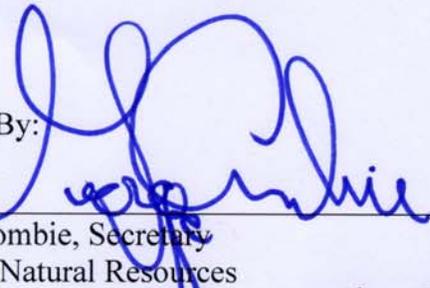
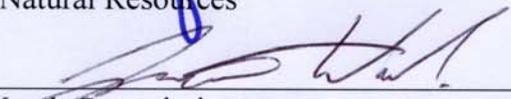


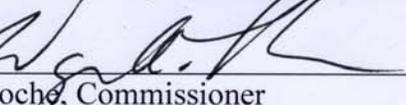


**State of Vermont**  
**Agency of Natural Resources**  
 Department of Environmental Conservation  
 Department of Forests, Parks & Recreation  
 Department of Fish & Wildlife  
**Long-Range Management Plan**  
**GROTON Management Unit**

Prepared by: **Barre and St. Johnsbury State Lands Stewardship Teams**

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## TABLE OF CONTENTS

### **I. Introduction**

Mission Statements Guiding the Development of this Plan .....	5
Overview of the Planning Process .....	6
Overview of Lands Management by the Vermont Agency of Natural Resources .....	6
Overview of Wildlife Management Areas, Vermont Agency of Natural Resources .....	8
Outcome of Long-Range Management Plans .....	9
Long-Range Management Plan Structure .....	11
Amendment Process for the Groton Management Unit Long-Range Management Plan.....	13

### **II. Management Vision and Goals for the Groton Management Unit**

Vision Statement.....	14
Overall Management Goals of the Groton Management Unit.....	14

### **III. Parcel Description and Resource Summaries**

Parcel Description.....	16
Location Information .....	16
History of Acquisition.....	16
Figure 1 – Groton Management Unit Map .....	17
Purchase and Special Constraints .....	18
Figure 2 – Special Constraints Map.....	19
Land Use History .....	20
Resource Summaries.....	22
Ecological Summary .....	22
Figure 3 – Biophysical Region Map .....	24
Watershed Summary.....	25
Figure 4 – Natural Communities Map .....	26
Forest Health and Protection Summary .....	27
Recreation Resources Summary .....	28
Figure 5 – Recreation Opportunity Spectrum (ROS) Map .....	31
Table 1 – State Park Facilities .....	33
Figure 6 – Existing Summer Recreation Map.....	42
Figure 7 – Existing Winter Recreation Map.....	43
Timber Resources Summary.....	44
Figure 8 – Forest Cover Type Map.....	45
Wildlife Habitats and Species Summary .....	46
Figure 9 – Wildlife Habitats of Special Importance Map.....	53
Fisheries Resources Summary .....	54
Roads and Public Access Summary.....	60
Figure 10 – Roads and Public Access Map .....	64
Cultural Resources Summary .....	65
Relationship to Regional Context, Other Planning Efforts .....	65
Figure 11 – Cultural Resources Map .....	66
Property Tax Considerations.....	67

<b>IV. Public Input Summary .....</b>	<b>69</b>
<b>V. Management Direction, Strategies, and Actions</b>	
Where Management Activities Will Occur.....	72
Land Management Categories .....	72
Highly Sensitive Management Areas.....	72
Figure 12 – Land Management Categories Map.....	73
Figure 13 – Highly Sensitive Management Areas Map.....	74
Special Management Areas.....	79
Figure 14 – Special Management Areas Map.....	80
General Management Areas.....	83
Figure 15 – General Management Areas Map.....	84
Intensive Management Areas.....	85
Figure 16 – Intensive Management Areas Map.....	87
How Management Activities Will Be Implemented.....	91
Natural Communities Implementation Strategies.....	91
Watersheds/Water Resources Implementation Strategies .....	91
Forest Health and Protection Implementation Strategies.....	92
Recreation Implementation Strategies .....	93
Figure 17 – Proposed Summer Recreation Map.....	97
Figure 18 – Proposed Winter Recreation Map .....	98
Timber Implementation Strategies.....	100
Figure 19 – Timber Management Strategies Map .....	102
Wildlife Implementation Strategies .....	104
Figure 20 – Wildlife Habitat Management Strategies Map.....	105
Fisheries Implementation Strategies .....	109
Cultural, Historic, and Archaeological Resources Implementation Strategies.....	114
Roads and Public Access Implementation Strategies .....	114
Education and Research Implementation Strategies.....	115
Special Uses Implementations Strategies .....	115
<b>VI. Future Public Input and Monitoring and Evaluation .....</b>	<b>116</b>
<b>VII. Appendices and Further Information</b>	
Authorization to Plan and Manage .....	118
Resource Assessments and Management Guidelines Used in the Groton Management Unit Long-Range Management Plan Development .....	119
Policies, Guidelines, and Publications Used in the Management of Vermont Agency of Natural Resources Lands .....	120
Further Information on Management Activities .....	123
Contact Us.....	124
Response to Public Comment .....	125

# I. Introduction

## Mission Statements Guiding the Development of this Plan

### Vermont Agency of Natural Resources

The mission of the Agency of Natural Resources (ANR) is "to protect, sustain, and enhance Vermont's natural resources, for the benefit of this and future generations" (Agency Strategic Plan, 2001-2005).

Four agency goals address the following:

- To promote the sustainable use of Vermont's natural resources;
- To protect and improve the health of Vermont's people and ecosystems;
- To promote sustainable outdoor recreation; and
- To operate efficiently and effectively to fulfill our mission.

### Agency Departments

#### *Vermont Department of Environmental Conservation*

##### *Mission Statement - 2001-2005*

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

#### *Vermont Department of Fish and Wildlife*

##### *Mission Statement - 2001-2005*

The mission of the Vermont Fish and Wildlife Department (DFW) is the conservation of all species of fish, wildlife, and plants and their habitats for the people of Vermont. To accomplish this mission, the integrity, diversity, and vitality of their natural systems must be protected.

#### *Vermont Department of Forests, Parks and Recreation*

##### *Mission Statement - 2001-2005*

The mission of the Department of Forests, Parks, and Recreation (DFPR) is to practice and encourage high quality stewardship of Vermont's environment by monitoring and maintaining the health, integrity, and diversity of important species, natural communities, and ecological processes; managing forests for sustainable use; providing and promoting opportunities for compatible outdoor recreation; and furnishing related information, education, and services.

## **Overview of the Planning Process**

For the purposes of efficient lands management, the planning process for the Groton Management Unit (GMU) consisted of planning for Groton State Forest and seven state parks within Groton State Forest. These include Stillwater, Boulder Beach, Big Deer, Kettle Pond, New Discovery, Ricker Pond, and Seyon Ranch state parks (26,806 acres total) administered and managed by the DFPR. Additionally, for planning purposes, the GMU includes the management plan for LR Jones State Forest, Lords Hill Natural Area, Lucy Mallery Bugbee Natural Area, Peacham Bog Natural Area, Tabletop Mountain Natural Area, and the Levi Pond Wildlife Management Area, which is two separate parcels of land (363 acres total), administered and managed by the DFW.

## **Overview of Lands Management by the Vermont Agency of Natural Resources**

### **Purposes of Land Ownership**

On behalf of the State of Vermont, the Agency of Natural Resources manages state-owned land for a variety of purposes, ranging from the protection of important natural resources to public uses of the land in appropriate places.

*Natural resources* include, but are not limited to, the following: biodiversity, wildlife habitat, natural communities, water bodies, wetlands, undeveloped land, scenery, and aesthetic values.

*Public uses* include, but are not limited to, the following: recreation, access to state lands or waters, environment-related businesses, flood control, education, research, and sustainable use of renewable resources such as hunting, fishing, trapping, and forest management.

### **Outcome of Long-Range Management Plans**

The Vermont Agency of Natural Resources manages state lands in a sustainable manner by considering all aspects of the ecosystem and all uses of the natural resources (Agency Strategic Plan, 2001-2005).

The Agency has a mandate to serve as the principal land steward for properties owned or managed by its three departments – Environmental Conservation; Fish and Wildlife; and Forests, Parks and Recreation.

The development of long-range management plans (LRMP) for Agency lands represents a key step in providing responsible stewardship of these valued public assets. Each LRMP identifies areas where different uses are to be allowed and describes how these uses will be managed to ensure protection of natural resources. The following over-

arching management standards further both Agency and Department missions and are applied to the development of long-range management plans for all ANR lands.

**Biological Diversity:** Agency lands are managed to both maintain and enhance the variety and abundance of plants, animals and other life forms at scales ranging from local to regional.

**Ecosystem Health:** Agency lands are managed to ensure ecosystem functions, health, and sustainability. Threats and stresses are monitored, evaluated, and reported regularly.

**Legal Constraints:** Agency lands are managed in accordance with the purposes for which they were acquired. Many Agency lands were purchased with federal funds that require management to be directed for specific purposes. These requirements and other legal restrictions, such as conservation easements, are supported in all planning and management activities.

**Natural Resource Science:** The foundation for management decisions on Agency land consists of comprehensive ecological assessments as developed and documented in long-range management plans.

**Wildlife Management:** Wildlife management activities are directed at protecting and enhancing wildlife habitat for species needing to be conserved as well as those of public interest and utilization.

**Recreational Uses and Needs:** Agency lands are managed to create, maintain, and enhance sustainable recreational uses. Permitted or allowed activities are dependent upon site capabilities and public need. Wildlife management areas continue to give priority to wildlife dependent activities.

**Sustainable Forestry:** Agency lands are managed to ensure forest health and sustainability. Vegetation management and utilization strategies based on natural communities and appropriate silvicultural guidelines ensure that trees, forests, and forest ecosystems remain healthy.

**Public Involvement:** State lands are a public resource. The public is involved in all aspects of decision-making on state lands, including acquisition, policy development, management planning, and the implementation of policies, plans, and regulations. In developing long-range plans, the Agency considers interests outlined in local, regional, and state plans, including town plans, regional plans, watershed plans, and species recovery and management plans, and works to resolve conflicts between plans as may be appropriate or necessary.

**Historical/Cultural and Scenic Values:** Agency lands are managed to be sensitive to historical, cultural, and scenic values. Due to protection under state

and federal regulations, sites of archaeological significance are equal in status to legal constraints applicable to the lands.

**Best Management Practices:** Lands under Agency management serve as exemplary stewardship models for the public and private sectors in Vermont. Whenever possible, best management practices that are utilized are visible and easy to understand.

**Regional Availability of Resources and Activities:** Because every parcel of Agency land cannot accommodate all the uses that the public might want, the Agency works to ensure that the following uses are made available on a regional basis – sustainable forest harvest; sustainable recreational activities; wildlife-oriented activities; protection of biodiversity and natural communities; and activities that reflect historical and cultural values.

## **Overview of Wildlife Management Areas Vermont Agency of Natural Resources**

On behalf of the State of Vermont and the Agency of Natural Resources, the Department of Fish and Wildlife manages state-owned Wildlife Management Areas (WMAs) for a variety of purposes, ranging from the protection of important natural resources to public uses of the land in appropriate places.



### **Management and Administration of Wildlife Management Areas**

The Department of Fish and Wildlife administers and manages Wildlife Management Areas throughout Vermont. The administration and management of WMAs is funded predominantly through the Federal Aid in Wildlife Restoration Program. This program was initiated in 1937 as the Federal Aid in Wildlife Restoration Act in which taxes are paid on firearms, ammunition and archery equipment by the public. Today this excise tax generates over a hundred million dollars each year that is dedicated to state wildlife restoration and management projects across the United States. These excise tax dollars, coupled with state hunting license fees, have been the predominate sources of funding for the management of state Wildlife Management Areas.

*Natural Resources* include, but are not limited to the land, air, and waters of the State of Vermont and those fish, wildlife, plants, other life forms, habitats, natural communities, and ecosystems within biophysical regions of Vermont.

*Public Uses* on Wildlife Management Areas include wildlife dependent activities, not limited to: hunting, fishing, trapping, hiking, wildlife viewing, research, and education.

## **Vermont Fish and Wildlife Department Overview of Management and Administration of Wildlife Management Areas - Levi Pond WMA, Mud Pond Peacham**

Levi Pond Wildlife Management Area is a 363-acre WMA located in the town of Groton, in Caledonia County, Vermont. The WMA consists of the 24-acre Levi Pond, 238 acres directly surrounding the pond and a nearby 100-acre tract of land known as the St. Hilaire parcel. Levi Pond WMA was purchased as four separate parcels between 1964 and 1971. Primary funding was provided by the U.S. Department of Interior Land and Water Conservation Fund, which was created to enhance the nation's outdoor recreation resources. Prominent features of the WMA are Levi Pond and Wesson Hill, which rises 220 feet above the pond to the Southeast. Other particular resources regarding this WMA are described in the resource assessment sections of this plan. Mud Pond in Peacham has a DFW right-of-way from the town highway to the shoreline.

### **Outcome of Long-Range Management Plans**

The Vermont Agency of Natural Resources, through its departments, manages state lands in a sustainable manner by considering all aspects of the ecosystem and all uses of the natural resources. (Agency Strategic Plan 2001-2005)

The Agency has a mandate to serve as the principal land steward for properties owned or managed by its three departments—Environmental Conservation; Fish and Wildlife; and Forests, Parks, and Recreation.

The development of long-range management plans (LRMP) for state lands represents a key step in providing responsible stewardship of these valued public assets. Each LRMP identifies areas where different uses are to be allowed and describes how these uses will be managed to ensure protection of natural resources. The following management considerations further both Agency and Department missions and are evaluated during the development of long-range management plans for all ANR lands:

**Biological Diversity, Abundance, and Distribution:** Wildlife Management Area lands are managed to maintain, restore, and control the variety (or diversity), number (or abundance), and distribution of plants, fish and wildlife, and other life forms within natural habitats, communities, ecosystems, and biophysical regions.

WMAs are managed to restore, maintain, and control the abundance of certain species of plants, fish and wildlife, and other life forms within bounds that prevent damage or loss of resource value that can result from high or “over” abundance; low abundance or extirpation of species or genetic stocks; and frequent and/or large fluctuations in abundance through time.

**Ecosystem Health:** Management of Agency lands to control diversity, abundance, and distribution of plants, animals, and other life forms considers ecosystem functions, health, and integrity.

**Legal Constraints:** Agency lands are managed in accordance with the purposes for which they were acquired. Many Agency lands were purchased with federal funds that require management for specific purposes. These legal requirements are followed during planning, management, and public use of Agency lands.

**Principles of Natural Resource Management:** The procedure for making management decisions on Agency lands includes comprehensive survey and assessment of natural resources, and determination of management objectives, evaluation to determine appropriate actions and determination and implementation of various management practices. This procedure is repeated periodically in response to natural resource conditions and uses through time.

**Principles of Wildlife Management:** Wildlife management activities are directed toward managing the diversity, abundance, and distribution of plants, animals, and other life forms. These activities are designed either to sustain or alter physical, chemical, and/or biological conditions to create, protect, or enhance specific habitat types. Species, habitats, and ecosystems where there is special conservation or public concern, are targeted for management.

**Recreational Uses and Needs:** Wildlife Management Area lands are managed to create, maintain, and enhance fish and wildlife dependent activities that are consistent with legal constraints and that do not threaten the overall value and sustainability of the natural resources. Recreational uses that have been conducted on the properties prior to Department ownership may be allowed to continue if they do not degrade the habitat or natural resources.

**Wildlife Habitat Management:** Management practices are used to ensure that trees, shrubs, and other plants are established, promulgated or controlled to establish and maintain the diversity, abundance, distribution, and seral successional patterns characteristic of a healthy forest ecosystem. Wildlife Management Area lands are managed to provide for various habitat requirements for selected species. To obtain desired wildlife habitat age class and species composition, forested habitat may be managed using commercial timber sales or non-commercial management. Revenues generated from any commercial timber sale go back into the management of Wildlife Management Areas. Wetland habitats may be manipulated through a variety of techniques for selected wetland water regimes or for various moist soil management regimes.

**Public Involvement:** State lands are a public resource. The public is involved in a variety of decisions on state lands, including acquisition, policy development, management planning, and the implementation of policies, plans, and regulations. In developing long-range plans, the Agency considers interests outlined in local, regional, and state plans, including town plans, regional plans, watershed plans, and species recovery and management plans. The Agency works to resolve conflicts between plans as may be appropriate or necessary.

Historical/Cultural and Scenic Values: Agency lands are managed in a manner that is sensitive to historical, cultural, and scenic values. Archaeological and historical sites are protected under State and Federal Law equal in status to other legal constraints.

Best Management Practices: A variety of Best or Acceptable Management Practices are applied to State lands. Agency lands are intended to serve as exemplary stewardship models for the public and private sectors of Vermont. Whenever possible, Best Management Practices are made visible and understandable to educate the public concerning their use and benefits.

Regional Availability of Resources and Activities: Department of Fish and Wildlife Wildlife Management Areas are managed for wildlife habitat values and to provide wildlife dependent activities (e.g. regulated hunting, fishing, trapping, wildlife viewing). The Agency works to ensure that additional uses and activities the public might desire (e.g. additional recreation, historical or cultural activities) are made available on a regional basis.

## **Long-Range Management Plan Structure**

This long-range plan provides guidance for natural resource management of the state land units within the Groton Management Unit (GMU) for the foreseeable future. It is designed to provide an ongoing framework to provide responsible stewardship and manage the natural resources within the GMU consistent with the management standards set forth in both the Agency and Department mission statements. It is intended to be a perpetual and flexible document. The plan summarizes the available information about the natural, recreational, and cultural resources, documents the planning process and the relevant data used in making land use decisions, and specific management and development proposals. The District Stewardship Team recognizes that societal, natural, informational, and technological changes are inevitable and will impact the future management of the GMU. In 15 years the district stewardship teams will do a full review and revision of the plan. Before that, as conditions change, the plan may be reviewed and updated as necessary to responsibly guide departmental actions on state lands. Significant changes will go through the formal amendment process detailed below. The plan, however, is not meant to provide detailed plans for site development, resource management, or park operation and maintenance. Management activities to be undertaken in a particular year are detailed in the Annual Stewardship Plan prepared by the District Stewardship Team. These are available for public review for each fiscal year beginning in June for the following July through June.

This plan incorporates the comments and recommendations made by the public through the thoughtful review of the Barre and St. Johnsbury District Stewardship Teams and ANR technical staff. Discussions about land not owned by the Department of Forests, Parks and Recreation have been included. These lands represent potential areas for park management needs, protection of resources, and acquisition opportunities, based on available data. However, the discussions are intended for planning purposes only and do not represent a commitment for management or acquisition.

This long-range management plan follows the Agency's planning format. It is divided into several sections.

**Section I** is the *Introduction*, which includes the Agency and Department missions, an overview of lands management, and the structure of the long-range management plan.

**Section II** is the *Management Vision and Goals for the Groton Management Unit*.

**Section III** is the *Parcel Description*. Found in this section is a summary of the parcel land use history, the history of acquisition, location and setting information, as well as locator maps and the parcel base map. Also included is a summary of the natural, recreational, and historic resources found on the property, as well as other special resources. How this plan relates to regional and town plans is also in the section.

**Section IV** is a *Summary of Public Input* received and solicited in developing this plan.

**Section V** covers *Management Direction, Strategies, and Actions*. This section of the plan identifies areas where different uses are to be allowed and describes how these uses will be managed. It offers specific guidelines on how management activities will be implemented and where they will occur.

**Section VI** covers *Future Public Input and Monitoring and Evaluation*. Monitoring and Evaluation will develop over time and provide a way of tracking accomplishments.

**Section VII** is the *Appendix and Further Information*. It offers a list of references and management guidelines cited. It also directs the reader where to turn for further information.

A *Technical Appendix*, which consists of separate documents, is a compilation of all the technical information used to arrive at the management goals, objectives, strategies, and actions found in the public long-range management plan. Found in the technical appendices are all the resource assessments and analyses (natural, recreational, visual, and cultural), a glossary of terms, pertinent policies, legal constraints, and additional maps as well as a summary of public comments and responses to the draft plan.

The Technical Appendix is not included in the final public LRMP but can be obtained by contacting the St. Johnsbury and/or Barre District Offices. In addition there are a number of other documents that have been cited in the LRMP and are included in the files located in the St. Johnsbury and/or Barre District Office.

## **Amendment Process for the GMU Long-Range Management Plan**

The LRMP provides guidance for the long-term management and development of a state land unit. However, the future cannot be fully determined at the time of plan development. The Department undertakes an amendment process to the current long-range management plan when significant changes to the plan are proposed, such as:

1. substantial changes to any goals, management objectives, and implementation actions contained in the current plan;
2. major change in land use, land classification, or species management direction;
3. designation of non-developed camping sites (via statute regarding camping on state lands);
4. permanent closure of existing trails and/or creation of new recreation corridors not identified in current plan;
5. major rerouting, reclassification, permanent closing or creation of new roads (not including forestry roads not meant for normal vehicle traffic) within GMU boundaries not identified in current plan;
6. major land acquisitions;
7. major capital expenditures for new projects;
8. facility closures;
9. transfers in fee ownership;
10. leasing of new acreage (e.g., ski resort); and
11. renaming natural features or lands.

When the amendment process is triggered, the Department enters into a public involvement process. The type of process is determined at the time and is dependent upon the extent of the type of amendment. If applicable, easement holders are notified to discuss the proposed amendment.

There may be times when the Department would seek public input and comments regarding changes to a plan that are less significant than those triggering the amendment process. This is left to the discretion of the District Stewardship Team.

## **II. Management Vision and Goals for the Groton Management Unit**

### **Vision Statement**

Groton Management Unit is revered as an outstanding example of a multi-use forest where the appropriate uses of biodiversity protection and enhancement, recreation, timber management, wildlife habitat, ecological research, historic sites, scenic corridors and vistas, and the significant contribution they make to the local and regional economies, are delicately balanced with the protection of environmentally sensitive areas, maintenance of the forest's wild character, and protection of headwater streams in the Connecticut River and Lake Champlain basins.

### **Overall Management Goals of Groton Management Unit**

Within the broad bounds of the overall vision and management theme stated above, the following goals and objectives provide more specific direction for the management of the GMU as a whole.

1. To protect biodiversity.
  - a. Protect species that are rare or exemplary.
  - b. Maintain or enhance critical wildlife habitats and aquatic ecosystems.
  - c. Use a coarse filter and fine filter approach to maintain and enhance natural communities.
  
2. To provide opportunities and manage for the continuation and enhancement of high quality recreational experiences and activities (e.g., camping; water-based recreation; trail uses such as hiking, cross-country skiing, equestrian, snowmobiling, and mountain biking; nature study; and hunting, fishing, and trapping) and for other compatible recreational activities.
  - a. Maintain and enhance opportunities for a wide range of intensive and dispersed recreational opportunities that are compatible with existing resources.
  - b. Adequately maintain existing facilities (e.g., campgrounds, picnic areas, trails, remote camping) and develop new or additional facilities and roads to support visitor management in the GMU.
  - c. Work with interested organizations and individuals to maintain trail systems and provide new trail opportunities where appropriate.
  - d. Continue to allow existing recreational use of the property, including but not limited to hunting, fishing, trapping, snowmobiling, and cross-country skiing.
  - e. Continue to provide dispersed recreational opportunities (e.g., primitive camping, geocaching, nature study, trail uses, rock climbing) where appropriate and compatible with other goals.

- f. Work with interested organizations, colleges and universities, and individuals interested in conducting research, education, and monitoring activities.
  - g. Monitor dispersed recreational activities for impacts on the natural communities and other special resources.
  - h. Monitor the impacts of human use of the trails, roads, campgrounds, day use areas, remote areas, and the general area.
  - i. Develop public education and interpretation materials and signs on the natural resources, logging and lumbering heritage, and known historic and cultural features of the GMU.
3. To maintain the contribution this forest makes to the local and regional economies.
- a. Manage for a sustainable flow of high quality forest products.
  - b. Manage to provide high quality habitat for target wildlife species.
  - c. Manage to provide a wide range of recreational opportunities and activities.

# **III. Parcel Description and Resource Summaries**

## **Parcel Description**

### **Location Information**

The Groton Management Unit (GMU) is one of the largest contiguous landholdings owned by the DFPR and also one of its most diverse. It consists of the 26,164-acre Groton State Forest, the 642-acre LR Jones State Forest, the 259-acre Levi Pond Wildlife Management Area and the 100-acre St. Hilaire property. The total acreage for the management unit is 27,165 acres of which 4,214 acres are managed by the ANR District IV office in Barre, and 22,951 acres are managed by ANR District V office in St. Johnsbury. The management unit is located in the northeastern area of the state in the counties of Caledonia, Orange, and Washington (see Figure 1, Groton Management Unit Map). It is located in the towns of Groton, Marshfield, Orange, Peacham, Plainfield, and Topsham.

The GMU is located just west of Interstate 91 and the Connecticut River, approximately 50 miles north of White River Junction. The major roads that travel through the GMU are US 302 and SR 232. US Route 2 goes along the northwestern edge of the unit. This rugged area still contains areas that are quiet and remote, yet only a 30 minute drive from Barre, Montpelier, and St. Johnsbury.

Most of the area surrounding the GMU is heavily forested, private land. There are several larger private land holdings adjacent to the forest and many smaller privately owned parcels. Development is mostly concentrated on the lakeshores surrounding Lake Groton, Peacham Pond, Ricker Pond, and Martins Pond.

### **History of Acquisition**

State acquisition of land in the GMU began in 1909 with the purchase of 450 acres in Plainfield. This parcel was named LR Jones State Forest; Vermont's first State Forest. Acquisition of Groton State Forest began in 1919. From 1919 until 1922, 5,645 acres were purchased in Peacham, 3,007 acres in Marshfield, and 6,373 acres in Groton. Various purchases in the years since have added other lands to the GMU. Other significant purchases include the acquisition of Seyon Ranch and 4,090 acres in 1967, the 3,000 acres added to the Groton State Forest in the Towns of Groton, Orange, and Topsham in 1974 through The Nature Conservancy, and the 954 acres bought by the State in 1975 in the Towns of Plainfield and Groton that effectively linked LR Jones with the rest of the Groton State Forest. Several important waterfront lands were added in the 1970s including 73 acres on Martins Pond and 364 acres at Peacham Pond. See the Vermont Fish and Wildlife Department Overview of Management and Administration of

**Figure 1**  
**GMU Map**

Wildlife Management Areas - Levi Pond WMA, Mud Pond Peacham write-up in Section 1 (page 8) for the acquisition history on those parcels.

## **Purchase and Special Constraints**

Since the 1960s almost all the lands acquired have had easements of some form attached to the purchase of the property. A more detailed account of the special and legal constraints on the GMU can be found at the district offices.

**Federal Land and Water Conservation Fund (LWCF)** monies were used to purchase a large percentage of the Groton State Forest ownership. New Discovery, Kettle Pond, Stillwater, Big Deer, and Ricker campgrounds as well as the Nature Center and Boulder Beach were all developed using LWCF funds. These funds were also used to construct trails, campgrounds, and other infrastructure throughout the forest. The main restrictions on lands acquired or developed with LWCF funds are the parcels must be used for recreation. Areas with LWCF restrictions include the following:

- Roger Case parcel, 73 acres
- Seyon Block
- Butterfield Mountain Block
- Hugo Meyer parcel, 460 acres
- Henry Hatfield parcel, 90.3 acres
- Morris Olsen parcel

There are a number of leases and licenses, agreements, rules, and deed restrictions on the lands in the GMU. Some of these are legal agreements in perpetuity, some are renewed on a periodic basis, and some are more discretionary in nature, but all impact management activities on a site-specific basis. Other deed restrictions include the following:

- Clifford Exchange on Peacham Pond specifies no buildings are allowed except those already in existence
- Hatfield Parcel includes right of way across parcel, right of way for Washington Electric, spring rights, and water line rights to grantor of their house.
- Olsen Parcel includes spring rights to campers on Peacham Pond and electric utility line easements.
- Lucy Mallary Bugbee Wildflower Bog is to be kept in its natural state and set aside for the preservation of wildflowers.
- Right of way from the end of TH63 in Marshfield to the state boundary.
- Right of way from TH27 in Groton to the state boundary.
- Right of way over Wagner Woodlands.
- Legal right of way over state land for camps on Lake Groton, Ricker Pond, and Marshfield Pond.
- Dean Page Acquisition (Acquired with VHCB funds) includes undeveloped shoreline on Lake Groton and a spruce fir stand. It is to be managed to

Figure 2  
Special Constraints Map

conserve and protect the scenic, wildlife, forestry, recreational, open space and natural resources of the property and to provide public access, and opportunities for public outdoor recreation and educational activities. The Page cottage will be removed upon termination of life tenancy.

There are several remaining camp leases but most were sold to the leaseholders in the 1980s. Electric and phone utility lines cross the GMU in several places and those utilities retain the rights to put in new lines subject to standard state licensing procedures. Deed restrictions mostly involve right of way issues and spring rights.

## **Land Use History**

The glaciers that occupied the landscape 10,000 years ago and their subsequent retreat created the mountainous terrain interspersed with ponds, bogs, wetlands, and streams of the present day Groton Management Unit. The mostly thin, stony soils are not very conducive for agriculture. These soils are better suited for growing trees rather than crops. This landscape has dictated use of the GMU from the past to the present.

The mountainous terrain of the GMU separates two main river drainages – the Wells River (Connecticut River drainage) and the Winooski River (Lake Champlain/St. Lawrence River drainage). Native American presence was mostly transient from one river drainage to the next. The known travel route followed a water and overland route up the Wells River to present day Ricker Pond and Lake Groton. It then went overland to present day Kettle Pond and up through the Lye Brook drainage over to the Winooski River. One known early Native American site is located on private land at the outlet of Coldwater Brook into Lake Groton.

The earliest Europeans ventured into the vast forest of the GMU to hunt and trap. As settlement increased nearby, some of these settlers looked to the forest of the GMU as a resource. The earliest known sawmill was located at the outlet of present day Ricker Pond. Captain Edmund Morse built this sawmill in the early 1790s. This mill was later to be known as Ricker's Mill. Morse's mill was the first of many mills to be built throughout the forest utilizing the water resources for power and transporting the logs to the mills. Horses were also used to draft the lumber to where it was needed. This changed with the completion of the Montpelier and Wells River Railroad through the GMU. Mill sites could now be located with the railroad in mind.

Logging and lumbering were not the only activities to take place in the GMU. Agriculture took place where the land was flatter and the stones could be cleared. Numerous cellar holes and stone walls indicate the location of these farms. The most prominent locations are the area just off US Route 302 in the Butterfield Block, the area east of Noyes Pond in the "Seyon" section of the forest, and the area northwest of Osmore Pond in the vicinity of Blake Hill. Pasturing of the horses and the growing of hay took place on a limited basis in the vicinity of the numerous sawmills. This small-scale agriculture, and the logging and lumbering, dominated land use during the 18<sup>th</sup> and 19<sup>th</sup> centuries.

The early part of the 20<sup>th</sup> century saw a new landowner in the area of the GMU as the State Board of Agriculture and Forestry purchased 450 acres in Plainfield in 1909. This land is now known as LR Jones State Forest. This was followed in 1919 by the initial purchase of 5,100 acres for the Groton State Forest in the Blake Hill area northwest of Osmore Pond. On both of these purchases the remnant fields were planted to Norway spruce, red pine, and white pine.

During the depression, two Civilian Conservation Corps (CCC) companies constructed work camps in the GMU. One camp, the 146<sup>th</sup> Company of Rhode Island, was located at Osmore Pond. The other camp, the 1217 Company of New York City, was located at Ricker Pond. From these two locations, the CCC worked on many projects throughout the growing state forest. These projects included constructing campsites, picnic areas, hiking trails, and the first road into the forest. This provided a vital infrastructure that continues to be in use today.

As far back as the late 1800s, the Montpelier and Wells River Railroad was transporting visitors to the “Lake House” on Ricker Pond. The railroad continued to bring passengers to camps and cottages on Groton, Ricker, and Turtlehead ponds until its last run in 1956. As the CCC completed campgrounds on the expanding state ownership, more visitors arrived in the forest and used the GMU for recreation.

In 1910, Theodore Vail purchased land in the area of a pond then known as Darling Pond (Noyes Pond). In an area known as “Clough Meadow”, Jonathan Darling built a mill to take advantage of the timberland he owned. Vail ended the mill operation and opened the worker’s boarding house and a US Trout Stripping Station was located at the pond. There were numerous owners before the State in this area. One owner continued the fish rearing and built a hatchery in the vicinity. This owner, Henry Noyes, is responsible for the name of the pond and area known today as “Seyon Ranch.” Mr. Noyes reversed his name to get the name Seyon. The state purchased the area in 1967.

Not to be overlooked as part of the history of the GMU are the numerous fires that have ravaged the area over the years. These fires not only burned areas of the forest but also destroyed the mills and associated buildings (which were later rebuilt). Most notable was the fire of 1883 in the area of Lake Groton. This fire and subsequent fires in 1903 helped to establish the current system of Town Fire Wardens. Two fire towers are still located in the GMU. There is a stone tower on Owl’s Head and a steel tower on Spruce Mountain. The Spruce Mountain tower was in use from the 1920s, when a wooden tower was erected. A steel tower replaced the wooden structure in 1944 until its final season in 1973.

During the modern era, all uses of the area intensified. The Groton State Forest grew to its present size of 26,164 acres. As the focal point of the area, its multiple uses of recreation, timber harvesting, wildlife, and biological diversity continue to bring many visitors as well as economic activity to the area.

Recreation has become a dominant use of the GMU. Year round development on the shores of Groton, Ricker, Turtlehead, Peacham, Martins, and several other ponds, the development of the campgrounds in the state forest, the construction of a network of roads, snowmobile, hiking and multi-use trails, the development of the old rail bed into a state multi-use trail, and year round activities at the Seyon Ranch have all contributed to this large increase in recreation use. Accompanying the boom in recreation has been a significant increase in real estate activity as both second and primary homes are springing up on the in holdings and edges of the GMU. As we enter the first part of the 21<sup>st</sup> century, human habitation and use of the GMU is at an all time high.

The Civilian Conservation Corps of the 1930s was instrumental in park and campground development. Trails, roads, forest fire lookouts, and picnic and camping areas were all constructed. The onset of World War II brought an end to the CCC and changes in operation of the state parks. The operation and maintenance of recreation areas during the war presented many problems due to personnel and material shortages and rising labor costs. During this period, the state recreational areas were operated on a limited basis. This curtailment during the war was well justified as the lack of caretakers and the war restrictions slowed the use of all state parks and recreational areas. To surmount the caretaker problems, it was decided to not open those areas that past records showed had the lowest attendance figures. Of the twenty-five state areas, nine parks and five forest areas were operated in 1944 and eleven parks and five forest areas were opened in 1945. Among the areas closed during the last two years were Ricker and Osmore.

After the war, camping increased due to new camping equipment, more money and leisure time, and the automobile. The second wave of campground development took place during the 1960s. Existing campgrounds were expanded, campsites were added, toilet buildings renovated, sewage and water systems updated, and new parks were constructed – Big Deer, Kettle Pond, and Boulder Beach State Parks.

Since its creation, the Vermont State Parks Division has operated, maintained, and expanded the recreational facilities within the Groton State Forest complex. Today, forestry and wildlife management play instrumental roles throughout the parks. Visitors to the area explore beyond the immediate camping and day-use operations, utilizing several miles of multi-use trails and roads, vast acreages of managed forestland, and natural and wildlife areas, giving them an insight into environmental conservation.

## **Resource Summaries**

### **Ecological Summary**

Vermont is divided into eight different biophysical regions, based on areas of similar climate, geology, topography, soils, and natural communities. The GMU is found within the Northern Vermont Piedmont biophysical region (see Figure 3, Biophysical Region Map). This region is characterized by a hilly topography dissected by many rivers. It has a moderate to cool climate, gentle topography, and rich soils derived from calcium-rich bedrock.

An inventory and assessment of the biological features of the GMU was conducted over the last several years. Existing databases and documents were reviewed to synthesize what was previously known of the wildlife habitats, ecology, soils, and other natural resources of the area. Spatial databases associated with Geographic Information Systems (GIS) were used extensively. Field work was conducted to support this existing information. A map and description of the natural communities identified in the GMU is found in the appendix of this plan.

The ANR long-range management plan format lays out a procedure for the ecological assessment of state lands. One of the goals of state lands management is conservation of the plants, animals, and other organisms native to this region. Recognizing that land managers cannot inventory all groups of organisms found on a parcel of state land, the inventory focuses on communities of organisms, commonly known as natural communities. Natural communities are described chiefly by their plant diversity and structure, as sedentary plants are more easily inventoried than animals. It is widely recognized that, with knowledge of the natural communities present on a parcel of land, appropriate management will conserve examples of all the species that inhabit those communities, even if we do not track the individual species. For example, if we maintain healthy examples of northern hardwood forests, we expect that we are protecting black-throated blue warblers, which nest in the understory of these forests. For some species, however, we must inventory and monitor individual populations or habitats critical to their survival. For example, it is not enough to know that bobcats inhabit northern hardwood forests; to conserve them, we must also conserve the ledge outcrops they use for breeding and winter cover. This model of natural resource management is widely used, and is often referred to as the “coarse filter/fine filter” method of inventory and management.

The GMU is in the Northern Vermont Piedmont biophysical region. Most of the region is characterized by hilly terrain, metamorphosed limestone bedrock, excellent agricultural soils, and moderate climate. By contrast, the GMU is a mountainous area with granite bedrock, acidic soils, and extensive forest cover.

Surface water is an important feature of the GMU. More than 85 miles of perennial streams have been mapped on the lands of the GMU. The lakes and large ponds account for 786 acres of the parcel. One hundred twenty-three acres of beaver ponds were delineated. Additionally, 1,200 acres of wetlands were mapped.

Thirty-one of Vermont’s approximately 80 natural community types are found on the GMU. Community types typical of cold, montane, and northern places are particularly well represented. Most of the state’s major forest types occur here, and there are several excellent examples of large scale forested communities. Most of the forest reflects the long timber management history of the area; several patches of unmanaged forest were also identified. Intact examples of rare or uncommon wetland types include dwarf shrub bog, black spruce swamp, and intermediate fen. The parcel features a number of excellent cliff communities, such as those at Marshfield, Owl’s Head, and Big Deer Mountains.

Figure 3

## **Biophysical Region Map**

Many rare, threatened, and endangered plants and animals occur on the GMU. The most sensitive species are associated with the cliffs, bogs and swamps, lakes, and forests around lakes. Details are provided in the appendix.

Exotic or non-native plants are present, and some may be a threat to natural resources on the GMU.

## **Watershed Summary**

Groton State Forest is located in the Ompompanoosuc, Stevens, Waits, Wells Rivers (Basin 14) and the Winooski River Watershed (Basin 9) as defined by the Agency of Natural Resources watershed planning basins. These watersheds represent two of the seventeen basins throughout the state for which plans are being written by the ANR under the leadership of the Department of Environmental Conservation, Water Quality Division. A watershed, or basin, is a distinct land area that drains into a particular waterbody either through channelized flow or surface runoff. Preparing a plan at a watershed level allows for the consideration of all contributing sources of surface water runoff to the waterbody.

The purpose of the basin plans is to look at overall water quality of each watershed by identifying issues related to water quality and water-related resources and by providing strategies and actions for improving these as well as conserving high quality water resources. It is ANR's intention to implement these activities in collaboration with interested organizations and individuals and within other agencies and departments. As part of the basin planning process, Vermont Class B waters will be divided into Water Management Types (WMT) of B1, B2, and B3, representing almost natural conditions for WMT B1, only moderate changes in macroinvertebrate and fish assemblages, and minor changes in aquatic habitat for WMT B2, only moderate changes in macroinvertebrate and fish assemblages and moderate changes in aquatic habitat for WMT B3 waters. Basin planning is an ongoing process to be repeated every five years. It is designed to be compatible with the *Vermont Water Quality Standards* and other applicable state and federal laws.

The Vermont Department of Environmental Conservation's (DEC) Basin Planning Process is nearly complete for Basin 14 – the lands and area drained by the Ompompanoosuc, Stevens, Waits, and Wells Rivers. Of these watersheds, the Wells, Waits, and Stevens River watersheds include land in the GMU making up 65%, 11% and 2% of the land in each watershed respectively. Watershed Councils have been developed in each watershed to represent a diverse mix of stakeholders within the watershed. The Council members represent watershed constituents from various backgrounds including farmers, foresters, loggers, business owners, municipal officials, anglers, local watershed organizations, environmental groups, teachers, regional planners, and watershed residents. The DEC Watershed Coordinator and the Watershed Councils are developing a watershed plan for the Basin 14 area that will address both state and local water quality improvement priorities. The watershed plan will be used to direct future assessment, watershed restoration, and outreach activities within each watershed.

**Figure 4**

Natural Communities Map

The Stevens River watershed area is about 49 square miles or 31,360 acres. The origin of the Stevens River are the tributaries that flow from the eastern sides of Lookout Mountain and Macks Mountain into Willow Brook; from the wetlands and ponds in the northern part of Peacham into Peacham Hollow Brook (East Peacham Brook on the USGS map); and from the tributaries and ponds on the eastern side of Morse Mountain, Devil's Hill, and Jennison Mountain into South Peacham Brook. The GMU covers significant headwater areas of the watershed including much of the watershed of Martins Pond and the shoreline of the Mud Pond in Peacham.

The Wells River watershed area is approximately 99 square miles or 63,400 acres. The headwaters of this drainage area arise in part on the slopes of Blake Hill, Owl's Head Mountain, Spice Mountain, Kettle Mountain, and Little Spruce Mountain, all in Groton State Forest, and flow either into Kettle and Osmore Ponds or form brooks that flow into Groton Lake or Ricker Pond. Drainage from the slopes of Devil's Hill, Jennison Mountain, Jerry Lund Mountain, and Wesson Hill form Red Brook and the North Branch Wells River, two of the three largest tributaries to the Wells River. A majority of the headwaters of the Wells River are in the GMU, so management of these lands will have a large impact on the water quality in the Wells River. The GMU includes the watersheds and many of the lakes and ponds in the Wells River, which account for a majority of the recreational water use in the watershed. These lands also include the Peacham Bog and other natural areas which provide unique habitat in the watershed, serve to filter water and store floodwaters, and serve many other watershed functions which will be maintained.

The Waits River originates below the slopes of Signal, Burnt, and Butterfield mountains in the southern part of GMU and is 144 square miles in size. The GMU includes a majority of the headwaters of the six square mile watershed above where the Waits River exits the Groton State Forest. There is limited public land in the Waits River watershed, making these headwaters an important resource for the community as well as important for maintaining the water quality in the watershed.

The Winooski River basin planning process has begun, and the watershed plan is expected to be completed in two to three years. The Marshfield Brook, Marshfield Pond, and Peacham Pond drain into the Winooski River from Groton State Forest. Portions of the state forest are part of the upper Winooski watershed, which is considered the area of the Winooski River from Stevens Branch upstream.

## **Forest Health and Protection Summary**

Overall, the health of the forest within the GMU is good. Information gathered through the annual aerial survey and on the ground observations have revealed some recent impacts on the forest. The years of 2001 and 2002 were extremely dry in the northeast. The GMU suffered damage during these periods on a number of different hardwood species. Foliar symptoms were apparent during the growing season and subsequent

dieback has occurred on the ridgetops and areas with shallow soils. Dieback and mortality have been showing up on these marginal sites for several years after the event.

Insect and disease outbreaks cause occasional damage to various tree species. Birch has been affected in recent years by birch leaf miner, birch skeletonizer, birch leaf folders, and Septoria leaf spot. Trees exhibited foliar browning and occasional early defoliation. No long term health impacts are expected from these outbreaks. Outbreaks affecting maple include bruce spanworm, maple leafcutter, and anthracnose. Again, no long term health impacts are expected from these outbreaks. A combination of drought, balsam woolly adelgid, and root rot has impacted some of the balsam fir stands within the management unit. Many individual trees have experienced dieback and mortality due to the combination of stressors. Although the impact is great on some individual trees, the stands as a whole are still relatively healthy.

The GMU has historically been monitored for the presence of insects and surveyed for general forest health. A North American Maple Project plot was established in 1988 and has been monitored each year. The objective is to evaluate individual tree health each year providing impacts of insect, disease and other stressors. There have been insect pheromone traps placed within the forest to monitor for the presence of spruce budworm and saddled prominent. Annual surveys for exotic insects and diseases are conducted in the forest and surrounding areas.

Surveying for the presence of invasive exotic plants has begun more recently. The potential impact of these plants on the forest ecosystem is well documented. By surveying for the presence of these plants, management strategies can be implemented early on to lessen the disturbance these plants may have on the health of the forest.

A system for protecting the forest from the impacts that wildfire may cause is well established. Each town within the GMU has a Forest Fire Warden. Their responsibilities include the suppression of wildland fires within their town. They are trained and equipped with the resources needed to suppress wildland fire. There is also a Fire Plan for the GMU located at the St. Johnsbury district office with contact information for these fire wardens as well as district forestry personnel. Within this plan there is also an up to date list of fire suppression tool caches which are located within some of the state parks in the GMU.

## **Recreation Resources Summary**

The GMU is a four season multi-use area. Recreational opportunities in the area are extensive, ranging from developed facilities and organized activities to dispersed recreational opportunities. Activities in developed areas include camping, picnicking, hiking, swimming, and boating. There is a variety of types of camping available, including RV, tent, cabin, cottage, lean-to, remote, and primitive. Picnicking is provided at Boulder Beach, and a more relaxed experience can be found at Osmore Pond and Owl's Head. Ricker Pond, Stillwater, and Kettle Pond State Parks offer campers' only swimming beaches, while Boulder Beach State Park is open daily to the general public.

Cartop boat launches are found at Ricker Pond, Boulder Beach, Kettle Pond, and Osmore Pond. The Vermont Department of Fish and Wildlife has public boat launches on Peacham Pond and Martins Pond. Stillwater State Park offers its campers a trailered boat launch with docks. Nature programs are centered at the Groton Nature Center, which is also the main trailhead to many of the hiking trails in Groton State Forest.

Seyon Ranch State Park on Noyes Pond is a unique facility that provides a variety of recreational activities, including fly fishing for brook trout, overnight lodging, food service, conference space, and weddings as well as hiking, snow shoe, and cross-country ski trails.

Other identified recreational uses in the GMU include hiking, sightseeing, leaf peeping, biking, horseback riding, snowmobiling, cross-country skiing, snowshoeing, fishing, hunting, trapping, rock climbing, winter camping, primitive camping, metal detector use, and geocaching. Weddings, family reunions, business picnics, and documentary films have all also taken place in this recreational treasure.

Off-season camping (winter camping) is allowed at all state parks with the permission of the parks regional manager (state park rules). No reservations are needed but groups require a special use permit. Primitive camping is available for free in much of Groton Forest, excluding the Ricker Pond Great Laurel Colony, Peacham Bog, Lords Hill Natural Area, and the Silver Ledge Heron Rookery. A special use permit is required for groups to primitive camp.

The GMU is just over an hour's drive of Chittenden County, the most densely populated area in the state, less than three hours from the Montreal metropolitan area and within a day's drive for more than 30 million people in southern New England and the Mid-Atlantic states. The accessibility of Groton State Forest and the other state lands in this area to so many people will make this state land area a very popular destination in the future for Vermonters and out-of-state visitors alike.

### **Recreation Opportunity Spectrum**

The Recreation Opportunity Spectrum (ROS) is an inventory and assessment process designed to focus on the character of experiences a recreational user can expect to find on a parcel of land. Only two ROS classifications were determined for the Groton Management Unit (see Figure 5, ROS Map) due to its close proximity of town roads, logging roads, private camps and year round homes, and the evidence of humans around and within the land area. The developed state parks, facilities, and the Groton Maintenance Shop are all classified as Developed Natural while the remaining land base is Semi-Developed Natural (see ROS Map).

The ROS map is the same for both summer and winter use. The two ROS classifications are described as follows:

**Semi-Developed Natural Class**, which is characterized by a natural appearing environment. Evidences of the sights and sounds of people are moderate. Interaction between users may be low to moderate, but evidence of other users is prevalent. Areas are within half a mile of improved roads. Motorized and mechanized uses may be permitted. Many timber harvesting and vegetation management practices are compatible. Road and trail density is moderate. On-site restrictions and controls are noticeable but harmonize with the natural environment.

**Developed Natural Class**, are areas that are characterized by substantially modified natural environments with resource modification and utilization practices that enhance specific recreation activities and maintain vegetative cover and soil. The sights and sounds of people are readily evident with interactions and encounters between individuals and groups often moderate to high. The physical setting is not as important as the activity opportunity. Many facilities are designed for use by a large number of people with the density of people declining with increasing distance from developed sites. Facilities are often provided for special activities and for intensified motorized and mechanized uses with parking areas. Amenities for user convenience are appropriate (i.e., telephones, camp store). There is no distance requirement from improved roads, or size requirement. On-site regimentation and controls are obvious and may be numerous, largely in harmony with the developed environment. Controls can be physical (such as barriers) or regulatory (such as fees, permits).

Within the Semi-Developed Natural Area class, land managers need to strive to maintain a spectrum of experiences and development levels. Sites that are farther from structures, roads, development, towns, and cities, and that provide access to more remote areas, should be managed toward the semi-primitive (more rustic) end of the spectrum. Even though the GMU is within the Semi-Developed Natural Area class, parts of the land base should be considered closer on the spectrum to the Semi-Primitive Motorized and Semi-Primitive Nonmotorized classes, while other parts can be considered closer to Developed Natural. There are certain land areas where a person definitely has a more semi-primitive experience.

### **State Parks within Groton State Forest**

Found within the approximately 27,000 acres of the GMU is the largest concentration of state park facilities anywhere in Vermont (see Table 1), including the following state parks.

- Boulder Beach
- Big Deer
- Kettle Pond
- New Discovery
- Ricker Pond
- Seyon Ranch
- Stillwater

- **Figure 5**  
**ROS Map**

There is also a number of associated and developed facilities managed by one of the state parks, and include the following.

- Osmore Pond Picnic Area
- Owl's Head Lookout
- Groton Nature Center
- Overlook

All state parks in the GMU are staffed and operated for public enjoyment mainly mid-May through Labor Day or Columbus Day. During the park operating season, fees are collected for day use and camping. The revenues generated from fees helps to keep the parks maintained and open (approximately 50% of the operating budget is from revenues collected at 52 state parks in Vermont). During the other times of the year, park lands and facilities are available for day use and camping (upon permission of the park regional manager); however, there are no bathrooms or water available and visitors will have to walk into the parks from the entrance gate.

Vermont State Parks maintains records on attendance and revenues generated at every state park in the system (see the Recreation Assessment for more details on attendance and revenues for Groton State Forest Parks). Revenues from fees have steadily increased throughout the years at all Groton state parks. This reflects the fact that fees have been adjusted to cover the increases in the cost of operating the parks; therefore, there is the corresponding increase in revenues. Attendance has fluctuated throughout the years but has been relatively unchanged since the mid-1960s.

### **Groton Nature Center**

The Groton Nature Center is the interpretive area for all of Groton State Forest. Daily programs are scheduled from mid-June to Labor Day. There is one large Interpretive Center/Museum and a self-guided nature trail. The Nature Center parking lot is also the trail head for a number of trails throughout Groton State Forest. In the winter, the parking lot is plowed for skiers and snowshoers.

### **Groton Forest Remote Site Lean-tos**

A series of 14 lean-tos were constructed on some of the lakes in the Groton State Forest by the CCC starting in 1933-34 along with trails for snowshoeing and hiking.

### **Peacham Pond**

Historic maps show four remote lean-to sites built by the CCC. At this time, one lean-to is still in existence next to the old Fowler camp, but is currently unusable.

### **Coldwater Brook**

A unique remote lean-to exists near the old mill site along Coldwater Brook. This lean-to is partially enclosed and has a stone fireplace. This site was reserved through New Discovery into the early 1990s. Renovation efforts have fallen prey to porcupines. It has since given way to disrepair.



**Table 1: State Park Facilities**

Park	Type of Park	Total Number of Sites	Number of Tent Sites	Number of Lean-tos	Lodge/Cottage/Cabin	Dump Station	Hot Showers	Handicap Access	Snack Bar/Store	Picnic Area	Shelters	Swimming	Playground	Fishing	Boat Rentals	Boat Launch
Big Deer	Ca	28	23	5		C	*	PT	C	*		C		C	C	C
Boulder Beach	D							PT	*	*	*	*		*	*	CT
Kettle Pond	D/Ca	34	1 Remote	27 Group + 6 Remote		C		PT	N			*	*	*	C	CT
New Discovery	Ca	61	47	14		*	*	PT	N			N	*	C	C	C
Osmore Pond Picnic Area	D/Ca	4 Remote		4 Remote					N	*	*	N		*	*	CT
Owl's Head	D							PT	N	*	*	N		C		
Ricker Pond	Ca	50	27	23	5 Cabins and 1 Cottage	*	*	PT	N		*	*		*	*	*
Seyon Ranch	D/Ca				Lodge sleeps 16		*	*	N			N		*	*	
Stillwater	Ca	79	62	17		*	*	PT	C		*	*	*	*	*	*

D = Day Use Primarily  
 Ca = Camping Primarily  
 D/Ca = Day and Camping

\* = Facilities & Services Available  
 PT = Partial  
 N = Near (less than 5 miles)  
 C = Close (less than 2 miles)

CT = Cartop Boat Launch



### **Big Deer Trail**

There is a remote lean-to along the Big Deer Trail, which has also in disrepair. There is a stone fireplace at this site. It appears this location is popular with hunters and snowshoers as a rest area.

### **Primitive Camping**

Primitive camping (not to be confused with remote camping at Kettle Pond and Osmore Pond) is a specific activity that is allowed on state lands only within designated areas and by certain guidelines as defined in the policies of the DFPR. Within Groton State Forest, the public has the right of access to the entire property for primitive camping to occur, excluding the Ricker Pond Great Laurel Colony, Peacham Bog, Lords Hill Natural Area, and the Silver Ledge Heron Rookery. A special use permit is also required for groups to primitive camp. Other exceptions where primitive camping is not permitted are areas above 2,500 feet and within State Parks during the operating season. Remains found in various locations within the forest boundary give evidence that primitive camping has occurred at various points in time in numerous locations.

Those who want to undertake the challenge of primitive camping must follow the primitive camping practices outlined in the DFPR brochure entitled *Vermont Guide to Primitive Camping on State Lands*.

### **Existing Trails - Use and Facilities Summary**

A year round trail system connects most major points of interest in the GMU. Trail uses range from hiking, mountain biking, horseback riding, snowmobiling, snowshoeing, and cross-country skiing. Currently there are approximately 26 miles of designated hiking/foot trails and countless miles of multi-use trails, including forest roads (see Figure 6, Existing Summer Recreation Map, and Figure 7, Existing Winter Recreation Map). The hiking/foot trails are blazed with blue paint. Horses and mountain bikes are not allowed on these trails. The multi-use Montpelier-Wells River Rail Trail is 12 miles in length, bisecting the length of Groton State Forest. It is also the designated section of the Cross Vermont Trail (an east to west multi-use trail from Wells, Vermont to Burlington, Vermont).

The shared-use or multi-use trails in Groton State Forest are located mainly on the forest roads (graveled surface roads) and are enjoyed by a wide variety of users including bicyclists, pedestrians, joggers, cross-country skiers, horseback riders, and snowmobilers. The Montpelier-Wells River Rail Trail is the main multi-use trail that is not a road. It was the old railroad bed, which was converted into a gravelled surface trail. The VAST trail system throughout the Forest is extensive and is also used by other trail and recreational activities in the summer and fall. The old telephone corridor between New Discovery State Park and Boulder Beach Road will also become a non-motorized multi-use trail.

Public use of ATVs on state lands, roads, and trails is prohibited under state statute; however, illegal ATV use continues to be a problem throughout the GMU.

Day use fees are collected from users that are not registered at a state campground or other overnight park facility and will be parking inside a state park to access trails at Seyon Ranch and New Discovery State Parks. No fees are collected from visitors using the trail heads from the Groton Nature Center and other areas within the GMU.

The main trail head locations for the trails in Groton and LR Jones State Forests are located at the Groton Nature Center, New Discovery State Park, Seyon Ranch State Park, and then at locations where there is only one trail from a location (i.e., Silver Ledge, Spruce Mountain, Devils Hill, Butterfield snowmobile parking area). Also, certain parking areas are plowed in the winter for snowmobiling, snowshoeing, and cross-country skiing (see descriptions below under Hiking/Walking for what trails are accessed from various trail heads).

### **Hiking / Walking**

Hiking and walking opportunities within the GMU are not limited to the hiking trails. There is a vast network of multi-use trails including a 12-mile section of the Cross Vermont Trail, which utilizes the old Montpelier-Wells River Railroad bed. Below is a listing of the hiking trails (also used for snowshoeing and backcountry skiing) found within the GMU. All trail mileage estimates are one way and all the trails can be considered easy to moderate in difficulty.

#### **New Discovery State Park Trail Head**

- Big Deer Mountain Trail from New Discovery (1.7 miles)
- New Discovery Campground to Osmore Pond Trail (0.5 miles)
- Osmore Pond Hiking Loop (2.0 miles)
- Little Deer Trail accessed from south end of Osmore Pond Hiking Loop (0.5 miles)
- Big Deer Trail accessed from Osmore Pond Loop (0.9 miles)
- Hosmer Brook Trail accessed from the junction of Osmore Pond Hiking Loop and Big Deer Mountain Trail (1.3 miles)
- Owl's Head Trail (1.5 miles)

#### **Northern Parking Area** (between New Discovery State Park and the Groton Maintenance Shop driveway)

- Telephone Line Multi-Use Trail (3.6 miles) – to be built.
- Rail Trail Connector Trail (1.3 mile) includes Old Lanesboro Road section

#### **Groton Nature Center Trail Head**

- Peacham Bog Loop Trail (4.5 miles)
- The Groton Nature Trail (0.6 miles)
- Little Loop Trail (0.9 miles)
- Hosmer Brook Trail from Groton Nature Trail (1.3 miles)
- Coldwater Brook Trail (1.9 miles)

**Owl's Head Overlook Parking Area**

- Owl's Head Trail Parking Area to Summit (0.2 miles)
- Owl's Head Trail Parking Area to New Discovery State Park (1.3 miles)

**Kettle Pond Day Use Parking Area**

- Kettle Pond Trail (3.0 miles)

**Silver Ledge Parking Area (off of Beaver Brook Road)**

- Silver Ledge Trail (0.6 miles)

**Martins Pond Road (no designated parking area)**

- Peacham Bog Loop Trail

**Pent Road off of Green Bay Road**

- Devils Hill Loop Trail (2.0 miles)

**Seyon Ranch State Park**

- Noyes Pond Trail (0.75 miles)
- Groomed Cross-Country Ski Trails (5.5 miles)
- Snowshoe Trail (1.0 miles)

**Spruce Mountain Trail Head (Town of Plainfield on Spruce Mountain Road)**

- Spruce Mountain Trail (2.2 miles)

**Biking – Mountain Biking and Road Biking**

Trails available for mountain biking on GMU lands include all gravel-surfaced roads, the Montpelier-Wells River Rail Trail, Telephone Line Multi-Use Trail, state park roads outside of the regular operating season, and other roads and trails specifically designated for use by mountain bikes. Parking areas within close proximity to these roads and trails include the northern parking area across from New Discovery State Park, Kettle Pond Day Use parking area, the Groton Nature Center parking area, the Overlook, and the public cartop boat launch at the southern end of Ricker Pond (Ricker Mills).

Bicycle touring groups travel VT Route 232, often staying overnight at one of the various campgrounds along the way.

**Horseback Riding**

Trails currently available for horseback riding and trekking with pack animals on GMU lands include the gravel-surfaced roads, forest highways (logging roads), Montpelier-Wells River Rail Trail, Telephone Line Multi-Use Trail, and state park roads outside of the regular operating season.

At this time, New Discovery State Park is the only park in Groton State Forest offering horse camping. Horse campers can leave directly from their campsites and access miles of forest roads and town roads for day rides. Horseback riders wishing to ride for the day can trailer their horses in the northern parking area near the Groton Maintenance Shop, Kettle Pond Day Use parking area, or the public boat launch at the southern end of Ricker

Pond, and easily access the Montpelier-Wells River Rail Trail (Cross Vermont Trail) and forest and town roads from these locations.

### **Snowmobiling**

In 1978 the Vermont Association of Snow Travelers (VAST) was delegated the responsibility for constructing and operating snowmobile trails on state lands in cooperation with the DFPR.

Snowmobiling has been a long-term use through out Groton State Forest. The corridors mainly consist of eight-foot wide trails groomed by local snowmobile clubs, with financial aid from VAST. VAST Primary Trail Corridors #2 and #302, with various connector routes, cross through Groton State Forest. VAST Corridor #302 stretches from the southern end of the Forest near the Knox Mountain Range and joins the Montpelier-Wells River Rail Trail at the West Shore Access Road. From there, it branches off going north and south along the railroad bed. VAST Corridor #2 extends from the intersection at Lanesboro west along the railroad bed towards Marshfield Village, and east traveling the logging roads through New Discovery State Park towards Peacham Pond. A short section of VAST Corridor #232 runs along the western and northern sides of Martins Pond.

There are many sections of these VAST trails that pass across State land, through private property and back across State property. It should be noted public use of these trails across private property for use other than snowmobiling may not be permitted.

### **Cross-Country Skiing and Snowshoeing**

During the winter months, the entrance to New Discovery State Park, the northern parking area, the Kettle Pond Day Use parking area, and the Groton Nature Center parking area are plowed. The public can access trails suitable for snowshoeing and cross-country skiing from these trail heads and facilities. A Nordic trail has been cut and marked in the northeastern part of the Forest. It originates from the Martins Pond Fish and Wildlife Access Area, meets up with the Peacham Bog Trail and then returns.

Seyon Ranch State Park has a 5.5-mile network of groomed cross-country skiing and snowshoeing trails for its guests and the general public.

### **Water-Based Recreation**

Within the 28,000 acres of the GMU there are five named ponds completely enclosed by state land – Osmore Pond, Noyes Pond, Kettle Pond, Ricker Pond, and Goslant Pond. In addition to the enclosed ponds, there are five named ponds that are on the periphery of the GMU – Mud Pond (Groton), Groton Pond (Lake Groton), Martins Pond, Peacham Pond, and Turtlehead Pond – and two named ponds that are enclosed by state ownership on parcels that are satellite to the main body of the GMU – Levi Pond and Mud Pond (Peacham).

The rules concerning the recreational uses of these waters were established under 10 VSA § 1424. These rules are intended to provide a basis for both avoiding where possible, and resolving when necessary, conflicts in the use of public waters in a comprehensive and integrated manner so that the various uses may be enjoyed in a reasonable manner, considering the best interests of both current and future generations of the citizens of the state and insuring that natural resource values of the public waters are fully protected (Vermont Use of Public Water Rules Section 1.1).

A greater depth of information concerning the habitat, access, and ecology is available in the fisheries assessment appendix. Included in that is information concerning regulations on motorized boat use, maximum speed allowed, personal watercraft, boating access, and available fish species. Below is a description of the primary lakes and ponds in the Groton Management Unit.

### **Lake Groton**

Lake Groton (422 acres) is long and narrow in shape and lies in a north-south direction. It is approximately two and a half miles in length, about a half mile in width, and has a maximum depth of about thirty-five feet. A dam impounds the water at its southern end. This area is shallow and contains wetlands on the eastern shore and a common loon nesting site.

Lake Groton is popular for all types of water-based recreational activities and has two state parks and approximately 140 residences (camps and year round homes) bordering its shoreline. Even though it is highly developed with camps and homes along its western and northern shoreline, there are incredible views of Owl's Head and other mountains to the north. The majority of the private lands along the shores are surrounded by state lands. The eastern shore is less developed as a majority of the shoreline is part of Groton State Forest. The Town of Groton owns property adjacent to the dam at the south end of Lake Groton. There are no developed free public boat access areas on Lake Groton. There are boat access areas at Boulder Beach State Park (cartop) and Stillwater State Park (camper only gravel boat launch).

### **Kettle Pond**

Kettle Pond (109 acres) is located in the northern portion of Groton State Forest close to Vermont Route 232, and is long and narrow in shape lying in an east-west direction. There is a day users parking area adjacent to VT Route 232 and access to the pond is by a trail to a boat dock where users can launch their boats. There also is a hiking trail around the pond with five remote lean-tos and one remote campsite that can be accessed by trail or by boat. Located on the eastern side of the pond is the group camping area of Kettle Pond State Park. There is a beach and cartop boat launch within the campground for campers only. There is one private camp located on the far end of the pond and is accessible by boat or on the hiking trail. Motorboats are allowed, but there is a five mile per hour speed limit (no wake). Most people use the pond for fishing, canoeing and kayaking, and swimming.

**Osmore Pond**

Osmore Pond (48 acres) is completely surrounded by Groton State Forest and is accessed through New Discovery State Park during the park operating season (mid-May through Labor Day) and then by Osmore Pond Road (a state forest road) before and after the park season. Osmore Pond is also long and narrow, mainly lying in a north-south direction. No motorboats are allowed on the pond and the primary activities are fishing, canoeing, and kayaking. There are four remote lean-tos located along the shoreline that are accessed via boat or on foot on the hiking trail around the pond. There is also a group picnic shelter and picnic sites on the western side of the pond.

**Ricker Pond**

Ricker Pond (95 acres) is located in the central portion of Groton State Forest along VT Route 232 just south of Lake Groton. Ricker Pond State Park lies along the western edge of the pond, which also runs in a north-south direction. There are 13 private camps located on the northern edge of the pond, and they are only accessed by boat or on foot through Ricker Pond State Park. The Montpelier-Wells River Rail Trail also runs through the middle of the park (which is also part of the campground road system). Motorboats are allowed on Ricker Pond, and the primary recreational use of the pond is for waterskiing, fishing, cruising, paddling, and swimming.

**Noyes Pond**

Noyes Pond (39 acres) is located in the southern section of Groton State Forest at Seyon Ranch State Park. It is wholly within Groton State Forest, and the shores are mainly undeveloped except where the park facilities are located (the eastern shores of the pond). The primary use of the pond is for trout fly-fishing, which is tightly regulated. Only state park boats may be used on the pond.

**Peacham Pond**

Peacham Pond (340 acres) is the second largest pond in the GMU. It is located in the far northern section of Groton State Forest and is surrounded on three sides by state land, except along the shores where there are approximately 220 camps. Peacham Pond is popular for swimming, fishing, and boating (motorized and nonmotorized). There is a Fish and Wildlife Access Area for the general public to use to gain access to the pond.

**Martins Pond**

Martins Pond (82 acres) is also located on the periphery of Groton State Forest in the northeast part of the Forest. There are private camps on its shores, and recreationists participate in swimming, fishing, and both motorized and nonmotorized boating on Martins Pond. There is a Fish and Wildlife Access Area for the general public to use to gain access to the pond.

**Turtlehead Pond or Marshfield Pond**

Marshfield Pond (69 acres) is located in the northwestern part of Groton State Forest, and is surrounded by state land on about half of the pond. The Montpelier-Wells River Rail Trail (Cross Vermont Trail) runs close by the pond. There are also a number of private

camps located on the pond. The pond is mainly used by small motorboats and canoes and kayaks. Fishing also occurs at the pond.

### **Fish and Wildlife Based Outdoor Opportunities**

Hunting, fishing and trapping are important outdoor activities both culturally and economically in Vermont. These activities, conducted under regulated seasons, provide for the sustainable utilization of fish and wildlife resources statewide.

Currently 30% of Vermonters fish or hunt (over 86,000 hunters and trappers and 121,900 anglers). Recent surveys (2002) indicate that Vermont is second only to Alaska in per capita participation by the public in hunting, fishing, trapping, and feeding and observing wildlife. Over 500,000 pounds of white-tailed deer, 192,000 pounds of moose, and 15,000 pounds of black bear meat are harvested annually from the forests and wetlands of Vermont. Wildlife related outdoor activities accounted for five percent of the 2001 Vermont Gross State Product, with over \$300 million spent on fishing and hunting alone. Revenues from these activities particularly benefit rural areas of the state, and occur outside the prime seasons for tourism other outdoor related expenditures.

The large acreage of state lands in the GMU provides an important land base for the sustainable use of these natural resources by the public. In the GMU, hunting opportunities exist for Vermont big game species, including black bear, white-tailed deer, moose, and wild turkey. In a recent 10-year period, a total of 377 deer, including 190 bucks, have been harvested from the combined townships of Groton, Peacham, Plainfield, Marshfield, and Orange. Legal moose hunting in the region began in 1997, and from then through 2005, 25 moose have been harvested from the GMU. Small game and furbearer species such as ruffed grouse, snowshoe hare, rabbits, coyotes, bobcats, and fox are also hunted in the GMU. There are waterfowl hunting opportunities that can be found throughout the property in the various wetlands and beaver flowages. Furbearers are common and abundant, and trapping opportunities for coyote, beaver, fisher, fox, bobcat, and other furbearer species may be conducted in accordance with Vermont trapping laws. Fishing opportunities are described in the Fisheries Resource section of this plan. Hunting, fishing, and trapping are heavily regulated and are governed by statutes, rules and regulations under the jurisdiction of the DFW. These state laws apply to these activities conducted in properties in the GMU.

Lands in the GMU are also excellent areas for wildlife viewing. Sixteen species of warblers have been sighted here. Common loons may be seen or heard on a variety of ponds in this area. Owl's Head is an excellent place for viewing migrating hawks in late summer and early fall. Most of the state park campgrounds keep lists of wildlife sightings by visitors and have included the above species as well as moose, black bear, coyote, bobcats, and various bird species.

Hunters, trappers, anglers, and wildlife viewers utilize existing GMU infrastructure and accommodations for these activities. There is vehicular access by means of the numerous logging roads within the GMU, which provide access to many corners of the property.

Parking is also available throughout the forest and at specific parking areas – the northern parking area near the Groton Maintenance / New Discovery area, Kettle Pond parking lot, Groton Forest Overlook, Martins Pond, and the DFPR lot near Butterfield Mountain. In addition, New Discovery State Park is currently re-opened for camping during deer rifle season in November. The entrance and rear campground and Peacham Pond road gates are unlocked and opened. During the other seasons, hunters and trappers may also camp at Kettle Pond, Stillwater, and Ricker Pond (these park facilities officially close mid-October). Throughout the year, park facilities for camping are available upon approval by the parks regional manager; however, there is no water or restroom facilities available and visitors will have to walk in from the entrance gate. Future development of recreational facilities and concentrated infrastructure, such as developed trails, will need to be balanced against impacts to wildlife habitat and hunting and fishing.

### **Rock Climbing and Ice Climbing**

Rock climbing and ice climbing are activities that have a long history in Groton State Forest. Ice climbing and bouldering also fall under the general sport of climbing. The differences come about not so much from the resource type but more from the difficulty of the climb. Cliffs (rocks), ice, and boulders all can be rated according to climbing difficulty, and that is the distinction mattering most to climbers. The difficulty determines the technical skill and equipment needed to undertake any type of climb.

Owl's Head and Marshfield Mountain have traditionally been used for rock climbing. While there is no established trail to the summit of Marshfield Mountain, this area is still popular with climbers. Bouldering has become more popular in recent years. Spice Mountain and a few of the larger erratics in Kettle Pond State Park appear to be the popular sites for this activity. While the numbers of people who participate are relatively low, they are very committed to their sport.

Department policy allows for these activities when no significant environmental damage is expected. The one exception has been a requirement that rock climbers must suspend their activity in certain areas during the peregrine falcon nesting season. Marshfield Mountain was home to one of the first hack sites established between 1982 and 1987. The climbers have been very cooperative and peregrine nesting has been quite successful.

As with other recreational user groups, commercial operations and organized groups need to obtain a special use permit or license for their activity on state lands.

### **Geocaching**

Geocaching is a relatively new activity, defined as high tech orienteering. A handheld GPS (Global Positioning Unit) directs the user to a "cache," usually a small, weather proof container filled with "treasure." The "cacher" exchanges a trinket and logs his/her find in the logbook. Their geographical location is made available for others to find via the coordinates of the site, often posted on the Internet. Currently, there are three listed geocaches in Groton State Forest – Kettle Pond, Owl's Head, and Devils Hill.

Figure 6  
**Existing Summer Recreation Map**

Figure 7  
**Existing Winter Recreation Map**

The Vermont ANR adopted a policy on geocaches and geocaching on ANR lands in 2004. The policy does not apply on WMAs where geocaching is not allowed. The policy encourages use of virtual caches; for example, unique natural features or existing signs, instead of placing new containers requiring some searching to find. Caches can have impacts on sensitive natural or cultural areas. It is important to minimize potential resource damage and conflicts with other uses and to ensure the activity does not pose any safety or health risks to participants and others.

### **Group Use and Guided Use of State Lands**

The DFPR has requirements for any guided use of state lands whether conducted by a for-profit business enterprise or as part of not-for-profit trip (i.e., schools, camps, colleges, universities, Green Mountain Club, Vermont Institute of Natural Science). A license or special use permit is needed for all organized groups and commercial enterprises using the GMU. Outside of the park operating season (mid-May through October 15), organized groups and commercial activities need a permit for activities occurring within any state park boundary. During the park operating season, groups using the park facilities for typical activities (i.e., weddings, camping, picnicking) are not required to obtain a permit. However, group special events or commercial activities (i.e., races, guided fishing, Becoming an Outdoor Family, commercial filming) do require a permit. The Agency has established a standardized fee structure for licenses and special use permits. However, the guidelines will always be under review and revision. For the latest information, contact the District Permit Specialist.

### **Timber Resources Summary**

The GMU has historically supported an uninterrupted flow of timber products with the exception of small acreages within the Butterfield and Marshfield blocks. Aside from these two areas, the landscape is littered with cobbles and medium to large size boulders that make agriculture next to impossible. As a result, the area has supported a continuous forest cover. In addition, the high cost of constructing access roads has largely restricted development, leaving large acreages of remote timberland. This forest has progressed through various cutting cycles over the past 200 years, the last large scale period of intensive harvesting ending in the early 1900s.

These past cutting practices created a predominately even aged forest in the large pole to small sawtimber class by the 1960s. The DFPR instituted timber management plans in the late 1960s. The idea was to begin creating a variety of different age and size classes of forest stands. These efforts were also designed to improve forest health and vigor, improve tree species diversification and value, create higher quality wildlife habitat, and improve the general accessibility of the forest for recreational access. This management plan will continue the same strategies with some modifications.

Currently the GMU supports three general forest types, northern hardwood, spruce/fir, and associated mixed stands of hard and soft wood at all elevation levels. A small acreage of softwood plantations occupy the areas which were cleared at one time for

**Figure 8**  
**Forest Cover Type Map**

agriculture. Northern hardwood forest comprises the majority of the forest cover and occurs mostly on better drained sites with deeper soils. Most lowland spruce/fir is found in long narrow stands which tend to follow the many low-gradient drainages where soils are wetter and shallower. Above the northern hardwoods, the higher elevations support a mixed stand dominated by spruce, fir, and paper birch. It becomes mostly spruce/fir on the highest peaks and ledgy outcrops. Mixed stands also occur at lower elevation wherever soils are less than moderately to well-drained. They are comprised of spruce, fir, and red maple. Often these stands are located between the lowland spruce/fir drainages and the northern hardwood stands above them. All mixed stands have a relatively high percentage of their softwood component as red spruce.

Over the past 30 years, harvests in the northern hardwood have created early successional habitat through regeneration cutting in the lowest quality stands. Intermediate harvests in better quality stands have focused on removing cull stems and increasing growth on residual crop trees. This process of creating and improving stands has resulted in the establishment of high quality sapling and above average quality sawtimber stands.

Lowland spruce/fir stands have been treated to create a continuous forest cover through frequent light cuttings. Each harvest is designed to allow a new age class of softwood to become established. Most high elevation mixed stands have been left untreated. Harvests in lower elevation mixed stands have focused on removing hardwood to increase the softwood component of the stand.

Eight hundred acres of “fire stands,” resulting from large forest fires in the late 1800s and early 1900s, exist on the easterly side of Lake Groton and in the Owl’s Head area. These stands are comprised mostly of white birch, red maple, and poplar. Most of these stands are on relatively poor growing sites with low productivity. Cuts have been designed in these stands to perpetuate the forest type or to improve the quality and species mix on some of the better sites.

## **Wildlife Habitats and Species Summary**

The GMU offers a wide spectrum of habitat types ranging from high elevation habitats on the summits of Butterfield (3,166 feet) and Signal Mountains (3,348 feet) to the wetlands associated with the Peacham Bog Natural Area. The diversity of habitat types has been identified through the natural community mapping process. Thirty natural community types have been identified within the GMU. During this planning process we have also identified the different size classes of each timber stand for the purpose of managing both the timber and wildlife habitat. With natural communities and the timber inventory as our base for vegetation management, it is assumed that common species associated with each community type and size class will be represented within the management unit.

Specific inventories were conducted to target species and habitat types that could potentially be missed by relying solely on the natural community approach or if more specific information is needed to properly manage a specific habitat of interest. Habitat types that received additional attention within the management unit include deer

wintering areas, mast producing stands, grouse management units, wetland habitats, including vernal pools and seeps, high elevation habitats, upland openings, talus slopes, and cliffs.

### **Deer Wintering Areas**

The GMU is situated near the northern limit of the white-tailed deer's range; therefore, deer wintering areas have been identified as critical to their survival in the region. Deer wintering areas often have areas of reduced snow depth, less wind, and warmer nighttime temperatures. Deer wintering areas contain a mix of softwood species, have sufficient canopy closure to intercept snow and decrease wind speed, and tree heights that allow movement under the protection of the canopy. In the GMU, the species most commonly found in the deer wintering areas are red spruce, balsam fir, and eastern hemlock. During the timber inventory process, information was collected regarding the health, condition, and level of use in each of the deer wintering areas within the GMU. As a result of the mapping efforts of the DFW and the timber inventory conducted during this planning process, we have identified approximately 907 acres of deer wintering habitat with a majority of it being in five distinct blocks.

Beaver Brook Drainage – 197 acres  
Lye Brook Drainage – 155 acres  
West Branch (Noyes Pond Outlet) – 157 acres  
Butterfield Block – 275 acres  
LR Jones State Forest – 123 acres

### **Hard and Soft Mast Production Areas**

Mast producing tree and shrub species present in the GMU include American beech, mountain ash, red oak, black cherry, apple, blueberry, blackberry, raspberry, and a wide variety of other shrub species scattered across the ownership. For this plan, we have identified concentrations of American beech and locations of abandoned apple orchards and areas planted to red oak. Many of the other mast producing species are usually the result of disturbances caused by timber harvesting operations or by natural disturbances.

American beech and red oak produce hard mast (nuts) which are high in protein and fat. These are important for birds and mammals preparing for fall migration or hibernation. Concentrations of American beech have been identified during the timber inventory and over the past 30 years managing the ownership. Within the GMU, 54 acres have been delineated as areas having significant mast producing capability. These areas were evaluated to determine the age, relative health, level of bear use, and recommended management activities. The goal will be to improve the overall health of these stands and to insure the continued availability of the area to wildlife preparing for winter.

To establish an additional mast producing species, red oak seedlings were planted in the Seyon Basin and in the Coldwater Brook drainage. Seedlings were planted in areas that were harvested approximately 15 years ago and today some of the planted trees are 15 to 20 feet tall. Although the conditions within the forest may not have traditionally supported red oak, evidence on surrounding property suggests that it may have been a

minor component of the hardwood forest, especially on the south/southwestern facing slopes.

Soft mast within the GMU is made up of berries and fruit. Some species of soft mast producing plants that exist on the forest are raspberry, blackberry, blueberry, high-bush cranberry, various species of cherries, and apple trees. The berry producing species have traditionally been an added benefit of timber harvesting and therefore have not been a management concern. Concentrations of apple trees can be found in the Martins Pond Area and in the Butterfield Mountain area. These areas are being maintained by brush-hogging the fields and pruning and releasing the apple trees, both as a food resource for wildlife and as a reminder of past land use in these areas.

### **Wetland Habitats**

The wetland communities within the GMU are typically located along the shorelines of the many lakes and ponds or adjacent to one of the streams that traverse the forest. These wetlands habitats support a wide range of species, ranging from those that are quite common such as beaver, moose, and wood duck, to uncommon species such as black-backed woodpecker and rusty blackbird. For the purposes of this assessment, the wetland communities are separated into those associated with lakes and ponds, those influenced by beaver and those that are more isolated from other wetland or aquatic communities.

Beaver influenced wetlands encompass approximately 256 acres of the GMU. The occupancy rate of these wetlands is quite variable and is responsible for one of the natural sources of early successional habitat type that is present in the GMU. Species such as American woodcock, hooded merganser, black bear, moose, white-tailed deer, and a variety of reptiles and amphibians utilize these wetlands complexes throughout their lives. Because beaver move from one pond to the next, the exact acreage in beaver meadow or standing water is always changing.

Shoreline wetland communities can be found along the margins of most of the lakes and ponds within the forest. Shallow emergent marshes can be found at Goslant and Peacham ponds which provide habitat for red-winged blackbird, muskrat, and a wide range of wading birds.

One of the more significant wetland communities in Groton State Forest is Peacham Bog. The Peacham Bog Natural Area consists of approximately 670 acres and includes the bog and the associated wetlands. This area provides habitat for northern harrier, rusty blackbird, palm warbler, black-backed woodpecker, and other species more commonly found in true boreal habitats.

Although all wetlands are valuable as breeding sites for the region's amphibians, vernal pools and seeps are vital to the survival of local populations of frogs and salamanders. While inventorying the natural communities for the GMU, 10 vernal pools and 27 seeps were identified. Certainly there are others within the GMU that will be discovered while conducting other management activities and they will be offered the same level of protection that the known sites will receive. These communal breeding sites are important

for wood frogs, spring peepers, spotted salamanders, eastern newts, and American toads. These amphibians will utilize other wetland types but often experience higher levels of predation due to the presence of fish.

Due to land use changes, suitable nesting sites for cavity-nesting waterfowl (e.g., wood duck, hooded merganser, and goldeneye) have been in short supply since the late 19<sup>th</sup> century. Wood duck boxes have been erected over the years by various entities on the GMU; however, few, if any, are thought to still be in serviceable condition. These nest boxes have been instrumental in bringing the wood duck back from the brink of extinction and suitable habitat for placement of dozens of these boxes exists throughout the GMU.

### **Talus/Cliff Habitats**

The GMU has three areas identified as cliff habitats – Marshfield Ledge, Big Deer Mountain, and Owl’s Head Mountain. Marshfield Ledge is one of the first sites to be utilized as a hacking site for peregrine falcons and has typically been utilized by nesting peregrines since then. Other species that are commonly found nesting on cliffs include turkey vultures and common ravens.

The talus slopes in the GMU are typically found on the south facing slopes of most of the peaks. These talus slopes provide abundant sunning locations for resident reptiles and shelter for rock voles and long-tailed shrews both of which are uncommon in Vermont.

### **Herbaceous Openings**

Historically, most of the GMU has remained in a forested condition. Very little of the area was used for agricultural purposes and those areas that were farmed are typically located near the perimeter of the ownership. Abandoned farmland and log landings provide a habitat type that is of importance to numerous wildlife species, including many game species. Currently a total of 25 acres of herbaceous openings are maintained in herbaceous cover. This acreage is mainly comprised of permanent log landings distributed throughout the management unit and an area of old farmland in the Butterfield block.

### **Species of Management Concern**

Peregrine Falcon –

Marshfield Ledges was one of the original hacking sites used as part of the peregrine falcon recovery efforts which began in 1991. The cliff has been occupied every year since that date and a total of 17 chicks have been fledged from this area. One of the most successful years was 2005, with four chicks being fledged.

Common Loon –

Common loons currently nest on most of the ponds in the GMU (Peacham Pond, Martins Pond, Kettle Pond, Osmore Pond, Ricker Pond, Lake Groton). There is a potential for conflict with recreational users. The Vermont Institute of Natural Science (VINS), along with many other volunteers, monitors nesting behavior and take measures to protect

nesting loons. Typically this includes roping off the nesting area to keep boats and paddle craft from disturbing nesting birds.

#### Bicknell's Thrush –

Bicknell's thrushes are known to nest on Spruce, Owl's Head, and Signal mountains. Based on the habitat requirements of these birds, there is the potential for nesting on Butterfield, Burnt, Marshfield, and Little Spruce Mountains. Most of the areas identified as Bicknell's thrush habitat have been designated highly sensitive due to shallow soils, high elevation, and steep slopes.

#### Ruffed Grouse –

Ruffed grouse management has been identified as a priority for species specific management in past management plans for the Groton State Forest. Within the GMU, two demonstration areas were designated and managed as grouse production areas totaling approximately 200 acres in past long-range plans. Both areas have received two cuts to create different age classes and are due for a third and fourth in this planning period. The first cut was initiated in 1981 where a quarter of the acreage was harvested in one to three acre blocks. The second entry was conducted in 1991 with the second quarter harvested.

Two additional areas suitable for the establishment of grouse production units were identified during the most recent inventory process. These areas, 264 acres, have a relatively high aspen component and are located as shown on Figure 9, Wildlife Habitats of Special Importance Map.

#### American Woodcock –

American Woodcock have been identified as a species of greatest conservation need through the *Wildlife Action Planning* efforts in Vermont, New York and New Hampshire. One of the goals of the Northern Forest Woodcock Initiative is to establish a series of woodcock management demonstration areas across the region to educate land managers regarding vegetation management techniques to optimize habitat conditions for woodcock.

Optimal woodcock habitat contains the following habitat features.

#### Woodcock Habitat:

1. Courtship clearings for males.
  - a. Singing grounds in forest stands with trees >25 feet should be 0.5 acres. Openings with surrounding vegetation <25 feet can be as small as 0.25 acres.
  - b. Openings should face south and be rectangular. Complete slash removal is recommended but clearings with three 100 square foot areas cleared of slash may be satisfactory.
  - c. Clearings should occur at a rate of 1 site per 20 to 25 acres of habitat. Mow on a 2 to 4 year cycle.

2. Good nesting and brood rearing cover (young, second growth hardwoods) near clearings.
3. Feeding covers (alders, or dense aspen on moist, rich soils). Cut strips in alders 60 – 80 feet wide. Leave 280 feet uncut. Five year cutting cycle (70 feet wide). In alders 20<sup>+</sup> years old use 2 year cutting cycles for first rotation. Slash removal is desirable. Feeding covers should be w/in 0.5 miles of brood / nesting and roosting sites. Aspen should be cut during the winter.
4. Night roost fields should be 3 – 5 acres; 60 – 70% covered with shrubs and regeneration; and at a density of not less than 1 per 100 acres habitat. Mowing should occur on half of the sites every 2 – 5 years. Allow 100 foot strip around blueberry field to regenerate into brood cover.

Vegetation management across the GMU will likely benefit woodcock but two areas within the public ownership have been identified as ideal woodcock management demonstration areas. These areas have been identified because of the existing forest cover type, past timber management patterns, proximity to roosting areas, and the ease of access for public viewing and enjoyment.

The first area identified is the area surrounding the gravel pit on the Cold Water Brook Road. This area will encompass the strips cuts and the patch cuts northeast of Lake Groton (stands 3-1 and 3-5 in the Groton Block and stand 3-6 in the Peacham Block). The “gravel pit” area had strips cut 22 years ago and patches cut about 20 years ago. We are planning a 60 year cutting cycle rotation with a 4 entry cycle. The entry interval for this area will be 15 years which will provide the ideal habitat structure for woodcock. The initial plan is to harvest half of the remaining uncut strips and blocks as soon as possible, then harvest the remaining uncut strips and blocks 15 years later. The strips and block that were cut in the 1980’s would be cut in a similar fashion with half being cut in the following 15 year entry. This would maintain about 40% of the area in early successional (0-25 years) habitat at any time.

Woodcock roost in open areas at night from late June into November. Roosting sites are generally 3-5 acres or larger in size and contain sparse ground and scattered shrubby vegetation. The goal is to establish a roosting area in and around the existing gravel pit. This will involve leveling, reshaping gravel faces, expanding the opening size to meet the size requirements and establishing some vegetation to secure the soil. The gravel resource has not been completely exhausted and will be utilized in the future. Future management of the gravel pit will be mindful of its value as a roosting area for woodcock.

The second area is the Lanesboro/ Marshfield Ledge area. This management unit includes both state and private property. There is a range of habitat features that make this an excellent area to manage for woodcock. The private property currently contains a significant acreage of pasture and meadows which will likely be utilized as a roosting area provided the vegetation continues to be mowed. Developing a management agreement with the private landowner will be a goal for this project.

The state ownership in this area includes northern hardwood in various size classes, mature and developing softwood stands, alder stands, old log landings and beaver influenced wetlands.

The alder habitat along the railroad bed running NE of the private land will be maintained. Alder is generally managed on a 20-25 year cutting cycle. Cut strips in alders 60 – 80 feet wide. Leave 280 feet uncut and cut on a 5-year cutting cycle (70 feet wide). In alders 20<sup>+</sup> years old use 2 year cutting cycles for first rotation.

The softwood along this wetland complex also serves as deer wintering area and will continue to be managed as such. Management for wintering deer includes regenerating small groups of softwood and establishing hardwood browse for winter feed, which is very compatible with woodcock management. The hardwood stands (4-1, 4-3, 4-7 in the Marshfield Block) will be managed. Although it has a large softwood component, clearcutting blocks in this habitat should result in hardwood and mixed wood early successional habitat. The log landing in the northern part of the area should be maintained and enlarged for a roosting area.

#### Snowshoe Hare –

Snowshoe hare require dense conifer saplings for their food and cover requirements. Hare also feed throughout the year on low branches and seedlings of deciduous trees and shrubs, along with herbaceous vegetation during the growing season. All habitat requirements should be met within a 20-acre home range. The vegetative canopy is typically six to twelve feet tall and six to twenty-five years old. Two areas have been identified to be managed as hare production units. The first area is located near the Red Brook Road in the Town of Peacham and is approximately 185 acres. The second area is along the Beaver Brook Road in the Town of Groton and is approximately 145 acres.

#### Black-backed Woodpecker –

These boreal woodpeckers are rare breeders in Vermont and a species of special concern. They breed in mature to over-mature stands of spruce and fir, including stands which have been recently partially harvested. The dead and dying stems in these habitats harbor wood-boring larvae, the woodpecker's principal food item during the breeding season. The St. Johnsbury District has a practice of searching for active nests prior to layout of timber sales that could impact the nest site and, when active nests are found, adjustments are made to the treatment area if deemed necessary. For the long-range plan, spruce/fir stands with potential habitat were surveyed throughout the GMU for the presence of black-backs. One nest was located in the Sucker Brook area. In addition, individual birds were sighted in Lye Brook and Peacham Bog. It is likely that other nesting sites exist within the GMU that were not located during the survey.

Figure 9  
Wildlife Habitats of Special Importance Map

#### Bats –

The Parks Division has erected bat houses in proximity to intensively used recreational areas to help educate park users about the benefits of bats and to reduce the numbers of mosquitoes. These nest boxes also provide summer roosts and serve to replace a necessary habitat component that is missing due to the smaller girth of large hollow trees compared to pre-settlement times.

#### Marsh Birds –

Several bird species that breed in marshes are rare in Vermont, and many are declining nationwide. Forest management activities in the LRMP would have minimal, if any, impact on these species, but the placement of shoreline hiking trails, campsites, and other water-based recreational facilities could cause undesirable disturbances. For this reason, a total of nine ponds with potential habitat were surveyed for the presence of seven selected marsh bird species – pied-billed grebe, least bittern, American bittern, sora, common moorhen, sedge wren, and marsh wren. Bird songs and calls were broadcast from various locations along the shorelines to solicit return calls from seven species of marsh birds that are of management concern. Although a number of marsh bird species were documented at each site, none of the targeted species of management concern were documented during this survey.

#### **Other Species of Special Concern**

A number of other wildlife species in Vermont are of special conservation concern due to their rarity and/or threats to their continued existence as viable components of the state's fauna. A list of these species believed to occur on the GMU is available at the district offices. It is not known whether or not all these species actually occur on the GMU. Special management needs will be given consideration if any of these species are detected in the future.

### **Fisheries Resources Summary**

The approximately 27,000 acres of the GMU represent the headwaters of several small watersheds that are part of two of Vermont's four major drainage basins. The GMU is situated at a major drainage divide. One-quarter of its land area is part of the St. Lawrence River watershed, draining westerly to Lake Champlain via the Winooski River. Three-quarters of it is part of the Connecticut River system, draining easterly to the Connecticut River via the Stevens, Wells, and Waits Rivers. Of the roughly 20,500 acres of the GMU land area that contributes to the Connecticut River watershed, 83% drains into the Wells River, 15% into the Waits River, and the remaining 2% into the Stevens River.

The GMU is the source area for many streams. Nearly all of the water that leaves the GMU originates within its boundaries; i.e., consistent with the definition of a *headwaters* there is very little land area outside the GMU boundary capturing precipitation that eventually drains onto, through, and out of the GMU. Several small sub-watersheds contribute to the two major ponds, Groton and Ricker, which represent the nominal origin of the Wells River. The drainage area at the outlet of Ricker Pond, the downstream-most

point, is slightly more than 21 square miles. Roughly 82% of this is comprised of GMU lands. The Wells River South Branch, on which Noyes Pond is an in stream impoundment, originates in the GMU's Seyon Block. At the point where it exits the GMU, roughly 97% of its 5.6 square mile drainage area is made up of lands within the GMU. The vast majority of the Waits River headwaters (roughly 6 square miles of drainage area where it exits the GMU boundary) are GMU land mass. In the Winooski River headwaters about three-quarters of the 5.8 square mile drainage area for Turtlehead Pond and about half of the 5.9 square mile drainage area for Peacham Pond are GMU lands. The upper half of the 1.25 square mile Martins Pond drainage area in the Stevens River watershed is GMU land. Additionally originating on the GMU are Nelson, Spicer, and Lye Brooks in the Winooski drainage, and Red and Heath Brooks in the Wells drainage.

The GMU encloses five named ponds (Goslant, Kettle, Noyes, Osmore, and Ricker) and several smaller ponds that have no generally recognized names. The GMU has frontage on but does not enclose five other named ponds (Groton, Martins, Mud in Groton, Peacham, and Turtlehead). The GMU has two additional ponds that are enclosed by state ownerships that are satellites to the main body of contiguous land in the GMU (Levi, Mud in Peacham).

The ponds range widely in size, from less than 5 acres to 422 acres. They are middle elevation ponds, all falling within a 730-foot elevation range, between 1,051 feet and 1,781 feet above sea level. Some ponds are natural or nearly so (Goslant, Kettle, Levi, Mud-Peacham, Mud-Groton, Osmore, Turtlehead) and, for the most part, their outlets have not been modified or raised by major civil works. Others (Groton, Ricker, Martins, and Peacham) are impounded to some extent by a substantial outlet control structure or are completely man-made (Noyes). All are relatively shallow (4 feet to 35 feet maximum depth), with the exception of Peacham Pond (61 feet maximum depth) which is of middling depth for Vermont waters. Water surface elevation is regulated (seasonal drawdown) only at Lake Groton.

### **Fish Population and Fisheries Assessment**

Over the past three years, the fishery resources on the GMU, specifically at Goslant, Kettle, Levi, Martins, Mud-Peacham, Noyes, Osmore, and Turtlehead Ponds, and segments of several streams have been investigated. In some instances this complements investigations that have been completed in years and decades past. These investigations included fish population sampling (mainly qualitative) in ponds and streams, and dissolved oxygen/temperature profile descriptions and bathymetry of selected ponds.

Fisheries management at the ponds that the GMU borders but does not enclose is not within the scope and authority of the LRMP for the GMU. These waters will be addressed only in their limited connection to the GMU, that is, insofar as the campgrounds, day use areas, and land use activities of the GMU affect or rely on them.

The GMU is blessed with an interesting variety of ponds and streams that provide diverse angling and ice fishing opportunities and enrich the recreation amenities of this large state ownership. A moderate to extensive amount of information is available describing the individual waters and fishery resources. Although in some cases information may be dated, in the absence of major changes in land and water uses within the GMU over the past half-century, we trust it to still be reasonably descriptive of current conditions.

### **Goslant (Spice) Pond**

Goslant Pond is not recognized by the public or by DFW as a fishery resource. Only a limited amount of information is available about the fish community and the pond's capacity to support populations that would attract angling. Goslant is small and shallow, with a very small drainage area. There is a concern that anoxic conditions may exist under the ice in some winters and that extensive areas of the pond may freeze to the substrate. In the hottest summers water temperature is expected to rise throughout the pond to stress levels for some north temperate species. Populations of species such as brown bullheads, chain pickerel, and largemouth bass might be able to flourish. There currently is no developed access to the pond for anglers, therefore, not encouraging or facilitating fishing at this pond.

### **Kettle Pond**

Kettle Pond offers attractive and varied fishing opportunities consistent with its physical and chemical conditions. Much of the fish community, especially the fishery resources (smallmouth bass, yellow perch, pumpkinseed, rainbow trout), appear to be species introduced over time. High water temperature and low oxygen conditions at Kettle Pond are not especially favorable for trout management but are more conducive to the warm water species in the pond's fish community. Nevertheless, the rainbow trout that is stocked each spring do acclimate, survive and grow through at least a portion of the summer, and generate a popular fishery. Although the survival of these stocked trout into a second growing season can not be ruled out, there is no documentation on that any survived and it would not be surprising if they succumbed to late summer and late winter conditions. Unidentified springs and cool water inflow may provide necessary refuge.

Access to the Kettle Pond is either through the state park campground (which is only available to campers) where there is a short carry to the cartop launch near the camper's swim beach, or via the portage trail from the day use parking area. Day users can carry small boats, canoes, and kayaks the 700 feet to a boat dock to gain access to the water for fishing and boating.

### **Levi Pond**

Levi Pond is a destination for some anglers interested in a remote brook trout pond experience. Chemical reclamation of the fish community and restocking in 1977 appears to have been successful, and to date no addition of unwanted fish species has occurred to compromise its benefits. Temperature and oxygen levels at Levi Pond are not ideal for brook trout in all years, but the pond's configuration of elevation and depth appears to result in conditions that enable multiple year survival of stocked and wild trout. Levi Pond is relatively remote, and the roadway leading to it from the south is rough and not maintained in the winter, limiting visitation to some extent. The roadway is not a town

highway. Access by the public to Levi Pond WMA has not been obstructed or formally challenged, but questions have been raised about the State's legal right-of-way. There is a DFW kiosk at the south end of the pond. Conditions for vehicle maneuvering and parking at the unimproved launch site are inconvenient and the approach to the pond's edge can be rutted and muddy.

#### **Mud Pond – Groton**

Mud Pond is not recognized by the public or by DFW as a fishery resource. Virtually no information is available about the pond's water chemistry and fish community and its capacity to support populations that would attract angling. Mud Pond is small and assumed to be very shallow, with a very small drainage area. We would not be surprised if anoxic conditions exist under the ice, if extensive areas of the pond freeze to the substrate and if in the hottest summer, water temperature rises throughout the pond to stress levels for some north temperate species. Populations of species such as brown bullheads, chain pickerel, and largemouth bass might be able to flourish. Mud Pond is readily accessible via a state forest road, but its condition is rough and it is not maintained in winter, constraining access seasonally. Although there is no improved launch site at the pond, anglers would not have great difficulty launching cartop watercraft. Currently only roadside parking is available.

#### **Mud Pond – Peacham**

Mud Pond is not recognized by the public or by DFW as a fishery resource. Little information is available about the pond's fish community and its capacity to support populations that would attract angling. Mud Pond is very shallow. There is a concern that anoxic conditions may exist under the ice in some winters, and that portions of the pond may freeze to the substrate. In the hottest summers water temperature is expected to rise throughout the pond to stress levels for some north temperate species. Populations of species such as brown bullheads, chain pickerel, and largemouth bass might be able to flourish. Although a town highway leads to the general area of the pond, there is no improved drive or path in the DFW right-of-way from the town highway to the shoreline. Current conditions of access to the pond do not encourage or facilitate fishing from the shoreline or watercraft.

#### **Noyes Pond**

Noyes Pond is a remarkable fishery resource not only within the GMU, but within the entire State of Vermont. Sizable ponds in Vermont that support or have the capacity to support an entirely wild population of brook trout that sustains a high quality fishery are a rarity. Noyes Pond has two fish species – brook trout and northern redbelly dace. The populations of both species are the product of natural reproduction within the pond or its tributaries. Noyes is an artificial pond with a long history of intensive fishery management, including fish community manipulation and chemical reclamation. There is no pretense that its self-sustaining brook trout population reflects an historic condition that has failed to persist in natural ponds across the Vermont landscape. Nevertheless, the constellation of its elevation (highest large pond in GMU), water chemistry, drainage basin configuration, management intervention, and good stewardship appears to have

resulted in a fish community and fishery resource representative of New England ponds three centuries ago, but nearly unique in Vermont today.

Brook trout fishing at Noyes Pond currently is characterized by relatively high catch rate and moderate (approximately 50%) exploitation of the adult (greater than 6 inches) population. Noyes Pond is a *limited-entry* fishery. DFPR funnels access through a single point and caps fishing intensity by controlling the number of boats on the water at any one time, both to create a desired experience and to generate revenue from user fees. This indirectly limits total harvest, a factor in maintaining a sustainable wild population and a high quality fishery. Also, anglers appear to be practicing a high level of catch-and-release in recent years, further keeping harvest down. Special regulations that prohibit the use of bait and require barbless hooks contribute to survival of the 80% to 90% of landed fish that are released.

Angling is prohibited in the tributaries to Noyes Pond, for the purpose of maintaining them as a spawning and nursery refuge. It is not known to what degree the population in the pond depends on natural reproduction of pond fish in the streams or export of surplus stream production to the pond. In the absence of this knowledge, maintenance of the streams as refuge is a prudent measure.

The chemical reclamation of the pond and tributaries in 1975 to eliminate yellow perch that had become established just a few years prior was successful, and no new introductions have occurred to compromise its benefits. The current prohibitions against use of bait and unsupervised general access for shoreline and tributary fishing are supportive of preventing the introduction of other species that would almost certainly influence the Noyes Pond fish community negatively.

Although the longstanding constraints on angler access at Noyes may have beneficial implications for maintenance both of a self-sustaining wild brook trout population and a high quality fishery, some members of the angling community wish less restrictions at Noyes Pond. There may be educational outreach and alternatives to the existing rules that can support the conservation and recreational experience goals at Noyes Pond while dispelling elitist appearances.

### **Osmore Pond**

Osmore Pond offers an attractive fishing opportunity seasonally for stocked, *catchable*-size brook trout. High summer water temperature at Osmore is not especially favorable for brook trout management. Nevertheless, the brook trout that is stocked each spring appear to acclimate, survive and grow through at least a portion of the summer, and generate a popular fishery. The survival of trout beyond their first growing season in the pond has been documented, trout congregating near the mouth of the principal inlet has been observed, and wild young-of-year trout near the inlets have been collected. Springs and cool water inflow at the tributaries appears to be providing critical thermal refuge.

To fish Osmore Pond, an angler must either be a camper at New Discovery State Park or pay a day use fee during the park operating season from mid-May to Labor Day. Visitors

may bring their own non-motorized watercraft as there is a short trail to a cartop boat launch. Canoes may also be rented from the park. Most fishing occurs from campers at New Discovery or at one of the remote lean-tos on the pond. During the off season, anglers can drive to the pond via Osmore Pond Road (the state park is gated during the non-operating season).

### **Ricker Pond**

Ricker Pond, the second largest of the ponds enclosed within the GMU, is a valley-bottom waterbody within the GMU's largest drainage basin. DFW's knowledge of Ricker Pond's fish populations and fishing is limited and projected from knowledge of adjacent Lake Groton. Ricker Pond's fish community is distinctly warmwater, and it represents the GMU's best opportunities for fishing for warmwater species – smallmouth bass, largemouth bass, chain pickerel, yellow perch, brown bullheads, and sunfish.

Ricker Pond is readily accessible to the angling public and to campers visiting the state campground at the pond. Within Ricker Pond State Park there is a graveled boat launch available to campers and there is a cartop launch at the south end of the pond where the general public can access the pond without paying a fee. Many campers fish Ricker Pond as part of their stay at the campground.

### **Streams**

The GMU, owing to its large size, has many streams that originate within the forest and terminate as mid-size perennial streams or small rivers where they enter the GMU ponds or exit the GMU. Drainage areas for the major sub-drainages are less than 1 square mile to 5.8 square miles. Gradient is moderate in most cases. The elevation range in GMU from the highest mountain top to lowest point on valley floors is 2,100 feet. The largest single stream leaving the GMU is the Wells River mainstem, with its origin at the outlet of Ricker Pond. Its drainage area is 22.6 square miles.

These streams, especially in their lower reaches, offer an excellent angling opportunity. Within the GMU, wild self-sustaining populations of brook trout at an abundance level and growth rate high enough to attract angling interest occur in the Wells River South Branch, Depot Brook, Beaver Brook, Osmore Brook, Coldwater Brook, Stillwater Brook, and the Waits River. No information is available about current levels of angling activity in these streams.

The characteristics of the short length of the Wells River that technically is within the GMU are heavily influenced by the extensive flatwater of Ricker Pond and Lake Groton. Its summertime temperature regime is assumed to follow that of Ricker Pond, warm and lacking pronounced daily fluctuations. Its fish community reflects that of Ricker – it includes warmwater species, for example juvenile largemouth bass, that are not typical of the upland trout streams that the upper Wells resembles.

There is a relationship between stream size, fish assemblages, and fishery resources. For most coldwater streams, the fish assemblages are simple – the smaller the drainage area of a stream, the greater the probability that it will be ephemeral (seasonally ceasing to

flow above ground in most years). Seasonal streams may be fishless. Streams that dry out every few years may have simple fish communities that are dependent entirely on re-colonization from permanent waters downstream. Likewise streams that are reduced seasonally to intermittent pools may have fish communities that are simple and numbers that are low. High stream gradient (steep slope) may have major implications for re-colonization following droughts and other events that extirpate fish populations. Some stream segments in the GMU may fall into these categories. The presence of the many ponds in the GMU will influence re-colonization of stream reaches upstream and downstream, because they provide refuge during the most extreme drought conditions. For all streams, species richness begins with one species, usually brook trout. The further downstream, the more species are added.

Little documentation of past fish population sampling was found for the GMU streams. A limited amount of sampling was undertaken in autumn 2003 and 2004. Fish assemblages are very simple, in most cases, consisting of only brook trout. The brook trout populations observed were all of natural origin and assumed to be native to the GMU. It cannot be readily ascertained whether these populations have been influenced by past stocking. Additional stream-dwelling species occurring in the GMU ponds are present in the immediate vicinity of the ponds.

## **Roads and Public Access Summary**

The GMU is well served by a 45-mile network of roads (see Figure 10, Roads and Public Access Map). Most of the roads in the GMU were originally designed and built for logging access. Now in addition to providing access for timber management, the roads access recreational resources such as ponds, trail heads, and scenic vistas and are used as part of the trail system for snowmobiling, cross-country skiing, horseback riding, biking, and walking. The majority of these forest roads intersect VT Route 232 which bisects the forest from US Route 2 south to US Route 302.

The major forest access roads have been maintained in good condition. Conditions may vary on some of the Class C roads. There is a substantial infrastructure of culverts, bridges, road surfaces and ditches. The costs of maintaining this infrastructure in the future may become a major issue of concern. The Department is currently conducting a study to quantify these costs for all state lands under its jurisdiction.

For management purposes, roads are classified into three classes based largely on function and road condition.

**Class A** - A paved or unpaved state forest highway that is open for year-round public vehicle use.

**Class B** - A paved or unpaved state forest highway that is generally open for public vehicle use, but may be closed at certain times of the year to restrict such access.

**Class C** - An unpaved state forest highway not generally open for public vehicle use. Class C Roads typically do not have an aggregate surface or permanent drainage

structures and are used primarily for management activities (e.g., logging operations) under frozen ground conditions.

Major roads include the following:

*Red Brook Road:* The Red Brook Road starts at the Green Bay Road in Peacham and provides access to the northeastern portion of the Groton State Forest including the Peacham Bog Natural Area. This road is a Class B gravel-surfaced road open to motor vehicles except during the spring mud season. A short portion of the road is used by VAST in the winter months for snowmobile trail 232.

*Coldwater Brook Road:* The Coldwater Brook Road is accessed off of the Boulder Beach Town Road at the north end of Lake Groton. This road was built primarily for forest management purposes and is a Class B gravel surfaced road open to motor vehicles.

*Beaver Brook Road:* The Beaver Brook Road joins VT Route 232 approximately 3.6 miles north of its junction with US Route 302. This road provides access to the Silver Ledge Trail, Little Spruce Mountain, and the Depot Brook Road. Beaver Brook Road is a Class B gravel surfaced road open to motor vehicles. A portion of the road is used by VAST in the winter months for snowmobile trail 302A.

*Depot Brook:* The Depot Brook Road leaves the Coldwater Brook Road one mile from VT Route 232. For 1.2 miles it is a Class B gravel surfaced road before turning into a Class C road for .75 miles and connecting to the Tranquility Road. Depot Brook road is open to motor vehicles along the Class B portions and is used by VAST for snowmobile corridor trail 302.

*Tranquility Road:* The Tranquility Road is accessed via the Seyon Pond Road and provides access to the lands between Beaver Brook and the Seyon Basin including Table Top Mountain. It is a Class B gravel surfaced road open to motor vehicles.

*Seyon Pond Road:* The Seyon Pond Road is a Class 3 Town Road (Groton) after it enters state land. The road then becomes the only Class A road on the forest and therefore provides year-round motor vehicle access. This road provides access to Seyon Ranch State Park and Noyes Pond.

*Seyon Basin Road:* The Seyon Basin Road leaves the Seyon Pond Road a half mile before Seyon Ranch and provides access around the backside of Noyes Pond and into the



*Kettle Mountain Road:* The Kettle Mountain Road intersects the Railroad Bed and leads to the base of Kettle Mountain on its northeast side. It is a Class B road open to motor vehicle access.

*Marshfield Ledge Road:* The Marshfield Ledge Road is accessed by the Railroad Bed north of its crossing with VT Route 232. It is a Class B Road open to motor vehicles and provides access between Marshfield Pond and Marshfield Mountain.

*Osmore Pond Road:* The Osmore Pond Road joins VT Route 232 and provides vehicle access to New Discovery State Park, Osmore Pond Picnic Area, and Osmore Pond. There are two entrances depending on the time of year. It is a Class B road through the New Discovery State Park Campground and is open to motor vehicles between Memorial Day and Labor Day. After Labor Day vehicles can access Osmore Pond directly off of VT Route 232 without going through the campground.

*Peacham Pond Road:* The Peacham Pond Road leaves the New Discovery State Park campground near Area B; however, there is no public vehicle access during the park operating season. The gate is opened during the November rifle season and for the winter as the road becomes a VAST trail. There is a private entrance road from VT Route 232 that merges with the Peacham Pond Road that was built by some of the camp owners at Peacham Pond; however, this road is gated and a key is necessary for any camp owner using this access. This access is not for the general public.

*Butterfield Main Access Road:* The Butterfield Main Access Road joins US Route 302 and provides access to the Butterfield Block of the Groton State Forest. It is a Class B Road open to motor vehicles between the spring mud season and one week before the November deer season to provide a walk-in hunting experience. It is used by VAST during the winter season as part of Trail 302.

*Loop Road:* The Loop Road starts off the Butterfield Main Road and serves the lands south of the Signal Mountain Peaks. It is a Class B Road open to motor vehicles between the spring mud season and one week before the November deer season. During the winter months the Loop Road serves as VAST Trail 302C.

*Scholem Road:* The Scholem Road also starts off the Butterfield Main Road and provides access to the south side of Butterfield Mountain. It is a Class B road closed to motor vehicle access. During the winter months it is opened to snowmobile use as part of VAST Trail 302.

*Tower Road:* The Tower Road leaves the Spruce Mountain Road and provides access to the LR Jones State Forest and Spruce Mountain. It is a Class B road closed to motor vehicles. A parking lot at the beginning of the road provides parking for those hiking the Spruce Mountain Trail to the fire tower at the summit.

Gate locations with closing and opening dates can be found on Figure 10, Roads and Public Access Map.

Figure 10  
Roads and Public Access Map

## **Cultural Resources Summary**

Due to the size of the GMU and the rich history of the area, the number of historical and cultural sites is quite large. They range from the many cellar holes and mill sites to the remnants of the CCC camp and their work. Agency lands are managed with sensitivity to historical, cultural, and scenic values. Due to protection under state and federal regulations, sites of archaeological significance are equal in status to legal constraints applicable to the lands.

With this in mind, the Archaeology Research Center of the Department of Social Sciences and Business of the University of Maine at Farmington was contracted to conduct a short inventory of the cultural/historical resources of the GMU. University of Maine's inventory and recommendations can be found in the report [The Cultural Landscape of the Groton Management Unit](#), which is available at the St. Johnsbury District Agency of Natural Resources office. See appendix for further details on how to locate this document.

Land management activities taking place on the GMU will protect and maintain cultural and historic resources. Known cultural sites will be documented for future reference. New sites will be documented as they are found. Recommendations in the University of Maine report will be considered as time, personnel, and budgets allow.

## **Relationship to the Regional Context and Other Planning Efforts**

The GMU long-range planning effort has not occurred in isolation. In preparing this document, the District Stewardship Teams have considered the many other planning efforts underway in the Central Vermont and Northeast Kingdom regions, the Counties of Caledonia, Orange and Washington, and Towns of Groton, Marshfield, Orange, Peacham, Plainfield, and Topsham.

Each of the regional and town plans recognizes the value of the forest land. As a large public landholding in a region with increasing private development pressure, the GMU fills a unique role in meeting the objectives of these various plans and providing some key resources and experiences not found on the private lands. As lands bordering the GMU continue to experience development growth the forest will come under pressure to provide biodiversity, recreation, and an economic stimulus to the region. The property will be managed to maintain natural communities and water quality, to provide high quality wildlife habitat and forest products, and at the same time provide a wide variety of recreational experiences. These experiences range from those involving contact with many people and developed facilities to those in remote settings with little human contact. This all contributes to a high quality of life.

Figure 11

**Cultural Resources Map**

## Property Tax Considerations

In March 2005, studies on the tax consequences of land conservation in the towns making up the GMU (Groton, Marshfield, Orange, Peacham, Plainfield, and Topsham) were done by consultant Deborah Brighton of Ad Hoc Associates. The reports' conclusions were the same for each of the six towns and are summarized as follows.

The main purpose of these reports is to research and document the tax implications of permanently conserving land in Groton, Marshfield, Orange, Peacham, Plainfield, and Topsham. This work has been undertaken because Vermont towns rely on the property tax to fund local schools, police, highway work, recreation programs and general government. Responsible town officials, attempting to offer their citizens a balanced program of services without exorbitant taxes, can make better decisions if they have a clearer understanding of the way land use decisions will affect their ability to pay for local government.

Permanent land conservation, whether acquisition of all the rights in land or of the development rights, generally results in value being removed from the Grand List. The tax consequences will depend on the following:

- the value of the parcel,
- whether the parcel is owned by state government, the town, or a non-profit organization, and
- whether the parcel is protected through fee simple acquisition or through acquisition of development rights.

Because the **school tax** represents about two-thirds of the tax bill in Marshfield, Orange, and Peacham, 60% of the tax bill in Plainfield, more than 70% of the tax bill in Topsham, and three-quarters of the tax bill in Groton, the school tax will be explained first. In the late 1990s, Act 60 (and later, Act 68) changed the way towns pay for education, and also changed the relationship between the Grand List and school taxes. Now, the school effective tax rate depends on the per-pupil spending and not on the tax base. Shrinking the tax base by taking land off the tax rolls for land conservation won't change the school tax rate. Similarly, growing the tax base won't change the school tax rate, as long as the district continues to spend the same amount per pupil.

The municipal tax is affected by changes in the Grand List. There is often an increase in the **municipal tax** rate resulting from a conservation acquisition, except when the land is acquired by the Vermont Agency of Natural Resources. In Groton, Marshfield, Orange, Peacham, Plainfield, and Topsham, when land is acquired by the Agency of Natural Resources, the town usually will receive *more* in payment from the state than it would receive if the land remained in private ownership.

Because, in the long term, permanent conservation of land precludes development of that land, the studies also look briefly at the long-term tax consequences of development. The

main conclusion of this report and a recent related study conducted jointly by the Vermont League of Cities and Towns and the Vermont Natural Resources Council (from which this report borrows heavily) is that taxes tend to be higher in towns that have the most developed property, and there seems to be no easy way to develop that will keep taxes low over the long term.

Although these studies focus on the property tax effects of land use decisions, we do not want to give undue importance to the tax bill as a factor in deciding how a town should grow. Perhaps the best long-term strategy is to maintain a balance between population growth, commercial development, and land conservation.

When planning for a town's future, property taxes are just one of many concerns. Most communities strive to create a prosperous and healthy environment in which to raise the next generation – not solely to maintain low tax rates. The challenge when evaluating planning options is to strike a balance between what improves the community, what is responsible, and what taxpayers can afford.

## **IV. Public Input Summary**

Public involvement, or citizen participation, is a broad term for a variety of methods through which the citizens of Vermont have input into public land management decisions. The Agency of Natural Resources is committed to seeking that input. Expressions of citizen interest come in many forms. These include letters, personal comments, telephone calls, and more formal methods, such as public meetings.

Formal public involvement for this planning effort on the GMU started in 1994 with the Lake Groton Recreation Use Study. The DFPR and the Center for Rural Studies at UVM conducted this study in response to the Vermont State Legislatures' request for a use study at Lake Groton. It was designed to address resource management issues surrounding the implications and impacts of developing additional public access to Lake Groton.

The development of public access to water resources raises a number of management issues regarding the State's role in balancing perceived private property rights with the public's right to access navigable waters and managing conflicts between different water resource users. Surveys were mailed to all lake property owners. Campers, day users, and registered boat owners were also canvassed. Lake property owners were opposed to more public access, but registered boat owners favored it. Use conflicts primarily revolved around the size of motors and the speed of the boats.

In 1997 and again in 1999, the District Stewardship Team received a proposal from a local group of interested scientists and naturalists for the creation of an Ecological Area within the Groton State Forest. The purpose of the proposed Ecological Area would be to provide a non-manipulated example of a typical (as opposed to unique or rare) forested landscape, which could be used as a control in studies of land use management history. The group felt that the area would have immense scientific and educational value and provide a type of land use management rarely found in New England.

In 1999 and again in 2004, the District Stewardship Team received a proposal from VAST (Vermont Association of Snow Travelers) for changes to their existing snowmobile trail network and for new trail construction on the GMU. VAST's goals are to be able to adjust to changes on private lands bordering the forest which impact their corridor trails, and to split up the snowmobile traffic through the forest for safety and smoother trails. The team received additional input from VAST in an April 2005 meeting.

In 2004, at the request of the Vermont Horse Council and various riding clubs from northern and central Vermont, the District Stewardship Team held a Groton State Forest Equestrian Users meeting. The meeting focused on how ANR could better accommodate equestrian users in Groton State Forest. The participants were interested in an improved trail system and associated facilities including additional areas for horse camping. Also discussed was the possibility of a corridor manager for equestrian uses similar to the former Champion lands arrangement.

In 2003 scoping meetings were held in Marshfield and Groton to get an idea of some of the public concerns and issues regarding management of the GMU. These two meetings were well attended by diverse groups of people with interest in the management of the GMU. A vast majority of comments received at both meetings pertained to recreational use of the GMU. Participants were prompted by questions to gauge how they use the area, what the most important values or public benefits are, what user conflicts exist, and how we could better accommodate the various uses.

Many of the comments and suggestions voiced by these scoping meeting participants, along with subsequent written comments have been incorporated into the GMU plan.

In the summer and fall of 2004, users (campers, day users, trail users, and Seyon Ranch guests) of the Groton State Forest were surveyed to determine their attitudes toward management strategies and satisfaction with park facilities and services found within the Forest. Over 400 users responded. Satisfaction with facilities and services provided at Groton State Forest was quite high and general satisfaction with the management strategies was also very high. Hiking trails, summer recreation, watershed protection, and protection of water quality were the highest rated uses. There was also strong support for an unmanaged ecological area or reserve, sustainable timber production, habitat improvement for non-game and upland bird species, fishing access, backcountry skiing/snowshoeing, environmental interpretive programs, remote or primitive rental cabins, lean-tos, yurts, scenic view sheds, access for persons with disabilities, free public boating access, and to minimize exotic species invasion. Respondents were fairly evenly divided on the issue of snowmobile use. There was one issue that drew a strong negative response, ATV trail use. Sixty-four percent of respondents found it inappropriate or strongly inappropriate and seventy-eight percent wanted to restrict ATV use on any areas of the Forest (See Recreation Assessment at the district offices for full report on survey results).

A second survey was also implemented during the summer and fall of 2004, Camp/Cottage Ownership and Use Adjacent to the Groton State Forest of Vermont, where 364 nonresidential owners were selected from the Grand Lists of Towns of Groton, Orange, and Peacham and asked questions about their camps and use of their camps, activities participated in at Groton State Forest, and feelings on management strategies on the Groton State Forest. Two hundred and eighteen people responded to the survey. The average number of years people have owned or leased their camp was 24.6 years and they spend about 83 days per year at their camp. About 28% of the camp lands were adjacent to state lands. Camp attributes most appealing were scenery (83.1%), proximity to water (84%), presence of wildlife (74%), and seclusion (68.5%). Fishing opportunities were seen as an appealing attribute by 52.1% of respondents and 37.9% listing hunting/trapping opportunities as an appealing attribute. Camp activities included hiking (89%), swimming (83.5%), wildlife viewing (65.6%), gathering berries/mushrooms (49.1%), big game hunting (38.2%), small game hunting (24.8%), snowmobiling (33%), cross-country skiing (23%), mountain biking (22%), and ATV riding (12%). As with the User Survey, camp owners supported the majority of management strategies at Groton State Forest. Other than ATV use, the vast majority of respondent camp owners did not view the 32

selected management strategies and uses as inappropriate for the Groton State Forest. (See Recreation Assessment at the district offices for full report on survey results.)

The draft LRMP for the Groton Management Unit was released for public comment in the fall of 2006. During this period, a series of focus group meetings were held in with several stakeholder groups on the draft plan including hunting/fishing/trapping interests (Hunters, Anglers, and Trappers Association, Vermont Traditions Coalition, Barre Fish and Game Club); recreation interests (VAST, Vermont Horse Council); forest product industry representatives (Vermont Forest Products Association, Vermont Loggers Association, Associated Industries of Vermont); and ecological/environmental interests (Upper Winooski Naturalists Association). A public Open House was also held on the draft LRMP in Danville on October 10, 2006. The focus group meetings and public Open House were well-attended and generated significant public input and comment on the draft plan. The Agency also received a considerable amount of written comment on the draft plan during the public comment period (through December, 2006). This input was carefully considered in developing the final LRMP for the Groton Management Unit. (For more information, please refer to the “Response to Public Comment on the Draft Long-Range Management Plan for the Groton Management Unit” provided in the Appendix to this plan).

All of this public input has been considered in the writing of the Groton Management Unit Long-Range Management Plan and will continue to be considered as management of the forest moves forward. There will be future opportunities for the public to stay involved. Public comments will be needed for amendments and other planning efforts on the GMU. Also, the Annual Stewardship Plan is available for review by July 1 of each year. Future opportunities will be announced on the department’s website and local media.

# **V. Management Direction, Strategies and Actions**

## **Where Management Activities Will Occur**

### **Land Management Categories**

This section of the plan identifies areas where different uses are to be allowed and describes generally how these uses will be managed. The four categories for lands managed by the ANR determine where certain activities or uses will be emphasized. Other activities may be allowed within these areas as long as they are compatible with and do not detract from the emphasized activity. The four categories are Highly Sensitive Management, Special Management, General Management, and Intensive Management. These four main categories are further subdivided into smaller units in order to facilitate more detailed management. These subunits are described in more detailed in the following sections.

As part of the planning process, the lands, resources and facilities held by the ANR are evaluated and assigned to the appropriate land management category. Assignment of the land management areas for the GMU is based on a thorough understanding of the resources available and application of the over-arching land management standards presented in the introduction section of the plan. The resources include natural communities; rare, threatened and endangered plants and animals; wildlife habitat; recreational opportunities; and historic, timber, and water resources.

#### **1. Highly Sensitive Management Areas (HSA) (See Figure 13)**

Highly Sensitive Management Areas have uncommon or outstanding biological, ecological, geological, scenic, and cultural or historical values. In areas classified as highly sensitive these values are preserved and protected. Human activities and uses should be compatible with resource protection goals and should not compromise the exceptional features identified. Within many of these areas, trails already exist. While it may not be possible or desirable to eliminate the uses already in existence, negative impacts may be mitigated. Commercial logging will not occur in Highly Sensitive Management Areas although protection of the natural communities in these areas may involve some vegetative management.

Figure 12

## **Land Management Categories Map**

Figure 13

Highly Sensitive Mgmt Areas Map

On the GMU, the Highly Sensitive Management Areas represent 4,527 acres or 17% of the unit. Nine hundred fourteen of these acres are in four state designated natural areas; 748 acres in Peacham are designated as the Peacham Bog Natural Area, 25 acres in Marshfield are designated as the Lord's Hill Natural Area, 12 acres in Peacham and Danville are designated as the Lucy Mallery Bugbee Natural Area, and 129 acres in Groton are designated as the Table Top Mountain Natural Area.

Under state law, the Commissioner of the Department of Forests, Parks and Recreation, with approval of the Governor, may designate and set aside limited portions of state forests and parks as natural areas. Sites which support rare or vanishing species of plants and animals or areas of unique ecological, geological, scenic, or contemplative recreational value are also candidates for designation. The purpose of a state natural area is for the use of present and future residents of the State. Most natural areas are managed to perpetuate the characteristics that led to their recognition as outstanding natural sites. In the case of some natural areas, minimal public information is developed, to discourage visitation that could result in resource damage. While natural areas are protected, they are open to compatible uses, including research, hiking and nature study.

Much of the remaining acreage designated as highly sensitive occurs on steep slopes with shallow soils that are not suitable for logging. The remaining acreage in the Highly Sensitive Management Areas is low elevation lands. Hunting, fishing, and many recreational activities are allowed throughout these areas.

### **Highly Sensitive Management Areas Goals**

1. Protect rare, threatened and endangered plants, animals and natural communities.
2. Protect examples of exemplary natural communities.
3. Protect high elevation areas with steep slopes and fragile soils.
4. Protect Class A1 waters (those above 2,500 feet elevation) to maintain their natural condition. Manage Class B1 waters to maintain an almost natural condition showing minimal changes from reference conditions for aquatic macroinvertebrates and fish assemblages.
5. Protect significant and unique wildlife habitats.
6. Maintain areas of remoteness.
7. Continue to provide dispersed recreational opportunities where appropriate and compatible with other goals.
8. Provide opportunities for education and outreach.

### **Management Objectives**

Groton Management Unit contains some of the best examples of Montane Yellow Birch-Red Spruce Forest and Montane Spruce Fir Forest natural communities within the Northern Vermont Piedmont biophysical region. These communities are located on the slopes and summits of the many mountains on the ownership along with the associated cliff and talus slopes. These areas within the GMU have traditionally been identified as sensitive areas due to the shallow soils, steep slopes and potential for severe disturbances

related to management activities. The Montane Spruce Fir Forests provide potential nesting habitat for nesting Bicknell's thrush, which is a species of concern known to inhabit portions of the GMU.

**Highly Sensitive Area #**

1 (Drew Mountain), 3 (Burnt Mountain), 8 (Morse Mountain), 10 (Kettle Mountain), 11 (Little Spruce Mountain), 31 (Signal Mountain and Burnt Mountain), 32 (Butterfield Mountain) and 33 (Knox Mountain)

**Implementation:**

Human activity within these areas is limited to pedestrian uses. Currently there are no designated recreational trails within these areas and no new trails are planned.

Bicknell's thrush breeding has been confirmed within the Spruce Fir Forest on Signal Mountain, and there is potential on Butterfield Mountain, Burnt Mountain (Groton), and Little Spruce Mountain.

**Highly Sensitive Area #**

14 (Little Deer Mountain), 15 (Big Deer Mountain), 17 (Devil's Hill), 21 (Silver Ledge), and 27 & 28 (Spruce Mountain)

**Implementation:**

Hiking trails have been established to these summits and will be maintained. These trails are an integral part of the State Park System and will be managed as a resource for park and day-use area users, as well as the general public.

The only new trail proposed for these areas is the establishment of a multi-use trail to connect the Sucker Brook Trail to the Devil's Hill Area. Currently there is a VAST Trail that crosses private property which could serve as a multi-use corridor. Prior to establishing any trail on the GMU, the private landowner should be contacted to see if this existing corridor could be used for other recreational user groups.

In areas where natural resource conflicts associated with trail use occur, steps may be taken to limit access during certain times of the hiking season.

Spruce Mountain is known to have nesting Bicknell's thrushes. Any new activity within these areas will consider the impacts to their nesting habitat. Trail improvements or relocations will be designed to prevent further loss of this habitat.

**Highly Sensitive Area #**

12 (Owl's Head Mountain)

This area is similar to the other summits within the GMU with the exception of the developed facilities on the summit. The overlook on the summit of Owl's Head

Mountain is accessible by foot from New Discovery State Park or from the Pavillion at the end of the Owl's Head Road. Specific management activities planned for this area can be found in the Recreational Implementation Strategies section found on page 93.

**Highly Sensitive Area #**

2, 5, 6, 7, 13, 18, 19, 20, 23, 24, 25, 26, and 30

While conducting the resource assessments, several areas were identified as being excessively steep or excessively rocky within the General Use Area. These areas have been classified as Highly Sensitive and management activities will be conducted to minimize the impacts to these sensitive areas. These are certainly not the only areas of this type within the forest, but management will be tailored to address the access limits as we encounter similar areas within the GMU.

Implementation:

Due to the steep slopes and rough terrain, timber harvesting is not feasible.

Trail development may be appropriate if erosion prevention measures are feasible.

Areas that were not delineated during the resource assessments will be treated the same as those identified in this plan.

**Highly Sensitive Area #**

4 (Lord's Hill Natural Area)

This area contains many large specimens of white ash, sugar maple, red maple, basswood, yellow birch, beech, red spruce, balsam fir, and hophornbeam. This area is surrounded by private property and permission is need from those landowners to access the area. There are no designated trails within the natural area and there are no plans to develop any at this time.

**Highly Sensitive Area #**

9 (Mud Pond Riparian Area)

The narrow band of land surrounding Mud Pond is comprised of several wetland communities including a Northern White Cedar Swamp, Intermediate Fen, Sedge Meadow, and Lowland Spruce Fir Forest. Due to the water chemistry, this pond has little value as a recreational fishery and current access conditions do not encourage or facilitate many recreational uses.

**Highly Sensitive Area #**

16 (Peacham Bog Natural Area)

This large wetland complex is the second largest peatland in Vermont and the natural communities within this area are some of the highest quality examples in the area. This natural area is comprised of areas of Dwarf Shrub Bog, Black Spruce Woodland Bog,

Black Spruce Swamp, Spruce Fir Tamarack Swamp, beaver influenced wetlands and extensive areas of lowland spruce fir forest. The natural area as defined is comprised of the “bog,” associated wetlands and primary and secondary buffers.

Primary buffers are 200 feet from the bog and associated wetlands; no vegetative management activities should occur.

Secondary buffer zone is from 200 feet to 500 feet; no road construction should occur. Single tree and small group timber harvesting only. This silvicultural method will allow some harvesting to take place while minimizing soil and water impacts and providing protection for the bog natural community.

Management priorities:

Primary: watershed and aesthetics

Secondary: Wildlife

Tertiary: Timber, Recreation

Collection of biological specimens is not permitted without permit from the Agency of Natural Resources.

A back-country ski trail has been marked across the natural area that connects the Martin’s Pond area to the Nature Center.

A hiking trail and board walk have been constructed and will be maintained. No new trails are planned at this time.

**Highly Sensitive Area #**

29 (Tabletop Mountain Natural Area)

This natural area is located on the southern slope of Tabletop Mountain. The natural communities that are found within this area are Montane Spruce Fir Forest, Montane Yellow Birch-Red Spruce Forest and Northern Hardwood Forest. Currently there are large diameter trees within this natural area but it is not “old growth.” This area has been set aside to allow it to become a representative mature forest.

**Highly Sensitive Area #**

34 (Lucy Mallery Bugbee Bog Natural Area)

This Natural Area is located along the Peacham-Danville town line. Due to the scale of the maps in this plan, this parcel has not been included on the maps. This natural area includes Stoddard Swamp, a northern white cedar swamp, and a fen. This area was named after a pioneer in the protection of Vermont’s wildflowers and given to the State by the New England Wildflower Society. There are no management activities planned for this area.

## **2. Special Management Areas (SMA) (See Figure 14)**

Special Management Areas have unique or special resources where management objectives emphasize protection and/or enhancement of those resources. These areas generally do not require the same level of protection as areas classified as Highly Sensitive Management Areas and may be actively managed for specific purposes. Compatible activities such as timber harvesting, wildlife management, road maintenance and construction, and recreational activities may occur where appropriate. However, only those activities that are compatible with and do not detract from the primary objective of protection and/or enhancement of the unique or special resources will be considered.

On the GMU, the Special Management Areas represent 2,960 acres or 11 % of the forest. These include most of the lowland spruce fir drainages, other wetlands and bogs, deer wintering areas, mast areas, some cliff and talus slopes and beaver influenced wetlands.

### **Special Management Areas Goals**

1. Provide high quality habitat for target wildlife species.
2. Provide opportunities for compatible and dispersed recreational pursuits.
3. Manage Class B1 waters to maintain an almost natural condition showing minimal changes from reference conditions for aquatic macroinvertebrates and fish assemblages.
4. Produce high quality timber where compatible with the “special” resource.
5. Protect representative examples of typical landscapes and natural communities.

#### **Special Management Area #**

1, 2, 8 (Wetland Complexes adjacent to Marshfield Pond) These SMAs are made up of Lowland Spruce-Fir Forest, beaver influenced wetlands and an Alder Swamp.

This SMA is adjacent to a large mapped deer wintering area and may provide functional cover and feeding opportunities. There are no timber management activities planned for this area.

Black-back woodpeckers utilize the Lowland Spruce-Fir communities within the GMU and within these SMAs natural disturbances will provide necessary habitat for this specie.

#### **Special Management Area #**

3 (Lanesboro Area)

The Lanesboro area of Groton State Forest is comprised of an array of wetland communities ranging from Lowland Spruce-Fir Forests to Dwarf Shrub Bogs. This area also incorporates the summit of Marshfield Mountain and the adjacent talus communities.

Timber harvesting will be conducted following an uneven-aged management system. (See Timber Implementation Strategies)

Figure 14  
Special Mgmt Areas Map

Nesting peregrine falcons frequent Marshfield Ledges and will continue to be monitored. Recreational access may be limited during the nesting season to limit the level of disturbance. Timber harvesting will be conducted primarily during winter months but if management activities can physically be carried out in some areas during the summer steps will be taken to avoid disturbing nesting peregrine falcons.

Black-back woodpeckers utilize the Lowland Spruce-Fir communities within the GMU. Timber harvesting should be conducted to improve or maintain habitat conditions for this species.

**Special Management Area #**

4, 7, 20, 21, 27, 29, 30 (Deer Wintering Areas)

Management for winter deer habitat will be conducted following recommendations outlined in *Management Guide For Deer Wintering Areas in Vermont* (1990), Vermont Departments of Forests, Parks and Recreation and Fish and Wildlife. (See Wildlife Implementation Strategies)

Both summer and winter recreation trails are found within these areas. New winter recreation trails and relocations will be located to minimize impacts on wintering deer habitat. The deer wintering area on the Jones State Forest (#30) is approximately 70 acres and consists of white and red pine plantations and native red spruce-hardwood stands. Management goals are to retain the softwood cover using silvicultural methods to establish pine regeneration or convert the plantations to other softwood species.

**Special Management Area #**

5, 6, 9, 10, 12, 17, 18, 22, 24, 25, 32, 33  
(Lowland Spruce Fir Forests and beaver influenced wetlands)

These areas of softwood will be managed uneven-aged. Specific management guidelines for Spruce-Fir stands can be found in the Timber Implementations Strategies section of this plan.

Black-back woodpeckers utilize the Lowland Spruce-Fir communities within the GMU. Timber harvesting should be conducted to improve or maintain habitat conditions for this specie.

Recreational trails within these areas may experience temporary closures while timber harvests are being conducted. The trail corridor may be buffered, maintained and reestablished. Trail crossings will minimize disturbance to trail surface and will consider the aesthetics of harvesting operations upon closeout.

**Special Management Area #**

11, 19, 26, 28 (Mast Production Areas)

The management goals for hard mast production areas will be to maintain or enhance the availability of this food resource. These SMAs have been designated as mast production areas due to the concentration of bear scarred beech trees within these areas. There may be other areas within the GMU that serve as mast production areas and they will be managed similar to those that have been designated as such. Management activities will follow the implementation strategies outlines in the Wildlife Implementation Strategies Section of this plan.

New recreational trails and any trail reroutes should be located to minimize impacts on feeding wildlife within these mast production areas.

**Special Management Area #**

13 (Beaver Influenced wetland complex)

These wetlands, which are located within the Lye Brook Area, have been designated as a SMA. There are beaver ponds of all ages within this area and management within the adjacent stands will be conducted to protect this habitat feature within the GMU.

**Special Management Area #**

14, 16 (Black Spruce Woodland Bog)

These areas are comprised of Black Spruce Woodland Bogs, areas of Lowland Spruce-Fir Forest, beaver-influenced wetlands, and small ponds.

There will be no timber harvesting within these area.

There is a cross-country ski trail proposed within SMA 16 that will follow an existing woods road. This trail is proposed as a back-country trail and would likely only involve the placement of signs to aid in navigation and minor vegetation management.

Black-back woodpeckers utilize the Lowland Spruce-Fir communities within the GMU and, within these SMAs, natural disturbances will provide necessary habitat for this specie.

**Special Management Area #**

15 (Mud Pond [Marshfield] Area)

This area is comprised of a Red Spruce-Northern Hardwood Forest, Lowland Spruce-Fir Forest and several beaver influenced wetlands. The Red Spruce- Northern Hardwood Forest shows signs of being an old-growth forest with some individual hemlock trees being over 260 years old.

There are no management activities planned within this area.

**Special Management Area #**

23 (Levi Pond WMA)

The 238 acres of Red Spruce/Northern Hardwood and Northern Hardwood natural community types surrounding Levi Pond have been set aside as a no-timber harvest area. With time these forests will develop into an example, albeit relatively small, of old-growth hardwood forests that will add to the unique experience of those who visit Levi Pond to fish its quiet waters and/or observe its large natural stand of great laurel (*Rhododendron maximum*). Protection of this rare plant and the water quality in Levi Pond will be better ensured if no logging activity occurs on the surrounding slopes. In addition, difficult physical logging access and legal uncertainties also contributed to the no-cut land management decision for this parcel.

### **3. General Management Areas (GMA) (See Figure 15)**

General Management Areas are where the primary emphasis may be sustainable timber harvesting, wildlife habitat management, dispersed recreation, or other general land uses. In these areas, a primary management consideration is minimizing conflict between the activities, as well as with lands categorized as more sensitive where they are adjacent to the General Management Areas. In addition, more sensitive resources that occur within these areas may require special attention. On the GMU, the General Management Areas represent 19,169 acres or 70% of the forest.

The General Management Areas within the Groton Management Unit are comprised mainly of Northern Hardwood Forests and some areas of Red Spruce/Northern Hardwood Forest. Most of the acreage in this land management classification has been in active timber management since before coming into state ownership. Since most of the timber had been harvested prior to the state acquiring the property, it was not until the late 1960s and early 1970s that the timber had reached a merchantable size. The goal of the Department at that point was to diversify the age class distribution across the GMU.

#### **General Management Areas Goals**

1. Provide a sustainable flow of high quality forest products and to demonstrate sound forest management practices.
2. Promote healthy natural communities, protect rare and endangered plant and animal species, and sustain and enhance biodiversity.
3. Provide high quality habitat for target and general wildlife species.
4. Provide opportunities for a wide variety of dispersed recreational pursuits to meet current and future needs of the public.
5. Improve and develop necessary recreational services and facilities to meet current and future needs of the public. Develop appropriate ADA accessible facilities.
6. Promote visitor knowledge of the natural and cultural history of the property.
7. Provide opportunities for education, research, and monitoring activities.
8. Maintain clean, high quality water resources and aquatic habitats. Restore quality of water resources where necessary.
9. Protect cultural, historic, and pre-historic resources.

Figure 15  
General Mgmt Areas Map

### **General Management Area #**

1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21

These areas have all been classified in the General Management Area and will be managed according to the goals and objectives outlined above.

### **Timber Implementation Strategies**

Management activities will follow the implementation strategies outlines in the Timber Implementation Strategies Section of this plan.

### **Recreation Implementation Strategies**

The majority of trails within the GMU are located within the General Management Areas. These trails will be managed to minimize impacts to the natural resources and other users of the property. Where appropriate recreational trails should be designed and improved to support multiple uses.

Continue to work with trail organizations to prioritize and maintain trail networks. Portions of the proposals submitted by the Vermont Association of Snow Travelers (VAST) and the equestrian users have been incorporated into the planned trail development and upgrades highlighted in this plan.

Maintain and enhance infrastructure within the GMU to support the utilizations of the natural and recreational resources within the GMU.

## **4. Intensive Management Areas (IMA) (See Figure 16)**

Intensive Management Areas are areas easily accessible and characterized by a high level of human activity and intensive development on or adjacent to state land. Aesthetics and safety are the primary management considerations in these areas. However, more sensitive resources that occur within these areas may require special attention. On the GMU, the Intensive Management Areas represent 507 acres, or 2.0% of the lands. These areas are represented by the developed state parks (Boulder Beach, Big Deer and Groton Nature Center, Stillwater, Ricker Pond, Seyon Ranch, New Discovery, and Kettle Pond) and associated facilities (Osmore Pond Picnic Area, Owl's Head Overlook, and Groton Maintenance Shop) where the majority of visitors congregate to participate in recreational activities.

### **Intensive Management Areas Goals**

1. Protect the natural, cultural, and historic resources of the area for future generations.
2. Protect examples of unique or special natural communities within these areas.
3. Protect rare, threatened, and endangered species within these areas.

4. Manage and monitor use of area to maintain the high quality recreational experiences.
5. Continue to provide a wide range of recreational opportunities primarily for intensive activities, but also access to dispersed recreational opportunities.
6. Improve and develop necessary services and facilities to meet the current and future needs of the public. Develop appropriate ADA accessible facilities.
7. Provide for healthy and safe recreational facilities and environs for visitors.
8. Promote visitor knowledge of the natural and cultural history of the property.
9. Provide general public information about the forest and state parks.
10. Provide opportunities for education, research, and monitoring activities.
11. Monitor for and try to prevent invasive exotic species.

#### **Intensive Management Area #**

1, 2, 3, 4, 5, 6, 7, 8, 9, 10 (Campgrounds and Day-Use Facilities within the GMU)

GMU has many developed recreational facilities to aid in the use of this public resource. By providing well planned facilities, multiple and continual use is obtained in areas that would soon be destroyed without constant supervision, monitoring, and maintenance.

Recreation facilities vary from campsites, swim beaches, lawns, lean-tos, boat launches, hiking trails, picnic shelters and sites, docks, overnight lodges, cabins, sanitation facilities, remote campsites, nature center, and scenic overlooks.

Most of the facilities in the GMU were developed during one of two significant periods. The oldest facilities were developed during the 1930s by the Civilian Conservation Corps. Picnic shelters at Osmore Pond, Owl's Head, Stillwater, and Ricker parks as well as the rangers' houses at New Discovery and Ricker and many of the lean-tos on Kettle and Osmore Ponds were built by the CCC. Many of these historic structures are listed on the National and State Register of Historic Places.

The second significant time of development occurred during the 1960s when several of the area facilities were developed or expanded. During this period, Boulder Beach, Big Deer, Stillwater, Ricker Pond, and New Discovery were expanded. Seyon Ranch State Park was acquired in 1967. Due to the age of most of the structures within the IMAs, many of the facilities are in need of repair or upgrade to meet safety and continued use standards. Other considerations include environmental improvements such as constructing shower buildings that are energy efficient and use of solar heating units. Recreational use patterns are known to evolve and improvements to the recreational facilities may need to be modified to accommodate the changing uses.

#### **General Activities for all Campgrounds and Day-Use Areas**

- Adequately maintain existing park facilities and roads.
- Improve and upgrade facilities to meet current demands of park visitors. Specific projects are listed under the specific parks.

Figure 16  
Intensive Mgmt Areas Map

- Where appropriate, work with various trail organizations to develop and maintain trails, reduce environmental and user conflicts, and to provide quality trail experiences.

### **1, 2 – New Discovery State Park and Maintenance Shop**

This campground has 46 tent/trailer sites and 15 lean-tos. Currently seven sites are designed to accommodate horse campers. Four remote campsites are located along the trail around Osmore Pond. This park is open from mid-May until Labor Day. Planned activities include:

- Update water system.
- Add horse camping amenities such as corrals and a horse washing station
- Develop additional loop specific to horse camping.
- Explore feasibility of adding electricity and water hookups to some New Discovery campsites.
- Continue to open the campground for self-contained RVs and campers during November deer season, and explore possibility of opening during moose season.

### **3 – Osmore Pond Day Use Area**

This facility has a picnic shelter that is able to seat 75 people and 19 picnic sites with tables and stone fireplaces. The current picnic shelter was built by the Civilian Conservation Corps and is in need of repair. The Osmore Pond Picnic Shelter has been identified as the first project to utilize Lands and Facilities Trust Funds for the needed renovations. Items to be replaced or repaired include the roof, some rotted logs, re-staining the entire structure, window repair, and masonry repair to fireplace, hearth and floor. This park is open from mid-May until Labor Day accessible through New Discovery State Park. After Labor Day, visitors can access the area by the Osmore Pond Road.

### **4 – Kettle Pond State Park**

This campground is located on the shores of Kettle Pond and has 26 lean-tos. The lean-tos are designed to accommodate group activities and are clustered into five groups of five lean-tos. Facilities include composting toilets, two pit toilets, a hand pump for drinking water, a swimming area, six remote lean-tos and one campsite, and access for boating and fishing. This park is open from mid-May until mid-October. Planned activities include:

- Add contact station.
- Update water system.
- Replace pit toilets at group camping area with composting toilets.

### **5 – Owl’s Head Day Use Area**

This facility includes a picnic shelter for 50 people, a parking area, trail to Owl’s Head summit and a pit vault toilet. Most of the facilities were built by the CCC.

- Replace the vault pit toilet with composting toilets.

## **6 – Big Deer State Park and the Groton Nature Center**

This campground has 23 tent/trailer sites and 5 lean-tos. There is easy access to Groton Nature Center, Boulder Beach State Park, and to nearby boating and fishing areas. This park is open from mid-May until Labor Day.

- Build a connector trail to Hosmer Brook Trail from the campground.
- Explore the feasibility of using the campground for horse camping.

The Groton Nature Center is the interpretive area for all of Groton State Forest. Daily programs are scheduled from mid-June to Labor Day. There is one large Interpretive Center/Museum and a self-guided nature trail. The Nature Center parking lot is also the trail head for a number of trails throughout Groton State Forest. In the winter, the parking lot is plowed for skiers and snowshoers.

- Enhance indoor and outdoor interpretative displays.
- Redevelop the amphitheater.

## **7 – Stillwater State Park**

This campground has 60 tent/trailer sites and 19 lean-tos. Stillwater has a campers' swimming beach, boat launch/dock facility, play area, and convenient access to fishing, hunting and nature exploration. This park is open from mid-May until Labor Day/mid-October. Planned activities included:

- Update the water system.
- Replace boat docks.

## **8 – Boulder Beach Day Use Area**

This day use facility has 75 shaded picnic sites with tables and grills. There is 200 feet of beach and swimming area, a cartop boat launch, play area, shelter with group facilities, and a concession stand. This park is open from mid-May until Labor Day. Planned activities include:

- Construct a new contact station.
- Replace playground equipment.
- Explore feasibility of developing cartop boat launch at Lake Groton.

## **9 – Ricker Pond State Park**

Ricker Pond State Park was developed in the 1930s on the western shore of Ricker Pond. The campground is located along the Cross Vermont Trail (Montpelier-Wells River Rail Trail) and has 32 tent sites and 23 lean-tos. A small number of sites are accessible to RVs and trailers. There is a cottage that sleeps five, which is available for weekly rentals. This park has a campers' swimming beach, boat rentals, boat launch, and a picnic shelter. The park is open from mid-May until mid-October. Planned activities include:

- Construct a playground.
- Renovate Perry Merrill Camp for public use.
- Update water and sewerage systems.

## **10 – Seyon Lodge State Park**

The Seyon Basin is bowl-shaped and surrounded by the various mountain peaks (Spruce, Signal, Burnt, and Table Top Mountains and Colby Hill), which form the watershed

divide between the Lake Champlain Basin and the Connecticut River Basin. At the eastern end of Noyes Pond (39 acres) are the main facilities at Seyon Lodge State Park. These facilities include a lodge with private and semi-private sleeping quarters (one to four people per room) with up to three meals per day. The lodge can accommodate up to 16 guests and 50 diners. The lodge facilities include a living room with fireplace; 8 bedrooms; 4 shared bathrooms; conference/dining area; hiking, cross-country skiing and shoeing trails, and some of the state's best fly fishing. This facility is open year round. There is also an old fish hatchery, a dam, a non-functional hydropower facility, and a number of outbuildings located in the park.

Many of the visitors to Seyon Lodge State Park utilize the area resources and facilities year round for various recreational activities while visiting or staying at the Park. The Basin's character is an integral component to the park and the visitors' experiences. It is the primary backdrop to the park, and is recognized as a unique and special place because of its remoteness, beauty, and quiet atmosphere, and the fact that there are no other public brook trout fly-fishing only ponds in Vermont and the Northeast. In addition, all these characteristics are vital for maintaining the long-term management philosophy for the park. The surrounding forest land has been used for hunting, trapping, and various trail activities, such as hiking/walking, snowmobiling, horseback riding, snowshoeing, and cross-country skiing. These qualities found at Seyon are becoming more and more difficult to find in an ever developing state, country, and world.

Currently the Department is undertaking a process to evaluate and determine the future management and operation of Seyon Lodge State Park. Seyon Lodge State Park will continue to be operated and managed according with its traditional purposes and any future activities, facilities, and operations will be consistent with protecting the natural and recreational values of the Basin. All other uses will be allowed consistent with current Agency policies.

The access road that parallels the south side of Noyes Pond will remain open for motor vehicle use as appropriate. In the winter, this road and the existing hiking trails become groomed cross-country ski trails. In addition, it is proposed that the historic hiking trail from Seyon Ranch State Park to Spruce Mountain be opened. Also proposed within the Basin is a system of backcountry ski trails. If feasible, a cross-country ski trail/mountain bike trail system will be planned, designed and constructed in the area. There are also other opportunities to develop a connector trails to other trails in the GMU, including a snowmobile connector trail from the existing VAST trail to the Park. Educational and environmental programs and research will continue to be allowed within the Basin and at the Park

Planned activities include:

- Reestablish historic hiking trail from Seyon Ranch State Park to Spruce Mountain
- Establish backcountry ski trails in the Seyon Ranch State Park area.
- Explore feasibility of establishing a new network of trails for mountain biking and cross-country skiing in the area.
- Complete the loop trail around Noyes Pond.

## **How Management Activities will be Implemented**

### **Natural Communities Implementation Strategies**

One of the goals of state lands management is conservation of the plants, animals, and other organisms native to this region. The coarse filter/fine filter method of management will be used to conserve natural communities, primarily through the Agency's Land Use Classification system. Under this system, natural communities will be placed in one of the four categories (Highly Sensitive Management, Special Management, General Management, Intensive Management) reflecting the level of protection suggested according to their ranking by the assessment. The most highly ranked communities will be in the Highly Sensitive category. These communities identified in the assessment include intact examples of rare or uncommon wetland types such as dwarf shrub bog, black spruce swamp, and intermediate fen, and a number of excellent cliff communities such as those at Marshfield, Owl's Head, and Big Deer Mountains. The most sensitive rare, threatened, and endangered plants and animals species associated with these communities will be protected under this coarse filter approach. Examples of communities to be placed in the Special Management category will include less rare wetlands, lowland spruce fir communities, and a representative spectrum of typical natural communities to be conserved under the Seyon Watershed Basin proposal detailed below.

There are some exceptions to the coarse filter approach. These include trail corridors that cross land use classification zones as well as natural communities too small to classify under a larger land use classification. This is where the fine filter approach to management will be used. Trail corridors will be located or relocated as necessary to reflect the level of conservation needed for the natural communities they pass through or are adjacent to. Similarly, management activities will be adjusted to afford the level of conservation needed for natural communities small enough to be only identified as point features within a large land use classification.

Surface water natural communities including streams, lakes and large ponds, and wetlands not otherwise classified will be managed as detailed in other sections of the plan including the following section.

### **Watersheds/Water Resources Implementation Strategies**

The management of the GMU will be conducted in cooperation with the efforts of the ongoing Ompompanoosuc, Stevens, Waits, and Wells rivers basin planning process and the Winooski River basin planning process as it develops. Land management in the state forest will protect water quality to the greatest extent possible. From a watershed standpoint, state lands function as forested buffer zones that play an important role in maintaining water quality, protecting riparian, lake, and wetland habitats, and protecting floodplain and wetland flood storage areas reducing flood potential downstream.

Watershed planning will help to put the management of the GMU in the context of the watersheds and communities of which these lands play such an important role. In order to achieve the goals of 10 VSA §1250 (Water Pollution Control) and 33 USC § et seq. (Clean Water Act), management practices on Agency of Natural Resources lands will, to the extent feasible, restore and maintain the quality of the state's waters and aquatic habitats. All management activities will conform to Vermont Water Quality Standards and Vermont Wetland Rules, and will follow guidance provided in the documents found in the district offices.

The basin planning effort includes the determination of the water classification and water management type of all waters located within the basin(s). This process will take into consideration the existing water quality, the desired water quality, and whether or not the desired quality is attainable among many other considerations. By Vermont statute, all waters above 2,500 feet in elevation are classified as A1 and are managed to maintain their natural condition. The goal for the water management type of waters below 2,500 feet that flow through ANR lands is of a high level (potentially B1). B1 waters would be managed to have the characteristics of a nearly natural condition limited to minor changes from reference conditions for aquatic macro-invertebrates and fish assemblages and minimal differences from the reference condition for aquatic habitat. Possible exceptions to B1 typing in the Groton Management Unit include the following:

- where water level fluctuates due to dam bypass area;
- where agricultural lands are located adjacent to waters; and
- situations where B1 water quality is otherwise unattainable or not desired.

### **Buffers**

Maintain buffers directly adjacent to streams, lakes, wetlands, and beaver ponds. Buffer widths will be designed to riparian zones. Varying slopes, stream size, soil conditions and forest types will influence appropriate buffer widths. Softwood stands tend to concentrate along stream drainages. Due to the importance of maintaining travel corridors of healthy vegetation along these streams, the department intends to conduct vegetation management activities within the buffer zones of these streams where such activities are critical to maintaining the integrity of the wildlife travel corridors. Any such activities will be carefully designed and conducted to meet the objectives intended by the establishment of stream buffers, and will strive to improve the long term effectiveness of these buffers by creating a more diverse and healthy tree cover.

## **Forest Health and Protection Implementation Strategies**

### **Forest Health Management**

Forest Health Monitoring and Evaluation outcomes will be periodically reviewed by the District State Lands Stewardship Team to determine if the planned objectives are being met.

The ANR may make recommendations for changes in planned activities to reflect the changed conditions or unanticipated results. Any major changes to the plan would be

proposed as amendments and would be subject to public review and approval by the Agency's State Lands Stewardship Team and the appropriate department commissioner.

### **Invasive Exotic Plant Management**

When individuals or populations of invasive exotic plants are found within the GMU, the potential impact of these plants will be evaluated. If the presence of these plants is found to be a potential threat to forest health, appropriate management strategies will be implemented to reduce further spread of the population and possibly eradicate the plant from the management unit.

### **Fire Management**

Wildfire detection will be based upon public reporting and air patrol during periods of high to extreme fire danger. The town Forest Fire Warden in each town is responsible for wildfire suppression within the GMU. A list of contacts within the Forestry Division who are able to assist if necessary is located in the District IV and V Fire Plan available at each district office.

The State Forestry Staff will assist the town Fire Warden with overhead fire responsibilities as well as provide guidance in determining compensation to the town involved with fire suppression.

### **Hazard Tree Management**

Each year GMU will be monitored for the occurrence of hazard trees. These trees will be evaluated in accordance with FPR Procedure 27.1, Hazard Tree Surveys on Forest, Parks and Recreation Lands.

## **Recreation Implementation Strategies**

### **Management Responsibilities**

Management responsibilities for recreation and trails on GMU are divided between the Parks Division and the Forestry Division. Within the Groton State Forest, the Parks Division is responsible for managing visitors primarily at the developed state parks and associated facilities, such as campgrounds, picnic areas, day use areas, buildings, and other intensively use sites. The Parks Division is also responsible for the management and maintenance of the majority of trails with the exception of the VAST snowmobile network, which is the responsibility of the Forestry Division. On the LR Jones State Forest, the Barre District - Forestry Division is responsible for the abovementioned recreational activities.

A variety of maintenance and construction projects take place each year from work on trails to projects to improve the facilities in the state parks. It is an ongoing process. Most of the trail work on GMU is funded through the Vermont Recreation Trails Fund, a fund set up using gas tax receipts from non-highway sales of gasoline. There is currently a large network of trails (and roads used as trails) on the Groton State Forest and LR Jones State Forest. The types of trails include VAST snowmobile trails, hiking trails, cross-country ski trails, and multiple use trails that allow mountain biking and equestrian use.

Recreational use of ATVs is currently prohibited on all state lands; hence there are no designated ATV trails on the GMU. However, the Agency may consider proposals for development of ATV connector trails on state land that link to established ATV trails systems on adjacent private lands as part of future long-range management planning efforts.

Projects within the campgrounds and day use area include maintenance of buildings, beaches, boat launches, and other associated facilities and upgrades to systems (water, sewer, electrical) that support use of the areas.

## **General Recreation Opportunities – Facilities, Access, and Information Implementation Strategies**

1. Adequately maintain existing park facilities and roads.
2. Improve and upgrade facilities to meet current demands of park visitors and public. Potential improvements include the following.
  - a. New contact station at Boulder Beach.
  - b. Add a contact station to Kettle Pond.
  - c. New playground at Boulder Beach to replace outdated playground removed.
  - d. Improve interpretative displays at the Groton Nature Center.
  - e. Redevelop the amphitheater at the Groton Nature Center.
  - f. Develop a playground at Ricker Pond.
  - g. Renovate the Perry Merrill Camp for public use.
  - h. Update water systems at New Discovery, Kettle Pond, Ricker Pond and Stillwater.
  - i. Upgrade and replace outdated septic and water systems.
  - j. Add horse camping amenities, such as corrals, horse washing station, etc. at New Discovery and along trails.
  - k. Develop separate horse camping loop at New Discovery.
  - l. Explore feasibility of adding electricity and water hookups to some New Discovery campsites.
  - m. Convert appropriate tent sites to lean-tos or cabins.
  - n. Replace vault pit toilet at Owl's Head and Kettle Pond with composting toilets.
  - o. Improve the Overlook to include a roadside picnic area and improved access to Montpelier-Wells River Rail Trail.
  - p. Protect and maintain the CCC historic structures in the Forest.
  - q. Reconstruct trailside lean-tos in disrepair.
3. Annually remove hazard trees within the developed park use areas.
4. Continue to open New Discovery State Park for camping with self-contained RVs and campers during the November deer season. Explore the feasibility of opening the campground during the moose season.
5. Continue to provide areas for primitive camping within Groton State Forest and LR Jones State Forest.

6. Continue to allow traditional recreational uses of the property, including but not limited to, hiking, camping, hunting, fishing, trapping, snowmobiling, and cross-country skiing.
7. Work with interested organizations, colleges and universities, and individuals interested in conducting research, education, and monitoring activities.
8. Monitor dispersed recreational activities (i.e., rock climbing, geocaching) for impacts on the natural communities.
9. Explore feasibility of developing a cartop boat launch on Lake Groton.
10. Develop a means for effectively managing winter and off-season use of GMU.

## **Existing Trails and New Proposed Trails**

### **General Guidelines**

1. Work with the various trail organizations, such as the Vermont Youth Conservation Corps, the Cross Vermont Trail Association, the Vermont Association of Snow Travelers (VAST), the Vermont Horse Council, the Vermont Mountain Bike Association, and others to maintain the trail network, reduce environmental and user group conflicts and to provide high quality trail experiences.
2. Work with interested organizations and individuals to provide new trail opportunities and facilities where appropriate.
3. Work with Vermont Agency of Transportation to make safe road crossings where trails cross VT Route 232.

### **Existing Trails – Implementation Strategies**

1. Maintain and improve existing trails to approved standards.
2. Monitor levels of trail use to identify future needs and problem areas.
3. Work with the Cross Vermont Trail Association to develop the safest and most appropriate Cross Vermont Trail route through Groton State Forest.
4. Develop volunteer program to assist with maintaining existing and new trail facilities.
5. Continue to plow trailheads for winter trail access whenever feasible.
6. Develop and implement a consistent directional and informational signage plan for all trails in GMU.
7. Develop adequate public trail information for the GMU.
8. Develop a means to effectively manage winter trail use in GMU.

### **Proposed New Trails – Implementation Strategies**

During the last few years, DFPR staff have been exploring and assessing potential new trails on the GMU to meet the increasing demand for trail uses other than the traditional hiking/walking and snowmobiling trails. Through public involvement and the Groton Recreation Survey there is support to improve the trail system in the GMU.

The following corridors have been identified as potential routes for new multi-use recreational trails by the district stewardship team. Exact locations on the ground have not been determined (see Figure 17, Proposed Summer Recreation Map, and Figure 18,

Proposed Winter Recreation Map, for general locations of the new trail corridors identified below). Multi-use trails proposed are for mountain biking, hiking, horseback riding, and cross-country skiing / snowshoeing except for where they intersect or coincide with VAST trails.

### **Seyon Ranch State Park**

1. Reestablish historic hiking trail from Seyon Ranch State Park to Spruce Mountain.
2. Establish backcountry ski trails in the Seyon Basin.
3. Explore feasibility of establishing a network of developed trails for mountain biking and cross-country skiing outside of the special management area.
4. Complete existing trail around Noyes Pond.
5. Continue utilizing existing forest logging roads and trails for snowshoeing and groomed cross-country skiing.
6. Establish spur snowmobile trail from VAST Corridor Trail #302 to Seyon Ranch State Park.

### **Multiple Use Trails**

The following corridors or areas have been identified as proposed multi-use trail routes:

1. Construct a multi-use trail along the Old Telephone Line corridor from New Discovery State Park and the northern parking area to link into Coldwater Brook Road.
2. Establish a new trail head parking area either at the Nature Center or along Coldwater Brook Road.
3. Explore the feasibility, with the Town of Groton, for a multi-use trail along Boulder Beach Road to safely remove trail users from the roadway as they travel between state park facilities, private residences and camps, and trails in the area.
4. Construct a corridor from Beaver Brook Road to the Kettle Pond Road and day use parking lot.
5. Establish a new trail head parking area off of Beaver Brook Road at the old log landing.
6. Construct a corridor from the Blake Hill Road / Peacham Pond Trail to Coldwater Brook Road / Trail for summer use. Explore feasibility for winter use.
7. Construct a corridor route from the Old Lanesboro Road / Trail to the Martins Pond Road. A portion of this corridor is presently a VAST trail. Explore establishing a trail head near Martin's Pond.
8. Construct a connector trail between existing forest roads from the back side of Burnt Mountain to the Montpelier-Wells Rail Trail.
9. Designate the portion of VAST trail from Depot Brook Road to the VT Route 232 as a multi-use trail (Cross-Cut Trail). Designate the portion of VAST Trail from Montpelier-Wells Rail Trail to Beaver Brook Road as multi-use.

Figure 17  
Proposed Summer Recreation Corridors Map

Figure 18  
Proposed Winter Recreation Map

### **Hiking**

1. An extension of the Silver Ledge trail from the summit of Silver Ledge to the parking lot on VT Route 232.
2. Establish connector trails from Big Deer State Park to Hosmer Brook Trail and the Telephone Line trail.
3. Establish a connector trail from Stillwater State Park to Montpelier-Wells Rail Trail.

### **Cross-Country Skiing**

1. Establish backcountry cross-country ski trails in the Lye Brook Area, Seyon Basin, and Peacham Bog area.

### **Mountain Biking**

1. Develop a single-track mountain bike trail associated with New Discovery State Park.

### **VAST Trails**

1. Connection from Peacham Pond to Martins Pond.
2. Connection from Depot Brook to Seyon.
3. Connection from Depot Brook to Ricker Pond.
4. Connection from Butterfield to Seyon.

The Vermont Department of Forests Parks and Recreation is committed to assisting VAST with the maintenance of a viable trail network within the state of Vermont. Due to the unstable nature of trail locations on private property modifications to the existing trails within the GMU may need to be made to connect with trails on other private property.

There is concern from the snowmobiling community with one particular trail that provides an east-west connection between the greater Barre area and the GMU. The department is committed to providing an alternative route if snowmobile access is prohibited on this trail. After considering several options, the stewardship team believes that the Beaver Brook Road would be the best alternative to VAST Route# 302 in the Knox Mountain area should this change be required. This route is indicated on the proposed winter recreation map.

### **Future Trails**

Many things have changed from the time when most of the trails on Groton State Forest and LR Jones State Forest were first constructed. Today, construction projects for new trails must go through an extensive review process. The following are some of the issues that must be addressed before a new trail project can be implemented.

- Does the parcel deed allow the activity?
- Is the activity consistent with agency and department policies?
- Is it compatible with the land use classification? Recreation Opportunity Spectrum (ROS) classification?

- Are there significant resource issues? wildlife habitat; rare, threatened and endangered species; wetlands; cultural/historic, etc.
- Are there other user group conflicts?
- Is an Act 250 permit required? local permits required?
- Is a storm water permit required? wetland permits?
- Who will be responsible for construction, maintenance, signing, parking, enforcement, etc.?

A new project can take a significant commitment of time and energy from conception to construction. New trails may be proposed to meet recreational needs and demands or to resolve environmental issues or user conflicts. Due to the districts' small staff and many other responsibilities, new trail projects may be more successfully implemented if a user group takes responsibility for long-term maintenance. New/unknown recreational uses of existing trails are always surfacing. These proposals will have to go through the review process before use can occur. Any user group interested in developing new trails or designating new uses for existing trails should start by contacting the designated Trails Coordinator for the District.

## **Timber Implementation Strategies**

Timber harvesting will occur on the GMU in the General Management Area and portions of the special management areas over the life of this plan. There is a total of 5,003 acres which will be managed using even aged silvicultural techniques over the life of the plan. Within this acreage, 540 acres will be regenerated and 1,050 acres will be treated with intermediate cuts in the next 10 years (see Figure 19, Timber Management Strategies map). There is a total of 17,781 acres which will be managed using uneven aged silvicultural techniques over the life of the plan. Within this acreage, 6,240 acres will be treated in the next 10 years. With stand ages diversified from the previous 30 years of management, a mix of even and uneven aged treatments is warranted. This strategy will provide for early successional habitat while continuing to allow high quality stands to be intensively managed.

### **General Guidelines**

All timber harvest operations will follow the guidelines for logging operations set forth in "Acceptable Management Practices for Maintaining Water Quality on Logging Jobs in Vermont" (August 15, 1987 or successive versions).

### **Implementation Strategies**

#### **1. Northern Hardwood Forest Types**

These forest types are associated with the Northern Hardwood natural community consisting of sugar maple, beech, yellow birch, white ash and associated species. In the GMU, this occupies approximately 16,920 acres. Forest site classes associated with these types are predominantly site class 2 with a scattering of site class 1.

- a. Manage the northern hardwood forest types using a mixture of even aged and uneven aged silvicultural techniques. An even aged silvicultural system will be emphasized on most of the mid elevation sites where the site index is an average of low site 2 or 3. Many of these stands are currently in an early successional stage and an even aged silvicultural system will maintain the vegetative diversity as well as provide habitat for wildlife species requiring openings, edge and shrub-scrub habitat.
- b. An uneven aged silvicultural system will be emphasized on the better sites (high site 2 and above), and in stands located in visually sensitive areas or adjacent to major softwood drainages. On the better sites an uneven aged system will allow for an extended rotation and some mid to late successional forests to develop. On visually sensitive areas uneven aged management will provide a continuous cover. In stands or portions of stands adjacent to the major softwood drainages, uneven aged management will be used to increase the proportion of softwood and winter deer cover.

## **2. Red Spruce/Northern Hardwood and Hemlock/Hardwood Forest Types**

These forest types are associated with the Red Spruce/Northern Hardwood and Hemlock/Hardwood natural communities and make up approximately 6,581 acres. They are primarily found at the mid to upper elevations and are mainly site class 2.

Manage the Red Spruce/Northern Hardwood and Hemlock/Hardwood stands emphasizing an uneven aged silvicultural system.

## **3. Spruce Fir Types**

These forest types are associated with the Lowland Spruce/Fir and the Montane Yellow Birch Red Spruce natural communities and make up approximately 2,850 acres. This type is found along some of the major drainages at mid to lower elevations in the Groton Management Unit and at higher elevations in the transition zone between the Northern Hardwood Red Spruce and the Montane Spruce Fir above 2,500 feet.

- a. Manage the lowland spruce fir emphasizing an uneven-aged management system.
- b. Deer Wintering Area-See Wildlife Implementation Strategies Section
- c. Steps will be taken to maintain and improve coniferous species diversity. Natural regeneration will be augmented with planting white pine and eastern hemlock seedlings. Generally, northern white cedar will not be harvested. Individual trees may be cut to promote optimum crown development of more vigorous coniferous trees.

**Figure 19**  
**Timber Management Strategies Map**

#### **4. Softwood Plantations**

These man made forest types are found on several different natural communities and make up approximately 100 acres, mostly along VT Route 232. These areas will be managed with a mixture of even and uneven aged techniques. Pending any natural events with mortality resulting, these plantations will be allowed to grow to biological maturity. After final harvest these areas will revert back to the natural community they occur in.

- a. Periodic thinnings will be scheduled when needed based upon the appropriate silvicultural guidelines, except for those plantations within developed recreation sites.
- b. Plantations within developed recreation sites will be treated on an as needed basis to remove hazard trees, to improve wind firmness, or to encourage the regeneration of young trees for screening campsites. Group selection cuts may be used to accomplish this.
- c. Natural regeneration may be augmented with plantings of other native coniferous species to enhance biodiversity.

#### **Even Aged Silvicultural Standards**

- a. Rotation age will be 100 years.
- b. Three entries in each stand will be made at approximately 50, 75, and 100 years of age.
- c. Harvest openings will be designed to take advantage of landscape features, minimize visual impact, improve stand development, protect water quality and meet habitat needs.
- d. Thinning of individual trees will occur between the groups/patches.
- e. Where possible increase the softwood component. Softwood inclusions will be managed uneven aged.
- f. Individual trees of special wildlife significance will be protected
- g. Hemlock will be retained wherever possible.
- h. Within the general management areas develop and maintain beech mast stands.

#### **Uneven Aged Silvicultural Standards**

- a. Stands will be treated on a 20 to 25 year cutting cycle.
- b. Trees of all sizes will be removed in each entry, but a range of ages and sizes is constantly retained in the stand. The largest diameter which will be retained as a crop tree in the stand will be 18 to 26 inches (approximately 150 to 200 years old) depending on the site and species.
- c. Minimum basal areas will be consistent with silvicultural guides.
- d. Harvest openings will be designed to create a vertical structure within the stand.
- e. Increase the size of the softwood inclusions when and where possible.
- f. Individual trees of special wildlife significance will be protected.

## **Wildlife Implementation Strategies**

### **Important Wildlife Habitats**

The following selected types of wildlife habitat are of special importance in Vermont. The management and conservation of these areas is described. New forest roads and recreation corridors will be located in a manner that will minimize the impact to these habitat types.

### **Deer Wintering Areas**

#### **Management Objectives**

The overall management objective is to continue to provide sustainable carrying capacity for over-wintering deer. Specific practices will be to maintain at least 50% of the acreage in functional shelter (softwood cover greater than 35 feet in height and with 70% average crown closure), maintain deer mobility throughout the area, increase the softwood component in all stands, and provide adequate and preferred browse that is accessible.

The following strategies will be employed to accomplish this objective and will concur with the Management Guide for Deer Wintering Areas in Vermont (1990), Vermont Departments of Forests, Parks and Recreation and Fish and Wildlife.

#### **Implementation Strategies**

1. Uneven-aged management is the primary silvicultural system that will be used within the softwood stands. This type of management provides continuous canopy closure for essential shelter and travel requirements.
  - a. Both single-tree and group selection methods will be used in combination with each other.
  - b. Stands will be treated on a ~20-year cutting cycle.
  - c. ~20% of any treatment area will be regenerated during each stand entry utilizing small group selection cuts up to 40 feet in diameter.
2. Even-aged management may be used in the hardwood stands directly adjacent to winter cover habitat to improve the amount of browse.
  - a. Rotation ages will approximately range from 70-100 years.
  - b. Regeneration cuts will range from 1 acre to no greater than 2 acres in size.
3. Steps will be taken to maintain and improve coniferous species diversity.
  - a. Natural regeneration may be augmented with planting white pine and eastern hemlock seedlings.
  - b. Generally, northern white cedar will not be harvested. Individual trees may be cut to promote optimum crown development of more vigorous coniferous trees.
4. Travel lanes will be designed into each cutting plan to ensure uninterrupted deer mobility and access throughout the wintering area. Generally, a lane of unbroken, dense softwood cover at least 200 feet wide is required. Depending on stand and site conditions and deer-use patterns, travel lanes can be permanently established or relocated as needed within the wintering area. Permanent travel lane will be regarded as a separate stand and managed very lightly to preserve maximum shelter value at all times.

**FIGURE 20**  
WILDLIFE HABITAT MGMT STRATEGIES MAP

## **Mast Production Areas**

### **Management Objectives**

The management goals for both hard and soft mast are similar in that we will attempt to maintain or enhance the availability of these food resources for wildlife.

### **Hard Mast Production Areas**

#### **Implementation Strategies**

1. Uneven-aged management will be used as the main silvicultural system using a combination of single-tree and group selection.
2. Harvest openings will be no greater than one-half acre.
3. Management efforts will strive to maintain 35-40 percent of the total basal area in beech.
4. Silvicultural prescriptions will favor leaving healthy bear-scarred trees.
5. Harvests will be scheduled during winter, preferably on snow to minimize residual damage to established regeneration and root systems of healthy mast trees and to reduce the amount of root sprouting of disease-susceptible beech.

### **Soft Mast Production Areas**

#### **Implementation Strategies**

1. During timber sale layout and marking, attempts will be made to maintain or enhance the amount soft mast producing trees and shrubs. Timber harvesting may be modified on a small scale to increase the amount of mast producing species within a given area. Since these are found as small inclusions within larger forested areas these will most likely be identified during marking of individual timber sales.
2. Apple orchards will be maintained by brushhogging the larger openings and pruning and releasing individual trees.
3. The maintenance of landings and roadsides may be delayed to protect concentrations of berry producing species.
4. As concentrations of blueberry are identified, the potential of prescribed fire for maintenance of these resources will be evaluated.

## **Vernal Pools/ Communal Breeding Sites**

### **Management Objectives**

The forested area around communal breeding sites should have uncompacted soil, deep duff layer; sufficient coarse woody debris; and canopy cover. The objective will be to protect the pool itself, minimize disturbance and maintain a mostly closed forest canopy in the associated amphibian life zone surrounding the pool.

#### **Implementation Strategies**

1. Two buffer zones will be maintained around communal breeding sites.
  - a. No disturbance will be allowed within the pool itself and within 100 feet of the pool edge.

- b. Within a 100 to 500 foot secondary buffer zone, residual stocking levels from management treatments will remain above the “B” line on U.S. Department of Agriculture, Forest Service silvicultural guides as appropriate for the involved forest type.
2. Timber harvesting will be limited to time periods of sufficient snow cover, or when frozen or dry soil conditions exist, so that operations will avoid disturbing the natural flow of ground and surface water. Harvesting equipment should be kept as far a possible from the vernal pool to limit the potential for soil disturbance. General operating guidelines will be that no landings, major skid roads, or openings wider than 70 feet are to be created within the 500 foot zone. Necessary adjustments to these operating guidelines will be considered on a case by case basis. Pedestrian trails may be appropriate.
3. Operations will also leave a supply of long-lived, older trees such as spruce, pine, or northern hardwoods to serve as recruits for future snags and coarse woody debris. Operations will avoid disturbing fallen logs and will leave limbs and tops where felled. In some cases large stems may be placed to provide coarse wood debris in areas where it seems to be limited.
4. Timber harvest strategies will employ uneven-aged management, preferably using single-tree and group selection harvesting with canopy openings generally less than half of an acre. Where group selection is applied, 75% canopy cover will be maintained as an average throughout the buffer zone (not just the area outside the groups).
5. In areas with concentrations of communal breeding sites, movement corridors between breeding habitats will be retained. Movement corridors between breeding sites should be considered when laying out timber harvests and other management activities. The intent is to provide functional movement corridors to allow for the dispersal of individuals to other areas within the forest. The movement corridors may not be in the same locations at all times.

### **Other Wildlife Habitats**

Other wildlife habitat management strategies will include the following.

### **Grouse Production Areas**

Ruffed grouse production areas (GPAs), totaling 464 acres or approximately 2% of the GMU, will continue to be managed with the goal of meeting the habitat needs of ruffed grouse.

### **Implementation Strategies**

Each GPA consists of one to three acre blocks set in a checkerboard pattern and will eventually provide the three necessary age classes (0 to 10, 10 to 25, and 25 to 40 years) required for optimum ruffed grouse habitat. The three age classes provide the variety of food resources and cover requirements necessary for breeding, nesting, brooding, and winter roosting. Management practices in these areas will include the following.

1. Treating one quarter of each GPA every 10 years
2. If aspen is the dominate stand component, operations will be limited to winter conditions to promote aspen root sprouting

3. If aspen is limited, summer operations may be used to achieve scarification of mineral soil required for windblown seeding of aspen.
4. Retaining small patches of softwood trees for winter cover
5. Maintaining large (greater than 12 inches) drumming logs in proximity (1 to 3 meters) to a screen object (rock, small softwood tree, root wad) after operations
6. Creating/maintaining herbaceous openings by seeding log landings and wood roads. Openings will be mowed every 3 to 5 years.
7. Forage tree species (cherry, beech, yellow birch) will be maintained as residual food sources as long as they do not total more than 25% of the cut area.

### **Woodcock**

Specific management for American woodcock is likely to occur in the Lanesboro area in the town of Marshfield. A more intense assessment of the existing habitat conditions are needed to determine the specific habitat needs in the area. Management techniques will follow *A Landowner's Guide to Woodcock Management in the Northeast* which was developed by staff at the Moosehorn National Wildlife Refuge and the University of Maine. The habitat requirements identified are as follows.

1. singing/roosting areas - These areas are typically permanent herbaceous openings that are adjacent to suitable nesting and feeding areas or in areas free from tops and brush after a timber harvest.
2. nesting cover - This resource is usually within 100 yards of an occupied singing ground in sapling hardwood stands with scattered young softwood regeneration.
3. feeding areas - Feeding areas are located on moist and fertile soils which are likely to have an abundance of earthworms and other invertebrates. The vegetation in these areas is usually harvested in strips on a 40 year rotation and situated to insure that moist soil conditions exist through the summer.

### **Snowshoe Hare**

Two areas within the GMU have been designated as hare production areas. These areas will also be more closely evaluated to determine the exact timber harvesting regime but management will follow the guidelines described in *A Landowner's Guide: Wildlife Habitat Management for Vermont Woodlands*. These management practices may include the following.

1. In spruce-fir, create patches of regeneration up to one acre in size. Fifteen percent of the hare management unit should be maintained in the regenerative stage (0 to 10 years old), thirty percent should be in the 10 to 30 year age class (base cover) and forty-five percent should be in the 30 to 60 year age class (travel cover).
2. Softwoods stands that are not deer wintering areas may be considered for hare management.
3. Within the GMU, softwood stands are typically situated in narrow strips along the major drainages within the ownership. In these stands the age class distribution and juxtaposition of the softwood cover may be modified to meet other resource needs such as stream buffers and movement corridors for other wildlife species.
4. Skid trails and landings within these hare management areas may be maintained as herbaceous openings to provide summer forage.

### **Other Wetland Habitats**

In beaver influenced wetlands nuisance problems can occur. Where beaver become a nuisance and threaten infrastructure, non-lethal methods of control will be the first option.

There is potential for conflict between nesting birds and recreational users in the shoreline wetland communities. Educational information should be provided to watercraft users (via kiosks, brochures, visitor contacts etc.) in order to minimize these conflicts and to educate the public. Cooperation between the ANR, non-profit conservation organizations and volunteers should continue to monitor and protect nesting locations for loons and other nesting birds. Typically this includes signage around the nesting area to keep boats and paddle craft from disturbing nesting birds.

In recent years a boardwalk has been constructed in the Peacham Bog Natural Area to improve access. Additional trails and facilities should be limited to those that reduce the negative impacts of the current use level and not to increase visits to the area.

### **Talus / Cliff Habitats**

Logging activities adjacent to Marshfield Ledge will be restricted during the nesting season. In addition, a permanent buffer zone will be determined and established around Marshfield Ledge. Should peregrine falcons appear at one of the other cliff sites, harvesting activities will be restricted and buffer zones established there as well. Other species that are commonly found nesting on cliffs include turkey vultures and common ravens. Recreational use of these areas may be restricted if they impact the nesting activities of these bird species.

### **Coarse woody Debris**

Efforts to increase levels of coarse woody debris will be made during timber harvest operations. This debris will increase the quality of habitat for herps and other various invertebrates.

### **Mowing Landings and Fields**

Log landings and historic openings have been maintained in an open condition and it is our intent to maintain these openings by mowing on approximately a three-year interval. Mowing will occur after August 1<sup>st</sup> of any given year to minimize the impacts to nesting songbirds.

## **Fisheries Implementation Strategies**

The GMU is blessed with an interesting variety of ponds and streams that provide diverse angling and ice fishing opportunities and enrich the recreational amenities of this large State ownership. A moderate to extensive amount of information is available describing the individual waters and fishery resources. Although in some cases information may be dated, in the absence of major changes in land and water uses within the GMU over the past half century, we trust it to still be reasonably descriptive of current conditions. We were able to accomplish a significant amount of sampling and data collection in the

current assessment to increase our knowledge base about some of these GMU waters. In the several instances where we were able to update our information about fish communities, no notable changes in species composition were documented.

Recommendations for management actions at waters enclosed within the core or satellite GMU ownership are noted below. For the ponds peripheral to the GMU including Lake Groton, Martins Pond, and Peacham Pond, only recommendations germane to the GMU management are noted.

### **Implementation Strategies**

1. Continue periodic visitation and sampling at GMU waters to monitor the status of and document changes in fish communities over time.
2. Continue periodic visitation and sampling of GMU waters to monitor the status of and document changes in water chemistry that may identify previously undetected limiting factors for fish populations and other related biota.
3. Expand documentation of fishing activity, fishing quality and fish resource utilization.

### **Enclosed and Satellite Ponds**

#### **Goslant (Spice) Pond**

### **Implementation Strategies**

1. Expand future fish sampling to increase the likelihood of documenting species and larger specimens of angling interest that may be present but were not observed in recent sampling.
2. Assess water chemical conditions with a bearing on management of fish species of angling interest, specifically dissolved oxygen levels in late summer and mid winter, as well as pH, conductivity and alkalinity.
3. Evaluate the potential for management of fishable species that may be present in the pond or downstream in the drainage basin, such as, brown bullheads, largemouth bass, chain pickerel and yellow perch.
4. Evaluate the feasibility of portage development to enable access by anglers wishing to use canoes or other portable watercraft.

#### **Kettle Pond**

### **Implementation Strategies**

1. Continue the current course of fisheries management, emphasizing angling for wild smallmouth bass and rainbow trout stocked annually as catchable-size yearlings.
2. Improve the existing path from the parking area on VT Route 232 to facilitate day use pedestrian access and watercraft portage by the general angling and boating public.

## **Levi Pond**

### **Implementation Strategies**

1. Continue the current course of fisheries management, emphasizing angling for brook trout stocked annually as catchable-size yearlings.
2. Investigate the contribution of wild brook trout to the population and fishery.
3. Investigate the legal status of road access.
4. Improve the area for vehicle parking and turn-around.
5. Improve the approach to the shoreline for launching cartop watercraft.

## **Mud Pond – Groton**

### **Implementation Strategies**

1. Survey of the pond to assess its fish population and to document the presence of species of angling interest.
2. Assess the water chemical conditions with a bearing on management of fish species of angling interest, specifically dissolved oxygen levels in late summer and mid winter, as well as pH, conductivity and alkalinity.
3. Evaluate the potential for management of fishable species
4. Evaluate for a watercraft launch site and vehicle parking

## **Mud Pond – Peacham**

### **Implementation Strategies**

1. Survey the pond to assess its fish population and to document the presence of species of angling interest.
2. Assess the water chemical conditions with a bearing on future management of fish species of angling interest, specifically dissolved oxygen levels in late summer and mid winter.
3. Evaluate the potential for management of fishable species that may be present in the pond or downstream in the drainage basin; e.g., chain pickerel, brown bullheads, largemouth bass and yellow perch.
4. Evaluate the feasibility of developing a vehicle drive, parking and launch site within the DFW ROW to enable access by anglers with cartop watercraft.

## **Noyes Pond**

### **Implementation Strategies**

1. Continue the current course of fisheries management, emphasizing *limited-entry* angling for wild brook trout stemming from natural reproduction, un-augmented by stocking.
2. Protect the simple, two-species fish community by prevention of introduction of other species.
3. Monitor the angling activity, catch and harvest through continued record-keeping by Parks staff.

4. Monitor the brook trout population by periodic sampling for population estimation and age/growth analysis.
5. Investigate the pond trout migration and reproduction, and the role of tributaries for spawning and nursery.
6. Evaluate potential alternate rules for access and angling to:
  - a. Establish a cap on the number of anglers on the pond at one time;
  - b. Allow use of personal paddle craft at angler option, not exceeding cap of boats on pond at one time;
  - c. Allow shoreline angling in designated areas at angler option;
  - d. Allow use of lures with barbless hooks; and/or
  - e. Periodically evaluate fee structure.

### **Osmore Pond**

#### **Implementation Strategies**

1. Continue the current course of fisheries management, emphasizing angling for brook trout stocked annually as *catchable*-size yearlings.
2. Investigate the contribution of wild brook trout to the population and fishery.

### **Ricker Pond**

#### **Implementation Strategies**

1. Continue the current course of fisheries management, emphasizing angling for smallmouth and largemouth bass and angling and ice fishing for other warmwater species.
2. Survey the pond to assess the fish community, confirm assumptions and measure fishing quality potential.

### **Peripheral Ponds**

Management of fishery resources at ponds on the periphery of the GMU – Groton, Martins, Peacham, and Turtlehead ponds – is not within the purview of this long-range management plan, and will not be discussed here. Fishery resource protection and management at these public waters of the State is a general and on-going responsibility of DFW's Fisheries Division.

Provision of access to the GMU's peripheral public waters is within the scope of the GMU LRMP. Although boat landing and shoreline angling is guaranteed along the state-owned shorelines of these ponds, boat launching for fishing is assured and facilitated for the general public at no charge only at the developed DFW Fishing Access Areas at Martins Pond and Peacham Pond. An unimproved cartop boat launching site of indeterminate legal status is available at Turtlehead Pond. Lake Groton, despite extensive State ownership along its shoreline, has no developed boat launching site for free, unrestricted use by the general angling public. DFPR provides a motorboat launch site for campground visitors and as a courtesy to lakeshore property owners (limited launches)

within the Stillwater State Park campground and paddle craft launching and boat rental for fee-paying day-users at Boulder Beach State Park during the park operating season.

Lake Groton, at 422 acres, is a major public water body in Vermont, and one of very few such water bodies without an access area for launching fishing boats. Boating access at Lake Groton was a major topic within ANR in the 1980s, along with municipal and legislative interest. The ANR Facilities Engineering Division was charged with examining various access expansion alternatives. In 1988, \$50,000 was earmarked in the Capital Construction budget to “develop and install a boating access area in Groton State Park.” The money was never used and ultimately was transferred to Buildings & General Services in 1990.

A Lake Groton Recreation Use Study was commissioned by DFPR and conducted from 1994 to 1995 (report, 3/1/1996). The findings were mixed regarding interest in development of additional boating access – property owners were opposed; State Park day users were generally opposed; registered boat owners generally were favorably disposed, with their main interest being fishing. DFPR’s recommendation, among others, was “development of a public access ... open to the public on a 24-hour-a-day basis should not be undertaken at this time.”

The issue of free boat and fishing access to Lake Groton is still prevalent. Revisiting previous recommendations for boat access locations has been attempted in this long-range management plan. Even acknowledging the use intensity problems, there still may be some practical strategies and locations for additional boat access that are reasonable, sustainable and fairer to the general angling public. The previous sites investigated were at the dam, Beaver Brook, Boulder Beach North, and the end of the parking area at Boulder Beach South.

DFW has a long-range boating and universal shore fishing access development plan. Development of access at Lake Groton is not currently included in the plan. DFW continuously revises the plan using information received from the angling, boating, and physically impaired communities in an effort to create environments where anglers, boaters and the physically impaired can all enjoy the waters of the state. The four alternatives previously investigated have advantages and disadvantages that were identified. Based on that review Boulder Beach has been selected as the best site to develop a cartop boat access at Lake Groton. The access will be developed in the early part of the implementation of this plan.

In addition, during that same time frame an effort to provide cartop boat access for recreational users and anglers will be pursued at Turtlehead Pond.

### **Streams**

The GMU streams offer some high quality angling opportunity. Within the GMU, wild, self-sustaining populations of brook trout at an abundance level and growth rate high

enough to attract angling interest occur in Depot Brook, Beaver Brook, Osmore Brook, Coldwater Brook, the Waits River headwaters, and Wells River South Branch (below Noyes Pond) and in beaver flowages associated with these and other brooks.

The Wells River mainstem, between the outlet of Lake Groton and inlet of Ricker Pond and within the short length of the GMU downstream of the Ricker Pond outlet, is heavily influenced by these ponds. Although morphologically it resembles many area trout streams, its thermal regime in summer is assumed to preclude trout species. Warmwater fish species, such as largemouth bass, have been observed during sampling. Fishing opportunity is limited. Brook trout and brown trout may be present seasonally.

## **Cultural, Historic, and Archaeological Resources Implementation Strategies**

Due to the size of the GMU and the rich history of the area, the number of historical and cultural sites is quite large. They range from the many cellar holes and mill sites to the remnants of the CCC camp and their work. Agency lands are managed to be sensitive to historical, cultural, and scenic values. Due to protection under state and federal regulations, sites of archaeological significance are equal in status to legal constraints applicable to the lands.

With this in mind, the Archaeology Research Center of the Department of Social Sciences and Business of the University of Maine at Farmington was contracted to conduct a short inventory of the cultural/historical resources of the GMU. University of Maine's inventory and recommendations can be found in the report [The Cultural Landscape of the Groton Management Unit](#), which is located in the district offices.

Land management activities taking place on the GMU will protect and maintain cultural and historic resources. Known cultural sites will be documented for future reference, if not already. New sites will be documented as they are found. Recommendations in the University of Maine report will be considered as time, personnel, and budgets allow.

## **Roads and Public Access Implementation Strategies**

### **Roads and Public Access Management**

No new major (Class A, B, or C) road construction is anticipated during the life of this plan. There may be very short segments constructed to access timber sale landings off of existing roads. Existing landings and access to them will be used where possible. Traditional vehicle access patterns (reference road classification table, page 60) will be continued with the majority of roads opened each spring when conditions allow and closed in December. Some roads will remain gated year-round to allow for low-impact remote recreational activities, minimize disturbances to wildlife, and reduce maintenance costs. Other roads will be open to vehicle access only during the State Park operating season. Vehicle travel on gated roads will be limited to management activities. A number

of situations exist in which roads that are normally open to vehicle access will be closed temporarily. These include the following:

1. Prior to snowmelt each year, roads will be closed to all uses with the exception of pedestrian use. Such closures generally will begin on or around March 15 and last until mid May. This closure is to protect the road surface during the annual spring mud season.
2. Roads that are designated as snowmobile trails will be closed to vehicle traffic on December 15 each year. This closure is for safety reasons to prevent collisions between automobiles and snowmobiles.
3. Roads may also be closed temporarily for maintenance or repair. These closures may occur for a variety of maintenance purposes but most likely will occur when safety becomes a problem. Any such closures will be for the minimum time necessary while repairs are made.
4. Roads may be closed when timber harvest operations are underway and it is determined that significant conflict could occur between logging equipment and public vehicular use.

In addition, roads not normally open to public vehicle travel may be temporarily opened when access for hunting and/or trapping is a management priority. No new permanent roads are planned for. No existing roads are planned for permanent closure.

Annual maintenance operations will focus on the major access roads and will include grading, resurfacing, mowing, and upkeep of drainage structures. All other roads will be inspected annually and graded, resurfaced, mowed, and drainage structures kept up as needed. Mowing will occur after August 1<sup>st</sup> to minimize disturbance to breeding birds.

The existing gravel pit on the Coldwater Brook road will be reclaimed to the standards set forth in the publication “Vegetating Vermont Sand and Gravel Pits” and will comply with the standards set forth by the State of Vermont Division of Geology and Mineral Resources in criterion 9E of the ACT 250 process.

### **Education and Research Implementation Strategies**

Education and research on the Groton Management Unit will be encouraged and supported consistent with all applicable state policies, regulations and permits.

### **Special Uses Implementation Strategies**

Special uses on the Groton Management Unit will be encouraged and supported consistent with all applicable state policies, regulations and permits.

## **VI. Future Public Input and Monitoring and Evaluation**

The Agency of Natural Resources intends that this plan will guide the management of the GMU into the foreseeable future. There is no specific end date. However, the Agency recognizes the need to update, reevaluate, monitor and adjust the plan based on future changes in conditions or public input. Any major changes to the plan would be proposed as amendments and would be subject to public review and approval by the Agency's State Lands Stewardship Team and the appropriate department commissioner. Public input is an ongoing process, but at a minimum, the Department will hold another series of public meetings in ten years to see if we need to amend the plan.

In addition, each year that the long-range management plan for the Groton Management Unit is in effect, monitoring will be conducted by the Agency of Natural Resources with the goal that state-owned resources are protected from insects and diseases, encroachments and unforeseen problems that may occur. Additionally, management activities will be evaluated to determine how closely the actual results match those projected within the plan. The Agency of Natural Resources may make recommendations for changes in planned activities to reflect the changed conditions or unanticipated results. Specific monitoring activities include, but are not limited to, the following:

### **Forest Health**

The health of the forest within the GMU will be monitored annually through a system of aerial observations, insect and disease surveys and ground checking. Significant changes in forest conditions will be recorded and investigated by the Forest Protection staff. They will provide specific information on identified problems sufficient to make informed management decisions and will assist the State Lands staff in formulating appropriate management strategies.

### **Natural Communities**

The health of the natural communities within the GMU will be monitored periodically. The state lands ecologist will assist in determining if changes to the natural community designation should be made. The monitoring will help determine recommendations for managing natural communities including rare, threatened and endangered species. Natural communities will also be monitored for the presence of invasive exotic plant and animal species. Recommendations will be made for possible control measures.

### **Vegetation Management**

Timber harvests and wildlife management practices completed on the GMU will be monitored to determine if the planned objectives are being met. If the monitoring results indicate that there is a significant difference between the outcomes predicted in the plan and the actual conditions, the ANR may recommend changes.

**State Park Facilities**

Use at all state park facilities will continue to be monitored for types and amounts of use they receive. They will be continually monitored to meet the publics' recreational demands and needs, and facilities, products and services will be offered to meet those needs as appropriate. Facilities will be repaired, renovated and upgraded as necessary.

**Recreational Trails and Opportunities**

Trails will be monitored for types and amounts of use they receive. They will be monitored for maintenance and repair needs. Work will be scheduled as needed.

**Roads**

All truck roads will be monitored to determine if erosion problems exist and when repairs to structures are needed. Recommendations will be made to make necessary repairs.

**Water Resources and Aquatic Habitat**

The water resources on the GMU will be monitored to ensure that management objectives are attained. Monitoring will be conducted in the context of programs carried out by various departments of the ANR. The Vermont Monitoring Cooperative will conduct research on a paired watershed on the east side of Groton to study nutrient cycling, forest health, aquatic macro invertebrates, stream water quality and sediment transport.

## VII. Appendices and Further Information

### Authorization to Plan and Manage

#### Statutory Authority

The Vermont General Assembly has authorized the Agency of Natural Resources and its Departments to acquire lands, hold interests in lands, and conduct land management activities. Authority is vested in several statutes that collectively empower the Agency, upon approval of the Governor or General Assembly, to acquire lands, accept donations of lands or interests in lands, exchange or sell lands or interests in lands for public benefit, and to manage those lands for a variety of public purposes.

Specific authorizing statutes are:

- **Title 3, Chapter 51, Section 2825:** The primary duties of the secretary are to coordinate the activities of the various departments and divisions of the agency for the proper development, management and preservation of Vermont's natural resources, to develop policies for the proper and beneficial development, management, and preservation of resources in harmony with the state comprehensive planning program and to promote the effective application of these policies by the departments and divisions affected.
  
- **Title 10, Chapter 83, Section 2601:** Establishes the general purposes and policies to acquire and manage state lands and authorizes the Department of Forests, Parks & Recreation to undertake such activities.
  
- **Title 10, Chapter 83, Section 2603:** Establishes the general powers and duties of the commissioner of the Department of Forests, Parks & Recreation to manage state lands.
  
- **Title 10, Chapter 103, Section 4144:** Authorizes the Department of Fish & Wildlife to acquire state lands.
  
- **Title 10, Chapter 103, Section 4147:** Authorizes the Department of Fish & Wildlife to exchange, sell, or lease lands.
  
- **Title 10, Chapter 37, Section 905b:** Authorizes the Department of Environmental Conservation to acquire and manage lands and the rights to protect the state's water resources.
  
- **Title 10, Chapter 155, Section 6301-5:** Authorizes acquisition of rights less than fee of real property.

## **Resource Assessments and Management Guidelines Used in the Groton Management Unit Long-Range Management Plan Development**

Resource Assessments may be viewed at the district offices and contacts listed at the end of this section.

- Groton Management Unit Planning Update
- Marsh bird survey
- Forest Inventory conducted using Northeast Decision Model (NED ) system
- Lakes and Pond Survey
- Historical, Cultural, Archaeological Report- The Cultural Landscape of the Groton Management Unit by Scharoun, Bartone, and Cowie, Archaeology Research Center, Department of Social Sciences and Business, University of Maine at Farmington, April, 2005.
- Natural Community Assessment
- Fish Resources Assessment
- Recreation Resources Assessment
- Road Inventory Data
- Deer Wintering Maps
- GPS boundary data from Lyndon State College
- Public Involvement Meeting Notes
- Property Tax Implication Reports by Town- A report by Deb Brighton, Consultant, Salisbury, VT for the Vermont Agency of Natural Resources (ANR), Waterbury, VT Funded by the Vermont Housing and Conservation Board, Montpelier, VT
- Critical Mast Areas
- Vernal Pool Identification
- Recreation Surveys (Camp Owners, Campground users, Trail Intercept)
- Special and Legal Constraints
- Acquisition History
- Trails Inventory and Mapping

## **Policies, Guidelines, and Publications Used in the Management of Vermont Agency of Natural Resources Lands**

There are many policies and guidelines used in managing Vermont Agency of Natural Resources lands. Those policies, guidelines and publications specifically used in the development of the GMU long-range plan are listed below. In general, these were in effect at the start of this long-range management plan. If more information is needed, refer to current policies and guidelines which can be made available upon request. The information is grouped into some general categories to make this document easier to use.

### **Acquisition of Land**

*Lands Conservation Plan: A Land Acquisition Strategy for the Agency of Natural Resources*, October, 1999 - Standards and procedures for the Agency of Natural Resources to acquire lands.

### **Agriculture**

Vermont Agriculture Nonpoint Source Pollution Reduction Program Law and Regulations, Title 6, CH. 215, 1995 and 1996 – Standards for managing agricultural lands.

### **Cultural and Archaeological Resources**

State of Vermont laws applicable to archeological resources - Standards and operating procedures for state owned lands.

*Stonewalls & Cellarholes: A Guide for Landowners on Historic Features and Landscapes in Vermont's Forests*, Robert Sanford, 1994.

*Historical, Cultural, Archaeological Report- The Cultural Landscape of the Groton Management Unit* by Scharoun, Bartone, and Cowie, Archaeology Research Center, Department of Social Sciences and Business, University of Maine at Farmington, April, 2005.

*Groton State Forest History Guide*, State of Vermont Agency of Natural Resources, Revised 2003-VGA-1000

### **Fish and Wildlife**

Vermont hunting, fishing, and trapping regulations.

Wildlife Management Areas Operational Procedures Manual, Vermont Department of Fish and Wildlife - Standards for management of wildlife management areas.

*Management Guide for Deer Wintering Areas in Vermont*, Fish and Wildlife, 1990 - Standards for managing for deer.

*Landowner's Guide to Wildlife Habitat Management*, Fish and Wildlife, Fish and Wildlife, 1995 - Standards for managing for a variety of wildlife species on state and private land.

*Native Vegetation for Lakeshores, Streamsides and Wetland Buffers*, Environmental Conservation, 1994, Standards for buffer strips along lakes, streams and wetlands in Vermont.

Rare and Endangered Species - Listing of species protected under state regulations.

*Landowner's Guide to Woodcock Management in the Northeast*, U.S. Fish and Wildlife Service, Moosehorn National Wildlife Refuge, Maine Agricultural Experiment Station, Miscellaneous Report 253, Greg F. Sepik, Ray B. Owen, Jr., Malcolm W. Coulter, 1994

*List of Species of Special Concern*

### **Gravel Pits**

Forests, Parks and Recreation Policy #3, 1991 - Standards for use of gravel pits on Forests, Parks and Recreation lands.

## **Land Use and Development**

Act 250 - Law governing plans for land use and development in Vermont.

## **Mountain Top Communications Facilities**

*Siting, Use and Management of Electronic Communication Facilities on Properties Owned by the State of Vermont*, Agency of Administration, 1998.

## **Natural Area Designation**

Natural Areas Law and Forests, Parks and Recreation Policy #7 - Standards and guidelines for designation of Natural Areas on state forest and parks lands.

## **Pesticides Use**

Forests, Parks and Recreation Policy #9 - Regulations on the use of pesticides on state forest and parks lands.

## **Prescribed Fire**

Prescribed Burn Directive, Vermont Department of Forests, Parks and Recreation, 1989 - Procedures for planning and execution of prescribed burns.

## **Recreation**

Uses of State Lands, Agency of Natural Resources Policy, 1999 - Criteria for appropriate uses and when permits and licenses are and are not required.

Forests, Parks and Recreation Policies and Procedures Manual, 1990-1999 - Procedures and standards for administering recreational activities on state forests and parks lands.

State Park Ranger's Manual, Forests, Parks and Recreation, 1999 - Operating procedures, rules, regulations, and standards for recreational activity on state forests and parks land.

*"Vermont Guide to Primitive Camping on State Lands."*

## **Scientific Research**

Forests, Parks and Recreation policy # 8 - Standards and guidelines for research on state lands.

## **Silviculture**

Silvicultural References Manual, Forests, Parks and Recreation, 1997 - Guidelines for the Intent to Heavy Cut notification process.

Acceptable Management Practices (AMP) Guidelines, 1987 - Practices for maintaining water quality on logging jobs.

Wetlands Rules & Regulations, 1990 - Regulations that outline practices for logging around wetlands in Vermont.

*Native Vegetation for Lakeshores, Streamsides and Wetland Buffers*, Environmental Conservation, 1994 - Standards for buffer strips along lakes, streams and wetlands in Vermont.

*Vermont Handbook for Soil Erosion and Sediment Control on Construction Sites*, Vermont Department of Environmental Conservation, revised September, 1983.

*Vermont Streambank Conservation Manual*, Agency of Natural Resources, 1982 - Guidelines for construction around streams.

*Stonewalls & Cellarholes: A Guide for Landowners on Historic Features and Landscapes in Vermont's Forests*, Robert Sanford, 1994.

## **Ski Areas**

Guidelines for the Design and Construction of Ski Lifts and Trails in Class A Watersheds in Vermont, Department of Environmental Conservation, 2000

## **Water Resources**

Acceptable Management Practices (AMP) Guidelines, 1987 - Practices for maintaining water quality on logging jobs in Vermont.

Long Trail Construction and Maintenance Standards, Green Mountain Club, 1995 -  
Trail construction standards for public and private land.

*Native Vegetation for Lakeshores, Streamsides and Wetland Buffers*, Environmental  
Conservation, 1994 - Standards for buffer strips along lakes, streams and wetlands

*Vermont Streambank Conservation Manual*, Agency of Natural Resources, 1982 -  
Guidelines for construction around streams.

*Vermont Water Quality Standards*, Vermont Water Resources Board, 7/2/00.

*Vermont Wetland Rules*, Vermont Water Resources Board, 1/1/02

## **Further Information on Management Activities**

For management purposes, the management unit is divided into smaller units called blocks, usually determined by natural features. GMU consists of six blocks and two wildlife management areas. Management responsibilities are divided between District V in St. Johnsbury and District IV in Barre. The Butterfield Block and LR Jones are managed by District IV, the other four blocks and the St. Hilaire and Levi Pond WMAs are managed by the St. Johnsbury. Each block will be re-inventoried on a 10- to 20-year schedule.

The long-range management plan sets goals, objectives and guidelines for specific management activities outlines in a general way how the GMU will be managed for the foreseeable future. Details about specific management activities and practices that will be implemented on the forest are available throughout the year at the St. Johnsbury and Barre District offices. Specific management activities to be undertaken in a particular year are outlined in the annual stewardship plan prepared by each of the St Johnsbury and Barre District Stewardship Teams. These are available in June of each year for public review. They cover activities in the fiscal year beginning in July and continuing through the following June.

The cutting schedule for timber harvests for the next five (5) years will be available at the district offices. A detailed sale prescription will be prepared for each project at the time it appears in the Annual Stewardship Plan. Recognized US Forest Service silvicultural guides will be used when developing stand prescriptions for timber harvests. This timber sale schedule covers all treatments in the General and Special Management Areas. Management of wetlands, vernal pools, riparian areas, den and snag trees, bear corridors, and mast stands are implemented in each sale based on Agency of Natural Resource guidelines. This timber sale schedule is subject to change, depending on the results of more current inventories, improved silvicultural or habitat guidelines, insect and disease outbreaks, floods, wind and ice storms, exceptionally wet or snowy years, access problems, district workloads, markets, and the identification of new sensitive sites. The district stewardship team will adjust the cutting schedule as needed. Forest management is a long-term proposition so shifting harvesting operations a couple years one way or the other has little effect on the final outcome.

Other management activities are of an ongoing nature, such as maintenance projects. The implementation of such projects often depends upon the availability of funding, which varies from year to year.

Future management activities may also include upgrades to existing facilities, new facilities, additions to the forest, and new demands for uses, which are unknown at this time. As these arise, they will undergo resource analysis and public review, and the plan will be amended as necessary. They will then be placed in the appropriate land use classification category and managed accordingly.

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# Groton Plan Response to Public Comments

## Major Issues:

**Snowmobile Access.** Most of the public comment on the GMU plan concerned Snowmobiles and Snowmobile access to and through the Groton Management Unit. The comments fell into two main groups:

- a. Concern that the GMU would be closed to snowmobile access or corridor routes in the future and more specifically that VAST trail #302, which provides an east-west connection between the greater Barre area and the GMU, would be closed leaving no alternate route.
- b. Closely related to that issue were comments on a possible snowmobile trail from the Gore Road in Plainfield through the Seyon Watershed Basin Special Management Area to Seyon Pond.

**Issue: Concern that the GMU would be closed to snowmobile access or corridor routes in the future and that VAST trail #302, which provides an east-west connection between the greater Barre area and the GMU, would be closed leaving no alternate route.**

**Response:** The district stewardship teams have no intention of closing snowmobile access or denying corridor routes through the GMU and will work with the existing Cooperative Agreement between FPR and VAST to provide such access. The district stewardship teams believe they have been responsive to VAST's needs both in this plan and in the past. The plan amendment process as stated on Page 12 specifically guarantees that the plan can be amended to accommodate changing needs for snowmobile trails through the GMU. (Section 4-permanent closure of existing trails and/or creation of new recreation corridors not identified in current plan)

The district teams will evaluate each situation and work with VAST to locate appropriate trails in a manner that meets the management goals of this plan and the framework set forth in the Cooperative Agreement.

The district teams have identified this issue as largely being driven by the problems encountered by VAST with the shutdown of its trail system on private lands adjacent to or in some cases miles away from the GMU. Many of the letters referred to a potential shutdown of the east-west connection between the greater Barre area and the GMU, on VAST Trail#302 on the Sholem property, a large private piece adjacent to the forest on the southwest side. This possible shutdown is speculative because the Sholem tract is up for sale. No one knows whether or not the new owners would allow the existing trail to continue. One can anticipate similar scenarios in the future on private lands all around the GMU.

The changing nature of this trail system on private lands and the speculation about its future makes it difficult for the team in its planning on the GMU. It would not be productive or responsible management for the team to be relocating major snowmobile trails on a year to year basis, yet the team recognizes a need for flexibility. The district team has heard the concern about VAST trail#302 and the need to maintain an east-west connection between the greater Barre area and the GMU. The district team is committed to providing an alternative route if snowmobile access is prohibited on this trail. At this

point we are reserving the Beaver Brook Road as an alternative to VAST Route# 302 in the Knox Mountain area should this change be required. This route is indicated on the proposed winter recreation map.

**Issue: Comments on a snowmobile trail from the Gore Road in Plainfield through the Seyon Watershed Basin Special Management Area to Seyon Pond.**

**Response:** The district stewardship teams received numerous comments both pro and con on this issue. This issue is directly related to the concerns we answered about the need to maintain an east-west connection between the greater Barre area and the GMU. We have addressed those concerns with the commitment to the Beaver Brook road as the most appropriate alternative route to VAST trail #302. We received petitions on both sides of the issue, with strong support as well strong local opposition. It should be noted that contrary to many of the letters and email we received, there is no existing trail through this route. The district stewardship teams believe that this is not an appropriate route to construct a new snowmobile trail and have not included such a proposal in the plan.

**Issue: Comments on the Seyon Watershed Basin Special Management Area.**

**Response:** The district stewardship teams received numerous comments from individuals, organizations and several towns concerning the Seyon Watershed Basin Special Management Area. There was strong support as well as strong opposition. Some of the comments were very detailed and well thought out and we thank everyone for taking the time to comment on the draft plan.

Among the detailed comments, we heard from several forest researchers who made the argument that watershed and ordinary forested areas like this are vital to long term forest research, that there is a valid need for them because we have so little acreage like this in the Northeast and that they would be invaluable for scientific learning. Other in depth comments pointed out that designating this area would provide an appropriate balance of uses, considering that most of the rest of the forest was open to commercial timber harvest and motorized recreation under the draft plan.

Several people detailed their concerns about removing forest land from timber production and were opposed to the SWBSMA on that basis. We also heard a concern that we didn't have a detailed plan for research and monitoring in the SWBSMA. Others voiced a fear that research would be taken over by a particular institution or would be used by groups with an anti timber agenda. In addition there were several comments that the proposal was illegal or not appropriate under the Agency planning process or unfounded in science.

Recreation issues dominated most of the other comments received. A number of people favored the Seyon Watershed Basin Special Management Area for its quiet and remote recreation potential. Many of the other comments were made in relation to the snowmobile issue. Other comments revolved around the recent debate over federal wilderness legislation for the Green Mountain National Forest in southern Vermont. It was clear that some members of the public, both for and against the Seyon Watershed Basin Special Management Area, consider this to be part of a larger statewide wilderness debate.

The district stewardship team will manage the Seyon Basin in the same manner during the life of this plan as it has in previous long-range management plans. A major

portion of the Basin will be included in the General Management Area for the Groton Management Unit. A portion will also be included in the Highly Sensitive Area of the Groton Management Unit. This acreage encompasses high elevation and wetland acreages as well as natural areas. All vegetative management within the General Use acreage will be consistent with timber implementation strategies outlined in this long-range management plan.

**Issue: End date of plan.**

**Response:** The current planning process intentionally does not have an ending date because it is intended to be a dynamic plan that would be amended and updated in response to changing conditions and public uses. This concerned a number of respondents who wanted to see more of a firm commitment. The district teams will add language to specifically revisit the plan after 15 years.

**Issue: Timber Management**

**Response:** The district stewardship teams didn't receive a lot of comment one way or the other on timber management issues but we did receive two very detailed critiques. One urged us to reduce timber harvest opening sizes and intensity of harvest in specific forest types, and the other urged us to increase harvest volumes across the entire GMU because the writer felt that we weren't cutting our growth. We thank those who took the time to look at this issue in detail. In reviewing our draft, we feel that our proposed level of timber harvest is appropriate. We do not manage on a volume basis, nor are our stands managed exclusively for maximum timber production. The district teams feel that our proposed acreages and methods of timber harvest will meet the multiple goals we have for the Groton Management Unit. We also feel that our guidelines for the sizes of openings are appropriate, but will review the literature cited by the respondents to see if adjustments are needed. We would point out that our guidelines are flexible and don't mean that in every case we make openings to the maximum size stated.

**Issue: Boat Access to Lake Groton**

Boat access to Lake Groton has been a major issue for the last quarter century and there have been studies and surveys and legislative action. The district stewardship teams proposed a Car Top boat access in the draft plan. There was some public comment on this issue and a concern about milfoil.

The district stewardship teams have decided to build a Car top boat access at the Boulder Beach Day Use area on the east side of Lake Groton.

**Issue: Old Telephone Line Multiuse Trail from New Discovery to Boulder Beach Road.**

**Response:** The district stewardship teams received concerns from the Town of Groton concerning traffic and congestion on the Boulder Beach road that might result from our proposed multiuse trail from New Discovery to the Boulder Beach Road. As a result of discussions with the town, the district teams decided to relocate the trail so that it would no longer terminate on the Boulder Beach Road. Instead it will terminate on the Coldwater Brook Road. This will allow connections with future corridors identified in the

plan from the Coldwater Brook Road to Lanesboro and eventually back to New Discovery. The town also suggested that a future multiuse trail could be located along and parallel to the Boulder Beach Road to funnel users from Stillwater and the railroad bed to the Old Telephone Line multiuse system. The team proposes this as a future possibility at which time a short connection could be made to the Old Telephone Line trail system as well as to the railroad bed. A trailhead would be located at the Nature Center or on the Coldwater Brook road under this proposal.

**Issue: Additional parking for trails in the Beaver Brook area.**

**Response:** Also as a result of discussions with the town of Groton, the district teams received input that additional parking would be a good idea for trail access in the Beaver Brook area. The teams thought this was a good idea and propose to locate an additional parking area on an old log landing on the south side of the Beaver Brook Road near the junction with Rt. 232.

**Issue: Connector Trail from the back side of Burnt Mountain to the railroad bed.**

**Response:** The district teams received comments suggesting a connector trail in this area. Much of this route would utilize existing logging roads. The teams propose a summer use only trail in this area at the current time. In the future it could be evaluated for winter use.

**Issue: Gravel Pit Reclamation:**

**Response:** The district teams received a suggestion that the plan specifically address the reclamation of the gravel pit on the Coldwater Brook road. We agree and will include language in the final draft. The teams also discussed future gravel pit reclamation projects and agreed that a better policy might be to systemically reclaim them as gravel deposits are depleted.

**Issue: Coarse woody debris:**

**Response:** The district teams received a suggestion that the plan specifically address the issue of management of coarse woody debris. We agree and will address it.

**Issue: Buffer zone around Peregrine Falcon nesting site:**

**Response:** The district teams received a suggestion that the plan include a buffer zone around the peregrine falcon nesting site at Marshfield Ledge. We agree and will evaluate the size needed and include the language in the final draft.

**Issue: ATVs:**

**Response:** The district teams received several suggestions that the plan include a future ATV trail network. ATVs are currently prohibited on state lands. The team cannot plan for a use that may or may not take place in the future.