

DESIRED FUTURE CONDITION: LAND ETHIC

Maintain and enhance an ethic of respect for the land, sustainable use, and exemplary management

OVERVIEW

Vermont ANR strives ‘to draw from and build upon Vermonters’ shared ethic of responsibility for our natural environment, an ethic that encompasses a sense of place, community and quality of life, and understanding that we are an integral part of the environment and that we must all be responsible stewards for this and future generations.’ As a part of ANR, the Division has made this ethic a foundation of our outreach work by promoting an appreciation of the immense value of forests and the civic responsibility we all have in stewarding them. A shared understanding of this ethic among forest landowners, practitioners, the public, and the government is critical to maintaining and enhancing the contributions of Vermont’s forest ecosystems.

A land ethic is appreciating the value of the land, and understanding and accepting responsibility for our impacts on the finite, non-renewable resources the land provides. Vermont has been fortunate to have an engaged public and active landowners and land managers who recognize their contribution to the future of our shared forest resource. There has long been a tradition of passing property on to heirs and to future Vermonters, and of making informed land management decisions.

There are, however, new threats to our deep-rooted land ethic. Concerns about intergenerational transfer of land and the economic viability of the land ethic exist. Changes in how Vermonters use and value forests are leading to spirited debates about the future of Vermont’s forests, and could further fracture an ethic built on consensus. Fragmentation and parcelization of forest land, protection of wildlife and their habitat, forest-based recreation activities, timber harvesting practices, water quality protection, taxation of forest land, the status of forest health, acquisition and management of public land, and the protection of private property rights are all familiar issues. There also exists an under-appreciation of the forest products economy and urban forests in Vermont.

To foster a responsible land ethic, the Division must know who has an impact on the land and in what ways: who owns, lives in, and uses Vermont’s forests today and into the future? We need to understand the programs, both public and private, developed to encourage public awareness, involvement, and stewardship. Measuring how effective our collective efforts are towards cultivating a strong land ethic will allow us to evaluate and adapt.

Education is vital to maintaining this land ethic. Educational opportunities enable the array of forest landowners, industry professionals, and users to understand and build respect for Vermont's forests. Since its founding, the Division has been a leader in demonstrating forest management and sustainable forest practices on public land and has provided technical assistance and forestry knowledge to generations of Vermonters. To address the trends that threaten Vermonters' relationship to the land and the plants and animals that grow upon it, the Division must enhance our ability to work with partners to cultivate a strong land ethic through traditional and innovation methods of education and outreach, and continue to set the standard for forest management that respects the land and its intrinsic value, and recognizes all appropriate uses.

ASSESSMENT

ASSESSMENT: FOREST OWNERSHIP

PRIVATE FOREST LANDOWNERS

Seventy-nine percent (3.56 million acres) of Vermont's forests are privately-owned⁴⁵. From 1983 to 2008, the number of forest landowners owning 1-9 acres more than doubled, resulting in increased forested land parcelization⁴⁶. Forested land parcelization presents a significant challenge to Vermont's natural resource managers who strive to accommodate individual landowner's management objectives and values while trying to manage beyond property boundaries to maintain the overall integrity of the region's entire forest ecosystem.

The private ownership of land in our society is often associated with personal wealth rather than with responsibility or opportunity for the provision of services or products. Many of our tax and local service policies fail to value natural landscapes. They treat forest woodlot management activities as a hobby, providing clear disincentives to maintaining large blocks of private forest land for timber, watershed, or habitat values. This is especially true near developing areas, where water quality, outdoor recreation, and habitat linkages are needed the most. Vermont is fortunate to have the UVA tax program that allows managed forest land to be taxed at a rate comparable to the value of its use rather than the value if it were developed. Even with UVA, parcelization and fragmentation are taking their toll on the integrity of forests that requires connected forest land to facilitate mobility of all species and support the ecosystem health of Vermont forests.

⁴⁵ USDA Forest Service Forest Inventory and Analysis, Northern Research Station, 2013.

⁴⁶ Parcelization is defined as the condition in which large tracts of land are divided into smaller tracts with multiple owners.

The forest products economy is primarily dependent on private forest land for its wood supply. An always changing and aging landowner population and increasing parcelization of forested lands are current issues that affect wood availability. As forested parcels are subdivided, the resulting smaller parcels make it more difficult to harvest timber on a parcel by parcel basis profitably. As the landowner population changes, there is an increasing number of owners who are not aware of the role that timber harvesting plays in forest stewardship.

There are approximately 87,000 private forest landowners in Vermont. More than 40,000 of the family or individual forest owners own more than 10 acres, but an even higher number own less than 10 acres. Even among the larger ownership category, many family forest ownerships⁴⁷ hold less than 50 acres of forest land⁴⁸. When forest lands are less than 50 acres, landowners’ land management objectives are limited because of the small size (Chart 8).

Families and individuals are the primary owners of Vermont’s forests, and the demographics of those owners are changing in important ways: the number of landowners is increasing, the size of the parcels is decreasing, and the age of owners is increasing, all with significant implications for the size and ultimate integrity of our forests.

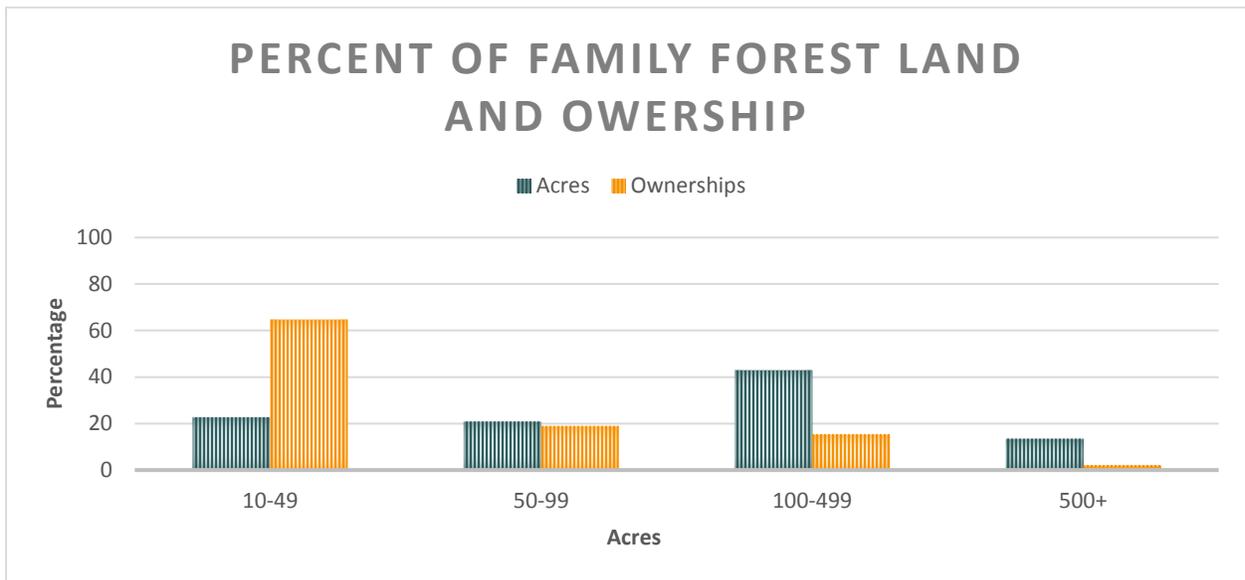


Chart 8: Family Forest Land and Ownership with 10+ acres by size of forest holdings in Vermont.

⁴⁷ Family forest owners is defined as Families, individuals, trusts, estates, family partnerships, and other unincorporated groups of individuals that own forest land. This group is a subset of nonindustrial private forest owners. USDA Forest Service, www.fia.fs.fed.us/nwos/.

⁴⁸ USDA Forest Service, Forest Inventory, and Analysis National Program, 201. 4National Woodland Owner Survey. www.fia.fs.fed.us/nwos/.

2014 ENHANCED WOODLAND OWNER SURVEY

A survey of private forest land ownership in Vermont was conducted in 2014 by the Forestry Division and the USDA Forest Service’s Family Forest Research Center, National Woodland Owner Survey. These data were added to information collected as part of the 2011-2013 National Woodland Owners Survey.

The 2014 survey addressed questions related to:

- How many private woodland ownerships are there?
- Why do these ownerships own wooded land?
- What have they done with their woodland in the past?
- What do they plan to do with their woodland in the future?

The report found that over 85% of woodland owners in Vermont have performed one or more management or enhancement activities on their land in the past five years, and plan to continue management in the next five years. These include removing trees for personal use-- mostly firewood -- harvesting timber for sale, and trail construction or maintenance. In the future, these landowners are likely or very likely to remove trees for personal use, maintain or improve wildlife habitat, and perform trail construction or maintenance (Chart 9). The survey also highlighted motivations for ownership of forested land with the most common reason being beauty followed by protecting wildlife and nature, and privacy (Chart 10).

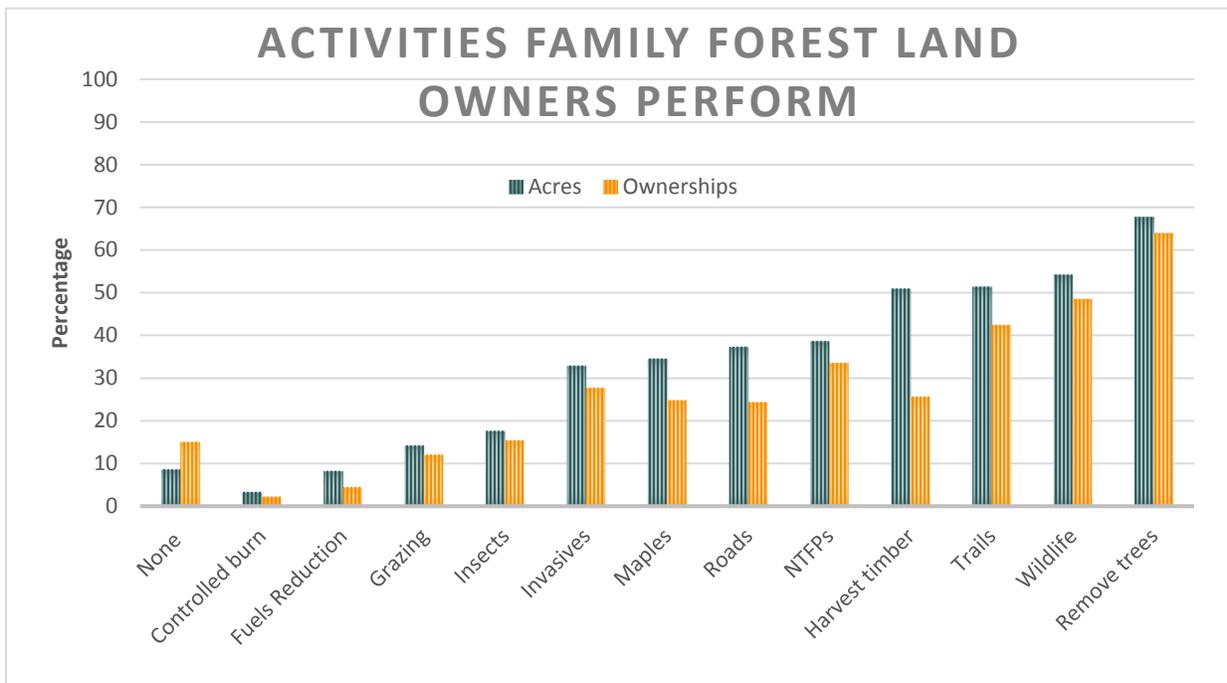


Chart 9: Family Forested Landowners Activities.

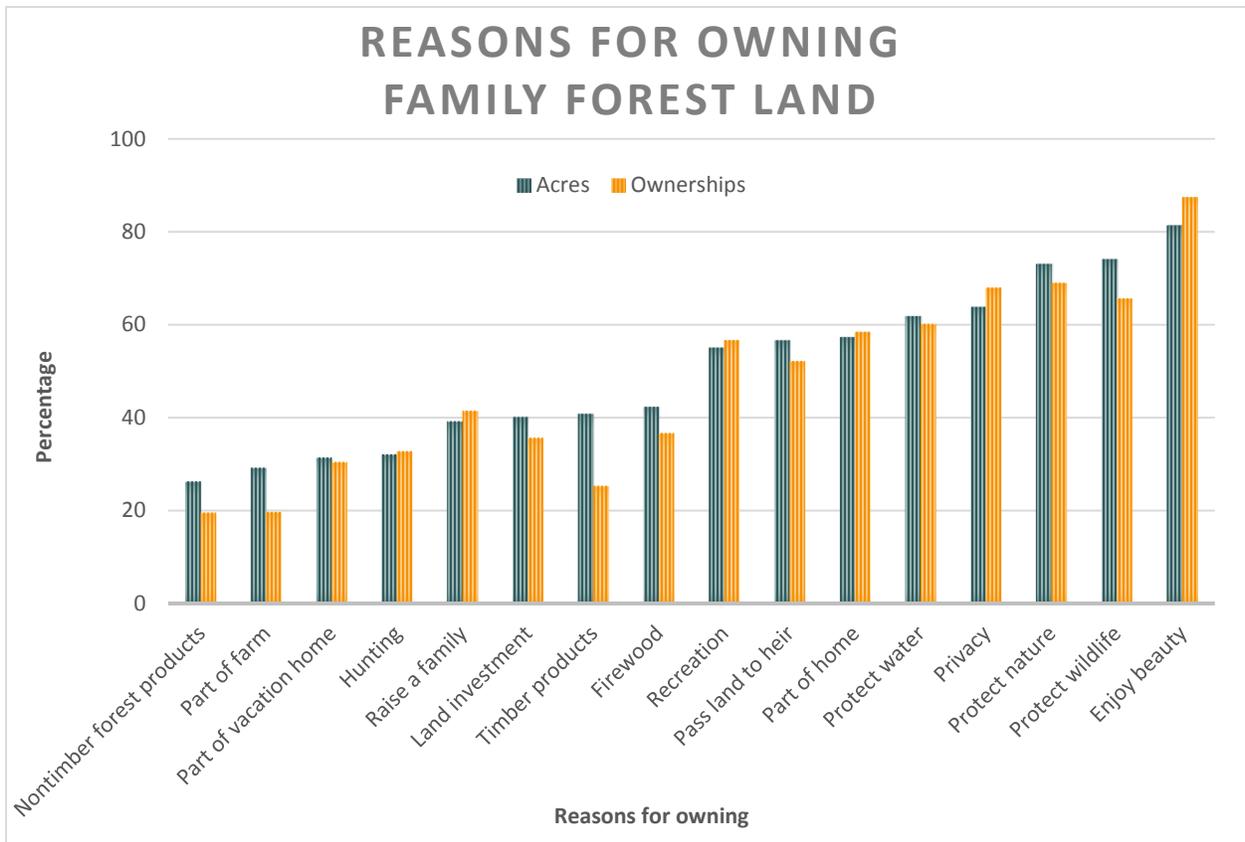


Chart 10: Reasons for Families Owning Forested Land.

ASSESSMENT: STATE LANDS MANAGEMENT

ANR owns approximately 350,000 acres of land in 200 towns with parcels ranging in size from several acres to several thousand acres. These lands are managed for a variety of purposes including developed and non-developed recreation, wildlife habitat, timber harvest and management, water quality enhancement and protection, and flood resiliency. In addition, ANR has acquired conservation easements on approximately 55,000 acres of privately owned forest land and public access easements on nearly 84,000 acres.

Land owned by FPR and VFW are managed under the guidance of long-range management plans. These comprehensive stewardship programs are based on multi-resource inventory data, including an assessment of natural communities, wildlife habitat, timber, recreation, and historic resources, and developed by local ANR stewardship teams representing broad expertise and resource goals. Lands with natural resource easements are managed under similar plans.

SKI LEASES

FPR has a long history and partnership with Vermont ski areas. Seven major Vermont ski areas currently utilize portions of state land for ski area development under a long-term lease. In the mid-1900s, then FPR Commissioner Perry Merrill saw the opportunity to complement and support the Vermont State Park system by allowing the private sector to help meet the growing demand for winter recreational opportunities while encouraging the use of public lands. The leaseholds include a total of roughly 8,500 acres of public land with Jay Peak Resort, Burke Mt. Ski Area, Smugglers' Notch Ski Area, Stowe Mt. Resort, Killington Ski Area, Okemo Mt. Resort, and Bromley Mt. Ski Area.

In regards to specific terms and conditions, the ski leases vary slightly from area to area, but all seven prohibit the development of residential units within the lease area, require FPR approval for all planned improvements on state land, and provide a modified level of continued public access within the lease area. FPR works in close collaboration with its ski area partners in reviewing and approving proposed development plans within the lease area and in allowing for appropriate and compatible public use and access to the lease area.

ASSESSMENT: FEDERAL LANDS MANAGEMENT

GREEN MOUNTAIN AND FINGER LAKES NATIONAL FOREST

The Green Mountain and Finger Lakes National Forest (GMNF) encompasses more than 400,000 acres in southwestern and central Vermont, forming the largest contiguous public land area in the state. Located within a day's drive of more than 70 million people, and characterized by striking scenery that combines rugged mountain peaks with quintessential Vermont villages, the forest is an attraction for many visitors seeking a variety of recreation opportunities. The forest includes three nationally designated trails: the Appalachian National Scenic Trail, the Long Trail, and the Robert Frost National Recreation Trail. GMNF also includes three alpine ski areas, seven Nordic ski areas, and approximately 900 miles of multiple-use trails for hiking, cross-country skiing, snowmobiling, horseback riding, and bicycling.

Developed in 2006, the Green Mountain Land and Resource Management Plan (Forest Plan) describes how the USDA Forest Service will continue to manage the forest for multiple-use purposes and will strive to emphasize uses and interests seeking to provide benefits for people today, with an eye towards coming trends to maintain options and opportunities for future generations⁴⁹. Activities that are guided by the 2006 Forest Plan have impacts on both state and private forest lands within the region. The traditional Forest Service role of managing the GMNF for multiple-use and purposes complements many of the stewardship goals created by FPR for state and private forest

⁴⁹ Green Mountain National Forest Land and Resource Management Plan, 2006

land in Vermont. FPR staff has worked closely with the GMNF staff throughout the development of the plan and will continue to collaborate in plan implementation.

SILVIO O. CONTE NATIONAL FISH AND WILDLIFE REFUGE

In 1991, the Silvio O. Conte National Fish and Wildlife Refuge (the Refuge) was established to conserve, protect, and enhance the abundance and diversity of native plant, fish, and wildlife species and the ecosystems on which they depend throughout the 7.2 million acre Connecticut River watershed. Currently, the Refuge comprises over 36,000 acres within parts of the four watershed states of New Hampshire, Vermont, Massachusetts, and Connecticut. Refuge land in Vermont includes the Nulhegan Basin Division and the Putney Mountain Unit.

The Refuge is an integral part of a larger and unique network of conserved land in the area. In 1997, Champion International Corporation announced that it would sell approximately 132,000 acres of land in Essex County. A nonprofit conservation organization, The Conservation Fund, successfully bid on the property and subsequently passed it along to agencies and a timber company. Because the Nulhegan Basin was identified as a Special Focus Area for the Refuge, the US Fish and Wildlife Service (FWS) was offered ownership of 26,000 acres within the Basin. The purchase of this area by the FWS in 1999 marked the establishment of the Nulhegan Basin Division of the Refuge. ANR acquired about 22,000 acres adjacent to the Basin to form the West Mountain Wildlife Management Area. Essex Timber Company purchased the remaining 84,000 acres that surround the federal and state properties; this land and is subject to protective easements that restrict future development and encourage sound and sustainable forestry practices. The combination of ownerships and easements on the 132,000 acres will provide long-term conservation of important wetland and upland wildlife habitats as well as preserve traditional uses of the land. FPR has worked as a partner with FWS on the Refuge and is currently an active participant in the development of the soon to be released Comprehensive Conservation Plan for the Refuge.

MARSH-BILLINGS-ROCKEFELLER NATIONAL HISTORICAL PARK

In 1992, the Marsh-Billings-Rockefeller National Historical Park was created by an act of Congress after being donated by Laurance and Mary Rockefeller. The National Park Service administers it as a national historical park. The Rockefeller estate and 650 acres of forest land known as the Mount Tom Forest was the boyhood home of George Perkins Marsh, one of America's first conservationists, and later home of Fredrick Billings, conservationist, railroad builder, philanthropist, and pioneer in reforestation and scientific farm management. Since its creation, the Park's educational projects and activities have enhanced and enriched public discussion about land and cultural stewardship in the region. The Park hosts an annual Forest Festival weekend that has become a premier event in the state to highlight the value of Vermont's forests to important non-traditional audiences, including second homeowners and out-of-state forest recreational users. The forest management plan prepared for the Mount Tom

Forest and implemented by Park staff has demonstrated how commonly held public values are enhanced by forest stewardship.

DEPARTMENT OF DEFENSE-VERMONT GUARD-CAMP JOHNSON

Despite its relatively small size of 660 acres, Camp Johnson in Colchester features a state significant rare forest habitat that it manages in cooperation with several partners. The 175 acres of pitch pine forest sandplain habitat supports 15 state-listed rare plants as well as many insect species that depend on this specific natural community. Camp Johnson has partnered with local agencies, including ANR, to help its natural resources conservation program succeed. ANR has provided staff members to assist the Army in developing a pitch pine nursery seed stock program; the University of Vermont raised the seedlings until they were ready for replanting. The VFW also provides Camp Johnson with assistance from its botanist and St. Michael's College assists with pitch pine research.

Camp Johnson staff use forest management as a primary natural resource tool to preserve Vermont's largest remaining area of pitch pine forest sandplain. This includes reviving the installation's prescribed burn program, continuing invasive species management, wildlife protection and habitat enhancement, and adding logging operations that allow tops of logged trees to dry out to provide more debris fuel.

DEPARTMENT OF DEFENSE-ETHAN ALLEN FIRING RANGE

The Ethan Allen Firing Range is an 11,000-acre government facility in Jericho. The site of Vermont Mountain Warfare School, the facility trains soldiers in mountaineering and acts as a complete weapon testing area. The Army trains upwards of 20,000 troops there every year. The range is one of the premier cross-country ski and biathlon facilities in North America and one of three internationally licensed biathlon courses in the United States.

Forest Management plays a crucial role in sustaining the long-term viability and carrying capacity of training lands on the firing range. Pro-active management maintains and promotes a healthy and diverse forest ecosystem. Selective thinning in appropriate areas helps to keep healthy and vigorous stands of both hardwood and softwood species.

The Vermont Army National Guard is also developing a Children's Nature Trail. This trail will be in a remote, non-shooting part of the Ethan Allen Firing Range, and its use would be exclusively by school groups with grades 1-2 and 5-6.

ASSESSMENT: MUNICIPAL FORESTS AND TRIBAL LANDS

There are over 67,000 acres of forest land owned by 168 municipalities, all open to the public to enjoy. The values of town forests are diverse, from watershed protection, wildlife habitat and forests products, to public recreation,

outdoor classrooms, and neighbor gathering places. Town forests in Vermont contribute to the regional landscape by keeping productive forest lands in timber management, protecting physical and biological diversity, and maintaining connectivity between larger patches of forest. As time allows, FPR's foresters are available to provide advice to municipalities on a variety of town forests topics and engage in advancing stewardship on many.

In 2015, Vermont celebrated the centennial anniversary of the Municipal Forest Act, the enabling legislation for creating town forests, with events throughout the year and new resources to support Vermonters working for town forests. Throughout the year-long celebration, local forest stewards shared the pressures to manage the forest for multiple uses with a high-demand from recreational users and the need for improved technical resources to assist in local planning and management. To address this need, in 2015 FPR partnered with UVM Extension and Vermont's Town Forest Collaborative to submit, and successfully receive, a grant to further identify needs and gaps with town forest planning and management, and to engage ten communities in developing a vision and plan for the use of their town forests. The results of the charrette style planning process will be assessed and adapted with new planning tools and lessons transferred across the state.

TRIBAL LANDS

The Nulhegan Abenaki own a 65-acre parcel in Barton, under a conservation easement with the Vermont Land Trust (VLT). The tribe worked with the VLT and the Sierra Club to secure the forestland with the intention of using it for economic, educational, and cultural resource goals. They will also use the forest to educate tribal and non-tribal children in traditional land stewardship such as sugaring and finding and using medicinal plants. There is currently a small sugaring operation and a recreational trail on the land. The tribe plans to expand sugaring and grow produce using small-scale traditional Abenaki agricultural methods in existing clearings. The forest will provide other economic benefits such as firewood for those in need, and hunting opportunities.

ASSESSMENT: PUBLIC AWARENESS AND TECHNICAL ASSISTANCE

Vermont has a strong network of partners that promote public awareness and offer technical assistance. The Division's programs contribute to this network by aiding in private and municipal land management, conservation education, tree diagnostic services, forest health monitoring, urban and community forestry, fire protection, wood utilization, and watershed forestry. The Division provides programs, educational experiences, and workshops in forests, parks, and classrooms across the state. These programs engage school groups and junior rangers about values of forests, provide the public with opportunities to learn about resource issues, and share information with landowners, municipalities, and resource managers. One-on-one assistance, for example meeting with private landowners on their land, is also an essential tool for promoting respect for the land, sustainable use, and exemplary management.

CONSERVATION EDUCATION

Project Learning Tree, a keystone of our conservation education program, is an environmental education curriculum developed by the American Forest Foundation. VT's Project Learning Tree achieves its mission by training educators to integrate the teaching of complex environmental issues into the curriculum in all grades and subject areas. Also, FPR is a member of Vermont SWEEP (State-Wide Environmental Education Programs), a coalition of dozens of organizations and individuals promoting environmental education in the state.

PRIVATE LANDS

The core of Vermont's forest stewardship efforts for the past five decades has been the Private Lands Stewardship Program delivered by the county foresters. Arguably the best-known state employees in our rural counties, the county forester has always been the point of contact for cost-share information, UVA tax advice/application, and assistance on a variety of forestry issues for landowners and consulting foresters. The county forester is conveniently located within the region and is available for landowner workshops and field visits, field days, and municipal events. They coordinate with other state departments and non-government partners to provide landowner outreach on a variety of management and conservation topics. Nearly all county foresters have served as Tree Farm inspectors, and all have some involvement in municipal forestry. The expanding responsibilities of Vermont's UVA program are limiting county forester's time for outreach, but they remain the principle support for Vermont's private and municipal forests, and internal efforts are underway to improve the UVA process to allow more field time for county foresters. To assist the county foresters and partners in transferring an understanding of the value and process of timber harvesting, FPR is currently working on developing an outreach campaign based on the newly developed harvesting guidelines to give landowners confidence when considering harvesting timber, with the end goal of supporting them to "Cut with Confidence." Outreach material is currently available at VTCutWithConfidence.com.

The most useful tools for outreach are technical service providers who can give landowners advice, training, and referrals. Outside of state and federal personnel, consulting foresters – licensed private professionals who earn their living managing forest land for woodland owners - offer a full range of forest and wildlife management services, including inventory, planning, design, and oversight of forest management operations. They frequently represent landowners in timber sales by selecting and marketing timber and other forest products, and overseeing harvests and restoration. They charge for their services, either on a per diem basis or as a percentage of the gross income received from the wood product sales that they oversee.

URBAN FORESTS

Our state Urban and Community Forestry Program (UCF), delivered in partnership with University of Vermont Extension, has a strong outreach component using such tools as social media, e-newsletters, and online learning. Since much of the planting and care of municipal trees and forests falls on the shoulders of community volunteers, the program has instituted a volunteer training program called Stewardship of the Urban Landscape (SOUL). The program's goal is to educate citizens about the importance of trees and their care, and build a cadre of tree steward leaders in the state who bring to their community the skills needed to manage their urban forest. In addition to SOUL, the program has launched two new training opportunities in 2016: Backyard Woods, and Teens Reaching Youth (TRY): Trees and Forests. The Backyard Woods program is an online course targeted at teaching homeowners with 25 acres or less of forest land about their woods and how they can be caretakers of it. TRY is an environmental leadership opportunity for youth in grades 7-12. It is a teen-led environmental education program with an embedded service-learning component designed to teach environmental literacy and responsibility to younger youth.

In addition to outreach efforts, UCF has enhanced their technical assistance to municipalities by supporting tree inventories (including developing a new web-based inventory tool), management plan development, and professional tree care training. As of 2016, the program has conducted inventories in 27 communities and helped to develop management plans and training in 20. Also, the program offers a grant program, "Caring for Canopy," that provides funds to help communities move their local urban forestry program forward through the development of local tree protection policies, engagement in assessing and planning efforts, offering outreach events, and increasing their capacity to care for their urban forests.

Through UCF, the Division promotes the Arbor Day holiday to perpetuate a message of the importance of trees. Each year, thousands of Vermont's youth participate in one of the various Arbor Day offerings including our Growing Works of Art contest for 1 – 8 graders and completing activities in our Arbor Day workbook. In addition, Vermont's urban and community forest stewards are invited to participate in an annual Arbor Day conference that encourages continued learning, celebrating, recognizing champions, and building connections.

FOREST HEALTH

Managing for healthy forests relies on a partnership between the Division, natural resource professionals throughout the state, and informed landowners. Technical assistance, training, and education are essential components of the Division's Forest Resource Protection Program's (FRPP) outreach efforts. It is crucial to be able to transfer the latest knowledge and information to land managers and landowners in response to rapidly changing forest conditions. FRPP holds a well-attended, annual forest health meeting each spring to facilitate this knowledge transfer at the start of the growing season. Also, FRPP publishes monthly forest health reports during the growing

season, and annual highlights and conditions reports. In addition to outreach, FRPP offers a variety of forest health technical assistance from responding to calls from homeowners to coordinating large-scale treatment efforts.

PUBLIC AWARENESS AND CITIZEN ENGAGEMENT WITH INVASIVE SPECIES

Public awareness is critical in protecting forest health from invasive species. Educational campaigns, such as ‘Don’t Move Firewood’ and ‘Buy Local – Burn Local’ help to prevent the spread of invasive species and inform the public. All North American infestations of Asian longhorned beetle, and most of the known emerald ash borer infestations have been detected by members of the public. Early detection allows for a broader range of management strategies. According to a University of Maine study, 90% of Vermont campers now report knowing about invasive pests⁵⁰. To help keep the public informed, a website dedicated to invasive species, www.VTinvasives.org, provides information on reporting suspects, spreading the word, and ways to get involved.

Many volunteers assist with surveys for hemlock woolly adelgid, invasive plants, and other pests. Vermont has actively trained citizen scientists to support efforts to combat invasive forest pests through the Vermont Forest Pest First Detectors. University of Vermont Extension administers the program in partnership. As of 2016, 180 volunteers have attended training. First Detectors conduct outreach and pest screenings, assist with surveys, and have also led invasive pest preparedness planning in over thirty communities. Other invasive pest survey volunteers include Conservation Commission members and school groups.

Engaged citizens also support invasive plant management programs. One unique project, focused on southwestern Vermont, resulted in a database of volunteer groups, new recruitment materials, a toolkit of resources for volunteers, an educational curriculum, and the efforts of 850 people contributing approximately 4,000 volunteer hours.

TOWN FIRE WARDEN SYSTEM

For over 100 years, the Town Forest Fire Warden system in Vermont has been effective in fire suppression and fire prevention. Town Forest Fire Wardens regulate open burning in their towns through issuing ‘Permits to Kindle Fire,’ educating the town residents about safe open burning practices, and maintaining relationships with their local fire departments. Town Forest Fire Wardens are the local points of contact for questions and concerns about open burning, enforcing forest fire laws, and promoting the safe and reasonable use of fire by the residents of their towns. Through its Fire Program, the Division provides annual training to the Town Forest Fire Wardens to keep them up-to-date on the latest methods, technologies, and trends in wildland fire management. The Division equips town Forest Fire Wardens with all the materials needed to promote fire prevention and safe burning. By law, town

⁵⁰ Campers and Invasive Forest Pests in Northern New England, University of Maine, 2014.

Forest Fire Wardens oversee wildland fire suppression, but often call upon the State for technical assistance and specialized equipment.

ASSESSMENT: PUBLIC PARTICIPATION IN PUBLIC LAND MANAGEMENT

Participation of the public in planning and managing Vermont's forests occurs at different levels. State, federal, and municipal governments all have well-developed avenues for notifying and collecting input from citizens on management plans, strategies, and directions.

The Division has two standing advisory committees: the Vermont Urban and Community Forestry Council and the Vermont Forest Stewardship Committee (VFSC). These two groups provide advice and guidance on program development, implementation, and accomplishments. The VFSC also serves as the ranking body for the Forest Legacy Program. Both committees participated during the development and review of our 2017 Plan.

Public participation and input is a major component of the long-range management planning process for state land. State land planning documents are made available to the public at fully accessible and advertised meetings and on the FPR's web site. Public comment is taken as advice, and ANR makes every effort to include suggestions that are compatible with the ANR and its Departments' missions, are consistent with ANR lands management principles and goals, and are fiscally realistic.

The level of the public process varies dependent upon several factors including the complexity of the parcel, significance of the resources, legal issues, the potential for user conflicts, parcel size, and the degree to which any proposed management results in significant land use change.

Vermont has a community governance system based on towns. Each Vermont town that is incorporated has a Selectboard of duly elected citizens with various other town committees and boards that make recommendations on aspects of town business. Many communities have a Conservation Commission, Tree Board, and/or Planning Commission that oversees local ordinances related to street and park trees, the acquisition and management of town forests, and the planning for natural resource protection. Engaging citizens in land use decisions at the local level promotes the understanding of community benefits and a stewardship ethic. By statute, municipalities can request state assistance in the management of the land they own. A significant number of town, municipal, and community forests that have active management depend on the services of the Division's county foresters.

Public Involvement is an important part of the development of both the Green Mountain and Finger Lakes National Forest Land and Resource Management Plan (Forest Plan) and the projects that will implement the Plan. The National Forest Management Act requires the Forest Service to establish procedures to give the federal, state, and local governments and the public adequate notice and an opportunity to comment upon the formulation of Forest

Plans. In addition, The National Environmental Policy Act (NEPA) requires federal agencies to “encourage and facilitate public involvement in decisions which affect the quality of the human environment. During the development of the 2006 Green Mountain and Finger Lakes National Forest- Forest Plan, the GMNF staff conducted extensive public involvement. Public participation continues with the development of site specific projects designed to implement the 2006 Forest Plan. Projects are designed in collaboration with stakeholders, other state and federal agencies, and interested citizens most often from the communities where the projects will occur.

ASSESSMENT: FOREST CERTIFICATION

Forest certification is another tool to enhance sustainable use and promote excellent management. There are three primary forest certification programs within Vermont: Forest Stewardship Council (FSC), Sustainable Forestry Initiative (SFI), and American Tree Farm System (ATFS). Standards are similar between SFI and ATFS, and they share many similarities with FSC. In addition to forest certification, all three claim to provide or have access to a third-party chain of custody certification, which requires finished products to carry an indication of accreditation.

Forest certification efforts are limited in Vermont, in part due to the lack of large forest properties. Certification entails an initial entry cost as well as periodic audit costs for the landowner. Larger properties are better able to bear these costs because of the greater likelihood of some level of annual harvesting and the potential gain from forest certification. A legislatively mandated study investigating the feasibility of third-party certification for state lands concluded that lack of financial resources precluded the ability to pursue state land certification at this time.

The relative lack of certified forest products and what has been very slow growth in demand for certified wood products are challenges facing chain of custody certification. In Vermont, four sawmills and ten wood product manufacturing companies currently participate in the chain of custody protocols with one or more of the certification systems. About 50% of wood product businesses use at least some volume of certified raw material, including those that are chain of custody certified. All report that a scarcity of certified wood supply and certified wood demand represents a problem. However, wood product manufacturers say that as the demand for wood products recovers from the current depressed state, they expect that certification will play a much larger role in consumer preference. ‘Buy Local’ is a consumer interest that is expanding beyond food and agricultural products and into the forest economy.

ASSESSMENT: FORESTER LICENSING

The Vermont Secretary of State’s Office of Professional Regulation conducted a review and issued a report in 2014, recommending foresters licensing in Vermont. Subsequently, Act 166, an act relating to licensing and regulating foresters, passed in 2016. The law establishes that anyone offering forestry services for hire such as consultation, inventory, mapping, management planning, and timber sale layout and administration must be licensed by the

Secretary of State's Office of Professional Regulation. The bill exempts some landowners doing forestry services on their land. Overall, the law defines the minimum qualifications (education, experience, testing, and continuing education) for one to have a license to offer services, and sets out a range of standards of professional conduct. It also includes a transitional provision "grandfathering" under which many, if not all, presently active foresters in Vermont would be granted a license. As of the end of 2016, there are 196 licensed foresters.

PRIORITY LANDSCAPES AND FOCUS AREA

PRIORITY LANDSCAPE: PUBLIC LANDS

Vermont's state parks, state forests, state wildlife management areas, National Forests, wildlife refuges, National Parks, town forests, and other public lands including public easements are managed to provide Vermonters with myriad opportunities for a broad range of sustainable uses and benefits. These include recreating, enjoying nature, retreating to a peaceful setting, producing forest products, sustaining and protecting critical wildlife habitat, and providing habitat for threatened and endangered species.

Public lands have supported an active timber management program for many years that has contributed to local, state, and regional economies. Timber and vegetation management contribute to the maintenance and enhancement of biodiversity, higher value and quality timber resources, production of a broad variety of wood products at a sustainable level, improvement of forest health conditions, management of quality habitat, enhancement of scenic beauty, control of invasive exotic species, and the demonstration of sound forest management practices. In addition, hiking, hunting, fishing, trapping, snowmobiling, and cross-country skiing are also significant activities occurring on public lands, which provide substantial economic and societal benefits. We already see an increase in forest-based recreation and we expect pressure on public land to increase as Vermont's population continues to grow and new activities emerge. Public lands are owned and managed to meet a variety of goals and objectives and are seldom managed to maximize any one use.

As we plan the future of Vermont's public forests, it will be paramount that we strive to balance the variety of goods and services they provide while maintaining forest health and meeting the needs and desires of Vermonters. To do so, it will be essential to have an active public participation process, enhance research and monitoring to inform decision makers, increase focus on professional development of public land managers so they are current with the latest science and best practices, increase financial resources to maintain public infrastructure, and support technology transfer to share information and lessons. Our network of federal, state, and local public lands offer countless opportunities to explore, provide, and learn, and they are worth greater investment.

PRIORITY LANDSCAPE: URBAN, RURAL RESIDENTIAL, AND RURAL LANDSCAPE ZONES

At the outset of the development of the 2010 Plan, the state was classified into three broad landscape zones: Urban, Rural Residential, and Rural. The classifications were based on E911 housing point density data. E911 data were used to support the calculation of the number of houses per square kilometer of land area. From this analysis, average parcel sizes can be estimated. There is a direct correlation between housing density and average parcel size: the higher the housing density, the smaller the average parcel size. Using a landscape classification system based on average parcel size allows us to evaluate benefits and strategies depending upon the intensity of landscape parcelization and predominant land use. The parcel size ranges in the three zones are URBAN: 0 – 5 acres, RURAL RESIDENTIAL: > 5 – 27 acres, and RURAL: > 27 acres.

As we implement the 2017 Plan, some of our strategies will be necessarily focused more in one zone than another. For example, we know that many of the existing large forested blocks are in the rural zone. We also know that the rural residential zone is expanding fast in areas of the state such as the Champlain Valley and pose a challenge for fragmentation and the wildland fire urban interface. The urban zone can be critical in providing green infrastructure since this is where the population is the greatest and where green practices are necessary to mitigate our footprint. For this plan, we will continue to use these zones in our analysis and to guide our strategies, as they provide a valuable lens to focus our efforts and have proven to be a useful tool.

THE URBAN LANDSCAPE ZONE encompasses a relatively small amount by any state standards. There has been incremental growth since the 2010 Plan, primarily due to the recession and slow recovery. Geographically, the Urban Landscape Zone is located primarily along the shores of Lake Champlain and the banks of the major rivers, as historically these were the primary transportation corridors and development centers. The largest urban center is Burlington and its surrounding towns.

THE RURAL RESIDENTIAL LANDSCAPE ZONE includes a combination of forested and agricultural lands, most of which has been farmed within the past 120 years. It is where most Vermonters choose to live, in dispersed single homes and small tract developments. It contains most of the mid- and lower level streams and rivers, as well as most roads and utility corridors.

THE RURAL LANDSCAPE ZONE is over 90% forested. Well over 50% of the Rural Landscape Zone is public land. Nearly all of Vermont's largest forested parcels are in the zone. Agricultural and developed lands are rare as the zone contains areas with higher elevations with steeper slopes and poorer soils.

PRIORITY LANDSCAPES AND FOCUS AREAS BY LANDSCAPE ZONE

PRIORITY	URBAN	RURAL RESIDENTIAL	RURAL
LANDSCAPE			
Forest Legacy		✓	✓
Forest Land Eligible for UVA Enrollment			✓
Conserved Lands		✓	✓
High Ecologically Functioning Forests		✓	✓
Forest Land Threatened by Non-Native Invasive Pests	✓	✓	✓
Wildland Urban Interface	✓	✓	
Lake Champlain Watershed	✓	✓	✓
Developed Lands-Urban Canopy Enhancements	✓		
Public Lands		✓	✓
FOCUS AREA			
Non-Native Invasive Pests	✓	✓	✓
Climate Change	✓	✓	✓
Voluntary Harvesting Guidelines		✓	✓
Environmental Literacy	✓	✓	✓
Intergenerational Transfer of Forest Land		✓	✓
Working Lands Economic Vitality		✓	✓
Water Quality Protection	✓	✓	✓
Forest Carbon	✓	✓	✓
Forest Fragmentation and Parcelization		✓	✓
Forest Based Recreation		✓	✓
Municipal Urban Forest Management	✓		
Forestry Division Budget	✓	✓	✓
Supporting Partnerships	✓	✓	✓
Organizational Capacity and Workforce Development	✓	✓	✓
Policies, Rules, and Laws	✓	✓	✓

FOCUS AREA: ENVIRONMENTAL LITERACY

Education and engagement of Vermonters in the natural world improves their environmental literacy. Studies have shown that people who enjoy meaningful experiences in the outdoors can think critically and act responsibly on behalf of the ecological, social, and economic values of our forests and other natural resources. Perhaps no other issue is as important to the long-term success of the strategies and actions than improving environmental literacy of all Vermonters.

To address this issue, we must enhance our dedication to outreach efforts. Our county foresters have always been our most visible interface for education and engagement and support for enabling county foresters to continue to work with citizens will remain important. With Vermont's new forester licensing law, FPR will work with partners to provide continuing education credits to support professional development and license maintenance. FPR's Conservation Education Coordinator, working with partners, will continue to provide outreach and education programs to schools and other groups throughout the state. It is critical to reach our elementary and secondary schools to educate future Vermonters about environmental literacy and a forest stewardship ethic. Finally, the Urban and Community Forestry Program engages municipalities and citizen leaders to understand the value of their community forests and their civic responsibility to provide a standard of care to protect public safety and maximize benefits of public trees.

FOCUS AREA: INTERGENERATIONAL TRANSFER OF FOREST LAND

Vermont's forest landowners are aging. The demographic of forest landowners in Vermont primarily comprises males over the age of 55. As these landowners age, the question of land transfer becomes more important. In Vermont, the owners of 7% of family forests with 10+ acres (15% of the total forested land) are over the age of 75⁵¹. Social and economic factors will likely drive many of these older landowners not to pass on their ownership within the family and to sell their holdings. Many of these forests will be subdivided resulting in smaller parcels and, often, development.

Intergenerational transfer of forest land presents a challenge to forest landowners, forest managers, and planners. Without established estate plans, properties transferred after the death of an owner are often taxed at high levels. Many people leave property to more than one heir, which spreads out the tax burden but often forces the sale or subdivision of assets to achieve equity in transfer and to pay the taxes. Even when an elderly forest landowner wishes to pass on an intact forest, it is difficult if the heir has no time for, or interest in, managing the property. Most attorneys practicing estate law do not present clients with options regarding land protection unless the client

⁵¹ Sarah M. Butler, Brett J. Butler, Jaketon H. Hewes, "Vermont Woodland Owner Survey 2014 Final Project Report". December 2014.

specifically requests it. Given the amount of forest land that may turn over in the next decade, lands controlled by older forest landowners are at the highest risk for development and potential fragmentation unless legal planning for transfer has been implemented.

To address this issue, our county foresters are well positioned to help both generations make informed land use decisions. Our partners, including private licensed consulting foresters, are also crucial in their role. Stewardship in the future will depend on intergenerational transfer to a younger generation. It will be a priority for the Division to develop educational programs and other tools to facilitate this transfer to keep forest forested.

FOCUS AREA: MUNICIPAL URBAN FOREST MANAGEMENT

Extensive and healthy urban tree canopy within Vermont's most densely populated areas play a major role in mitigating environmental impacts such as stormwater runoff and concentrated air pollution, while enhancing the social dynamics and economic vitality in the heart of communities. Vermont's urban forests and trees are integral to the health and well-being of our communities and are valued as critical community infrastructure that contributes \$12 million in services to the state each year. A strong local municipal tree program is necessary to plan and care for them so that they reach their full potential. To achieve this, communities need a local management plan that is developed from a foundation of a resource assessment and an engaged citizenry and local government to support plan implementation. These elements are the stepping-stones to a sustainable local urban forestry program, and necessary to maintain, enhance, and protect Vermont's urban forests. To support municipalities in the establishment of self-sustaining, local municipal forestry programs our Urban and Community Forestry Program will lead the strategic delivery of financial, technical, and educational assistance to communities.



GOALS AND STRATEGIES

In the 2017 Plan, we have reexamined and revised the goals and strategies from our 2010 Plan. These are intentionally broad and flexible and will be tied to specific projects and work plans during implementation. Although these goals are focused around our DESIRED FUTURE CONDITION: MAINTAIN AND ENHANCE AN ETHIC OF RESPECT FOR THE LAND, SUSTAINABLE USE, AND EXEMPLARY MANAGEMENT, they may apply to other desired future conditions.

GOAL 10: EDUCATE THE PUBLIC ABOUT FOREST ECOSYSTEMS AND PROMOTE FOREST VALUES AND THE CRITICAL ROLE THEY PLAY IN SUSTAINING VERMONT.

Strategy 43: Foster a recognition of the ecological, social, and economic contributions that forest ecosystems provide to Vermont, and the need to sustain forest health and productivity to ensure continued benefits for this and future generations.

Strategy 44: Improve public media outreach and technology transfer.

Strategy 45: Support forest and forestry educational programs and peer-to-peer programs for students, educators, landowners, loggers, and citizens.

Strategy 46: Work with landowners to provide educational and estate planning advice that will facilitate the intergenerational transfer of forested parcels.

GOAL 11: PROVIDE LEADERSHIP IN SUSTAINABLE FOREST MANAGEMENT THROUGH DEMONSTRATION, EDUCATION, TECHNICAL ASSISTANCE, AND CITIZEN ENGAGEMENT.

Strategy 47: Increase the capacity of natural resource professionals, including loggers, to provide high-quality goods and services.

Strategy 48: Implement and demonstrate sustainable forest management on public lands, including town forests.

Strategy 49: Educate and engage the public in forest stewardship and citizen science, including Stewardship of the Urban Landscape (SOUL) Tree Stewards and Forest Pest First Detectors.

Strategy 50: Educate landowners, loggers, licensed forester, and land managers on the benefits of forest stewardship.

Strategy 51: Highlight and promote exemplary forest stewardship efforts on public and private lands.

Strategy 52: Provide technical support for pest management and other information about maintaining tree health to landowners, resource managers, and other citizens.

Strategy 53: Provide training and technical support, and maintain partnerships for wildland fire prevention and response.

Strategy 54: Provide information and technical assistance to landowners, (public and private) and professionals who influence land use decisions, such as realtors and engineers to help them understand, evaluate, and/or implement actions to advance sustainable use and stewardship of Vermont's forests.