

## Appendix C: Vermont Monitoring Cooperative Partner Connections Review

---

---

### *VERMONT STATE DEPARTMENT OF FORESTS, PARKS AND RECREATION*

#### ***2010 Vermont Forest Resources Plan<sup>12</sup>***

The Vermont Department of Forests, Parks and Recreation manages the state's forest land base for a range of uses, including production, recreation and conservation. The Vermont Division of Forests developed the 2010 Vermont Forest Resources Plan to provide strategic direction in managing the state forests. The Plan provides an assessment of conditions and trends of the forest resources in the state, discusses threats to them, identifies priority areas to focus resources, and identifies long-term strategies.

UVM's contribution to the Vermont Monitoring Cooperative is funded by a grant agreement between the Vermont Department of Forests, Parks and Recreation (FPR) and the Rubenstein School of Environment and Natural Resources (RSENR). Funding for this Agreement originates from a Forest Service grant to the State, which in turn transfers a portion of those funds to UVM. Because the 2010 Vermont Forest Resources Plan was used as the blueprint to prepare the federal narrative submitted to secure Forest Service funding for the VMC, we list the objectives and corresponding VMC efforts based on that document.

---

<sup>12</sup> Available online at [http://www.vtfr.org/htm/for\\_resourcesplan.cfm](http://www.vtfr.org/htm/for_resourcesplan.cfm)

## Appendix C: Vermont Monitoring Cooperative Partner Connections Review

FPR Objectives	VMC Efforts that Fulfill FPR Objectives
<p><b>Biological Diversity: Conserve biological diversity across all landscapes</b></p> <ul style="list-style-type: none"> <li>- Goal 2. Protect and conserve natural communities, genetic diversity, rare and endangered species, unique habitats, corridors and buffers                             <ul style="list-style-type: none"> <li>- Strategy 3. Work with partners to identify landscapes and support species of greatest conservation need.</li> </ul> </li> </ul>	
Support long-term monitoring that addresses diversity and population trends of amphibians, reptiles and forest songbirds to inform management and conservation efforts	<ul style="list-style-type: none"> <li>- Provide subgrants to support long-term monitoring of amphibians and reptiles and toward updating the VT Reptile and Amphibian Atlas</li> <li>- Provide subgrants to support long-term monitoring of forest songbirds</li> <li>- Mechanism to inform management – provide information through annual meetings, annual reports and facilitate direct meetings between researchers and managers</li> </ul>
Conduct monitoring of species in rare natural communities such as high elevation montane forests that support stewardship of conserved natural areas	<ul style="list-style-type: none"> <li>- Provide subgrants to support monitoring of rare amphibian and bird species (i.e. Bicknell’s Thrush)</li> <li>- Support toward the Mt. Mansfield Science and Stewardship Center (MMSSC)</li> </ul>
Maintain long-term access to biodiversity data for access by organizations affiliated with conservation efforts	<ul style="list-style-type: none"> <li>- Collection, archiving and public distribution of biodiversity data as part of its overall core database activities and support.</li> </ul>
<p><b>Forest Health and Productivity: Maintain and enhance forest ecosystem health and productivity</b></p> <ul style="list-style-type: none"> <li>- Goal 1. Identify trends in forest ecosystem health and productivity                             <ul style="list-style-type: none"> <li>- Strategy 6. Work with partners to understand Vermont’s Forested ecosystem</li> <li>- Strategy 7. Monitor and report current forest health and evaluate potential threats.</li> </ul> </li> <li>- Goal 3. Retain native flora and fauna across the landscape.                             <ul style="list-style-type: none"> <li>- Strategy 13. Support monitoring and programs that maintain Vermont’s common flora and fauna.</li> </ul> </li> </ul>	

Appendix C: Vermont Monitoring Cooperative Partner Connections Review

FPR Objectives	VMC Efforts that Fulfill FPR Objectives
<p>Provide financial support for long-term monitoring of forest ecosystem health indicators such as wildlife species, stream hydrology, weather, atmospheric chemistry, forest health monitoring, tree phenology and forest threats and damages;</p>	<ul style="list-style-type: none"> <li>- Funded Mt. Mansfield forest growth and productivity project</li> <li>- FPR aerial survey and detection sketch maps accessible on the VMC website</li> <li>- FPR forest health monitoring</li> <li>- Funded new VMC long-term forest health monitoring network</li> <li>- Provide subgrant to support long-term high elevation stream flow monitoring in Mt. Mansfield developed vs. undeveloped paired watersheds.</li> <li>- Long-term monitoring of amphibians and reptiles and toward updating the VT Reptile and Amphibian Atlas (subgrant).</li> <li>- Long-term monitoring of forest songbirds (subgrant).</li> <li>- Provide technical and financial support for local, national and international atmospheric monitoring programs operating at the Underhill, VT Air Quality Site (VT99).</li> <li>- Provide technical and financial support for sample collections and mercury analyses for the NADP/MDN &amp; AMNet programs at Underhill (VT99).</li> <li>- Provide technical support for NADP/NTN precipitation sample collections and operation of the USDA UV-B monitoring and research site at Underhill.</li> <li>- Operate 4 Mt. Mansfield &amp; 3 Lake Champlain meteorological stations</li> </ul>

## Appendix C: Vermont Monitoring Cooperative Partner Connections Review

FPR Objectives	VMC Efforts that Fulfill FPR Objectives
<p>Maintain and improve web access to forest ecosystem data and reports, including interactive real-time weather data, interactive data visualization datasets and establishment of electronic spatial data online.</p>	<ul style="list-style-type: none"> <li>- Development and public release of new VMC website to utilize new database structure, including project display, search capabilities, user management and visualization</li> <li>- Maintain and implement all QA/QC protocols and automated scripts for near real-time meteorological stations.</li> <li>- Automated uploading of atmospheric mercury speciation and meteorological data into database.</li> <li>- Creation/enhancement of detailed metadata documents defining individual fields for 229 published datasets.</li> <li>- Developed custom extracts of U.S. Forest Service’s Vermont Forest Inventory and Analysis (FIA) data for the VMC website</li> <li>- Consolidated, standardized, documented, archived and made available 28 years of aerial forest disturbance survey data</li> </ul>
<p><b><i>Forest Products and Ecosystem Services: Maintain and enhance forest contributions to ecosystem services</i></b></p> <ul style="list-style-type: none"> <li>- Goal 1. Maintain and enhance the production of forest products.                             <ul style="list-style-type: none"> <li>- Strategy 15. Work with partners to assess Vermont’s capacity to produce raw materials for forest products.</li> </ul> </li> <li>- Goal 2. Maintain and enhance water resources.                             <ul style="list-style-type: none"> <li>- Strategy 21. Identify, conserve, restore and protect priority forested watersheds valued for water resources.</li> </ul> </li> <li>- Goal 4. Maintain and enhance forest carbon.                             <ul style="list-style-type: none"> <li>- Strategy 24. Support research that improves the understanding of measuring, monitoring and trends in forest carbon, including application for forest carbon marketing.</li> </ul> </li> <li>- Goal 5. Maintain and enhance air resources                             <ul style="list-style-type: none"> <li>- Strategy 26. Support research and monitoring that improves the understanding of trends in air quality, weather, climate and how they affect forests.</li> <li>- Strategy 28. Monitor changes in forests in relation to air resources.</li> </ul> </li> </ul>	

## Appendix C: Vermont Monitoring Cooperative Partner Connections Review

FPR Objectives	VMC Efforts that Fulfill FPR Objectives
Provide financial support to the Long-term Soil Monitoring Program	<ul style="list-style-type: none"> <li>- Provide direct funding for sample collections and exchangeable cation analyses of soil samples collected under the 200-year long-term soil monitoring study.</li> </ul>
Support long-term high elevation stream monitoring to support resource management decisions	<ul style="list-style-type: none"> <li>- Provide subgrant to support long-term high elevation stream flow monitoring in an undisturbed forested watershed and an adjacent, highly disturbed forested ski resort.</li> </ul>
Support measurements of forest carbon through the long-term soil study, and through forest health monitoring plots to improve our understanding of measuring, monitoring and trends in carbon storage and flux.	<ul style="list-style-type: none"> <li>- Provide direct funding for sample collections and exchangeable cation analyses of soil samples collected under the 200-year long-term soil monitoring study.</li> <li>- Provide financial support for expanded long-term Forest health monitoring plot network</li> <li>- Publish data from FPR phenology monitoring plots</li> <li>- Funded Mt. Mansfield forest growth and productivity project</li> </ul>

Appendix C: Vermont Monitoring Cooperative Partner Connections Review

FPR Objectives	VMC Efforts that Fulfill FPR Objectives
<p>Support long-term collections of basic meteorological and atmospheric chemistry data, with subsequent archival and online retrieval of data to facilitate integration with other forest ecosystem health data.</p>	<ul style="list-style-type: none"> <li>- Provide technical and financial support for local, national and international atmospheric monitoring programs operating at the Underhill, VT Air Quality Site (VT99).                             <ul style="list-style-type: none"> <li>o (NADP)/National Trends Network (NTN)</li> <li>o NADP/Mercury Deposition Network (MDN)</li> <li>o Atmospheric Mercury Network (AMNet)</li> <li>o Vermont Acid Precipitation Monitoring Program (VAPMP)</li> <li>o (USDA) UV-B Monitoring and Research Program</li> <li>o Aquatic Acidification Index (AAI) Pilot Project (comprised of CASTNET and Ammonia Monitoring Network (AMoN) sampling); began at Underhill in Dec. 2012</li> </ul> </li> <li>- Operate 4 Mt. Mansfield &amp; 3 Lake Champlain meteorological stations</li> <li>- Provide technical and financial support for the Burlington Hazecam (CAMNET) site</li> </ul>
<p><b><i>Land Ethic: Maintain and enhance an ethic of respect for the land, sustainable use and exemplary management</i></b></p> <ul style="list-style-type: none"> <li>- Goal 1. Encourage public understanding of ecosystems                             <ul style="list-style-type: none"> <li>- Strategy 30. Enhance public education and outreach on forest health and productivity issues.</li> </ul> </li> <li>- Goal 2. Increase public awareness of the critical role trees and forests play in sustaining Vermont communities and residents.                             <ul style="list-style-type: none"> <li>- Strategy 33. Support forestry education activities and programs</li> </ul> </li> <li>- Goal 5. Demonstrate exemplary forest management on state lands and encourage sustainable use across all landscapes.                             <ul style="list-style-type: none"> <li>- Strategy 47. Utilize public lands as demonstration forests.</li> </ul> </li> </ul>	

## Appendix C: Vermont Monitoring Cooperative Partner Connections Review

FPR Objectives	VMC Efforts that Fulfill FPR Objectives
Maintain and enhance website content that improves understanding of forest systems, such as through interactive data visualization tools;	<ul style="list-style-type: none"> <li>- Automated uploading of meteorological and atmospheric mercury speciation data into VMC database.</li> <li>- Creation/enhancement of detailed metadata documents for 229 datasets.</li> <li>- Developed custom extracts of U.S. Forest Service’s Vermont Forest Inventory and Analysis (FIA) data for the VMC website</li> <li>- Consolidated, standardized, documented, archived and made available 28 years of aerial forest disturbance survey data</li> <li>- Development and public release of new website to utilize new database structure, including project display, search capabilities, user management and visualization</li> </ul>
Continue newsletters and public meetings, including the VMC Annual Meeting, to explain patterns and relationships in forests	<ul style="list-style-type: none"> <li>- Contribute articles to ecoNEWS VT about current monitoring and research of interest to our cooperators and others, and relevant to Vermont and the region</li> <li>- Host an <b>Annual Conference</b>, produce conference proceedings and make these available on our website</li> <li>- Maintain an <b>on-line listserv</b> with nearly 400 names as an efficient way to distribute important information and news about events</li> </ul>
Partner with organizations interested in establishing a high elevation research and stewardship center	<ul style="list-style-type: none"> <li>- Support the planning process toward the Mt. Mansfield Science and Stewardship Center (MMSSC)</li> </ul>

## Appendix C: Vermont Monitoring Cooperative Partner Connections Review

FPR Objectives	VMC Efforts that Fulfill FPR Objectives
Provide opportunities for students to participate in data collection, field trips and presentations.	<ul style="list-style-type: none"> <li>- Coordinate with the RSENR's NR-1 instructor to orchestrate the collection of Burlington i-Tree data</li> <li>- Employ student interns to work on Burlington i-Tree data and help coordinate NR-1 labs, establish and measure forest health monitoring plots, and work on other projects as needed</li> <li>- Engage student interns in the production of posters and content for the VMC Annual Conference</li> <li>- Host local Elementary, High School and College student groups and classes</li> <li>- Host Annual Conference on the UVM campus - graduate students are specifically invited and integrated as moderators or presenters</li> <li>- Provide VMC datasets to NR 140 students as a means to generate analyses to discover important trends and results</li> </ul>
Initiate a program to establish an urban research/monitoring site, in Burlington, while using these data to help educate students and the public.	<ul style="list-style-type: none"> <li>- Conducted quality control visits to i-Tree monitoring plots</li> <li>- Develop and deliver service-learning labs using i-Tree Eco protocols</li> <li>- Verify Burlington i-Tree data records collected by NR-1 students</li> <li>- Communicate with and provide user feedback to i-Tree authors and programmers; coordinated a visit to Burlington by David Nowak to improve the Burlington i-Tree project</li> </ul>

FPR Objectives	VMC Efforts that Fulfill FPR Objectives
<p>Offer educational opportunities for natural resource professionals through VMC’s various outreach activities (newsletter, annual meeting, and website).</p>	<ul style="list-style-type: none"> <li>- Contribute articles to ecoNEWS VT about current monitoring and research of interest to our cooperators and others, and relevant to Vermont and the region</li> <li>- Host Annual Conference, produce conference proceedings and make available on the VMC website</li> <li>- Maintain an on-line listserv with nearly 400 names as an efficient way to distribute important information and news about events</li> <li>- Development and public release of new website to utilize new database structure, including project display, search capabilities, user management and visualization</li> </ul>
<p><i>Specific to Management of VMC</i></p>	
<p>Provide all programmatic and administrative oversight of VMC, and employ full- and part-time staff directly supporting VMC.</p>	<ul style="list-style-type: none"> <li>- Provide a Principal Investigator (PI) to ensure programmatic and administrative oversight for VMC; a Program Coordinator, a full-time Monitoring Technician; full-time Data and Web Coordinator and other part-time staff as needed to help with field work and other assigned duties.</li> </ul>

**US FOREST SERVICE NORTHEASTERN AREA STATE AND PRIVATE FORESTRY**

**2013 Northeastern Area State and Private Forestry – Strategic Plan<sup>13</sup>**

The Northeastern Area State and Private Forestry (NA S&PF) works to protect, conserve, and manage forest resources by collaborating with a range of stakeholder to. Through collaborations, leadership, technical support, sound science, and financial assistance NA S&PF helps to ensure the continued provision of clean water, forest products, wildlife habitat, recreation, and other benefits from the nation’s forest base.

NA S&PF Objectives	VMC Efforts that Fulfill NA S&PF Objectives
A. Contribute to conservation of important forest landscapes across the urban to rural continuum	<ul style="list-style-type: none"> <li>- Continue Burlington i-Tree work &amp; develop protocols to sample the urban-to-rural gradient, extending from urban Burlington to rural Jericho and on to the top of Mt. Mansfield</li> <li>- Continue to assist with development of the Mt. Mansfield Science and Stewardship Center as a way to advance conservation and stewardship at this fragile alpine site</li> </ul>
B. Support sustainable forest management for biodiversity and multiple benefits for people	<ul style="list-style-type: none"> <li>- Provide data and information to support sustainable management of habitats</li> </ul>
C. Support the management of trees and forests for resilience to natural and human-caused disasters and threats	<ul style="list-style-type: none"> <li>- Continue to gather, archive and distribute data on invasive pests, acid deposition and other forest threats and perturbations</li> <li>- Could involve intervention if specific perturbations/remedies are determined and found to be practical &amp; effective</li> </ul>

<sup>13</sup> Available online at [http://na.fs.fed.us/pubs/strat\\_plan/na-strategic-plan-2013-2018-lr.pdf](http://na.fs.fed.us/pubs/strat_plan/na-strategic-plan-2013-2018-lr.pdf)

## Appendix C: Vermont Monitoring Cooperative Partner Connections Review

NA S&PF Objectives	VMC Efforts that Fulfill NA S&PF Objectives
D. Promote forest management approaches that facilitate resilience and adaptation to, and mitigation of, climate change	<ul style="list-style-type: none"> <li>- Continue to support monitoring/research on carbon sequestration such as long-term forest health monitoring plot assessments and long-term soil monitoring</li> <li>- Continue to support collection, archiving and public distribution of long-term meteorological/climate data and data on environmental pollutants</li> <li>- Be vigilant and work with our partners to support activities to detect and document forest threats (invasive insects, pathogens and plants)</li> </ul>
F. Advance conservation and sustainable management of trees and forests for water quality across all landscapes	<ul style="list-style-type: none"> <li>- Continue to support collection of water chemistry data at Lye Brook and Mt Mansfield high altitude ponds</li> <li>- Continue to fund watershed flow and support water chemistry and sedimentation measurements at the Mt. Mansfield Paired Watershed Study</li> <li>- Support lake/pond sedimentation work</li> </ul>
G. Support a competitive forest industry with diversified markets, forest-related jobs, and sustainable use of woody biomass for energy	<ul style="list-style-type: none"> <li>- Continue to support air quality monitoring to inform the impact of biomass use for generation of electricity and heating</li> </ul>
H. Support engagement and inclusion of urban residents and communities to maintain the benefits provided by trees and forests	<ul style="list-style-type: none"> <li>- Continue support for Burlington i-Tree work – service learning aspect involves students and instructors, not only to collect data, but also interact with and provide information to land owners and city residents</li> <li>- Continue to provide survey results to city officials for public distribution</li> </ul>
I. Expand and deliver technical expertise, improve communications and productivity, capitalize on new technology, and ensure employee safety	<ul style="list-style-type: none"> <li>- Provide improved communication with new database and web interface</li> <li>- Continue to work with partners toward improved effectiveness and efficiency</li> <li>- VMC testing of i-Tree as a long term monitoring tool</li> </ul>

## Appendix C: Vermont Monitoring Cooperative Partner Connections Review

NA S&PF Objectives	VMC Efforts that Fulfill NA S&PF Objectives
J. Leverage resources and technical expertise in a transparent and collaborative way with other Federal agencies, State agencies, academia, American Indian tribes, non-profits, and other partners in support of common goals	- Continued networking, coordinating and information-sharing conducted of the VMC

**VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION**

**2013 Vermont Department of Environmental Conservation Strategic Plan<sup>14</sup>**

The Vermont Department of Environmental Conservation’s (DEC) mission is to preserve, enhance, restore and conserve Vermont’s natural resources and protect human health for the benefit of this and future generations.

DEC Objectives	VMC Efforts that Fulfill DEC Objectives
1) We manage air, soil and water resources for environmental and public health. We measure environmental conditions for status and trends	<ul style="list-style-type: none"> <li>- Continue to support collection, archiving and public distribution of long-term monitoring across many variables</li> <li>- New VMC website and database supports searches and integration of data variables across projects</li> <li>- Incorporation of spatially-referenced data in the VMC database</li> </ul>
2) We issue licenses and permits, and enforce environmental regulations to ensure compliance with state and, in many cases, federal law	<ul style="list-style-type: none"> <li>- Provide scientific data to inform testimony on critical issues – this need will increase in the future (e.g. road management - erosion, stream silting, permitting upper elevation development)</li> <li>- Informing stakeholders and partners through VMC website, meeting venues and newsletters (i.e. ecoNEWS VT) that pertinent data are available</li> </ul>
3) We collect, interpret and communicate environmental scientific information to Vermonters, and provide a forum for public comment on our work	<ul style="list-style-type: none"> <li>- Contribute articles to ecoNEWS VT about current monitoring and research of interest to our cooperators and others, and relevant to Vermont and the region</li> <li>- Development and public release of new website to utilize new database structure, including project display, search capabilities, user management and visualization</li> </ul>

<sup>14</sup> Available online at <http://www.anr.state.vt.us/dec/co/documents/DECStrategicPlan2013-2015.pdf>

## Appendix C: Vermont Monitoring Cooperative Partner Connections Review

DEC Objectives	VMC Efforts that Fulfill DEC Objectives
4) We provide technical assistance to landowners, businesses, municipalities and individuals regarding environmental issues and resource management	<ul style="list-style-type: none"> <li>- Provide data and information through the VMC website and annual meetings</li> <li>- Provide pertinent data and information through articles contributed to ecoNEWS VT</li> <li>- Facilitate regular meetings with partners and stakeholders to determine data and information that are needed and let them know what data are available</li> </ul>
5) We manage funding and support for environmental projects including site clean-up, recreational access, and infrastructure including water supply, stormwater and wastewater systems	<ul style="list-style-type: none"> <li>- Provide grants for mini-projects to answer environmental questions raised by other organizations, as funding is available</li> </ul>
6) Our scientists, managers, and field staff provide expert testimony and assistance to other organizations, partners, and sister agencies at the state, federal, local and regional levels to advance our mission and people’s understanding of our natural environment, its importance and relevance	<ul style="list-style-type: none"> <li>- VMC collaborators provide expert testimony when needed</li> </ul>

**VERMONT FISH AND WILDLIFE DEPARTMENT**

**2005 Vermont Wildlife Action Plan<sup>15</sup>**

The Vermont Fish and Wildlife Department's (FWD) mission is “the conservation of all species of fish, wildlife, and plants and their habitats for the people of Vermont.” The Department’s dedicated professionals enforce laws, manage Wildlife Management Areas, conduct species-specific research, restoration and management actions, issue licenses, grow fish, and provide educational and outreach services. Three of the Department’s planning goals are: Conserve, enhance, and restore Vermont’s natural communities, habitats, and species and the ecological processes that sustain them. Through the Wildlife Action Plan, Vermont has developed a comprehensive “all-species conservation strategy” to meet these goals.

FWD Objectives	VMC Efforts that Fulfill FWD Objectives
1) Identify wildlife distribution and abundance: Provide information on the distribution and abundance of species of wildlife, including low and declining populations as the State Fish and Wildlife Dept. deems appropriate, that are indicative of the diversity and health of the State's wildlife.	<ul style="list-style-type: none"> <li>- Provide subgrants to support long-term monitoring of amphibians and reptiles and toward updating the VT Reptile and Amphibian Atlas</li> <li>- Provide subgrants to support long-term monitoring of forest songbirds</li> <li>- Provide subgrants to support monitoring of rare amphibian and bird species (i.e. Bicknell’s Thrush)</li> </ul>
2) Describe location and condition of key habitats: Describe the locations and relative condition of key habitats and community types essential to conservation of species identified in (1).	<ul style="list-style-type: none"> <li>- Provide 28 years of aerial forest disturbance survey data</li> </ul>

<sup>15</sup> Available online at [http://www.vtfishandwildlife.com/SWG\\_CWCS.cfm](http://www.vtfishandwildlife.com/SWG_CWCS.cfm)

Appendix C: Vermont Monitoring Cooperative Partner Connections Review

FWD Objectives	VMC Efforts that Fulfill FWD Objectives
<p>3) Describe key problems and research needs: Describe problems that may adversely affect species identified in (1) or their habitats, and priority research and survey efforts needed to identify factors which may assist in restoration and improved conservation of these species and habitats.</p>	<ul style="list-style-type: none"> <li>- Provide structured time during the VMC Annual Conference Working Group Sessions to convene biologists, managers and others to discuss key problems and look for possible solutions and/or define avenues of research to help find solutions.</li> </ul>
<p>4) Describe and prioritize conservation actions: Describe conservation actions proposed to conserve the identified species and habitats and priorities for implementing such actions.</p>	<ul style="list-style-type: none"> <li>- Help facilitate discussions among collaborators and stakeholders around prioritization of conservation actions to conserve identified species and habitats</li> </ul>
<p>5) Monitor species, habitats and conservation actions: Describe plans to monitor species identified in (1) and their habitats; monitor the effectiveness of the conservation actions proposed in and, adapt these conservation actions to respond appropriately to new information or changing conditions.</p>	<ul style="list-style-type: none"> <li>- Support Vermont forest health monitoring plot assessments – archived data provide intensive measurements of stand variables which are important indicators of certain wildlife species habitats</li> </ul>

FWD Objectives	VMC Efforts that Fulfill FWD Objectives
<p>7) Coordinate with other plans: Coordinate the development, implementation, review, and vision of the Action Plan with Federal, State, and local agencies and Indian tribes that manage significant land and water areas within the State or administer programs that significantly affect the conservation of identified species and habitats.</p>	<ul style="list-style-type: none"> <li>- The VMC Strategic Plan has already compiled information on the plans of its partners and may be a useful resource</li> </ul>
<p>8) Include public participation: Describe public participation in the development, revision, and implementation of the Action Plan and projects and programs. Plant conservation and education and law enforcement projects are not eligible for State Wildlife Grants funding. We expect that species, community and landscape level conservation will provide secondary benefits including addressing the needs of many plant Species of Greatest Conservation Need (SGCN).</p>	<ul style="list-style-type: none"> <li>- Provide venues such as the at VMC Annual Conference for planning meetings or workshops to gather outside public input</li> </ul>

***US FOREST SERVICE GREEN MOUNTAIN NATIONAL FOREST***

***2006 Green Mountain National Forest Management Plan<sup>16</sup>***

National forests were established to provide watershed protection and continual forest resources for the nation. The Green Mountain National Forest (GMNF), covering 400,000 acres in central and southern Vermont, manages for both the present and future generations by balancing a range of activities and uses. Management of the forest is guided by the 2006 GMNF Land and Resource Management Plan, with an emphasis on long-term ecological, social and economic sustainability.

GMNF Objectives	VMC Efforts that Fulfill GMNF Objectives
Goal 1: Provide for a wide range of uses and activities in an ecologically, socially, and economically sustainable way	<ul style="list-style-type: none"> <li>- Incorporation of VMC and cooperator projects in the Monitoring and Evaluation framework adopted by GMNF</li> </ul>
Goal 2: Maintain and restore quality, amount, and distribution of habitats to produce viable and sustainable populations of native and desirable non-native plants and animals	<ul style="list-style-type: none"> <li>- Continued gathering of terrestrial flora and fauna monitoring data to inform GMNF efforts to sustainably manage viable populations</li> <li>- Continued long-term monitoring of forest bird populations and demographics and associated habitat</li> <li>- Continued long-term monitoring of amphibian and reptile populations and associated habitat</li> </ul>

<sup>16</sup> Available online at <http://www.fs.usda.gov/detail/greenmountain/landmanagement/planning/?cid=stelprdb5333807>

## Appendix C: Vermont Monitoring Cooperative Partner Connections Review

GMNF Objectives	VMC Efforts that Fulfill GMNF Objectives
Goal 3: Maintain or restore the natural, ecological functions of the soil	<ul style="list-style-type: none"> <li>- Long Term Soil Monitoring Project tracks changes in soil health over time, including regular assessments of soil mercury levels.</li> <li>- Cooperators studied the spatial variability in nitrogen export from forested watersheds related to differences in soil nitrogen</li> <li>- Cooperators established and maintain Soil Climate Analysis Network site</li> </ul>
Goal 4: Maintain or restore aquatic, fisheries, riparian, and wetland habitats	<ul style="list-style-type: none"> <li>- Through monitoring, VMC informs GMNF efforts to sustainably manage viable populations of aquatic wildlife.</li> <li>- Lake chemistry monitoring by cooperators on Lye Brook through the Long-Term Monitoring of Acid Sensitive Lakes program</li> <li>- VMC partnered with GMNF and DEC to conduct intensive biological and chemical surveys of acid-sensitive lakes in the Lye Brook Wilderness</li> </ul>
Goal 5: Maintain or improve air quality on the GMNF	<ul style="list-style-type: none"> <li>- VMC cooperators maintain particulate monitoring and precipitation chemistry monitoring (NADP/NTN) and particulate levels (IMPROVE) near Lye Brook</li> </ul>
Goal 6: Maintain or restore ecological processes and systems on the GMNF within desired ranges of variability, including a variety of native vegetation and stream channel types, and their patterns and structural components	<ul style="list-style-type: none"> <li>- Establishment of the Long Term Ecosystem Monitoring Program to assess change in forest, soil, air and wildlife conditions at permanent monitoring plots, and future integration with expanded VMC forest health monitoring network</li> </ul>

## Appendix C: Vermont Monitoring Cooperative Partner Connections Review

GMNF Objectives	VMC Efforts that Fulfill GMNF Objectives
Goal 8: Provide for a sustainable supply of forest products	<ul style="list-style-type: none"> <li>- Help establish and expand the Long Term Ecosystem Monitoring Program to assess change in forest, soil, air and wildlife conditions, providing information on forest condition is needed for planning forests supplies into the future</li> <li>- Aggregate and provide data on aerial detection surveys of pest and disease impacts on forest health</li> </ul>
Goal 9: Demonstrate innovative, scientifically, and ecologically sound management practices that can be applied to other lands	<ul style="list-style-type: none"> <li>- Forest Ecosystem Management Demonstration Project on Mt. Mansfield provides new silvicultural approaches account for soil, wildlife and water-related impacts</li> </ul>
Goal 12: Provide a diverse range of high-quality, sustainable recreation opportunities that complement those provided off National Forest System lands	<ul style="list-style-type: none"> <li>- Incorporation of recreation and tourism values of forested landscapes into spatial decision making tools through the McIntire-Stennis grant at UVM</li> <li>- Comparison of streamflow and chemistry at disturbed and undisturbed watersheds to inform ski area management and planning</li> </ul>
Goal 13. Manage designated wilderness to preserve an enduring resource that represents ecosystems and natural processes unique to northeastern forests while providing opportunities for solitude and unconfined recreation consistent with the Wilderness Act of 1964 and subsequent legislation	<ul style="list-style-type: none"> <li>- Informing resource management planning and expectations through long-term monitoring activities in Wilderness</li> <li>- Lye Brook Subcommittee coordinated research and monitoring activity planning across institutions</li> <li>- Participating in the 50<sup>th</sup> Anniversary of Wilderness Act to showcase monitoring work taking place on the GMNF</li> </ul>
Goal 15: Maintain or enhance visual resources such as viewsheds, vistas, overlooks, and special features	<ul style="list-style-type: none"> <li>- Incorporation of recreation and tourism values of forested landscapes into spatial decision making tools through the McIntire-Stennis grant at UVM</li> </ul>

## Appendix C: Vermont Monitoring Cooperative Partner Connections Review

GMNF Objectives	VMC Efforts that Fulfill GMNF Objectives
Goal 17: Support regional and local economies through resource use, production, and protection	<ul style="list-style-type: none"> <li>- Evaluation of economic impacts of different management practices and harvest regimes, including for biomass, through Forest Ecosystem Management Demonstration Project</li> </ul>
Goal 18: Maintain and enhance partnerships with communities and organizations	<ul style="list-style-type: none"> <li>- Serve as a partner to the GMNF in providing monitoring data and coordinating the research and monitoring activities of partners</li> </ul>
Goal 19: Provide a diverse range of information and education opportunities that will enhance the understanding of the GMNF	<ul style="list-style-type: none"> <li>- Disseminate information about forest condition and monitoring through newsletters and ecoNEWS VT</li> <li>- Networking and information exchange opportunities provided through the annual VMC Conference</li> <li>- Dissemination of data collected by and on the GMNF to a wider audience through the VMC website</li> <li>- Participation in the 50<sup>th</sup> Anniversary of Wilderness Act to showcase monitoring work taking place on the GMNF</li> </ul>
Goal 20: Coordinate Forest planning and implementation with federal, State, and local agencies	<ul style="list-style-type: none"> <li>- Participate in the Lye Brook Subcommittee, which coordinates research and monitoring activity planning across institutions</li> <li>- Inform the planning process with data and information gathered by VMC and its cooperators</li> </ul>