be harvested is marked or otherwise designated by a forester prior to the harvest.

Staff foresters or forestry consultants review local zoning or planning ordinances for regulations that may affect the ability to conduct operations as planned. (These may include special protection zones, road weight restrictions, noise ordinances, prime wetlands, etc.)

A written Timber Purchase Agreement between the logging contractor and the Forest Society controls all harvesting operations. The agreement addresses the financial, physical, operational, and insurance liability responsibilities of all parties associated with the particular timber sale. Harvests that are overseen by a consulting forester are contracted to those individuals through a Forestry Services Agreement.

Typically, about half of our harvests are conducted by loggers who are certified through the NH Timber Harvesting Council's [Professional Logger Program](#). Preference is given to loggers who are certified under this program and we encourage loggers to pursue certification. We do recognize that not all reputable loggers have been able to attain certification. The Forest Society reserves the right to hire a logging company that is reputable, regardless of professional certification.

We expect that all applicable state laws (RSA 227-J) are observed on every harvesting operation on Forest Society land. The State of NH maintains a summary of these laws and applicable resources on their [website](#). The Forest Society ensures that all appropriate permits and forms are

filed with each harvest including: Intent-to-Cut forms, Report-of-Cut forms, driveway permits, and wetlands permits (when necessary).

Post-Harvest Monitoring

Upon the completion of a harvest, a staff forester walks the stand to determine that our silvicultural goals have been met and that the site has been properly closed out according to Best Management Practices for Erosion Control (BMPs).

In areas where the spread of invasive species is a concern, a follow-up visit after two growing seasons is conducted to determine whether invasives pose a concern for the future development of the stand. This visit, which could be conducted by summer forestry interns or Land Stewards, is the first step in determining whether follow-up treatment for invasives is necessary (See Section on Invasive Plant and Pest Management for more details).

For harvesting where the regeneration of a certain species or mix of species was the goal, a formal regeneration survey is scheduled after 5-10 growing seasons. This survey is aimed at determining whether the silvicultural goals of the regenerative harvest were met, and is the first step to determine what follow-up treatments, if any, would be beneficial.

A full inventory of each property occurs about every 15 years. This comprehensive examination of the property includes any areas that were harvested, and the resultant management plan includes any follow-up actions that are recommended.

Annual Allowable Cut Determination

The Annual Allowable Cut (AAC) is a metric used to assure that the amount of wood harvested annually on our reservations is done so sustainably. This number is a measure of sustainability and not our annual harvest goal. Our annual harvest goals take many factors into consideration. For a more detailed discussion of our AAC, see *Appendix A*.

Managing Forests in a Changing Climate

The Forest Society manages its lands with the understanding that our climate is changing due to the increasing levels of CO₂ in our atmosphere. Current climate change models predict that the northeastern United States will continue to experience warmer overall weather and a longer growing season¹. Winters are predicted to be warmer, shorter, and with more precipitation falling as rain instead of snow. Wetter spring and fall seasons along with drier, drought-prone summers are expected to become more common. Extreme weather events such as flooding will be more severe and increasingly common. We manage our forests using adaptation strategies developed to better prepare for these climate-related impacts.

The forestland we manage provides a host of ecosystem services. Forests store and filter clean drinking water, they purify air, they provide flood storage capacity critical in mitigating extreme weather events, they provide wildlife habitat, and they provide timber products and recreational opportunities to people. In recent years, the capacity of forests to store and sequester carbon has become an additional important element in the management considerations of our reservations. Our management goals include the consideration of all these benefits.

Adaptation Strategies

Managing Forest Society lands for forest integrity, health, and resilience in a changing and uncertain climate is an important stewardship goal. Climate adaptation strategies developed by the Northern Institute of Applied Climate Science (NIACS)² provide a useful framework for incorporating “climate aware” management on Forest Society lands. Activities can be lumped into three broad categories: *resistance*, *resilience*, or *transition*.

Forest adaptation strategies to increase the *resistance* of a forest to predicted changes are those that improve the forest’s defenses to maintain existing conditions. A timber harvest aimed at thinning a dense, overstocked forest is an example of a resistance strategy. The goal of the thinning would be to remove trees of poor health and leave the trees of better quality to use the site’s resources – water, nutrients, and sunlight. These trees would be better equipped to withstand changes in the climate that are predicted to occur.

Strategies aimed at increasing the *resilience* of a forest are those that allow for some change, but encourage the return to existing conditions following a disturbance. Managing a forest for a diverse mixture of tree sizes, ages, species, and ecosystem functions is an example of one way

¹ Lindsey et al. 2012. Changing climate, changing forests: The impacts of climate change on forests of the northeastern United States and eastern Canada. Gen. Tech. Rep. NRS-99. Newtown Square, PA: U.S. Department of Agriculture, Forest Service, Northern Research Station. 48 p.

² Menu of Adaptation Strategies and Approaches developed for forests.
<https://forestadaptation.org/sites/default/files/Forest%20Adaptation%20Menu%20-%20NIACS%20Climate%20Change%20Response%20Framework.pdf>

that the Forest Society incorporates resilience into management planning. A forest with these characteristics is better equipped to recover from an insect outbreak or natural disaster, which would typically target only a subset of the trees that are present. The remaining trees that survive the disturbance allow the forest to quickly recover to pre-disturbance condition.

Transition strategies are those that deliberately encourage a forest to change to foster adaptation to changing environmental conditions. The suitable habitat for certain tree species is predicted to expand in New Hampshire as a result of climate change. Identifying and encouraging these species during some harvests is one example of how the Forest Society may use transition strategies in the management of our lands. Another strategy is implementing timber harvests that provide enough sunlight to encourage regeneration of a range of tree species. This regeneration is more likely to be better adapted to current climate conditions than the mixture of larger, mature trees that in most cases germinated a century ago.

Utilizing all three of the above adaptation strategies will help ensure our forests are better prepared to thrive in the uncertain and changing conditions that are predicted to occur.

Carbon Storage on Forest Society Lands

Our working forestland contributes significant benefits that mitigate the negative effects of climate change. Forests store a tremendous amount of carbon, and sequester more every year as they grow. Some of the wood that we harvest is made into long-lasting forest products, which represent additional carbon storage.

The Forest Society uses a combination of passive management to allow for the development of older forests and active management to create younger forests. Category 1 Ecological Reserves and inoperable areas are managed with a hands-off approach, resulting in forests that store large amounts of carbon. Forestland in the northeast continues to store carbon until an equilibrium between decay and carbon sequestration is reached as an old-growth forest. Younger forests do not store as much carbon, but do sequester it at a high rate. Research indicates that forests that are 30-70 years old sequester carbon at the highest rates³.

Active management activities that promote carbon storage include:

- Managing forests over time to produce high-value wood products, such as dimensional lumber, that are more likely to store carbon for longer periods of time than lower-value wood products, such as firewood or paper.
- Harvesting forest products to provide a responsibly managed renewable resource to the market, both globally and locally.
- Favoring forest diversity in all forms as a way of mitigating risk and increasing the likeliness that forestland will continue to be able to sequester and store carbon even in a changing climate.

³ Catanzaro and D'Amato. 2019. [Forest Carbon: An essential natural solution for climate change.](#)

By not exceeding our *Annual Allowable Cut* (see Appendix A), Forest Society reservations will store an increasing amount of carbon each year.

Active forest management on Forest Society lands can provide climate benefits that extend outside of the land we own. Through public timber harvest tours and other outreach, the Forest Society is demonstrating that working forestland can be financially and ecologically sustainable. From 1990 to 2010, New Hampshire lost an average of 5,485 acres of forestland each year⁴. Working forests that generate net income are more likely to remain forests instead of being converted to other land uses. Keeping forests as forests is the most significant decision that a landowner can make in relation to carbon storage and sequestration⁵.

⁴ P. Olofsson et al. 2016. [Time series analysis of satellite data reveals continuous deforestation of New England since the 1980s](#). Environmental Research Letters 11 064002.

⁵ Catanzaro and D'Amato. 2019. Forest Carbon: An essential natural solution for climate change.

Water Resource Protection

All Forest Society lands are managed to protect the quality of surface and sub-surface waters. [Best Management Practices](#)⁶ (BMPs) are employed before, during, and after all activities that that may impact water quality. The goal in all instances is to limit or prevent movement of sediment into water or wetland features.

During a timber harvest, water quality protection is achieved through:

- o Observing state laws;
- o Providing filter strips between watercourses and roads and cutting units;
- o Minimizing the number of stream crossings;
- o Using portable bridges, pole or rock fords, and culverts where crossings are necessary;
- o Limiting road grades to 15% slope or less, where possible;
- o Observing seasonal restrictions;
- o Providing proper ditching and drainage of all truck roads and skid trails during and after use;
- o Seeding and stabilizing disturbed erodible areas upon completion of a disturbance where necessary; and
- o Following applicable trail and/or timber harvesting BMPs.

Any other activity that requires soil movement or that impacts surface or subsurface waters requires careful attention to protect water resources. Examples of such activities include:

- o Access road, landing and bridge construction;
- o Parking lot development;
- o Recreational trail creation and maintenance;
- o Herbicide or pesticide use; and
- o Building removal.

Land Stewards play an important role in monitoring and maintaining structures in place to prevent erosion and water quality degradation. Their duties include spring and fall maintenance of culverts and water bars on roads and trails. Many problems are prevented through this regular maintenance program.

⁶ Best Management Practices for Erosion Control on Harvesting Operations in New Hampshire 2016 (FSWWT)

Recreation

The Forest Society recognizes that visitor use of its Reservations is one of the most direct ways the public experiences its work. Use by the public offers an important opportunity to encourage and elevate interest in the Forest Society. As the organization has acquired more lands with a diverse range of recreational resources, the need for recreation planning and stewardship has increased. The Forest Society is regarded as a leading provider of forest-based recreational opportunities in New Hampshire, which can provide many potential benefits to the organization including better understanding of our work, increased recognition, more members, and increased donations. An increase in use, however, may also compromise the natural resilience of areas, and may be unsustainable. An increasing number and variety of users may also lead to conflicts between different user groups adding a significant strain on limited staff and volunteers to manage these resources and effectively enforce use policies.

Balancing the need for public use and natural resource protection will remain an essential management responsibility far into the future. Each forest management plan contains a recreation section that describes the recreational use and specific considerations for that reservation. Recreation Management Plans are developed for certain reservations on a case-by-case basis, to provide guidance and strategy for how public use of these properties can best serve the Forest Society and address issues associated with that use.

Public Use and Promotion:

All Forest Society Reservations are open to the public. However, public use is not actively promoted in areas that should not receive significant public use due to ecological sensitivity or a lack of visitor infrastructure.

The quality of information available to visitors as online, print, and onsite materials continues to be enhanced while maintaining a cohesive image of the organization.

Standardized language exists that objectively describes levels of trail difficulty on publicly accessible trails. The Forest Society strives to adopt such language for visitors to Forest Society reservations and to use it in our publications as trails are properly assessed.

Leave-No-Trace[®] principles are incorporated into management planning and public outreach for all Forest Society reservations as a means for promoting responsible public use.

Special Use Permits (SUPs) may be granted to individuals and user groups who have approached the Forest Society with appropriate proposals for responsible recreational uses that are not already explicitly allowed under our recreational use guidelines. SUPs are only granted for activities that do not directly conflict with core management objectives.

In suitable cases, Forest Society-owned lands may be used as centers of community based recreation where active involvement within the community by the Forest Society will elevate them as appreciated community resources with dependable local support for stewardship. As an

example, the Merrimack River Outdoor Education and Conservation Area (The Floodplain) in Concord offers a hub of activities to the public within the Capital Region.

A permanent policy for the use of Other Powered Driven Mobility Devices (OPDMDs) that provides detailed guidelines for use of these devices on Forest Society reservations will be adopted.

The Forest Society has adopted specific use policies for our reservations. These are outlined in detail in our *Use Policies for SPNHF Forest Reservations* (see Appendix B).

Resource Protection in Recreation Areas:

The cumulative impacts of recreational activities on soil, vegetation, water, and wildlife are routinely monitored by Forest Society staff and volunteers. If areas are identified as being degraded to an unacceptable level, a variety of techniques may be implemented to remedy these issues. These approaches could include restoration, relocation of recreation infrastructure, or permanent closure of highly degraded areas. Science-based techniques are employed for the restoration of degraded areas.

Systems exist for monitoring and recording the long-term impacts of high-use areas. The Forest Society may adopt such a system for management of high-use recreational areas.

All trails and roads are mapped and incorporated into a geodatabase as a part of the regular forest inventory process on Forest Society reservations.

A subset of Forest Society reservations is subject to unique arrangements (conservation easements, leased land to outside entities, etc.) and may be subject to additional, more restrictive policies than those described herein.

Recreational Use Categories:

Forest Society Reservations are classified into four categories based on their current recreation use. The purpose of this internal classification system is to direct outreach and land management.

Recreation Category 1: Reservation is promoted broadly to members and the general public. Property has developed parking areas, a developed trail system, informational kiosk(s), and signs.

Recreation Category 2: Promotion is primarily to Forest Society members and local users. Trails may or may not be marked and parking is often limited and roadside. Property receives mostly local use.

Recreation Category 3: Public use not actively promoted. Property has poor or no access, typically lacks trails, has ecological or abutter considerations, and/or donor restrictions.

Recreation Category 4: Special use properties, which typically have existing leases or agreements with third parties, special donor restrictions, or other unique circumstances that govern recreational use. These are often treated like Recreation Category 1 reservations.

Boundary Line Maintenance

Clearly marked boundaries help avoid complicated and time-consuming trespass issues. External bounds of Forest Society Reservations are marked with red-painted blazes every 10-15 years. Summer Forestry/Stewardship Technicians are hired with a primary focus to perform annual boundary line maintenance. It is our goal to maintain roughly 50 miles of bounds each year. Surveyors or consulting foresters may be hired to perform this work for boundaries that are complicated or may require more reconnaissance. Professionals may be hired when title work is needed, for reestablishing lines and monuments that have disappeared, and to maintain lines that are far from staff resources.

The Forest Society has 3"x5" metal boundary tags that can be affixed to trees with aluminum nails. These are not placed along the entirety of all boundaries. They are typically placed in areas where they may indicate a corner, at trail crossings, and in areas where the boundary needs to be made more prominent. The general protocol for maintaining boundaries includes marking all boundary lines *except* the following:

- o Boundaries in common with state or federal properties;
- o Boundaries that are roads;
- o Boundaries along permanent water bodies (including streams and rivers); and
- o Boundaries through inaccessible wetlands like bogs, marshes and ponds.

Volunteer Land Stewards are tasked with traversing the entirety of a property's boundary lines, sometimes over several years. They will occasionally send updates to stewardship staff regarding the condition of boundary lines or possible encroachments; however, they are not tasked with maintenance duties. Boundary records are maintained and regularly updated in the Forest Society's LOCATE database and field maps containing boundary notes are stored in the property file cabinets.

Prior to the onset of highly accurate GPS technology, boundary corners were tagged with metal number tags which are also referenced on many property surveys. These tags are still often referenced in Land Steward monitoring reports but are no longer installed or replaced by Forest Society staff. With widespread use of GIS and better handheld GPS technology, property boundary files can now be easily loaded onto cell phones, handheld GPS units, and tablets. In 2015 all property boundaries were submitted to Google and are now visible in Google Maps.

Infrastructure

The Forest Society maintains supporting infrastructure on many of its reservations. Most often this includes property and trail signs, roads and trails, access gates, culverts, bridges, and informational kiosks. A small number of Forest Society reservations host buildings (and other structures) that also require maintenance. It is generally the policy of the Forest Society to remove buildings and other structures which have no program use from land it acquires.

Signs

A property name sign is displayed at a readily visible location on most forest reservations. These signs are a design unique to the Forest Society, and clearly distinguish that the property is owned by the Forest Society. We build and maintain these signs in-house with the help of volunteer Land Stewards. One duty of the Land Stewards is to report on the condition of these signs so that we may replace them as appropriate (about every 5-8 years). These “Y” shaped wooden signs are painted brown with white routed letters, and each has an 18” x 24” color Forest Society logo sign attached to its face. It is our standard practice not to affix any other signs to them. We maintain a database of the official wording of these signs and a geodatabase that provides the location of each sign.

Additional standardized signage includes boundary tags, gate signs, and harvest informational signs. All these contain standard language and logos and contact information.

As recreational use and pressure is increasing on our lands, we will develop standard signs with language to welcome the public and direct their appropriate use of the land.

Gates

Many of our reservation access roads and landings are closed to public vehicular traffic with gates. These gates are installed to block vehicular traffic, but to allow logging equipment access when needed. They are installed to allow pedestrians to enter around them. The Forest Society maintains a cache of these standard gates in-house and we have new gates welded when we deplete our stores. The standard 14-foot gate is designed to be sturdy and attractive, and to be installed and maintained by staff and volunteers without the use of heavy equipment.

Kiosks

Informational kiosks are installed on some reservations with trails (and occasionally parking areas) which we promote for public recreational access. We have a standard kiosk, unique to the Forest Society, designed to be installed without the use of heavy equipment. We also have standard designs for our informational posters placed within these kiosks, that provide trail and

property information, allowed uses, and a trail map. Information displayed on the kiosk is also available to the public on our website.

Roads and Trails

The Reservation Stewardship staff inventories roads and trails on Forest Society reservations, which in 2019 total over 400 miles. We maintain information on all roads and trails in our geodatabase. The geodatabase includes attributes for each road or trail including its use, type, and whether it is a public or private route. The categories of road and trail infrastructure in the geodatabase include:

- o Truck and woods roads;
- o Hiking trails;
- o Skid trails;
- o Snowmobile trails;
- o Landings; and
- o Parking areas.

Roads and landings account for some of our largest capital investments. These are maintained primarily during timber harvests as an expected cost of the project. We also budget annually for planned improvements and emergency repairs.

Harvest roads are built and maintained by qualified contractors following Best Management Practices ([*NH Best Management Practices for Erosion Control on Timber Harvesting Operations 2016*](#)) to an appropriate standard for the frequency of entry and impact of expected use. As storm events and weather patterns continue to become more frequent and extreme, our road and water crossing standards must be improved to accommodate these weather events. Preference during road construction is given to open-bottom culverts and any structures that allow for better wildlife passage and decrease risk of damage resulting from storm events. These types of crossings are often more costly than standard crossings.

Snowmobile trails are administered by trail agreements with local snowmobile clubs. Clubs are required to communicate with the Forest Society prior to commencing any major maintenance or work that would require machinery and oversight by staff. Snowmobile clubs are also eligible to receive Grant-In-Aid state funding for work done on land where the club has an agreement with the private landowner, in this case the Forest Society. These grants are awarded to clubs for trail improvements including bridges, gates, and crossings, as well as grooming and equipment.

Hiking trails account for one of the largest footprints on our reservations. Routine maintenance (including signage) is performed by staff, interns, Land Stewards, and volunteers on group work days, and occasionally with assistance from local trail organizations. Our trails are maintained and built at standards to allow for pedestrian use. We do not build or maintain our hiking trails for bicycle or equestrian access. Our recreational use policy is to allow bicycles and equestrians on trails that we have classified as woods roads. Any other trails designated for bicycle or horse use are usually governed by a trail agreement with a club that assists in maintaining those trails.

It is our goal to assess all the trails on our lands for their universal accessibility so that we may provide meaningful information to the public for their appropriate use and access, using the Universal Trail Assessment Process (UTAP).

Wildlife

Maintaining healthy and diverse habitats for populations of wildlife species is a very important land management objective. Forest Society lands are managed on a landscape level to provide habitat for both game and non-game species of wildlife. Habitat types are identified during the natural resources inventory of a reservation and activities are planned for the continued health of the habitats and their utility to the species they support. The [NH Wildlife Action Plan](#) and the [NH Natural Heritage Bureau](#) database are consulted and addressed in each property's management plan. These references provide important information on unique natural communities and rare, threatened or endangered species. When cases of unique or critical habitat features are located on a reservation, advice and expertise may be sought from professional wildlife biologists. This information directs the Forest Society's decision-making processes for habitat management activities. Forest Society staff also reference recommendations provided in [Good Forestry in the Granite State](#) for enhancing and maintaining wildlife habitat.

Timber Harvest Related Wildlife Enhancement

Wildlife habitat enhancement projects are most often accomplished through timber harvesting. The income derived from timber harvest projects helps offset the cost of habitat enhancements. Examples of actions that staff foresters may incorporate into a wildlife habitat enhancement project may include:

- o Releasing soft mast (e.g. berries) and hard mast (e.g. acorns) producing shrubs and trees;
- o Maintaining or creating snags and cavity trees of varying height and diameter;
- o Maintaining dead and down coarse woody debris;
- o Creating structural diversity from the canopy to the ground;
- o Maintaining or creating forest type diversity;
- o Maintaining and enhancing habitat features such as wildlife corridors, water resources, nesting and denning sites, and softwood cover;
- o Creating temporary openings within the forested landscape large enough to stimulate the production of early successional species of trees, grasses and forbs;
- o Addressing infrastructure impediments to the movement of wildlife, particularly aquatic species (i.e. perched culverts);
- o Installing wood in streams to improve aquatic organism habitat and ecosystem functions; and
- o Incorporating recommendations provided by the NH Wildlife Action Plan.

Standalone Wildlife Enhancement Projects

Where the need to improve or enhance a habitat opportunity cannot be met through scheduled harvesting activities, projects are developed using cost-share monies, local fundraising, grants, or

budgeted funds. The Forest Society uses the expertise of wildlife biologists to establish specific goals and the extent of a habitat management activity.

Management activities planned through these means include but are not limited to restoring eastern cottontail rabbit habitat, creating or enhancing nesting habitat for “at-risk” turtles, reducing invasive species, and mowing to maintain grassy openings and early successional habitat. Leased agricultural fields on Forest Society lands are an opportunity to provide both hay and a unique wildlife habitat. Through lease agreements with farmers certain mowing rotations and techniques can be adjusted and implemented where it is deemed there will be a benefit to grassland nesting birds (on fields greater than 10 acres in size).

Ecological Reserves

In addition to the Forest Society’s commitment to high standards of sustainable forestry management, the organization has also demonstrated a long-standing commitment to the identification, designation, and stewardship of Ecological Reserves (Eco-Reserves) on its reservations. Eco-Reserves are established to protect biological diversity, provide important habitat elements, and help re-colonize disturbed areas with native flora and fauna.

Candidate areas are inventoried and carefully categorized using criteria from the NH Wildlife Action Plan, NH Natural Heritage Natural Community guides, and the Federal and State Rare, Threatened, and Endangered species lists. Many reservations have been formally or informally managed as Eco-Reserves, either as a result of deed or donor restriction, or by internal staff determination. In 2001, the Board of Trustees ratified a formal set of procedures for screening and designating official Forest Society “Natural Areas”. Eco-Reserve designation on Forest Society properties is determined based on the following goals, criteria and process:

Goals

Eco-Reserves are an important component of the Forest Society’s stewardship program. The goal of designating reservations or parts of reservations as Eco-Reserves is to give full recognition and attention to the unique features of those areas. In Eco-Reserves the primary goal and management strategy is to sustain biodiversity and ecological processes; all other uses are secondary. Eco-Reserves are identified and designated to meet one or more of the following management goals:

- o To protect, manage, or restore (if necessary) natural features, in perpetuity (as defined by the Eco-Reserve criteria below);
- o To restore and maintain ecological processes in their own natural cycles;
- o To provide benchmarks for informing the natural resource community as to how forest management can alter species patterns and successional pathways;
- o To provide benchmarks for monitoring the effects of global environmental change, such as atmospheric deposition (acid rain), global climate change, and invasive species;

- o To serve as source areas for plants and animals to re-colonize disturbed areas; and
- o To provide visitors to Forest Society Reservations an experience that reflects the past natural conditions of the New Hampshire landscape.

Eco-Reserve Criteria

One or more of these criteria are sufficient to warrant Eco-Reserve designation:

- o *Rare Plants and Animals* as defined by the NH Fish and Game Department and the NH Natural Heritage Bureau, and including federal and state-listed threatened and endangered species and species of special concern.
- o *Exemplary Natural Communities* as defined by the NH Natural Heritage Bureau, including all rare natural communities (G1-G3 and S1-S3 ranking) and high quality occurrences of common communities;⁷
- o *Important Wildlife Habitats* as defined by the New Hampshire Wildlife Action Plan;⁸
- o *Uncommon Geologic or Physical Features*, including areas of:
 - high land form or topographic diversity
 - high elevation (over 2000 feet)
 - uncommon bedrock (calc-silicate, carbonate-bearing, mafic, low-grade pelitic)
 - uncommon surficial deposits (eskers, alluvial outwash plains)
 - other uncommon features (ring dikes, gorges);
- o *Exemplary Aquatic Communities*, including:
 - high quality examples of lakes, ponds, streams, and rivers
 - large, unfragmented wetland complexes;
- o *Ecological Linkages*, areas that provide connectivity to another Eco-Reserve on Forest Society land or on adjacent lands; and
- o *Deed or Donor Restricted Areas*, where forest management restrictions are specified in the deed or by the donor.

Classification⁹

In Eco-Reserves, the ecological health of the forest is the highest consideration. However, because Eco-Reserve status does not necessarily preclude management activity, each Eco-Reserve will be classified into one of two classes based on the potential need for restoration and ecosystem-based management:

⁷ See Sperduto, D.D. and William F. Nichols. 2004. [Natural Communities of New Hampshire](#). NH Natural Heritage Bureau, Concord, NH. Pub. UNH Cooperative Extension, Durham, NH. (also online at https://extension.unh.edu/resources/files/Resource000425_Rep447.pdf)

⁸ Maps of Highest Ranked Wildlife Habitat can be found at <https://www.wildlife.state.nh.us/maps/wap.html>. For a complete draft of the Wildlife Action plan, go online at <https://www.wildlife.state.nh.us/wildlife/wap.html>.

⁹ Based on Category I and Category IV IUCN Protected Area Management Categories. See <https://www.iucn.org/theme/protected-areas/about/protected-area-categories>.

Class 1 Eco-Reserves (Strict Nature Reserve): vegetative management activities are strictly prohibited except in emergency situations (e.g. forest fires that threaten nearby habitation or invasive pest outbreaks). In these instances, the health and resilience of the ecosystem is presumed adequate to warrant no restoration management, and the land is left to develop into old-growth forest on its own. These Eco-Reserves remain available primarily for providing opportunities for continued ecological research and limited recreation.

Class 2 Eco-Reserves (Habitat/Species Management Areas): active intervention and vegetation management are allowed only in order to ensure the maintenance of habitats, meet the requirements of specific species, and/or maintain or enhance other priority ecological values. In this case, the ecosystem needs some form of active restoration or maintenance (e.g. prescribed fire, invasive species mitigation) in order to return to its natural state.

Process for Designation

1. As properties are inventoried and management plans are written, staff discusses areas for Eco-Reserve designation on a property specific basis. Staff then presents a list of properties with potential for Eco-Reserves designation to the Reservation Stewardship Committee.
2. From this proposed list, the Reservation Stewardship Committee presents recommendations to Forest Society Board of Trustees for acceptance of the Eco-Reserve designation for specific properties.
3. Eco-Reserve status is preserved in perpetuity, excepting reversal or alteration (i.e. changing Eco-Reserve status from Class 1 to Class 2) which, when recommended by the Reservation Stewardship Committee, requires a simple majority vote by the Board of Trustees.

A list of Board approved ecological reserves including their corresponding reservation, acres, and town is in *Appendix C*.

Agriculture

When the Forest Society protect farmlands it is usually through conservation easements, however, we occasionally do acquire forest reservations that have an existing agricultural use. These are typically hay fields or rotating crops, and occasionally pastures for cows or horses. These agricultural uses are controlled through a special use permit or agricultural lease with the farmer.

Fields

We recognize the importance of open spaces that serve as wildlife habitat, provide scenic beauty, contribute to a community's sense of place, and provide important local agricultural products. Farming has been disappearing from our NH landscape for decades and we recognize that there is an increasingly important role for local farms in NH.

It is our intention to keep existing agricultural crop fields in use whenever possible. To accomplish this goal we enter into agricultural lease agreements with farmers for these fields. These leases describe our organizational goals, expectations to follow best management practices, and requirements to keep the fields open and the soil productive.

Our existing wildlife habitat fields are on a delay-mowing cycle and are maintained as open spaces for habitat and scenic values. Our priority for managing these fields is focused on wildlife habitat and not on pasturing or crops in these spaces.

Maple Sugaring

We have a handful of timber stands that are tapped for maple sugaring. Those stands are under lease agreements with responsible sugar makers and are inspected periodically by staff foresters. We do harvest those maple stands occasionally and work with the lessee to accomplish goals such as improving the health and vigor of the sugarbush and regenerating new maple seedlings.

Our sugaring lease agreements include a fee for the use of these sugarbushes. These fees are typically a per-tap charge and include a minimum flat fee for small operations. The lease outlines our expectations of the lessee, including following best management practices. We do not tap sugar maple stands that have not been tapped in the past.

The Rocks Christmas Tree Farm

Management of The Rocks Christmas tree farm is controlled through an individual tree farm plan. The Rocks was gifted to the Forest Society in 1978 with a requirement that it always grow a crop. Since 1989 the Forest Society has grown Christmas trees as that crop, and has about 60,000 trees, including those grown at Kribstock Fowler Preserve.

Other Agricultural Uses

On occasion, we acquire lands with or receive requests for other agricultural uses. These may include beehives, blueberry fields, Christmas trees, community-supported agriculture, or other agricultural practices. Oversight and management of these practices can be time-consuming and costly to our staff and we rarely approve new or more intensive agricultural requests.

Invasive Plant and Pest Management

Invasive Exotic Plant Management

The Forest Society has developed a protocol for responding to invasive plant communities encroaching on Reservations. The Forest Society combines prevention, detection, control, monitoring and restoration as means to limit the occurrence and spread of invasive exotic plants. The staff utilizes a wide range of control responses. Natural resource professionals agree that the best way to control invasive species is to employ early detection and rapid response methods. Once an invasive species population has become established the cost to control that species increases with time. The Forest Society approaches any treatment program realistically, with consideration given to the outcomes, expenses, and potential impacts associated with treatment alternatives.

The Forest Society's protocol to address invasive species on reservations is:

1. Locate, identify, and map, to the extent possible, the populations of invasive plants using accepted inventory procedures;
2. Evaluate the risk that the invasive plants pose to the site's natural resources and determine if this is a high priority area for treatment;
3. Evaluate the site for the feasibility of eradicating or controlling the invasives, or at least tipping the balance back to natives;
4. Consider the full range of impacts any treatment might have;
5. Treat the site depending on the severity of the invasive plant problem:
 - a. Utilize volunteer Land Stewards where the problem is small enough to obtain control of the species using mechanical control methods;
 - b. Hire consultants to mechanically treat and/or apply herbicide where the problem is too large for a team of volunteers, but small enough to obtain control of the species; and
 - c. Consider limiting or excluding timber management in areas where the problem is too large to obtain control of the species and cutting trees would severely aggravate the problem.
6. Regularly monitor the site following treatment to determine if actions taken were sufficient to meet the predetermined goal of the treatment. Identify whether follow up treatment is necessary. Document these visits to determine what works and what does not.

Forest Pests

The Forest Society's protocol for treatment options of invasive or native forest pests on its Reservations is similar to the protocol for invasive plants. Forest pests come in the form of insects or diseases. Integrated Pest Management (IPM) strategies provide a framework for the prevention and treatment of forest pests. Early detection and treatment is a fundamental

component within this IPM strategy to limit widespread damage in our forested ecosystem. Often small infestations that have a low risk of spread are left alone, as disease has its place in the forested ecosystem. However, in cases where pests can spread rapidly and pose a high risk, the chosen treatment may be intensive and costly. A case example is the eradication program applied to control the exotic Asian Longhorned Beetle (ALB) in the Worcester, MA outbreak. Full-scale host removal within the pest infestation area is often the best solution to prevent the spread of very damaging pests. Eradication efforts are in many cases coordinated by state and federal agencies. The use of pesticides and insecticides may be warranted if the risk is large.

Pesticide Use

The decision to use pesticides is made after a thorough examination of the benefits, risks, and costs of all available treatment options. Non-chemical treatments such as mechanical or biological controls are considered first. Staff foresters contemplate the use of pesticides in these situations:

- When rapid response is critical to the success of control of invasive species, especially in cases of new contained invasions, and where these invasives threaten rare native plants;
- To control noxious vegetation for human safety reasons;
- Before or after a timber harvest or habitat enhancement project, as a tool to favor desirable native species;
- As part of Christmas tree or other agricultural crop management;
- To inoculate a specimen tree or otherwise important individual tree from an invasive pest or pathogen; and
- As part of a larger eradication program, typically managed by state and federal agencies, to stop the spread of highly destructive forest pests.

Third Party Certifications

Third-Party Forest Certification

All the Forest Society's working forests are certified Tree Farms through the [American Tree Farm System](#) (ATFS). The Tree Farm program provides third party certification through the Program for the Endorsement of Forest Certification Systems (PEFC). PEFC is an independent, non-profit, non-governmental organization, founded in 1999, which promotes sustainably managed forests through independent third-party certification. PEFC provides an assurance mechanism to purchasers of wood and paper products that they are promoting the sustainable management of forests.

Land Trust Alliance Accreditation

Additionally, the Forest Society became [Land Trust Alliance \(LTA\) accredited](#) in 2013. This third-party accreditation program conducts an extensive review of our policies and programs every five years to ensure that we meet the LTA standards for best practices as a land trust, that we uphold the public trust, and that our conservation efforts are permanent. Unlike the Tree Farm certification, LTA makes no assessment of our forest management practices.

LTA requires us to have management plans for all our lands, monitor each property annually, and follow up on violations or encroachments. Since becoming LTA accredited, we have developed plans for all of our lands. These plans meet LTA standards, and we have a program in place to develop LTA management plans for new properties within a defined timeframe of acquisition. We also have a program for monitoring each of our properties annually either by staff, Land Steward volunteers, or aerial monitoring.

Volunteer Land Stewards

Since 1994, the Forest Society has utilized trained volunteers, Land Stewards, to assist in meeting stewardship needs on its reservations. Overseen by the Land Steward Coordinator (LSC), Land Stewards adopt a Reservation and become the “eyes and ears of the Forest Society” on that property. Land Steward volunteers are required to complete a comprehensive, multi-day training program (usually offered annually) taught by Forest Society staff, covering the history and mission of the Forest Society, sustainable timber harvesting and the wood products industry, recreation management, and infrastructure maintenance. Stewards then adopt a specific reservation and are at liberty to conduct a wide variety of stewardship tasks including boundary monitoring, trail maintenance, infrastructure maintenance (gates, signs, kiosks, parking areas), monitoring of recreational activities, maintenance of culverts and waterbars, and general property surveillance.

Land Stewards help identify stewardship needs and act as liaisons for the Forest Society in their local communities. The Forest Society recommends that Land Stewards visit their reservation quarterly and report their monitoring and observations via an online form that populates the Lands database and generates an automatic e-mail to the Reservations Stewardship Department. This process allows staff to address any issues swiftly and also fulfills LTA requirements for annual monitoring of fee-owned lands. The Forest Society’s goal is to have Land Steward coverage for each of its reservations.

In addition to monitoring reservations, Land Stewards also provide a valuable volunteer labor force on reservations. Staff, and sometimes the Land Stewards themselves, organize group workdays to perform many tasks ranging from cleaning up trash to maintaining view cuts, building and maintaining trails, demolishing buildings, installing gates and signs, and helping with special projects for research, planting, and tackling invasive plants. Land stewards are an invaluable resource to the Lands team and have become integral members of the Forest Society community.

Education, Outreach, and Research

The Forest Society believes it is important to use our lands as a tool to educate people about natural resources and to demonstrate sustainable forest management. Formal public educational programs are offered year round at The Rocks in Bethlehem and the Conservation Center in Concord. Field trips and workshops also occur throughout the year on many Forest Society reservations. Forest reservations are ideal settings for educational programs on a range of natural resource topics, enhanced by the staff's intricate knowledge about the past, present, and future management of these lands.

One primary component of the Forest Society's educational goals is to provide timber harvest tours of active forestry operations. These tours are led by staff foresters and educators and are often in partnership with the consulting forester and UNH Cooperative Extension County foresters. These tours are targeted toward educating the general public and small woodlot owners about sustainable harvesting. They are also an opportunity to provide training to non-forestry staff and Board and Committee members as well as other land trusts' staff. Smaller harvest tours may be provided to town officials, Forest Society members, or interested citizens as needed.

Harvest tours are designed to provide information about all aspects of implementing a harvest on a property and include information about inventory, planning, roles of the consulting forester and logger, timber harvesting laws, best management practices, landowner objectives, and wildlife habitat management.

In addition to harvest tours, the Forest Society displays a standard "Timber Harvest" sign at each timber harvest. This sign is placed in a prominent roadside location and provides a basic message about sustainable harvesting, while welcoming questions. The Forest Society also provides a suite of more detailed educational signs that may be placed in harvest areas that are heavily visited by the public. These signs provide visitors with even more detailed information about harvest prescriptions, habitat features, or regeneration goals. At the close of a harvest they provide information about how the forest will change over the next decade.

The Forest Society welcomes and encourages research projects that do not significantly harm natural resources or ecosystem processes. Reservations can provide unique and ideal sites for research due to the extensive database of information collected through staff forestry inventories. This information allows staff foresters to work with researchers to locate appropriate locations for projects. Reservation Stewardship staff considers requests for investigations on reservations of natural resource characteristics and processes, by qualified professors, students and researchers. Approved research projects are typically undertaken with the understanding that other stewardship activities (such as timber harvesting) may occur on the property during the duration of the project.

Research projects are controlled by a Memorandum of Understanding between The Forest Society and the project manager (researcher). The MOU describes the type of research, location, and expected timeline for the work.