

Natural Resources

This chapter advances the purposes and goals of Vermont’s municipal and regional planning statute (24 V.S.A. § 4302) by outlining a coordinated approach to the management, protection, and enhancement of Addison County’s natural resources. It emphasizes the critical role these resources play in the Region’s quality of life, economy, and environment, and addresses key challenges posed by land use changes, development, climate change, and environmental concerns. This chapter promotes the wise and efficient use of land, water, forests, and wildlife to sustain public health, safety, and general welfare, and to maintain the Region’s rural character and quality of life. In keeping with the state’s planning goals, this chapter seeks to identify, protect, and preserve important natural features; maintain and improve air and water quality; strengthen agricultural and forest industries; and encourage flood-resilient communities. Recognizing that the long-term vitality of these resources depends on collective stewardship, the chapter emphasizes the need for coordinated and collaborative action among landowners, municipalities, regional and state agencies, non-profit organizations, and the public.

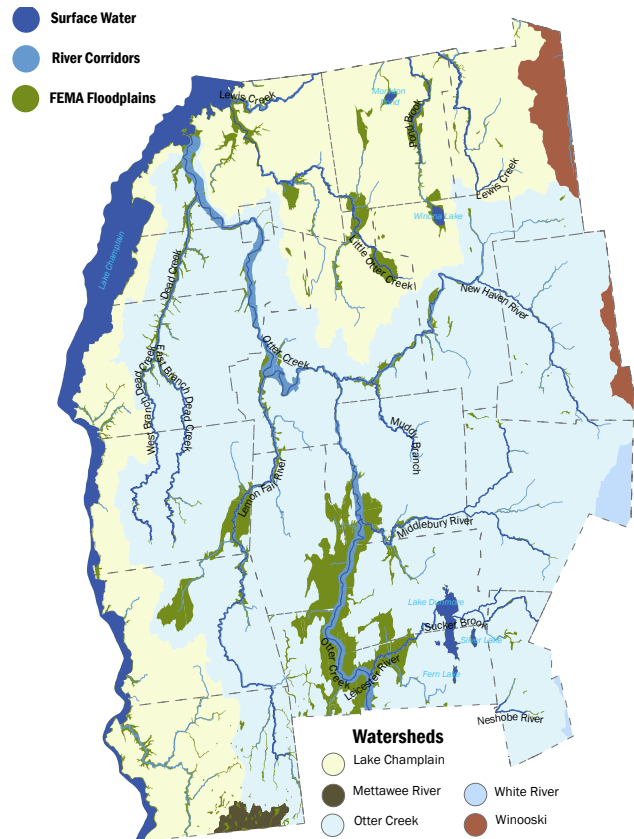
Surface Water

Flood resiliency is addressed in Chapter 7, Flood Resilience.

Surface waters—including rivers, streams, lakes, and ponds—are among Addison County’s most important natural resources, providing drinking water, recreation, agricultural irrigation, habitat for fish and wildlife, and scenic and cultural value. Maintaining and improving both the quality and quantity of these waters is essential for the health of the Region’s ecosystems and communities. Surface water also plays a critical role in flood control, groundwater recharge, and the overall resilience of the landscape to climate and land-use changes.

The Addison Region is home to a network of significant surface waters (**Map 1**). Most of these surface waters are part of the Otter Creek watershed, which

Map 1: Addison Region Watersheds and Waterways



drains into Lake Champlain. Lake Champlain forms the county’s western boundary and is the largest and most prominent water body, supporting fisheries, boating, and tourism while providing critical habitat for migratory birds and aquatic species. The remaining surface water is part of the Lake Champlain watershed which drains into Lake Champlain. Major rivers, including the Otter Creek, Lemon Fair River, Middlebury River, and Little Otter Creek, drain much of the county, connecting upland areas to Lake Champlain and supporting diverse fish populations, including brook trout and small-mouth bass. Smaller lakes and ponds, such as Lake Dunmore, Silver Lake, and Monkton Pond, serve as recreational hubs and contribute to local water supply and habitat diversity. Numerous tributary streams and wetlands provide spawning grounds, nutrient filtration, and wildlife corridors. Additionally, two streams in the Region are designated Outstanding Resource Waters’

for their recreational value, particularly for whitewater paddling. One is the New Haven River, from Eagle Park to Bartlett’s Falls. The second is the White River mainstem in Ripton.

Many of these surface waters remain in excellent or good condition, particularly in areas with healthy forest cover and limited development. Monitoring by the **Addison County River Watch Collaborative (ACRWC)** shows that many of the Region’s rivers generally meet Vermont’s water quality standards and provide clean, cold habitat for fish as well as opportunities for swimming and paddling. Community stewardship, riparian plantings, and improved land management have helped stabilize eroding banks and reduce nutrient inputs along several tributaries, supporting high-quality recreation and aquatic life.

Even with these successes, ongoing challenges affect the Region’s surface waters. Water quality challenges

include nutrient loading from agriculture, sedimentation, stormwater runoff from developed areas, and the potential for contamination from residential and industrial sources. E. coli levels frequently spike after heavy rains, especially at popular swimming spots such as Bartlett Falls and Middlebury Gorge, when runoff from farm fields, roads, and failing septic systems enters streams. Turbidity and suspended sediments also rise during storm events, clouding the water and transporting phosphorus—a key nutrient that fuels algal blooms downstream in Lake Champlain. These conditions are reflected in State water quality monitoring reports, which list several Addison County streams as impaired or stressed by excess phosphorus and sediment.

Another growing concern is aquatic invasive species (AIS) in and around Lake Champlain, which impact many waterbodies in the Lake Champlain basin including those accessible from Addison County. Species such as Eurasian watermilfoil, water chestnut, zebra

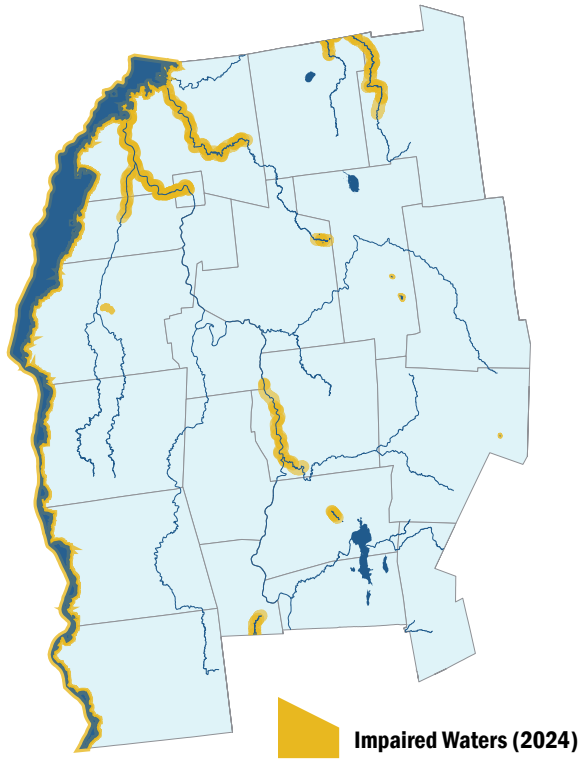
Table 1: 303(d) Impaired Waters in the Addison Region in 2024

| Waterways | Pollutant | Impaired Use(s) | Likely Source |
|--------------------|------------------------------------|---|---|
| Lower Otter Creek | E. coli | swimming | pump station overflows |
| Pleasant Brook | nutrients | fish and wildlife habitat | agricultural runoff |
| Otter Creek | E. coli, sewage | aesthetics, swimming | agricultural runoff, possible failed septic systems |
| Little Otter Creek | sedimentation, phosphorus, E. coli | fish and wildlife habitat | agricultural runoff, lack of riparian buffer as contributing stressor |
| Halnon Brook | nutrients | fish and wildlife habitat | elevated nutrients affecting aquatic biota |
| Lewis Creek | E. coli | swimming | agricultural runoff |
| Pond Brook | E. coli | swimming | agricultural runoff |
| Middlebury River | E. coli | swimming | agricultural runoff |
| Jerome Pond | phosphorus | aesthetics, fish and wildlife habitat | runoff, atmospheric deposition, episodic acidification |
| Skylight Pond | phosphorus | aesthetics, fish and wildlife habitat | runoff, atmospheric deposition, episodic acidification |
| North Pond | phosphorus | aesthetics, fish and wildlife habitat | runoff, atmospheric deposition, chronic acidification |
| Gilmore Pond | phosphorus | aesthetics, fish and wildlife habitat | runoff, atmospheric deposition, episodic acidification |
| Lake Champlain | phosphorus | aesthetics, swimming, fish and wildlife habitat | agricultural runoff |

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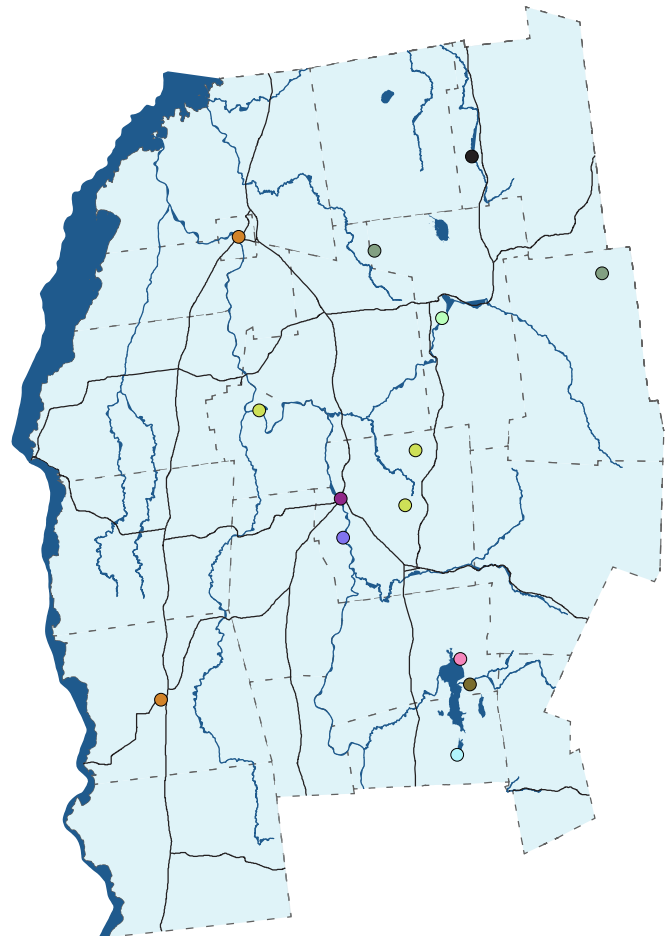
Map 2: Impaired Waters in the Addison Region



mussels, and spiny waterflea are already established in Lake Champlain, crowding out native plants, altering habitat structure, and interfering with recreational uses. The Vermont Department of Environmental Conservation (DEC) and partner organizations conduct regular monitoring and control, targeting water chestnut (via mechanical and hand harvesting), and surveying for new infestations of species like zebra mussels and watermilfoil. Volunteer programs such as the Lewis Creek Association and CHAMP! (Champlain Aquatic Invasive Monitoring Program) help map where invasives are present or spreading, supporting early detection and response.

Surface water protection in the Addison Region focuses on preserving water quality, maintaining flow and hydrologic function, and minimizing ecological disruption. Maintaining intact riparian buffers, reducing development in river corridors, and implementing agricultural Best Management Practices (BMPs) are key strategies to limit these impacts. Floodplain and wetland conservation and restoration also support natural storage and purification and reduce erosion and downstream flooding risks. Additionally, monitoring, control, and public education efforts are necessary to slow the spread of AIS.

Map 3: Clean Water Service Provider Projects Completed in the Region



CWSP Project Type

- Stormwater Master Planning
- Project Development
- River - Planting (Riparian Buffer Planting)
- Road Project - Final Design
- Road Project - Implementation
- Floodplain/Stream Restoration - Final Design
- Floodplain/Stream Restoration - Preliminary Design
- Forestry - Design
- Forestry - Implementation
- Lake Shoreland - Implementation

A full list and description of all ACRPC Otter Creek Basin CWSP Projects since inception is available at acrpc.org

Long term planning and analysis of surface water conditions on the watershed scale in Addison County is carried out by the Vermont Department of Conservation’s Tactical Basin Planning Program. The vast majority of the Addison Region falls into the Basin 3 watershed, of Otter Creek. The Basin 3 Tactical Basin Plan is updated every five years and serves as the guidebook for regional water quality protection and restoration efforts. By integrating tactical basin plan recommendations into municipal and regional planning, ACRPC links statewide water quality objectives with local actions and fosters a coordinated, watershed-based approach to protecting Vermont’s rivers, lakes, and wetlands.

A central piece of enacting the Tactical Basin Plan is through the **Clean Water Service Provider (CWSP)** program. ACRPC serves as the CWSP for the Basin 3 (Otter Creek, Little Otter Creek, and Lewis Creek), which includes all or parts of 54 towns across six counties—most of which are located in Addison and Rutland counties. CWSPs were established by the Vermont Legislature under Act 76 of 2019 and are responsible for identifying, implementing, operating, and maintaining projects that improve water quality. Eligible projects must not be required by regulation and must result in measurable phosphorus reductions.

ACRPC’s work as a CWSP is guided by the priorities outlined in the Otter Creek Tactical Basin Plan and directed by the **Basin Water Quality Council (BWQC)**. The BWQC sets policy and makes funding decisions based on the most significant water quality impairments identified in the basin plan, prioritizing projects that will best address those needs.

As of November 2025, the Otter Creek Basin CWSP has developed more than 25 projects, including dam removals, riparian plantings, floodplain restoration, forest road improvements, and other initiatives that enhance water quality and reduce phosphorus loading throughout the basin. See **Map 3** for CWSP projects completed as of 2025.



Map 4: Wetlands

-  **VSWI Class I Wetland**
-  **VSWI Class II Wetland**
-  **Advisory Wetland**



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WETLANDS

Wetlands are a unique and integral component of Addison County’s surface water systems. They function as natural sponges, absorbing and slowly releasing water to maintain streamflow and lake levels, while also filtering sediments and nutrients to improve water quality. Wetlands provide critical habitat for fish, amphibians, birds, and other wildlife, and they act as buffers that reduce flooding and protect downstream communities. Because of these essential ecological and hydrologic roles, the protecting and restoring of significant wetlands plays a key part in maintaining the health, resilience, and recreational and economic value of the Region’s rivers, lakes, and ponds.

The Vermont Wetland Rules establish a three-tier classification system for wetlands. Class I wetlands are considered “exceptional or irreplaceable” due to their contributions to Vermont’s natural heritage. Class II wetlands include those assumed to have significant ecological functions that appear on the National Wetlands Inventory or are adjacent to mapped wetlands. Class III wetlands, also called advisory wetlands, have not yet been evaluated or are small and do not contain significant ecological functions. State regulations require a 100-foot buffer for Class I wetlands and a 50-foot buffer for Class II wetlands.

As of 2025, Addison County contains one Class I wetland, Beaver Meadows Wetland, located in Bristol and Ripton. The 66-acre wetlands contain a variety of wetland types, natural communities, and rare species. In addition, the area remains mostly unchanged by human activities as it is quite remote and is part of Green Mountain National Forest. Beaver Meadows Wetland plays an important role in flood resilience for the Middlebury and New Haven Rivers.

Addison County also contains a diverse array of Class II wetlands, including marshes, swamps, fens, and bogs, ranging from small vernal pools to extensive wetland complexes. Significant wetlands are found throughout the Region, often associated with major watercourses such as the Otter Creek, Lemon Fair River, and Lake Champlain shoreline. The Dead Creek Marsh—centered in the Town of Addison—represents one of the Region’s largest and most ecologically valuable wetland complexes, providing critical flood mitigation as

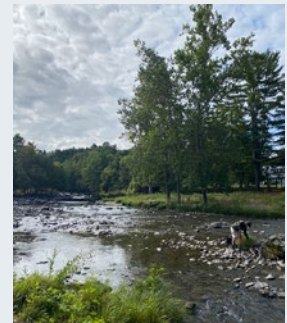


Bristol Pond

PARTNER SPOTLIGHT

Addison County River Watch Collaborative

One of the partner organizations ACRPC works closely with on water quality is the Addison County River Watch Collaborative (ACRWC). ACRWC has been a community water monitoring group since 1997, taking water quality samples from six watersheds in Addison County each year and sharing the results with the public. They also organize riverbank restoration projects, especially in areas that lack woody vegetation, and engage the community through education and outreach, including farm visits, student macroinvertebrate sampling, water quality chats, and more.



well as habitat for migratory birds and other wildlife. Other notable wetlands include the Button Bay State Park marshes, the Weybridge Fen, and scattered vernal pools and forested wetlands that support amphibians, reptiles, and diverse plant communities.

Protecting significant wetlands is vital to maintaining the ecological health and resilience of the Region's surface waters. Wetlands are particularly vulnerable to development pressures, land clearing, agricultural expansion, and changes in hydrology. Loss or degradation of significant wetlands can lead to reduced water quality, increased flooding in adjacent and downstream communities, and the decline of native species. Local and regional planning efforts prioritize significant wetland conservation to safeguard these functions for future generations.

Strategies for wetland protection in the Addison Region include maintaining and enforcing state and federal wetland regulations, encouraging municipalities to incorporate wetland conservation into zoning and land use planning, and promoting BMPS on agricultural and developed lands. Conserving buffer zones around wetlands, restoring degraded wetland areas, and connecting wetlands to surrounding natural habitats enhance their ecological function. Public education and stewardship programs foster community awareness of wetland values and encourage participation in wetland monitoring, cleanups, and habitat restoration projects.

Groundwater

Groundwater is a vital resource in the Addison Region, providing drinking water for communities, supporting agricultural irrigation, and maintaining base flows in rivers and streams. The Region's aquifers vary from shallow glacial deposits to deeper bedrock formations, with significant sources including the Champlain Valley aquifer system, which underlies much of the western portion of the Region, and localized sand and gravel aquifers that supply smaller communities and private wells. It is essential to protect these resources for public health, economic activities, and ecological sustainability.

Overall, the Region has access to abundant clean groundwater. However, groundwater supplies in Addison County face pressures from climate change, land use, agriculture, septic systems, and industrial activity. Within that context, climate change and increasing drought conditions are expected to reduce groundwater recharge in Vermont by decreasing the amount of precipitation that infiltrates into soils and replenishes aquifers. Hotter temperatures and longer dry periods increase evapotranspiration, causing more water to be lost to the atmosphere rather than soaking into the ground. Reduced snowpack and earlier snowmelt may further limit spring recharge, leading to lower groundwater levels and potential impacts on wells, streamflow, and water availability during summer months.

Activities that degrade ground water quality in the Addison Region include the application of pesticides and fertilizers, the use of salt on roads, waste from livestock and other animals, mining operations, and unintentional releases from chemical spills or storage tank leaks. The State regulates public water supplies for these factors, but private wells frequently remain unmonitored, placing the responsibility on landowners to assess their water quality and take necessary precautions. Additionally, many residential septic systems installed before modern regulations inadequately treat septic discharge, resulting in pollution leaking into groundwater.

Emerging contaminants such as per- and polyfluoroalkyl substances (PFAS) and microplastics have been detected in some groundwater sources, (see **Map 5**) raising concerns about long-term drinking water safety and ecosystem impacts. PFAS, chemical carcinogens found in industrial products and firefighting foams, are persistent in the environment and can accumulate in drinking water supplies. Microplastics, originating from many sources including consumer products, compost, agricultural runoff, and wastewater, have also been detected in wells and springs in Vermont. Microplastics are known to accumulate throughout the human body and are thought to be linked to increased risk of cancer and fertility issues, though their health impacts are still under study.



Groundwater protection strategies focus on preserving aquifer recharge areas, maintaining safe wellhead and source water protection zones, and implementing land use practices that reduce pollutant infiltration. These strategies include limiting high-risk development in mapped aquifer areas, promoting nutrient

management and best management practices for agriculture, monitoring private and municipal wells, and coordinating with State agencies to address emerging contaminants.



Bristol Pond

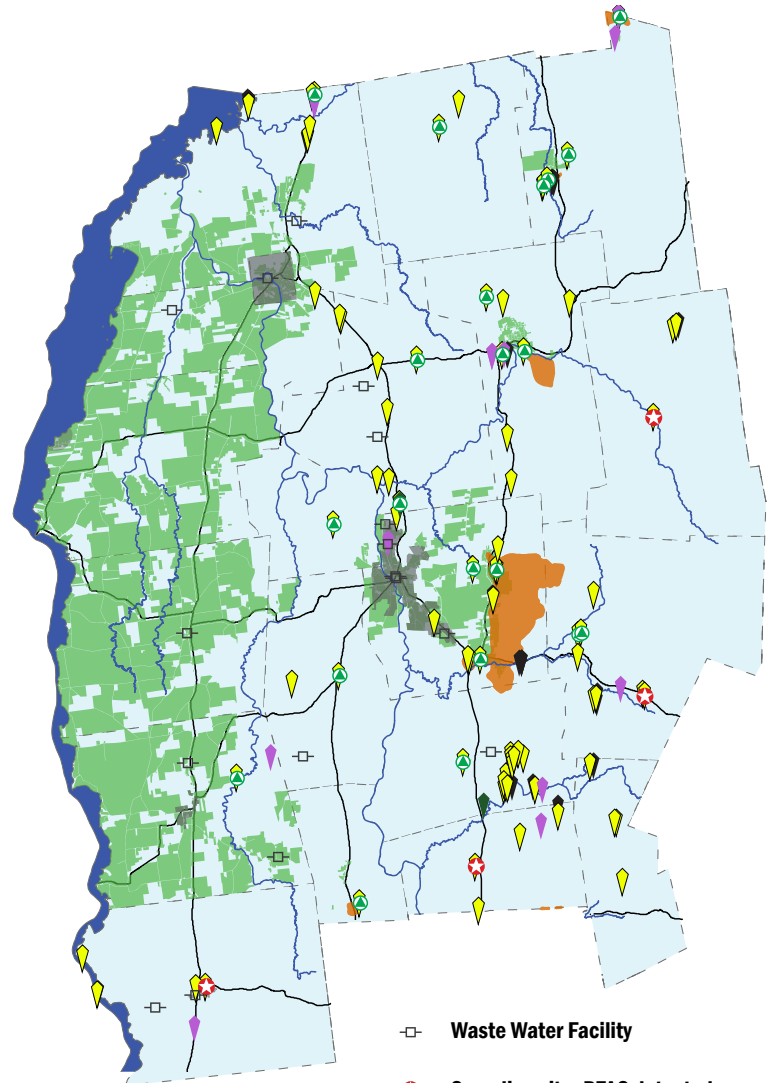


Water Water Works Beaver Pond



Bristol Flats

Map 5: Ground Water Resources



Public Water Supplies

- ◆ Proposed
- ◆ Active Non-Public, Previously Permitted
- ◆ Active
- ◆ Inactive

- Waste Water Facility
- ★ Sampling site- PFAS detected
- ▲ Sampling site- PFAS not detected
- Groundwater Surface Protection Area
- Public Water System Area
- Sewer Service Area

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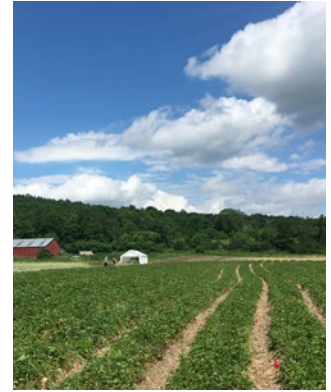
Agricultural Resources

Agriculture has long been a cornerstone of the Addison Region’s economy, culture, and landscape. The fertile soils, favorable climate, and long farming tradition have shaped its open fields, rolling pastures, and iconic dairy farms. Today, agriculture continues to play a central role, not only producing food and fiber, but also supporting rural economies, preserving the Region’s scenic character, and strengthening community identity.

In 2022, the county was home to 751 farms, encompassing 177,719 acres of land.² This represents a 4% increase in the number of farms and a 5% increase in farmland acreage compared to 2017. The average farm size is approximately 237 acres.³ These farms contribute significantly to the Region’s economy. In 2022, Addison County’s farms had a combined market value of products sold totaling \$262.9 million, with an average of \$350,103 per farm.⁴ This economic activity supports local businesses and provides employment opportunities in rural areas. See **Table 2** for a further exploration of Addison County agricultural statistics and **Table 3** for the rate of farm conservation over time.

Dairy farming has traditionally been the backbone of Addison County’s agriculture. However, the number of dairy farms has declined in recent years due to various economic pressures. From 2009 - 2019, Addison County lost 35% of its total dairy farms.⁵ While dairy farming continues to be a significant part of the Region’s agricultural landscape, many farmers have diversified their operations in response to challenges in the dairy industry. There has been a notable increase in diversified farms that grow various crops, raise multiple kinds of livestock, or include non-farming enterprises like agritourism. This diversification not only supports the local economy but also enhances food security and community resilience. See **Map 6**.

Strong local food systems play a crucial role in community resilience by providing consistent access to food during supply chain disruptions and fostering stronger social connections and community self-sufficiency. They also promote environmental sustainability through diverse, local farming practices and reduced transportation emissions, all contributing to a community’s ability



to adapt and thrive in the face of economic, environmental, and public health challenges. Further, by investing in value-added processing, local enterprises, and improved market access for agricultural products, communities can create jobs and generate income. Farmers markets, farm stands, community-supported agriculture programs, and farm-to-school initiatives help residents access fresh, healthy food and provide farmers with stable markets. (See Farmacy Program.)

However, the Region’s agricultural sector faces several challenges. Climate change is creating unpredictable conditions, with increased flooding, drought, and heavy rainfall affecting crops, livestock, and soil health. Agricultural runoff remains a concern, contributing to phosphorus pollution in Lake Champlain and other waterways. Economic pressures—including rising land and equipment costs, limited access to labor, and fluctuating commodity prices—make it difficult for some farms to remain viable. Even when farms remain viable, the average age of farmers continues to



rise, and many operations lack clear succession plans. This uncertainty risks the loss of productive farmland, disruption of local food systems, and fewer opportunities for the next generation of farmers.

Vermont's agricultural sector is also experiencing growing challenges due to shifts in the availability of seasonal and migrant laborers. Farms increasingly depend on these workers for critical planting, harvesting, and processing tasks, yet tightening immigration policies, rising housing costs, and competition for labor have made it difficult to fill these roles. As a result, many farms face reduced productivity, higher labor costs, and difficulties maintaining consistent operations during peak seasons.

Additionally, the Region's farmers experience challenges consistent with national trends, including widespread mental health struggles within the agricultural community. Throughout the U.S., farmers face significant mental health challenges driven by financial pressures, unpredictable weather, labor shortages, and the demands of managing small or family-run operations.⁶ Isolation, long work hours, and uncertainty about farm viability can contribute to stress, anxiety, and burnout. Limited access to mental health resources in rural areas further compounds the issue, affecting both individual well-being and the long-term sustainability of the Region's agricultural community.

Despite these challenges, there are opportunities to strengthen and sustain the Region's agricultural economy. Diversifying crops and expanding value-added production can increase farm income and create jobs. Adopting climate-smart practices, such as regenerative grazing, soil health improvements, and water-conservation measures, can reduce environmental impacts while increasing resilience. Farmland access programs, succession planning support, and technical assistance can help new and beginning farmers establish successful operations. Stronger farm-to-school programs, local food networks, and cooperative marketing efforts can improve food security and connect residents more closely to the land. Focusing these efforts on prime agricultural soils and soils of statewide significance will help to ensure the most productive farmland is protected and remains working land.

PARTNER SPOTLIGHT

Farmacy Program



One notable example of an innovative agricultural initiative in Addison County is the Farmacy program, launched by the Addison County Re-localization Network (ACORN) in partnership with Porter Medical Center, the VT Department of Health, and Middlebury Natural Foods Co-op. ACORN serves as a regional hub for local food system development and food education. Since its inception in 2019, Farmacy has addressed three critical community needs: diet-related illness, food insecurity, and the economic viability of local farms.

The program provides community members who are screened for food insecurity and/or diet-related illness with a free 15-week summer Community Supported Agriculture (CSA) share, including 10–12 pounds of fresh fruits and vegetables each week, along with a winter CSA extension featuring vegetables, proteins, and eggs. Each share is accompanied by a newsletter, recipe ideas, and, during the summer, additional gleaned local produce from Helping Overcome Poverty's Effects (HOPE). In 2025, Farmacy served 100 families and distributed more than 20,000 pounds of locally sourced food.

Table 2: Agricultural Statistics for Addison County

| | 2002 | 2007 | 2012 | 2017 | 2022 |
|---|---------|---------|---------|---------|---------|
| Number of Farms | 676 | 773 | 814 | 720 | 751 |
| Acreage in Farms | 193,376 | 187,482 | 208,362 | 169,874 | 177,719 |
| Average Size of Farm (acres) | 286 | 243 | 256 | 236 | 237 |
| Median Size of Farm (acres) | 179 | 100 | 92 | 80 | 75 |
| Market Value of Products Sold-Avg. Farm (\$1,000) | 156,691 | 208,819 | 227,928 | 240,889 | 350,103 |
| FARMS BY SIZE | | | | | |
| 1 to 9 acres | 48 | 76 | 58 | 64 | 79 |
| 10-49 acres | 167 | 197 | 243 | 224 | 244 |
| 50-179 acres | 170 | 223 | 233 | 217 | 232 |
| 180-499 acres | 180 | 178 | 160 | 129 | 112 |
| 500-999 acres | 66 | 59 | 77 | 49 | 43 |
| 1,000 acres or more | 45 | 40 | 43 | 37 | 41 |
| LIVESTOCK AND POULTRY: INVENTORY | | | | | |
| Beef cows | 1,209 | 862 | 1,480 | 2,222 | 1,891 |
| Milk cows | 32,797 | 32,172 | 32,498 | 30,381 | 31,363 |
| Hogs and pigs | 123 | 269 | 474 | 475 | 1,074 |
| Sheep and lambs | 1,737 | 1,552 | 1,960 | 2,920 | 4,296 |
| Milk goats | 1,056 | 1,367 | 1,798 | 1,469 | 1,142 |
| Chickens - Layers 20 weeks and older | - | - | - | 58,738 | 37,489 |
| CROPS HARVESTED (ACRES) | | | | | |
| Corn for grain | 1,279 | 943 | 3,200 | 618 | 1,963 |
| Corn for silage or greenchop | 24,330 | 22,727 | 23,250 | 19,352 | 22,795 |
| Hay | 80,608 | 76,047 | 88,251 | 69,590 | 70,114 |
| Grass | 55,134 | 36,276 | - | - | - |
| Soybeans | 920 | 1,634 | 2,858 | 3,612 | 3,660 |
| Vegetables | 258 | 140 | 258 | 273 | 232 |
| Maple syrup (taps) | 100,698 | 146,342 | 153,050 | 308,392 | 728,326 |
| Land in orchards | 1,328 | 1,109 | 431 | 896 | 493 |

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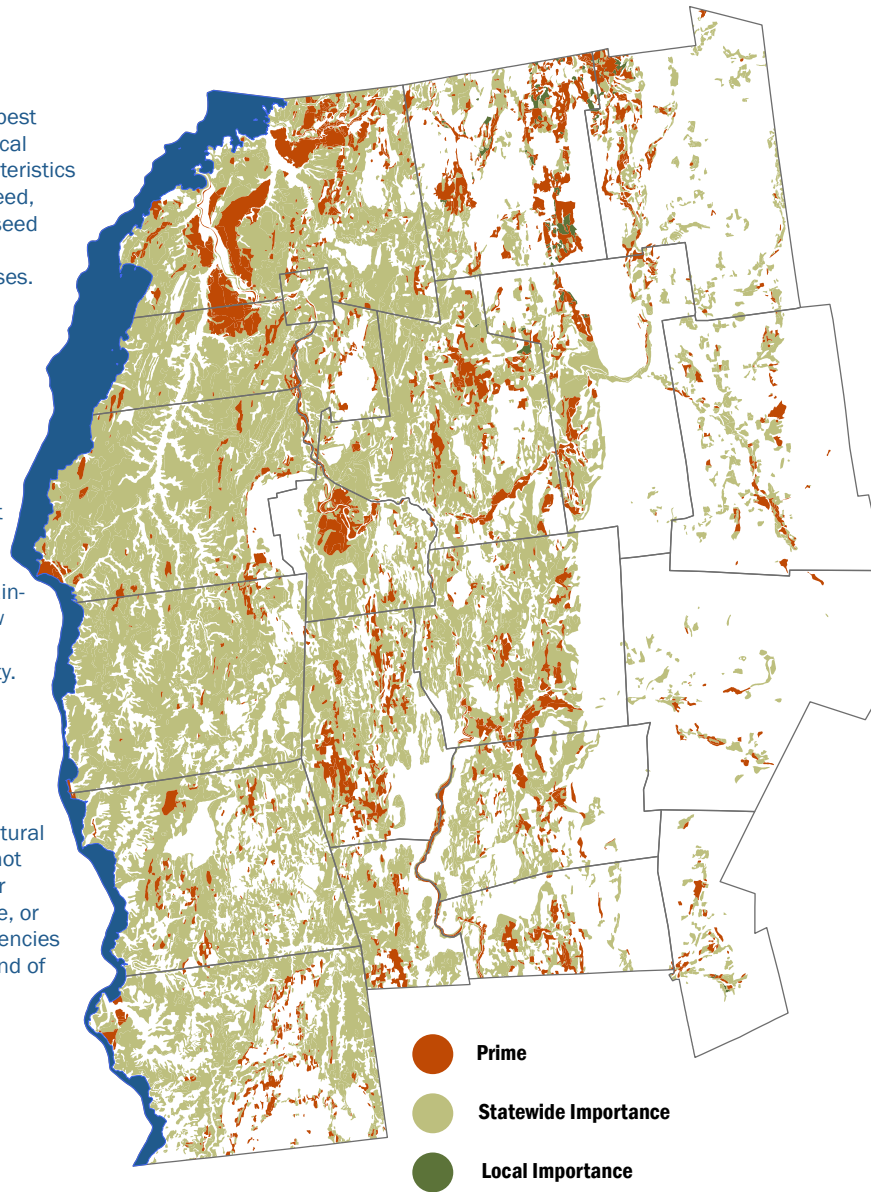


Map 6: Agricultural Soils (Prime, Statewide, Local)

Prime: Soils with the best combination of physical and chemical characteristics for producing food, feed, fiber, forage, and oilseed crops, and that are available for these uses.

Statewide Importance: Productive soils that would otherwise be considered prime but are limited by factors such as steep slope, erosion risk, poor drainage, flooding, shallow bedrock, or low water-holding capacity.

Local Importance: Soils used for agricultural production that are not classified as prime or statewide importance, or identified by local agencies as Additional Farmland of Local Importance.



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Table 3: Farms Conserved by the Vermont Land Trust in the Addison Region

| Year | New Farms | Total Farms | New Farm Acres | Total Acres |
|------|-----------|-------------|----------------|-------------|
| 2024 | 2 | 78 | 542 | 63,500 |
| 2023 | 4 | 76 | 600 | 62,958 |
| 2022 | 5 | 72 | 818 | 62,358 |
| 2021 | 8 | 67 | 999 | 61,540 |
| 2020 | 7 | 59 | 930 | 60,542 |
| 2019 | 4 | 52 | 876 | 59,612 |
| 2018 | 7 | 48 | 1,043 | 58,736 |
| 2017 | 1 | 41 | 233 | 57,693 |
| 2016 | 4 | 40 | 660 | 57,460 |
| 2015 | 3 | 36 | 633 | 56,800 |
| 2014 | 5 | 33 | 618 | 56,168 |

Agriculture is part of the Addison Region’s identity and way of life. Farms preserve open spaces, provide scenic landscapes that attract visitors, and host cultural and educational experiences for the community. By supporting sustainable farming practices, nurturing new farmers, and investing in local food systems, the Region can ensure that agriculture continues to thrive, shaping the local economy, culture, and landscape for generations to come.

**AGRICULTURE IS PART OF THE
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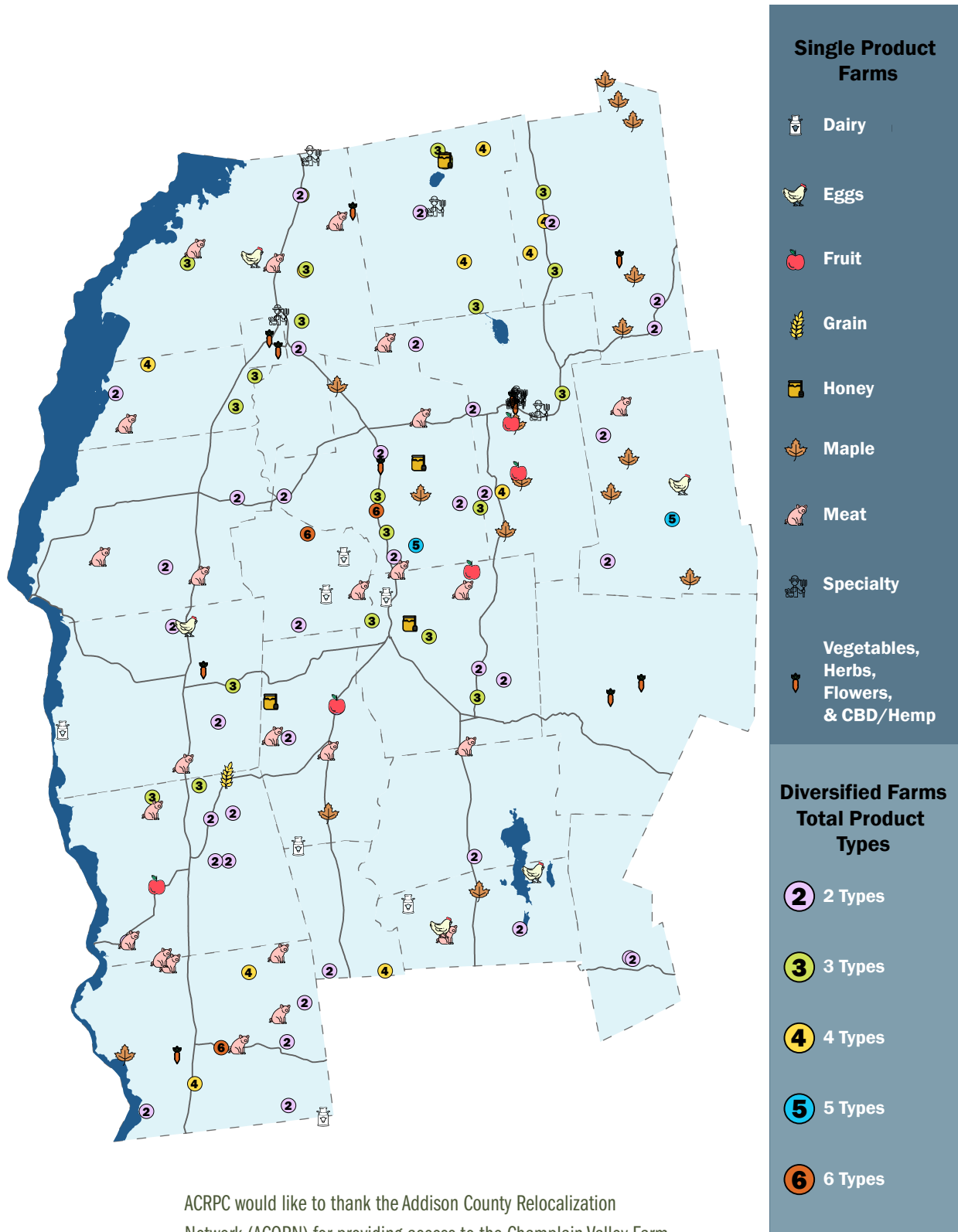
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Map 7: Farm Location and Type



ACRPC would like to thank the Addison County Relocalization Network (ACORN) for providing access to the Champlain Valley Farm and Food Producers dataset, which was instrumental for this analysis.

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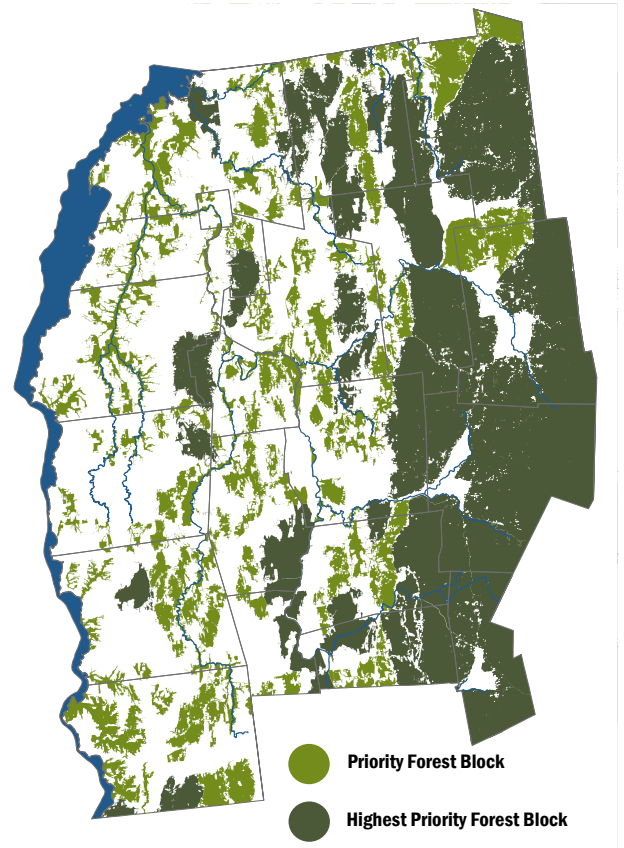
Forest Resources

Forests are a defining feature of Addison County’s landscape, covering much of the Region’s uplands and forming critical components of its ecological, economic, and recreational systems. The county’s forests provide habitat for native wildlife, support biodiversity, contribute to water quality and carbon sequestration, offer recreational opportunities, and supply timber and other forest products that sustain local economies. Forests also deliver essential ecosystem services such as soil stabilization, flood attenuation, pollinator support, and climate regulation, while providing aesthetic and cultural benefits valued by local communities.

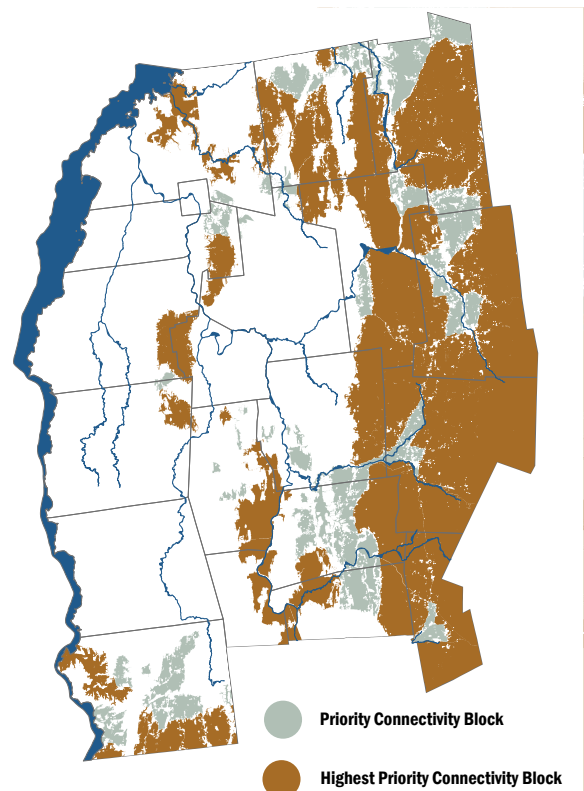
The county contains a diversity of forest types, ranging from northern hardwood and mixed conifer-hardwood forests in the Green Mountains and surrounding foothills, to subalpine and krummholz forests at the highest elevations, and floodplain and riparian forests along streams and rivers. Dominant species include sugar maple, American beech, yellow birch, red maple, red spruce, balsam fir, oaks, and hemlock, with rare or sensitive forest communities—such as Dry Pine-Oak-Heath Sandplain Forest and Subalpine Krummholz—occurring in select areas. These forests provide contiguous habitat blocks that support species, migration, dispersal, and genetic diversity, and include key corridors for wildlife such as bobcat, moose, Canada lynx, forest-dependent amphibians, and songbirds.

Addison County’s forests have experienced both gains and pressures over the past decades. Between 2000 and 2024, the county gained an estimated 5,411 acres of forest cover (See **Figure 1** and **Map 10**). However, development and land conversion—particularly in the Champlain Valley and along major transportation corridors—remain a threat to habitat continuity and connectivity. Forest pests and pathogens—such as emerald ash borer, hemlock woolly adelgid, and beech leaf disease—are degrading forest health and changing species composition. Additional pests, including species like Spotted Lanternfly, are expected to arrive from neighboring states. Climate change presents additional long-term risks, including shifts in forest composition, increased vulnerability to pests and disease, and more frequent extreme weather events that can damage trees and disrupt ecological processes.

Map 8: Forest Blocks





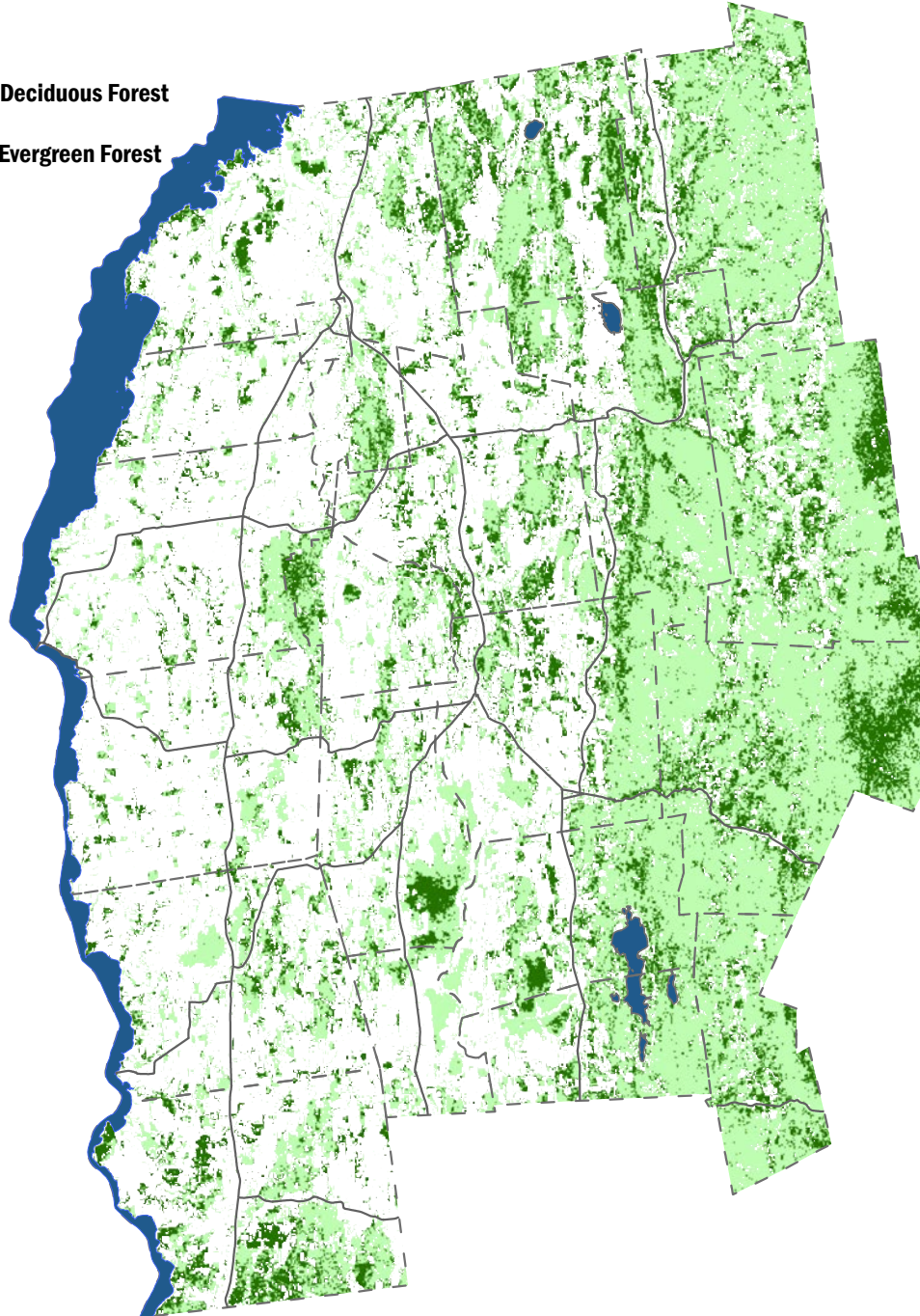
Map 9: Forest Blocks and Habitat Connectors





Map 10: Forest Cover

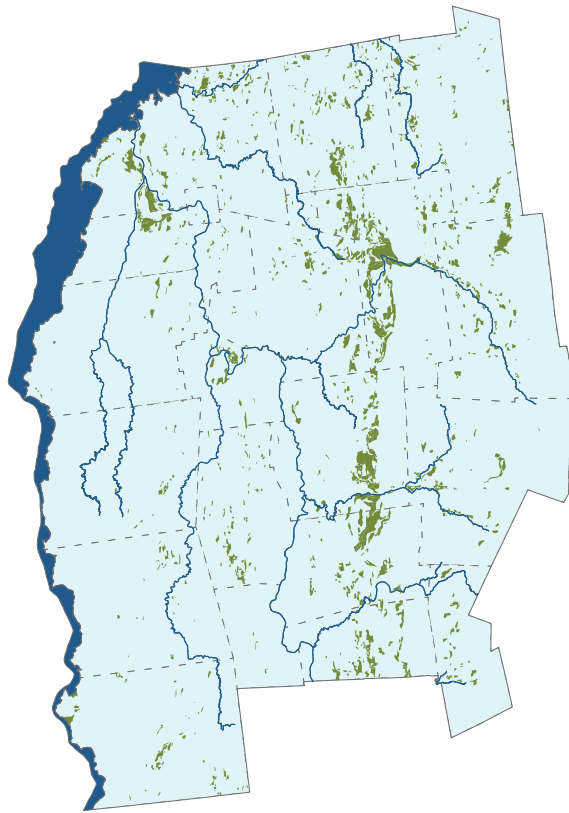
-  **Predominantly Deciduous Forest**
-  **Predominantly Evergreen Forest**



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A combination of protection, stewardship, and sustainable management practices will be needed to maintain and enhance forest health, viability, and function. Strategies for managing the Region’s forests include preserving large contiguous forest blocks, maintaining and expanding riparian buffers and wildlife corridors, and employing clustered and conservation-oriented development to minimize fragmentation. Planning efforts should focus on maintaining and enhancing forest cover in priority forest blocks identified through the Vermont Conservation Design (see **Table 5**). This Plan

Map 11: Prime Forest Soils



encourages landowners to implement forest stewardship plans, manage harvests at sustainable levels, follow the Agency of Natural Resources “Acceptable Management Practices for Maintaining Water Quality on Logging Jobs in Vermont,” and leverage forest management practices that create and maintain wildlife habitat. ACRPC supports programs that provide education and financial incentives to landowners who want to engage in ecologically beneficial forest stewardship. ACRPC also supports efforts to restore degraded habitats, enhance pollinator forage, and protect rare and sensitive communities to support ecosystem resilience and biodiversity.

In addition to these strategies, monitoring and adaptive management are critical to long-term forest health. This includes tracking forest composition, age structure, and invasive species presence through forest inventories and aerial or ground-based surveys, as well as evaluating the effectiveness of habitat restoration and connectivity initiatives. ACRPC supports and facilitates collaboration among municipalities, private landowners, universities, state agencies, and

PARTNER SPOTLIGHT

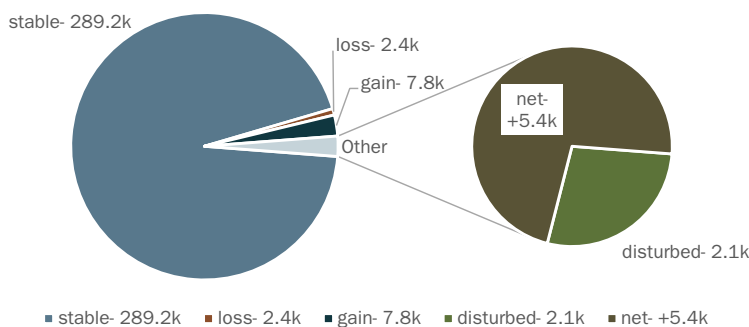
Vermont Family Forests

Stewarding the Working Forest Landscape

Vermont Family Forests (VFF) is a Bristol-based nonprofit dedicated to sustainable forest ecosystem conservation that is concurrently ecologically viable, economically feasible, and socially responsible. Through its consulting conservation forestry program, VFF works directly with family forest owners to promote sustainable management practices. VFF also oversees long-term ecological monitoring on more than 700 acres of wild forest in Lincoln, applying research findings to guide stewardship on both private and community lands. Beyond the woods, VFF cultivates a vibrant culture of forest learning and celebration through workshops, community courses, and seasonal events like Beltane and Winter Solstice, deepening local connections between people and the forest landscapes they depend on.

Figure 1: Net Forest Cover Change

From 2000 to 2020, Addison experienced a net gain of 5,400 acres (1.8%) in tree cover.



conservation organizations to ensure that forest management aligns with both ecological and community goals. By prioritizing contiguous forest and connectivity blocks, sustainable use, restoration, and proactive stewardship, the Addison Region can maintain and enhance the ecological, economic, and social benefits provided by its forests.

Wildlife, Native Plants, & Natural Communities

Of the 105 Level III Ecoregions in the continental United States, two can be found in the Addison Region. Ecoregions denote areas of general similarity in ecosystems and in the type, quality, and quantity of environmental resources; they are designed to serve as a spatial framework for the research, assessment, management, and monitoring of ecosystem components. They are identified by analyzing the patterns and composition of biotic and abiotic phenomena including geology, landforms, soils, vegetation, climate, land use, wildlife, and hydrology, that affect or reflect differences in ecosystem quality and integrity. Our two ecoregions are Eastern Great Lakes Lowlands and Northeastern Highlands.

The **Eastern Great Lakes Lowlands**, subclassified as the Champlain Lowlands, cover the western side of the Region. This ecoregion has glaciated, gently rolling plains of relatively low relief with some hills, and low-gradient streams and rivers with mostly sandy and silty substrates. Prior to European settlement, valley clayplain forest of red maple, beech, hemlock, swamp white oak, bur oak, white oak, ash, and shagbark hickory dominated.

The **Northeastern Highlands** are subclassified into three regions in Addison County: Green Mountain/Berkshire Highlands, Taconic Foothills, and Upper Mountain Alpine Zones. The Green Mountain Highlands, located along the eastern edge of the Region, are composed of low mountains and open low mountains, gently rounded to steep slopes, and narrow valleys. Waterways consist of moderate to high gradient, bedrock, boulder, and cobble-bottomed streams. On lower slopes, the forests are primarily northern hardwood forest or mesic red

oak-northern hardwood forests with sugar maple, American beech, and yellow birch transitioning to montane yellow birch-red spruce forests that include some sugar maple, red maple, and American beech on mid-slopes and low summits. Taconic Foothills are found only in the southwestern-most portion of our Region. The Foothills have more southern-influenced forests with oaks and hickories on lower and drier slopes. The Upper Mountain Alpine Zones are found only at the highest elevations in the Region. There one finds subalpine forests, krummholz, and heath/krummholz communities with stunted balsam fir, some black spruce alpine areas with low mat-forming shrubs, sedges, rushes, grasses, mosses, and lichens.

The Addison Region's diverse ecoregions support a rich tapestry of natural communities. The State of Vermont has identified **97** different natural communities in the state. A natural community is an assemblage of plants and animals that repeats across the landscape wherever similar environmental conditions occur. These are finer distinctions than ecoregions, and include such habitats as floodplain forests, red pine forests, alpine meadows, and many others. Communities are ranked from S5, the most common, to S1, very rare in the state. There are five types of very rare (S1) communities that have been identified in our Region (see



Red Tailed Hawk

Figure 2 for further details on these natural communities). **Rare communities (S2) are included in the Chapter 1 Appendix.**

Each natural community in Addison County supports a variety of native plants and animals. A species is considered native if it has occurred naturally in a region for thousands of years without human introduction. Many native plants have co-evolved with wildlife, creating interdependent relationships that are essential for survival. For example, native oaks support hundreds of caterpillar species, which in turn feed songbirds, highlighting the deep interconnectedness of flora and fauna. Restoring native plant communities enhances wildlife habitat and strengthens ecosystem resilience against climate change and other stressors.

The Addison Region provides diverse habitats for mammals, birds, amphibians, invertebrates, and reptiles. Notable species include black bears, bobcats, white-tailed deer, Indiana bats, brook trout, blue-spotted salamanders, peregrine falcons, and common loons. Recent surveys have also documented the return of the Canada lynx, previously absent from Vermont, indicating positive trends in wildlife recovery. Supporting the diversity of wildlife, native plants,

and natural communities in our Region requires a landscape-level approach to conservation. This approach focuses on protecting and enhancing species and habitat types across the Region, recognizing that healthy ecosystems rely on connected habitats and ecological integrity. The **Vermont Conservation Design (VCD)** identifies key forest and habitat blocks (see the **Forest Resources** section for more detail) that serve as critical habitat and wildlife corridors, preventing fragmentation and allowing animals to find food, water, and shelter, migrate, disperse, and maintain genetic diversity. These connected systems also support climate change adaptation, pollination, seed dispersal, reduced human-wildlife conflict, and essential ecosystem services such as clean air and water.

In addition to maintaining connectivity, significant natural and fragile areas should be identified and prioritized for protection. Conservation efforts should focus on threatened, endangered, and rare species, especially in areas facing environmental degradation or development pressure. In addition to designated rare, threatened, and endangered species, conservation efforts should also seek to protect and enhance known sensitive and threatened habitats before their dependent species become rare or endangered. One

Table 5: Forest Resource Definitions

| | |
|-----------------------------|--|
| Habitat Block | A large area of natural cover, such as forest, wetland, or shrubland, that is contiguous and relatively unfragmented by human development, like roads, housing, or agriculture. These blocks are significant for supporting native species and ecological processes by providing essential resources and connectivity within the landscape. |
| Forest Block | A specific type of habitat block comprising a contiguous area of forest in any stage of succession, not currently developed for other uses. These areas can include recreational trails, wetlands, and agricultural and silvicultural uses currently exempt from municipal land use regulations. |
| Connectivity Block | A selection of habitat blocks that create a connected network of forest across Vermont and into adjacent states and provinces. They include the largest forests that serve as core habitat, as well as sometimes smaller connecting blocks. Connectivity Blocks are the network of forest blocks that together provide terrestrial connectivity at the regional scale, between all Vermont biophysical regions, and to adjacent states and Québec. |
| Forest Fragmentation | The division or conversion of a forest block by land development other than by a recreational trail or use exempt from municipal land use regulation. |

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such example is vernal pools, which are small, sensitive wetland habitats that can easily be disturbed or destroyed by human activities.

Vernal pools provide critical breeding habitat for amphibians and invertebrates, many of which cannot breed anywhere else. Similarly, preserving, expanding, and enhancing pollinator habitat should be a priority. Pollinators are under threat in Vermont due to a combination of habitat loss, widespread use of systemic pesticides like neonicotinoids, and other factors like invasive species and climate change. The loss of wildflower habitats due to development and single-crop farming reduces food and nesting sites, while pesticides can directly harm or weaken bees, impacting their navigation, immune function, and reproduction. Outreach, education, and funding programs can help land managers enhance ecosystem health by supporting farm and forest practices that create, protect, and expand these habitats, promoting plant diversity and overall ecosystem function.

By emphasizing connectivity, proactive stewardship, and thoughtful land use planning, the Addison Region can maintain and enhance the integrity of its native plants, wildlife, and natural communities, ensuring resilient ecosystems and the continued provision of biodiversity and essential ecosystem services for future generations.



Eastern Painted Turtle



Wood Frog



Red Eft

Map 12: Rare, Threatened, and Endangered Species

 **Vernal Pool**

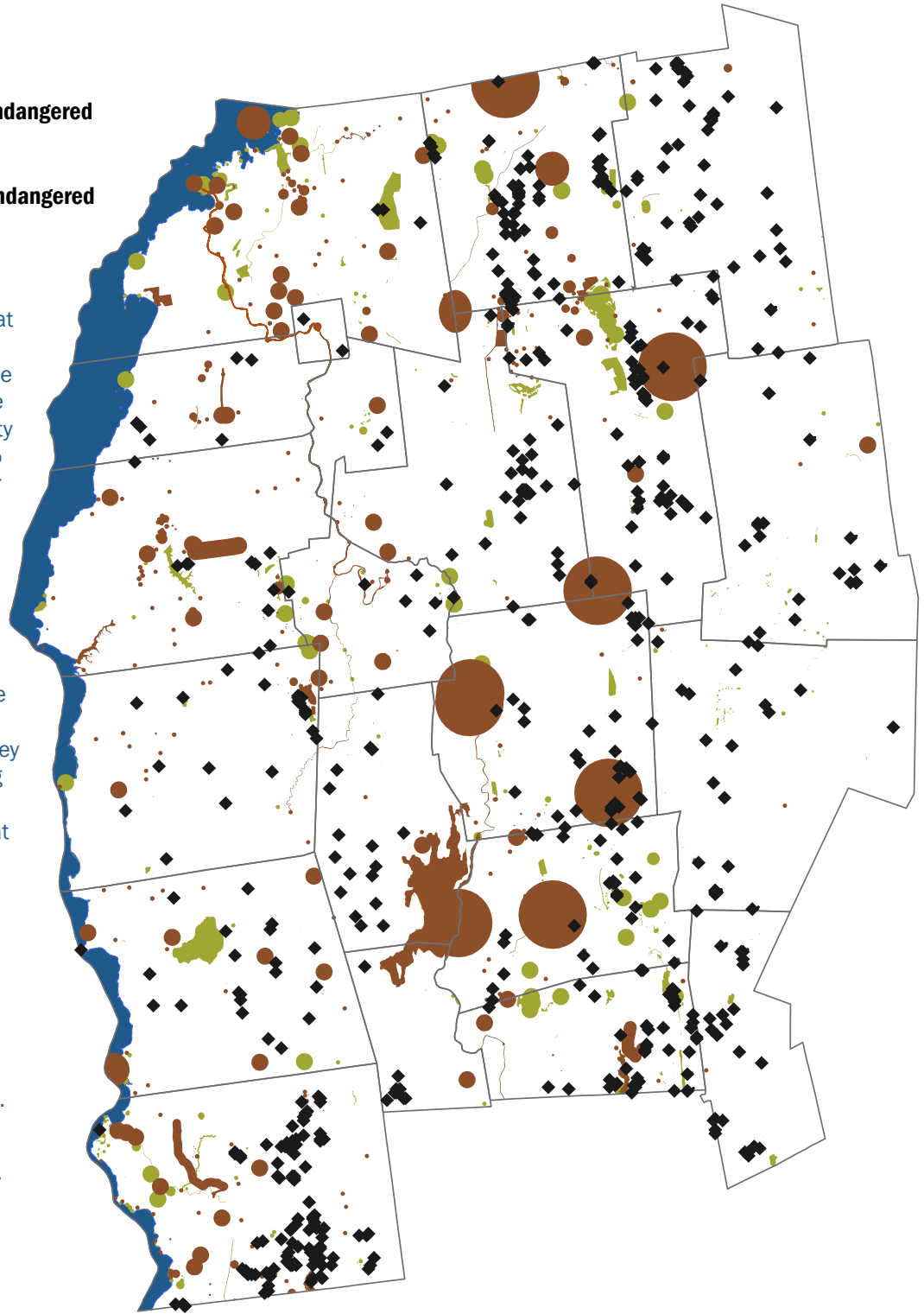
 **Rare/Threatened/Endangered Plant**

 **Rare/Threatened/Endangered Animal**

Rare Species: Species that have small populations or limited distributions, but are not currently at immediate risk of extinction. Their rarity makes them vulnerable to environmental changes or habitat loss.

Threatened Species: Species that are likely to become endangered in the near future if protective measures are not taken. They are experiencing declining populations or increasing pressures but are not yet at the endangered level.

Endangered Species: Species that face a very high risk of extinction throughout all or a significant portion of their range. Their populations have declined dramatically or their habitats are severely threatened.



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Figure 2: Very Rare (S-1) Natural Communities Present in the Addison Region

DRY PINE – OAK – HEATH SANDPLAIN FOREST

Pine-Oak-Heath Sandplain Forest is a very threatened community in Vermont. Overall plant diversity is low, although Dry Pine-Oak-Heath Sandplain Forests have a disproportionately high number of rare species. With their deep, well-drained soils, areas occupied by this community are in great demand for residential and industrial development, as well as for sand extraction.



PITCH PINE – OAK – HEATH ROCKY SUMMIT

These exposed, hot, dry, woodlands are typically very small and provide habitat diversity for the wildlife species that use adjacent forests. This is a fire-adapted community, so natural fires should be allowed to burn on hilltops where this community occurs. Without fire, leaf litter can accumulate and allow hardwood species to replace pitch pine.



RED CEDAR WOODLAND

These distinct narrow bands of scattered trees are found on south or west facing clifftops, where they contrast with the closed canopy forest behind them. Red Cedar Woodland is the only community documented in Vermont where red cedar maintains itself as a dominant species in a mid- to late-successional setting. This community is not especially vulnerable to human-induced change since it contains no marketable timber and is generally undevelopable.



RED MAPLE – WHITE PINE – HUCKLEBERRY SWAMP

Red Maple-White Pine-Huckleberry Swamps occur in the center of much larger wetland complexes. Very few examples of Red Maple-White Pine-Huckleberry Swamps are known in Vermont. All are in the Champlain Valley. No other states in the Region appear to have examples of this community.



SUBALPINE KRUMMHOLZ

“Krummholz” is a German word meaning “crooked wood.” Subalpine Krummholz is found only on the highest peaks in the Green Mountains, with well-developed examples on Jay Peak, Mount Mansfield, Camel’s Hump, and Killington. Areas of this community may be impacted by the development of communication towers and ski area infrastructure.



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Scenic Resources

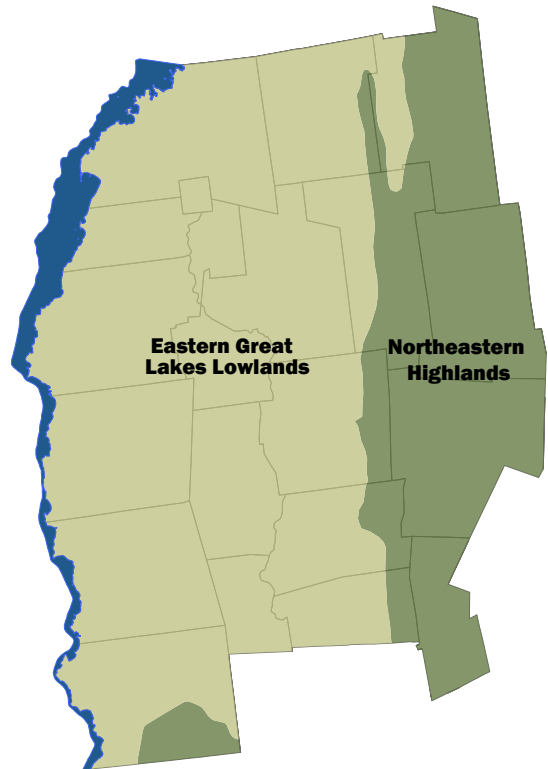
Housing and Land Use Planning are discussed in their respective chapters.

Addison County’s scenic resources are a defining element of the Region’s identity. For more than 200 years, family farms have shaped the Addison Region’s landscape into a distinctive and highly valued pattern. The Region is characterized by a mosaic of open meadows, forests, and working farms. Visitors and residents alike experience panoramas of open fields interspersed with wooded areas, occasional glimpses of Lake Champlain, and rolling hills that rise to meet the backdrop of the Green Mountains. The natural rhythms of the seasons, combined with the productive use of the land, contribute to a landscape that is both varied and visually striking.

The rural pattern of villages and small industrial towns, established in the late 18th century, has largely been preserved. The human scale of buildings, the size of settlements, and the relationship of the built environment to surrounding farmland and forest create a sense of balance and comfort. Even historic and modern development of the Region has generally been modest in scale, fitting into rather than dominating the landscape. Visitors are drawn to the Region for its welcoming atmosphere, strong sense of community, and the charm that arises from the interplay of natural and man-made features. Notable scenic features include the Lake Champlain shoreline, Lake Dunmore, the Green Mountains, Dead Creek Marsh, and the Region’s historic towns such as Middlebury, Vergennes, and Bristol, where architecture, streetscapes, and surrounding agricultural landscapes contribute to a strong sense of place.



Map 13: Ecoregions



This enduring landscape has been maintained through long-term family ownership, stewardship, profitable agriculture and forestry, and careful management of resources. However, pressures on the traditional land use pattern are increasing. The growth of small communities, changes in the agricultural sector, and the development of residential subdivisions for commuters to Burlington and Rutland are introducing new visual elements. Modern infrastructure, including telecommunications towers, industrial facilities, and alternative energy projects, can contrast sharply with the historic context of the Region. Development pressure along major roadways, lakeshores, and ridgelines, as well as subdivision of farmland and forested parcels, presents additional challenges to preserving scenic character. Evaluating the visual impacts of these changes is complex, as landscape alterations tend to be slow and cumulative.

Maintaining and enhancing the Region’s scenic resources requires careful planning and coordinated

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strategies. Approaches that help preserve the Region’s character include encouraging clustered or conservation-oriented development to maintain open space and protect ridgeline and waterfront views, implementing design standards for buildings, lighting, and signage that complement the surrounding landscape, and conserving key natural and agricultural vistas. Protecting working farms, forested hillsides, and historic structures also helps maintain visual integrity. Public awareness and stewardship, including scenic easements, community engagement, and support for local conservation initiatives, are critical for long-term preservation.

The scenic resources of the Addison Region are more than just visually appealing; they contribute directly to quality of life, community identity, and tourism. By maintaining the balance between development and conservation, supporting sustainable land use practices, and fostering local stewardship, the Region can ensure that its landscapes—both natural and cultural—remain a defining element of Addison County for generations to come.

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View of the Addison Region from the Green Mountains

Air Quality

Greenhouse gas emissions are addressed in Chapter 2, Energy.

Overall, Vermont’s air quality has seen significant long-term improvements in most monitored pollutants. See **Figures 3 and 4** for Vermont air quality trends over time. The State is consistently ranked as one of the cleanest in the Country.

The Clean Air Act (CAA) requires the Environmental Protection Administration to set National Ambient Air Quality Standards (NAAQs) for pollutants considered harmful to public health and the environment. The CAA identifies two types of national ambient air quality standards. Primary standards provide public health protection, including protecting the health of “sensitive” populations such as asthmatics, children, and the elderly. Secondary standards provide protection against decreased visibility and damage to animals, crops, vegetation, and buildings. Six pollutants are measured in the NAAQs: particulate matter, sulfur dioxide, carbon monoxide, nitrogen dioxide, lead, and ozone. In addition to the concerns addressed by the CAA and NAAQs, outdoor air pollution in significant concentrations can raise aesthetic and nuisance issues such as impairment of scenic visibility; unpleasant smoke or odors; atmospheric impacts to water quality; and can also pose human health problems, even for healthy populations.

The Region’s air quality is impacted by both local and distant sources of air pollution. Local sources include discharges from industries and from non-point sources such as automobile operation. Additionally, local emissions from woodstoves and outdoor wood-fired boilers increase during the winter heating season. Inversion events, common in mountain valleys, can trap these pollutants and increase concentrations. In recent years, the Region’s air quality has also been increasingly impacted by short periods of acute pollution, particularly driven by wildfires in Canada.

It will require proactive planning and collaboration to continue maintaining and improving air quality in the Region. Permitting and siting of new industrial facilities

Figure 3: Fine Particulate Annual Average

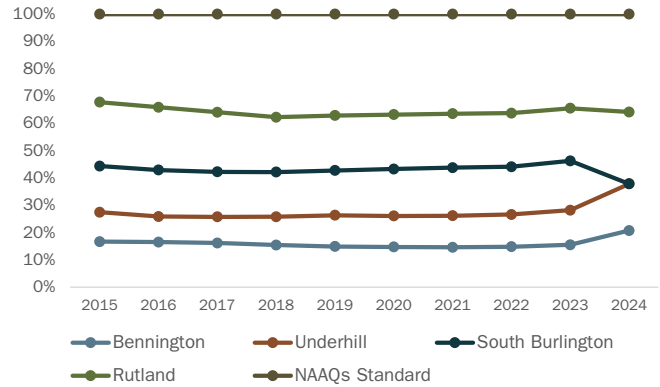
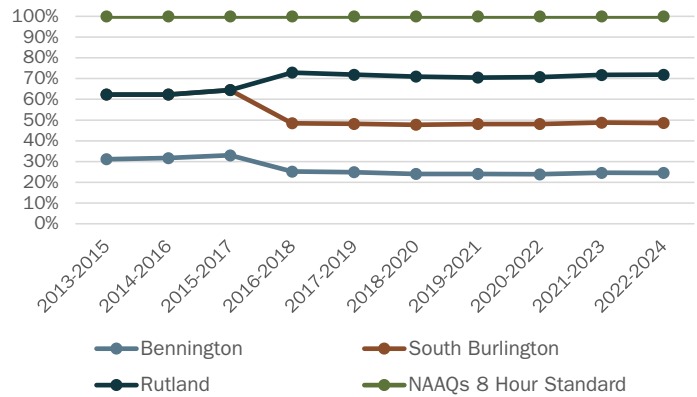


Figure 4: Ozone 8-hour Average



Ozone and fine particulate matter (PM2.5) are used in the Air Quality Index (AQI) because they are the two air pollutants that pose the greatest health threats to the public.

PM2.5 particles are small enough to be inhaled deeply into the lungs and bloodstream, causing respiratory and cardiovascular issues. Ground-level ozone, a major component of smog, is a potent irritant that can lead to asthma attacks and other lung problems.

Monitoring these specific pollutants allows authorities to inform the public about potential health risks and take steps to protect vulnerable populations.

There are four federal AQI monitoring stations in Vermont: Bennington, Underhill, South Burlington, and Rutland.

should consider particulate matter and ozone-depleting substance risks, ensuring that potential impacts are minimized before operations begin. In addition, regional planning efforts should support a multi-pollutant, integrated approach in coordination with in-state partners, allowing agencies to address emissions comprehensively rather than in isolation. Finally, state and regional entities should work together to identify localized air quality impacts, enabling targeted mitigation strategies where air pollution poses a risk to public health or environmental quality. These combined efforts aim to maintain Vermont's clean air standards while preparing for both ongoing and emerging challenges.

Mineral and Earth Resources

Earth and mineral resources include stone, sand, gravel, slate, and marble. These resources serve important functions in construction, road building, manufacturing, and within consumer products such as paper, paint, and medicine.

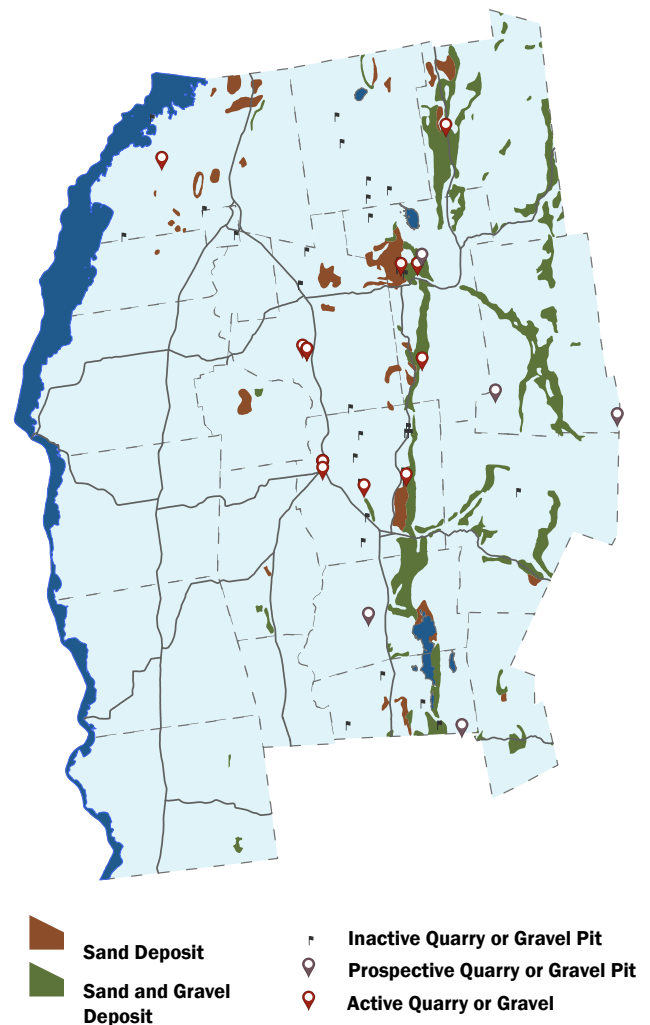
Addison County is endowed with a variety of earth and mineral resources that have historically supported local industries and continue to play a role in regional development. The county's geology features deposits of iron, marble, manganese, lead, and titanium, with eleven identified mines recorded by the U. S. Geological Survey (USGS). These resources were primarily extracted during the 19th and early 20th centuries, contributing to the Region's industrial heritage.

One large scale extraction operation still exists today. The OMYA Inc. Middlebury Quarry is a large-scale marble extraction and processing operation that produces high-purity calcium carbonate used in paper, paint, plastics, and a host of other consumer and industrial applications. In addition to marble deposits, the Addison Region has significant deposits of sand and gravel, which are essential for construction and infrastructure projects. Local businesses operate gravel pits that provide materials like crushed stone, topsoil, and winter sand. These operations support both residential and municipal development within the Region. The operations also contribute to the regional economy. See **Figure 5** for 2024 Addison County mineral extraction employment data.

Figure 5: Addison Region Earth and Mineral Extraction Employment



Map 14: Mineral and Earth Resources



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Looking ahead, several trends and challenges may influence the management of earth and mineral resources in the Addison Region. With ongoing population growth and infrastructure development, the demand for sand, gravel, and other aggregates is expected to rise. This may lead to the expansion of existing operations or the establishment of new sites. Mining and extraction activities can impact local ecosystems, water quality, and landscapes. Balancing resource extraction with environmental stewardship will be crucial to maintaining the County's natural beauty and ecological health.

Communities in the Region can take several steps to ensure the wise utilization of earth and mineral resources while minimizing environmental impacts. This Plan supports adopting BMPs for mining operations to help mitigate erosion, sedimentation, and other environmental impacts, promoting more sustainable resource extraction. Rehabilitating and reclaiming mined lands for alternative uses—such as agriculture, recreation, or wildlife habitat—can enhance both land productivity and ecological value. Engaging local communities in decision-making related to mining operations can foster transparency, address public concerns, and promote shared responsibility for resource management. Additionally, supporting research and innovation in sustainable mining technologies and alternative construction materials can reduce dependency on traditional mining practices and help minimize environmental footprints.

Recreational Resources

The Addison Region offers diverse outdoor recreation opportunities that contribute to public health, community well-being, economic development, and the protection of natural and cultural resources. The Region's varied landscapes—ranging from the Champlain Valley to the Green Mountains—support a wide range of activities, including hiking, biking, boating, fishing, hunting, skiing, snowmobiling, and wildlife observation. Public lands, state parks, and municipal recreation areas provide critical access for residents and visitors. Some of the key resources in the Region include Lake Champlain, Lake Dunmore, Silver Lake, Dead Creek Wildlife Management Area, Button Bay State Park, Green Mountain National Forest lands, and town-owned conservation and recreation parcels. The Long Trail, Cross Vermont Trail, Trail-Around-Middlebury, and numerous local hiking and multi-use trails connect communities and offer opportunities for both casual and long-distance recreation.

It is ACRPC's goal to provide safe, accessible, and sustainable recreational opportunities in our Region that enhance public health, support local communities, and protect the Region's natural and cultural resources. Challenges to achieving this goal include balancing recreation with conservation, addressing



View of the Addison Region from Western New York

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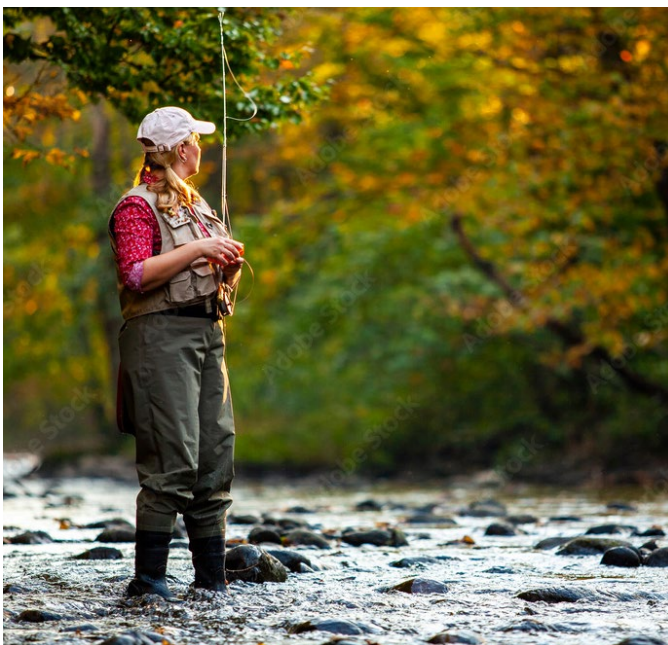


increasing demand for outdoor access, managing maintenance and funding needs, and mitigating conflicts among different recreational uses. Climate change and extreme weather events can damage infrastructure and natural areas, while private landownership and limited public lands can constrain access. Ensuring equity and inclusivity in recreational opportunities is also critical, so that all residents can benefit from the health and social advantages of outdoor recreation.

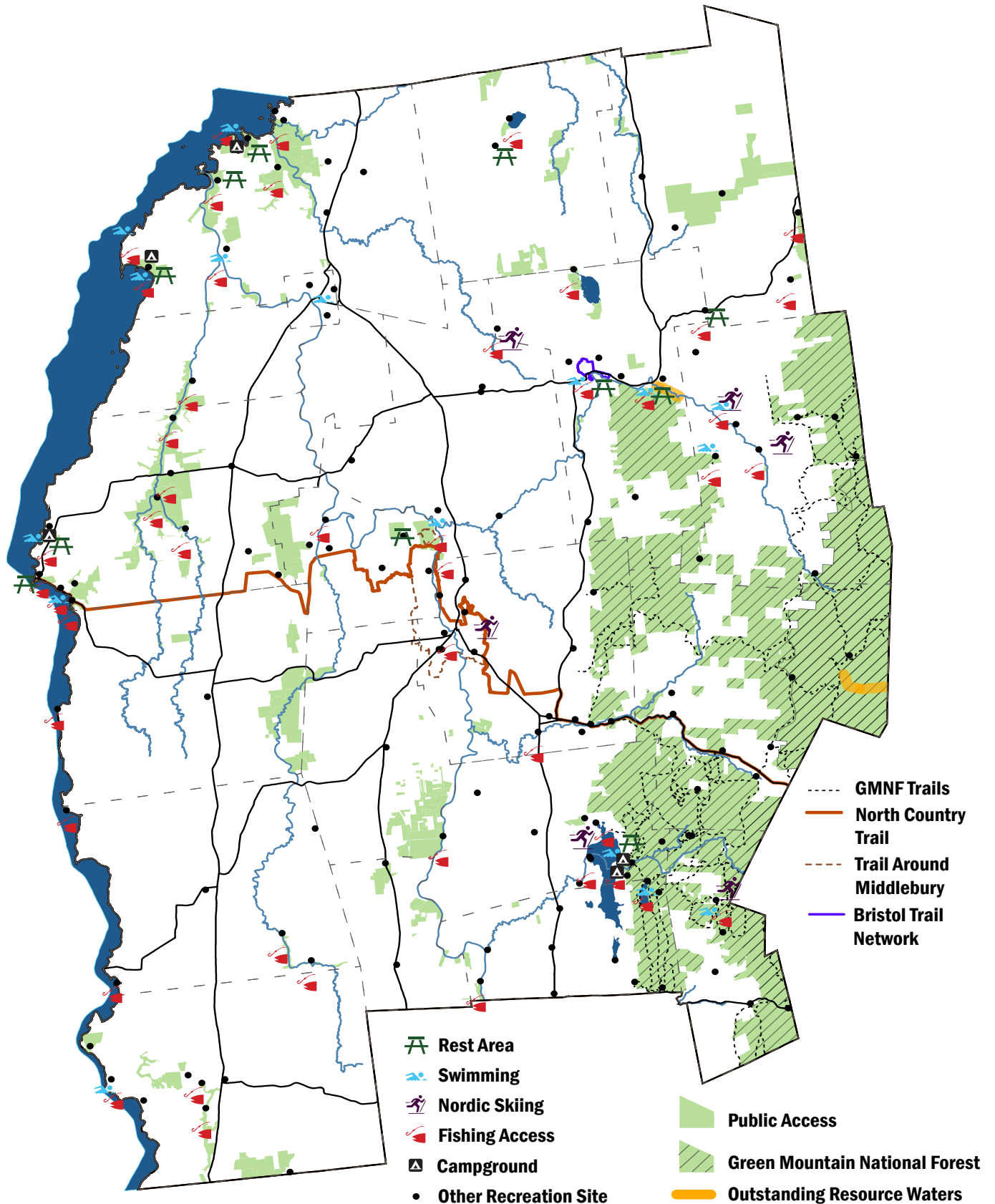
Supporting and developing recreation in the Region will require a proactive, coordinated approach that balances access, sustainability, and resource protection. Collaboration with municipalities, landowners, state agencies, and community groups is essential to maintain and expand public access while protecting sensitive natural and cultural resources.

Municipalities are encouraged to integrate recreational planning into local land use and development decisions, ensuring new projects support safe, accessible,

and environmentally responsible outdoor opportunities. Trails, parks, and facilities include area designed to meet ADA standards and accommodate multiple user types, while sensitive natural and cultural areas—including wetlands, wildlife habitats, floodplains, historic landscapes, and archaeological sites—are identified and protected. Sustainable trail and facility design can help to prevent erosion, habitat disruption, and pollution, while integrating green infrastructure and native vegetation to enhance ecological function. This Plan encourages low-impact recreation practices, separating high- and low-speed trail users, and collaborating with local emergency services will improve safety and stewardship. Encouraging low-impact recreation, stewardship programs, and volunteer engagement can also enhance the sustainability of recreational assets. Finally, promoting eco-tourism, agritourism, and outdoor recreation businesses that align with sustainable land use will help ensure that recreational opportunities support the Region's economy while preserving its natural and cultural heritage.



Map 15: Recreational Resources



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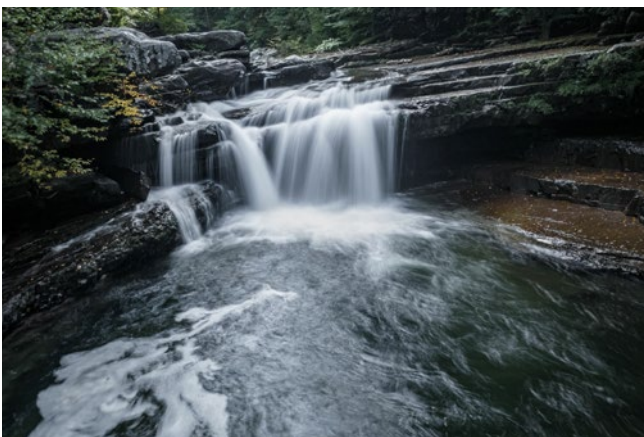
Goals, Objectives, and Actions

GOAL 1: To maintain, protect, and improve the quality and quantity of surface waters in the Region.

Objective 1:

Maintain, protect, and enhance functions and values of surface water systems including recreation, fisheries, wildlife habitat, water supplies, power generation, transportation, irrigation, and limited responsible waste disposal.

- a. Support and expand ongoing monitoring of surface water quality to enhance tracking of water quality project impacts.
- b. Support Lake Champlain Basin Planning efforts and Vermont DEC's Tactical Basin Planning efforts.
- c. Work to restore and maintain stream equilibrium by developing and implementing river corridor plans.
- d. Encourage watershed-based cooperation and educate towns and the general public about water quality and stream dynamics.
- e. Acknowledge and address the interrelationships between various water resources in planning processes.
- f. Encourage conservation of water resources by providing mapping and educational services.
- g. Work with the Natural Resource Conservation Service and Basin Water Quality Council to support and implement farm and forestry practices that promote water quality.
- h. Identify and mitigate sources of stormwater and wastewater contamination.



Objective 2:

Reduce pollutants entering rivers, streams, and lakes, including nutrients, sediment, and pathogens.

- a. Identify and work to improve proposed and existing land use activities that have a reasonable potential to threaten surface waters through pollution, depletion, or other means of degradation.
- b. Encourage development and implementation of improved wastewater treatment technologies.

Objective 3:

Protect and restore riparian buffers to filter runoff and stabilize streambanks.

- a. Support projects that maintain or restore diverse areas of vegetation along surface waters sufficient to protect the dynamic viability of the stream or functional habitat or the waterbody.

Objective 4:

Preserve and restore wetlands, vernal pools, and other critical habitats that contribute to surface water quality.

- a. Support research and development of local, small-scale hydro-power facilities that maintain adequate surface flow and do not compromise surface water quality or habitat.
- b. Promote land use planning and zoning that minimize impacts on surface waters.

GOAL 2: To maintain, protect, and improve the quality and quantity of groundwater in the Region.

Objective 1:

Maintain, protect, and enhance functions and values of groundwater systems including drinking water supplies, water for industry, commerce and agriculture, and recharge of surface water.

- a. Support and encourage efforts to protect ground-water resources in local planning and decision making.
- b. Limit land uses in mapped source water protection areas to those uses that do not have a significant negative impact on water quality.
- c. Identify, map, and monitor the condition of ground-water.

Objective 2:

Maintain, protect, and enhance the quality and quantity of groundwater resources, particularly where they might be degraded incrementally or where depletion has already occurred in violation of state and federal standards.

- a. Require practices that reduce or eliminate the release of effluent that would have a significant negative impact on groundwater and aquifers.
- b. Identify proposed and existing land use activities that have the potential to threaten groundwater resources through pollution, depletion, or other means of degradation.
- c. Encourage development and adoption of innovative of wastewater treatment technologies that will help protect and improve the quality of groundwater.

GOAL 3: To protect prime and significant agricultural lands and promote a strong, diversified agricultural economy.

Objective 1:

Recognize the diverse values and benefits provided to the public by agricultural land (including but not limited to: food, energy, and fiber production, scenic and cultural landscapes for residents and visitors, and recreational opportunities).

- a. Encourage sound land use planning and clustered development to protect viable agricultural land and to preserve the open landscape.

Objective 2:

Conserve important agricultural lands to maintain environmental integrity, provide for present and future agricultural use, and accommodate appropriate development.

- a. Support the equitable taxation of agricultural lands through (but not limited to) local assessments that reflect current use. Encourage the Legislature to fully fund a program with serious withdrawal penalties that reduces the tax burden on agricultural and forest landowners who follow sustainable land use practices and are not holding their land for speculation, and ensure that it is adequately staffed (e.g., the Use Value Appraisal Program).
- b. Promote and support conservation easements or land protection programs to prevent conversion of productive farmland to non-agricultural uses.
- c. Work with municipalities to incorporate agricultural land protection and farm economic development into municipal planning efforts.



Roadside farmstands allow local farmers to attract visitors and tourists to their farms and offer fresh produce are value-added farm products in the local community.



Objective 3:

Encourage protection, enhancement, and sustainable stewardship of the quality of agricultural lands to minimize off-farm impacts.

- a. Encourage implementation of Best Management Practices (BMPs) and Accepted Agricultural Practices (AAPs).
- b. Work with the Natural Resource Conservation Service and Basin Water Quality Council to support and implement farm practices above and beyond AAPs that promote water quality.

Objective 4:

Support agricultural innovation and sustainable farming practices that increase productivity while protecting natural resources.

- a. Encourage the strengthening and diversification of existing farming enterprises, including agricultural support services.
- b. Encourage the local processing, manufacturing, distribution, and marketing of value-added agricultural products that are compatible with surrounding land uses in collaboration with local farms and the Addison County Relocalization Network (ACORN).

Objective 5:

Support a sustainable and growing farming community through retention and recruitment of farmers.

- a. Support programs that provide assistance with business planning, marketing, and succession planning for farm operations.
- b. Encourage programs that secure farmland for new farmers, including lease opportunities, conservation easements, and land trusts.
- c. Encourage programs that provide resources for farm health, safety, and mental health support for farmers.

GOAL 4: To enhance the health, viability, and ecological function of forests.

Objective 1:

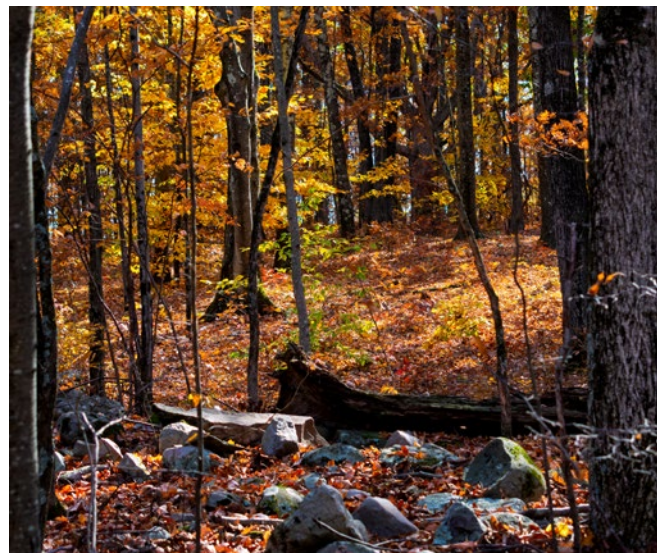
Encourage planning strategies that promote ecological health and sustainability at local and regional scales.

- a. Encourage research and education to enhance economic viability of individual forest enterprises and the conservation of natural resources.
- a. Support community efforts to develop and manage their forest sustainably and town forests.
- b. Encourage ecosystem-oriented management on National Forest Lands, State Forest and Parks, and State Fish and Wildlife lands.

Objective 2:

Encourage the conservation and maintenance/restoration of contiguous forests to conserve native biodiversity.

- a. Encourage and cooperate with private landowners and conservation organizations to conserve large tracts of productive forestland for sustainable harvest.
- b. Encourage landowners to refrain from posting their land, allowing the open hunting tradition Vermont has enjoyed.



Objective 3:

Recognize and maintain the diverse benefits provided to the public by forestland (including resources to support forest economies and rural culture; habitat for native biodiversity; recreational opportunities; higher quality water and air supplies and carbon sequestration; and scenic working landscapes), and encourage the efficient use of the forest's resources and services to ensure economic viability of forest enterprises and a wide range of environmental and social benefits.

- a. Encourage local processing and marketing of the forest's diversity of products.
- b. Encourage use of Acceptable Management Practices (AMPs), Required Agricultural Practices (RAPs), and Best Management Practices (BMPs).
- c. Promote the equitable taxation of forest land through, but not limited to, local assessments that reflect current use, zoning, and land capabilities.
- d. Encourage the sustainable use of forests for local energy and heat production.
- e. Work with the United States Forest Service to plan for diverse uses within the Green Mountain National Forest and Moosalamoo NRA.
- f. Work with the Natural Resource Conservation Service and Basin Water Quality Council to support and implement forestry practices that promote water quality.

GOAL 5: To manage, protect, and improve the quality of plant and wildlife habitat in the Region.

Objective 1:

Support a landscape-level approach to the conservation and enhancement of species diversity and natural community types.

- a. Identify significant natural and fragile areas in the Region, and support state and municipal efforts to protect and conserve these areas.
- b. Share maps identifying significant contiguous habitat blocks in the Region with municipalities and landowners and support their efforts to maintain them.

- c. Support conservation and stewardship of riparian forests and riparian buffer zones as key wildlife corridors.
- d. Support efforts to establish and maintain interconnecting wildlife corridors by providing mapping and public education opportunities.
- e. Support efforts to enhance pollinator forage through programs and land uses that support pollinator habitat such as hedge rows, native plant gardens, and no-mow areas.
- f. Encourage conservation of contiguous habitat blocks and wildlife corridors across public and private boundaries, particularly where there are large tracts of open or undeveloped land.
- g. Encourage a rate of harvest of plants and wildlife that is commensurate with the capacity of the area to replenish and support the species.
- h. Recognize that generally accepted farm and forest management practices have helped create and maintain some species' habitats.
- i. Encourage the sustainable management of game and nongame species.

Objective 2:

Manage and enhance functions and values of plant and wildlife habitat by understanding and maintaining contiguous habitat blocks, corridors, and unique areas, and by preventing the proliferation of nuisance species.

- a. Encourage municipalities to create development regulations that preserve the functions of the natural communities (e.g. Planned Unit Developments (PUDs), clustered development, buffer areas, conservation easements, siting considerations).



GOAL 6: To maintain the existing scenic character of the Region.

Objective 1:

Keep agricultural land and forested lands in profitable and productive use to maintain a critical part of the Region's scenic resources.

- a. Encourage development within or adjacent to existing mixed-use areas which utilize land efficiently and preserve visual resources.
- b. Discourage strip development along regionally significant roadways due to conflicts with traditional settlement patterns and safety issues.
- c. Preserve the scenic quality of lakeshores, ridgelines, downtowns, and villages.

Objective 2:

Minimize adverse impacts on scenic views or areas of historic significance from development.

- a. Encourage PUDs and clustered development to preserve views.
- b. Encourage municipalities to adopt standards for the siting of new buildings in settings which preserve the scenic quality of lakeshores and ridgelines.

Objective 3:

Promote aesthetic compatibility of new development with surrounding uses.

- a. Encourage municipalities to adopt design standards governing the use of materials, architectural styles, color schemes, lighting fixtures, building mass, scale, and other design elements to promote aesthetic compatibility.

Objective 4:

Minimize undesirable environmental and aesthetic impacts from alternative energy facilities.

- a. Support the development of alternative energy sources and an efficient telecommunication network when such facilities do not have adverse environmental or aesthetic impacts.

- b. Require developers to minimize the aesthetic impacts of alternative energy facilities through careful siting based on thorough analysis and design standards.

Objective 5:

Balance nighttime ambiance, safety, and convenience while minimizing energy use and light pollution.

- a. Encourage outdoor lighting installations that use only the amount of lighting necessary for a given task.
- b. Require lighting fixtures that reduce reflected light or sky-glow from surfaces into the night sky.

GOAL 7: To maintain and improve the air quality characteristics of the Addison Region.

Objective 1:

Maintain or exceed EPA and State air quality standards.

- a. Collaborate with in-state entities to address air emissions in a multi-pollutant, integrated approach.
- b. Work with state and regional entities to identify localized air quality impacts.
- c. Increase public awareness and education on air quality issues.
- d. Support the use of best-available technology for all emission sources within the airshed.



View of Monkton Ridge

GOAL 8: To encourage wise utilization of mineral resources with minimum impacts to the environment.

Objective 1:

Protect sand and gravel deposits for future use and develop sites that would decrease transport costs and wear and tear on the road network.

- a. Encourage towns to make sure that their conditional use standards are clearly written, are administered fairly, and that they balance the interests of the town, the facility owner/operator, and the neighboring landowners.
- b. Require progressive reclamation in gravel pit operations.
- c. Encourage appropriate land use that does not limit the future use of mineral resources.

GOAL 9: To provide safe, accessible, and sustainable recreational opportunities in the Addison Region that enhance public health, support local communities, and protect the Region’s natural and cultural resources.

Objective 1:

Enhance accessibility to recreational resources for all residents and visitors.

- a. Work with municipalities to integrate recreational planning into local land use and development decisions.
- b. Promote ADA-compliant and multi-use trails, parks, and facilities.
- c. Promote municipal forests and enhance recreational opportunities on community lands to expand public access to outdoor recreation.

Objective 2:

Protect and conserve natural and cultural resources while supporting recreation.

- a. Identify sensitive natural areas (wetlands, wildlife habitats, floodplains) and cultural sites (historic landscapes, archaeological sites) and guide recreational planning to minimize impacts.



Birding group viewing from Buck Mountain.

- b. Encourage sustainable trail design and facility placement to prevent erosion, habitat disruption, and pollution.
- c. Promote low-impact recreation practices such as “Leave No Trace” and responsible boating or snowmobiling.
- d. Facilitate the integration of green infrastructure and native vegetation into recreational development projects.

Objective 3:

Promote safe recreational opportunities and reduce conflicts among users.

- a. Encourage multi-use trail planning that separates high-speed and low-speed users where possible.
- b. Collaborate with local law enforcement, fire, and EMS services to develop emergency response plans for recreational areas.

Objective 4:

Support economic development and community engagement through recreation.

- a. Encourage eco-tourism, agritourism, and outdoor recreation businesses that align with sustainable land use practices.



ENDNOTES

¹ Outstanding Resource Waters are designated by the Secretary of the Agency of Natural Resources under 10 V.S.A. §1424a.

² United States Department of Agriculture National Agricultural Statistics Service. (2022). Table 1 - 2022 Census of Agriculture.

³ United States Department of Agriculture National Agricultural Statistics Service. (2022). Table 1 - 2022 Census of Agriculture.

⁴ United States Department of Agriculture National Agricultural Statistics Service. (2022). Table 1 - 2022 Census of Agriculture.

⁵ Vermont Agency of Agriculture, Food, & Markets. (2021). Vermont Agriculture and Food System Strategic Plan 2021-2030. (p.55).

⁶ According to the National Rural Health Association, farmers are 3.5 times more likely to die by suicide than the general population. see Eisenreich, Rosalien & Pollari, Carolyn. (2017). National Rural Health Association Policy Brief: Addressing Higher Risk of Suicide Among Farmers in Rural America. <https://www.ruralhealth.us/getmedia/98f1009e-5418-4c06-910c-cdb-b965cdb2e/NRHA-Policy-Brief-Increases-in-Suicide-Rates-Among-Farmers-in-Rural-America.pdf>

TABLES AND FIGURES

Table 1 Vermont Department of Environmental Conservation. (2024). Vermont 2024 303(d) impaired waters list report.

Table 2 United States Department of Agriculture National Agricultural Statistics Service. (2022). 2022 Census of Agriculture, Table 1.

Table 3 Moore, C. (2024). Conserved farmland data [Data provided by Vermont Land Trust GIS Director].

Table 4 United States Department of Agriculture Natural Resource Conservation Service. (2018). Farmland classification systems for Vermont soils.

Table 5 Vermont Agency of Natural Resources. (2018). Vermont conservation design: Maintaining and enhancing an ecologically functional landscape.

Figure 1 Potapov, P, Hansen, M. C., Pickens, A., Hernandez-Serna, A., Tyukavina, A., Turubanova, S., Zalles, V., Li, X., Khan, A., Stolle, F., & Harris, N. (n.d.). Net tree cover change data.

Figure 2 Vermont Fish & Wildlife. (n.d.). Natural community fact sheets.

Figure 3 and 4 U.S. Environmental Protection Agency. (2025). EPA design value report: PM 2.5 design values, 2024.

Figure 5 Mine Employ Vermont Department of Labor. (2025). Covered employment and wages: Mining, quarrying, and oil and gas extraction, 2024 annual data.

