

Priority Areas and Issues

At the outset of the development of the **2010 Vermont Forest Resources Plan**, it was decided to classify the state into three broad landscape zones: Urban, Rural Residential and Rural. The classifications were based upon E911 housing point density data. E911 data supports 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 upon 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:

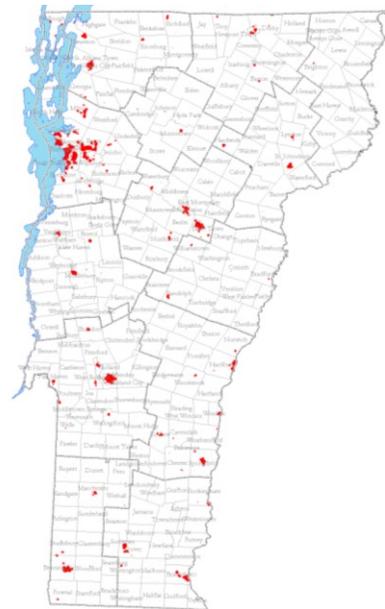
- **Urban:** 0 – 5 acres
- **Rural Residential:** > 5 – 27 acres
- **Rural:** > 27 acres

The following is a general description of the three landscape zones along with a discussion of trends, issues and threats and values. At the end of the section is a summary of priority areas by landscape zone, as well as multi-state regional priority areas and priority issues.

Urban Landscape Zone

The Urban Landscape Zone (ULZ) designation is based on housing parcel sizes between 0 to 5 acres, (Map 1: Urban Landscape Zone).

The Urban Landscape Zone encompasses about 1.6% or 95,000 acres of Vermont's total land area, a relatively small amount by any state standards. 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 Burlington/South Burlington



Map 1: Urban Landscape Zone

Metropolitan Statistical Area (MSA) is home to approximately 170,000 people or 28% of Vermont's population (U.S. Census Bureau, 2000). Most other Vermont urban centers have populations below 10,000. The topography is gentle around the major lakes and flood plains but can vary in the river bank towns like Montpelier and Brattleboro. Soils are mostly silt and clay deposits and quite productive. Most urban expansion in the past 100 years has occurred on former agricultural lands.

Viewing the ULZ from above, one would quickly become aware of a mosaic of green space between the gray infrastructures of the streets, buildings and parking lots. The urban forest is the sum of street trees, residential trees, park trees and greenbelt vegetation; it includes trees on public and private land, in transportation and utility corridors and forests on watershed lands. Management of urban and community forests borrows principles from traditional forestry but relies on public policy to provide support to ensure sustainability.

Desirable attributes of sustainable urban and community forests vary among communities. The aesthetics, functions and management of community green space will ultimately depend on people, who determine which ecological functions and social benefits are desired and the scale to which these elements will be sustained. Most communities have parks, street trees, open space and greenways that were originally conceived to provide the community with amenities, without considering their potential to provide ecological services or their role in forming a networked infrastructure. Urban and community forestry, viewed as green infrastructure on a community scale, can improve the quality of life in Vermont's cities, towns and villages through comprehensive planning to connect, conserve, manage, enhance and enjoy the natural resources within them.

Stormwater runoff within urban areas has been identified as one of Vermont's major impacts on water quality and is now high on the state's environmental agenda (Vermont Clean and Clear Plan, 2009). Trees and forested areas within the ULZ can play an important role in mitigating stormwater runoff. Additionally, urban forests can be looked at as the first line of defense for climate change. Carbon storage by urban trees (9.25 kgC/m² cover) and gross sequestration (0.3 kgC/m² cover) may be greater than in forest stands due to a larger proportion of large trees in urban environments and relatively fast growth rates due to the more open urban forest structure (Nowak & Crane, 2002). An analysis by US Forest Service provides rough estimates of the multitude of forest benefits in the Urban Landscape Zone.

Vermont has an estimated 11.9 million urban or community land trees that provide (Nowak, et al., 2008):

- 2.3 million metric tons of carbon (C) stored (\$52.4 million value)
- 75,000 metric tons/year of carbon(C) sequestered (\$1.7 million value)
- 1,610 metric tons/year total pollution removal (\$14.2 million value)

Specific pollution removal numbers are:

- 12 metric tons/year of carbon monoxide (CO) removed (\$16,800 value)
- 164 metric tons/year nitrogen dioxide (NO₂) removed (\$1.6 million value)
- 985 metric tons/year of ozone O₃ removed (\$9.8 million value)
- 40 metric tons/year of sulfur dioxide SO₂ removed (\$97,500 value)
- 411 metric tons/year of particulate matter of ten micros or less PM₁₀ removed (\$2.7 million value)

To assist in targeting resources to Vermont communities in greatest need of urban tree canopy enhancement, the Division of Forests and the University of Vermont Spatial Analysis Lab conducted an assessment of the state that identifies communities that have less than average urban tree canopy (UTC) and greater than average population, urbanized area and impervious surface area. Once target UTC enhancement communities were identified, we overlaid Vermont's impaired watersheds. The highest priority communities include Burlington, South Burlington, Rutland and St. Albans due to their high UTC rating and the occurrence of stormwater impaired watersheds within their boundaries. Other high priority UTC communities include Barre City and Vergennes, (Map 39: Priority Areas for Urban Tree Canopy Enhancements).

To understand and effectively target increases in urban tree canopy locally, it is valuable to determine the existing amount and location of tree canopy, set goals for increasing canopy, develop a plan to reach those goals and then regularly monitor progress. However, more detailed UTC analysis is needed using high resolution imagery and local data layers such as parcel boundaries and land ownership. The Division of Forests has begun to complete these more accurate UTC assessments in partnership with the UVM Spatial Analysis Laboratory and the US Forest Service. So far, community level UTC assessments have been completed for Burlington, Rutland and St. Albans and are in process for Montpelier. UTC enhancement can be most efficiently realized by maximizing protection and maintenance in combination with new plantings and natural regeneration. The impacts of setting a UTC goal will likely include focusing or reallocating public agency resources (funds, staff, etc.) to enhance existing UTC areas and develop strategies to create cover in potential UTC areas on public land. On private

lands, a combination of education and outreach, landowner and redevelopment incentives, and refocusing of regulatory mechanisms to specifically achieve the objectives of the UTC goal will likely be required.

An analysis of Burlington’s urban tree canopy (UTC) found that 2,648 acres of Burlington is covered by tree canopy (O’Neil-Dunne & Grove, 2008). This corresponds to 43% of the city’s land area. An additional 36% (2,198 acres) of Burlington could conceivably be covered by UTC. The majority of Burlington’s existing UTC is located in areas of residential land use. Residential land also contains most of the possible UTC. With metrics like these, the City has the information needed to work on meeting a newly established UTC goal of 50% put in place in their 2010 Climate Action Plan. For more detail on the community level UTC assessments visit: www.nrs.fs.fed.us/urban/utc/

Local efforts to plant and care for a community’s urban tree canopy cover often begin with the vision of local government officials or local citizens. Ideally, the local government assumes the lead role in the overall management of a community forestry program. However, in Vermont, this leadership role often falls to community volunteers. Thus, strong educational outreach and technical assistance is needed to support their efforts. The Division’s principal educational platform is an intensive training program called Stewardship of the Urban Landscape (SOUL). The course is designed to foster local urban forestry leaders that will help their community develop sustainable urban forestry programs. In 2010, eighty people participated in the program and are now involved in local UTC initiatives.

The US Forest Service identifies four base criteria needed to sustain local urban and community forestry programs. Annually, the Division of Forests tracks and reports on these elements. Communities that have all four elements are considered to be “managing” their urban forest resource; communities that have at least one but less than four of the elements are considered to be “developing.” The four criteria are:

- *Management Plans:* Urban tree and forest management plans, developed from professionally-based resource assessments/inventories.
- *Professional Staffing:* Professional urban foresters/arborists.
- *Ordinances & Policies:* Local ordinances or policies aimed at the protection and sound management of urban trees and forests.

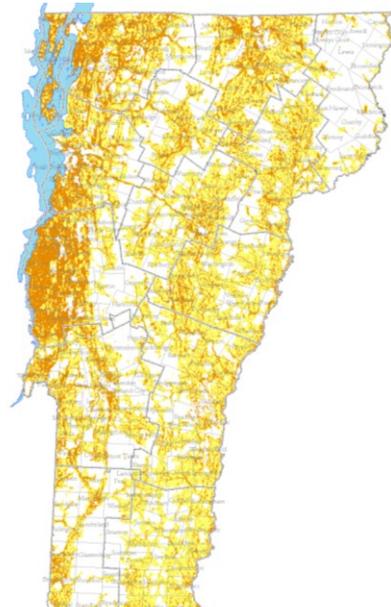
- *Advocacy/Advisory Organizations:* Active tree boards, commissions or nonprofit organizations established to advocate for local investment in urban forestry activities.

To help target our efforts to support communities reaching the ‘managing’ level, the Division of Forests took our Urban Tree Canopy Enhancement analysis, and highlighted the medium-high and medium communities and overlaid their current status in regards to the four base US Forest Service criteria, (Map 40: Urban and Community Forestry - Community Accomplishment Priorities). By referring to the two maps, we can begin to identify which communities are priorities for program development. For example, Colchester and Winooski are rated medium-high for UTC enhancement, have an impaired watershed within their boundaries and are not currently meeting all four base criteria. Thus, they would rank high for educational outreach and technical assistance to help them achieve ‘managing’ status.

Rural Residential Landscape Zone

The Rural Residential Landscape Zone (RRLZ) designation is based on housing parcel sizes between 5 to 27 acres, (Map 2: Rural Residential Landscape Zone).

The Rural Residential Landscape Zone totals about 3.5 million acres or about 59% of Vermont’s land base. This is 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 the majority of roads and utility corridors.



Map 2: Rural Residential Landscape Zone

The RRLZ was divided into two land use categories for purposes of conducting the assessment: Non-Forested and Forested. Non-Forested lands in the RRLZ are lands less than 50% forested per km square, while Forested RRLZ lands are 50% or greater of the area in forest cover per km square.

Non-Forested Rural Residential Landscape Zone

The Non-Forested RRLZ occupies about 2.3 million acres or 39% of Vermont's total land area. Most lands are between 95' and 1,500' in elevation and contain the most productive farm and forest lands in the state (Map 16: Forest Productivity). Significant forest cover is scattered throughout this landscape in farm wood lots, vegetated strips around fields and along streams, non-tillable areas, wetland areas and forests on steeper slopes. The landscape characteristics of the Non-Forested category are best captured in the descriptions of the following Land Type Associations (LTA), (Map 5: Land Type Associations).

Valley Floor Glacial Lake/Marine Plains: Fertile, moist soils developed primarily from clay and silt deposited in the Champlain Valley by glacial Lake Vermont and the Champlain Sea. The dominant natural vegetation is valley clay plain forest, with mesic maple-ash-hickory-oak forest on the shallow to bedrock inclusions, floodplain forest in the alluvial soil inclusions and a variety of wetland types in the organic soils inclusions. This LTA generally occurs below 600' elevation. At present, much of this LTA is in agricultural use.

Hills and Foot Slopes: Transition areas between the valleys and the high ridges of the Green Mountains, 250' to 1,590' in elevation. Soils originated from glacial till and are in the frigid temperature regime. Typical soils are rocky sandy loams, generally shallower than soils in the valley bottoms with bedrock outcrops. Agriculture is much less common. In forested areas, softwood and mixed stands are common, with northern hardwoods tending to become purer as elevations increase.

Rolling Low and Mid-Elevation Calcareous Metamorphic Hills: Elevations range from 520' to 2,490'. This LTA is made up predominantly of till-derived soils over meta-sedimentary rock, primarily on gentle slopes. Because of the carbonates in the bedrock and the till, soils tend to be enriched. This enrichment and gentle topography is more desirable for agriculture than other LTAs. Natural vegetation is dominated by northern hardwood forests of sugar maple, yellow birch and beech. In shallow to bedrock areas, wetter areas and lowlands, spruce-fir may be common, even dominant.

The Non-Forested lands contain the highest percentage of agricultural fields of any zone in the state. While the numbers of farms are declining in Vermont, the average farm acreage is increasing to gain efficiencies and is often over 500 acres. A high percentage

of farmland is enrolled in the Agricultural category of Vermont's Use Value Appraisal (UVA) program. Many of the agriculture lands have forested margins and woodlots that provide firewood, maple sap, sawlogs and wildlife habitat. However, as the number of farms continues to decline, land often reverts to forest cover and in many cases is developed into house lots.

Most non-agricultural parcels in this zone are held in small (> 5 acres) to medium (100 acre) private ownerships. Small forests can also provide "backyard" habitats and sustainable forest products even as development occurs if technical assistance and outreach remains available. Development pressures and high real estate land values will make protecting potential high value forest landscapes in the zone difficult. Tax incentive programs like UVA are even more important to provide assistance to landowners in the future. The areas under most pressure and likely to develop are shown on Map 9: Projected Housing Density Change. These lands will come under intense pressure for development when they enter the real estate market. This zone includes some conserved lands, predominantly easements through land trusts or held by the Vermont Department of Fish and Wildlife.

Threats from invasive species, both insects and plants can be high on lands close to human settlement, as non-native insects and diseases tend to be transported along corridors in more heavily populated areas. Stream corridors and wetlands are a priority landscape for wildlife habitat and for protecting water quality values.

Forested Rural Residential Landscape Zone

The Forested Rural Residential Landscape Zone (RRLZ) is generally located at 600' to 1,500' in elevation. At 1.2 million acres, this landscape represents 20% of Vermont's land base. Almost all the land in this category has a history of being cleared for agriculture, followed by abandonment and reversion to forests. The following LTAs best characterize this landscape, (Map 5: Land Type Associations).

Hills and Foot Slopes (same characteristics as Non-Forest, but at higher elevations)

Rolling Low and Mid-Elevation Calcareous Metamorphic Hills (same characteristics as Non-Forest, but at higher elevations)

Temperate Hills of Southeastern Vermont: This LTA dominates the biophysical region. Soils are variable but mostly till-derived with soils fertility and vegetation

variable. The dominant cover types in the western section and on north and east facing slopes is northern hardwood. On south facing slopes, a mesic red oak-northern hardwood forest dominates, with hemlock present in cooler areas.

Dissected Low to Mid-Elevation Calcareous Metamorphic Hills: This LTA is a single block in Orange County (Connecticut River watershed) dominated by till-derived soils over meta-sedimentary rock on gentle to steep slopes. Elevations range from 472 to 2,424 feet. Natural vegetation ranges from northern hardwoods on the mid and upper areas, to spruce-fir and hemlock on the lowlands and shallow to bedrock areas.

The Forested RRLZ contains most of the highly productive forest lands in the state, (Map 16: Forest Productivity). It also includes the majority of forests tapped for maple syrup production. This landscape is dominated by small (5 to 100 acre) private forested land holdings interspersed with houses. This area has a high percentage of UVA enrollments supporting forested woodlots 25 acres and up. These parcels support the forest products industry by landowners' enrollment in the program which requires forest management practices. Vermont's UVA program has been effective in keeping forested lands forested, healthy and productive for more than 30 years. A small percentage of privately-owned, conserved land is scattered throughout the zone. Most of the conserved lands are properties with easements held by land trusts, municipal forests or small state land holdings.

Many of the forests in this zone provide vital protection for public drinking water supplies through small streams that feed into larger rivers. The most important of these areas are identified on Map 35: Water Source Protection Areas. Privately-owned parcels of forested lands in this category are continually being sold or subdivided. As parcel size decreases, the ability to effectively manage these lands for forest values becomes more challenging. Houses and related development result in larger areas of impervious surfaces (roads, roofs, etc.), a major cause of stormwater runoff pollution into Vermont's waters. Planning for forested buffers and low impact development (LID) in developing areas is critical to managing runoff. Forested corridors along streams and wetlands play an important role in wildlife habitat as well. Because of the density of structures in close proximity to forest cover, this zone is also Vermont's highest risk to wildfire, (Map 32: Vermont Wildfire Risk Assessment).

Forests located in the Forested RRZ are at high risk from invasive species because of proximity to dispersal vectors and disturbed sites. The high number of landowners in

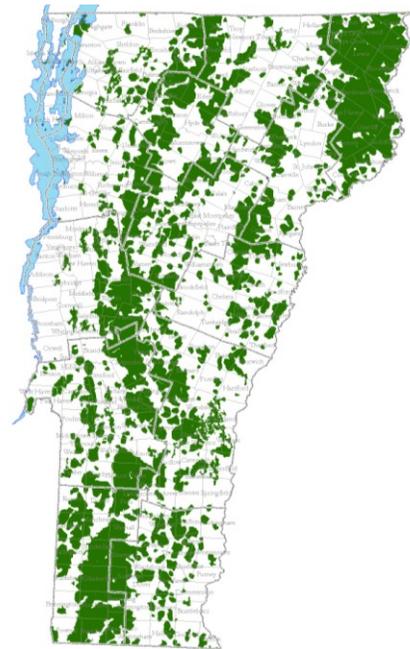
fragmented landscapes makes monitoring, evaluation and control of invasives difficult. Smaller parcels of forest land are also more vulnerable to over-browsing by deer because hunting opportunities become limited due to the small size of parcels and the increase in posting by landowners. This also limits opportunities for outdoor recreation. Inappropriate recreation activities may also increase due to the nearness to population centers. Conversely, the need for more trails and recreation areas increases as communities expand.

Rural Landscape Zone

The Rural Landscape Zone (RLZ) designation is based on housing parcel sizes greater than 27 acres, (Map 3: Rural Landscape Zone)

The Rural Landscape Zone is over 2.4 million acres or 40% of Vermont's 5.9 million acre land base. These lands are over 90% forested. Nearly all of Vermont's largest forested parcels are located in the zone. Agricultural and developed lands are rare.

The Rural Landscape Zone encompasses Vermont's landscapes not well suited to agriculture with higher elevations, and areas with steeper slopes and poorer soils. Evidence of failed "hill farms" from the 1800's are scattered throughout this zone and are witnessed in the form of stone walls, cellar holes and old town roads. By the early 1900's, there was a growing concern about the shortage of well-managed timberland and related problems of widespread forest fires and soil erosion. This led the state to begin obtaining large parcels of forest land. Later, the federal government established the Green Mountain National Forest and began acquiring large forest tracts. Today, these state and federal lands, along with large private holdings, particularly in northeastern Vermont, and lands conserved by private nonprofits, make up the majority of the Rural Landscape Zone. The following LTAs best characterize this landscape, (Map 5: Land Type Associations).



Map 3: Rural Landscape Zone

Mountain Slopes: Located primarily in the Northern and Southern Green Mountains, elevations range up to 2,800' at the Massachusetts border, to about

2,035' at the Canadian border. Both glacial scouring and deposition occurred here, resulting in basal tills as parent material in most areas. Vegetation is primarily forest, dominated by northern hardwood.

Precambrian Plateau: This is a higher elevation equivalent of the Rolling Hills LTA, described in other regions. Elevations range between 1,300 and 2,600 feet with slopes less than 8%. The soil temperature regime is frigid. Soils most commonly have developed from basal tills and may be poorly drained. Due to the gentler terrain, some of these forests have a history of heavy industrial logging. Vegetation tends to be a mosaic of northern hardwood forest and lowland spruce-fir forest.

Upper Mountain Slopes Mountain Tops: Often referred to as the sub alpine zone, this LTA ranges from about 2,400 feet at its southern edge, to about 2,035 in the north. Landforms are likely to have been scoured by tie glaciers. Vegetation at the lower elevations is dominated by yellow birch-red spruce forest and at upper elevations by montane spruce-fir.

Well over 50% of the Rural Landscape Zone is presently owned by the State of Vermont or the federal government (Green Mountain National Forest, Silvio O. Conte National Wildlife Refuge). The remaining lands are medium to large privately-owned parcels, usually located around the perimeter of the state and federal lands. Because of state and federal ownerships, as well as the large acreage in permanent easement, the majority of the land in this zone is conserved. Although a significant portion of the private commercial timberland has changed hands in the past 10-15 years, existing easements preclude most forms of development. A high percentage of the private land holdings in the zone are enrolled in the UVA program.

These tracts, along with the public ownership, provide the core of Vermont's matrix forests. Matrix forests, or communities, dominate the landscape and form the background in which smaller scale communities occur (Thompson, et al., 2000). There are six matrix-forming natural communities in Vermont: montane spruce-fir forest, lowland spruce-fir forest, montane yellow birch-red spruce forest, spruce-fir-northern hardwood forest and northern hardwood forest.

While most lands in the RLZ do not score high for forest productivity based on soil or other site conditions, (Map 16: Forest Productivity), the stable nature of the ownership and long history of forest management make them very important to Vermont's forest

products industry. The state, federal and UVA lands must continue to provide the forest products that are necessary for maintaining a healthy forest products industry. Keeping these lands forested, productive and healthy is a top priority. The combination of a large conserved land base and high level of enrollment of private lands in UVA can assure that these lands continue to provide the full range of goods and services. Opportunities for participation in third party certification and carbon and ecosystem management programs can benefit both public and private lands and underscore the societal value of this landscape to produce ecosystem services on a sustainable basis.

Nearly all of the critical headwaters to Vermont's public water supplies and streams are located in the RLZ, (Map 36: Land Classification of Vermont Headwaters). Given the high percentage of forest cover and the relatively stable pattern of the land ownerships, these headwater areas will remain protected as forests into the foreseeable future. The monitoring and enforcement of Acceptable Management Practices for Maintaining Water Quality on Logging Jobs in Vermont (AMP's) and the state's Wetland Rules are tools for protecting the resource values of these areas.

The larger forested areas provide vital habitat for wildlife and are particularly critical to moose, bear and furbearer species. As part of their state Wildlife Action Plan, the Department of Fish and Wildlife recently completed a statewide assessment of the relative importance of habitat blocks and threats to these blocks. Many of these important forest blocks are in this zone.

The large tracts of land in the zone provide a myriad of outdoor recreational opportunities. They include Vermont's ski industry sites, Vermont's border-to-border hiking trail, the Long Trail which is also part of the Appalachian National Scenic Trail, much of the Vermont Association of Snow Travelers' statewide snowmobile network and a statewide cross-country ski trail network, the Catamount Trail. These areas also support local and regional hiking, horseback and biking trails, with more recreation corridor plans submitted each year. These lands provide quality hunting and fishing opportunities and serve as the backdrop for Vermont's famous fall foliage.

Because of the high percentage of conserved and UVA lands, and the high elevation and steeper slope characteristics of the land, development pressure in the zone is generally low. However, ski area expansion and continuing demands for trails of all types have the potential to impact critical habitats for deep forest wildlife species (Vermont Monitoring Cooperative, 2009). Companies that own commercial forest land, particularly those that are part of real estate investment trusts or timber investment management

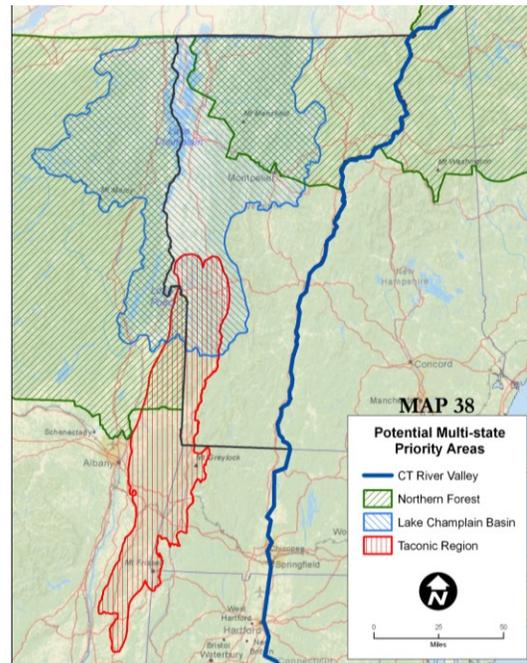
organizations, are affected by global, as well as local timber and real estate markets. This can affect land tenure and changing management goals.

Forest health concerns on large forested tracts include impacts from major invasive insect species, but also concerns related to native cyclic insect pests. These forests are the most vulnerable to anticipated global climate change and forest productivity issues related to past harvest applications and atmospheric pollutants, especially sites with low natural fertility or at higher elevations. Some of these forest areas are vulnerable to over-browsing by deer and moose which can lead to increased risk of regeneration failures and site competition from unwanted native and invasive plants.

Many of the resource values, issues or threats in the Rural Residential and Rural Landscape Zone are difficult to map on a statewide basis. As a result, we are unable to present a map of priority areas within the RRLZ and RLZ. More detailed analysis is available at a local scale and an example is shown on Map 41: Local Scale Priority Landscape, and will be used in defining specific activities and projects.

Multi-State Regional Landscape Priorities

The Vermont Department of Forests, Parks and Recreation has a long history of participation in multi-state forest resource projects. These projects have ranged from forest health efforts such as the North American Maple and the Spruce Budworm control projects, ecological mapping efforts such as the Biophysical Regions project, to participation in the four-state (ME, NH, VT, NY) economic development activities through the North East State Foresters Association (NEFA). All efforts have one thing in common, the need to cooperate across state boundaries to address a pressing regional need. It should also be noted that resource values and threats do not stop at our international border. Further assessments should include evaluating forest resources in neighboring Quebec, Canada and opportunities to collaborate collectively.



Map 38: Potential Multi-State Priority Areas

Looking forward, we have identified several broad categories of need that could benefit from a multi-state approach. These include issues relating to forest health and ecology, forest-based economy, ecological mapping and watershed planning, (Map 38: Potential Multi-State Priority Areas).

The following is a listing of Vermont’s priority forest areas that span the region and, in some cases, the international border.

Northern Forest Lands (NFL) – About one third of Vermont lies within the planning area for NFL and includes some of the largest intact tracts of forest land, as well as some of Vermont’s most impoverished communities. This area saw federal investment in the 1990’s and was the impetus for the establishment of NEFA (North East State Foresters Association). Work to address region-wide efforts to support conservation, economic development and community infrastructure is needed. Currently, NEFA has joined forces with the rest of New England in a New England Governors initiative that includes a ‘Keeping Forests as Forests’ conservation and stewardship component.

Connecticut River Valley – This is one of the most at-risk areas of New England for forest fragmentation according to the US Forest Service publication ‘Forest on the Edge.’ Other issues include invasive species and land conversion. This area includes NH, VT, MA and CT. The US Fish & Wildlife Service is also engaged, through land conservation and management efforts within the Silvio O. Conte National Wildlife Refuge. Future needs include better pest detection and control, and more opportunities for landowner incentives for maintaining habitats and working landscapes.

Taconic Mountains – A significant percentage of Vermont’s important natural communities and sites with rare and endangered species is within this area. Some of the area in Vermont is protected either by the Green Mountain National Forest or state lands and land conservation through private land trusts. Better pest detection and control, support for historic and recreation resources, and awareness of habitat issues including corridors between forest blocks, are needed. This area extends into VT, NY, MA and CT, which have designated portions of the Taconics for potential Forest Legacy areas. In addition, the GMNF extended its purchase boundary to include towns within the Taconic Range.

Lake Champlain Basin – This is a multi-state, multi-nation resource impacted by urban development and agricultural runoff. Challenges include maintaining tree canopy and watershed quality to reduce pollution and protect water quality. Vermont Governor’s ‘Clean and Clear’ program has generated research, landowner education and incentives to improve water quality. The effort is being coordinated by the Lake Champlain Commission with membership in NY and Quebec.

State and Multi-State Regional Priority Issues

There are several priority issues that cross state borders and, by taking a regional approach, in addition with specific state efforts, will improve resource management and protection.

Invasive Species – Vermont is the latest state to experience invasive terrestrial plants and threats by three major invasive insects. Early detection, monitoring, coordinated regional responses and educational resources are needed, along with up-to-date recommendations to manage and eradicate invasive plants.

Water Quality – Maintaining forested watersheds is an issue that our sister states face, and we need to better understand the relationships between Vermont’s water sources and the rest of the region. In Vermont, we must continue our efforts with AMPs and skidder bridges, and look to other states for innovative ways to protect water courses. Opportunities to learn from other municipal watershed organizations should be pursued.

Forest Habitats and Diversity – Understanding climate change, forest fragmentation, the browsing from wildlife on forest plants and invasive species are necessary to maintaining natural communities and critical habitats. Partnerships with Fish and Wildlife, GMNF, the University of Vermont and conservation groups throughout the region will help to direct these efforts.

Renewable Energy and Biomass – Utilizing wood biomass resources in a sustainable manner is one of the most important challenges we face. Aligning the demands with the resource as well as understanding the impacts on carbon budgets, air quality, forest soils and other resource values across the region will take careful planning, coordination and support.

Intergenerational Transfer of Land – Workshops, displays and other media have been employed in an educational effort with forest landowners. Needs include better financial and conservation planning tools. All states need to cooperate to link out-of-state landowners with resources both at home and in secondary residences.

Green Infrastructure – Green infrastructure strategies actively seek to understand, leverage and value the different ecological, social and economic functions provided by natural systems in order to guide more efficient and sustainable land use and development patterns. This is a relatively new concept with many lessons to learn and share. All states need to work together to market and transfer green infrastructure concepts and technologies.

Maintaining and Diversifying Markets – In the northern New England states where private land ownership is the norm, supporting private forest landowners is critical to the success of “Keeping Forests as Forests.” Markets for forest products and ecosystem services are necessary to ensure that landowners can afford to hold and manage their forest land. Local and regional efforts to maintain and enhance markets for both traditional and non-traditional forest products and ecosystem services will be a key consideration in supporting private forest ownership.

Because many forestry issues are regional in nature and do not recognize political boundaries, multi-state approaches are often the most efficient way to address problems. However, multi-state projects can be difficult to coordinate and administer. A regional or federal entity needs to take the lead and find sufficient resources to ensure success. Many of these priority issues were also addressed under Vermont’s Landscape Zone Priorities, with implementation at a state scale.

Priority Areas and Issues

Priority areas have been identified within each of the three Vermont landscape zones: Urban, Rural Residential and Rural. This approach draws upon the correlation that land use values, benefits and strategies vary depending upon the degree of parcelization and predominant land use. Multi-state regional areas, identified through a facilitated effort between the New England states and New York, are also listed, along with a list of priority issues that can and may be important throughout the state.

Urban Landscape Zone⁴

Priority Area 1: Communities with less than average urban tree canopy (UTC), and greater than average population and impervious surface area, (Map 39).

Priority Area 2: Communities with stormwater impaired watersheds within their boundaries, (Map 39).

Priority Area 3: Communities with medium to medium-high UTC ranking not meeting the four base US Forest Service criteria for sustainable urban forestry programs: management plan, professional staffing, ordinances and policies, and advocacy/advisory organizations, (Map 40).

Priority Area 4: Communities with high UTC ranking and high susceptibility risk rating for invasive forest pests, (Map 39, Map 27 and Map 28).

Rural Residential Landscape Zone

Priority Area 5: Riparian areas and wetlands.

Priority Area 6: Rare and sensitive natural communities and habitats for threatened and endangered species.

Priority Area 7: Areas important for the protection of public water supplies, (Map 35).

Priority Area 8: Large forested blocks of land, (Map 10).

Priority Area 9: Forested lands at high risk to insect and disease attack, invasive plant infestation or regeneration failures, (Map 27, Map 28, Map 29 and Map 30).

Priority Area 10: Forest land eligible for UVA enrollment.

Priority Area 11: Forests providing significant wildlife habitats, including travel corridors.

⁴ Due to high population density and the small parcel size of the Urban Landscape Zone, assistance in this zone will be targeted at the community/municipal scale.

Rural Landscape Zone

Priority Area 12: Lands identified as important wildlife corridors, feeding areas or wintering areas.

Priority Area 13: Riparian areas and wetlands.

Priority Area 14: Areas important for water source protection and recharge areas, (Map 35 and Map 36).

Priority Area 15: Forest land eligible for UVA enrollment.

Priority Area 16: Forests at risk from invasive or cyclic forest insects, plants and diseases, (Map 27, Map 28, Map 29 and Map 30).

Priority Area 17: Lands important in maintaining Vermont's statewide recreation trail networks.

Priority Area 18: Forest habitats at risk from atmospheric pollution or climate change factors, (Map 24, Map 31 and Map 32).

Multi-State Regional Landscapes

Priority Area 19: Northern Forest Lands, (Map 38).

Priority Area 20: Connecticut River Valley, (Map 38).

Priority Area 21: Taconic Mountains, (Map 38).

Priority Area 22: Lake Champlain Basin, (Map 38).

State and Multi-State Regional Issues

Issue 1: Prevention and control of invasive species.

Issue 2: Protecting water quality.

Issue 3: Maintaining and enhancing forest habitats and diversity.

Issue 4: Promoting sustainable renewable energy and biomass.

Issue 5: Assisting the intergenerational transfer of land.

Issue 6: Promoting green infrastructure.

Issue 7: Maintaining and enhancing forest markets.

Issue 8: Establishing and implementing Urban Tree Canopy (UTC) goals.

Issue 9: Maintaining existing forest cover.