

State of Vermont
Agency of Natural Resources
Department of Forests, Parks and Recreation
Department of Fish and Wildlife

Coolidge West Management Unit
Long Range Management Plan

Including lands of:
Coolidge State Forest (west of Route 100)
Plymbsbury Wildlife Management Area
Tiny Pond Wildlife Management Area



Prepared by: Rutland North Stewardship Team
July 2008



Approved: _____
Jonathan Wood, Commissioner, FPR

Date

Approved: _____
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Date

Approved: _____
George Crombie, ANR Secretary

Date

July 2008

Dear Friends of Coolidge West Management Unit,

Periodically Vermont Agency of Natural Resources (ANR) staff members, interested stakeholders, and the public review changes in ownership size, ownership goals and objectives, resource base, public sentiment, and greater scientific understanding relative to ANR holdings. This process is referred to as long-range management planning (LRMP) and results in the update of management practices for these public lands.

The process of updating management of Coolidge State Forest, Plymbsbury Wildlife Management Area and Tiny Pond Wildlife Management Area – collectively known as the Coolidge West Management Unit (CWMU) – began in 2000. We'd like to take this opportunity to thank those of you who came to public meetings, offered opinions, and made comments during this period. The plan is better as a result of your input.

In addition, through this letter, we hope to provide an overview of how the plan was developed. It was a complex and lengthy process, and this letter will give you some insight regarding all the steps and activities involved. It is the result of a thoughtful, deliberate process that involved the blending of resource data, legal considerations, department and agency missions, ownership objectives, and input and participation from the public and friends of CWMU.

This update of management for the CWMU lands was prompted by many factors, including the following:

- *Acquisition of nearly 6500 acres to Coolidge State Forest and 739 acres to Tiny Pond WMA with complicated easements.*
- *Adoption of a broader, landscape context review of ANR lands to ensure that a variety of uses are made available on a regional basis.*
- *Increased ability to provide significant wildlife corridors in this area of the state.*
- *Increased desire for use of these lands for activities such as cross-country skiing.*
- *Increasing conflicts between users and/or uses such as a) between motorized and non-motorized users in winter; and b) timber harvest truck traffic impacts on neighbors.*
- *Improvements in scientific understanding of natural resources and impacts on them by various uses.*

The planning process began with data collection. A number of resource inventories and assessments were conducted including analysis of natural communities, wildlife and wildlife habitat, legal constraints and easement considerations, and road infrastructure as well as historic, recreation, and timber resources. Next the district stewardship team gathered initial public involvement and synthesized this information resulting in the formulation of management strategies and actions for CWMU.

Layout of the plan belies that process and begins with an overview of the resource followed by the Land Classification and outline of management strategies and actions. The detailed resource analysis can be found in the appendix.

Elements of the plan discussed below include inventories, assessments, assignment of categories (classification), and management strategies. We have chosen certain resources as the focus of this letter, as they were the source of most of the concern throughout the planning process.

Plan Highlights

Public Involvement

A number of public meetings were held by the Rutland Stewardship Team during the course of the planning effort. Every effort was made to incorporate suggestions and comments into the plan to resolve user conflicts and create opportunities that were compatible with ANR and Department missions, ANR management principles and stewardship goals for the property.

Inventories and Assessments

The inventory and assessment phase is a critical first step in long-range management plan development. Several inventory and assessment techniques were used during this planning effort with highlights of new assessment tools listed below. Concepts used in this planning effort are in line with protocols approved by the ANR. These concepts are described in greater detail within the plan.

Natural Communities

Natural communities are widely recognized as an effective tool for inventorying and mapping biological resources as an aid to land managers seeking to understand and conserve most or all of the species that naturally occur on a given parcel of land. Conducting inventories of natural communities is, therefore, an important tool for use by agencies that manage public resources.

Recreational Opportunity Spectrum

The Recreational Opportunity Spectrum (ROS), developed by the US Forest Service and modified for use on eastern forest lands, was used to better understand the range and quality of recreational experiences available on CWMU lands and elsewhere in the region. It helped to outline areas of different recreational experience expectations based in part on terrain, existing uses, current infrastructure, and relation to public roads and developed areas. Use of the system will result in better informed management decisions.

Other resource assessments conducted for this planning effort included:

- *Historic Resources – detailed analysis of historic resources on CWMU.*
- *Legal Constraints – review of deeds, funding conditions, long-term leases and licenses, and conservation easements that affect the management of these lands.*
- *Timber – a detailed forest inventory conducted between 1999 and 2003 serves as the basis for this assessment. Provides detailed information on the timber resource in preparation for development of timber sale prescriptions.*
- *Forest Roads – roads were inventoried and mapped using GIS/GPS technology.*
- *Natural Area – a brief assessment of the three legally designated Natural Areas on Coolidge State Forest.*
- *Water Resources – a brief analysis of the water resources on these parcels.*
- *Wildlife – detailed review of wildlife and wildlife habitats found on these lands.*
- *Trails – inventoried and marked as a part of the Recreation Opportunity Spectrum Analysis.*

Land Management Classification and Management Strategies

After inventories and assessments are completed, the lands, resources, and facilities held by the Agency of Natural Resources are evaluated and assigned to appropriate Agency Land Management Classification categories based upon knowledge and understanding of resources and appropriate levels of management. The four categories are Highly Sensitive Management (23% of CWMU lands); Special Management (31%); General Management (37%); and Intensive Management (9%). This serves as a zoning of land with activities ranging from passive and non-motorized in the Highly Sensitive to intensive, developed recreation in the Intensive Management Area. Management strategies are included for all the resources found in each of the management categories. In addition, management strategies for each resource category are presented. The following sections of this letter present highlights of management for the CWMU.

Recreation Management Strategies

Opportunities for a variety of recreational experiences will continue to be provided on these lands including many miles of hiking, snowmobile, and cross-country ski trails. In addition, mountain biking and downhill skiing activities will continue within the Killington Ski Resort leasehold area. Hunting, fishing, primitive camping and snowshoeing opportunities are also available on this large block of public land.

However, despite its nearly 20,000 acres, CWMU is not able to provide for the diversity, quality and character of recreational opportunities requested of it. The use of the Recreational Opportunity Spectrum helped to outline areas of different recreational experience expectations based in part on terrain, existing uses, current infrastructure, and relation to public roads and developed areas. Opportunities were also limited by legal restrictions and conservation easements on a number of parcels.

Motorized and non-motorized recreational uses have not always been compatible on CWMU. That situation, with respect to winter uses, came to light during the public input process. The noise of snowmobiles makes their impact more widespread than can otherwise be addressed by merely separating trails. However, a combination of resource inventory and public consensus offer a possible solution and compromise. Careful consideration of this conflict in the context of the Land Management Classification resulted in the designation of the former Bessenyey lands as a non-motorized recreation area. While all visitors will share a parking area and initial trail access, this designation, will permit cross-country skiers and snowshoers an experience that is “quieter” and without shared motorized use.

Parking availability was another concern discussed during the planning process. After hosting a public meeting and receiving input on the topic it was determined that although filled to capacity at times during busy winter weekends, parking opportunities are currently adequate to meet needs and expansion is not necessary nor supported by the public.

Ecological Resources Management Strategies

Of the 80 natural community types described for Vermont, 21 were identified and mapped on the CWMU. Quality ranking of these community types determined that several are of state-wide significance including the occurrences of Northern Hardwood Forest, Montane Spruce-Fir Forest, and Lowland Spruce-Fir Forest. Management decisions and activities will strive to maintain or enhance that ranking. They also provide guidance on how to manage other interests.

Natural Areas

There are three designated Natural Areas within CWMU including two at high elevations (Mendon Peak and Shrewsbury Peak) and a third in the Tinker Brook gorge. This accounts for 539 acres or 12% of the total lands classified as Highly Sensitive Management within the entire management unit.

While not connected by lands legally designated as Natural Areas, Mendon Peak and Shrewsbury Peak Natural Areas are “connected” through lands designated as Highly Sensitive Management under the Agency’s Land Management Classification. This area of Coolidge State Forest is at high elevation with steep slopes and fragile soils.

The Tinker Brook Natural Area is located within the Tinker Brook gorge near the eastern boundary of Coolidge State Forest. At its current size of 65 acres, the Natural Area does not adequately protect the gorge or the suspected old growth community within. As part of this plan it is suggested that steps be taken to recommend increasing the size of this Natural Area by approximately 10 acres to include the entire Hemlock-Red Spruce natural community occurrence and include the steep banks of the gorge.

Wildlife Habitat Management Strategies

The lands of CWMU provide a variety of habitat conditions capable of supporting a diversity of wildlife species. The mature forest natural communities; forestland of various age classes and structures; shrubland; wetlands; and permanent openings are important components of this habitat diversity. Maintenance and enhancement of these conditions will provide for the full array of wildlife currently found on CWMU lands. With the management outlined within this plan the CWMU lands will continue to provide high quality year-round habitat and contribute to a large-scale movement corridor along the Green Mountain range. The juxtaposition of the CWMU lands with other public lands in the region, particularly the Green Mountain National Forest helps to maintain the integrity of this corridor to provide for the free movement, genetic exchange, and food availability for wide ranging species particularly black bear.

Inventory data shows that approximately 2% of the CWMU lands provide early successional habitat. Reference conditions have been interpreted from presettlement estimates and serve as guidance in estimating early successional habitat goals on CWMU. These data suggest that approximately 4% of the landscape was in early successional habitat of the ages 0-15 years. Management activities (including use of patch cuts and clearcuts) will be needed to increase the production of early successional habitat within the next 10 years to compensate for the expected decline in this habitat type and its associated species. The goal for this plan is to increase the early successional habitat component to 3%. This will be accomplished through an active timber sale program on approximately 12,000 acres (62%) of CWMU which were found suitable for vegetative management which were defined as Special Management and General Management areas.

Timber Resources Management Strategies

In addition to achieving wildlife habitat strategies within the Special Management and General Management areas found suitable for vegetative management, timber resources management strategies will promote a sustainable supply of forest products. The lands within both the Special Management and General Management Areas will be variously managed depending upon many factors including; natural community type; location; site conditions; stand health; aesthetic considerations; and specific management goals. Details can be found in the Timber Assessment (appendix) and the Management and Strategies sections of the plan.

Nearly 40% of the manageable timber land is within the Special Management Area. Lands under this designation include those at higher elevations with steeper slopes and critical habitats requiring specific management strategies. Timber management within this area will emphasize longer rotations and longer periods between entries, lighter harvests, management focused on the uneven-age silvicultural techniques of single tree and small group selection, and greater emphasis on development and maintenance of ecological elements including attention to vertical structure, coarse woody debris, den and snag trees, and legacy trees.

The remaining 60% of manageable timberland includes highly productive lands and will be managed using both even-age and uneven-age silvicultural techniques. Rotation lengths will vary from 80-120 years dependent upon cover type. The timber management program will include measures to maintain and protect water quality, critical wildlife habitat elements, natural community quality, and trail side aesthetics.

The vegetation management schedule outlined within this plan strives, to the extent possible, to find common ground. The recreation resource assessment combined with public input helped to identify conflicts between timber and recreation management. Some areas of concern related to vegetation management/recreational uses are noise; the impact of plowed roads on recreational activities; changes

to aesthetics; truck traffic; unauthorized ATV and vehicle use; and philosophical differences in ownership ideas for public lands. Some solutions offered in the plan include the following:

- *When site conditions permit, logging will occur during dry conditions to help alleviate some of the conflicts for resources (trails, roads) between winter recreational uses and plowed logging access.*
- *Logging has been scheduled in specific areas (timbersheds) around the management unit, to the extent possible, so that an area is not used continuously, and all trails and roads impacted at the same time.*
- *Designated hiking trails will be buffered from logging activity to protect aesthetics and quality of experience but not all impact can or will be hidden.*
- *Vegetative management will feature state-of-the-art techniques and demonstrate innovative, scientifically and ecologically sound management practices that could be applied to other land.*
- *Efforts will be made to notify and educate forest users and the general public about public land management, specifically vegetation management, and the ecological, social and economic contributions of a local working forest.*

Monitoring

As long-term management for Coolidge West Management Unit continues, inventory, monitoring, assessment and research are necessary to: evaluate the status of the resource; assess progress toward achieving stated goals; and in determining effectiveness of management actions and activities.

Obtaining quality information is critical to making informed decisions and conducting sound, thoughtful management actions. Inventory and research projects on CWMU are directed by the District Stewardship Team to ensure that they do not conflict with the goals and objectives for the CWMU as set forth in the long-range management plan. It is important that individual projects be assessed for their effects on the resource, potential conflicts with other uses or users, and consist of quality proposals from credible institutions and individuals.

The plan begins with an overview and description of the parcels within the CWMU followed by the management section which serves as a blueprint for management of these lands for the next decade or two. The assessments (found in the appendix) represent the inventory and information gathering effort at the start of the planning process. As we gathered information and data for the assessments many issues and concerns came to light. These are listed within each assessment section followed by letter and number designations. These serve as links to the management section where management actions address individual issues. The letter designation of the link corresponds to the letter of the assessment (i.e. A = Natural Community assessment). The numbers are simply a numerical listing of issues in each assessment. An outline of assessments and corresponding letters has been placed on each page of the management section.

We hope this letter assists you in better understanding the document. We have tried to create a plan that respects the resources of these parcels and meets people's needs and expectations where possible. We hope you agree that we have a credible result with this complex task as described in this letter. We also hope that you can support this plan and we look forward to receiving your comments with regard to further clarifications and improvements. Thank you in advance for your continuing interest in the Coolidge West Management Unit.

Sincerely,

The Rutland North District Stewardship Team

Rutland North Stewardship Team

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Long-Range Management Plan Format Description

A Reader's Guide to the Coolidge West Management Unit's Long Range Management Plan

Section I of this plan, the “*Introduction*”, provides an overview of the missions of the Agency of Natural Resources and its member departments: Forests, Parks and Recreation, Fish and Wildlife, and Environmental Conservation as well as purposes of land ownership.

Section II, “*Parcel Description*”, orients the reader by providing background and location information as well as providing introductory information on Coolidge West Management Unit. Included are brief histories of acquisition and land uses and an overview of the resource highlights. This section also contains a local and regional context by providing a description of the relationship CWMU has to other planning efforts.

Section III, the “*Public Involvement*”, section provides a brief summary of public involvement activities and processes that were used in the development of this plan.

Section IV, the actual “*Management Plan*”, begins with an introduction of the triad approach that was used in the early CWMU planning process as well as the Land Management Classification developed for use on ANR lands. Allocation of CWMU lands into this classification organizes the land base into areas where different levels of use or types of management will be emphasized. What follows are detailed descriptions of the appropriate uses allowed, their locations on the parcel as shown on maps, and management tasks to be completed during the duration of the planning period. This section contains references or links to the issues and concerns raised in the individual resource assessments (appendix).

The section is arranged in two ways. First, management information is presented by Land Management category with management strategies and actions listed by land area. In the second presentation this information is outlined by resource category with management strategies listed by disciplines (i.e. timber, recreation, etc.).

An implementation schedule is also included within this section addressing management actions for this planning period.

Section V, the “*Monitoring and Evaluation*” section provides information on tracking and evaluating affects and effectiveness of management activities.

Section VI, address land acquisition and disposition.

Section VII, *the Appendix*, contains many items and supporting background information contained within the appendix of this document. The most detailed is the “*Resource Analysis*”, which offers an in depth exploration of the many elements considered in the planning effort for CWMU. The appendix also contains a glossary, department authorizations for managing lands, pertinent ANR policies, copies of legal documents, more details regarding public involvement, responses to public comments, and management strategies being followed in the development of these plans.



I. INTRODUCTION

Mission Statements that have Guided the Development of this Plan

Vermont Agency of Natural Resources

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

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.

Departments

Vermont Department of Environmental Conservation Mission Statement

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

The mission of the Vermont Fish and Wildlife Department 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

The mission of the Department of Forests, Parks, and Recreation 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 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 law and federal regulations, sites of archaeological or historical significance are equal in status to any other 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.

August, 2001

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.

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 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.

February, 2004

II. PARCEL DESCRIPTION

A. Location Information

The 19,399-acre Coolidge West Management Unit (CWMU) includes Coolidge State Forest west of Route 100 (16,801 acres), Plymbsbury Wildlife Management Area (1,859 acres), and Tiny Pond Wildlife Management Area (739 acres). Two departments in the Vermont Agency of Natural Resources oversee these lands. The Department of Fish and Wildlife has primary responsibility for the two Wildlife Management Areas (WMA), and the Department of Forests, Parks and Recreation has primary management responsibility for Coolidge State Forest.

Coolidge West Management Unit is located south of US Route 4, west of Route 100 and north of Route 103. Public access to CWMU is principally along the CCC Road and Town Highway #20 in North Shrewsbury, with secondary town roads in Shrewsbury, Plymouth, and Mendon also affording some access. Tiny Pond WMA is a separate parcel and has frontage on Route 100 in Ludlow.

These ownerships are located in the towns of Killington, Mendon, Ludlow, Mount Holly, Plymouth, and Shrewsbury in Rutland and Windsor counties. The management unit occupies the east and west slopes, as well as some of the summits of the main Green Mountain range from just north of Okemo Mountain to just south of Pico Peak. The state ownership combined with the federally-owned Appalachian Trail corridor, Rutland City Forest, and lands enrolled in the Forest Legacy Program constitute the largest block of conserved lands between the north and south segments of the Green Mountain National Forest.

B. History and Purpose of Acquisition

Lands currently administered as Coolidge West Management Unit were acquired starting in 1933.

Coolidge State Forest

Block	Acres	Year Acquired	Acquired From	Town
Bissell	1425	1933	Elmer Bissell	Shrewsbury
Ingalls	1067	1933,1953	Ingalls Estate	Shrewsbury
Saltash	870	1933, 1974	Dow & Donahue, Sailer Brothers	Shrewsbury
Plymbsbury	1256	1973	Real Estate Investors	Shrewsbury
PCB	2565			
Pierce	235	1994	Glendon Pierce	Shrewsbury
Poczobut	32	1995	William Poczobut	Shrewsbury
Val Preda	110	1995	Peter Val Preda	Shrewsbury
Colgan	951	1994	Colgan Estate	Shrewsbury (845) Mendon (106)
Balch	553	1995	Harmond Balch Estate	Shrewsbury
Bessenyey	605	2003	Francis Bessenyey	Shrewsbury
Bove	79	1995	Ralph Bove	Shrewsbury
Ninevah	314	1953	L&L Pearsons	Plymouth
Carris-Bigelow	3216	1973	Carris and Bigelow	Mendon
Parker's Gore	3324	1998	Killington Ltd., Conservation Fund	Mendon (3084) Plymouth (240)
Sherburne	2764	1947, 1996	M. Proctor, VT. Marble Carris - Bigelow	Killington
<i>Total</i>	16,801			

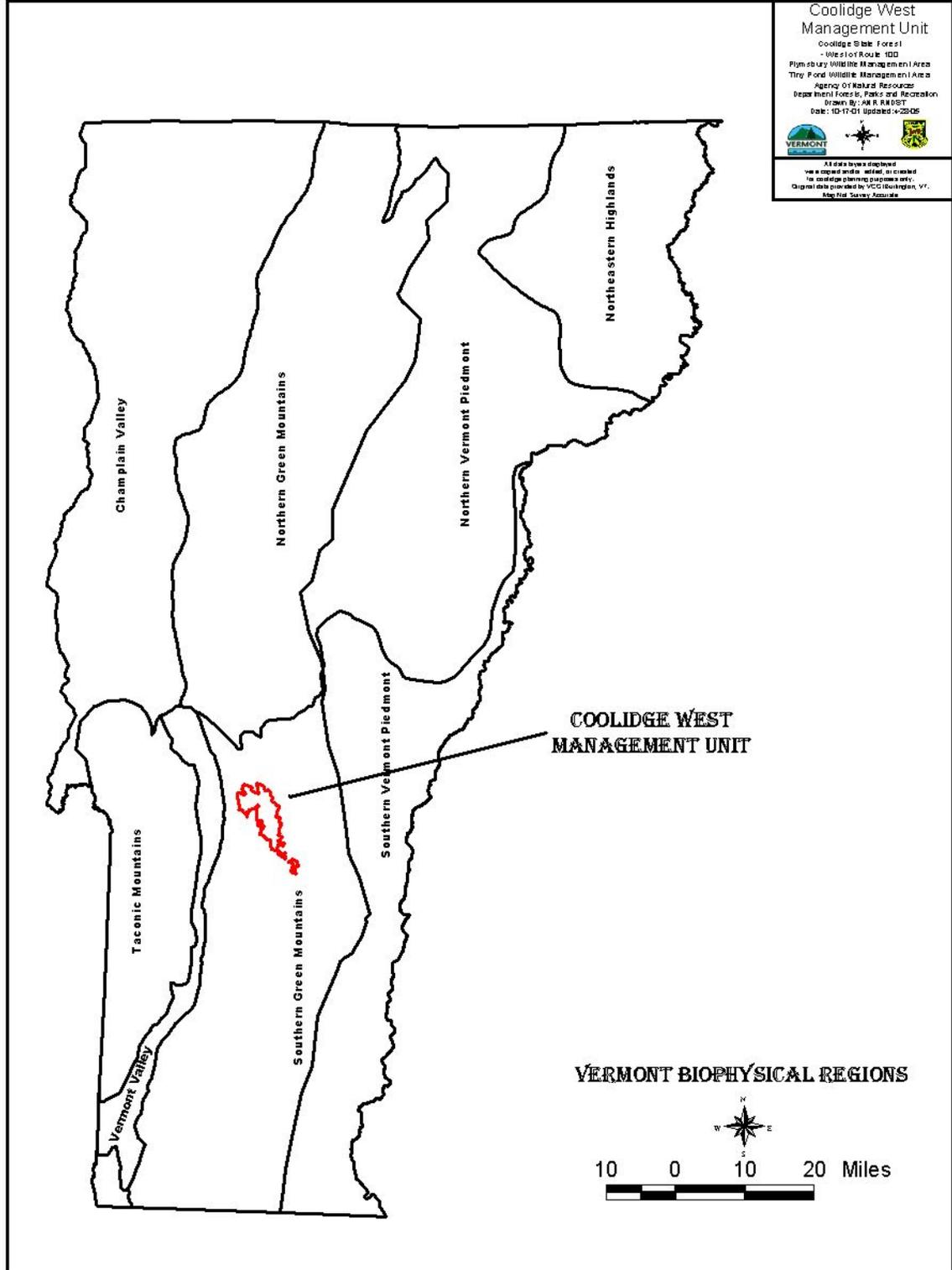


Wildlife Management Areas

Block	Acres	Year Acquired		Town
Plymsbury	1859			
Fisher Lot	65	1965	Ken Fisher	Shrewsbury
Plymsbury	1794	1973	Real Estate Investors	Shrewsbury (1506) Plymouth (288)
Tiny Pond	739	1996, 2002		Plymouth (174) Mt. Holly (48) Ludlow (517)
	497	1996	George Spiegel	Mt. Holly (48) Plymouth (174) Ludlow (275)
North				
South	242	2002	Yankee LLC	Ludlow (242)
Total	2598			

Tiny Pond and Plymsbury Wildlife Management Areas were purchased with Federal Aid in Wildlife Restoration Act (Pittman-Robertson Act) funding. These funds are generated from a tax on hunting and fishing equipment and are used to sustain wildlife populations through monitoring, management, and land acquisition. These parcels were acquired for the restoration, conservation, and enhancement of wild birds and wild mammals and the provision for public use of and benefits from these resources. The Land and Water Conservation Fund (LWCF) provided additional funding used in the acquisition of CWMU lands. LWCF funds are used primarily to protect recreational opportunities, provide for clean water, wildlife habitat, scenic vistas, and to protect historic sites.

Since 1988, the acquisitions in CWMU have focused on the public's desire to secure a permanent wildlife corridor through purchase of public land and easements between the north and south halves of the Green Mountain National Forest. Such a corridor would provide permanent forested habitat for the movement of free-ranging species such as black bear, moose, and bobcat along the spine of the Green Mountains and serve to keep the two large blocks of Forest Service land connected rather than as separate and isolated fragments.



Coolidge West Management Unit
 Coolidge State Forest
 - West of Route 100
 Planetary Wildlife Management Area
 Troy Pond Wildlife Management Area
 Agency of Natural Resources
 Vermont Forests, Parks and Recreation
 Drawn By: JAM R. M. BOST
 Date: 10-17-03 Updated: 9-25-06

VERMONT

All data have displayed
 via a copy and a detail, as needed
 for mapping planning purposes only.
 Original data provided by VCC (Burlington, VT,
 Regional Survey Associates

C. Land Use History

The majority of CWMU has a history of continuous forest cover and management for timber products. Forest industry owners prior to acquisition by the State of Vermont included International Paper Co., Carris and Bigelow (Rutland Plywood and Carris Reels), F.H. Chaffee and Sons, Congdon Lumber Co., Vermont Marble Co., Elmer Bissell, and W.H. Burditt. Non-industrial private owners prior to state acquisition also maintained active forest management programs. These included Francis Besseney, Sailer Brothers, George Spiegel, Hugh Spaulding, Harmond Balch, Francis Colgan, William Poczobut, Ralph Bove, and Glendon Pierce.

The only areas where 19th century agriculture and settlement occurred are along the Old Plymouth and Tin Shanty Roads in Shrewsbury and the Ninevah Road in Plymouth. State lands in Shrewsbury include several old farms, several mill sites, and a schoolhouse site. Much of the detailed history of the Shrewsbury lands is well documented. Settlement of the lands along the Old Plymouth Road lasted until World War II. A major change in the use of this area occurred in 1950 when the bridge washed out and was never replaced. Isolated settlement sites are also found on Tiny Pond WMA and the northeast portion of Coolidge State Forest in the town of Mendon.

Areas of CWMU are considered sensitive for pre-contact activity based primarily on proximity to water features. The high peaks may also hold significance based upon their role in sacred traditions. Southern portions of CWMU are thought to be within or adjacent to a Natural Travel Corridor thought to be used by native Americans for many thousands of years (*University of Maine at Farmington*).

D. Resource Highlights

Coolidge West Management Unit lands are most noted for their mountains and forestland. Less than 4% of the land area is in permanent openings such as fields, ski trails, or log landings. The lowest elevation in the contiguous parcel is 1,900 feet, and even Tiny Pond WMA at 1,100 to 1,900 feet is mountainous in character. Killington Peak is Vermont's second highest at 4,235 feet. Other high peaks are Little Killington (3,939 ft.), Shrewsbury (3,720 ft.), Saltash (3,278 ft.), Mendon (3,840 ft.), and Smith (3,220 ft.). Lesser summits include Burnt Hill (2,830 ft.), Robinson Hill (2,747 ft.), Bissell Hill (2,790 ft.), Ingalls Hill (2,654 ft.), and Jockey Hill (2,650 ft.).

Lands of CWMU contain headwaters for several major streams including Sargent Brook, Eddy Brook, Brewer's Brook, and Gould Brook, which are part of the Champlain Basin; and Tinker Brook, Great Roaring Brook, and Madden Brook, which are part of the Connecticut River Basin.

Of the 80 natural community types in Vermont, 21 (including variants) are found on CWMU. There are six wetland communities, five high elevation communities, and six natural community types more commonly found at mid to low elevations. Natural community types dominating the CWMU landscape include Northern Hardwood Forest, Montane Spruce-Fir Forest, Montane Yellow Birch-Red Spruce Forest, and Lowland Spruce-Fir Forest.

There are three designated Vermont State Natural Areas (NA) on CWMU, all located on lands within Coolidge State Forest. Tinker Brook NA is 45 acres of undisturbed Red Spruce-Northern Hardwood Forest on the steep, rocky slopes of Tinker Brook. Much of this is thought to be old growth. Mendon Peak NA is the 368 acres above 3,200 feet in elevation, and Shrewsbury Peak NA is the 100 acres above 3,100 feet. Some of the most sensitive habitats are the Subalpine Krummholz on Killington and Mendon Peaks and the Montane Spruce-Fir Forests on Killington,



Mendon, Little Killington and Shrewsbury Peaks and Saltash and Bear Mountains because they provide breeding habitat for Bicknell's thrush, a rare songbird in Vermont. Other special habitats include mast-producing areas, which support a stable black bear population, and the combination of high-elevation lands, remote forests, wetlands, and actively managed forests, which help support a growing moose population. Beavers cyclically influence most of the wetlands which make up a minor portion of the CWMU.

E. Relationship to the Regional Context and Other Planning Efforts

Regional Plans

The Long-Range Management Plan for the Coolidge West Management Unit is consistent with the objectives and policies found in the Two-Rivers-Ottawaquechee Regional Plan adopted on July 30, 2003, the Rutland Regional Plan adopted on May 16, 2006, and the Southern Windsor County plan adopted on October 2, 2003, which is currently in the process of being updated. Policies of the Rutland plan that are exemplified by CWMU include the following: encouragement of appropriate use and sustainable management of the region's forest resources; encouragement of low impact or other appropriate levels of use within natural features; retention of areas providing outdoor and other wilderness recreation experiences; and protection of existing cultural resources. Policies of the Two Rivers-Ottawaquechee plan that are exemplified by CWMU include the following: use of forestry practices that maintain or enhance the diversity of ecosystems in the region; protection of water quality and wildlife habitat via use of streambank and shoreline buffer strips for forestry activities; management of large contiguous tracts of forest to maintain diversity of ages classes and wildlife habitat; and recognition of the region's ridgelines and hilltops as important recreational resources. All regional plans emphasize the importance of the forest resource for forest products; wildlife habitat; recreational opportunities; contribution to water quality; and contribution to the local economy at a regional level as well as to the individual member towns. The policies of the Southern Windsor County Regional Plan call for supporting multiple use of public land and maintenance of continuous and remote forestland for the stability of wildlife.

Town Plans

The Coolidge West Management Unit is located in parts of the towns of Shrewsbury, Killington, Mendon, Plymouth, Ludlow, and Mt. Holly. Some of the objectives of the plans for each of those towns, are addressed either wholly or partially, by the CWMU plan.

Objectives of the Shrewsbury Town Plan, adopted August 12, 1998, include providing for “..the conservation of natural resources, the protection of fragile areas, wild lands...”. The plan states that “public lands...be protected and/or managed according to the highest standards of stewardship.” The plan specifically states that “In cooperation with the Department of Forests, Parks and Recreation, the town shall seek to designate contiguous portions of the public woodlands as a forest preserve in order to maintain a viable expanse of public and private lands in natural, unmanaged forest conditions”.

Objectives of the Plymouth Town Plan, adopted on July 24, 2000 include protection of the town's environmentally sensitive areas such as the lakes, rivers, streams, ponds, marshes, floodplains, slopes, and forests and to preserve open space. The State of Vermont currently owns more than one-third of the land in the Town of Plymouth.

The Town of Killington adopted its Town Plan on October 18, 1999. This plan's objectives include the desire to “provide access to non-commercial recreational use,” the continued use of



land for timber and forestry purposes,” and utilization of “spruce-fir forests... in a manner which would not significantly reduce their ecological function...”.

The Town of Mendon adopted its Town Plan on December 23, 1999. The plan encourages “year-round use of the natural environment and a greater diversity of seasonal and year-round rural agricultural, recreational, and commercial economic activity.”

The Municipal Development Plan for the Town and Village of Ludlow was adopted on September 20, 2004. The goal which CWMU meets very well is one of the forest resources goals, which is to "encourage compatible uses of forestlands for recreation, tourism, and economic benefit where such uses will not impair forest quality or wildlife and/or forest habitats."

The Mount Holly Town Plan, adopted on August 26, 2004, includes a surface water resources policy of protecting "lakes, ponds, rivers, and streams, to the greatest extent possible, by maintaining or establishing naturally vegetated buffer strips on their banks." The plan also encourages wildlife, recreational and other productive uses of forest lands in the town.

Other Lands in the Region

Rutland City Forest

At more than 4000 acres in size, the Rutland City Forest is located in the town of Mendon, just north of CWMU. The Rutland City Forest Watershed Plan refers to the importance of protecting bear habitat and maintaining and improving water quality. CWMU has similar purposes and when combined with the watershed land provides landscape level protection of forested land in this part of the town of Mendon.

Coolidge East State Forest

Coolidge West Management Unit, approaching 20,000 acres, is located to the west of Route 100, while Coolidge East State Forest, more than 5,000 acres, is located to the east of Route 100. These areas are held by the Vermont Agency of Natural Resources and are administered by two different district offices--the eastern lands by the Springfield District Office and the western by the Rutland North District Office. However, both these areas are managed for multiple uses, have similar goals, and use similar management methods. The Coolidge East LRMP was approved in March 1995 and is valid until 2115.

Green Mountain National Forest

The Coolidge West Management Unit is located between the northern (Rochester-Middlebury Ranger District) and the southern (Manchester Ranger District) sections of the 400,000-acre Green Mountain National Forest (GMNF). In April 2005, the Forest Service released the Proposed Land and Resource Management Plan for the GMNF. The purposes of the Coolidge West lands are similar as well as complementary to those proposed for the GMNF. With this revision of the 1987 plan, the overall goal for the GMNF to "provide for a wide range of uses and activities in an ecologically, socially, and economically sustainable way" is expected to continue. The overall recreation goal in the 2006 final management plan for the GMNF is to "provide a diverse range of high-quality, sustainable recreation opportunities that complement those provided off National Forest System lands."

Mount Holly Wildlife Corridor, Forest Legacy Easements

The Coolidge West Management Unit makes up a significant part of a corridor of forested land that lies between the northern and southern units of the 400,000 acre Green Mountain National



Forest. Since 1988 there has been a major effort on the part of many private and public organizations to acquire additional privately owned land in fee or through easements to conserve the habitat for black bear and other wide-ranging wildlife species within this region.

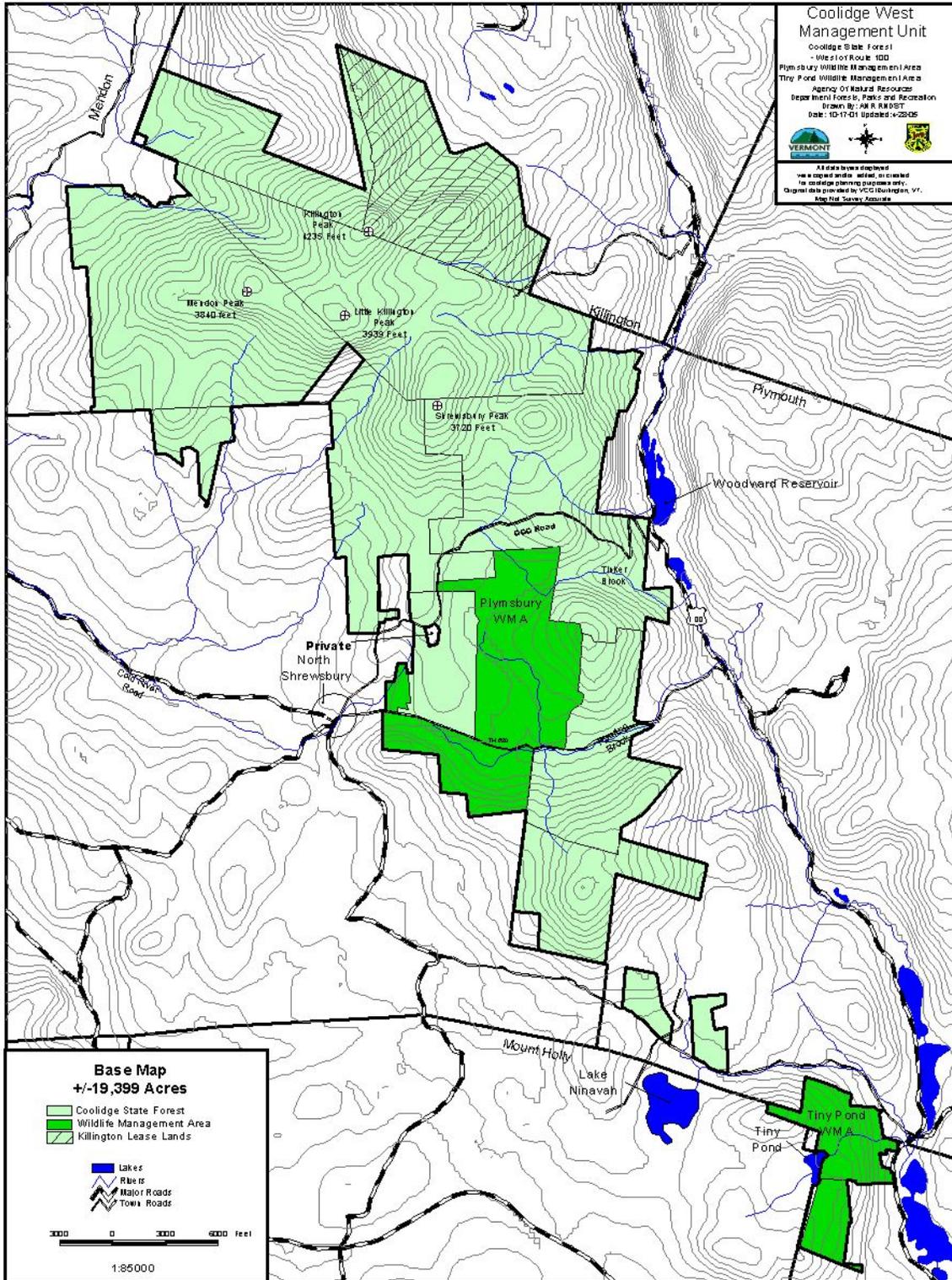
The USDA Forest Service Forest Legacy Program has aided this effort by providing the State of Vermont with funding necessary to permanently conserve additional parcels of land through acquisition of easements. Forest Legacy funds have been used to acquire conservation easements on 10 properties owned by the Ninevah Foundation totaling 3,462 acres (around Lake Ninevah) and 410 acres owned by PK Brown. These properties have been historically managed for sustainable harvest of timber and dispersed recreation. Management of the properties for sustainable timber harvest will continue under the direction of a Forest Stewardship Plan approved by the Vermont Department of Forests, Parks and Recreation.

In addition to sustainable timber harvesting and protecting habitat for wildlife, limited dispersed recreation will occur on these properties, with restrictions in place to keep from damaging critical habitat areas.

Appalachian Trail/Long Trail Corridor Lands

More than 8,322 acres were acquired for Appalachian Trail corridor protection by the National Park Service. Most of this land was administratively transferred to the Green Mountain National Forest. These lands also include conservation right-of-way and scenic easements held by the National Park Service on Coolidge State Forest.





Coolidge West Management Unit
Long Range Management Plan



III. PUBLIC INPUT

Introduction

The citizen participation process for the Coolidge West Management Unit (CWMU) Long-Range Management Plan was conducted in accordance with Agency of Natural Resources policies, procedures and guidelines. Public involvement or citizen participation is a broad term for a variety of methods through which the general public has input into public land management decisions. The Agency of Natural Resources including the Departments of Forests, Parks and Recreation and Fish and Wildlife is committed to a planning process which offers the opportunity for all citizens and stakeholders to participate. These include letters, surveys, personal comments, telephone calls, e-mails and more formal methods such as public meetings and workshops. All public input received concerning the future stewardship of CWMU has been considered in the preparation of this plan.

Initial Scoping Process

In July 2001, the Rutland North District Stewardship Team began public involvement for the CWMU with notification that the planning process has begun and with a preliminary request for issues of concern. A scoping letter was sent out to all known user groups, stakeholders, and government officials representing the communities where the lands occur. In addition, information was posted on the Department of Forests, Parks and Recreation website which detailed the proposed planning process with timelines, maps and descriptions of the resources inventoried.

The scoping process identified several major issues that a number of citizens, recreational user groups and others asked the Rutland North District Stewardship Team to address during the planning process. These included: motorized versus non-motorized recreational use in winter and summer, ATV use, snowmobile trails and recreational access to the management unit, protection of the AT/LT corridor, vegetation management practices (affects on recreation and natural communities), their concept of forest reserves, maintenance of water quality in streams and wetlands and protection of the existing wildlife corridor.

A series of three-hour public meetings using an open house format were held in March and April 2002 in Shrewsbury, Killington, and Rutland. At these meetings, findings from field inventories were presented via Geographic Information System (GIS) maps. The goals of the meetings were to provide the public with the opportunity to review the work and to enable people to offer their vision of management of the CWMU and speak directly with foresters, ecologists, biologists and planners of the Rutland North Stewardship Team. Questions, comments and ideas were recorded at the open houses and a formal 60-day comment period allowed for people to send additional comments for consideration by the team.

Following the conclusion of the formal 60-day comment period, the Rutland North team reviewed all comments that had been received. Many comments were consistent with the Agency of Natural Resources and its Department's missions, management principles and goals for CWMU. However, it became clear that two major issues would need to be addressed in greater detail via resource assessments and additional public participation. These issues were concerns about winter recreation and vegetation management for timber and wildlife habitat.

Public Meetings about Winter Recreation



Two public meetings were held to discuss winter recreational use on the CWMU. The first was held at the Shrewsbury Meeting House in December 2002. An issue that was identified early in the process involved conflicts between motorized and non-motorized forms of recreational uses, particularly in winter, between cross-country skiers, snowshoers, and snowmobilers. Additionally, the issue of limited parking, particularly on winter weekends, was one which people wished to have the Rutland North Stewardship Team address.

The team used a small work group process format to develop consensus with the public on possible solutions by presenting a series of alternatives that might address those conflicts and having discussions around possible solutions. The first meeting resulted in the Rutland North Stewardship Team embracing the following positions:

- Acknowledgement of the desirability of a significant area of land not impacted by motorized activities.
- Acknowledgement of the need for better enforcement of existing snowmobile regulations and parking area rules.
- Recognition of the public desirability for no new winter recreational use parking facilities for snowmobiles within CWMU at this time.
- Commitment to continued maintenance of the existing winter parking facilities at Aitken State Forest and along Town Highway #20.

A second meeting about recreation was held in August 2003 in Shrewsbury . The meeting provided attendees with a better understanding of user sentiment and associated conflicts and set the stage for possible solutions for better management.

Public Meeting about Vegetation Management for Timber and Wildlife

A public meeting to present the Rutland North Stewardship Team's vegetation management proposal for CWMU was held at the Shrewsbury Meeting House in March 2003. The team presented a "triad" concept for vegetation management which offers a way to assure long-term maintenance of ecological resources while at the same time addressing social and economic concerns. Following the presentation, a small group process format (similar to the format used for the recreational meeting) was used to solicit comments from people regarding this management strategy and to identify potential conflicts with other forest uses.

This meeting resulted in the Rutland North Stewardship Team embracing the following positions:

- Acknowledgement of the need to classify areas where no timber harvesting should occur due to a variety of circumstances including: high elevation, steep slopes, wetlands, stream buffers, aesthetics and protection of state significant examples of natural communities and connectivity.
- Acknowledgement of the desire for both all-aged and even-aged timber harvesting to accomplish wildlife and timber management objectives in the more productive areas of CWMU for economic, ecological, and social benefits.
- Acknowledgement of the need for an area where limited vegetative management may occur primarily for the purposes of duplicating natural disturbance regimes for ecological purposes.
- Acknowledgement of the need for scheduling timber harvesting operations to avoid conflicts with recreational use of trails, roads and individual residences for social purposes.
- Commitment to working with volunteer groups to create and maintain permanent wildlife habitat openings.



Several other less formal meetings took place during the summer of 2003 to resolve issues expressed by adjacent landowners and special interest user groups. These meetings provided the Rutland North Stewardship Team with the opportunity to find solutions to the following concerns:

- Timber harvesting practices within the Tiny Pond Wildlife Management Area and potential ATV access that results.
- Establishment of a cross-country ski trail within a designated non-motorized areas.
- Resolution of issues involved with the Appalachian Trail/Long Trail right-of-way easement.
- Refinement of the triad concept for vegetation management on CWMU.

Draft Plan Public Meeting

A final meeting for the purpose of reviewing the draft Long-Range Management Plan for the CWMU was held at the Shrewsbury Meeting House in Shrewsbury on July 17, 2007. In advance of the meeting, copies of the full draft were made available at the town offices in each town containing CWMU land as well as posted on the ANR Lands website. People who had actively participated in the process were notified of the availability of the draft. A 30-day public comment period followed the meeting. A summary of responses to public comment received is included in the final draft plan (appendix).

All public comments were considered by the Rutland North Stewardship Team in the writing of the CWMU Long-Range Management Plan and will continue to be considered as management activities occur. There will be future opportunities for the public to stay involved with other planning efforts that take place during the life of this plan and if major amendments to the plan are proposed.

Following the public meeting the plan was reviewed by parties holding legal easements within CWMU including Vermont Housing Conservation Board, Vermont Land Trust, and the US Forest Service.

The long-range management plan received final approval by the commissioners of the Department of Forests, Parks and Recreation and Fish and Wildlife Department and was approved by Agency of Natural Resources George Crombie on August 5, 2008.

Future Opportunities for Input

Future opportunities may be announced in a number of ways, including the ANR Lands website, notification of towns and regional commissions, and in local media. Also, the Annual Stewardship Plan prepared for the CWMU is available for review by July 1 of each year at the Rutland North Regional ANR office. The Annual Stewardship Plan (ASP) outlines major activities to be carried out by the stewardship staff each year. Copies of these activities are mailed to the selectboard in each town.



IV. MANAGEMENT STRATEGIES AND ACTIONS

Vision Statement

Coolidge West Management Unit is valued for its large size; healthy forest systems; diversity of wildlife habitat; sense of remoteness; mountains and high elevation plateau; beautiful scenery; contribution as a landscape corridor; and as a dynamic landscape shaped by its past, both natural and cultural.

Careful stewardship of this large block of public land allows these forests to offer: opportunities for a range of appropriate recreational activities including hunting, fishing and trapping; a working landscape capable of producing a flow of quality forest products at sustainable levels from lands managed using sound science and careful forest management practices and; a diversity of healthy, functioning natural communities, including areas where natural processes prevail.

Vermont citizens understand that with opportunity comes the responsibility to seek an appropriate balance of ecological, social and economic values; to protect rare, threatened and endangered species; to maintain the highest water quality that healthy forests can provide; and to strive for a careful balance and integration of appropriate public uses.

An Approach for Balancing Social, Ecological and Economic Values

The management of the diverse resources and many uses of the Coolidge West Management Unit is a complex undertaking. To better communicate these complexities and address the diversity of issues, the District Stewardship Team has embraced a triad approach to the management of these parcels as an important discussion and education tool. The triad strives to assure maintenance of ecological sustainability while continuing to address social and economic objectives. This served as a first step in the broader classification of CWMU lands. In its simplest form the triad suggests that 1) the most ecologically sensitive areas are protected; 2) vegetation management (including timber and wildlife habitat management) and intensive recreation management occur in the most suitable locations; and 3) that lightly managed buffers or areas of transition occur between. Not all areas are of equal size under this approach. The ecological assessments, other resource assessments and information and public sentiment largely inform the allocations.

In our discussions concerning the management of CWMU the Stewardship Team named the three areas of the triad. 1) *Natural Forest* describes ecologically sensitive areas that warrant passive management strategies to assure their protection; 2) areas suited to more intensive management were labeled *Traditional Forestry*; and 3) areas of transition between these two areas were labeled *Ecological Forestry*. While labels can often be problematic, it is important to remember that these were intended only as a means of communicating concepts.

As the triad concept is blended into the Agency of Natural Resources Land Management Classification system (described below), management concepts are shaped into strategies and actions. Management in areas described as *Natural Forests* can be achieved through the Highly Sensitive Management designation in the ANR classification system. Similarly, management in transition areas described as *Ecological Forestry* can be achieved through Special Management Area designations, and management in areas suited to *Traditional Forestry* can be achieved through General Management designations. The remaining acreage involving the Killington Ski Area leasehold boundary is described under Intensive Management because of its existing facilities, trails, and amount of intensive recreational use.



Land Management Classification

The triad was used as an intermediate step between the resource assessments and the Land Management Classification system adopted by the Agency of Natural Resources. After placing lands in appropriate triad categories as outlined previously, the next step was to apply the ANR Land Classification system.

Four categories of management have been identified for the lands administered by the Vermont Agency of Natural Resources (ANR). These categories indicate where different levels of use or types of management will be emphasized on the land. In this section of the plan, the recommended levels of use or types of management will be shown for all the land area in this parcel. This section also describes generally how the land will be managed so that the activities occurring on the land are compatible with the category assigned. The four categories are: (1) *Highly Sensitive Management*; (2) *Special Management*; (3) *General Management*; and (4) *Intensive Management*.

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 management categories for the Coolidge West Management Unit is based on a thorough understanding of the resources identified and the application of the over-arching lands management standards presented in the introduction section of the plan. The resources include natural communities, plants, and wildlife as well as recreation, historic, timber, and water resources. The 11 lands management standards (from Introduction section) or principles include maintaining biodiversity and involving the public, as well as implementing legal constraints, such as easements, wherever they are applicable.

Definitions of Land Management Categories (Classification)

- 1) **Highly Sensitive Management**– An area with uncommon or outstanding biological (including wildlife habitat), ecological, geological, scenic, cultural, or historic significance where protection of these resources is the primary consideration for management. Human activities and uses should not compromise the exceptional features(s) identified.

Approximately 4500 acres, or 23%, of CWMU is classified as Highly Sensitive Management.

- 2) **Special Management** – An area with unique or special resources where protection and/or enhancement of those resources is an important consideration for management. These areas do not require the same level of protection given to highly sensitive areas and may be intensively managed for specific purposes. However, vegetative management for timber and wildlife habitat, roads, and recreational activities should not compromise the unique or special resource(s) identified.

Approximately 6100 acres, or 31% of CWMU, is classified as Special Management.

- 3) **General Management** – An area where the dominant uses are vegetative management for timber and wildlife habitat, concentrated trail networks, 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 a General Management



Area. In addition, more sensitive resources that occur within these areas may require special attention.

Approximately 7100 acres, or 37% of CWMU, is classified as General Management.

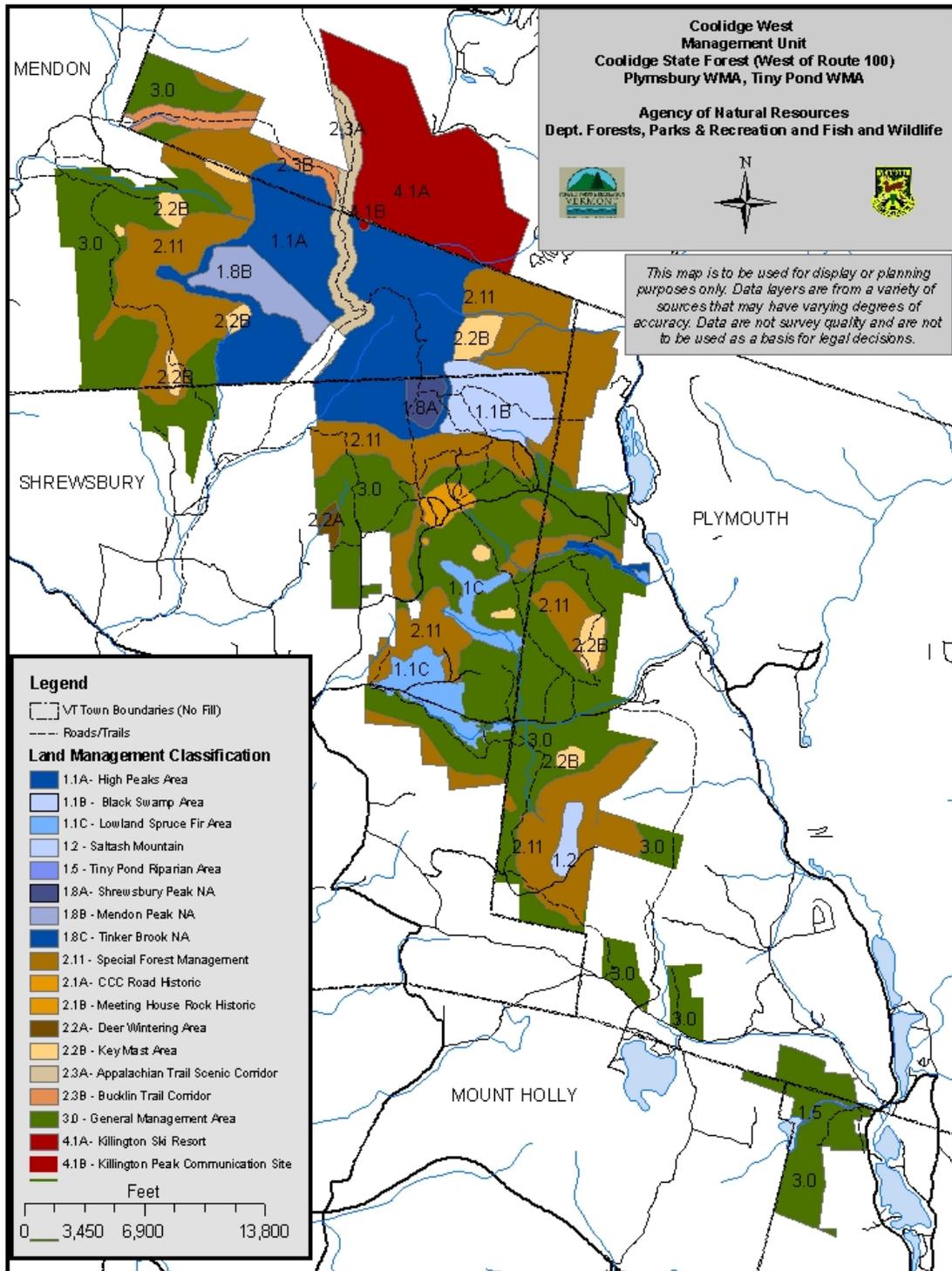
- 4) **Intensive Management** – An area that is easily accessible and characterized by a high level of human activity and high intensity development on or adjacent to State land. Aesthetics and safety are the primary management considerations in these areas. However, more sensitive resources that occur within these areas may require special attention.

Approximately 1700 acres, or 9% of CWMU, is classified as Intensive Management.

Management Prescriptions by Land Classification Category

The sections that follow outline management strategies and actions by land management area. These strategies and actions were derived, in part, from the resource assessments found in the appendix of this plan. Codes were attached to link the management recommendations with the issues and concerns raised in the individual assessments. For example, E1 refers to the first issue in the recreation assessment. The letter designation corresponds with the letter preceding each resource assessment title (A. Ecological Assessments; B. Natural Areas; C. Legal Constraints; D. Historic Resources; E. Recreation Assessment; F. Timber Resources; G. Forest Access Roads; H. Water Resources).

Acreage figures are included under each management category. When making comparisons to the previous long-range management plan it is important to keep in mind that CWMU, as a whole, has added nearly 6500 acres since the early 1990s (*see Parcel Description*) and that previous planning efforts did not treat Coolidge State Forest in its entirety nor did it include the wildlife management areas.



1.0 Highly Sensitive Management

The Highly Sensitive Management category (1.0) is described as “***areas with uncommon or outstanding biological, ecological, geological, scenic, cultural, or historic significance ...***” Acres managed under this category will have no timber harvesting, salvage harvest, or active wildlife habitat management. However, trees and other vegetation may be cut to restore natural community species composition and structure in limited locations and to maintain safe and enjoyable trail conditions. Widely dispersed, non-motorized, non-mechanized recreational uses may be accommodated, and existing roads will continue to be used. Recreational experiences within these areas are characterized as having a high degree of remoteness and low level of interaction between users (*Recreational Opportunity Spectrum*).

On Coolidge West Management Unit approximately 4500 acres or 23% has been classified as Highly Sensitive. Most of the acreage is in a contiguous area of high elevation lands in the vicinity of Shrewsbury, Killington, Mendon, and Smith Peaks and includes state significant examples of Montane Spruce-Fir Forest and Montane Yellow Birch-Red Spruce Forest as well as the area surrounding Black Swamp and rare Subalpine Krummholz on Killington and Mendon Peaks. The summits of Saltash and Bear Mountains, and state significant examples of Lowland Spruce-Fir Forest on lands formerly of Besseney and along Tinker Brook and a portion of the state significant occurrence of Northern Hardwood Forest are also included. There are three State designated Natural Areas on CWMU including Mendon Peak, Shrewsbury Peak, and Tinker Brook Natural Areas. These three legally designated natural areas are separated geographically. The acreage allocation included within this category, and to a greater extent the entire classification system, recognize a “connection” between these highly sensitive areas. The legal designation, however, remains virtually the same for the original natural areas. The exception, as noted under 1.8c, is a recommendation for expansion of the Tinker Brook Natural Area.

Management Goals and Objectives:

Ecological/Wildlife

- Identify and protect rare, threatened, and endangered plants, animals and natural communities. Support survey efforts to determine extent of these species on CWMU.
- Protect high quality examples of natural communities.
- Maintain quality rank of state significant natural communities including Montane Spruce-Fir Forest, Montane Yellow Birch-Red Spruce Forest, Lowland Spruce-Fir Forest, Northern Hardwood Forest and Subalpine Krummholz.
- Protect high elevation areas with steep slopes and fragile soils.
- Protect Class A1 waters (those above 2500 ft) to maintain their natural condition. Protect Class B1 waters to maintain a natural or almost natural condition showing minimal changes from reference conditions for aquatic macroinvertebrates and fish assemblages.
- Protect significant and unique wildlife habitats.

Recreation

- Protect scenic qualities of the high peaks of CWMU.
- Provide areas of remoteness for semi-primitive recreation opportunities including dispersed, non-motorized, non-mechanized activities where appropriate and compatible with other goals.
- Provide trail and shelter infrastructure at current numbers.



Education and Outreach

- Provide education and outreach opportunities to the general public, individuals, and user groups on the opportunities and responsibilities of the use and management of CWMU.

Vegetation Management

- Allow natural processes to prevail, except in specific instances where necessary to restore natural community species composition and to maintain safe and enjoyable trail conditions.

Forest Access

- Provide safe, enjoyable access for public uses while protecting the resource and forest access infrastructure.

Historic

- Protect historic and pre-contact resources

Descriptions of specific areas designated as Highly Sensitive on CWMU.

1.1a) High Peaks Area (2747 acres; map reference 1.1a). The High Peaks area includes some of the highest elevations on CWMU including high elevation acreages within Parker’s Gore. Natural communities mapped within the High Peaks area include state significant examples of Montane Spruce-Fir Forest and associated Bicknell’s thrush habitat, Montane Yellow Birch-Red Spruce Forest, and Northern Hardwood Forest in the Sargent Brook valley, flanking the federally-owned Appalachian Trail Corridor. Other resources on these lands include habitat for rare, threatened and endangered species. Protection of steep slopes, high elevations, and sensitive soils are also an important consideration in this area.

This area is suitable for remote, pedestrian backcountry recreational experiences. Some peaks, including Mendon and Little Killington peaks have no trail access. Portions of the Shrewsbury Peak Trail and other side trails to the AT/LT are included in this area. Proximity to the Killington Ski Area may detract from the remote experience. Killington Ltd. retains the ability, by deed, to operate legally designated trails on Coolidge State Forest (outside of the leasehold area) for winter recreation and emergency purposes. Out-of-bounds activity, including skiing, and mountain biking, originating at the ski area detract from this highly sensitive area designation. This area is bisected by the Appalachian Trail Corridor (*Area 2.3a*).

The Agency of Natural Resources and the managers of Killington Ski Area will work cooperatively to prevent unauthorized cutting of trees and other vegetation for the purposes of creating ski trails outside of the Killington leasehold land. Killington Ski Area will continue to place “out-of-bound” signs along the leasehold boundaries. The Agency will prosecute individuals who cut vegetation on state owned land outside of the leasehold boundary under existing State Statute: Title 13-13 V.S.A. 3701(a) Destruction of State Property which carries a maximum penalty of \$5000.00 and five years in jail.

This area of mature forest offers opportunities for backcountry hunting and trapping. Fishing opportunities are limited due to lack of sizeable streams.

Links to Assessments:

- A. Coarse/Fine Filter
- B. Natural Areas
- C. Legal Constraints
- D. Historic Resources
- E. Recreation
- F. Timber
- G. Roads
- H. Water



Management Strategies and Actions:

Ecological/Wildlife

- Manage hiking activity to protect sensitive high elevation natural communities including Boreal Outcrops, Subalpine Krummholz and Spruce-Fir Ledge Forest (A1-1,2, 10).
- Monitor and maintain quality ranking of state significant natural communities by evaluating management activities for potential impact and through passive vegetation management (i.e. control of exotics) (A-1,2,3, 10; A2-28, 31, 32, 33, 33a).
- Consider impacts to high elevation natural communities, sensitive soils, steep slopes and rare, threatened and endangered species, and state significant quality ranking when planning trail maintenance and reconstruction projects (A2-1,5a,9,10,28; A1-1,2,3; E8,9,12,15).
- Evaluate all management activities for impacts to Bicknell's thrush, rock shrew, showy mountain ash, small-flowered rush, and other rare, threatened and endangered plant and animal species (A2-1,5,8,10; A1-11).
 - Support survey efforts to determine the extent of these species on high elevation lands of CWMU, especially in proximity to trails (A2-1,5a,9,10).

Recreation

- Maintain remote character of recreational experience limiting recreational activities to dispersed, non-motorized, nonmechanized pedestrian uses (E,C).
 - No construction of new trails on lands with easement restrictions prohibiting construction of new trails.
 - Maintain existing designated trails according to department guidelines.
- Cooperate with law enforcement and rescue agencies to provide winter search and rescue access into the remote area below Killington Peak for rescue of lost out-of-bounds skiers and snowboarders (E43,44,46).
- No construction of new structures within the High Peaks area with the possible exception of the relocation of the historic Cooper Lodge (E26,27,28,31; D1, 1a,1b).
- Maintain existing tent platform and outhouse at Cooper Lodge site.
- Monitor and document ATV and mountain bike use of high elevation hiking trails. Work with Fish and Wildlife Wardens and other law enforcement agencies to enforce ATV regulations and mountain bike policies (A1-2,3;E6,11,12,14,41,97,99,102).

Vegetation Management

- No commercial timber harvesting or salvage.
- Trees may be cut for purposes of maintaining existing hiking trails and for public safety as well as for restoration of natural communities with respect to invasive plant species populations.

Education and Outreach

- Continue efforts to educate and inform the public on issues including the importance of:
 - Hiking at high elevation after Memorial Day to protect fragile soils (A1-2, E8,11)
 - Limiting hiking trails to non-motorized, non-mechanized pedestrian uses only (E6, A1-1,2) to protect the resource and quality of recreational experience.
 - Keeping dogs under verbal or physical control to protect Bicknell's thrush and other rare species (E15, A2-1).

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- Maintain cooperative relationship with Killington Ltd., Green Mountain National Forest, Appalachian Trail Conference, Green Mountain Club and other partner organizations to:
 - Maintain funding and support for continuation of the “ridge runner” position to maintain the AT/LT and educate hikers.
 - To minimize the influence of the developed ski area on this Highly Sensitive Management Area (E41, 43, 44,59; A1-1,2,3; C6).
 - To discourage glade skiing and out-of-bounds ski activities and prevent cutting of vegetation outside of the Killington Leasehold boundary (E43,44).
 - To maintain legal ski trails outside of the leasehold area according to deed conditions and construction restrictions (E44; C6).
- Develop and provide maps of recreational opportunities within CWMU (E13).
- Provide information on appropriate uses and responsibilities with respect to resources within this area (E13).
- Maintain kiosks at suitable locations to inform, orient, and educate the public (E13).

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Historic

- Research historic Killington House hotel for location, construction date, and details of ground and building complex to determine site’s eligibility for inclusion on National Register of Historic Sites (D1, UMaine Report).
- Document and map location of the carriage road from Brewer’s Corners to the Killington House hotel site (D1, UMaine Report).

1.1 b) Black Swamp Area (549 acres; map reference 1.1b) Lands within this area include uncommon natural communities, a significant wetland resource and its riparian buffer, and a land base for a semi-remote recreational experience with opportunities for dispersed, non-motorized, non-mechanized, pedestrian recreation with minimal human interaction (*Recreational Opportunity Spectrum*).

Black Swamp is the highest elevation Spruce-Fir-Tamarack Swamp on CWMU. It is the source of Tinker Brook and an unnamed stream that flows to Woodward Reservoir. The wetland is a known spring feeding area for black bears and important habitat for many species of amphibians. It also provides habitat for rusty blackbird, an uncommon species in Vermont. The surrounding spruce-fir and northern hardwood stands have an active timber harvesting history, but stand productivity is limited at these high elevations. This area includes Smith Peak, and is contiguous with Highly Sensitive Area 1.1a to the west (described above).

The Black Swamp Road, a forest management truck road, which forms the southern boundary of this area, also serves as a secondary hiking trail to Shrewsbury Peak and as a snowmobile trail in the winter. A hiking trail, maintained by the Farm and Wilderness Foundation, connects the Shrewsbury Peak Trail with Smith Peak and Woodward Reservoir.

Management Strategies and Actions:

Ecological/Wildlife

- Monitor and maintain quality rank of Spruce-Fir-Tamarack Swamp by evaluating management activities and through passive vegetation management (i.e. exotic species control) (A1-12,13).



- Protect the remote character of this area by keeping the Black Swamp Road gate closed to public vehicle traffic (A1-12; A2-5,14; G1,3).
- Buffer Black Swamp and associated riparian areas from management activities according to district buffer considerations (A2-14; A1-12).
- Maintain forested amphibian recolonization corridors between wetland features to serve as a means to repopulate existing breeding sites should populations fail (A2-15).

Recreation

- Manage for dispersed, non-motorized, non-mechanized pedestrian uses.
- Maintain hiking trails at current densities. No construction of new trails will be permitted (A1-12; A2-5,14).
- Maintain existing designated trails according to Department and VAST standards.
- Protect resources from ATV access by barricading roads and trails and working with law enforcement agencies to target enforcement of ATV regulations (E-97,99,101; G7; E14).

Vegetation Management

- No commercial timber harvesting or salvage.
- Trees may be cut for purposes of maintaining existing hiking trails and for public safety and natural community restoration (i.e. invasive exotic plant species).

Education and Outreach

- Develop and distribute maps and information of recreational opportunities within CWMU (E13).
- Provide information on the appropriate uses and responsibilities with respect to resources in this area (A1-12; A2-5; E13, 99, 100).
- Maintain kiosks at suitable locations to inform, orient, and educate the public (E13).

Forest Access

- Maintain the Black Swamp Road, a state forest highway, to the Black Swamp turn-around (G-1,2,13; H1). Keep road gated to protect the remote character of the area, the road surface, and wildlife habitat.

Historic

- Document, map and protect historic and pre-contact resources (D1, 1a, 1b).

1.1 c) Lowland Spruce-Fir Forest Complex (532 acres; map reference 1.1c) Areas within this designation include state significant Lowland Spruce-Fir Forest natural community, and habitat for uncommon and rare species. There are other natural community types, including a wetland complex (the source of Great Roaring Brook) embedded within the matrix Lowland Spruce-Fir community.

The occurrence mapped on CWMU is considered to be state significant. One of the strategies to maintain or enhance the quality of the occurrence is to manage a portion of it passively

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allowing natural processes to occur. The goal, over time, is for this area to exhibit elements of a high quality example of mature Lowland Spruce-Fir Forest. It also places an area of passive management in an area accessible to the general public (*Public Comment*).

This area offers recreational experiences with low to moderate levels of user interaction. Evidence of human use is fairly obvious in the form of logging and cultural evidence. Winter use is popular in this area and while contact with others is still relatively small the sounds of snowmobiles on the two nearby highways (TH #20, CCC Road) will limit the sense of remoteness for some individuals (*Recreational Opportunity Spectrum*).

This area is one of the most accessible on CWMU and therefore popular for many diverse activities. It is a preferred hunting location for many including those looking for deer and moose but the diversity of habitat makes it ideal for hunting and trapping of other species, as well. It is also adjacent to the greatest concentration of winter recreation trails (snowmobile and cross-country skiing) as well as a road network for forest management access. Many of these roads also serve as access into the area for dispersed hiking, nature walks, wildlife viewing, and dispersed cross-country skiing.

ATV activity is increasing, particularly in areas accessed by TH #20 and the CCC Road with some use of road systems in 1.1c. Many of the roads and trails are designed for logging and recreational use under frozen conditions and suffer surface damage, erosion and water quality problems when damaged by ATV's.

Motorized and non-motorized uses, particularly snowmobiling and cross-country skiing, are not always viewed as compatible in the Plymbsbury Basin where "shared" trail systems exist. There are some non-motorized recreation enthusiasts who prefer a "quiet" experience on a trail system separated from motorized uses that is in an accessible location.

Management Strategies and Actions:

Ecological/Wildlife

- Monitor and maintain quality rank of Lowland Spruce-Fir Forest by evaluating management activities and through passive vegetation management (i.e. exotic species control) (A1-4, 12,13; A2-3,31,32).
- Restore Lowland Spruce-Fir Forest natural community species composition by harvesting existing Norway spruce and red pine plantations. Aesthetic considerations suggest this be a gradual process (A1-4; F11).
- Support surveys to determine if the bay-breasted warbler exists in this area (A2-4).
- Assess the Grouse Hill North Road near the wetland complex for recovery of roadside canopy to maintain an amphibian recolonization corridor (A2-15).

Recreation

- Manage area for non-motorized, non-mechanized pedestrian uses (E-17,36, 37).
- Maintain winter pedestrian recreation uses (E-17,34,36,37; *Public Comment*).
- Maintain existing parking facilities along TH #20 at current size (*Public Comment*).
- Enforce the VAST designated opening (usually mid-December) of snowmobile season and sign the parking lots to publicize this date (E-18,22).

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- Explore the feasibility of connecting the Winter Recreation Trail and the cross-country ski loop system on the recently acquired Shrewsbury lands with the Catamount Trail system so that in years when TH #20 is plowed for logging access, impact on the cross-country ski experience could be minimized (E-34,39,40).
- Document use and enforce agency policy with respect to use of mountain bikes on trails (E-59, 60,62).
- Protect resources from ATV access by barricading roads and trails and working with law enforcement agencies (E-97; G1).

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Education and Outreach

- Cooperate with the Shrewsbury Outing Club to continue their agreement with the Department of Forests, Parks and Recreation to monitor and maintain the existing loop trail system between the CCC Road and TH #20 on the former Besseney lands for non-motorized, non-mechanized recreational activities including cross-country skiing and snowshoeing (E17,34, 36,37, Public Comment).
- Develop and provide maps of recreational opportunities within CWMU (E13).
- Provide information on the appropriate uses and responsibilities with respect to resources in this area (A1-4; A2-3; E13, 99,100).
- Maintain kiosks at suitable locations to inform, orient, and educate the public (E13).

Vegetation Management

- Trees may be cut for trail corridor maintenance and public safety
- No commercial timber harvest or salvage cutting except for natural community restoration.
 - Silvicultural systems will be applied within the Norway spruce plantations to restore Lowland Spruce – Fir Forest species composition. The plantation will be eliminated over a period of years through gradual shelterwood harvesting to minimize aesthetic impacts and to promote regeneration of native species (F11, A1-4).

Forest Access

- Maintain all existing roads for recreation and forest management access.
- Maintain and protect Grouse Hill North Road
 - Keep road gated, maintain surface, drainage structures and roadside vegetation.(G1,2; E99,100; H1).
 - Do not upgrade the connection between the Grouse Hill North and South Roads (G4).

Historic

- Document, map and protect historic and pre-contact resources (D1, 1a,1b).

1.2) Saltash Mountain (98 acres; map reference 1.2) The summits of Saltash and Bear Mountains support stands of state significant Montane Spruce-Fir Forest which are confirmed Bicknell's thrush breeding habitat.



There are no designated summer recreation trails in this area. These lands are upper elevation, remote, and minimally roaded with old skid trails. Slopes are steep, and human contact is infrequent. However, due to the relatively small acreage, intrusions of sound of human activity from adjacent land can be fairly frequent. The sense of remoteness is greater in the summer (*Recreational Opportunity Spectrum*). Hunting, trapping and limited fishing opportunities are available to those who prefer a more remote experience.

Management Strategies and Actions:

Ecological/Wildlife

- Monitor and maintain quality rank of state significant Montane Spruce-Fir Forest by evaluating management activities and through passive vegetation management (i.e. exotic species control) (A1-2; A2-31,32).
- Evaluate all management for impacts to Bicknell’s thrush and its habitat (A2-1).

Recreation

- Manage for dispersed pedestrian uses to maintain remote character of recreational experience and protect Bicknell’s thrush and its habitat.
- Construct no new trails or roads.
- Construct no structures (A2-1).

Education and Outreach

- Provide information on the appropriate uses and responsibilities with respect to resources within this area (A2-1; A1-2; E13).

Vegetation Management

- No commercial timber harvesting or salvage.
- Tree cutting is allowed for the specific purposes of maintaining or enhancing Bicknell’s thrush habitat (A1-11;A2-1).

Historic

- Document, map and protect historic and pre-contact resources (D1, 1a,1b).

1.5) Tiny Pond Riparian Area (14 acres; map reference 1.5) Lands within this designation include the riparian area adjacent to the Tiny Pond/Tiny Brook system in Tiny Pond Wildlife Management Area. Tiny Pond is a 29-acre remote pond with limited pedestrian access. There is currently no vehicular access to the pond from either State or private land. The minimal development and related human use is valued by many Tiny Pond visitors (*Public Comment*). Remote fishing opportunities are available on both Tiny Pond and Tiny Brook. Hunting and trapping opportunities are more widely available on the WMA in the area beyond this designation.

The brook originates at the east end of Tiny Pond and empties into the Black River. Shallow Emergent Marsh, Lowland Spruce-Fir Forest, and Northern Hardwood Forest surround the pond. Hemlock Forest and Hemlock-Red Spruce Forest are adjacent to much of the length of Tiny Brook with dense, dark canopies and rocky, moss-covered forest floors. The picturesque brook has many cascades and pools.

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Management Strategies and Actions:

Ecological/Wildlife

- Buffer Tiny Pond and Tiny Brook and riparian areas to protect riparian habitat values (H3a).
- No roads or skid trails will be built to access the shoreline (H3a).
- No structures will be constructed within this area (H3a; C11).
- Assess all management activities for impacts to nesting loons (A2-2).

Recreation

- Barricade old skid trails to prevent ATV and snowmobile access (E99,100; C).
- Manage for non-motorized, non-mechanized pedestrian recreational activities (A2-2; E79,80).
- No construction of new trails.

Vegetation Management

- No commercial timber harvesting or salvage operations.

Education and Outreach

- Provide information on the appropriate uses and responsibilities with respect to resources within this area (A2-1; A1-2; E13).

Historic

- Document, map and protect historic and pre-contact resources (D1, 1a,1b).

1.8a) Shrewsbury Peak Natural Area (100 acres; map reference 1.8a) The 100-acre Shrewsbury Peak Natural Area, designated in 1988, includes land above 3200 feet in elevation. The peak is surrounded by Montane Spruce-Fir Forest, which is part of the larger state significant example on CWMU and is important habitat for Bicknell’s thrush and other migratory songbirds.

Four hiking trails provide access to the summit of Shrewsbury Peak. The Shrewsbury Peak trail is shorter and steeper and begins at the pavilion site on the CCC Road, the Black Swamp trail is longer but gentler in grade. The Appalachian Trail connector and the trail to Smith Peak are others. The Shrewsbury Peak Trail continues north from the summit to connect with the Appalachian Trail/Long Trail. A third trail enters just below the summit and is part of the Farm and Wilderness Foundation’s network of trails. The Shrewsbury Peak shelter (a CCC-era lean-to) is located below the summit and is in poor condition (*Recreation Assessment*). The trails and forest management access roads also serve to access the area for hunting and trapping.

ATVs and snowmobiles are damaging the hiking trail systems that access Shrewsbury Peak. This use has caused soil erosion along the trail and compaction on the summit. There has been substantial cutting of vegetation at the summit to create vistas which ultimately reduce the quality of the natural community on Shrewsbury Peak.

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Management Strategies and Actions:

Ecological/Wildlife

- Monitor and maintain quality rank of Montane Spruce-Fir Forest through evaluation of management activities and passive vegetation management (i.e. exotic species control) (A2-31,32; A1-2; B4).
- Evaluate all management activities for impacts to Bicknell's thrush and other rare, threatened and endangered species (A2-1; A2-5a,9,10).

Recreation

- Work with partner recreation organizations to monitor and review the Shrewsbury Peak shelter for safety, structure, and site impact. (E-28; B-5; D1).
- Maintain Shrewsbury Peak trail access according to department guidelines (C7).
- Maintain existing barricades and signs along the hiking trail to prevent ATV and snowmobile and other motor vehicle access into the Natural Area. Work with law enforcement to control this activity (E-6, 97, 99,100; B-3).
- Maintain length of existing hiking trail network at current or reduced levels according to Department trail management guidelines (B-6).
- No new construction of structures within the natural area (C7).
- Maintain boundaries of designated Natural Area.

Education and Outreach

- Develop and distribute maps of recreational opportunities within CWMU (E13).
- Maintain kiosks at the Shrewsbury Peak trailhead and at the Black Swamp parking area to inform, orient, and educate the public (E13).
- Provide information on the appropriate uses and responsibilities with respect to resources within this area (A1-2; A2-1; B3,4).

Vegetation Management

- No commercial timber harvesting or salvage operations.
- Trees may be cut for purposes of trail maintenance and public safety.

Historic

- Consult with the Vermont Department of Historic Preservation for input in managing the Shrewsbury Peak shelter (D-1).

1.8b) Mendon Peak Natural Area (374 acres; map reference 1.8b) The Mendon Peak Natural Area includes high elevation Montane Spruce-Fir Forest and Subalpine Krummholz natural community types. Both are state significant natural communities and the Montane Spruce-Fir Forest is part of the larger occurrence on CWMU. This natural community type is also important Bicknell's thrush habitat. The summit is one of the few peaks that have no designated trail access. There are no shelters or other structures within the Natural Area.

There are no designated hiking trails to Mendon Peak. There are however, bootleg trails developed over time by members of the hiking community wishing to climb all New England peaks over 3000

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feet in elevation. Mendon Peak is one of the most remote locations within CWMU and offers a sense of privacy for recreational users.

Management Strategies and Actions:

Ecological/Wildlife

- Monitor and maintain the quality rank of the state significant natural communities of Montane Spruce-Fir Forest and Subalpine Krummholz through evaluation of management activities and passive vegetation management (i.e. control of exotic species) (A1-1,2; A2-31,32; B2).
- Evaluate all management activities for impacts to Bicknell’s thrush and other rare, threatened and endangered species (A2-1, 5a,9,10).

Recreation

- Manage hiking and other activities to protect high elevation natural communities including Montane Spruce-Fir Forest and Subalpine Krummholz (A1-1,2; B1).
- No hiking trails will be constructed. Bootleg trails will be restored to natural conditions (B1).
- No construction of structures within the Natural Area (C7).
- Maintain boundaries of designated Natural Area.

Education and Outreach

- Develop and distribute maps of recreational opportunities within CWMU (E13).
- Provide information on the appropriate uses and responsibilities with respect to resources within this area (A1-1,2; A2-1; B1).

Vegetation Management

- No commercial timber harvesting or salvage operations.

Historic

- Document, map and protect historic and pre-contact resources (D1, 1a,1b)

1.8c) Tinker Brook Natural Area (65 acres; map reference 1.8c) This Natural Area lies in the steep-sided Tinker Brook ravine near the eastern boundary of Coolidge State Forest. The Natural Area contains an occurrence of Hemlock-Red Spruce Forest that is thought to be old growth. The current Natural Area boundaries do not extend to the top of the steep bank nor do they include the natural community occurrence in its entirety.

A hiking trail, maintained under agreement with Farm and Wilderness Foundation, crosses this narrow area. The Tinker Brook shelter is within 30 feet of the natural area boundary. The shelter site experiences concentrated use, at times, with associated impacts including soil compaction, and the reduction of woody debris from firewood gathering.

Management Strategies and Actions:

Ecological/Wildlife

- Monitor and maintain the quality of Hemlock-Red Spruce Forest and integrity of *old growth* community by evaluating all management impacts. (B7,8,9; A1-5).

*Links to
Links to
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- Request approval to extend and mark the boundaries of the Tinker Brook Natural Area to the top of the bank to include the entire natural community and to increase protection of vegetation growing on the steep banks of the gorge (B-9) and to buffer it from management of adjacent lands (B-8; C). This will increase the size of the Natural Area by approximately 10 acres (C7).

Recreation

- Maintain Natural Area boundaries.
- Maintain existing trail system at current levels according to department trail management guidelines.
- Monitor impacts of hiking trail through the natural area (B-7).

Education and Outreach

- Maintain Memorandum of Understanding with the Farm and Wilderness Foundation for the maintenance of the trail through the Natural Area.
- Erect sign at shelter making visitors aware of adjacent Natural Area (B7; E13).
- Develop and distribute maps of recreational opportunities on CWMU (E13).
- Provide visitor information on the appropriate uses and responsibilities with respect to resources within this area (B7,8; E13).

Vegetation Management

- No commercial timber harvesting or salvage cutting.
- Trees may be cut for purposes of trail maintenance and public safety and control of exotic species (A2-31,32, 33).
- Management of surrounding lands will not adversely affect the quality and integrity of natural area (B8).

Forest Access

- Keep barricades in place along road to Tinker Brook shelter to protect road and control vehicle access into the Natural Area.

Historic

- Document, map and protect historic and pre-contact resources (D1, 1a,1b).

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2.0 Special Management Areas

The Land Management Classification category of Special Management includes areas “...*where protection and or enhancement of those resources is an important consideration for management.*” Timber harvesting and wildlife habitat management harvesting as well as recreation are considered to be complimentary uses within this classification to the extent that they do not impact the special features.

Recreation management emphasis is placed on dispersed, non-motorized uses, although a few pre-existing motorized trails are within or immediately adjacent to areas within this designation. Recreational experiences within this area are generally characterized as having a high probability of isolation and low degree of user interaction (*Recreational Opportunity Spectrum*). This area offers a fairly remote setting for hunting and trapping. Fishing opportunities are limited.

On Coolidge West Management Unit, Special Management Areas represent over 6000 acres or approximately 31% of the forest.

Management Goals and Objectives:

Ecological/Wildlife

- Identify and protect rare, threatened and endangered plants, animals and natural communities. Support survey efforts to determine extent of these species on CWMU.
- Maintain high quality ranking of examples of natural communities.
- Protect high elevation areas with steep slopes and fragile soils from soil erosion.
- Protect Class A1 waters (those above 2500') 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.
- Provide high quality habitat for featured wildlife species.

Recreation

- Provide dispersed recreational opportunities where appropriate and compatible with other goals.

Education and Outreach

- Provide education and outreach opportunities to general public, individuals and user groups on the opportunities and responsibilities of the use and management of CWMU.

Vegetation Management

- Timber harvesting and salvage is permitted where compatible with the special management designation.

Forest Access

- Provide safe and enjoyable access for public uses while protecting the resource and forest access infrastructure.

Historic

- Protect historic and pre-contact resources.



Descriptions of specific areas designated as Special Management on CWMU.

2.1a) Civilian Conservation Corps (CCC) Road Historic District. (100 acres; map reference 2.1a) Located along the CCC Road, this area hosts remnants of the original Coolidge State Park. The remains of the Stone House, pavilion chimney, water well, and campsite loop are part of the original campground built by the CCC's and discontinued before World War II. An area of apple trees adjacent to the pavilion site has been maintained as an historic resource. A remnant Norway spruce plantation from that same period also exists. The CCC Road, which accesses the area, was built by the Civilian Conservation Corps in 1934.

The current recreational facilities of this site include the Shrewsbury Peak hiking trail, trailhead, and parking area and the CCC Road for summer vehicle access and in winter as a VAST snowmobile trail and cross-country ski trail. The camp loop has been used over the years for dispersed camping and the Stone House continues to be used as a winter recreational gathering place for snowmobilers. There is no source of potable water or facilities for the proper disposal of human waste at either site. This historic district does not qualify as an area for primitive camping under ANR Primitive Camping Rules and Regulations.

Management Strategies and Actions:

Ecological/ Wildlife

- Identify and protect rare, threatened and endangered plants, animals, and natural communities (A1-4; A2-1a,4,5a,6,7,9,10.)
- Release and prune apple trees (D1,1a,1b).
- Maintain openings through periodic mowing or through the use of prescribed fire (A2-30; D1).

Recreation

- Maintain existing trail network according to department trail management guidelines.
- Evaluate recreation management projects for impacts to historic resources and the scenic corridor of the CCC Road (D-1; E51).
- Discourage the use of the camp loop for overnight camping to protect CCC-era resource. Consider ways to effectively barricade road (D-11a,1; E-25,51; E29).

Vegetation Management

- Commercial timber harvesting and salvage is permitted to maintain scenic and historic values and wildlife habitat.
- Maintain historic Norway spruce plantations through vegetation management keeping individual trees vigorous as long as possible.
- Evaluate timber and active wildlife habitat management projects for impacts to historic resources and to the scenic corridor of the CCC Road (D1; E51; A2-25).
- Trees may be cut for purposes of road and trail maintenance and public safety.

Historic

- Identify, map and document historic features, structures and the historic landscape of historic Coolidge State Park (D1,1a,1b; UMaine Report).
- Consider eligibility of historic CCC-era resources for nomination to the National

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- Register of Historic Places (*UMaine Report*).
- Protect known or suspected historic sites (*DI, 1a,1b*).
- Monitor and evaluate effects of use and vandalism on historical integrity and structure safety of CCC-era facilities (*DI,1a,1b; E26,27,28,31*).

Education and Outreach

- Develop interpretative material to educate the public with respect to historic resources (*E13; UMaine Report*). Balance public education with protection of sensitive historic resources.

Forest Access

- Close the camp loop to vehicle access to protect the historic resource.
- Consider impacts of management on movement corridors between mast areas. In order to assure bear movement across the CCC Road and Old Plymouth Road (TH#20), no more than one-half of the forestland (to a depth of 800 feet) along the two roads should be harvested in one 10-year period (*A2-25*).

2.1b) Meeting House Rock Historic District. (4 acres; map reference 2.1b) Meeting House Rock is located adjacent to the CCC Road west of the pavilion parking area. It is reported to have been the site of the first church services in the Town of Shrewsbury beginning as early as 1818. The rock has a shape “*suggestive of a pulpit, a depression near the rock which served as a “baptizing hole”, and the amphitheater-like slope which descends to the rock from the road combine to delineate a unique local example of a sacred place*” (University of Maine at Farmington, November 2004). Use of the site for services continues under a Memorandum of Agreement with the Shrewsbury Community Church. Under this agreement the Community Church will maintain safe access; maintain vegetation through mowing and brush cutting; and maintain woodland character of the setting (i.e. no structures or plantings). The site will be reviewed and scope of work assessed each spring.

Management Strategies and Actions:

Ecological/Wildlife

- Maintain site in its present condition as an existing small opening surrounded by forest.
- Maintain existing vegetation (*DI,1a,1b*).

Recreation

- No new trails within this area.
- Maintain access trail to rock according to Department trail management guidelines.

Vegetation Management

- No commercial timber harvesting or salvage operations.
- Trees can be cut for purposes of public safety.
- Vegetation may be managed for control of invasive species (*A2-31,32,33*).
- Maintain native vegetation. No plantings.

Historic

Links to Assessments:

- A. Coarse/ Fine Filter
- B. Natural Areas
- C. Legal Constraints
- D. Historic Resources
- E. Recreation
- F. Timber
- G. Roads
- H. Water



- Evaluate all management activities for impact to historic and pre-contact resources (D1; UMaine Report).
- Cooperate with the Vermont Department of Historic Preservation to maintain the archeological integrity of the site (D1,1a,1b).
- Maintain sign on site to identify its historic significance (E13; UMaine Report).

Education and Outreach

- Cooperate with the Shrewsbury Community Church in the continuation of their services and the upkeep of the site.
- Consider development of interpretive material or signing for site (E13; UMaine Report).

2.2a) Deer Wintering Area. (50 acres; map reference 2.2a) There is one deer wintering area mapped by the Vermont Fish and Wildlife Department on the western boundary of CWMU. Only about half of the mapped wintering area is on State land the rest is on adjacent private land. This habitat is critical for over-winter survival of many of the deer found on these lands. It is the goal of wintering area management to perpetuate softwood cover, in this case, the Lowland Spruce-Fir Forest natural community type; provide adequate and preferred browse within or in proximity to the area; and to maintain the ability of the deer to move freely throughout.

Management Strategies and Actions:

Ecological/Wildlife

- Maintain or enhance Lowland Spruce-Fir Forest natural community for quality deer wintering habitat (A1-4; A2-17).

Recreation

- No trail or road construction within or adjacent to the wintering area.

Education / Outreach

- Provide information on the appropriate uses and responsibilities with respect to resources within this area (A1-4; A2-17; D1; E13).

Vegetation Management

- Commercial timber harvesting is permitted.
- Manage the spruce and fir according to the “*Management Guide for Deer Wintering Areas in Vermont*” and appropriate silvicultural guides including “*Silvicultural Guide for Spruce-Fir in the Northeast*”, USDA Technical Report NE-6 (A2-17; F).
- Commercial salvage may be permitted following consultation with the Fish and Wildlife Department.

Historic

- Document, map and protect historic and pre-contact resources (D1,1a,1b).
- Evaluate all management activities for impact to historic and pre-contact resources (D1, UMaine Report).

2.2b) Key Mast Areas (461 acres; map reference 2.2b) There are ten recognized key mast areas currently identified on CWMU. These areas provide a significant source of hard mast (beech stands), an important food source for many species of wildlife. Beech mast stands are

Links to Assessments:

- A. Coarse/ Fine Filter
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mapped in locations containing significant concentrations of beech where evidence of past or present bear use exists. Bears develop strong fidelity to particular beech stands and frequent these stands on a regular basis. In addition, these areas are important for the survival of many species. The identified areas, ranging in size from 3 to 123 acres are distributed throughout the management unit. The largest of these areas is the so-called Madden Brook beech key mast area located in Parker's Gore East adjacent to *Highly Sensitive areas 1.1a* and *1.1b*. Additional significant beech mast areas are on Burnt Hill and another in Compartment 7 of the Plymbsbury Block of Coolidge State Forest.

The VAST snowmobile and Catamount Cross-County ski trail corridors are located near the Burnt Hill mast area. These represent seasonal uses and do not conflict with wildlife activity in mast areas. It is most critical to avoid disturbances in these areas during spring and fall feeding.

Management Strategies and Actions:

Ecological/Wildlife

- Identify and protect rare, threatened and endangered plant and animal species (A2).
- Management should not lower the overall quality of the state significant Northern Hardwood Forest occurrence (A1-6).
- Maintain or enhance long-term mast production through management of existing beech stands and/or establishment of replacement stands (A2-18).
- Minimize human disturbance to important key mast areas (A2-19).
- Maintain function of bear feeding areas and apply most current research in managing these stands (A2-18,19).
- Assess decline and alternatives to maintain or enhance mast production in all areas but particularly the key mast areas identified near Madden Brook and on Burnt Hill.

Recreation

- No new trails will be established within or adjacent to recognized bear feeding areas (A2-19; C).
- Maintain existing trails according to department guidelines.

Education and Outreach

- Cooperate with the Killington Ski Area to ensure that mountain bike activity on their trail system does not encroach onto state land with particular attention to the Madden Brook key mast area (E60, A2-20).

Vegetation Management

- Commercial timber harvesting and salvage operations are permitted to further management goals of this designation and CWMU. Consider the most current and scientifically acceptable research available (A2-18).
 - Manage using primarily uneven-age silviculture using single tree and group selection.
 - Fully release crowns of healthy beech to promote maximum crown development.
 - Timing of harvests should be considered to avoid fall bear feeding

Links to Assessments:

- A. Coarse/ Fine Filter
- B. Natural Areas
- C. Legal Constraints
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- When possible management should promote the retention of nectria resistant beech (A2-19).

- Consider impacts of management on movement corridors between mast areas. In order to assure bear movement across the CCC Road and Old Plymouth Road (TH#20), no more than one-half of the forestland (to a depth of 800 feet) along the two roads should be harvested in one 10-year period (A2-25).

Historic

- Document, map and protect historic and pre-contact resources (D1, 1a, 1b).
- Evaluate all management activities for impact to historic and pre-contact resources (D1, UMaine Report).

2.3a) Appalachian Trail Scenic Corridor (370 acres; map reference 2.3) The Appalachian Trail Scenic Corridor is managed through a right-of-way easement held in perpetuity by the National Park Service on land owned in fee by the State of Vermont. Trail management is accomplished by the Green Mountain Club working in partnership with the Appalachian Trail Conservancy, the Green Mountain National Forest (legally responsible for the trail in Vermont), and the Agency of Natural Resources.

The trail is managed for non-motorized, non-mechanized, pedestrian access. Within the CWMU, the trail corridor passes through various natural community types and high elevation lands (similar to land described by designation 1.1a).

Management Strategies and Actions:

Ecological/Wildlife

- Identify and protect rare, threatened and endangered plant and animal species.
- Protect high elevation natural communities including Subalpine Krummholz and Boreal Outcrop in trail use, maintenance, and reconstruction projects (A1-1,2,10;).
- Evaluate all trail maintenance projects for impacts to Bicknell's thrush, rock shrew, showy mountain ash, small-flowered rush and other endangered plant and animal species (A2-1a,4,5a,9,10).
 - Support efforts to survey to determine extent of these and other rare species on high elevation lands of CWMU, especially in proximity to trails (A2-8,9,10).

Recreation

- Maintain Memorandum of Understanding with GMC for maintenance of the AT/LT corridor according to ATC (Appalachian Trail Conservancy) standards and guidelines.
- Work with Appalachian Trail/Long Trail partners to manage the distribution of shelter locations, particularly Cooper Lodge. Insure compliance with Americans with Disabilities Act (ADA) and Vermont Historic Preservation Act (E-27; D1).
- Maintain Ridge Runner trail ambassador position (E13).
- Maintain remoteness of Little Killington Peak with no construction of trails to the summit (E-9; C3).
- No use by horses and other pack animals, bicycles, or dog teams (C3).

Links to Assessments:

- A. Coarse/ Fine Filter
- B. Natural Areas
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- Cooperate with the Killington Ski Resort to discourage out-of-bounds skiers particularly over to Cooper Lodge and down to the Wheelerville road (E-41, 44, 45,46).

Links to Assessments:

Education and Outreach

- Cooperate with the Killington Ski Resort to discourage out-of-bounds skiing (E26, 31, 43,).
- Cooperate with law enforcement and search and rescue, and partner agencies and organizations to provide winter search and rescue access into the remote areas of Parker’s Gore to rescue lost out-of-bounds skiers and snowboarders (E46, 46a; C1).
- Sign to protect fragile vegetation (E12,13).
- Develop and distribute maps of recreational opportunities in cooperation with trail partner groups (E13).
- Provide information on appropriate uses and responsibilities with respect to resources within this area (A1-1,2; E13).

- A. Coarse/ Fine Filter
- B. Natural Areas
- C. Legal Constraints
- D. Historic Resources
- E. Recreation
- F. Timber
- G. Roads
- H. Water

Vegetation Management

- Manage land adjacent to the AT corridor in accordance with National Park Service conservation easement requirements. No trees will be cut within the corridor except for the purposes of trail maintenance and public safety and the creation of scenic vistas (C3).

Historic

- Document, map and protect historic and pre-contact resources (D1, 1a,1b).
- Evaluate all management activities for impact to historic and pre-contact resources (D1, UMaine Report).
- Consult the Vermont Department of Historic Preservation in considering the removal and relocation of Cooper Lodge (D-1,).
 - Support GMC and ATC plan to remove lodge including privy and tent platform. Restore site (D1; E26,27,28; C).
 - Document historic site prior to removal of structure (UMaine Report,).

2.3b) Bucklin Trail Corridor (382 acres; map reference 2.3b) The Bucklin Trail is managed by the Green Mountain Club from the Wheelerville Road to its intersection with the AT/LT near the Cooper Lodge site. A portion of the trail is located on 710 acres owned in fee by the State of Vermont, with a perpetual easement held by the National Park Service. The easement is “three tiered” in that it limits some management activities (such as commercial timber harvesting) according to proximity to the hiking trail corridor.

The trail corridor consists of the actual trail buffered by a 400-foot primary protection zone and a secondary 300-foot zone. The trail and its two-tiered buffer includes 382 acres. The rest of the 710-acre parcel is under easement which directs the protection of the scenic values of the Bucklin Hiking Trail. Timber harvesting is permitted on that acreage and activities will be consistent with those described in General Management 3.0. Portions of the Bucklin Trail corridor are important access routes for rescue of lost out-of-bounds skiers.

Management Strategies and Actions:

Ecological/Wildlife

- Identify and protect rare, threatened and endangered plant and animal species (A2).



- Monitor trail for impacts to wildlife and other resources (A2).

Recreation

- Manage recreational uses according to the National Park Service Conservation Easement. No motorized uses are permitted except for trail maintenance, forestry and emergency purposes (C4).
- Continue to work with the Killington Ski Resort to discourage out-of-bounds skiers particularly at Cooper Lodge and down to the Wheelerville road (E-41,44, 45,46).
- Facilitate search and rescue operations by cooperating with law enforcement and search and rescue agencies, easement holders and trail partners to provide winter search and rescue access into remote portions of Parker's Gore within the Bucklin Trail corridor to rescue lost out-of-bound skiers. Use shall be limited to authorized search and rescue agencies (E-46,46a).
 - Increase signage along the Bucklin Trail informing lost skiers that they are moving in the wrong direction and advising them to turn back.
 - Cooperate with trail partner agencies and organizations to remove the existing Cooper Lodge overnight facility and relocating it to a more remote location to reduce it as an attractive nuisance.
 - Monitor Killington Ski Area's use of signage and barriers to reduce out-of-bounds skiing (E41,43,44,45,46).
 - Maintain Memorandum of Understanding with the Green Mountain Club for maintenance of the trail according to ATC standards and guidelines.

Education and Outreach

- Develop and distribute maps of recreational opportunities (E13).
- Provide information on appropriate uses and responsibilities with respect to resources within this area (A1-1,2).

Vegetation Management

- Easement language specifies "...no cutting of trees or plants within a 400-foot primary protection zone except for trail maintenance and scenic vistas. Trees within a secondary 300-foot trail protection zone may be cut only with permission from the easement holder (C).
- Commercial timber harvesting and salvage operations are permitted outside the primary trail protection zone. Specific harvest plans will be reviewed with easement holder within the secondary protection zone and the scenic easement area on the 710-acre parcel.
- Crossing Bucklin Trail for timber harvesting may be permitted with permission from easement holder (C).

Historic

- Document, map and protect historic and pre-contact resources (D1, 1a, 1b).
- Evaluate all management activities for impact to historic and pre-contact resources (D1, UMaine Report).



2.11) Special Forest Management Area (4743 acres; map reference 2.11) Lands under this designation serve as a transition between those classified as Highly Sensitive where vegetation management will be minimized and those designated as General Management where vegetation and more intensive and motorized recreation management will occur. The Special Forest Management Areas are less accessible, with many above 2500 feet in elevation, and contain upper elevation Northern Hardwood Forests, Yellow Birch-Red Spruce Forests and the lower reaches of Montane Spruce-Fir Forest natural community types, all are state significant natural community occurrences. Management will include timber and wildlife habitat management, as well as management of recreational trails and activities. Management activities will maintain natural community quality ranking; employ silvicultural systems designed to mimic natural processes; and be adaptive to natural disturbances.

There are dispersed, largely non-motorized and non-mechanized recreational uses of lands within this designation, including hiking, hunting, trapping, and fishing. Recreational experiences are generally remote with low to moderate levels of interaction between users. There is an existing Route 7 corridor snowmobile trail that bisects the area from the Tin Shanty Road to the Wheelerville Road.

Management Strategies and Actions:

Ecological/Wildlife

- Monitor and maintain quality of natural communities by evaluating all management impacts and through control of exotic species (A1-1,2,3,5,6; F11).
- Management strategies for the Northern Hardwood natural community type should promote a sustainable supply of large diameter, dead or dying trees for use as bat roosts and other cavity dependent wildlife (A2-7).
- Promote adequate numbers of live and dead snags (4-6/acre), and coarse woody debris (i.e. downed wood) (50-80 pieces/acre) (A2-26).

Recreation

- Evaluate new recreational use requests in the context of total recreational use of CWMU (degree of use, numbers of trails), the Recreational Opportunity Spectrum, and goals of this management designation.
- This area is available for semi-remote, non-motorized recreation except in those places where snowmobile trails currently exist.
- Maintain existing snowmobile trails.
- Maintain vegetative trail buffers for aesthetic consideration. Trees can be cut for trail maintenance and public safety considerations within corridor buffers.
 - AT/LT and associated side trails – 500’ buffer on each side as specified in easements (C3).
 - Shrewsbury Peak Trail – 100’ each side as specified in Act 250 regulations (C).
 - Designated hiking trails – 25’ each side to protect trailside aesthetics (buffer distance derived from public input meeting).

Vegetation Management (A2-2,3,5,6)

- Timber harvesting and salvage cutting will occur and will require Act 250 review in land over 2500 feet in elevation (C)

Links to Assessments:

- A. Coarse/ Fine Filter
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- Timber management will strive to approximate natural processes.
 - Uneven-age silvicultural system involving single tree and small group selection
 - Prescriptions will be based on review of silvicultural guides and research regarding natural processes.
 - Maintain or enhance ecological structure providing for:
 - coarse woody debris in all stages of decomposition
 - large diameter trees
 - legacy trees (including snag and den trees).
 - vertical structure
 - limited openings to ½ acre and no more than 3% of area in northern hardwoods and 7% in spruce-fir (refine as further information becomes available).
 - representation of all age classes.
- Evaluate stand every 25 years in concert with treatments in lower elevation stands. Assess stand condition, structural complexities, composition diversity, etc. Cutting cycles could range from 30-50 years depending upon the condition of the forest.
- Allow natural processes to occur and adjust management strategies accordingly.

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- B. Natural Areas
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Education and Outreach

- Develop and distribute maps of recreational opportunities (E13).
- Provide information on appropriate uses and responsibilities with respect to resources within this area (A1-1,2, F).

Historic

- Document, map and protect historic and pre-contact resources (D1, 1a, 1b).
- Evaluate all management activities for impact to historic and pre-contact resources (D1, UMaine Report).
- Protect known or suspected historic sites as per 22 VSA § 767 and ANR Timber Harvest Archeological Protocol (D1).

Forest Access

- Maintain and protect existing road infrastructure (G1,3)
 - Keep roads gated (where necessary), maintain surface, drainage structures and roadside vegetation (G1,2; E99,100; F16).
 - Work with the Fish and Wildlife Department to assess impact of roads, culverts and bridges on habitat connectivity (A2-15; H11).
- Continue to barricade and sign roads against unauthorized motorized traffic (F15, 16; E54; G1,7).



3.0 General Management Classification Areas

The General Management category includes areas where dominant uses include vegetation management for timber and wildlife habitat, concentrated trail networks, and dispersed recreation. A primary consideration for management is minimizing conflict between activities. Sensitive resources that occur within these areas may require special attention.

On Coolidge West Management Unit the land classified as General Management Areas represent 7134 acres, or 37% of the management unit, and include areas with the gentlest terrain, more common natural community types, presence of recreational and timber management infrastructure (roads and trails), good access, productive soils, and resilient forests that are economically viable to harvest commercially. Forests in this category are dominated by northern hardwood species at mid elevations; by spruce and fir at the lower elevations, areas of poorly drained soils, and in the Plymbsbury basin; and by mixed forests of yellow birch and red spruce at the upper elevations.

Recreational experience ranges widely within this area but is generally characterized as having moderate levels of sights and sounds of other people. User interaction may be low but evidence of human use is prevalent (*Recreational Opportunity Spectrum*). Recreation trail corridors exist throughout and include VAST corridor trails, sections of several hiking trails, and cross-country ski trails, including sections of the Catamount Ski Trail. Hunting and trapping opportunities are abundant and found throughout this diverse landscape. Fishing opportunities are also available but much more limited due to the relatively small number of streams in the management unit.

There is evidence of the remains of old farmsteads, dwellings, and sawmills throughout this management classification area.

Management Goals and Objectives:

Ecological/ Wildlife

- Protect rare, threatened and endangered plants, animals, and natural communities. Support survey efforts to determine extent of these species on CWMU.
- Provide high quality habitat for target and general wildlife species.
- Maintain clean, high quality water resources and aquatic habitats.

Recreation

- Provide opportunities for a wide variety of dispersed recreational activities including hiking/walking, snowmobiling, cross-country skiing, hunting, fishing, trapping, and primitive camping.

Education and Outreach

- Provide education and outreach opportunities to the general public, individuals, and user groups on opportunities and responsibilities of the use and management of CWMU.

Vegetation Management

- Provide a diversity of forest products at sustainable levels.



Forest Access

- Provide safe, enjoyable access for authorized uses while protecting the resource.

Historic

- Protect cultural and historic sites from disturbance.

Overview of Lands Within This Designation.

Northwest Area of Coolidge State Forest. Northern hardwood forests with both even and uneven-aged stand structure dominate the lower slopes of this area. Forest composition on the upper slopes grades into mixed forests of yellow birch and red spruce.

Access into this area is by the Crossman Road which connects the Eddy Brook Road in the north and the Governor Clement Shelter Road in the south (all forest management truck roads). These roads currently receive significant amounts of ATV and other motorized traffic. The Crossman Road also serves as a VAST Corridor Route 7 and Catamount Ski Trail. There are no hiking trails located within this area. The Gilman Road (Town Road) also provides access from the south.

The northwest portion of Coolidge State Forest has a history of forest industry ownership as represented by the remains of a 1950s logging camp and a sawmill. There are also portions of the carriage road that served as access to the hotel on Killington Peak at the turn of the century.

CCC Road and Tin Shanty Road Area. Northern hardwoods are the predominant forest cover type in this portion of CWMU. Spruce-Fir is locally dominant in areas low on slopes and with poor drainage. The forests here are generally the youngest and most vigorous, and include the best quality stands on CWMU. Terrain is accessible and is capable of producing quality timber.

Access is along the Tin Shanty (Class 3 Town Road) and CCC Roads. The CCC Road bisects the management unit providing a popular route from Shrewsbury to Route 100 in Plymouth. The Black Swamp and Grouse Hill North roads serve as forest management access. They are available for pedestrian recreational activities but are gated and signed against damaging motorized and mechanized uses. The CCC Road remains unplowed in the winter serving as both a VAST snowmobile trail and a Catamount Ski Tail. There are portions of three hiking trails within this area. They include the access to the Tinker Brook Shelter, the Farm and Wilderness trail from the CCC Road to Woodward Reservoir and hiking access trailheads to Shrewsbury Peak at the Black Swamp Road and Pavilion/Russell Hill shelter areas.

The CCC Road was constructed by the Civilian Conservation Corps and there are many CCC-era resources along its length. The Tin Shanty area has a rich agricultural and forestry history dating back to the 1830s. It is accessed by the Tin Shanty Road.

Plymbsbury Basin. The Plymbsbury basin is dominated by the Lowland Spruce-Fir Forest natural community type but includes a mosaic of northern hardwoods as well. It supports and is capable of continuing to support, the greatest acreage of early successional habitat on CWMU.

The basin, along with the CCC Road area described above, has an extensive infrastructure of trails and roads. Major public access is along Town Highway #20 (Old Plymouth Road). Forest management and recreational (hiking, cross country skiing, snowshoeing) access is along the Grouse Hill South, School House Meadows, Three Sisters, and Chimney roads. The area hosts a

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VAST Route 7 corridor trail and winter recreation trail which provides access via the parking lot on TH #20. It is adjacent to an area designated for non-motorized uses.

The TH #20 area has a rich agricultural and forest management history. There are remains of mills, homes, boarding houses, farmsteads, and a school.

Saltash Mountain Area. The lower slopes of Saltash Mountain to the east, west and south of the summit are dominated by northern hardwood forests. The western slope is the site of the largest recorded forest tent caterpillar outbreak on CWMU (1979-1982) and the eastern slopes were heavily damaged in the 1998 ice storm.

Access into this area is by the Bailey Road (Shrewsbury TH #21). Access to eastern slopes is by deeded right-of-way from Plymouth TH #21. There are no recreational trails in this area. The Saltash Mountain area has no agriculture or settlement history but does have an active forest management history.

Ninevah/Tiny Pond WMA. Forests of the Ninevah Block (consisting of two separate parcels) are dominated by northern hardwoods in compartment 1 (western parcel) and spruce and fir in compartment 2 (eastern parcel). Both have an agricultural history as evidenced by stone walls, cellar holes and apple trees. The Crown Point Military Road passes through this area as well. Recreation is limited to dispersed activities except for the VAST trail which passes through the west portion of compartment 1.

Most of the forests of Tiny Pond are dominated by northern hardwoods but there are stands of hemlock and mixed woods interspersed and hemlock dominates the Tiny Brook valley. Current forest conditions of average timber quality, challenging operating terrain, and very limited access options suggest that commercial timber harvesting will be difficult. It will also depend upon availability of access through private land. There are the remains of one early nineteenth century farmstead near the north line, but there are no other known or suspected historic sites.

Forest access, for recreation and forest management is also limited. Access along Route 100 in Tyson offers parking and a woods road to the pond available for access for hunting, fishing and trapping and for dispersed non-motorized, non-mechanized activities such as hiking, cross-country skiing and snowshoeing. Other access is through rights-of-way that are restricted by deed to forest management access only. Unauthorized ATV and snowmobile use is occurring on the parcel along existing skid road networks developed prior to state ownership.

Strategies and Actions

Ecological/Wildlife

- Monitor, maintain or enhance overall quality of state significant natural community occurrences (A1-3,4,6; F3,4,7,11).
- Assess management activities for potential to introduce and/or spread exotic species (E31,3; A1-3,4,6,7).
- Management strategies should promote adequate numbers of live (4-6/acre) and dead (4-6/acre) snags, and coarse woody debris (50-80 pieces/acre) and retain adequate standing cull trees and older trees to become fallen dead wood (A2-26).

Links to Assessments:

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- Clearcuts should not exceed 10 acres and openings greater than ½ acre should not be located adjacent to Highly Sensitive Management areas to discourage the spread of cowbird habitat (A2-23).
- Assess management activities for impacts to wildlife habitat including rare, threatened and endangered plant and animal species (A2-1-10)
- Protect riparian area function through use of district buffer considerations (A2-14,16; Appendix).
- Maintain forested amphibian recolonization corridors (A2-15).
- Harvest no more than ½ of the forestland within 800 feet along TH #20 and CCC Road in one 10-year period to facilitate bear movement (A2-25).
- Create patches of early successional habitat evenly distributed across the General Management areas of CWMU to begin to reverse the decline in this habitat type. Total area of early successional habitat (0-15 year age class) should strive to meet the target of 3% of the land area of CWMU in this habitat type (A2-27).
- Maintain beaver activity when it doesn't conflict with primary road infrastructure and has ecosystem benefits (A2-29; F10).
- Maintain historic character and habitat value through periodic mowing.

Recreation

- Maintain trails according to department trail management guidelines.
- Evaluate new recreational use requests in the context of total recreational use of CWMU (degree of use, number of trails), Recreational Opportunity Spectrum, and goals of this management designation.
- Work with the VAST organization to post and enforce opening of snowmobile season (E18).
- Monitor trailheads for unauthorized uses (parties, dumping) (E-11,14).
- Monitor shelters to:
 - Discourage unwanted and damaging uses (E26,31; D1b).
 - Address issues of human waste and lack of potable water (E29).
 - Repair or remove as public safety becomes an issue (E 27, 28).
- Work with law enforcement agencies to document levels of illegal use and target enforcement efforts (E11,31, 98).
- Barricade and sign access points to prevent motorized vehicles to protect resources (E99-102; G1,3; F16).
- Maintain all existing trailheads and other parking areas (E13).
- Maintain trail buffers to protect trail aesthetics. Trees can be cut for trail corridor maintenance and public safety considerations within corridor buffers.
 - AT/LT and associated side trails – 500' buffer on each side as specified in easement.
 - Shrewsbury Peak Trail – 100' each side as specified in Act 250 regulations.
 - Designated hiking trails – 25' each side to protect trailside aesthetics. Buffer distance derived from public input meeting.



Education and Outreach

- Work cooperatively with interested trail organizations and user groups to get trail and wildlife habitat work accomplished (E8,40; A2-27, public comment).
- Provide public education (kiosks, brochures, visitor contact, maps of recreation opportunities) on subjects including (E13)
 - Primitive camping (E31).
 - Mountain bike and horseback riding policies (E59,62, 64).
 - Appropriate recreational uses (E13).
- Educate and inform the public with respect to timber sale program (F12-20).

Vegetation Management

- Commercial timber harvesting and salvage operations will occur (F).
- Management will use recognized silvicultural guides and consider additional research on natural systems silviculture and natural community management (F).
- Management activities will maintain overall quality ranking of occurrences of state significant natural communities.
- Mitigate effects of timber sale program on other forest uses.
 - To extent possible operate sales in different areas or timber sheds so that TH #20 and CCC Road are not plowed in the same year (F1,2,5,7,12,17,17a,18)
 - Consider potential impacts to aesthetics (F19,51).
 - To the extent possible, based on site conditions, plan some timber sales for summer operations to lessen potential conflicts with winter recreation. It must be recognized that based upon soils and other site conditions this will be difficult to do and limited in application (F17).
- Protect soils, water quality and riparian buffers by operating under appropriate conditions and following district buffer considerations (F13, 14,15; H).
- Monitor and control spread of invasive exotic species (F15, A2-31,32).
- Close and barricade timber sale roads and access trails to prevent ATV use. Consider ATV potential when establishing skid road infrastructure (F1; E52,53,54; G1; E99,100).
- Noncommercial management may utilize prescribed burning, mechanical techniques, hand labor through volunteer efforts, or public fuelwood lots.
- Individual trees of special wildlife significance will be protected (A2-7,18,21,26).

Northern Hardwoods (Timber Assessment)

- Commercial timber management will utilize both even and uneven-age silvicultural systems.
- Elements of coarse woody debris, snag and den trees, vertical structure, multi-cohort representation, and legacy trees (A2-26) will be maintained.

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- Canopy openings will range from a group size of ½-acre to a patch size of several acres up to a clearcut size limit of 10 acres for specific early successional habitat goals (A2-27).
- Rotation length will be 125 years.
- Cutting cycle will be 25 years.

Spruce-Fir Forests, Mixed Hardwoods (Timber Assessment)

- Commercial timber management will utilize both even and uneven-age silvicultural treatments.
- Rotation length will be 80 years.
- Cutting cycle will be 20 years.
- Canopy openings will range from a group size of ½-acre to a patch size of several acres up to a clearcut size limit of 10 acres for specific early successional habitat goals (A2-27).

Softwood Plantations (Timber Assessment)

- Periodic thinnings will be scheduled as needed based upon the appropriate silvicultural guidelines.
- Management will promote regeneration of native species (F11; A2-32,33a).

Historic

- Identify, document and map any known or discovered historic features (D1, UMaine Report).
- Protect known or suspected historic sites as per 22 VSA § 767 and ANR Timber Harvest Archeological Protocol (D1).

Forest Access

- Continue regular program of road maintenance.
 - Work with the Fish and Wildlife Department to assess impact of roads, culverts and bridges on habitat connectivity (A2-15; H1).
- Continue to barricade and sign roads against unauthorized motorized traffic (F15,16; E54; G1,7).
- Work with law enforcement agencies to document levels of ATV use and vandalism and target enforcement efforts (G1, 12, 12a).
- Evaluate fragmentation when considering new road and trail corridors (A2-22, G4).
- Consider aesthetics in road maintenance program (G5; E51).
- Construct bridge for stream crossing on Tin Shanty Road (G).
- No construction of all-season truck roads or passenger vehicle access roads is scheduled for this planning period. Access challenges concerning the Park Service right-of-way to the former Poczobut parcel should be addressed and potential new winter-only truck access considered from the Gilman Road (Road Assessment).
- Do not upgrade section of skid road between the ends of the Grouse Hill North and South (truck) roads to an all-season truck road (G; Public Comment).

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Timber Management Implementation Schedule (2008-2021)

The timber management sale schedules are presented as areas of assessment. The acreage figures are gross and do not consider buffers, operational limitations, etc. Detailed prescriptions will be developed based on inventory data, site conditions, stand vigor, forest health, rate of individual tree crown closure, wildlife habitat requirements, presence of exotic species, and natural species composition and presented in the Annual Stewardship Plan. This schedule will be implemented following information, goals and strategies as outlined in previous sections of the management plan including Sections 2.11, 3.0 and in the Timber Resource section to follow. Note that as rotation lengths occur over decades, the dates of implementation may vary over a several year period without significant impact to the timber resource.

Sale #	Area	Acres	Timber Type	Treatment	Approx Year	Season	Access
1	Carris-Bigelow Comp. 1	175	NH	Uneven-age; single-tree, group selection	2009	Winter	Wheelerville Road
2	Carris-Bigelow Comp. 2	76	NH	Uneven-age; single tree, small group	2009	Winter	Wheelerville Road
3	Carris-Bigelow Comp. 2	88	NH	Uneven-age; include some patches for early successional habitat (ESH).	2009	Winter, summer?	Wheelerville Road
4	Plymsbury	2		Early successional habitat openings	2009	Summer	TH #20
5	Carris-Bigelow Comp. 3	70	NH	Uneven-age; include some patches for ESH	2010	Winter, summer?	Wheelerville Road
6	Plymsbury WMA Comp 2, stand 4	100	NH	Uneven-age, group selection. Some patches for ESH.	2010	Winter	TH #20
7	Plymsbury WMA Comp. 6	139	SF	Uneven-age, group selection. Some patches for ESH.	2010	Winter	TH #20
8	Plymsbury Comp. 7	100	SF	Uneven-age, group selection. Some patches for ESH	2010	Winter	TH #20
8a	PCB Comp. 9	20	Norway spruce	Even-age, thinning	2010	Summer	TH #20
9	PCB Comp. 1	160	NH	Uneven-age, group selection	2011	Winter, summer?	Upper Cold River Road
10	PCB Comp. 1	24	NH	Uneven-age, single tree, small group	2011	Winter	Upper Cold River Road
11	PCB Comp. 4	249	NH, SF	Uneven-age; deer wintering guidelines	2011	Winter	Tin Shanty
12	Ninevah Comp. 2	40	SF	Group selection, patch	2012	Winter	Ninevah Road
13	Saltash Comp. 3	100	NH	Uneven-age; single tree, group	2012	Winter	Eastham Road
14	Saltash Comp. 2	70	NH	Uneven-age; single tree, group	2012	Winter	Eastham Road
15	PCB Comp. 7	111	NH, SF	Thin overstory	2013/14	Winter	CCC Road
16	Bissell Comp. 5	125	NH	Single tree, group, large patches	2013/14	Winter	CCC Road
17	Bissell Comp. 5	100	NH	Single tree, small group	2013/14	Winter	CCC Road
18	Ingalls Comp. 4	85	NH	Uneven-age, group selection. Some patches for ESH.	2013/14	Winter	CCC Road
19	Ingalls Comp. 3	200	NH	Uneven-age, group selection. Some patches for ESH.	2013/14	Winter	CCC Road
20	Saltash Comp. 4	100	NH	Uneven-age, group selection. Some patches for ESH.	2015	Winter	Tyson Road



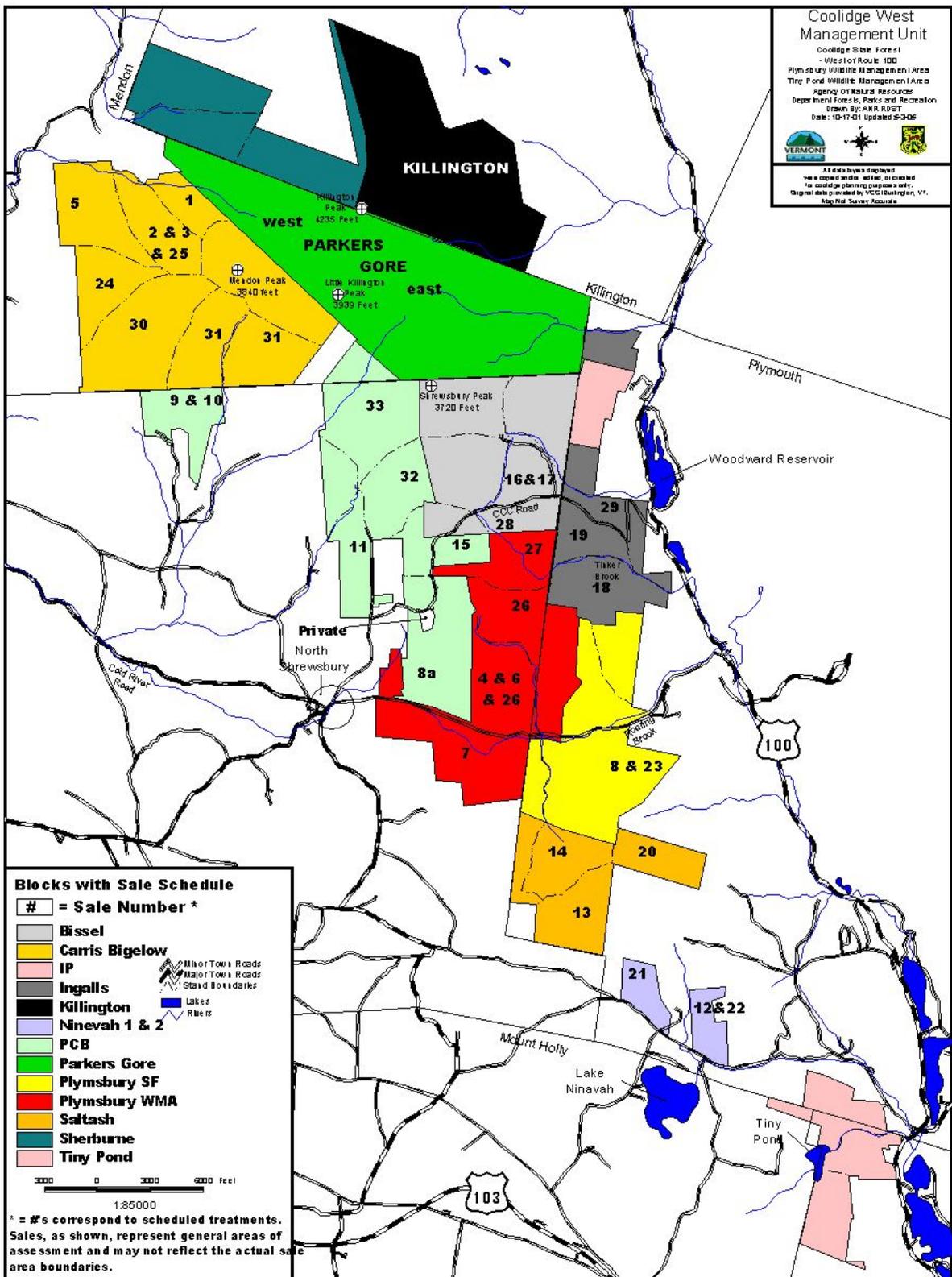
Sale #	Area	Acres	Timber Type	Treatment	Approx Year	Season	Access
21	Ninevah Comp. 1	107	NH	Single tree, group	2015	Winter	Ninevah Road
22	Ninevah Comp. 2	67	SF	Single tree, group Aspen regeneration	2015	Winter	Ninevah Road
23	Plymsbury Comp. 7	450	NH	Single tree, group	2016/17	Winter	TH #20
24	Carris-Bigelow Comp. 4	175	NH	Uneven-age, group selection. Some patches for ESH.	2018	Winter	Wheelerville Road
25	Carris-Bigelow Comp. 2	210	NH	Uneven-age, group selection. Some patches for ESH.	2018	Winter	Wheelerville Road
26	Plymsbury WMA Comp. 2	100	SF	Uneven-age, group selection. Some patches for ESH.	2019/20	Winter	CCC Road
27	Plymsbury WMA Comp. 1	120	NH	Uneven-age, group selection. Some patches for ESH.	2019/20	Winter	CCC Road
28	Bissell Comp. 7	145	NH	Single tree, group	2019/20	Winter	CCC Road
29	Ingalls Comp. 2	178	NH	Uneven-age, group selection. Some patches for ESH.	2019/20	Winter	CCC Road
30	Carris-Bigelow Comp. 5	220	NH	Single tree, group	2021	Winter	Wheelerville Road
31	Carris-Bigelow	280	NH	Single tree, small group	2021	Winter	Wheelerville Road
32	PCB Comp. 5	279	SF, NH	Group selection	2022	Winter	Tin Shanty Road
33	PCB Comp. 2	150	NH	Single tree, group	2022	Winter	Tin Shanty Road

Timber Flow

This chart illustrates the general area and access to be used in the implementation of the timber management program as outlined above. Please note that entry into each area is staggered as much as possible to minimize potential impacts on recreational uses in the area.

Year	Access
2009	Wheelerville
2010	TH #20 Wheelerville
2011	Upper Cold River Tin Shanty
2012	Ninevah Road Eastham Road
2013	CCC Road
2014	CCC Road
2015	Tyson Road Ninevah Road
2016	TH #20
2017	TH #20
2018	Wheelerville Road
2019	CCC Road
2020	CCC Road
2021	Wheelerville
2022	Tin Shanty





4.0 Intensive Management Areas

Intensive Management Areas are described as “...*characterized by a high level of human activity and high intensity development...*” The lands that fit this category are part of the Killington Ski Resort lease holdings. These lands are owned by the Agency of Natural Resources but leased to Killington Resort as part of a 100-year lease that began in 1960. These holdings include 1676 acres or nearly 9% of CWMU.

Management Goals and Objectives:

- Protect natural and historic resources while providing high quality winter and summer recreational opportunities.
- Minimize soil erosion in the cleared trails and work roads by employing Best Management Practices and maintenance programs.
- Maintain water quality.
- Cooperate with ski area staff about AT/LT trail management opportunities and search and rescue.

4.1a) Killington Ski Area (1676 acres; map reference 4.1a) The Killington Ski Resort is a four-season resort offering opportunities for mountain biking, hiking and other summer uses in addition to downhill skiing and snowboarding. The resort is the largest ski resort in Vermont and has regional and statewide economic significance. Resort expansion over the years has impacted many additional acres and has included at least two major public land exchanges with the State of Vermont.

Killington Ski Resort has been operating under a series of Act 250 Land Use Permits since the law was passed in 1970. The law requires the Department of Forests, Parks and Recreation to be co-applicants to any land use permit for construction of lifts, trails, snowmaking pipelines and buildings within the State-owned leasehold boundary of Coolidge State Forest.

In addition to complying with conditions of all Act 250 permits, Killington is also required by lease to submit an Annual Work Plan for review and approval by the Department of Forests, Parks and Recreation each year prior to the start of construction and maintenance operations.

Management Strategies and Actions (As conditioned within Act 250 Permits):

Ecological/Wildlife

- Manage and mitigate impacts to rare, threatened and endangered plant and animal species, where applicable (A2-1a,5a,8,9; C1).
- Protect streams, wetlands, riparian areas during times of lift and trail maintenance and construction (A2-14,16; C1).
- Maintain the quality ranking of the Subalpine Krummholz, Montane Spruce-Fir Forest, Montane Yellow Birch-Red Spruce Forest (A1-1,2,3,6).
- Construct and maintain ski trails and open areas within the leasehold boundary to meet the recommendations of the Killington Ltd. Wildlife Management Plan (A2-1a).

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- Monitor summer mountain bike use of ski trails to conform with Easement and Act 250 conditions to reduce impacts on wildlife habitat (C1).

Recreation

- Construct and maintain all ski trails, bike trails, and mountain infrastructure according to Act 250 permit conditions to minimize soil erosion and sedimentation (C1).
- Maintain all roads, bike trails and hiking trails according to Act 250 conditions.
- Develop a search and rescue plan with the Departments of Public Safety and Forests, Parks and Recreation (E 46, 46a).

Education and Outreach

- Encourage efforts to prevent out-of-bounds skiing and glade trail construction with signage and monitoring (E44).
- Work with Killington Resort to minimize influence of intensive recreational activities on adjacent AT/LT lands and highly sensitive land.
- Maintain cooperative relationships through Act 250 and Memorandum of Agreement to address and control new recreational activities as they occur.

Vegetation Management

- No commercial timber harvesting will occur within the leasehold boundary with the exception of salvage operations created by natural occurrences.
- Commercial timber harvesting for trail construction and maintenance is permitted.
- Vegetation may be cut for trail construction, maintenance and for safety.

4.1b) Killington Peak Communication Site (0.3 acres; map reference 4.1b) The Killington Peak Electronic Communications site, located 40 feet from the top of Killington Peak, is an officially designated state communications area within Coolidge State Forest. Maintenance access to the site is by track vehicles and ski lifts during the winter season and by four-wheel drive vehicle during the remainder of the year.

This site has a building for housing radio equipment for various state and federal agencies, broadcast and medical entities, two 100-foot guyed towers and a 40-foot self supporting fire tower that supports two radio antennas. A small shelter beneath the tower houses FM broadcast radio equipment. There are no private commercial users at the site. There are hiking trails near the communications facility and a trail-side vista adjacent to this site.

This site is not included in the Killington Lease hold area and is managed by the Vermont Department of Public Safety under a Memorandum of Agreement with the Department of Forests, Parks and Recreation. The Parks division of the Vermont Department of Forests, Parks and Recreation is responsible for on-going maintenance of the fire tower structure.

Management Strategies and Actions:

- Work cooperatively with the Vermont Department of Public Safety and its users to manage and maintain the communication site.

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- Protect rare, threatened and endangered plant and animal species and natural communities (A1-1,2,3; A2-1a,5a,8,9).
- Minimize the influence of activities on adjacent lands classified as Highly Sensitive (E4I).
- Maintain the quality ranking of the Subalpine Krummholz, Montane Spruce-Fir Forest, Montane Yellow Birch-Red Spruce Forest. (A1-1,2,3,6).

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Management Prescription by Resource Category

The previous section, *Management Prescriptions by Land Classification Category*, described management strategies and actions by land area. The following section describes management strategies and actions by resource (i.e. recreation, timber) as they occur throughout CWMU. The strategies and actions are the same in each of the sections just arranged differently so that the reader can refer to a specific area or to a specific activity when reviewing this document.

Ecological Resources

Rare, Threatened and Endangered Species

On CWMU these species include Bicknell's thrush, common loon, Cape May warbler, bay-breasted warbler, rusty blackbird, rock shrew, small-footed bat, Indiana bat, small-flowered rush and the showy mountain ash (A2:1-10).

- Support surveys to determine the extent of these species on CWMU.
- Evaluate all management activities for impact to rare, threatened and endangered species.
- Ensure that management activities do not adversely impact habitats for all species found.

Critical Habitats

Some wildlife species have specific critical habitat needs that are important for maintaining their populations. In many cases, wildlife may be concentrated in these particular critical habitats including wetlands; amphibian breeding sites; streams, lakes and ponds; deer wintering areas; hard mast stands; and raptor nests.

- Follow riparian buffer guidelines supported by VT Fish and Wildlife Department (A2-14,15,16).
- Consider placement of amphibian recolonization corridors to alternate breeding sites (A2-15).
- Manage deer wintering area in accordance with Fish and Wildlife Department guidelines (A2-17).
- Employ management strategies to provide for important habitat elements (i.e. mature forest conditions, early successional habitat, riparian buffers) (A2).
- Maintain function of bear feeding areas and apply most current scientific guidelines in managing those stands (A2-18,19).
- Minimize human disturbance to important key mast areas (A2-20).
- Maintain or enhance long-term mast production through management of existing beech stands and/or establishment of replacement stands (A2-18).
- Identify and buffer raptor nests from adjacent management according to VT Fish and Wildlife Department guidelines (A2-21,24).

Habitat Block Size and Connectivity

All species require habitats of sufficient size to meet their life requirements. Habitat fragmentation reduces habitat block sizes and may affect the ability of an area to support particular wildlife species.

- New fragmenting features (e.g. new roads, powerlines, new fields, wide trails) may

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need to be closed or reclaimed should the surrounding landscape become fragmented (A2-22).

- Control introduction of nest parasitism by brown-headed cowbirds by locating canopy openings greater than 10 acres away from large forested blocks or areas managed to mimic natural processes (A2-23).
- To assure bear movement across the CCC Road and TH #20 harvest no more than ½ of the forestland (800 feet from road) along the two roads in one 10-year period (A2-25).

Snags, Den Trees and Downed, Dead Wood

Standing dead and dying trees and downed, dead trees are vital components of the forest providing food and shelter for wildlife.

- Promote adequate numbers of live (4-6/acre) and dead (4-6/acre) snags and coarse woody material (50-80 pieces/acre) (A2-26).

Habitat Diversity

In general, a mixture of mature forest natural communities, forestland of various age classes and structures, shrubland, wetlands, and permanent openings will provide for a full array of wildlife. The key challenge is to provide this matrix without impacting the ability for the parcels to support all of their native species. Habitat assessment of CWMU indicates availability of little late successional habitat, declining levels of early successional habitat, very little shrubland habitat, and poorly distributed grassland associated with permanent openings. Presettlement figures were used as a benchmark for consideration of the early successional habitat component on CWMU. Those figures for the Southern Green Mountain Biophysical Region were estimated at 4% of the landscape (see *Appendix: Wildlife Assessment*). Presettlement figures must be considered in the context of other factors including legal constraints; objectives of parcel ownership; habitat requirements of other declining species; the availability of early successional habitat through both active management and natural disturbance within the immediate region surrounding the parcels; public demand for certain species associated with early successional habitat; and existing habitat features and natural communities.

- Increase the availability and distribution of early successional habitat to 3% to reduce the rate of decline of species dependent upon that habitat component (A2-27).
- No commercial timber harvesting will occur on those lands designated as Highly Sensitive Management in order to increase the availability of late successional forest habitat (A2-28) except to manage the exotic Norway spruce plantation within those areas.
- Beavers actively create shrubland habitat. To promote this component within the General Management category on CWMU management should strive not to discourage beaver activity except in instances when damage to infrastructure (i.e. roads, trails) or human safety exists (A2-29).
- Encourage the establishment and maintenance of permanent openings (i.e. landings, fields) uniformly distributed across the landscape. Maintain permanent openings through periodic mowing or use of prescribed fire (A2-30).

Non-native Species

Exotic species are not currently present on CWMU in numbers considered to be a problem. Due to the invasive nature of these species and their often problematic presence elsewhere in the southern

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Vermont region, they should continue to be monitored and if present, considered in planning management activities.

- Monitor areas of known introductions of exotic species and along likely corridors for new introductions (A2-32).
- Consider programs to control invasive species where populations become established (A2-31).
- Consider the presence of exotics during management activities and alter management as necessary to prevent establishment of a new population or increase in an existing one.
- Monitor for introduction of Asian Longhorned beetle and hemlock wooly adelgid on CWMU lands (A2-33).

State Designated Natural Areas

There are three designated State Natural Areas on CWMU. They include Shrewsbury Peak, Mendon Peak and Tinker Brook Natural Areas. Mendon Peak and Shrewsbury Peak Natural Areas are located at high elevations surrounded by lands designated as Highly Sensitive under the Land Management Classification system. Mendon Peak has no trail access, Shrewsbury Peak does. Tinker Brook Natural Area is located within the Tinker Brook gorge. It is easily accessed by a short hiking trail from the CCC Road.

- Maintain Mendon Peak as trail-less. Eliminate bootleg trails (B1).
- Address issues of illegal ATV access to the summit of Shrewsbury Peak (B3, B4).
- Minimize the impacts of management of adjacent lands to the Tinker Brook gorge (B8).
- Expand the Tinker Brook Natural Area to include the entire natural community and gorge to the top of the bank (B9). This would increase the size of the natural area by approximately 10 acres.
- Remark Tinker Brook Natural Area boundary lines on the ground to coincide with expanded designation.
- No commercial timber harvesting or salvage operations.
- No construction of structures with Natural Areas (C1).
- Manage hiking and other activities to protect high elevation natural communities (A1-1,2; B1).
- Monitor impacts of hiking trail through Tinker Brook Natural Area.

Historic Resources

There are many historic resources on CWMU associated with the Civilian Conservation Corps, early agriculture, logging and settlement in the area. The CCC Road and the remains of the original Coolidge State Park were all constructed by the CCC in the 1930s. Remains of mills, farmsteads, and homes are found in concentrations along TH #20, Tin Shanty Road and scattered throughout the parcels.

- Conduct periodic monitoring of known sites (D1; E26,27,28,30,31).
- Identify, document and map historic and pre-contact resources, as possible (D1; UMaine Report).

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- Evaluate management activities for impacts to historic resources (*DI, C; UMaine Report*).
- Consult with the Vermont Department of Historic Preservation for the protection and documentation of historic resources (*DI; C*).
- Develop minimal public education about historic resources of CWMU (*UMaine Report*).
- Maintain sections of historic landscape (*UMaine Report*).
 - Minimize impacts to all known resources within CWMU from management activities.
 - Maintain historic apple trees through release from competing vegetation.
 - Restore/maintain representative examples of nineteenth century upland field systems (*UMaine Report, A2-30*).

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Recreation Resource Management

Recreation opportunities on Coolidge West Management Unit are dispersed, often remote, and include winter and summer based activities both on trails and off-trail including hiking, snowmobiling, cross-country skiing, snowshoeing, hunting, fishing, trapping, biking, primitive camping, pleasure driving, and wildlife viewing. Despite the large acreage, many of these activities are concentrated, usually associated with access. Resource damage and potential conflicts need to be addressed through planning and monitoring in an effort to find resolution. Requests for new trails and areas dedicated to single use recreational activity will need to be considered in the context of total recreational use of CWMU and goals of management. Ultimate management responsibility lies with the Departments of Forests, Parks and Recreation and Fish and Wildlife, although partnering agencies often provide on-the-ground maintenance of trails and shelters.

Trail Corridors and Pedestrian Uses

Much of the public use of CWMU occurs along designated trail corridors which accommodate both motorized and non-motorized activities. Some trail corridors are dedicated to a single use and others are maintained as multiple use trails. Hiking is popular and the reliable snow conditions and beautiful scenery of CWMU help to make it an attractive location for snow-based winter recreation, as well, including cross-country skiing, snowshoeing, and snowmobiling. Concentration of several activities with differing experience expectations in a relatively small area has led to conflict among users. Despite its nearly 20,000 acres, CWMU is not large enough to offer each activity a dedicated area or trail network, and still protect the resource and preserve the quality of the experience.

The public input process revealed conflict between motorized and non-motorized winter uses on shared trail systems. Several areas have been designated for non-motorized use only. These include the remote High Peaks Area (1.0, 2.11) offering a more backcountry experience and the former Besseney lands (1.1C) offering an experience closer to parking areas and town roads.

Hiking

- Maintain cooperative relationships with Green Mountain Club (GMC) and other trail partner organizations to manage the AT/LT system on CWMU land according to ANR trail and shelter management guidelines (*E8*).
- Maintain trails and shelters (outside the AT/LT system) according to ANR trail management guidelines and in cooperation with trail partner organizations (*E-8,12*)



(Sections: 2.11, 3.0).

- Provide areas of remoteness for semi-primitive recreation opportunities including dispersed, non-motorized, non-mechanized activities where appropriate and compatible with management goals and consistent with easement language (*Public Comment; E; C*).
- Work with law enforcement agencies to enforce ATV regulations. Work with partner organizations to enforce conservation easement provisions (*C: E14,97*).
- Manage hiking and other activities to protect rare and sensitive plants, animals and natural communities (*A1; A2-1-10; E8,9,12*).
- Monitor levels of trail use to identify future needs and problem areas (*E11*).
- Work with recreation groups to assess and mitigate impacts to recreational experiences and trail surfaces (*E7*).
- Construct no new winter or summer use trails on Mendon and Little Killington peaks as trail-less. Eliminate bootleg trails to those peaks (*E; B*).
- Maintain vegetative trail buffers for aesthetic consideration. Trees can be cut for trail maintenance and public safety considerations within corridor buffers.
 - AT/LT and associated side trails – 500’ buffer on each side as specified in easements (*C3*).
 - Shrewsbury Peak Trail – 100’ each side as specified in Act 250 regulations (*C*).
 - Designated hiking trails – 25’ each side to protect trailside aesthetics (buffer distance derived from public input meeting).

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Winter Pedestrian: Cross-Country Skiing, Snowshoeing

- Maintain the former Besseney lands and remote high peaks area for non-motorized, non-mechanized, dispersed recreational activities (*C*).
- Explore the possibility of connecting the loop trail on former Besseney lands to the Catamount Trail to create a cross-country ski trail network (*E-16,17,24,34,36,37,40; Public Comment; C*).
- Continue cooperative agreement with the Shrewsbury Outing Club for the maintenance of the designated cross-country ski loop on the former Besseney lands (*E38,40*).
- Work with the Catamount Trail Association to relocate and maintain sections of the catamount trail consistent with management goals and objectives of CWMU (*E-39*).
- Protect resources from ATV access by barricading roads and trails and working with law enforcement agencies (*E-97; G1*).

Winter Motorized: Snowmobile Trail Corridors

- Work with Vermont Association of Snow Travelers (VAST) to maintain the snowmobile trail network. Reduce environmental and user group conflicts, and provide a high quality experience (*E16,18,19,21,23,24*).
- Work with the VAST organization to enforce speed limits to ensure a safe trail experience; limit user conflicts by understanding responsibilities on shared trails; and encourage snowmobile use on designated trails only (*E-35*).



- Monitor trail use to determine degree and intensity of trail use and potential user conflicts (E23,24).
- Continue to administer commercial use of snowmobile trails within legally designated areas in CWMU (E20).

Hunting, Fishing, Trapping

Opportunities for hunting and trapping can be found throughout the management unit. Fishing opportunities are more limited due to the limited number of streams. These activities are permitted on all state lands unless otherwise designated and, in fact, are the primary uses on Wildlife Management Areas. The actual pursuit of fish and wildlife is governed by rules and regulations established by the Vermont Fish and Wildlife Board. Coolidge West Management Unit, the largest state ownership in southern Vermont, is located in Wildlife Management Unit L. This large acreage lends itself well to hunting large game including white-tailed deer, black bear and moose. Ruffed grouse, snowshoe hare, and turkey hunting are also popular activities at different times of the year. Great Roaring Brook, Tinker Brook, Eddy Brook, and other tributaries afford fishing opportunities, primarily for brook trout.

- Manage forest land of CWMU to provide a diversity of habitat (A2).
- Maintain parking areas, wide spots along roads, and landings for parking (E).
- Address potential conflicts between hunting seasons and early snowmobilers by working with VAST to enforce opening of snowmobile season (E1).
- Provide users with information pertaining to appropriate uses and responsibilities with respect to area resources including hunting, fishing and trapping (E4).

Camping/Structures

Camping use is relatively limited on CWMU. There are five remote shelters and areas designated for primitive camping (see *primitive camping guidelines in Appendix*). The camp loop, part of the original Coolidge State Park, is of historic significance and is being used occasionally by overnight campers. The use of this area of this area leads to damage of a CCC-era historic resource. There is no potable water and no provisions for disposal of human waste. Measures will be taken to close this area to overnight camping. It does not meet the definition of primitive camping as mentioned above.

- Cooperate with the Vermont Department of Historic Preservation and the Green Mountain Club to remove Cooper Lodge when GMC constructs a new alternative shelter. Document historic aspects of Cooper Lodge to meet historic preservation guidelines (D1; E28).
- Support US Forest Service and GMC efforts to find a solution to inappropriate uses and vandalism of Governor Clement Shelter (E27,28,31).
- Monitor Shrewsbury Peak, Tinker Brook, and Russell Hill shelters for safety, condition of structure and site impact. Vermont Department of Historic Preservation. Replace or remove after determination of cost/benefit of structure. Document historic aspects of shelter to meet historic preservation guidelines (E28; B5; D1).
- Remove Tin Shanty camp after February, 2010 to meet conditions of Vermont Land Trust easement (Section C: Legal Constraints).

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- Monitor Stone House shelter for safety, condition of structure, site impact, and levels and type of use (E26,30; D1). Support public use activities at the Stone House provided they don't conflict with management goals and objectives for the area.

Parking

Availability of parking varies by season. Summer parking includes developed, designated parking areas as well as opportunities to park in wide spots along roads and in mowed landings. Winter parking is limited to several designated areas due to the availability of plowed access (Recreation Assessment).

- Maintain existing parking areas, and roadside turnouts at current size (Public Input Process).
- Monitor use of existing parking facilities to identify user conflicts and future needs (E69).

Recreation Requests

Requests for new trails or other recreational facilities will be considered, by the District Stewardship Team, in the context of the experience-driven Recreational Opportunity Spectrum (ROS) as it applies to CWMU, the Land Management Classification within this long-range management planning document, and environmental review of the proposal by the district stewardship team.

The 2004 ATV Collaborative Report and Recommendations for the Governor limits consideration of ATV trail crossing state land to those trails serving as a corridor link between trail systems found on adjacent private land or other public land. The criteria for considering a carefully selected connecting corridor include full site specific environmental review and evaluation, public involvement, and a designated user group agreement for use, repairs and maintenance.

Providing quality recreational experiences requires a balance with other uses and the resource. These uses must not degrade the quality of the recreational experience and must be compatible with the long term goals of the management unit.

- Consider new trail or recreation requests in the context of total recreational use of CWMU and the Land Management Classification system. Considerations include:
 - State policy, laws, and local ordinances
 - Resource capabilities and sensitivities
 - Location
 - Intensity of use (levels of use, number of users)
 - ROS expectations
 - Conflicts with other users and user groups
 - Legal considerations

Education and Outreach

Education and outreach efforts provide the general public and forest user information with which to better understand and appreciate the diversity of resources and opportunities offered by CWMU and to have a safe and enjoyable recreational experience.

- Maintain an active education and outreach program (E13).
 - Install and maintain kiosks at trailheads.

Links to Assessments:

- A. Coarse/ Fine Filter
- B. Natural Areas
- C. Legal Constraints
- D. Historic Resources
- E. Recreation
- F. Timber
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- Develop maps and brochures of recreational opportunities.
 - Provide information on primitive camping regulations, low impact techniques, user impact on sensitive plants, soils and natural communities (A1; A2; E31,32,33).
 - Advance public knowledge about the appropriate uses of CWMU (E13). Explain stewardship activities and opportunities within CWMU.
 - Publicize CWMU recreational opportunities in nearby state parks and private campgrounds.
 - Maintain the Coolidge Ridge Runner program, as a means to educate hikers in high elevation hiking and leave-no-trace techniques (E8,11,13).
 - Educate users of historic resources following guidelines set for in University of Maine archeological report (*UMaine Report*).
 - Provide copies of long-range management plans and Annual Stewardship Plans to easement holders, area towns and planning commissions.
- Foster collaborative relationships with partner organizations and individuals interested in CWMU.
 - Maintain contact with town and regional planning commissions by providing a summary of yearly stewardship activities proposed to be implemented as part of the LRMP.

Links to Assessments:

- A. Coarse/ Fine Filter
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Timber Resources

Timber and vegetation management on CWMU contributes to the maintenance and enhancement of biodiversity; production of a diversity of forest products at a sustainable level; improvement of forest health conditions; management of quality habitat; enhancement of scenic beauty; control of exotic species; and the demonstration of sound forest management practices. The timber management program will comply with State of Vermont Acceptable Management Practices (AMP's) protection of water quality (F13); recommendations from Vermont Natural Heritage Program to protect rare, threatened and endangered species and sensitive natural communities; the Vermont Division of Historic Preservation to protect historic resources; and Fish and Wildlife Department to manage important habitat features (F14).

Management of the timber resource on CWMU is a long-term endeavor with goals being accomplished over rotation lengths varying from 80 years in spruce-fir to 125 years in hardwoods and within some Special Management Areas, up to 200 years.

Recognized silvicultural guides developed by the U.S. Forest Service will be used to develop stand prescriptions for both commercial and non-commercial vegetative treatments within CWMU. Additionally, research on natural systems silviculture, natural community restoration practices, and systems which emulate natural processes will also be considered.

Timber management practices will include such timber harvesting methods as clearcutting, shelterwood, group and individual tree selection harvesting as well as other harvesting methods to create or maintain even-aged and uneven-aged timber stands. Vegetation management



objectives will be achieved through a variety of practices including commercial timber sales, non-commercial operations (fuelwood, timber sale improvement), prescribed fire, and mechanical treatments (mowing, brontosaurus).

Stand treatment decisions will be based on such conditions as health and vigor of stands, the rate of individual tree crown closure, wildlife habitat requirements, stand basal area, forest health considerations, presence of exotic species and natural species composition. New information, changes in state lands policy, recommendations from other departments or agencies, changing conditions such as insect and disease outbreaks, weather, workloads, and markets may influence specific recommendations.

- Timber management on CWMU will occur in areas as outlined in the Land Management Classification sections of the plan. This includes:
 - *General Management Area 3.0*. Includes forests on gentle to moderate terrain with good access; resilient natural community types; productive soils; existing timber management infrastructure (i.e. roads, landings); and are economically viable to operate. These areas are capable of supporting commercial and noncommercial timber harvesting and salvage operations.
 - *Special Management Areas, 2.11*. Includes forests on steeper slopes with more fragile and less productive soils; areas of critical wildlife habitat and less common natural community types. These areas are generally less accessible and have a more limited timber management access. They are capable of supporting commercial timber and salvage operations but are more limited than those in 3.0.
 - *Highly Sensitive Management 1.1c*. Commercial timber harvesting will only occur to restore plantations on the former Besseney lands to Lowland Spruce-Fir Forest natural community species composition. This process will occur slowly, over time in the interests of aesthetics (F11).

Timber sale scheduling will be considered spatially and temporally as follows to lessen conflict with recreational uses:

- Attempts will be made to schedule timber sales so that the CCC Road and TH #20 (both important winter recreation resources) are not plowed during the same year for logging access (F12).
 - Concentrations of sale areas will be “moved” around the management unit, over time, in an attempt to lessen potential conflict with recreational uses in a given area (F17a).
 - To the extent possible timber sales will be operated in the summer where soils and other conditions permit.
- Protect forest management access (truck roads, skid roads, state forest highways) from damaging uses (i.e. ATV, vehicles) by gating or barricading, and signing (F16).

Forest Access - Roads

Access to and through CWMU is supported by both public and forest (state forest highway) road systems accommodating both motorized and non-motorized uses. Many state forest highways on CWMU were designed for low volume, seasonal use and are primarily available for forest

Links to Assessments:

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management access, summer pedestrian uses, and as winter snowmobile and cross-country ski trails. These roads are often narrow and have surfaces that are not suitable for high volume, year round traffic.

The CCC Road is a Class B state forest highway that connects North Shrewsbury with Route 100 in Plymouth. It is the only through road on CMWU and serves as recreational access and as the principal management access for activities carried out on CWMU lands. The Old Plymouth Road (TH #20) is a town road that provides important access to lands of CWMU.

- Provide safe, enjoyable access for permitted public uses (*Road Assessment*).
- Construct a 1-mile section of gated, winter truck road from the end of the Gilman Road (town road) to address water quality issues, resource degradation, and conflicts with use of Park Service ROW to the former Poczobut land. (*Road Assessment*).
- Maintain the state forest highway system.
 - Maintain surface, drainage structures, and roadside vegetation (*G13*).
 - Build bridge on Tin Shanty Road to provide access and protect water quality (*Road Assessment*).
 - Barricade or gate skid and truck roads and state forest highways as necessary to protect forest resource and road investment (*G1*).
 - Address ATV use. Document levels of use and work with law enforcement to target enforcement of ATV regulations (*G1; E99,100*).
 - Consult with the VT Fish and Wildlife Department to minimize the impact of culverts and other drainage structures on habitat connectivity (*H1*).
 - Protect visual quality of state forest highway system by (*G5*):
 - Clearing minimal road width
 - Seed and mulch cut and fill slopes.
- Maintain CCC Road as a scenic corridor not as a commuter highway (*E-51*).
- Maintain CCC Road as Class B State Forest Highway
 - Gate road to protect surface when roadbed is soft.
 - CCC Road is a designated VAST snowmobile trail in winter and closed to vehicles during that time.
 - Seek advice from Vermont Agency of Transportation on appropriate signage.
- Manage TH #20 in collaboration with the towns of Shrewsbury and Plymouth

Links to Assessments:

- A. Coarse/ Fine Filter
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Water Resources

The management of Coolidge West Management Unit will, at minimum, maintain the quality of all the surface waters associated with the land. It is understood that agricultural and silvicultural activities which follow Accepted Agricultural Practices and Acceptable Management Practices are presumed to conform with the rebuttable presumption of compliance with Vermont’s Water Quality Standards.

- Protect Class A1 waters (those above 2500 feet in elevation) to maintain their



natural condition. Protect Class B1 waters to maintain a natural or almost natural condition showing minimal changes from reference conditions for aquatic macroinvertebrates and fish assemblages (*H*).

- Consult with the Fish and Wildlife Department to minimize the impact of culverts and other drainage structures on habitat connectivity (*H1*).

Fire Management

District state lands staff will advise loggers and other forest users about hazard reduction, fire access roads and woods operation precautions during fire season. All timber harvesting and management operations will conform with State regulations for slash disposal and Department of Forests, Parks and Recreation guidelines for preventing wildfires.

Wildfire detection will be based upon public reporting and air patrol during periods of high to extreme fire danger. The town fire wardens are responsible for wildfire suppression in their respective towns on Coolidge West Management Area. Forest Resource Protection personnel will assist the town fire wardens with overhead fire responsibilities as well as provide guidance in determining potential compensation to the town involved with fire suppression. State personnel will actively assist the town in suppression efforts if requested.

Prescribed Burns

Prescribed fire may be used as a management tool within the Coolidge West Management Unit to maintain vegetation in existing and/or newly created forest openings and to reduce fire hazard. All prescribed burns will be conducted in accordance with an approved written prescribed burn plan and Department guidelines for conducting prescribed fires.

V. MONITORING AND EVALUATION

Inventory, monitoring, assessment and research are necessary to: evaluate the status of the resource; assess progress toward achieving stated goals; and determining effectiveness of management actions and activities.

- Were proposed strategies and actions carried out?
- Did the strategies and actions have the intended effect?
- Were the results consistent with expectations and predictive models?
- Do we have the necessary information to understand and evaluate actions taken on CWMU?

Obtaining quality information is critical to making informed decisions and conducting sound, thoughtful management actions. Research projects on CWMU are directed by the District Stewardship Team to ensure that they do not conflict with the goals and objectives for the CWMU as stated in the long-range management plan. It is important that individual research projects be assessed for their effects on the resource, potential conflicts with other uses or users, and consist of quality proposals from credible institutions and individuals. All data from private research will be shared with the Agency of Natural Resources.

Ecological/Wildlife

Maintaining the biological diversity of CWMU requires long-term research and monitoring projects in a number of areas. Some of the efforts at meeting these goals include:

<i>Project Description</i>	<i>Organization</i>
Bicknell's thrush research	Vermont Institute of Natural Science (VINS)
Monitoring rare, threatened & endangered species and natural communities	Nongame and Natural Heritage Program (Fish and Wildlife Department)
Water quality	VT Department of Environmental Conservation
Aerial surveys & follow up ground checks– insect and disease monitoring (annual).	Dept. Forests, Parks & Recreation – Forest Protection Division
Bird surveys	Rutland County Audubon
Inventory and mapping of forest, wildlife habitat quality and diversity and natural community conditions (ongoing long-term)	Dept. Forests, Parks & Recreation Nongame and Natural Heritage Program
Amphibian & reptile baseline data – collected through FOREX process	Dept. Forests, Parks & Recreation

Climate Change

If the most conservative current models of climate change are accurate (e.g. Iverson et al. 1999), the Coolidge West Management Unit, like the rest of the region, will experience strong impacts over the next 50-100 years. These changes may have important consequences for forest nutrient cycling, timber productivity, forest pest ecology, wildlife habitat, and our enjoyment of the forest.



Strategies and Actions

- Continue ongoing projects promoting the collection and documentation of quality long-term information critical to the assessment and evaluation of management on CWMU.
- Consider and support appropriate, credible research project proposals which further understanding of ecological elements of CWMU and impacts of management.

Recreation

CWMU is known for its quality recreational experiences. An effective monitoring and assessment program is essential to ensuring the long-term viability of a quality recreational program while protecting the very resources that support that use. Current efforts include:

Project Descriptions	Organization
Trail ambassador – “Ridge Runner” position on AT/LT. Monitors use, interacts with hikers.	Supported by Dept. Forests, Parks and Recreation and trail partnering organizations
Trail condition review.	Dept. Forests, Parks & Recreation with trail partner organizations (GMC, Farm & Wilderness, Catamount Trail Assoc., Shrewsbury Outing Club)

Strategies and Actions

- Conduct a standardized annual trail review monitor trail condition, trail use, illegal uses, and existing or potential conflicts. Consider photo documentation where applicable.
- Collect baseline data on levels and quality of recreational use (i.e. number of hikers). Consider installation of trail counters on hiking trails, support use of trail user surveys by ambassador positions, consider placement of trail logs at trailheads, shelters and other facilities.
- Assess and document level of introduction of invasive exotic pests at trailheads and along trails.
- Establish standardized inventory and documentation of ATV use and damage of recreational infrastructure.
 - Work with enforcement agencies to determine baseline “level of use” (tickets issued, citations made, etc).
- Support appropriate research projects including the collection of baseline data to expand knowledge of recreational carrying capacity; resource impacts; and user conflicts.

Timber

An effective monitoring and assessment program is essential for ensuring the long-term sustainability of a timber management program on CWMU. Careful analysis of the forest, its resource capabilities, potential impact on other important management goals, protection of rare, threatened and endangered species, water quality, management or protection of rare and/or state significant natural communities, and occurrence of natural processes (i.e. insect and disease outbreaks, blowdown events) is important in the execution and understanding of the effects of timber management actions. Current efforts include:



<i>Project Descriptions</i>	<i>Organization</i>
Forest inventory (FOREX, NED) conducted at regular intervals. Provides long-term data on tree species, volume data, stocking levels, health, age).	Dept. Forests, Parks & Recreation
Aerial survey and ground truth – conducted annually to assess forest health	Dept. Forests, Parks & Recreation – Protection Division

Strategies and Actions

- Continue to support ongoing inventory and mapping efforts listed above.
- Conduct periodic, standardized post-sale inventories to assess the effectiveness of management prescriptions and stand treatments.
- Support proposals for research projects evaluating long-term management activities. Gather baseline data as necessary and practical to support assessment of management effectiveness and impacts.

Historic

There are a number of historic resources within CWMU. Current understanding of these resources varies by site. Detailed documentation and study of field evidence is a very important component to the understanding, protection, and interpretation of the individual sites and the greater historic context of CWMU and surrounding areas.

<i>Project Descriptions</i>	<i>Organizations</i>
Literature reviews, field inventory, interviews with area residents.	Dept. Forests, Parks & Recreation (including supported research by University of Maine at Farmington and the University of Vermont).
Map (GPS) historic features	Dept. Forests, Parks & Recreation

Strategies and Actions

- Continue to inventory, map and document historic features.
- Monitor and document condition of known historic features using standardized forms and photo documentation.
- Support efforts to research history of the CWMU area.

VI. FUTURE ACQUISITION/DISPOSITION

It is the State's policy to acquire additions to ANR State lands parcels that are:

- 1) necessary for maintaining or enhancing the integrity of existing State holdings;
- 2) lands, such as in-holdings and other parcels that serve to consolidate or connect existing State holdings and contain important public values and/or facilitate more efficient ANR land management;
- 3) parcels that enhance or facilitate public access to ANR lands; and
- 4) parcels that serve an identified facility, infrastructure, or program need.

All new acquisitions of land to Coolidge West Management Unit will be guided by the Vermont Agency of Natural Resources Lands Conservation Plan adopted in 1999. They will also be done in consultation with the regional planning commissions and the town(s) in which the parcel is located.

Any future disposition of land from the Coolidge West Management Unit will be approved by the Agency of Natural Resources Land Acquisition Review Committee (LARC) and the Secretary of the ANR after consultation with the regional planning commission and the town(s) in which the parcel is located.



VII. APPENDICES

1. Resource Analysis

- A. Ecological Assessments
 - 1) Natural Community
 - 2) Wildlife
- B. Natural Areas Assessment
- C. Legal Constraints Assessment
- D. Historic Resource Assessment
- E. Recreation Assessment
- F. Timber Resource Assessment
- G. Roads Assessment
- H. Water Resource Assessment

2. Public Involvement Summary

3. Management Guidelines

4. Authorization to Plan and Manage

5. Summary of Policies and Guidelines

6. Glossary

7. Reference Cited

RESOURCE ANALYSIS

A. Ecological Assessments

A biological resources inventory of the Coolidge West Management Unit is described below. Agency of Natural Resources staff uses the “coarse filter/fine filter” approach to the ecological inventory and assessment of state lands. Widely recognized as an effective tool for inventorying and managing biological resources, it is an aid to land managers who seek to protect most or all of the species that naturally occur on their lands, but who lack the resources to make exhaustive inventories of all taxonomic groups. Because many groups of organisms are cryptic or poorly understood (for example, fungi and soil invertebrates), it is not practical to make lists of all of them. Even if we could assemble such lists of species, it would be impossible to manage the land with all of them in mind. Instead, natural communities are treated as a proxy for the biological organisms of which they are composed. It is thought that if examples of all of Vermont’s natural communities are conserved at the scale at which they naturally occur, most of the species they contain, from the largest trees and mammals to the smallest insects, will also be conserved. Natural communities are thus a coarse filter for “catching” the majority of an area’s native organisms. Because conservation of habitats (in the form of natural communities) will not protect all species, we also employ a “fine filter” to catch the remaining species that are known to require very specific conditions for their growth, reproduction, wintering, etc. Examples of organisms benefiting from the fine filter inventories described below include breeding birds, deer on their wintering areas, and rare plants.

The coarse filter assessment begins by describing landscape and climatic factors that characterize the Coolidge West Management Unit such as bedrock geology and water resources. It then details the 21 distinct natural community types and variants documented and mapped during inventories of the management unit. This is followed by a fine filter assessment describing rare species and specialized habitat types found here. Along with other resource assessments, this ecological inventory was used to make many of the land management decisions documented in this plan.

1) Coarse Filter Assessment

Biophysical Region and Climate

The 19,399 acres of Coolidge West Management Unit, including lands of Coolidge State Forest, and Plymbsbury and Tiny Pond Wildlife Management Areas, are located within the Southern Green Mountain Biophysical Region (Figure 1). The climate, geology, and landscape of this Biophysical Region are clearly expressed on these lands. Like the Northern Green Mountains, high peaks are common. Unlike the northern mountains, however, the Southern Green Mountains are dominated by a high elevation plateau with numerous, scattered wetlands. Elevations on CWMU range from a low of 1,080 feet on Tiny Pond Wildlife Management Area to the highest of 4,235 feet at the top of Killington Peak, the second highest point in Vermont. For most of the landscape, elevation differences are not as great as implied by the numbers above and range from about 1,700 to 2,500 feet on the average. The plateau is found at 2,000 to 2,300 feet.

Bedrock and Surficial Geology and Soils

Surficial deposits on the CWMU are dominated by glacial till with small areas of exposed bedrock at higher elevations. There are glaciofluvial kame and outwash deposits in the river valleys. Underlying bedrock is older than that of the northern half of the Green Mountain chain. One difference between the two sections of the range is due to an ancient mountain building event in which the tops of the southern Green Mountains were pushed up and over to the west to form



the Taconic Mountains. This exposed the ancient Precambrian bedrock beneath and created the Southern Green Mountain plateau. The bedrock is generally acidic and noncalcareous. Soils of CWMU are the result of glacial activity on bedrock of granite, gneiss, and mica schist. Depth to bedrock is the limiting factor for productivity, with weather also playing an important role at the higher elevations. Soils include Rawsonville, Berkshire, Houghtonville, and Hogback. Although pockets of gravel have been found on CWMU, they are too small to be developed.

Hydrology/Streams/Rivers

The hydrology, in and around CWMU, helps to influence the development of the natural communities found there. The lands of Coolidge West Management Unit are in parts of three separate watersheds, the Otter Creek (St. Lawrence River), Ottauquechee River (Connecticut River) and the Black River (Connecticut River) watersheds. Major streams include Sargent Brook, Eddy Brook, Brewer's Brook, and Gould Brook which drain into Otter Creek; Tinker Brook, Great Roaring Brook, and Tiny Brook which drain into the Black River; and Madden Brook which drains into the Ottauquechee River. Gould Brook and Sargent Brook drain into the Cold River before reaching Otter Creek. The Cold River has been identified as a stream that provides an exemplary assemblage of aquatic species. There is only one pond in the CWMU. Tiny Pond is located on the boundary of Tiny Pond Wildlife Management Area. It is a 29-acre remote pond surrounded by Shallow Emergent Marsh and upland forests. The State owns frontage only on a portion of the pond, the rest is in private ownership. There are several beaver ponds located throughout CWMU that change in size and number depending upon beaver populations and activity levels.

Natural Community Types

A natural community is an assemblage of biological organisms, their physical environment (e.g., geology, hydrology, climate, natural disturbance regime, etc.), and the interactions between them. More than a simple collection of species, a natural community is characterized by complex webs of mutualism, predation, and other forms of interaction. The 80 natural community types described in Vermont repeat across the landscape in patches (or "polygons") of various sizes. These patches (or groups of patches in close proximity to each other) are referred to as natural community *occurrences*, and are to be distinguished from broad descriptions of community types. The descriptions below are based on observations made in the field at the CWMU, but they are not necessarily site specific. For example, we mapped 59 *polygons* (sites) of Red Spruce-Northern Hardwood Forest across the CWMU; these are divided into just five *occurrences* based on physical proximity and other factors, and the treatment below is a broad description of conditions in all of them.

Thompson and Sorenson (2000) describe three general size categories for natural communities. *Matrix* communities occur in broad expanses across the landscape, and form the context in which other, smaller communities are found. They are structured by landscape-level disturbance processes, such as periodic weather events and insect outbreaks. Northern Hardwood Forest is an example of a matrix community found at CWMU. *Large patch* communities typically occur at scales of 10-100 acres, and are structured by local bedrock, geological, and topographic factors. Spruce-Fir-Tamarack Swamp is a characteristic large-patch natural community of the management unit. *Small patch* communities are usually less than 10 acres in size, and owe their existence to highly localized site and disturbance characteristics. Local geology and topography combine to produce the Subalpine Krummholz Forests found at the highest elevations of CWMU.

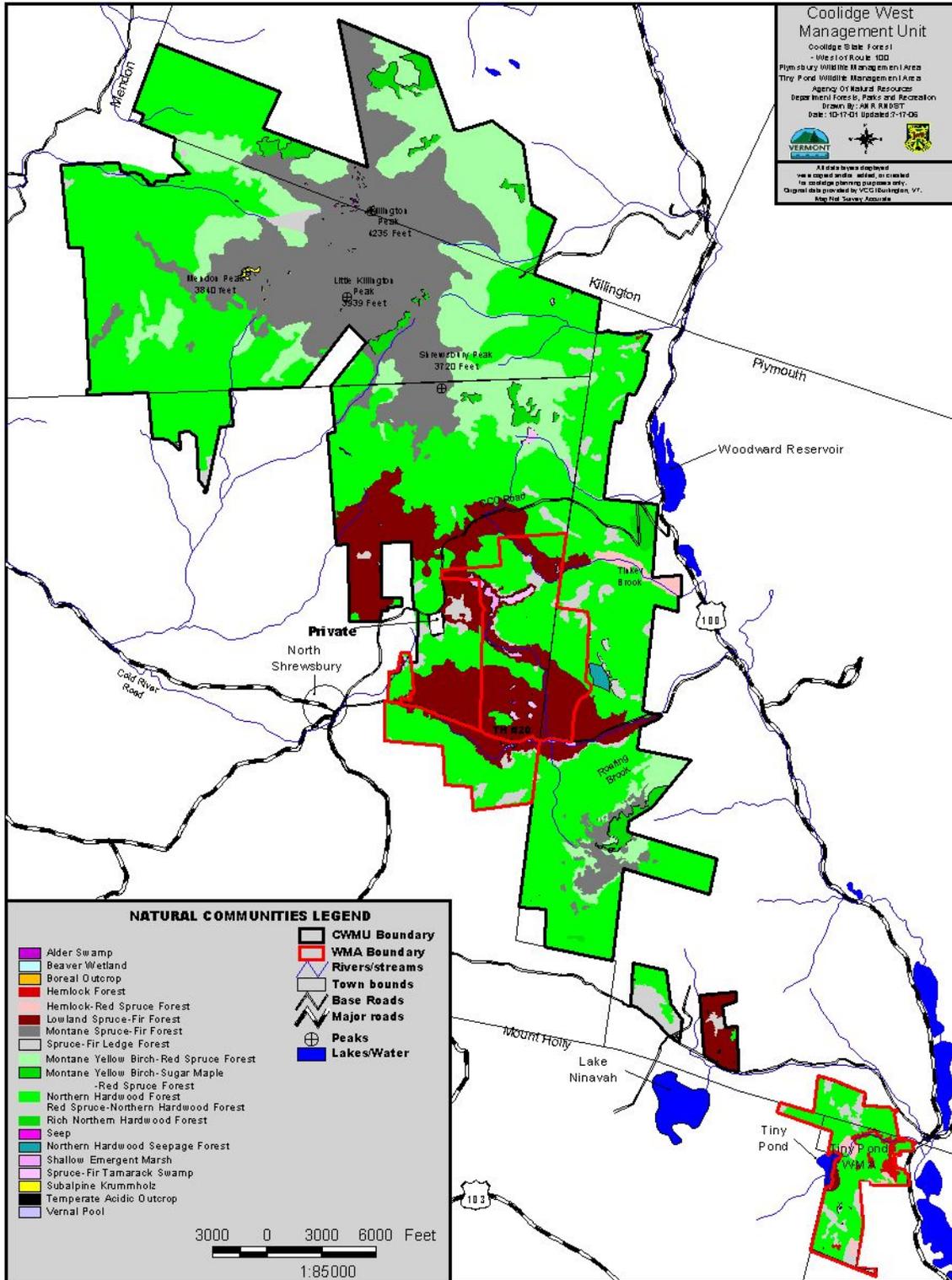
Seventy-one occurrences of 21 natural community types (including several type variants) have been identified and mapped at CWMU (Figure 3). A total of 274 natural community polygons



and two open water polygons were mapped. Natural communities were identified through aerial photograph interpretation, systematic FOREX inventory (*see timber assessment section*), and field surveys. Field data were collected using a Trimble Geoexplorer II global positioning system (G.P.S.) unit, clinometer, compass, binoculars, soil augur, Cornell pH kit, and a variety of reference manuals for identification of plants, animals, fungi, etc. Many plant specimens were collected for identification in the lab. A Geographic Information System (G.I.S.) map of natural communities was produced using Arc View software. Because some natural communities occur at very small scales (e.g., less than ¼ acre), this mapping effort is probably incomplete. Natural community mapping is an iterative process, and our knowledge improves with each mapping effort. Thus, the map presented here should not be viewed as a final statement on community distribution at CWMU; instead, it should be treated as a first attempt at describing natural communities in this area. Land managers and members of the public should be aware that additional examples of small natural communities (e.g., Vernal Pools and outcrops) probably occur on the management unit. As subsequent inventories and site visits are conducted, this map will be improved.

What follows is a description of all natural community types identified at CWMU. A quality rank (A through D) for each natural community occurrence is given. Quality ranks are objectively assigned on the basis of three factors: occurrence size, current condition, and landscape context. The three factors vary in the degree to which they influence overall quality in different communities. For example, size is the most important contributor to quality in Northern Hardwood Forest, but current condition is most important to Spruce-Fir-Tamarack Swamps. An A-ranked occurrence is of high quality in comparison with other occurrences of its natural community in the state, while a D-ranked example is of comparatively low quality. It is important to recognize that assignment of low quality ranks may be due to small size rather than poor current condition. When community occurrences are either rare, or of high quality (or a combination of these factors), they may be designated as being of statewide significance. This designation is applied according to objective guidelines established by the Vermont Nongame and Natural Heritage Program, which are available upon request. It is recommended that state significant natural communities be afforded a higher level of protection than other areas of the management unit. Detailed descriptions of Vermont's natural community types may be found in *Wetland, Woodland, Wildland: A Guide to the Natural Communities of Vermont*, Thompson and Sorenson (2000). Additional information may also be found in the glossary (Appendix F).





Description of Natural Communities on Coolidge West Management Unit

1) Subalpine Krummholz

This rare, high elevation natural community type was identified and mapped on 9 acres in two separate locations; one at the top of Killington Peak (4,235 feet) and another on Mendon Peak (3,840 feet). Both occurrences are C ranked, and both are of statewide significance. Montane Spruce-Fir Forest surrounds these occurrences of Subalpine Krummholz. The harsh weather in these locations results in stunted, low growing, twisted trees that never reach their full stature. The canopy may be as low as 6 feet and is dominated by balsam fir (*Abies balsamea*). Black spruce (*Picea mariana*) and red spruce (*Picea rubens*) may be abundant as well. Other canopy associates include heart-leaved paper birch (*Betula papyrifera* var. *cordifolia*) and the uncommon showy mountain ash (*Sorbus decora*). The herbaceous layer includes Canada mayflower (*Maianthemum canadense*), bunchberry (*Cornus borealis*), brownish sedge (*Carex brunnescens*), and bluebead lily (*Clintonia borealis*). On Killington, the rare small-flowered rush (*Luzula parviflora*) occurs along the hiking trail between the outcrop described above and an Appalachian Trail shelter. Moss and lichen coverage is extensive. Both occurrences of this natural community type are located on Coolidge State Forest. Bicknell's thrush (*Catharus bicknellii*), a rare bird, is associated with both occurrences.

Issues/Concerns: Previous construction and use of the communication site, existing ski trails, and hiking trails and facilities impacted this community (A1-1); impacts of air quality and acid deposition on high elevation vegetation (A1-1a).

2) Montane Spruce - Fir Forest

This high elevation, boreal natural community type was identified and mapped on 3,455 acres of CWMU. It is found above 2,800' where the climate is cold, windy, and foggy and weather conditions can be harsh. Clouds frequently cover these forests, which receive more precipitation than most other natural systems in Vermont. Most of this acreage (3,234 acres) forms a single occurrence centered around Parker's Gore. This community extends north onto federal and private lands around Pico Peak; the entire occurrence is estimated at more than 4,000 acres. It is heavily fragmented by ski area development on the northeast side of Killington Peak, but this probably does not detract from the ecological health of the majority of the acreage. Another 195-acre occurrence is found on Saltash and Bear Mountains. Natural disturbance events structuring Montane Spruce-Fir Forests include windthrow, ice storms, insect outbreaks, landslides, fire, and fir waves, and evidence of many of these events was observed at CWMU. The Parkers Gore example is large enough to absorb large-scale disturbance events. Soils in this community are leached, acidic and often shallow to bedrock. Red spruce (*Picea rubens*) and balsam fir (*Abies balsamea*) dominate the canopy in most areas. Hardwoods including heart-leaved paper birch (*Betula papyrifera* var. *cordifolia*) and yellow birch (*Betula alleghaniensis*) may also be present, particularly in younger areas of the forest. The shrub layer contains hobblebush (*Viburnum alnifolium*) and American mountain ash (*Sorbus americana*). Bluebead lily (*Clintonia borealis*), common wood sorrel (*Oxalis acetosella*), shining clubmoss (*Lycopodium lucidulum*), mountain woodfern (*Dryopteris campyloptera*), goldthread (*Coptis trifolia*), bunchberry (*Cornus canadensis*), whorled aster (*Aster acuminatus*), and large-leaved goldenrod (*Solidago macrophylla*) are common in the herbaceous layer. Sphagnum mosses and lichens do well in the dark, cold and damp conditions of this forest.



One occurrence of **Spruce-Fir Ledge Forest**, a variant of Montane Spruce-Fir Forest, was mapped. This occurrence covers 24 acres of convex knobs on the southern flanks of Burnt Mountain in Plymouth. Elevation ranges from 2,100 to 2,700 feet. The community was identified during forestry assessment, but a detailed inventory was not made. Spruce-Fir Ledge Forest is a recently recognized natural community variant (Engstrom and Lapin 1999). These forests are found at relatively high elevation in exposed locations. Climate is severe, and soils are usually shallow and droughty. Dominant tree species are red spruce (*Picea rubens*) and balsam fir (*Abies balsamea*); heart-leaved paper birch (*Betula papyrifera* var. *cordifolia*) and other hardwoods are often present also. Serviceberry (*Amelanchier* species) is a common tall shrub. Herbs are similar to those found in the main type described above; additional drought-tolerant species are commonly encountered, including bracken fern (*Pteridium aquilinum*) and club-mosses (*Lycopodium* species).

The two occurrences mentioned above—at Parker’s Gore and Saltash Mountain—are of statewide significance. Rare species identified in this community on the management unit include the small-flowered rush (*Luzula parviflora*) and Bicknell’s thrush (*Catharus bicknellii*) mentioned above. Nearly all of this community is mapped as potential Bicknell’s thrush habitat by Vermont Institute of Natural Science staff have mapped all “potential” Bicknell’s thrush habitat in the state, and the area on the CWMU, composed mostly of Montane Spruce-Fir Forest, is among the largest contiguous acreages in the state.

Issues/Concerns: Steep slopes and fragile high elevation soils associated with this natural community type and the state significant ranking of the occurrences at Saltash Mountain and in the Parker’s Gore area (A1-2); impacts of air quality and acid deposition on high elevation vegetation (A1-2a).

3) Montane Yellow Birch - Red Spruce Forest

Montane Yellow Birch-Red Spruce Forest was identified and mapped on 3,222 acres of Coolidge West Management Unit. Two occurrences are present, one surrounding Saltash and Bear Mountains (278 acres) and the other around Killington, Mendon, and Shrewsbury Peaks (2,944 acres). As with the Montane Forest type described above, the latter extends north off state land, making the true occurrence size considerably larger than the amount owned by the State. This natural community type is a transition from Montane Spruce-Fir Forest at the higher elevations to the Northern Hardwood Forest at lower elevations and contains species common to both. It is generally found between 2,000 and 2,900 feet in elevation. Soils range from well drained to frequently saturated glacial tills. Dominant canopy species include yellow birch (*Betula alleghaniensis*) and red spruce (*Picea rubens*) and occasionally balsam fir (*Abies balsamea*). These species are more common at the higher elevations in this transition zone. As elevation decreases species more common to Northern Hardwood Forests are found such as American beech (*Fagus grandifolia*), sugar maple (*Acer saccharum*), and red maple (*Acer rubrum*). The shrub layer includes witch hobble (*Viburnum alnifolium*), striped maple (*Acer pensylvanicum*) and mountain maple (*Acer spicatum*). Mountain woodfern (*Dryopteris campyloptera*), common wood sorrel (*Oxalis acetosella*), twinflower (*Linnaea borealis*), and bluebead lily (*Clintonia borealis*) are common in the herbaceous layer. A variant type, **Montane Yellow Birch-Sugar Maple-Red Spruce Forest**, is found where soils are wetter and more nutrient rich. Here sugar maple (*Acer saccharum*) dominates the canopy, though trees may be short and poorly formed due to difficult growing conditions. Several herbs are characteristic of this variant, including tall wood millet (*Milium effusum*) and Braun’s holly fern (*Polystichum braunii*). Both occurrences of this natural community are found on Coolidge State Forest. Both are of high ecological quality, and are considered to be of statewide significance.



Issues/Concerns: Steep slopes and fragile high elevation soils associated with this natural community type and the state significant ranking of both occurrences (A1-3).

4) Lowland Spruce - Fir Forest

Lowland Spruce – Fir Forest is a matrix community occupying 2,207 acres of CWMU. One very large (2,056 acres in Plymbsbury Basin) and two small occurrences were identified. The Plymbsbury occurrence is A-ranked and of statewide significance. Lowland Spruce – Fir Forest is found on flats and gentle slopes in cold, relatively low areas. While these sites are spared the extreme weather characteristic of montane softwood-dominated communities (see above), they are nonetheless stressful places for plants to grow. Cold air settles in these basins, resulting in temperatures that are often much lower than those on nearby uplands. Soils are usually moist, leached and low in fertility. Generally there is a compact layer within 20 inches of the surface limiting drainage and rooting depth. As a result, windthrow is an important natural disturbance event in these forests. Lowland Spruce – Fir Forest is described as having both a “dry phase” with better drained soils found on benches and small plateaus and a “wet phase” found in depressions where soils are wetter. A mosaic of the two phases have been found on CWMU, however, due to the scale and frequency at which they occur, they have been not been separated in mapping. Many of the natural community types mapped on CWMU follow fairly predictable successional paths. Lowland Spruce – Fir Forest exhibits perhaps the most successional variation of any community type on these lands. Different areas have very different species composition or cover types depending upon disturbances that have occurred and may, in fact, be quite different than would be expected for a late successional composition of Lowland Spruce - Fir. Canopy composition varies from dominance by red spruce (*Picea rubens*) and balsam fir (*Abies balsamea*) in late successional examples to disturbed areas where hardwoods such as red maple (*Acer rubrum*), yellow birch (*Betula alleghaniensis*), and white birch (*Betula papyrifera*) dominate. The areas of hardwood dominance are expected, in time, to transition to spruce and fir. The shrub layer includes witch hobble (*Viburnum alnifolium*), wild raisin (*Viburnum cassinoides*), and mountain holly (*Nemopanthus mucronata*) in addition to red spruce and balsam fir. Bluebead lily (*Clintonia borealis*), bunchberry (*Cornus borealis*), common wood sorrel (*Oxalis acetosella*), goldthread (*Coptis trifolia*), Canada mayflower (*Maianthemum canadense*), intermediate woodfern (*Dryopteris intermedia*), wild sarsaparilla (*Aralia nudicaulis*), twinflower (*Linnaea borealis*), creeping snowberry (*Gaultheria hispidula*), and pink lady slipper (*Cypripedium acaule*) are found in the herbaceous layer. The moss layer, more prominent in the wetter areas, is represented by three-lobed bazzania (*Bazzania trilobata*), broom moss (*Dicranum scoparium*), and red-stemmed moss (*Pleurozium schreberi*). These forests often grade into wetlands, therefore, it is not surprising that several wetland natural community types were identified and mapped embedded within the Lowland Spruce – Fir Forest. These include Spruce – Fir – Tamarack Swamp, Alder Swamp, Shallow Emergent Marsh, and Seeps. These are described below. The identified occurrences of this natural community type were found on Coolidge State Forest and Plymbsbury Wildlife Management Area. A portion of the Coolidge State Forest occurrence is a deer wintering area (see Critical Habitat section, below).

Issues/Concerns: State significant ranking of this community, degradation of ecological quality rank (A1-4).

5) Red Spruce - Northern Hardwood Forest

Red Spruce - Northern Hardwood Forest was identified and mapped on 680 acres of Coolidge West Management Unit. This is considered a matrix scale natural community, but at CWMU it occurs as a mosaic of small patches. These average 11 acres in size, and none are larger than 83



acres. The many patches combine to form a total of five occurrences, only one of which is noteworthy for its size (a 380 acre occurrence consisting of patches scattered around the Plymbsbury Basin). This community type features a combination of softwood and hardwood species in a long-term, stable mixture. It is found in a variety of topographic situations, including dry, exposed knobs, steep wet-mesic slopes, and moist areas at the base of slopes. At CWMU it often functions as a transition between softwood- and hardwood dominated communities, both at lower elevations (e.g. where Lowland Spruce-Fir and Northern Hardwood Forests meet) and upper elevations (e.g., where hardwoods give way to montane softwood-dominated communities). The common northern hardwood species of sugar maple (*Acer saccharum*), red maple (*Acer rubrum*), yellow birch (*Betula alleghaniensis*) and American beech (*Fagus grandifolia*) are present as well as red spruce (*Picea rubens*) and balsam fir (*Abies balsamea*). In younger stands, spruce and fir may be present only as young, subcanopy trees. Witch hobble (*Viburnum alnifolium*), mountain maple (*Acer spicatum*) and American mountain ash (*Sorbus americana*) are found in the shrub layer. The herbaceous layer reflects a more boreal character and includes bluebead lily (*Clintonia borealis*), common wood sorrel (*Oxalis acetosella*) and Canada mayflower (*Maianthemum canadense*). The identified occurrences of this natural community type were found on all parcels within the management unit. The Plymbsbury Basin occurrence is of moderate to high quality (B ranked). The other occurrences have lower quality ranks.

Issues/Concerns: Soils may be susceptible to erosion due to steep and/or wet terrain (A1-5).

6) Northern Hardwood Forest

Northern Hardwood Forest is one of the six matrix or landscape-scale communities in Vermont and one of four found on lands of CWMU (Montane Spruce – Fir Forest, Lowland Spruce – Fir Forest, and Montane Yellow Birch – Red Spruce Forest are the others). As such it is the surrounding for many of the other, smaller communities described here. Northern Hardwood Forest is found on sites throughout the management unit. All areas of the community are considered to form a single occurrence. The Northern Hardwood Forest on CWMU is considered to be state-significant. It is the most abundant natural community type found on these lands occurring on 9,967 acres across a wide range of soils, aspects and landscape positions. As a result, vegetative composition varies as well. This community type is found on sites ranging from nutrient poor to enriched and everything in between. Principal canopy species include sugar maple (*Acer saccharum*), yellow birch (*Betula alleghaniensis*), and American beech (*Fagus grandifolia*). On nutrient poor sites sugar maple is replaced by red maple (*Acer rubrum*) and beech becomes a more significant component of the canopy. Basswood (*Tilia Americana*), butternut (*Juglans cinerea*), and white ash (*Fraxinus Americana*) increase as sites become increasingly nutrient enriched. Witch hobble (*Viburnum alnifolium*) and striped maple (*Acer pensylvanicum*) are common components of the shrub layer. The herbaceous layer includes painted trillium (*Trillium undulatum*), Jack-in-the-pulpit (*Arisaema triphyllum*), Christmas fern (*Polystichum acrostichoides*), and Canada mayflower (*Maianthemum canadense*). Sites with more mineral enrichment have red-berried elder (*Sambucus racemosa*) and alternate-leaved dogwood (*Cornus alternifolia*) as additional shrub layer components. The herbaceous layer on these sites includes many of those found in Rich Northern Hardwood Forests such as maidenhair fern (*Adiantum pedatum*), wood nettle (*Laportea canadensis*), and blue cohosh (*Caulophyllum thalictroides*) but with less diversity and less frequency than in Rich Northern Hardwood Forests. Often on lands of CWMU these enriched northern hardwood areas are small seepy pockets found scattered throughout a larger Northern Hardwood Forest or in small coves and benches where enrichment occurs due to soil accumulation. While enriched, they are not rich enough to be considered Rich Northern Hardwood Forest or not large enough to be mapped as such. The



entirety of Northern Hardwood Forest on CWMU is considered one A-Ranked occurrence and is mapped on all parcels of the planning unit.

Issues/Concerns: State significant classification of this natural community occurrence (A1-6).

7) Northern Hardwood Seepage Forest

A 25-acre occurrence of this wetland forest community was mapped on the south flank of Burnt Mountain. Wetlands are said to be characterized by three conditions—water in and/or on the ground for at least part of the year, hydric soils (i.e., those developed under periods of prolonged saturation), and presence of obligate wetland plants—and all three are met here. Water seeps from the ground most of the year, and understory herbs resemble those found in Seeps. Hardwood tree species dominate the canopy. The community needs more study.

Issues/concerns: Soils in this community type may be wet throughout the year, and are prone to erosion (A1-7).

8) Rich Northern Hardwood Forest

Rich Northern Hardwood Forest was mapped on 57 acres of CWMU. While similar to Northern Hardwood Forest, this community type differs in its nutrient enrichment. Two occurrences were identified and mapped, one adjacent to the CCC Road the other near the southern end of Coolidge State Forest. Rich Northern Hardwood Forest is more common in other Biophysical Regions (e.g. Taconic Mountains, Vermont Valley). This natural community type receives its enrichment through downslope movement of nutrient-rich leaf litter and soil, through mineral rich bedrock, or a combination of the two. Both occurrences here are enriched by the downslope movement of nutrients; they are located on lower slopes and coves where organic matter accumulates, causing a composting effect. The occurrence near the CCC road may also be enriched by a narrow band of calcium-rich bedrock found in the adjacent valley. Productivity in these forests is high. Trees grow tall and straight and they grow quickly. The canopy is dominated by such nutrient demanding species as sugar maple (*Acer saccharum*), basswood (*Tilia americana*), and white ash (*Fraxinus americana*). Striped maple (*Acer pensylvanicum*), alternate-leaved dogwood (*Cornus alternifolia*) and red-berried elder (*Sambucus racemosa*) are found in the shrub layer. The herbaceous layer is often lush with wood nettle (*Laportea canadensis*), maidenhair fern (*Adiantum pedatum*), blue cohosh (*Caulophyllum thalictroides*), wild leeks (*Allium tricoccum*), wild ginger (*Asarum canadense*), white baneberry (*Actaea alba*), and plantain-leaved sedge (*Carex plantaginea*). Diversity is high in these forests. These Rich Northern Hardwood Forest occurrences are small compared to others in the State. Both occurrences of this natural community type were found on Coolidge State Forest.

Issues/Concerns: Maintaining functionality of community including downslope movement of nutrients (A1-8).

9) Hemlock Forest

Hemlock Forest is a common natural community type in Vermont, especially at low to moderate elevations. Despite the generally higher elevations of the CWMU, almost 1% of its lands are occupied by this community (177 acres). Two fairly large occurrences (one on Tiny Pond WMA totals 99 acres; another in Tinker Gorge on the state forest is 76 acres) were identified. These are both B ranked, and the Tinker Gorge occurrence is of statewide significance due to its status as one of the state's only identified remnant patches of old growth forest. An additional two acres were mapped along Madden Brook; this small occurrence likely continues along the Brook on adjacent private lands. Soils in this community tend to be acidic, rocky glacial tills. A gray-



colored layer of mineral leaching is usually present beneath the organic layer of soil. They are usually well drained, but may include areas of seepage or seasonally persistent water. Steep, shady ravine slopes, such as those in Tinker Gorge, are a typical position for this community. Forest canopy ranges from 75% to 100%, nearly all of which is accounted for by eastern hemlock (*Tsuga canadensis*). Other minor components of the tree canopy include red spruce (*Picea rubens*), red maple (*Acer rubrum*), and paper birch (*Betula papyrifera*). The dense hemlock cover makes these forests dark, often with poorly developed shrub and herbaceous layers. In some instances these layers do not exist at all. Shrubs include striped maple (*Acer pensylvanicum*) and witch hobble (*Viburnum alnifolium*). The herbaceous layer, when present, includes small numbers of marginal woodfern (*Dryopteris marginalis*), painted trillium (*Trillium undulatum*), Canada mayflower (*Maianthemum canadense*), and partridgeberry (*Mitchella repens*). Hemlock is long lived and among the most shade tolerant of trees; consequently these forests are stable over long periods of time.

Some of the acreage described above has been typed as a variant community type, **Hemlock-Red Spruce Forest**. The principal difference in this variant is that the canopy is shared by hemlock and red spruce. At Tinker Gorge, both trees approach 100' in height. The canopy cover here averages about 85%, and hardwoods are occasional, especially American beech (*Fagus grandifolia*). Sizeable canopy gaps created by individual tree death are scattered through the stand. This is a truly uneven-aged forest, with smaller, presumably younger trees present in the understory. Additional shrubs present are mountain maple (*Acer spicatum*) and Canada honeysuckle (*Lonicera canadensis*). Herbs are more abundant than in the other occurrences. Most common species are shining clubmoss (*Lycopodium lucidulum*), Virginia polypody (*Polypodium virginianum*), intermediate woodfern (*Dryopteris intermedia*), and wood sorrel (*Oxalis acetosella*). Large coarse woody debris in all stages of decay is abundant, and these rotting logs help build soil on the very steep banks of the ravine. The unique nature of this gorge has been appreciated by land managers for more than 40 years (Vogelmann 1964). Most of this forest is protected by a state-designated natural area.

Issues/Concerns: Problems with soil erosion are possible during management of these forests (A1-8a). Boundaries of the Tinker Brook Natural Area do not include the entire natural community occurrence nor the entire steep bank of the Tinker Brook gorge (A1-9).

10) Boreal Outcrop

Seven occurrences of Boreal Outcrop were identified and mapped on high elevation summits and some mid-elevation knobs on CWMU including the summits of Killington, Little Killington, Mendon, and Shrewsbury Peaks. Ranging from less than 1/10th of an acre to 1.5 acres, these examples are of small to average size relative to others of their kind in the state. They are located between 2,300 and 4,200' elevation. All are buffered by intact surrounding forest (Montane Spruce-Fir or Subalpine Krummholz; their 'landscape context'), and most are in good to excellent condition. The seven occurrences of Boreal Outcrop have ecological quality ranks ranging from "B" to "D", and none are state significant. These convex outcrops are kept open naturally by wind, drought, and possibly fire. The Appalachian Trail and a short vista trail cross or terminate at the outcrop on Killington Peak. This concentrated foot traffic may play a role in keeping the outcrop open. Bedrock is acidic and soils are fragile, usually shallow, and restricted to cracks in the bedrock and flat areas where they can accumulate. On the Killington Peak outcrop there is virtually no soil and very little vegetation even in the lower areas where soils may have otherwise accumulated without the intensive use. Surrounding trees, particularly at the summits, are stunted and include balsam fir (*Abies balsamea*), heart-leaved paper birch (*Betula papyrifera* var. *cordifolia*), and American mountain ash (*Sorbus americana*). Bryophytes and lichens are



common. The herbaceous layer is sparse, and may include Canada mayflower (*Maianthemum canadense*), poverty grass (*Danthonia spicata*) and sarsaparilla (*Aralia nudicaulis*). A rare plant, small flowered rush (*Luzula parviflora*) occurs at the edge of the Killington Peak outcrop. Bicknell's thrush (*Catharus bicknellii*), a rare bird, is associated with the occurrences at Killington, Mendon, and Shrewsbury Peaks.

Issues/Concerns: Concentrated foot traffic on peaks may stress or eliminate outcrop vegetation (A1-10). Some forms of management may be appropriate for maintaining Bicknell's thrush breeding habitat (A1-11).

11) Temperate Acidic Outcrop

This community type is structurally similar to the one described above, but it is found at lower elevations. One small occurrence was identified south of Tiny Pond. A substantial portion of the occurrence (about 35%) is open bedrock lacking any vegetation. It is ringed by 30' red spruce (*Picea rubens*) and eastern hemlock (*Tsuga canadensis*). A few scattered mountain ash (*Sorbus americana*) are the only tall shrubs (to about 12'). Short shrubs have between five and 15% cover. Most common is lowbush blueberry (*Vaccinium* species); also present is gooseberry (*Ribes* species). Herb cover varies from 20-80%, with hairgrass (*Deschampsia flexuosa*) by far the most common plant. Others noted are intermediate woodfern (*Dryopteris intermedia*), fringed bindweed (*Polygonum cilinode*), Virginia polypody (*Polypodium virginianum*), and common hemp-nettle (*Galeopsis tetrahit*). Mosses cover 10-80% of the rock substrate, and lichens have 0-15% cover.

Issues/Concerns: Adjacent management activities could impact community composition (A1-11a).

12) Spruce - Fir—Tamarack Swamp

Several occurrences of this natural community type were identified on these lands, the most notable of which are Black Swamp, the large swamp adjacent to Grouse Hill North Road, and a third near the School House Meadows Road. Several additional smaller examples were also identified and mapped. This natural community type is found in colder regions of the state, often associated with acidic bedrock and surficial deposits. There is little surface water movement. Soils consist of deep peat with an underlying mineral soil. The canopies in these examples all include red spruce (*Picea rubens*) and balsam fir (*Abies balsamea*), with coverage varying from 20 to 80%. Other species found include red maple (*Acer rubrum*) and yellow birch (*Betula alleghaniensis*). Despite the inclusion of tamarack in the name of this natural community type, none was found in these occurrences, likely due to the acidic soils and late successional state of these particular examples. The shrub layer varies among these examples despite the consistency of species composition. Species found include speckled alder (*Alnus incana*), mountain holly (*Nemopanthus mucronata*), winterberry holly (*Ilex verticillata*), and wild raisin (*Viburnum cassinoides*). The Grouse Hill North example has a very well developed shrub layer in areas where there are canopy gaps. The herbaceous layer includes three-seeded sedge (*Carex trisperma*), green-fruited bur-reed (*Sparganium chlorocarpum*), marsh St. John's-wort (*Triadenum fraseri*), common bluejoint grass (*Calamagrostis canadensis*), joe-pye weed (*Eupatorium maculatum*), long-hair sedge (*Carex crinita*), common skullcap (*Scutellaria galericulata*), wild sarsaparilla (*Aralia nudicaulis*), common wood sorrel (*Oxalis acetosella*), three-leaved false Solomon seal (*Smilacina trifolia*), creeping snowberry (*Gaultheria hispidula*), turtlehead (*Chelone glabra*), crested woodfern (*Dryopteris cristata*), common blackberry (*Rubus allegheniensis*), goldthread (*Coptis trifolia*), and bunchberry (*Cornus canadensis*). *Sphagnum* moss also covers large areas, locally up to 100%, in the School House Meadows example where *Sphagnum girgensohnii* and *S. palustre* are common. *Sphagnum angustifolium* is dominant with

Bazzania trilobata on moderately well developed hummocks in Black Swamp. There is evidence of beaver activity in both the Black Swamp and Grouse Hill North examples. Identified occurrences of this natural community type were found on Coolidge State Forest and Plymbsbury Wildlife Management Area.

Issues/Concerns: Susceptibility to adjacent management activities (A1-12) and hummocky forest floor conditions to disturbance (A1-13).

13) Alder Swamp

Three small occurrences, totaling nearly 2 ½ acres, were identified and mapped on CWMU. This is the most common shrub dominated natural community type in Vermont. It is also quite variable. The Alder Swamps found on these lands are associated with streams and poorly drained depressions. Soils are saturated and composed primarily of organic materials (i.e., decaying plant matter, etc.). In one example, four feet of sapric peat sits over a layer of coarse sand and gravel. The tree layer is short with canopy cover of less than 5%. Red spruce (*Picea rubra*) and balsam fir (*Abies balsamea*) are components. The tall shrub layer consists of speckled alder (*Alnus incana*), red-osier dogwood (*Cornus sericea*), arrowwood (*Viburnum dentatum*), meadow-sweet (*Spiraea alba*), and red maple (*Acer rubrum*). This shrub layer often occurs as dense thickets with a canopy cover of up to 75%. Canada bluejoint grass (*Calamagrostis canadensis*) dominates the herbaceous layer. Associates include joe-pye weed (*Eupatorium maculatum*), bunchberry (*Cornus canadensis*), rough-stemmed goldenrod (*Solidago rugosa*), golden saxifrage (*Chrysosplenium americanum*), long-haired sedge (*Carex crinita*), blue flag iris (*Iris versicolor*), red raspberry (*Rubus idaeus*), umbellate aster (*Aster umbellatus*), dwarf blackberry (*Rubus pubescens*), swamp candles (*Lysimachia terrestris*), crested woodfern (*Dryopteris cristata*), wild raisin (*Viburnum cassinoides*), and slender mannagrass (*Glyceria melicaria*). The identified occurrences of this natural community type were found on Plymbsbury Wildlife Management Area and Coolidge State Forest.

Issues/Concerns: The CWMU has only a small percentage of early successional habitats, including shrubby types like Alder Swamps (A1-14).

14) Seep

There are many seeps identified and mapped on the CWMU. This natural community type is an important component of wildlife habitat. Seeps are often found at bases of slopes or on small benches where groundwater seeps to the surface. Generally small, often ½ acre or less, these important communities offer a nearly constant supply of water, even in the dry summer months. Groundwater is usually 47 degrees making this the place where earliest spring herbs develop, an important spring food source for wildlife. Trees and shrubs surround Seeps but are usually absent from within. A lush population of moisture-loving herbs, often 100% coverage, including many species of sedges (*Carex* sp.), spotted touch-me-not (*Impatiens capensis*), sensitive fern (*Onoclea sensibilis*), swamp saxifrage (*Saxifraga pensylvanica*), foam flower (*Tiarella cordifolia*), nodding bur marigold (*Bidens cernua*), interrupted fern (*Osmunda claytonii*), lady fern (*Athyrium filix-femina*), horsetail (*Equisetum* sp.), wood nettle (*Laportea canadensis*), ostrich fern (*Matteuccia struthiopteris*), and white turtlehead (*Chelone glabra*) are found here. A complex of Seeps was identified and mapped on the west slope of Killington, below the summit. Like Vernal Pools, Seeps are small and it is likely that more exist than were mapped. As they are identified through subsequent inventories and site visits they will be added to the map. Identified occurrences of this natural community type were found on Coolidge State Forest and Plymbsbury Wildlife Management Area.



Issues/Concerns: Threats to this community include those that alter the quality and quantity of groundwater discharge (A1-15) and activities affecting shading and seep microtopography (A1-16).

15) Vernal Pool

Vernal Pools are temporary woodland pools that are especially important as breeding habitat for salamanders and frogs. One important characteristic of these pools is that they do not contain predator fish that would normally prey on deposited eggs and larvae and therefore, allow these amphibians to have a higher productivity. Vernal Pools are used historically, sometimes for hundreds of years. There are two Vernal Pools mapped on CWMU. Given their size, often ¼ acre or less, and the fact that they are dry by mid-summer, make them often difficult to find even during routine forest inventory. Therefore, it is likely that more occurrences exist. As they are located, they will be mapped. Often there is little vegetation within these pools. Canopy cover comes from the surrounding forest. Herbaceous plants, when present, include such species as sensitive fern (*Onoclea sensibilis*), rice cutgrass (*Leersia oryzoides*), northern bugleweed (*Lycopus uniflora*), and many species of sedges (*Carex* species). The Vernal Pools identified were found on Plymbsbury Wildlife Management Area and Tiny Pond Wildlife Management Area.

Issues/Concerns: Proximity and type of adjacent activities can have adverse impact on pools (A1-17).

16) Shallow Emergent Marsh

Shallow Emergent Marsh is a common and variable wetland natural community type. It has been identified and mapped on 53 acres of CWMU. Species composition varies with hydrology. There is usually no tree layer although the occasional red maple (*Acer rubrum*) can be found. Beavers often play a significant role in altering hydrology and the resulting species composition of these wetlands. They are considered to be part of the natural disturbance regime for this natural community type. This is certainly true along the Old Plymouth Road where beaver activity has occurred for many years. Occurrences on these lands are as varied as their hydrology. Some are dominated by herbaceous vegetation rooted in shallow water as the name implies as in the example along the shore of Tiny Pond. Others, such as those found in the Plymbsbury Basin tend to be more shrub dominated. Soil composition and depth varies as well, although most are mapped as muck. One occurrence in Plymbsbury Wildlife Management Area has four feet of sapric peat above 5 inches of clay and sand. Both the sand and clay layer are gleyed resulting from a fluctuating water table. This example is not beaver-influenced but lies on the site of a historic pond. Vegetation includes hairy-fruited sedge (*Carex lasiocarpa*), blue-joint grass (*Calamagrostis canadensis*) and several species of sphagnum moss. Other common Shallow Emergent Marsh species include joe-pye weed (*Eupatorium maculatum*), long-hair sedge (*Carex crinita*), cinnamon fern (*Osmunda cinnamomea*), turtlehead (*Chelone glabra*), common skullcap (*Scutellaria galericulata*), orange jewelweed (*Impatiens capensis*), marsh marigold (*Caltha palustris*), wool grass (*Scirpus cyperinus*), and blue flag (*Iris versicolor*). Those with a more developed shrub layer also have meadow sweet (*Spiraea alba* var. *latifolia*), steeplebush (*Spiraea tomentosa*), speckled alder (*Alnus incana*) and red maple. The wetland complex located near Grouse Hill North Road is dominated by Spruce – Fir – Tamarack Swamp (see above description). Within the larger softwood swamp there are several areas that can be characterized as Shallow Emergent Marsh as well as several inclusions of **Sedge Meadow** colonized by occasional shrubs and graminoids such as bladder sedge (*Carex vesicaria*) and common bluejoint grass (*Calamagrostis canadensis*). Areas of open water are also common. Identified occurrences of this natural community type were found on Coolidge State Forest, Plymbsbury Wildlife Management Area, and Tiny Pond Wildlife Management Area.



Issues/Concerns: Component of early successional habitat mix (A1-18); impacts of management on wetland function (A1-19); invasive exotic species are a threat to native species composition and can be introduced through disturbance, both human and natural (A1-20).

17) Beaver Wetland

Wetlands influenced by beavers are highly variable, and they change over a relatively short time frame, as beaver colonize riparian areas, denude them of plant foods, and move on. These wetlands are important habitat for a wide array of wildlife and plant species. Beavers are present in many of the wetland features described above, but they are generally not the principal factor structuring vegetation in wetlands of the CWMU. One small Beaver Wetland was identified where beavers have dammed a stream in the Plymbsbury Basin. Vegetation around the dam and impounded water is similar to the description of Shallow Emergent Marsh, above. Beavers can be expected to colonize additional areas of suitable habitat here in the future.

Issues/Concerns: An important and limited habitat component on CWMU (A1-21).

2) Fine Filter Assessment

Vermont has an estimated 24,000 to 43,000 species of plants and animals statewide. It is not known how many species actually reside within the Southern Green Mountains Biophysical Region. For this reason, it is impossible to inventory or monitor all of the species located on the Coolidge West Management Unit lands. Instead, conservation scientists look toward the conservation of the natural communities on the Coolidge lands as an essential “coarse filter” approach for conserving many of the region’s fish, wildlife, and plant species.

In addition, a “fine filter” approach must be included to address specific species whose habitat needs are not fully met at the natural community level. Such species include:

- rare, threatened, and endangered species that often have very specific habitat needs;
- species depending on particular critical habitats for survival or reproduction;
- wide-ranging species such as black bears, and fisher;
- species sensitive to habitat fragmentation;
- species requiring other habitat conditions that are not adequately provided by natural community-based land management.

Between both the “coarse” and “fine” filters, all of the native plant, fish, and wildlife species found within the Coolidge West Management Unit lands will be conserved. It is imperative that these species are maintained at levels that conserve healthy populations of them on the Coolidge lands.

Issues/Concerns: Management for forest products, popular wildlife species, or recreational activities must avoid threats to plant and animal populations (A2-1).

Wildlife Inventory

The coarse filter/fine filter approach enables one to focus species inventories to fine filter species alone. However, wildlife inventories of the Coolidge West lands have been performed in three manners. First, the Vermont Fish and Wildlife Department’s natural heritage database of endangered, threatened, and rare species provides for the locations of all known locations of these species. Second, general wildlife surveys were performed for both amphibians and songbirds, two groups of species for which little data had been collected on the state lands. Last, the forest inventory provided more detailed identification and location of critical wildlife habitats and important habitat features necessary to maintain the full array of wildlife on the Coolidge West lands. The results of these inventory efforts are provided below.

Rare, Threatened, and Endangered Species

The Coolidge West Management Unit lands provide habitat for several documented and potential plant and wildlife species that are rare or declining. Conservation of each of these species will be best assured through either the conservation of a particular natural community type (“coarse filter”) associated with the species, or specific management guidelines to maintain or enhance habitat for the species.

Provided below is a list of the rare species that are documented or may occur on the CWMU lands.

Bicknell’s thrush (*Catharus bicknelli*) – This bird is associated with the Subalpine Krummholz and Montane Spruce-Fir Forest natural community types, generally above elevations of 2600 feet. The species has been documented on the peaks of both Little Killington and Killington Mountains and habitat is also available on Smith Peak, Bear Mountain, and Saltash. An estimated 4000 acres on 7 sites on CWMU are deemed potential habitat for this species, making it the state’s largest



area of potential habitat for the Bicknell's thrush. The species is sensitive to habitat fragmentation and disturbance from humans.

Issues/Concerns: impact of management and recreation activities on Bicknell's thrush and their habitat (A2-1)

Common loon (*Gavia immer*)– This species was listed as endangered in the State of Vermont, but delisted in 2005. While there is no documented nesting on Tiny Pond, it is likely that the species periodically visits the pond. Loons are sensitive to disturbance, particularly during the nesting season when they are most vulnerable.

Issues/Concerns: management and recreation activities that may disturb nesting loons (A2-2)

Cape May warbler (*Dendroica tigrina*) – The Cape May warbler is a bird associated with mature spruce-fir habitats, generally further north than Coolidge lands. However, the CWMU lands could be at the southern edge of the bird's range. Inventory work performed in the Lowland Spruce -Fir Forest natural community type in 2002 identified one Cape May warbler during a time of year that suggests the potential for breeding pairs in the area.

Issues/Concerns: management for mature Lowland Spruce-Fir Forest natural community to provide warbler habitat (A2-3)

Bay-breasted warbler (*Dendroica castanea*) – Like the Cape May warbler, the Bay-Breasted warbler is a species associated with spruce-fir natural communities. Again, the Coolidge lands may be at the southern edge of this species' range. An inventory performed in the spring and summer, 2002, failed to document the species on the area.

Issues/Concerns: uncertain status of the species on CWMU lands (A2-4)

Rusty blackbird (*Euphagus carolinus*) – This species may exist in spruce-fir wetland habitats such as Black Swamp. The species nests primarily within wetlands and their immediate buffers. Consequently, protection of wetlands and their buffers will conserve this bird's habitats.

Issues/Concerns: management of Black Swamp and its buffer (A2-5)

Rock shrew (*Sorex dispar*) – Rock shrews are rare in Vermont, with only six populations documented statewide. Five specimens of this animal were collected at sites ranging from 2500 to 4000 feet in elevation on Killington Peak in the 1930's. The animal has not been documented since, but it may well still occur there. Rock shrews may be negatively impacted by human activities, so any active management on Killington Mountain should consider this animal.

Issues/Concerns: management activities within the high elevation communities (A2-5a)

Small-footed bat (*Myotis leibii*) – This species of bat is rare throughout its range. It is listed as threatened on the state's Endangered and Threatened list. The species has been documented in a nearby bat hibernaculum in Plymouth. Consequently, it is possible that the species establishes summer roosts on Coolidge lands. Little is known about small-footed bats. The species tends to use rock and cliff crevices for roosting, but use of large diameter, live and dead trees should not be ruled out.

Issues/Concerns: uncertain status of the species on CWMU lands (A2-6)

Indiana bat (*Myotis sodalis*) – This species is listed as endangered on both the state and federal endangered species lists. The species was historically documented at a nearby bat hibernaculum in Plymouth in 1946, but it has not been identified in this area since. Consequently, the species may establish summer or fall roosts on CWMU lands, but this is most likely limited to males. The availability of large diameter, dead or dying trees with exfoliating bark is important for roosting habitat for this species.

Issues/Concerns: a sustainable supply of large diameter, dead or dying roost trees (A2-7)

Small-flowered rush (*Luzula parviflora*) – A population of at least 27 individuals has been documented along the Appalachian Trail corridor south of Killington Peak, where the trail passes through Montane Spruce-Fir Forest. Small-flowered rush is at the southern edge of its range in Vermont, and is more commonly encountered in arctic areas of the continent. Twelve occurrences are known in Vermont, and all but one of these is north of Killington Peak. It is not known whether this plant is dependent on the open, disturbed ground found along trails, but this may be possible. This plant should also be searched for on other trails in the Coolidge State Forest.

Issues/Concerns: uncertain status of this species in other parts of CWMU lands (A2-8); recreation impacts to population along Appalachian Trail (A2-9)

Showy mountain ash (*Sorbus decora*) – Showy mountain ash occurs on the summits of Killington Peak and Mendon Peak. It is found in Montane Spruce-Fir Forest, as well as in outcrops and more open situations.

Issues/Concerns: uncertain status of this species at high elevations on Coolidge lands (A2-10)

Amphibians and Reptiles

The FOREX survey included an inventory of amphibian and reptile species identified at the particular inventory plots. Some of the species found (Jefferson salamander) were uncertain in their identification. The species list from the survey includes:

green frog (*Rana clamitans melanota*) pickerel frog (*Rana palustris*)
northern leopard frog (*Rana pipiens*) wood frog (*Rana sylvatica*)
spring peeper (*Hyla crucifer*) bullfrog (*Rana catesbeiana*)
American toad (*Bufo americanus*)

red-spotted newt (*Notophthalmus viridescens viridescens*)
red-backed salamander (*Plethodon cinereus cinereus*)
Jefferson salamander (*Ambystoma jeffersonianum*)

eastern garter snake (*Thamnophis sirtalis sirtalis*)

Most of the species found are quite common in Vermont, and expected to exist on the Coolidge West lands. However, two species – the northern leopard frog and the Jefferson salamander are on the periphery of known range in Vermont. The northern leopard frog is generally found in lower elevations to the west and the Jefferson salamander would be south of all documented and reported locations as identified in the latest Vermont Herp Atlas.



Issues/Concerns: management of wetlands and vernal pools and their buffers, as well as forested corridors (i.e., “amphibian recolonization corridors” that enable individual amphibians to repopulate an existing breeding site should its population fail due to natural events (i.e. drought) (A2-11)

Birds

The Rutland Chapter of Vermont Audubon performed a spring and summer 2002 bird survey of the Coolidge West Management Unit lands. The survey consisted of 10 visits from April through September. The surveys were performed by walking along predetermined routes and noting all species heard and seen. When possible, breeding/nesting activity was visually confirmed. In all, 68 species of birds were identified (see Appendix).

The significant findings of the bird survey include:

- the presence of the Cape May warbler within the Lowland Spruce-Fir Forest community
- the absence of cowbirds on the CWMU lands

Issues/Concerns: management for mature Lowland Spruce-Fir Forest natural community to provide warbler habitat (A2-12); attracting cowbirds to mature forest communities by the creating additional forest openings greater than 0.5 acres in size within 150-300 feet of the edge of the mature forest habitat (A2-13)

Critical Habitats

Some wildlife species have specific critical habitat needs that are important for maintaining their populations. In general, such sites provide critical cover or food during critical time periods for species survival or reproduction. In many cases, wildlife may be concentrated at these particular critical habitats. The following critical wildlife habitats have been identified on the CWMU lands for some time, or more specific information was collected during the FOREX inventory of the parcels.

Wetlands: Wetland habitats are somewhat limited on the CWMU lands. The natural community types considered wetlands and found on the state ownership include alder swamp, hemlock swamp, shallow emergent marsh, sedge meadow, and spruce-fir tamarack swamp. These wetlands provide a mixture of habitat needs as well as critical ecological functions. Species associated with the Coolidge West lands include beaver, moose, waterfowl, amphibians and reptiles, and associated invertebrates.

Issues/Concerns: protection of wetland and buffer functions as suitable wildlife habitat and protection of water quality (A2-14)

Amphibian Breeding Sites: These sites are wetlands, streams, and vernal pools that provide the habitat conditions for amphibians to breed. Species such as wood frogs and spotted salamanders require temporary vernal pools to breed. Other species such as the green frog, eastern newt, and pickerel frog breed in more permanent bodies of water.

Issues/Concerns: management of amphibian breeding sites, adequate buffers, and, where feasible, recolonization corridors to other breeding sites (A2-15)

Streams, Lakes, and Ponds: These aquatic sites provide habitat conditions for a wide variety of species including amphibians, invertebrates, reptiles, fish, birds, and mammals. Species not only directly use the waters, but most species depend on habitat conditions (i.e., riparian zone) around the water, sometimes as far as 1000 feet.

Issues/Concerns: adequate buffers for associated species (A2-16)



Deer Wintering Areas: Only one deer wintering area is found on the CWMU lands. This habitat is critical for over winter survival of many of the deer found on this land.

Issues/Concerns: management practices to maintain or improve quality of deer wintering area (A2-17)

Hard Mast Stands: Hard mast stands provide important foods for wildlife such as bears, deer, grouse, small mammals, and songbirds. In CWMU, these stands are comprised of mature beech trees that produce beechnuts. A total of 10 beech stands have been identified on the CWMU lands. Northern hardwood stands may also be managed to provide for greater proportions of beech trees in the forest community.

Issues/Concerns: management of beech stands and northern hardwood communities to provide hard mast for wildlife (A2-18); beech scale/nectria complex (A2-19); wildlife disturbance from recreational activities within and adjacent to hard mast feeding areas (A2-20)

Raptor Nest Trees: Trees that host viable raptor nests are generally preferred sites for breeding success. Inventory of these sites is done opportunistically and during stand inventory and marking procedures.

Issues/Concerns: identification and 150 foot buffer protection of raptor nest trees (A2-21)

Important Habitat Features

In order for forestland to provide for the full array of fish, plant, and wildlife species, certain forest habitat features are necessary. These generally provide the necessary landscape features that enable species to find suitable cover or access food throughout their range.

Habitat Block Size and Connectivity: All species require habitats of sufficient size to meet their life requirements. This is particularly true for wide-ranging species (e.g., black bears, bobcat, goshawks) that must travel throughout large areas to gather food. However, even amphibian and reptiles require minimum acreages of suitable habitat. Habitat fragmentation (i.e., the breaking up of large habitat blocks into smaller, isolated patches) reduces habitat block sizes and may affect the ability of an area to support particular wildlife species.

Fragmentation has many negative effects on wildlife, including:

1. increasing predation by species such as skunks and crows
2. altering habitat conditions through increased wind and sun
3. creating favorable conditions for invasive exotic species such as cowbirds or purple loosestrife
4. creating barriers to wildlife movement

Roads, power lines, development, and open fields are some examples of land uses that fragment Vermont forests. Figure 1 shows the remaining unfragmented forestland in each of the biophysical regions. This area represents the state's forests most suitable to meet the habitat block requirements of the state's forested wildlife species.

The negative effects of fragmenting forest blocks depend upon how fragmented the surrounding landscape is. The Southern Green Mountain biophysical region is the most heavily forested biophysical region in Vermont at 92% forested. However, this same region is currently fragmented enough such that only 64% of the area is unfragmented forestland. While adequate forest blocks are



currently available to support forested wildlife species, one must be cautious in introducing any management activities that further fragment the area.

Additional fragmentation in the form of new roads, trails, or openings on the CWMU could have little short-term impacts to wildlife in this biophysical region. However, increased fragmentation of the surrounding landscape over time may require reexamination and, potentially, restoration of some of these fragmenting features on the CWMU lands.

The value of CWMU for black bears illustrates the importance of habitat block size and connectivity. CWMU lands serve two key functions for black bears:

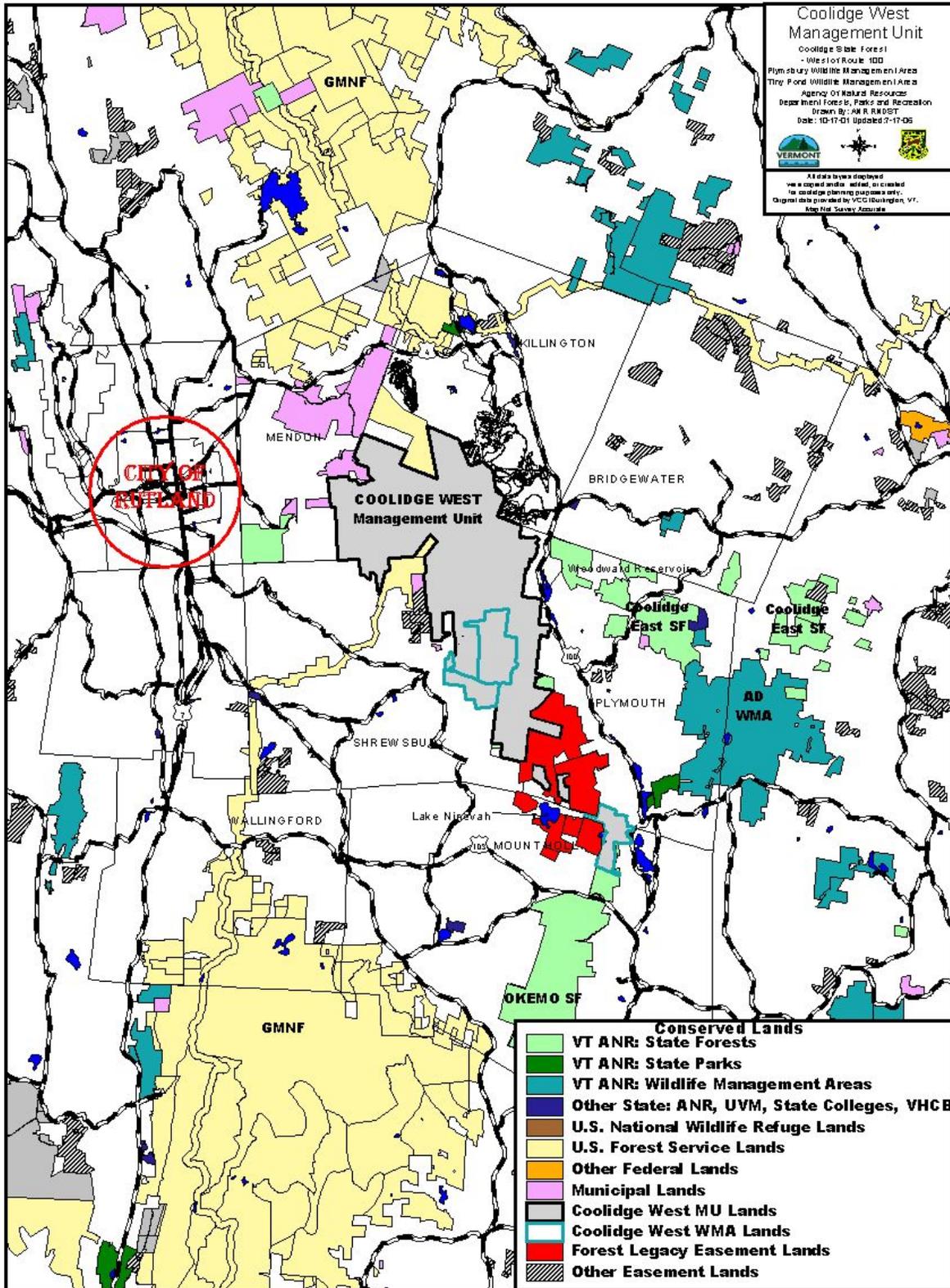
- providing high quality year-round habitat
- serving as a large-scale movement corridor along the Green Mountain range

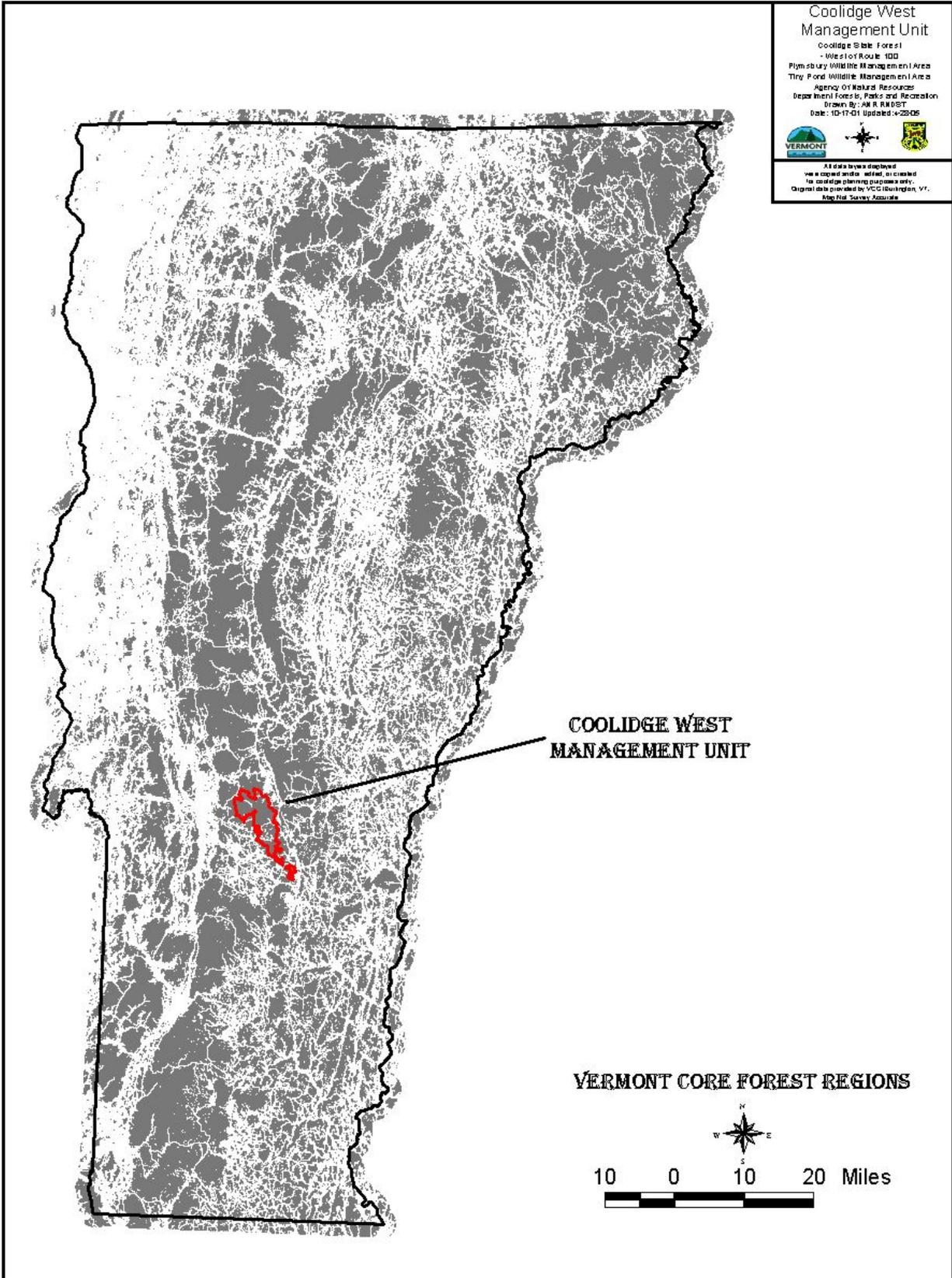
Figure 4 illustrates the juxtaposition of the Coolidge West lands with other public lands in the region, particularly the Green Mountain National Forest found to the north and south. Maintaining the integrity of the corridor to provide for free movement and providing bear food (e.g., beech stands) are important considerations for Coolidge West lands. Furthermore, black bear habitat is also an excellent indicator of suitable habitat for most other wide-ranging species such as bobcats and fisher.

The same principles apply to much smaller species at much smaller scales. For example, the need to identify and maintain amphibian recolonization corridors serves the same purpose of allowing for free movement of amphibians in order to repopulate areas should populations decline for any reason.

Issues/Concerns:

- *New fragmenting features (e.g., new roads, powerlines, new fields, wide trails) may need to be closed/reclaimed should the surrounding landscape become fragmented (A2-22);*
- *Introducing nest parasitism by brown headed cowbirds through forest openings greater than 10 acres (A2-23);*
- *Management and monitoring for sustainable hard mast production (A2-24); assuring bear movement across the two town roads by harvesting no more than one-half of the forestland along the two town roads in one 10 year-period (A2-25)*





Snags, Den Trees, and Downed, Dead Wood

Standing dead and dying trees, and downed, dead trees are vital components of the forest that provide food and shelter for wildlife ranging from mammals to invertebrates. Snags and den trees that vary in species, size, and condition best accommodate the full range of wildlife.

Data from the FOREX inventory show an adequate supply of current and future standing cull trees that serve as snags and den trees. However, the same inventory shows a lack of downed and dead wood.

Issues/Concerns: adequate numbers of live (4-6/acre) and dead (4-6/acre with 1-2/acre greater than 12") snags and coarse woody debris (i.e., downed wood) (50-80 pieces/acre) (A2-26)

Habitat Diversity

The current variety of wildlife species found on the CWMU lands requires a variety of habitat conditions (Figures 5,6). In general, a mixture of mature forest natural communities, forestland of various age classes and structures, shrubland, wetlands, and permanent openings will provide for the full array of wildlife. The key challenge is to provide this matrix without impacting the ability for the parcel to support all of its native species.

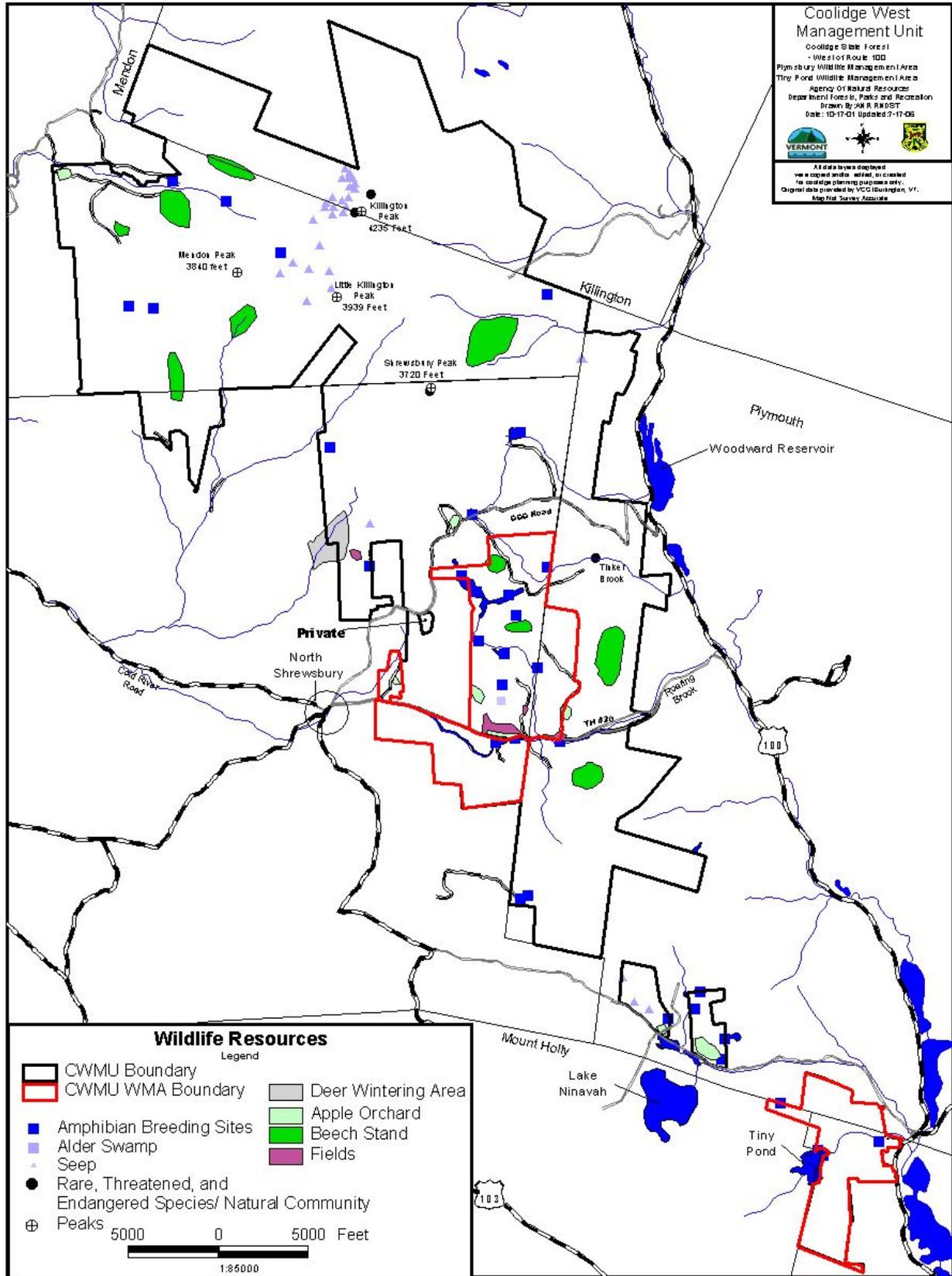
Open fields, shrubland, stands of soft mast (e.g. apples, serviceberry), and beaver flowages provide the more open habitat conditions favored by woodcock, moose, deer, bears, and eastern kingbirds, for example. Young (sapling and early poletimber) forested habitat offers abundant food and cover for species such as deer, moose, ruffed grouse, and chestnut-sided warblers. As poletimber moves into sawtimber and the older age classes, additional habitat is provided for such species as ovenbirds, blackburnian warblers, wintering deer, goshawks, and bears using beech stands. Mature forest habitat generally consists of 150+ year-old stands that provide the forest conditions (e.g., dead and downed wood, pit and mounds) that favor wildlife and plant species found in more old growth conditions.

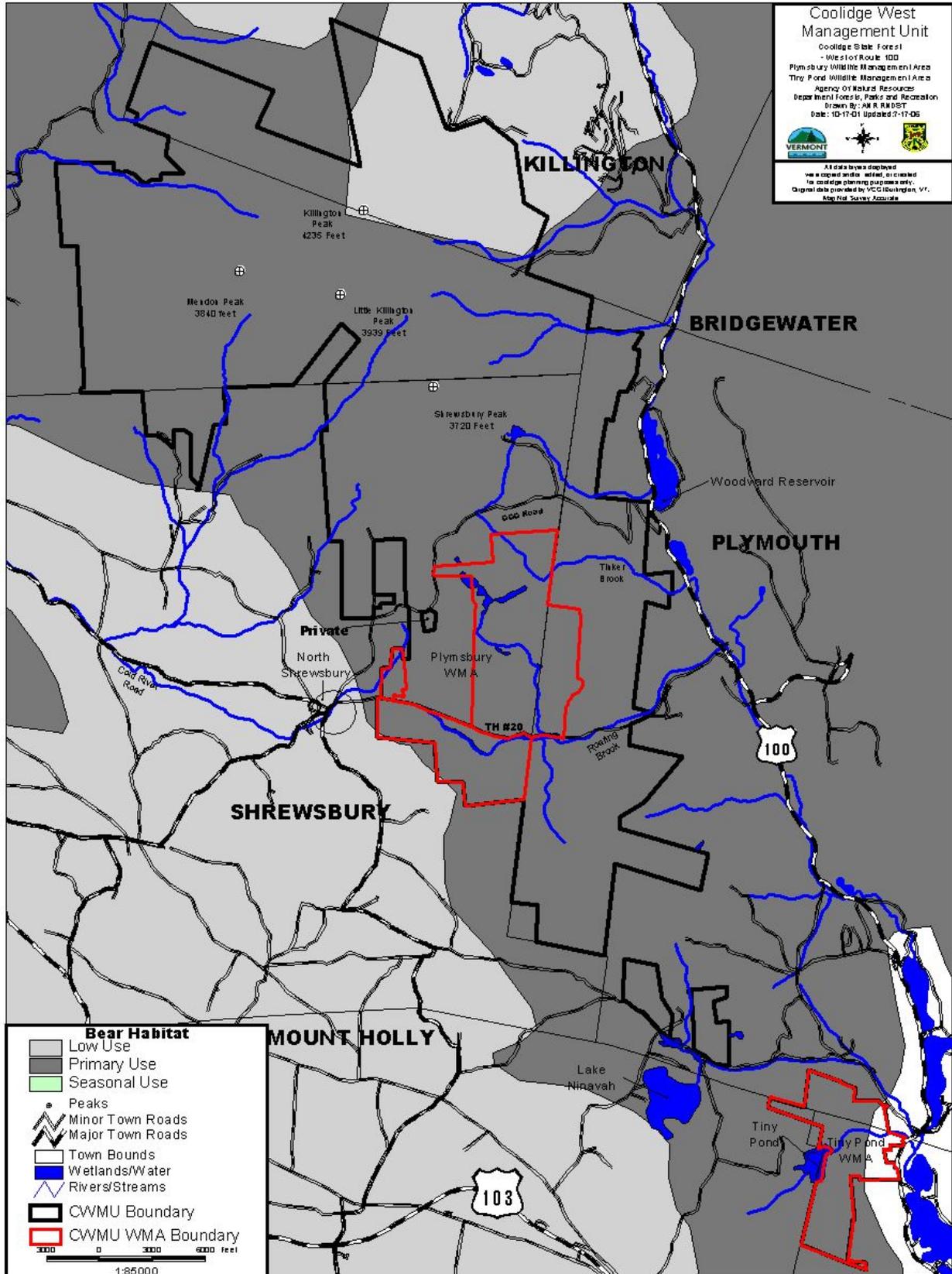
Statewide forest inventory data provides a picture of the level of habitat diversity (based on timber size classes) currently found within the Southern Green Mountains Biophysical Region. The 1997 survey data indicates that only 32,214 acres (3.7% of the forestland in the biophysical region) are in early successional forests of seedling/sapling stages (1-20 year age class), 226,974 acres (26.2%) are in poletimber stage, and 605,510 acres (70.0%) are in sawtimber stage.

These figures can be compared to estimates of presettlement habitat conditions based on age of trees in years. Recent publications suggest that the Southern Green Mountains biophysical region historically ranged around 3.9% early successional forest (1-15 years of age), 0.5% shrubland and wetland, and from 40% to 80% mature forest habitat conditions similar to what is often referred to as "old growth".

Clearly, the forests within this biophysical region today are relatively unfragmented, maturing forests. As a result, an increasing proportion of the forestland is meeting the habitat needs of wildlife species using older, managed forests. However, species associated with mature forest habitat over 150 years of age still find a paucity of habitat in these stages. It is anticipated that this habitat type will increase significantly over time in the region due to the presence of federally designated Wilderness Areas within the Green Mountain National Forest.

Species requiring shrubland and earlier successional stages of forestland now have habitat available at levels similar to the presettlement period. While early successional habitats have been decreasing on a





landscape level, current availability is consistent with the presettlement period. This decreasing trend is consistent with the recent decreasing population trends of many early successional species such as ruffed grouse, snowshoe hare, and several songbird species.

Within the CWMU lands, themselves, the breakdown of wildlife habitat conditions and their respective acreages and proportions of Coolidge lands are as follows:

- Permanent openings
 - Fields, landings: 17 acres (0.09%)
 - Ski trails: 480 acres (2.5%)
 - Open wetlands: 47 acres (0.2%)
- Shrubland
 - Wetland edges: 77 acres (0.4%)
 - Alder swamp: 2.5 acres (0.01%)
- Early Successional Forestland
 - (0-10 years): 148 acres (0.8%)
 - (11-20 years): 658 acres (3.5%)
- Mid and Late Successional Forestland
 - (21+ years): 17,980 acres (92.5%)
- Mature Forest Habitat
 - Tinker Brook Natural Area: 45 acres (0.2%)

The above data yield several important conclusions. They are:

1. *The availability of mature forest habitat (i.e., “old growth” wildlife habitat) is in very short supply. The wildlife species associated with mature forest habitat and the natural processes that may be needed to support them are currently limited to the Tinker Brook area. This does not suggest that nearly all of the native species are not provided for under current management. However, the “coarse filter” approach provides for greater assurances that passively managed areas will indeed meet the needs of the native species associated with a particular natural community type.*
2. *The availability of early successional forestland is currently at, but yet quickly becoming below, levels that will benefit declining early successional wildlife species. In all, only approximately 4% of the Coolidge lands provide any form of early successional habitat. Much of this is represented in the 11-20 year-old stands. Data from presettlement estimates suggests that approximately 4% of the landscape should be in early successional habitat of the ages 1-15 years. Management activities will need to increase the production of early successional habitat within the next 10 years to compensate for the expected decline in this habitat type.*
3. *There is a general lack of shrubland habitat. This habitat structure remains in very low supply and it is very difficult to provide the conditions needed to increase it. However, some permanent openings do provide the young, woody growth associated with shrublands.*
4. *The majority of the habitat associated with permanent openings is located on the ski area leased lands. Open habitat is not provided for throughout the Coolidge lands.*

In addition to mere acreage, the distribution of habitat types and forest age classes across the landscape influences wildlife composition and abundance. The existing distribution of early successional habitat occurs on 73 different patches. Patch size distribution tends to be smaller (i.e., less than 10 acres) closer to the Plymbsbury Road, and larger in the less accessible portions of the ownership. The distribution of the permanently open lands is primarily limited to the leased ski lands.

Issues/Concerns:

Availability of widely distributed early successional forestland habitat (0-15 years) below the presettlement estimates of 4% of the land and its affect on the need to reduce the rate of decline of early successional wildlife species (A2-27);

Availability of mature forest habitat in each of the large, matrix forest natural community types to provide old forest conditions and the natural processes that support them (A2-28);

Free movement of beaver populations in order to increase the proportion of open and shrubland habitat (A2-29).

The acreage of permanent openings away from the leased ski lands, yet still not encouraging cowbirds to inhabit mature forest habitat (A2-30)

Non-native Species

No exotic species are known to currently be of significant impact on lands of Coolidge West Management Unit. While several exotic plant species that have the potential to be invasive were noted during the inventory including purple loosestrife (*Lythrum salicaria*), common reed (*Phragmites australis*) and Japanese honeysuckle (*Lonicera* sp) they are not considered to be a problem at current numbers. However, due to the invasive nature of these species and their often problematic presence elsewhere in the southern Vermont region, they should continue to be monitored and their presence considered during any management actions.

Eurasian milfoil (*Myriophyllum spicatum*), while not noted during inventories and not known to occur in Tiny Pond, could be problematic if it were to become established.

Exotic insects are not known to have significant impact on these lands but they are continually being monitored. This includes some insect pests that have not yet reached Vermont but whose introduction could have devastating affects such as Asian Longhorned Beetle (which favors many hardwood tree species) and Hemlock Woolly Adelgid. Hemlock Woolly Adelgid attacks hemlock and due to the distribution of this species on the Coolidge West Management Unit would be most detrimental to Tiny Pond Wildlife Management Area.

Issues/Concerns: Location and removal of purple loosestrife plants (A2-31); monitoring of Common reed and Japanese honeysuckle (A2-32); monitoring for introduction of Eurasian milfoil, Asian longhorned beetle and hemlock woolly adelgid into the CWMU lands (A2-33); elimination of non-native trees species such as Norway spruce (A2-33a)

B. Vermont State Natural Areas

There are three designated State Natural Areas on CWMU: Shrewsbury Peak, Mendon Peak and Tinker Brook Natural Areas. Natural Areas are designated by the commissioner of the Department of Forests, Parks and Recreation and approved by the Governor under title 10 VSA Chapter 83 § 2607. Designated Natural Areas are those which "...have retained their wilderness character, although not necessarily completely natural and undisturbed, or have rare or vanishing species of plant or animal life...and may include unique ecological, scenic and contemplative recreational areas on state land." (*See Section C: Legal Constraints, paragraph 7*).

Mendon Peak Natural Area

Mendon Peak, at 3840 feet in elevation, supports a relatively undisturbed high elevation Montane Spruce-Fir Forest (*see natural community description*), dominated by red spruce and balsam fir. Rare Subalpine Krummholz (*see natural community description*) is at the summit. Here vegetation is dominated by stunted black spruce and balsam fir. This natural area includes lands above 3200 feet in elevation in the Town of Mendon in the northwest portion of Coolidge State Forest. For many years it was believed that the Natural Area included 90 acres with the use of more accurate mapping and GIS technology it has been determined to actually include 374 acres.

Mendon Peak along with Little Killington Peak, has no trail access. As one of the Northeast's 100 highest peaks, it is a popular destination to hikers attempting to hike all of Vermont and New England's highest peaks. Repeated access has led to a trail, of sorts, to the summit.

Issues/Concerns: Hiking trails being created by the public without state approval to access to the summit of Mendon Peak (B-1); impacts of air quality and acid deposition on high elevation vegetation (B-2)

Shrewsbury Peak Natural Area

Shrewsbury Peak has been recognized for its unique Montane Spruce-Fir Forest habitat for several rare birds including yellow-bellied flycatcher, Blackpoll warbler, Swainson's thrush, and Philadelphia vireo. This habitat type and absence of recent disturbance were the principal factors, which led to the designation of the Shrewsbury Peak Natural Area in 1988. It includes the 100 acres above 3200 feet in elevation.

Shrewsbury Peak (elevation 3700') is accessed by two hiking trails, one from the pavilion on the CCC Road which is very steep near the summit, and another along the Black Swamp Road which is a longer hike but with gentler grades (*see Recreation Assessment*). The Shrewsbury Peak trail continues north from the summit to connect with the Appalachian Trail/Long Trail. A third trail enters just below the summit and is part of the Farm and Wilderness Foundation's network of trails. Over the past several years the upper end of the Black Swamp hiking trail has been used by ATVs to access the summit. This illegal use has led to soil erosion along the trail and compaction of fragile high elevation soils at the summit. Vegetation has also been cleared, presumably for vistas. The Montane Spruce-Fir Forest in this Natural Area is part of a larger occurrence of a state significant occurrence of this natural community type. Clearing vistas on the summit degrades the quality rank of the community. It may also degrade the habitat used by the birds listed above. The Shrewsbury Peak shelter, a CCC-era Adirondack-style lean to is located below the summit. It is in poor condition (*Recreation Assessment*).

Issues/Concerns: Illegal ATV access to the peak (B-3); vegetation removal by those wishing a view from the summit (B-4); continuation of shelter in natural area (B-5); access to the peak from three directions and four trails (B-6)



Tinker Brook Natural Area

This Natural Area includes 65 acres of Hemlock-Red Spruce Forest (*see natural community description*) on the rocky slopes of the Tinker Brook gorge. It is thought to be old growth with individual red spruce reaching 18 to 20 inches in diameter and hemlocks approaching diameters of 3 feet. Many of the trees are over 200 years old. This natural community is surrounded by Northern Hardwood Forest.

The Tinker Brook shelter, a CCC-era, Adirondack style lean to is within 30 feet of the Natural Area boundary. Access to the Natural Area is either by the trail leading to the shelter or by the Farm and Wilderness Foundation trail system, a portion of which crosses the natural area. (*See recreation assessment*). The boundaries of the Natural Area roughly follow the top of bank in some places but not all. The Natural Area does not include the entire Hemlock-Red Spruce community nor does it include the entire gorge.

Issues/Concerns: Potential impact of shelter site in proximity to old growth community (B-7); potential impacts of management of surrounding forest on old growth community (B-8); natural community is not protected by present Natural Area boundaries (B-9)

C. Legal Constraints Assessment

There are a number of legal constraints that affect the stewardship of Coolidge West Management Unit. They include: deed restrictions, funding conditions, conservation easements, long-term leases, and licenses. In order to assess the effects that these legal constraints have on implementation of a Long Range Management Plan, it is important to understand the specific details of the different types of legal constraints that apply to CWMU.

CWMU is comprised of a number of individual land parcels that have been acquired by the State of Vermont since 1933. These parcels were acquired by the Vermont Department of Forests, Parks and Recreation or Fish and Wildlife Department using a variety of funding sources or through individual donations, leases, and land exchanges. The source of funding initially used to acquire state land was by legislative appropriation. During the early years, parcels of land were purchased by the state with few restrictions other than those that historically ran with a property. (i.e. spring rights, Rights of Way, etc.).

In subsequent years, the federal government passed legislation that provided the states with additional sources of funding for acquisition of public land. Federal programs used to acquire some properties within the CWMU are the Federal Aid in Wildlife Restoration Act (Pittman Robertson Act) and the Land and Water Conservation Fund (LWCF). These programs required the state to match a small amount of the cost of acquisition. However, federal funding requirements also stipulated that certain conditions be placed upon the management of properties purchased with them. This requirement, to some degree, impacts the types of uses permitted to occur within a federally funded acquisition in perpetuity.

Since 1987, the Agency of Natural Resources has received most of its state funding to purchase additional properties within the Coolidge West Management Unit from the Vermont Housing and Conservation Board (VHCB). VHCB, a quasi-governmental board charged with overseeing the Vermont Housing and Conservation Trust Fund, was created by the Vermont Legislature in 1987 for the dual goals of providing affordable housing and conserving lands with important resource values in Vermont. The legislature appropriated funds each year to support these goals. The VHCB requires that all conservation projects they fund be protected in perpetuity by legal instruments (conservation easements) recorded in the land records, which travel with the land.

The Agency of Natural Resources has also developed close partnerships and has worked cooperatively with many non-profit conservation organizations like the Conservation Fund, Vermont Land Trust and the Trust for Public Land who have assisted the Agency in acquiring conservation properties in the Coolidge region that are of mutual interest. On occasion, these organizations have helped to bridge an important state acquisition by acquiring the property and taking it off the market thus providing the Agency with more time to secure the necessary funding for acquisition. In some cases, the state has granted conservation easements to these private organizations for their involvement in the land transaction.

All of the conservation easements on individual properties that make up the CWMU require that the state develop a Long Range Management Plan. Conservation easements don't regulate the types of forest management activities that occur; however, they do address the types of development, signage and recreational activities that can occur such as non-motorized verses motorized recreation, commercial activities etc. They also provide the public with the right of access and conditions under which such access can be restricted.



Finally, some of the lands are under long-term leases and licenses with municipalities and private corporations. Leases are formal written agreements for long-term use of state land, which involve the transfer of rights and are usually developed by the Attorney General's Office and approved by the Vermont General Assembly. Licenses are formal written authorizations for long-term activities that may allow the user some interest in the land but does not transfer contractual, vested or property rights. Land under license or lease must be managed in conformance with the conditions of the original agreements and amendments. More information about legal constraints for each of the following properties is located in the appendices.

Summary of Major Legal Constraints (Figure 7)

1) Killington Ski Resort Leasehold Area - Sherburne Corporation now Killington Ltd. holds a 100 year lease on approximately 1676 acres within CWMU for the "development and maintenance of ski trails and skiing facilities..." The lease provided Killington with an original term of ten years beginning in 1960 with the option of nine additional extensions of the same length of time subject to the various conditions outlined within the original lease and its amendments. Under the Lease, Killington Ski Resort pays the State of Vermont lease rental fees each year. Project plans must receive approval from the State of Vermont for construction of all trails, lifts, snowmaking improvements and structures within the leasehold area. Killington is also responsible for compliance with all federal, state and local permits necessary for project completion. All of the ski trails, lifts, buildings and other structures/additions completed by Killington Ski Resort since 1970 are under Act 250 jurisdiction.

2) Killington Peak Electronic Communications Site - Located adjacent to the summit of Killington Peak in the towns of Mendon and Killington. The .03 acre site is owned in fee by the State of Vermont and managed under a Memorandum of Agreement between VT Department of Forests, Parks & Recreation and VT Department of Public Safety. The site contains two 100' guyed transmitter towers, an electronics building and a 40-foot fire tower to support the privately-owned FM equipment and antennas. Primary users include: federal, state and local agencies and private users.

3) National Park Service Right-of-Way Easement (NPS ROW)- Approximately 382 acres of land owned in fee by the State of Vermont is subject to a perpetual right-of-way easement for the Appalachian/Long Trail on CWMU land within the Town of Killington. The Park Service retains "the right to control and manage the land only in accordance with the provisions and intent of the National Trails System Act", to construct, manage, use and maintain the Trail primarily as a public footpath including the right to permit members of the public to traverse the area, and for other purposes as may be required in connection with the construction, management, development, use and maintenance of the trail".

4) National Park Service Conservation Easement (NPS) (Carris Bigelow) - Approximately 710 acres of land owned in fee by the State of Vermont subject to a perpetual conservation easement and hiking trail right-of-way held by the National Park Service in the Town of Killington. The Park Service retains the right to "protect the scenic, natural, and recreational values of the Bucklin Hiking Trail (a major access to the AT/LT)". The easement permits all types of educational, scientific, non-commercial recreation, forestry and open space uses of the property so long as they are consistent with the easement. It also provides for specific scenic protection areas centered on the Bucklin Hiking Trail.

5) National Park Service Right-of-Way Easement (NPS) (Parker's Gore) - Approximately 350 acres of land owned in fee by the State of Vermont subject to a perpetual conservation easement held by the Vermont Land Trust and a perpetual right-of-way easement for the Appalachian/Long Trail on land within Parker's Gore in the Town of Mendon. The National Park Service retains the right to "control and manage the land only in accordance with the provisions and intent of the National Trails System Act", to



construct, manage, use, and maintain the trail primarily as a public footpath including the right to permit members of the public to traverse the area and for other purposes as may be required in connection with the construction, management, development, use, and maintenance of the trail.

6) Vermont Land Trust Conservation Easement (VLT) (Parker's Gore) - Approximately 3,326 acres of land owned in fee by the State of Vermont subject to a perpetual conservation easement held by the Vermont Land Trust. Includes a majority of the land known as Parker's Gore in the Towns of Mendon and Plymouth which was formerly owned by Killington Ltd and International Paper Company and deeded to the state of Vermont as part of the Killington Land Exchange completed in 1997. The easement permits dispersed, non-commercial, non-motorized, non-mechanized recreational opportunities and forestry and wildlife management uses that maintain remote wildlife habitat. It also allows for continued use of specified alpine ski trails previously constructed and maintained by Killington Ski Area.

7) Vermont State Natural Areas - Designated by the commissioner of Forests, Parks and Recreation under the Natural Areas Law (10 Vermont Statutes Annotated, Chapter 83 Section 2607). Includes: Shrewsbury Peak Natural Area: (100 acres above 3200' elevation approved by the governor in 1987); Mendon Peak Natural Area: (368 acres above the 3200' elevation approved by the governor in 1987); Tinker Brook Natural Area: (20-30 acre gorge along Tinker Brook approved by the governor in 1965). These areas are managed to provide protection for their unique ecological, geological, and scenic features. Appropriate and/or prohibited uses may be prescribed by the Long Range Management Plan for each area.

8) Vermont Housing and Conservation Board and National Park Service Easement (VHCB/NPS) (Colgan) - Approximately 794 acres of land owned in fee by the State of Vermont subject to a perpetual conservation agreement held by the Vermont Housing and Conservation Board and a perpetual scenic easement held by the National Park Service. Includes land in the Towns of Mendon and Shrewsbury along the AT/LT corridor. The easement permits educational, scientific, non-commercial recreation, forestry and open space purposes but limits commercial development and other activities that might impact the scenic corridor along the AT/LT corridor.

9) Vermont Housing and Conservation Board Agreements (VHCB) (Colgan, Balch, Val Preda, Poczobut, Besseney and Bove) - Approximately 860 acres of land owned in fee by the State of Vermont subject to perpetual conservation agreements with the Vermont Housing and Conservation Board. The agreements permit the right to conduct activities allowed by the management plan but restricts commercial development and other activities that would conflict with the purposes of the grant.

10) Vermont Land Trust and Vermont Housing and Conservation Board Easement (VLT/VHCB) (Pierce) - Approximately 235 acres of land owned in fee by the State of Vermont subject to a perpetual conservation easement co-held by the Vermont Land Trust and the Vermont Housing and Conservation Board. The easement permits forestry, agricultural, non-motorized dispersed recreation, construction of trails and other uses but limits commercial development and other activities that would conflict with the purposes of the grant. The easement also allows a lease for the "Tin Shanty" until 2/24/10, then requires it to be removed within 24 months following that date.

11) Federal Aid in Wildlife Restoration Act (PR) (Pittman-Robertson Act) – This Act, commonly called the Pittman-Robertson Wildlife Restoration Act, provides federal aid to the states for the management and restoration of wildlife. The federal aid, funded through an excise tax on sporting arms and ammunition, may be used to support a variety of wildlife projects, including the acquisition and improvement of wildlife habitat. These funds were used for the acquisition of the 1859-acre Plymbsbury WMA and the



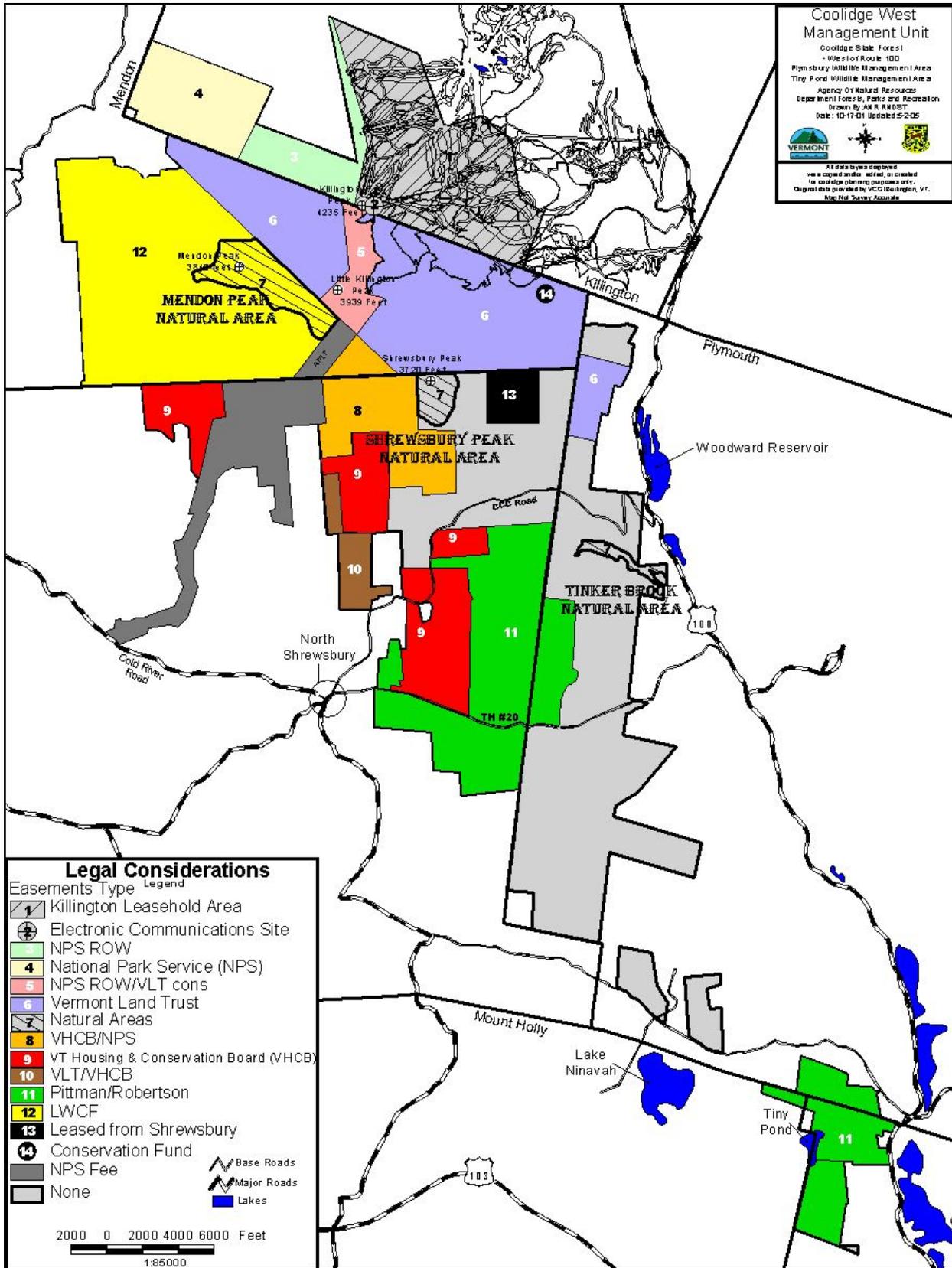
739-acre Tiny Pond WMA. Management activities and land uses on parcels funded with Pittman-Robertson Funds must be consistent with the objectives of protecting, restoring or improving habitat for wildlife. Recreational activities may be restricted to those activities which meet stated objectives.

12) Land and Water Conservation Fund (LWCF)– (Carris-Bigelow) Created by Congress in 1964, the Land and Water Conservation Fund (LWCF) provides money to federal, state and local governments to purchase land, water and wetlands for the benefit of all Americans. The fund receives money mostly from fees paid by companies drilling offshore for oil and gas. Other funding sources include the sale of surplus federal real estate and taxes on motorboat fuel. In Vermont, LWCF dollars have been used to acquire the Carris-Bigelow parcel consisting of 3,216 acres within Coolidge State Forest. Management activities and land uses must be consistent with the objectives of providing outdoor recreational opportunities along with other benefits including clean water, wildlife habitat, scenic vistas and protecting archaeological and historical sites.

13) Town of Shrewsbury Lease to the State of Vermont - Two 100-acre lots owned by the Town of Shrewsbury that have been leased to the State of Vermont. These parcels have been managed as a part of Coolidge State Forest since 1935. The purpose of the lease is to provide forest land to be properly maintained and managed by the lessee for the people of Vermont. The property will not be subleased or exchanged with no form of commercial development allowed. No mechanized recreational vehicles are permitted with the exception of officially designated snowmobile trails.

14) Conservation Fund – Non-commercial recreation easement granted to Sunrise Homeowner’s Association for hiking, snowshoeing, and cross-country skiing on an existing trail network with the right to maintain these trails in their approximate locations, dimensions, and condition.





D. Historic Resource Assessment

This assessment consists of a summary of the studies and resulting preliminary information about historic resources found on the CWMU. The assessment is divided into two sections, pre-contact or Native American period and the historic (post-European) period.

Pre-Contact Sites

A report entitled “*Preliminary Archeological Precontact Site Sensitivity Analysis and GIS Mapping for the Vermont Agency of Natural Resources, Coolidge West Management Unit*” was prepared in 2004 by the Consulting Archeology Program at the University of Vermont. This analysis helps to evaluate landscapes for potential for containing pre-contact (Native American) sites. As expected, the analysis illustrates that sensitivity is influenced by proximity to water. Since CWMU, as a whole, is mountainous with little water, the report concludes that there are relatively few sensitive areas of CWMU that are considered sensitive based upon proximity to streams, their confluences, lakes and ponds, presence of springs and wetlands and distance from kame terraces or edges of valleys (U Maine 2004). Additional study by the Archaeology Research Center at the University of Maine at Farmington produced the document *The Cultural Landscape of the Coolidge West Management Unit: A Historic Resource Summary, Historic Context Development and Prioritization of Known and Expected Historic Resources*, November 22, 2004.

Mountain Peaks

Mountain peaks and other geologic features may have been of ideological significance to Native Americans. As the highest mountain peak in southern Vermont, Killington Peak may have cultural significance to native peoples. Other peaks, which may have similar value, include Shrewsbury, Little Killington, and Mendon peaks, and Saltash Mountain. These are all over 3000 feet in elevation. Ingalls Hill, Bissell Hill, Burnt Hill, Russell Hill, Jockey Hill, and Bear Mountain are important hills within CWMU and may possess similar values to native people.

Waters

The only naturally impounded body of water on CWMU is 29-acre Tiny Pond. The Pre-contact Site Sensitivity Analysis indicates that the perimeter of the pond has a higher potential of containing archeological sites. The shoreline of this pond does not appear to have been cleared for agriculture, and there is no evidence that a mill existed at the outflow. Therefore, the lands surrounding Tiny Pond appear to be relatively undisturbed, and may contain evidence of pre-contact occupation.

Other water resources with highly sensitive potential include the east-west trending tributaries of the Black River and Gould Brook, as well as along level terraces to the south overlooking Tinker Brook, according to the UVM report. The Great Roaring Brook valley, which parallels TH #20, is the only east-west pass through the mountains south of Sherburne Pass and north of Patch Brook/Lake Ninevah and should be considered for its archeological sensitivity. However, the entire length of this pass has been subjected to all the impacts of settlement, including forest clearing, agriculture, residential and mill construction, forest management, and road and bridge construction, as well as periodic beaver activity.

Historic Period Resources

Much of the knowledge and documentation of the historic sites of the early European settlement period on CWMU is based on staff conversations with Marjorie and Glendon Pierce, extensive deed



research, and archives contributed by Fred Elwert, consulting forester for the Besseney family, and Mr. Francis Besseney. Agency of Natural Resources staff members have recorded information about many of the known historic period sites. More detailed information on historic context is available from a variety of sources including “*The Cultural Landscape of the Coolidge West Management Unit: A Historic Resource Summary, Historic Context Development and Prioritization of Known and Expected Historic Resources* “ developed by the Archaeology Research Center at the University of Maine at Farmington in November 2004.

Early Settlement

Historic remains along the Tin Shanty Road are believed to be those of the first white occupation of what is now Coolidge State Forest. These include the Ora Wright homestead, sawmill, two mill dams, and two old farms. The existing Tin Shanty camp is on the site first occupied by Thomas Stewart, progenitor of the current Stewart families in Shrewsbury.

Along Town Highway #20, there is ample evidence of residential and agricultural uses prior to World War II. There are a number of stonewalls and cellar holes, and the frequency of such trees as aspen and cherry attest to open land uses. On the Plymbsbury Wildlife Management Area there are the remains of a steam-powered sawmill. Another water-powered mill is located near Great Roaring Brook much further to the east.

Other historic farm sites are found on the Ninevah block, and a site on Tiny Pond WMA does not appear in the *Rutland County Atlas, F.W. Beers, et al, 1869*, suggesting that it had been occupied and abandoned prior to 1869. The Ninevah block is also near a portion of the Crown Point Military Road. It, along with a broader transport corridor served as the principal route through the Green Mountains opening the area to early settlement. The route known as the Crown Point Military Road, served as an important transport route for many years. Use began as a precontact and migratory travel corridor for Native Americans. Construction of the road along this travel route began in 1759 for the movement of English forces, cattle, and supplies between the forts at Crown Point on Lake Champlain and Fort #4 on the Connecticut River. It also served as a route to facilitate movement of English settlers. Use as a primary transport corridor ended with the construction of the Green Mountain Turnpike (present day Route 103) in 1797.

The Killington Peak, Mendon Peak, and Parker’s Gore areas were truly remote and wild until recent times, and predictably contain fewer historic sites. There is a cellar hole and former cleared land in the northwest corner of the Carris-Bigelow block. The Beers Atlas indicates a sawmill on Mendon Brook near the Bucklin Trail, but there is no surviving evidence. The main ridge north of Killington Peak was the site of a tourist hotel in the late 19th century, and a carriage road to it ran from Brewers Corners. There are no longer any visible surface remains of the hotel, but the carriage road can be traced for most of its length. The Long Trail shelter known as Cooper Lodge exists near the site of the hotel and is itself an historic recreational site as one of the few stone shelters on the Long Trail.

Issues/Concerns: Proximity of Cooper Lodge to the Killington Ski Area makes it an inviting target for winter parties, vandalism, and damage from skiers climbing onto the roof for a view (D1c).

Meeting House Rock, located on the CCC Road, is believed to be the site of the first church service in the Town of Shrewsbury in 1818. The site consists of a small clearing and an 8-foot high boulder. Annual church services continue each year at the site. The site is maintained under a Memorandum of Agreement with the Shrewsbury Community Church.



Twentieth Century and the Civilian Conservation Corps

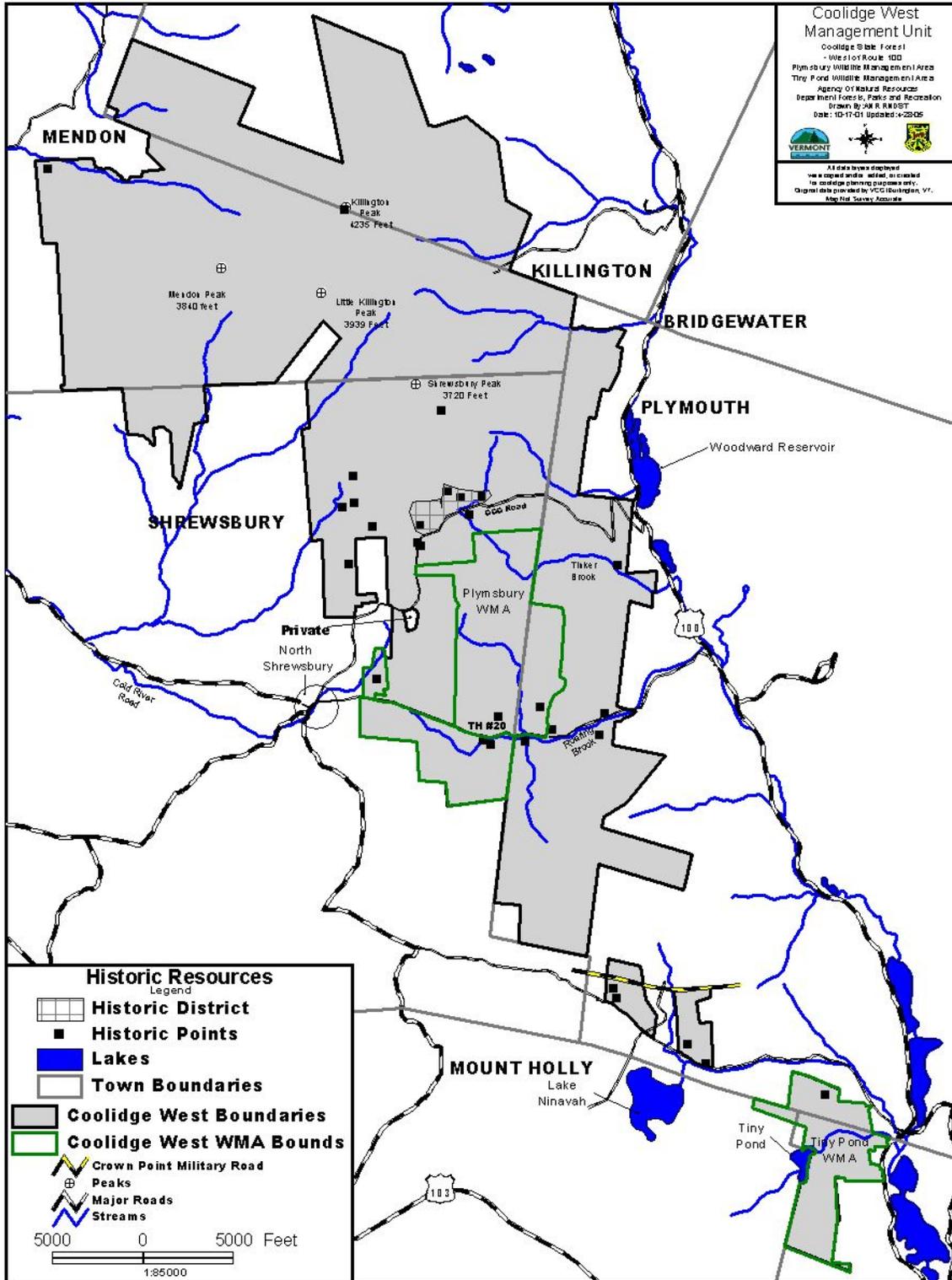
It is known that Elmer Bissell ran a sawmill near the present old pavilion site on the CCC Road until 1933. No evidence of this mill exists today since it was likely destroyed by the CCC construction of the Northam Picnic and Stone House areas. Other sawmills are known to have existed prior to World War II near the south end of the Grouse Hill South Road and on Great Roaring Brook at the Chimney Road. Mill owners are reported to have been a Mr. Moran and a Mr. Burditt.

The CCC impact on CWMU is most clearly evident by the existence of the CCC Road itself. It bisects CWMU and was constructed over an 18-month period with work crews from CCC camps in North Shrewsbury and Plymouth working from both ends. Although built as a fire road it remains today in its original site as a major summer corridor connecting Route 100 with North Shrewsbury and as the major access for recreational activities in the center of CWMU. The Black Swamp Road was also constructed by the CCC's and was a grand attempt at the time to connect the CCC Road with Killington Peak. However, the road was only completed for the first $\frac{3}{4}$ mile when the CCC work in this area ended. Another CCC project, the creation of Coolidge State Park, provides further evidence of their fine work on CWMU. The park development included the Stone House, which was the park manager's quarters, the picnic pavilion, marked today by the standing chimney, and the picnic loop, a road which provides access to a number of picnic sites with stone fireplaces. Other CCC artifacts include the powder house, an underground chamber for storing blasting powder, and the Adirondack type shelters on Russell Hill, Shrewsbury Peak, and the Tinker Brook. Rutland County's first ski area was established in 1935 by the Rutland Ski Club and was located on the south slope of Shrewsbury Peak. The trails were never as wide as ski trails today, and the passage of time and forest management activities have effectively masked their existence.

Another historic site on the CCC Road is the Vermont National Guard firing range. This was built in the early 1950s, and was used for about 15 years. The series of concrete bunkers, which housed the mechanisms for raising and lowering targets, are still visible. Adjacent to the firing line is the multi-hole privy, which is still in good repair.

Issues/Concerns: Adequate protection and documentation of historic features (D1); managing existing historical structures and roads for public access and management purposes (D1a); vandalism and trash dumping at historical site locations. (D1b)





E. Recreation Assessment

Recreational Overview

Regional Perspective

Lands that make up the Coolidge West Management Unit are located in south-central Vermont in Rutland and Windsor Counties. The bulk of its high elevation lands are located in the Towns of Shrewsbury, Plymouth, Killington, and Mendon with lesser acreages located in Ludlow and Mt. Holly. The land lies between blocks of the Green Mountain National Forest located to the north and south and, when combined with the adjacent National Park Service, Appalachian Trail/Long Trail (AT/LT) and Rutland City Watershed, forms a large block of public land. Rutland City is the nearest sizeable community, but the land is within a five-hour drive of all population centers in Vermont as well as Boston, New York City and Montreal.

Recreation at CWMU

Recreation on CWMU has evolved over a half-century of public use. During this period, multiple and varied recreational opportunities have developed to meet changing public demands. State ownership goals have been to strike a balance between and among natural resource uses and public recreational uses and to minimize negative impacts on the natural resource base.

Access to these lands, even prior to state ownership, started with the construction of a carriage road from Mendon to near the summit of Killington Peak prior to 1900. The interest in access to Killington Peak continued with the newly formed Green Mountain Club creating one of the first sections of the Long Trail from Sherburne Pass to the top of Killington Peak and beyond just a few years later. The first recreational uses established for Coolidge State Forest were facilities constructed by the Civilian Conservation Corps (CCC). The CCC Road, Northam Picnic/Camping Area (the original Coolidge State Park), and three primitive camping shelters were constructed, all prior to 1940. With the creation of the CCC Road, summer access into the heart of CWMU was assured and continues today. Although only the three shelters, the CCC Road, a few fireplaces, and the chimney from the pavilion building remain from these early attempts at providing developed recreational experiences, the existence of roads and road systems (expanded by the construction of miles of logging roads) has provided a basis for recreational uses that evolved more recently such as snowmobiling and cross country skiing.

The development of downhill skiing on lands of Coolidge State Forest in the 1950's has seen a similar evolutionary change. A single rope tow, several trails, and a base lodge (today's stone house) were constructed and used on Shrewsbury Peak in 1935. However, difficulty in providing vehicle access to the base of Shrewsbury Peak forced the relocation north to Pico Peak. The later development of Killington Peak, created one of the major northeastern destination ski resort areas. The evolution of these areas into four-season recreational facilities (including biking, hiking, and other summer uses) has created a sizeable tourist industry that has regional economic significance. The resort's expansion has included at least two major land exchanges that have added to Coolidge State Forest while allowing the ski area to grow to meet skier demand.

Although early recreational use of the land was enthusiastic and somewhat intensive, the number of users was relatively small compared with the size of the land base. The kinds of recreational uses were also limited in scope. They included driving on the CCC Road, camping, picnicking,



downhill skiing, and hunting and fishing all of which continue to be popular. Today's demands for recreational use differ dramatically from those of a half-century ago. The number of activities and potential users of the forest have resulted in conflicts that must be resolved through this planning effort to preserve both the enjoyment of specific recreational activities and the resources on which they take place.

Assessment of Recreational Activities

The following activities have been identified as recreational uses of the land within the scope of the CWMU Long Range Management Plan. Some have a long history of use by multiple organizations (i.e. hiking) while other activities are of relatively more recent vintage (i.e. Catamount Trail cross-country ski trails).

The evolution of recreation on both public and private lands is a continuum. As demand develops for an activity the public looks for places to enjoy this new pursuit. At the same time technology and training have enabled people to enjoy the out-of-doors by using techniques and equipment not even foreseeable a decade or so ago. The pressure for these activities has placed added management and planning burdens on land managers. Some may be considered appropriate on state lands while others, due to resource limitations, ecological sensitivity, rare, threatened and endangered species, or conflict with other uses and users may need to be explored elsewhere.

Hunting, Fishing, and Trapping: These activities are permitted on all State Lands unless otherwise designated, and are in fact, the primary public activities on the Wildlife Management Areas. There are no lands within the Coolidge West Management Unit where these activities are prohibited. The actual pursuit of fish and wildlife is governed by rules and regulations established by the Vermont Fish and Wildlife Board. Coolidge West Management Unit, the largest state ownership in southern Vermont, is located in Wildlife Management Unit L. This large acreage lends itself well to hunting large game including white-tailed deer, black bear, and moose. Ruffed grouse, snowshoe hare and turkey hunting are popular activities at different times of the year. Great Roaring Brook, Tinker Brook, Eddy Brook, and other tributaries afford fishing opportunities, primarily for brook trout.

Issues/Concerns: Conflicts between deer and hare hunting season and possible early season snowmobiling (E-1); enforcement of the opening of snowmobile season (E-2); conflicts between bear hunting with dogs and other more passive recreational uses (E-3); conflicts with big game hunting and hikers who perceive them as a threat (E-4); conflict between snowmobilers and hunting during the winter hunting season (E-5); use of former CCC campground by hunters and impacts to that historic resource (E-5a)

Hiking: Twenty-six miles of hiking trails are available for public use on the CWMU. They range in length and purpose from the 1/4-mile long interpretive nature trail, which surrounds Killington Peak to the more remote Appalachian Trail/Long Trail, which bisects the property. About 8 miles of hiking trail can be considered day use (provide access to either Killington or Shrewsbury Peaks). The remainder are sections of longer trails that lie on public land. All trails are cooperatively managed and maintained with the Department of Forests, Parks, and Recreation by the Green Mountain Club, the Farm and Wilderness Foundation, Killington Ski Resort, and the Shrewsbury Outing Club. Killington Ski Resort has a hiking trail system developed within the ski area that is available for use during the summer season. High elevation trail locations are designated for foot travel only due to fragile soils and shallow rooted plants; a problem



particularly in the spring. High elevation soils are prone to erosion if exposed, trampled by high numbers of hikers, or if trails are not properly maintained. Use of these hiking trails by motorized and mechanized equipment can cause extensive resource damage. Many people are familiar enough with the existing roads and snowmobile trails within this area to create multiple loops and short hikes using combinations of hiking trails and other recreation trails designed for other uses. Public demand for hiking to remote peaks has also resulted in the creation of bootleg trails to the top of Mendon Peak.

Issues/Concerns: Illegal motorized vehicle use on some hiking trails (E-6); group and commercial use of trails and their impact on recreational experiences and trail surface (E-7); need for more regular maintenance on hiking trails to address erosion and other issues (E-8); creation of unauthorized social trails into trail-less high elevation areas (E-9); multiple uses of hiking / ski trails (E-10); need for more monitoring of trail use and enforcement of policies with respect to inappropriate uses (E-11); trampling of sensitive high elevation vegetation adjacent to trails (E-12); lack of outreach and education to public on a regular basis (E-13); illegal use of trails by ATVs (E-14); uncontrolled dogs (not on leash or under verbal control) can adversely impact rare species including Bicknell's thrush (E-15)

Snowmobiling: The Vermont Association of Snowmobile Travelers (VAST), through its local snowmobile clubs, maintains thirty-three (33) miles of snowmobile trail on CWMU. This includes the section of Vermont Route 7 Corridor Trail which traverses north-south through the property and a major east-west corridor which connects trails in Shrewsbury with those in Clarendon and Plymouth. There is a concentration of loop trails of relatively short length located north of the CCC Road, and a system of more widely dispersed trails of longer length to the south. The Shrewsbury Snobirds and the Green Mountain Sno Travelers, maintain the trails on CWMU. The most popular snowmobile trails have required more sophisticated trail construction techniques to accommodate trail grooming equipment. Most of the major trails within CWMU have been upgraded for easier maintenance.

In the early 1990s two commercial tour groups were granted licenses to conduct guided tours on CWMU and a third began operating in 2000. The addition of these for-profit groups to the existing clubs and other non-snowmobile trail users, placed greater grooming pressure on the existing trails and added a strong sense of over crowding. Licenses were initially adjusted to lower the number of machines that a tour group could have in total and limits were also placed upon the hours of operation. Additionally, legal constraints on newly acquired CWMU parcels restricted commercial recreational uses. These constraints resulted in numbers below which commercial recreational organizations could successfully and economically operate. For this reason no tour groups are currently operating on CWMU. In recent years there has been an increase in non-motorized uses such as snowshoeing and dispersed cross-country skiing on CMWU. Snowmobile trails within the management unit are open to non-motorized uses as well but increases in trail use by all users has created a demand for more single use winter trails.

The amount of snowmobile use of the VAST trail system in CWMU is largely a function of snow depth in other areas. When snow is lacking on the VAST trails at lower elevations, the snowmobilers flock to the trails of Coolidge. While entry onto Coolidge West Management Unit can be made from as far away as Route 103, Aitken State Forest in Mendon, and Route 100, local access is available only from a small parking lot on Town Highway #20 in North Shrewsbury. The existing snowmobile trail system has seen a dramatic increase in use by ATVs in the non-winter season.



Issues/Concerns: Conflicts between motorized/non-motorized use of the same trails (E-16); desire for separate non-motorized use area (E-17); snowmobile use conflicting with deer and hare seasons (E-18); limited parking for total winter use of the area (E-19); commercial snowmobile tour groups (E-20); illegal use of trails by ATVs (E-21); possible disturbance to wildlife/ hunters during winter hunting seasons (E-22); need for more monitoring to determine degree of trail use (E-23); sensitivity to noise, speed, and air pollution (E-24)

Camping: Camping occurs at the designated shelters and within areas designated for primitive camping on CWMU. There are no developed campground facilities but developed camping is available at nearby Coolidge State Park, Gifford Woods, and Camp Plymouth State Parks. The camp loop, part of the original Coolidge State Park, has been used at times by campers. Stone fireplaces and some campsites remain from this CCC-era campground. It is no longer a developed campground and there are no waste facilities or potable water. Due to its proximity to the CCC Road, it does not conform to the primitive camping regulations.

Issues/Concerns: human waste and damage to historic resources on the camp loop (E-25)

Structures

The majority of overnight camping occurring on CWMU occurs in trail shelters located on the Appalachian Trail/Long Trail; along side trails; and at Tinker Brook. Each shelter is uniquely styled and all are over 50 years old. They are cooperatively managed and maintained by the Green Mountain Club, Farm and Wilderness Corporation, and the Department of Forests, Parks and Recreation. Three other types of structures on CWMU are associated with camping to some degree and have a history of either private ownership or CCC creation.

AT/LT Structures

- Cooper Lodge – This stone shelter is located at high elevation. It has available water and a good outhouse. It is a draw for out-of-bound skiers. The shelter is in poor condition structurally. Its proximity to the Killington Ski Area and the subsequent use and abuse by out-of-bound skiers contributes to its decay.
- Governor Clement Shelter – This shelter is not located on state land but its proximity to CWMU results in shared management issues with AT/LT managers. It is a wood structure in fair condition with an available water supply. It is accessible by vehicle, which has resulted in its popularity as a party location. It is generally considered to be in a good location for a shelter except for its proximity to road access.

Forests, Parks & Recreation Structures

- Shrewsbury Peak – This shelter is located at high elevation in the Shrewsbury Peak Natural Area. It is a wooden structure in poor condition. It receives moderate to low use. There is no outhouse or reliable water supply. Despite being situated in a remote location it is accessible by illegal ATV traffic.
- Russell Hill Shelter – This shelter is located approximately ¼ mile from the CCC Road. It is a wooden structure in good condition which receives little use. There is no outhouse or reliable water supply.



- Tinker Brook Shelter – This shelter is located on a good site about ¼ mile from the CCC Road and receives moderate to low use. It is a wood structure in good condition. Water and outhouse facilities are available.

Other Structures

- Tin Shanty Camp – This camp is under lease that expires in 2010 as per easement agreement. It is a wooden structure in fair to good condition with water and an outhouse available. It is located on the Tin Shanty Road. Lease language requires its removal within 24 months of lease expiration.
- Stone House – This stone structure is located approximately ¼ mile off the CCC Road. It is in fair to poor condition with no available water or outhouse. It serves as a snowmobile rest stop and emergency shelter. The access road is gated.

Issues/Concerns: Vandalism (E-26); need for more maintenance (E-27); generally poor condition of structures (E-28); lack of water and/or outhouses (E-29); need for more monitoring of use (E-30); unauthorized uses causing damage and interfering with legitimate uses (E-31)

Primitive Camping

Most of Coolidge State Forest has been designated for primitive camping under the ANR primitive camping regulations. According to the regulations the activity must occur beyond one-half mile of a road or property line and beyond 200 feet of a stream or trail. The primitive camping experience is user defined. Some wish to have a wilderness experience with no evidence of human activities, others are just looking to camp in the woods.

No campsites are provided and no site impact is expected to remain after the activity. Evidence of other forest uses such as logging and motorized recreation uses may limit the quality of the primitive camping experience for some. The camp loop along the CCC Road, part of the original Coolidge State Park, has also been used at times by campers. Stone fireplaces and some campsites remain from this CCC-era campground. It is no longer used as a campground and there are no waste facilities or potable water. It does not meet the definition of primitive camping.

Issues/Concerns: Need for more education of the public regarding where primitive camping is allowed and of the regulations governing the activity (E-31); human waste, lack of potable water, damage to historic resources at the camp loop (E-32); need for more monitoring (E-33)

Cross-Country Skiing: There are three designated cross-country ski trails within CWMU: The 14-mile long Catamount Trail bisects the property north to south; a two mile winter recreation trail heading east-west from the North Shrewsbury parking lot; and a 1.5 mile loop trail designated on the former Besseney lands. Sections of the Catamount Trail and all of the Winter Recreation Trail are shared with snowmobiles while the loop trail is open solely for non-motorized uses (cross-country skiing and snowshoeing).

Cross-country skiers are divided on the type of experience they seek. Some desire an entire single-track trail system exclusively for cross-country skiing while others enjoy skiing on groomed snowmobile trails. The Catamount Trail Association has requested the relocation of portions of the northern sections of the Catamount Trail off the Route 7 VAST trail and onto “quieter” forested land.



Public access for all these winter activities is limited by available parking areas. Parking is available at the North Shrewsbury lot, at the end of the Tin Shanty Road, and a small parking lot in Mendon (Catamount Trail access).

Issues/Concerns: Conflicts between motorized and non-motorized uses of the same trail system (E-34); speed of snowmobiles (lack of enforcement) (E-35); lack of easy access to a suitable area for non-motorized activities (E-36); identification of trail-less areas for non-motorized uses without disturbing wildlife or habitat (E-37); resolution of unauthorized trail in the Plymbsbury basin (E-38); and request from Catamount Trail Association for establishing sections of the Catamount trail that are not shared with VAST Route 7 corridor trail (E-39); designation of non-motorized cross-county loop trail system (E-40)

Downhill Skiing: The development of the Killington Ski area on Coolidge State Forest in the 1950's provided the basis (with Pico) for a ski experience that has grown into one of the major destination ski areas in the northeast. The evolution of these areas into a year round recreational facility has created a sizeable tourist industry that has regional economic significance. This expansion has required many additional acres and has included at least two major public land exchanges and many land use agreements for the successful operation of the ski industry in this area. Changes in skiing styles over time now include demands for new experiences like glade skiing (between trees and in a forested setting), telemark skiing, and snowboarding. Many of the resort's ski trails, lifts, base lodges and other infrastructure are located within the leasehold area of Coolidge State Forest. All of these improvements are permitted by both the Agency of Natural Resources and the District Act-250 Environmental Commission, which monitors all activities to insure compliance with state regulations and environmental standards.

Issues/Concerns: Conflicts between highly developed ski area lands and the adjacent semi-primitive, non-motorized activities (E-41); impacts to wildlife and water quality from development within a highly developed recreation area (E-42); impact of glade skiing on forest regeneration (E-43); out-of-bounds skiing, threats to endangered species (E-44); fragmentation of resources particularly in high elevation alpine areas (E-45); impacts to law enforcement community for lost skier events (E-46); emergency winter snowmobile access by search and rescue personnel to rescue lost out-of-bound skiers (E-46a).

Birding/Wildlife Viewing/Nature Appreciation: Wildlife viewing and nature appreciation opportunities are plentiful throughout the ownership due to the myriad of wildlife habitats and species present. The opportunity to enjoy the wooded surroundings of CWMU are found on most of the acreage. However CWMU is a large block of land influenced by human activity both past and present with visible evidence of these impacts. Wildlife on the property includes a full range of songbird and invertebrate species, raptors, small and large mammals, reptiles, amphibians, and fish.

Issues/Concerns: Lack of actual ability to view wildlife/nature from roads (lack of vistas) (E-47); no formerly designated watchable wildlife sites (E-48); potential impact on sensitive species (E-48a); general lack of open areas for wildlife viewing (E-49); no educational information on watchable wildlife on CWMU (E-50)

Driving for Pleasure: The CCC Road which connects North Shrewsbury with Route 100 was built by the Civilian Conservation Corps in the mid-1930s as a fire access road. It now serves as



the only through road on the Coolidge West Management Unit available for pleasure driving and is also a heavily used road during the summer and fall months by people living on the western side of the mountains commuting to jobs in the Killington, Bridgewater, and Woodstock areas. It also serves as a principal management access road for activities carried out by the state in CWMU. Town Highway #20, Old Plymouth Road, also provides access from Shrewsbury. It is owned and controlled by the town and is Class III until it reaches its intersection with the Grouse Hill South road and becomes Class IV beyond. The State and Town have made major improvements to both of these roads in recent years but they remain today as six miles of rural graveled road through a forested landscape. All other access roads constructed within CWMU are dead ends and are gated to prevent unwarranted uses and resource damage.

Issues/Concerns: Maintaining the CCC road as a scenic corridor not as a commuter highway (E-51); maintaining the road for seasonal not year round use (E-52); increased access for pleasure driving on roads presently closed (E-53); increased ATV use on gated roads (E-54); damage (vandalism) to gates (E-55).

Picnicking: The Northam Picnic area was created sixty years ago as a day-use picnic area within Coolidge State Park. Today it serves as the trail head to Shrewsbury Peak and no longer has the facilities of a picnic area. The demand for picnicking in this area is now being met at three nearby state parks – Coolidge, Gifford Woods, and Camp Plymouth State Parks. This use has dropped off over the years and today there is no “designated picnic area” within CWMU. Old CCC sites still exist and scenic spots along the roads also offer opportunities for roadside stops for lunch. Visitors are encouraged to observe a carry in – carry out policy because no picnic sites with facilities are provided within the forest for this recreational experience.

Issues/Concerns: Lack of facilities (E-56); trail heads becoming picnic dump sites (E-57); need for more on-site education regarding carry in – carry out policy (E-58).

Mountain Biking: Existing Agency of Natural Resources policy regarding Mountain Bike use on public lands restricts this activity to gravel surfaced roads or trails officially developed for this use (see appendix). Killington LTD has developed over 30 miles of mountain bike trails within the ski area. Rutland City has recently forged a cooperative agreement with the local chapter of the Vermont Mountain Bike Association to develop a series of trails within Pine Hill Park in Rutland City. The few miles of actual gravel road in the CWMU do not encourage mountain bike usage because they are usually dead end roads. However, an examination of most roads, snowmobile trails, and hiking trails within this area does reveal the presence of at least the occasional mountain bike track.

Issues/Concerns: Illegal use of mountain bikes on hiking trails, snowmobile trails, and logging roads (E-59); use of mountain bikes in sensitive areas (E-60); erosion (E-61); need for more education regarding where bikers can operate (E-62); need for more monitoring (E-63)

Horseback Riding: Existing Agency of Natural Resources policy regarding horseback riding restricts this activity to gravel surfaced roads or trails officially designated for this use. The CWMU lands have had occasional use of some of the existing truck roads for horse riding activities. However, most use is by local people familiar with the road systems available.

Issues/Concerns: Possible introduction and spread of invasive plant species and weedy species (E-64); limited availability of gravel surface roads (E-65).



Off Trail Uses: In general, all lands within the Coolidge West Management Unit are available to those who simply wish to walk or hunt on them via either hiking boot or snowshoe. Some consideration and restrictions do apply when dogs accompany this human activity or sensitive vegetative, cultural, or wildlife areas are the targets of human visitation. Act 250 (Land Use Permit #1R0827) prohibits dogs on Killington mountain bike trails. The Appalachian Trail Conservancy and Green Mountain Club recommend keeping dogs under control along trails (AT/LT) to protect dogs, people, and wildlife. Lands managed under lease from the National Park Service require dogs to be on a leash. Many of these actions are taken to protect nesting Bicknell's thrush.

Issues/Concerns: Need for more monitoring particularly for existing uses (E-66); need for more education of users regarding dogs and humans in sensitive areas and other resource impacts (E-67); potential impacts from organized user groups (E-68)

Parking: Availability and adequacy of parking varies with the season. After reviewing existing conditions and hosting a public meeting on the subject it appears that there are currently adequate summer and winter parking areas. There are fewer winter than summer parking opportunities due to the lack of plowed roads.

Summer parking availability:

- North Shrewsbury lot
- End of the Black Swamp Road
- Tiny Pond WMA – Route 100
- Brewer's Corners
- Pavilion on CCC Road

Winter Parking Availability:

- North Shrewsbury lot
- Brewer's Corners
- End of the Tin Shanty Road
- Aitken State Forest lot
- Snowmobile access – Route 103

Issues/Concerns: Need to determine the future adequacy of winter parking availability (E-69); consider desirability of activity-specific parking (E-70)

Bouldering: Bouldering requires the presence of large glacial erratics or other rock forms suitable for climbing without climbing gear. These conditions are rare on CWMU. The relative amount of bouldering that occurs on CWMU has not been determined at this time.

Issues/Concerns: Sensitivity of landscape/ boulders to impacts of climbing (E-71); safety of climbers (E-72); degree of use a site could get without degradation (E-73); need for more monitoring (E-73a); lack of user education (E-74)

Geocaching: This activity has been described as high tech treasure hunting with a GPS (Global Positioning System) unit. Participants only know the coordinates of a given location and search for the site using hand held GPS units. When located, a box of treasure is examined, an item taken, and one left to replace it. Sites (posted on the INTERNET) can be found worldwide and in every state in the country. This is a growing activity in Vermont. In May 2002 there were 40



sites in Vermont. By October 2003 that number had reached 153. One site does appear to be on or near the Tiny Pond Wildlife Management Area. Existing policy does not allow geocaching on lands managed by the Fish and Wildlife Department; requires a permit with use conditions on lands managed by the Department of Forests, Parks and Recreation; and encourages virtual geocaching if possible.

Issues/Concerns: Land manager permission is not always sought (E-75); caches located in inappropriate areas (E-76); caches with inappropriate contents (E-76a); site degradation (E-77); no time limit for cache on website or ground (E-78)

Water Sports (motorized and non-motorized): CWMU lands are dominated by upland forests. The streams are generally small and rocky with limited water flow making them unsuitable for canoeing or kayaking. There are a few small remote ponds controlled by beaver activity, which, because of difficult access, make public use difficult, if not impossible. Boating is permitted on Tiny Pond (29 acres) with speed restrictions set at 5 mph. Personal watercraft are not permitted. Access from state land is limited to foot traffic only making boating access from Route 100 over a mile away. This activity is generally not available on CWMU.

Issues/Concerns: Protecting the fragility of Tiny Pond from water sport use (E-79); access to Tiny Pond over private land (E-80)

Dog Sledding: There are no trails specifically available for dog sledding on CWMU. Available groomed snowmobile trails are of a suitable length for this recreational activity. Some local dog sledding did occur in the 1970s in this area with one or two dog teams occasionally using the snowmobile trails. In the early 2000s some dog sledding activity occurred on nearby lands.

Issues/Concerns: Safety on trails shared with snowmobiles, cross-country skiers and snowshoers (E-81); dog residue on trails (E-82); potential impact to wildlife (E-83); need for more user education (E-84); introduction of invasive exotic species (E-84a).

Llama Trekking: While trail hiking with pack horses has existed in the western United States for years it is not a popular activity in the east. The use of llamas and other pack animals has been promoted occasionally for use in the east and has gained some acceptance. However both the Green Mountain Club and the Appalachian Trail Conference prohibit the use of pack animals because of negative impacts to the hiking trails. Existing policy restricts llama use on CWMU to gravel surface roads and forest highways.

Issues/Concerns: Introduction and spread of exotic plant species (E-85); user conflicts (E-86)

Paint Ball: Paint ball activities require an outdoor setting for concentrated action among multiple players. While inquiries have been made regarding locating facilities of this type on public land in this region, none exist at this time. There are paint ball facilities in the northern part of the state (Colchester and Middlesex) and an indoor facility exists in Rutland.

Issues/Concerns: Aesthetics of the area following paint ball activity (E-87); public safety (E-88); single use of resource that must exclude general public during the activity (E-89); vandalism (E-90); litter (E-91)



Sports Car Road Rallies/Extreme Games: Both of these activities have been granted permission to operate on parts of Coolidge West Management Unit in the past. A sports car road rally was held for many years using the CCC Road as a part of its course and ESPN was given permission to use the AT/LT, the Shrewsbury Peak hiking trail, and several gated roads in the Plymbsbury WMA for its Extreme Games Competition involving hiking and biking on one occasion several years ago. This activity has also occurred on other parcels of state-owned land including Ascutney State Park and Okemo State Forest.

Issues/Concerns: Potential impacts to resource (E-92); single use of the resource (major state forest highway or hiking trail) (E-93); exclusion of the general public during the event (E-94); lack of compliance with permit (E-95); compatibility with other uses (E-96)

ATVs: All Terrain Vehicles (ATV's) are not permitted on State lands. Based upon the results of an ATV Environmental Impacts Report (Environmental and Social Effects of ATV's and ORVs: An Annotated Bibliography and Research Assessment), which the Agency of Natural Resources submitted to the Vermont General Assembly in January of 2001, as called for in H.854 of the 2000 legislative session, the position of the Agency of Natural Resources is that the existing ANR Regulation regarding ATV use should not be legislatively or administratively relaxed. In March 2004 Governor Douglas convened an ATV Collaborative to explore issues with respect to ATV use state-wide and recommend solutions. The group consisted of ATV enthusiasts, conservation organizations, municipal, public safety and law enforcement officials and landowner organizations. The *2004 ATV Collaborative Report and Recommendations for the Governor* limits consideration of ATV trail crossing state land to those trails serving as a corridor link between trail systems found on adjacent private land or other public land. The criteria for considering a carefully selected connecting corridor include full site specific environmental review and evaluation, public involvement, and a designated user group agreement for use, repairs and maintenance.

Despite current policy with respect to ATVs, roads, snowmobile trails, and hiking trails, have received damage from ATV use. No gate on CWMU has yet proved to be effective at physically barricading this activity.

Issues/Concerns: resource damage to roads and trails (E-97); enforcement of existing laws (at current levels) has not been effective (E-98); potential impacts to ecologically sensitive areas (E-99); wildlife disturbance (E-100); damage to wildlife habitat (E-101); conflict with legitimate recreational uses (E-102)

Recreational Experience Assessment by Land Area

Recreational Opportunity Spectrum

In managing the Coolidge West Management Unit, we must make assessments of both the current conditions and the future recreational needs. As land managers, we will need to determine how to resolve user conflicts, insure the quality of the recreational experiences offered, help preserve the conditions under which these activities take place, and protect the resource.

For this purpose, the Agency of Natural Resources has chosen to use 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. Developed by the U.S. Forest Service in the western United States, the Recreational Opportunity Spectrum (ROS) has been modified for use in the eastern states. Use of



the system will result in the public being given consistent expectations on the types of recreational experiences in various areas, regardless of whether they are on state or federal lands. The six ROS categories include primitive, semi-primitive non-motorized, semi-primitive motorized, semi-developed natural, developed natural, and highly developed.

The categories of experience range from the highly developed (urban) to undeveloped (primitive). The characteristics used to determine the categories are based on three general factors:

1. The physical setting is determined by the degree of remoteness, the size of the area and evidence of humans; and
2. The social setting is determined by the amount and type of contact between individuals and groups; and
3. The managerial setting is determined by the amounts and kinds of restrictions placed on people's actions

Application of the ROS model on CWMU lands revealed the availability of only three of these categories – semi-primitive non-motorized, semi-developed natural, and highly developed. These vary in recreational experience from most remote and isolated to those with a great deal of human interaction and site development.

Recreational experiences throughout CWMU may vary depending upon the season. For example, some areas of CWMU offer opportunities for summer hiking in a remote and primitive landscape with minimal sounds of motorized equipment and limited encounters with other people. The same area in winter may offer snowmobiling opportunities resulting in a different type of experience. Therefore, the area each of these categories describes changes in size and shape dependent upon the season (Figure 9). What follows is a description of recreational experiences that can be expected in each of these three areas.

Highly Developed (9% of CWMU) –

- *An area where sights and sounds of people are expected.*
- *Large numbers of other users can be encountered.*

The 1676-acre Killington Lease Area is home to the Killington Ski Area, a highly developed winter recreation destination. During the winter season one can expect constant human contact, fees for land use, and a very developed infrastructure. Noise from ski lifts and snowmaking are part of the experience. The ski area is also an active place during the summer months. The experience is characterized by a low degree of remoteness and a high degree of interaction with people. Chair lifts continue to provide access to the summit for views and as access for nearly 30 miles of downhill mountain bike opportunities. There are also several miles of hiking trails interspersed with nearly 500 acres of ski trails.

Semi-Developed Natural (winter: 60%; summer: 49% of CWMU) –

- *A natural appearing setting but with obvious modifications scattered about the area, perceived to be in the background by most travelers through the area.*
- *Interaction between users is low, but evidence of other users is prevalent.*
- *The area is less than one-half mile from improved, maintained roads. Designed roads and highways are present.*
- *Contact with other users is moderate to high on roads and low to moderate on trails and away from roads.*



- *Human controls over the area are noticeable but in harmony with the natural environment.*

This designation applies to some of the most accessible lands on CWMU including the Plymbury basin, the CCC Road and the TH#20 area, the Ninevah blocks of Coolidge State Forest and much of Tiny Pond WMA. Within these areas one could expect an experience that includes infrequent contact with other people but proximity to roads, traffic sounds and logging evidence make the true sense of remoteness elusive. The area this designation encompasses on CWMU expands in the winter when snowmobile trails are in use and the noise and increased traffic make human contact more likely.

Semi-Primitive Non-motorized (winter: 31%; summer: 43% of CWMU) –

- *Area appears natural. Structures are rare and isolated.*
- *Interaction between users is low but there is evidence of other users.*
- *Non-mechanized uses are most common, but mechanized uses are permitted. Motorized use is not permitted.*
- *Isolation from human development, use and impact is likely.*
- *Human controls over the area are subtle.*

Lands within this designation provide experiences that include little evidence of humans and a high degree of remoteness. In fact, the most remote lands of CWMU are included here. The large, five peaks area with high elevation and rugged terrain is several miles from the nearest road. There is little obvious evidence of human use and a strong sense of self-reliance. Dispersed pedestrian recreation is the primary activity. The AT/LT and some side trails are in this area although several peaks and many acres remain trail-less.

Burnt Hill and Saltash Mountain in the central and southern portions of CWMU also fall under this description. They are not as remote as the five peaks area but do have steep slopes and high elevation. Human contact is still infrequent but sounds from other areas diminish the sense of remoteness somewhat.

The area described as semi-primitive non-motorized is larger in the summer than in the winter largely due to the sounds and activity levels of adjacent motorized winter recreational uses and snowmaking.

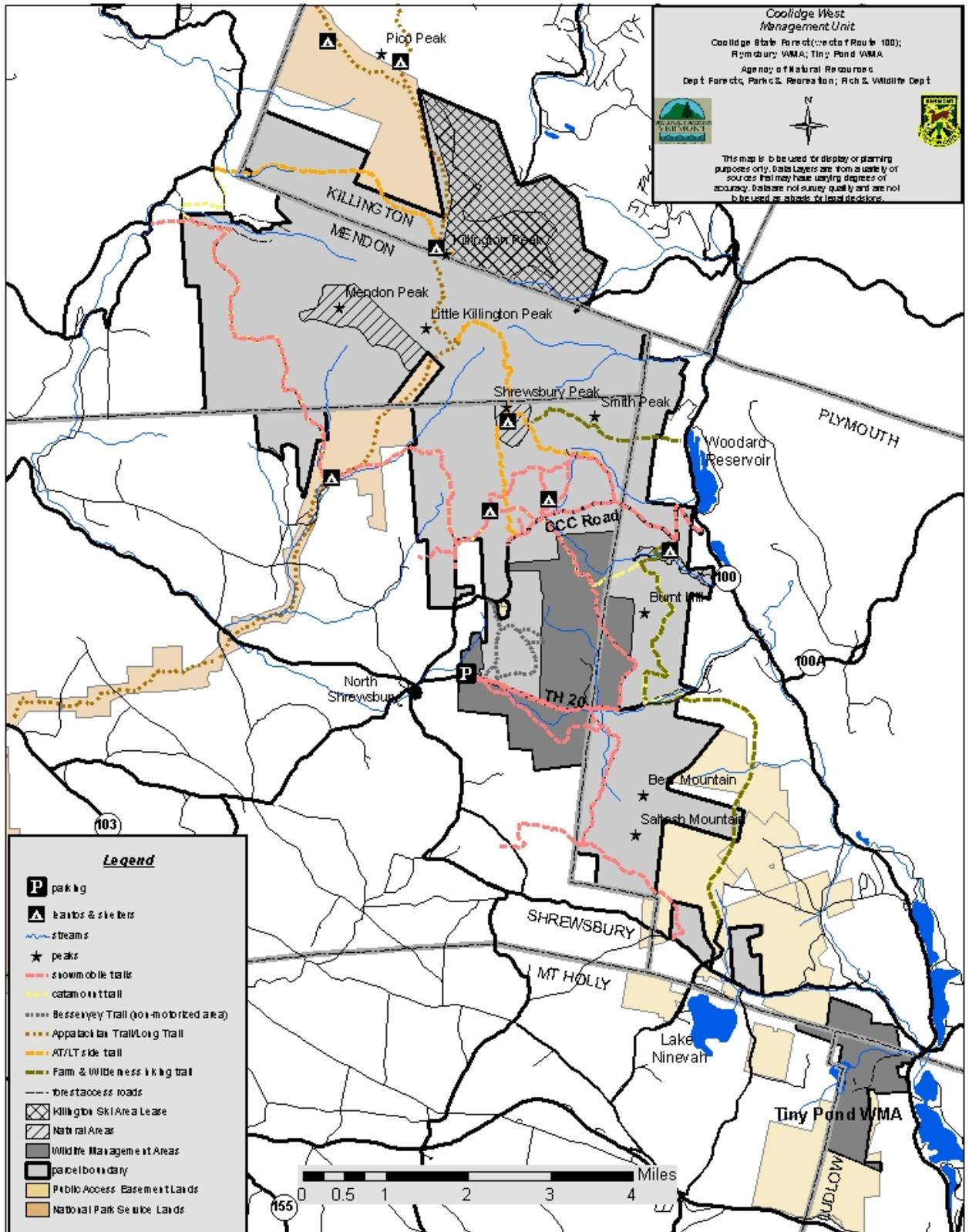
RECREATIONAL ACTIVITY/EXPERIENCE TABLE

Area of Best Opportunity
To meet expectations

<u>Recreational Uses</u>	Highly Developed	Semi-Primitive Non-Motorized	Semi-Developed Natural
Hunting	X	X	X
Trapping	X	X	X
Hiking (day use trails)	X	X	X
Hiking (long distance) - AT/LT		X	
Snowmobiling			X
Swimming	C	C	C
Camping (primitive)		X	
Camping (off road shelters)		X	X
Cross-country skiing (day use)		X	X
Cross-country skiing (long distance)		X	X
Picnicking			X
Downhill skiing	X		
Birding	X	X	X
Wildlife viewing		X	X
Fishing		X	X
Driving for pleasure			X
Mt. Biking			X
Horseback riding			X
Off trail exploring – foot		X	X
Quiet areas		X	
Ice climbing	C	C	C
Bouldering	C	C	C
Hang gliding/para-sailing	C	C	C
Geocaching		X	X
Spelunking	C	C	C
Dog sledding			X
Llama trekking	F	F	F
Paint ball	F	F	F
ATV riding	D	D	D

- X = expectations can be met in this area
- C = opportunity not available - lack of resource
- F= discouraged - negative impact to the resource
- D = not allowed by ANR rules





F. Timber Resource Assessment

History

The current condition of timber resources on lands of CWMU can be attributed to a number of natural influences including such site conditions as soils, climate and elevation as well as past land use practices such as agriculture and timber harvesting. Agricultural clearing for crops and pasture occurred in the 1800s but was not widespread across the ownerships rather it was concentrated in the Plymbsbury basin, along the Tin Shanty Road, and the western end of the present CCC Road where terrain is moderate. Forests remained intact on steeper slopes, and while not cleared for agriculture, supported the several sawmills that operated in the area.

Timber harvesting has occurred on much of these lands both prior to and since State ownership. In the early 1800s wood supplied the tannery and lime and potash kilns in North Shrewsbury. It was also used to heat all of the area houses, churches and businesses. Throughout the nineteenth and early twentieth centuries, the sawlog harvest on lands now known as CWMU was sawn in mills established on the property, or very nearby. Several mills owned by the Burditt family operated in the Plymbsbury Basin between 1860 and 1880. In 1842, the Wright sawmill, located at the base of Shrewsbury Peak, provided the lumber for the Northam church. Another mill owned by the Russell family (1824) cut timber near the present Stone House area until it was sold to the Bissell family in 1899. Both the Bissell's and the Balch's operated mills in the present Governor Clement Shelter area from the mid-1800s into the early 1900s. At least seven sawmills operated for varying periods of time on lands that eventually became part of CWMU. Commercial Christmas tree harvesting was active in the Plymbsbury Basin for several years in the 1940s and 1950s, and a 30-acre area of the Ninevah Block has been managed for Christmas trees and greens since 1953.

Under State ownership, CWMU has supported an active timber management program for many years. Although the first parcels were acquired in 1933, the Vermont Department of Forests, Parks and Recreation timber sale program on CWMU did not begin until 1954 due to condition of the forest and staffing levels. Since then the total harvest has exceeded 26,000,000 board feet (average annual yield of 612 thousand board feet) with revenues for the stumpage exceeding \$950,000 since that time. Much of the 6500 acres recently acquired by the state was harvested prior to acquisition. No figures on revenues generated on those harvests are available. The sudden resurgence of the fuelwood market in 1973 resulted in unprecedented removals of low-quality wood, leaving many stands that are generally of average or better quality. Although the greatest volume of fuelwood is harvested in conjunction with sawtimber and pulpwood sales, fuelwood has also been made available to the general public in the form of three to five-cord lots.

Most harvesting in hardwood stands has been some variation of uneven-age silviculture. The practice of clearcutting hardwood and mixed wood stands as a silvicultural practice or for wildlife habitat purposes began in 1970 under silviculture guidelines developed by the research division of the USFS for northern hardwoods. Harvesting in spruce-fir stands since State ownership utilized the practice of clearcutting under USFS guidelines for management in the northeast. However, the proportion of softwood regeneration resulting from the clearcuts has varied with site quality. Since 1980, the State's goal of maintaining and regenerating softwood has led to more uneven-age group selection cutting practices which had more beneficial results.



Forest Health

Natural processes are continually occurring on any given forest. Some parcels experience more dynamic natural disturbance regimes due, in part, to elevation, climate and soil conditions. Some disturbances are more frequent and smaller in impact such as blowdowns, minor insect and disease outbreaks and structural impacts from heavy snow and ice loading in tree canopies.

Several noteworthy natural processes that have affected stands on CWMU include a forest tent caterpillar outbreak from 1979 to 1982 on the western slope of Saltash Mountain. The heavy mortality caused by this outbreak resulted in a salvage harvest shortly thereafter. In 2005, aerial detection surveys mapped 585 acres of forest tent caterpillar defoliation. Despite the larger total acreage involved, the total mortality from this outbreak is yet to be known. Individual tree mortality may be occurring but large areas of dead trees do not exist. Areas mapped include portions of the Carris-Bigelow block in the northwest corner of Coolidge State Forest, the east slope of Saltash Mountain, and the Burnt Hill area.

Impacts from the 1998 ice storm were scattered across the management unit varying in intensity from light to heavy. Heaviest impact was found on ridges and east-facing slopes. The clearcuts adjacent to the CCC Road were part of an ice storm salvage operation done by the previous owner. Trees damaged on CWMU were not salvaged due in part to inaccessible locations of damaged trees.

Existing Conditions

Vegetation management is an important tool used to accomplish many goals including the production of high quality timber and other forest products; the creation and maintenance of a diversity of wildlife habitats; management of aesthetics (i.e. scenic vistas); management of safe, aesthetic recreation and travel corridors; control of invasive exotic species; and demonstration of new and state-of-the-art forest management techniques.

Development of a sound vegetation management program requires information and understanding of forest inventory data, site productivity, consideration of resource assessments and inventories (i.e. recreation, wildlife, natural community), legal considerations, management goals and objectives, agency and department missions, changing conditions (i.e. insect, disease, and other natural process events), policies, new research and market conditions.

Forest Inventory

Forest resource assessment is conducted periodically using the FOREX inventory (forest examination) method developed by the Vermont Department of Forests, Parks and Recreation, or comparable inventory program, to inventory and evaluate state lands for long range management plan or timber sale prescription development. The inventory for this long-range management plan was conducted between 1999 and 2003. Data collected provide detailed information on the forest at regular intervals allowing long-term monitoring of the forest resource. Data are systematically collected at a series of plots. This includes data valuable in understanding natural communities such as information on soils, landscape characteristics, and ground vegetation. Data are also collected to gain better understanding of wildlife habitat and includes information on critical habitats (i.e. mast, wintering areas), important habitat features (i.e. soft mast, den and cavity trees, coarse woody debris), and observations of bear use. Information on forest threats (i.e. exotic species, disturbance, damage) is also documented.

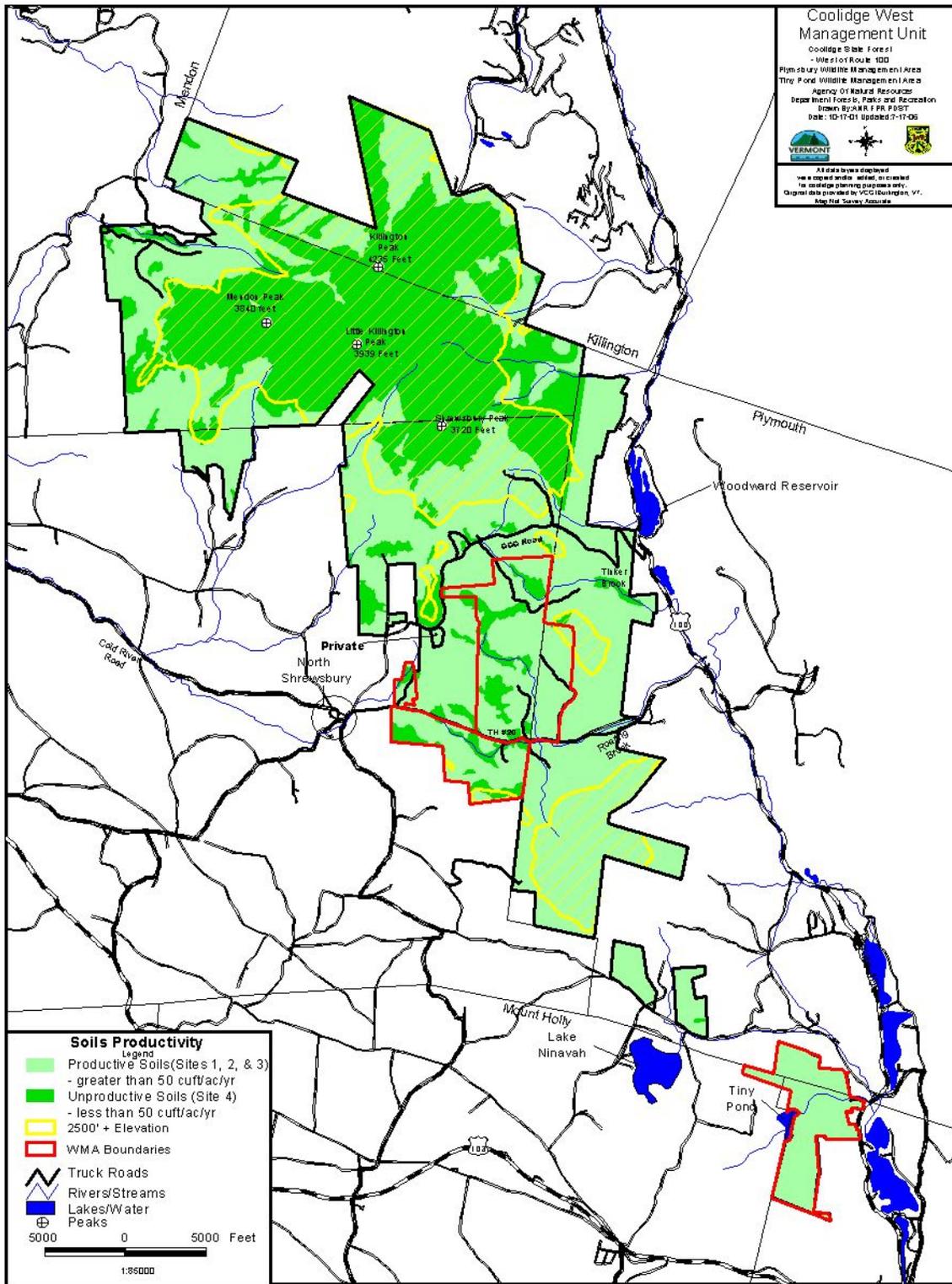


Tree data useful in understanding the timber resource include species, diameter, volume (sawlog and pulpwood), timber quality, tree health, canopy position, and information about regeneration. Analysis of the inventory data reveals the statistical characteristics of the current forest stand (i.e. basal area, trees/acre, volume data). These can be compared to previous inventories to show how the stands have changed over time. These data are the basis for making vegetation management decisions.

Soil Productivity

There are four soil site classes that are used in this plan to express potential for soil productivity, a consideration for timber management. Soil productivity is based on the Natural Resource Conservation Service (NRCS) Soil Surveys for Rutland and Windsor counties and considers information including soil limitations, slope, surface features, and soil depth.

The relationship between soil productivity and timber is expressed as site index, a species-specific relationship. Site indices are then grouped into Site Classes 1 through 4 with 1 being the most productive and 4, the least. For example, if sugar maple is growing on a site at a rate that it will reach 60 feet tall when it is 50 years old, the site is classified as Site I. The site class values can be used for broad planning purposes, however, field investigations are conducted to assess variations in site conditions and slope variations.



The site index and volume ranges for each class are:

Class	Potential Productivity (per acre per year)	Site Index
Site I	> 85 cubic feet	Spruce-fir 50' White pine 70' Northern hardwood 60'
Site II	50 to 84 cubic feet	Spruce-fir 40-49' White pine 60-69' Northern hardwood 53-59'
Site III	20 to 49 cubic feet	Spruce-fir 30-39' White pine 50-59' Northern hardwood 45-52'
Site IV	< 20 cubic feet	Spruce-fir 30' White pine 50' Northern hardwood 45'

Cover Types

A cover type is a point-in-time identification of the main forest canopy. They are discreet, predictable associations of tree species that occur within a set of conditions. Natural communities (see *Natural Community Assessment*) are, by definition, a description of late successional condition and consider many elements in addition to canopy vegetation. In many instances cover type and natural community type are the same. At other times, particularly when the cover type reflects early successional tree species or a plantation, the two may be different. What follows is a general overview of the timber resources on lands of CWMU based upon information derived from the FOREX inventory completed in 2003, management records, and interpretation of aerial photography.

Northern Hardwoods (sugar maple-beech-yellow birch)

Northern hardwoods are found on approximately 50% of CWMU. This cover type is found on the most resilient and productive sites and has an established forest management road infrastructure. Canopy composition consists of sugar maple (*Acer saccharum*), American beech (*Fagus grandifolia*), and yellow birch (*Betula alleghaniensis*). Other species associated with this cover type include red maple (*Acer rubrum*), white ash (*Fraxinus americana*), balsam fir (*Abies balsamea*), red spruce (*Picea rubra*), black cherry (*Prunus serotina*), basswood (*Tilia americana*), black birch (*Betula lenta*), and eastern hophornbeam (*Ostrya virginiana*). On CWMU, northern hardwoods are found from the lowest elevations to nearly 2500 feet and on the more productive soils (Site I and II). When found on these sites timber quality is generally good. Higher elevation sites and those considered less productive (Site III and IV) generally support lower quality hardwoods.

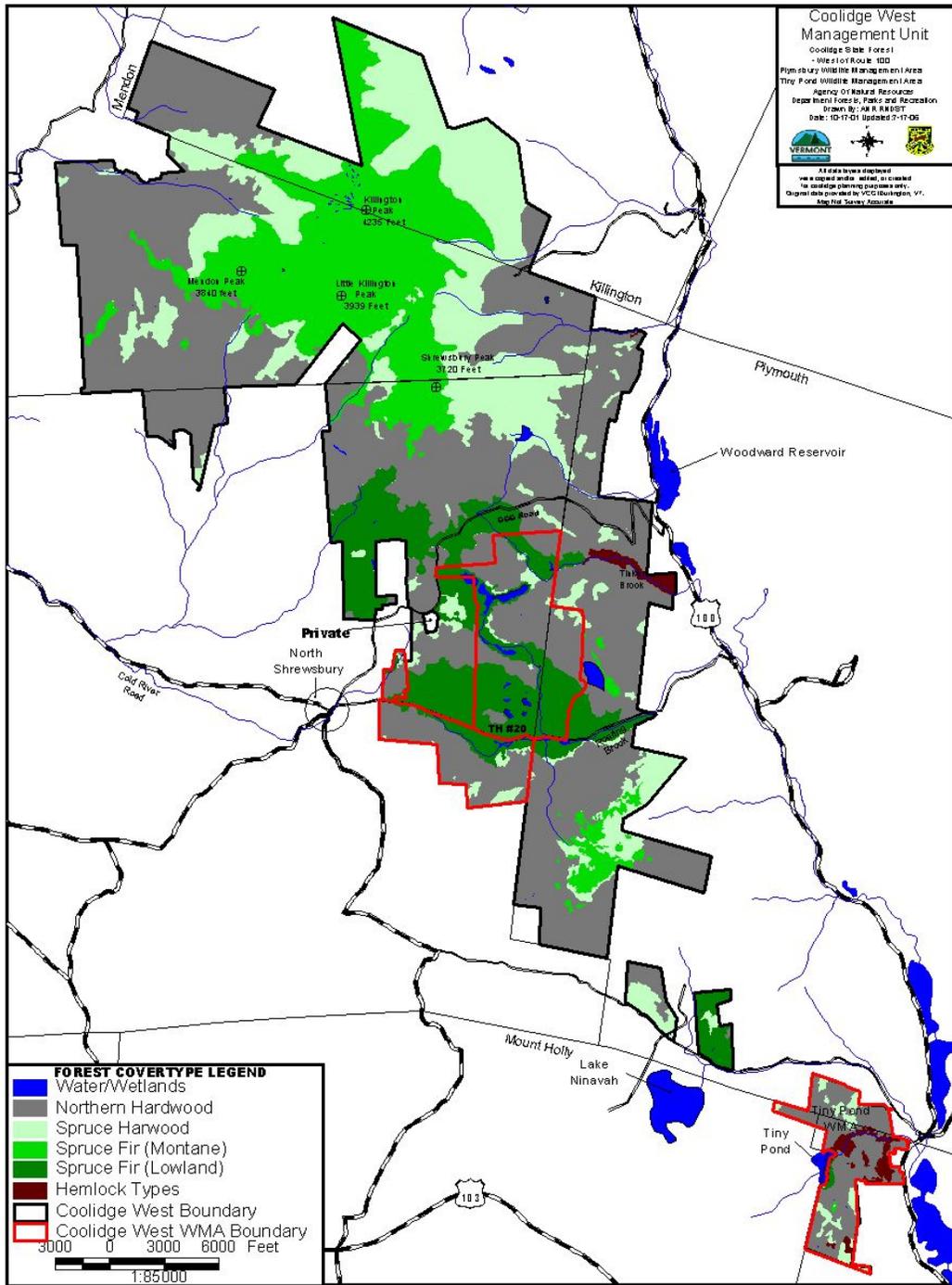
Much of the northern hardwood cover type has been part of an active timber management program since State ownership. Largely due to accessibility, much of this area is actively sought for a variety of recreational activities including snowmobiling, cross-country skiing, hiking, hunting, fishing and wildlife viewing.



All of the northern hardwood forests on CWMU have been mapped as one occurrence of the Northern Hardwood Forest natural community type and this occurrence has been determined to be of state significance due to its size, condition and landscape context.

Issues/Concerns: Potential conflicts between timber management and recreation activities (F1); contain timber management road infrastructure as well as motorized and non-motorized trail infrastructure (F2); state significant natural community occurrence (F3)





Spruce-Fir (red spruce-balsam fir) – high elevation

The spruce-fir cover type (high elevation) makes up about 18% of the forests of CWMU. Within this cover type canopy composition is dominated by red spruce and balsam fir. Occasional canopy associates include a variety of hardwoods such as paper birch (*Betula papyrifera*), yellow birch, red maple, quaking aspen (*Populus tremuloides*), and American beech. This spruce-fir cover type is found at the highest elevations. Soils tend to be leached, acidic and shallow to bedrock and consequently spruce-fir at these high elevations tends to be slower growing and of poorer quality.

Much of this cover type is not suitable for timber management. These forests are located at high elevations with steep slopes and fragile soils. Much of this cover type, particularly areas above 2500 feet in elevation, was not managed for timber production in the previous long range management plan due to steep, inaccessible mountainous terrain, fragile soils, and poor tree condition. Due to site location these forests are generally less productive.

Recreational use of the forests within this cover type is dominated by dispersed, pedestrian uses in the summer. Portions of the Appalachian and Long trails as well as side trails are located within this portion of CWMU. In winter Killington Ski Area supports downhill skiing, snowboarding and snowmaking activities and maintains a significant mountain bike program in the summer.

All of the high elevation spruce-fir cover type is part of two occurrences of Montane Spruce-Fir Forest natural community type that has been identified as state significant due to its condition, size and landscape context. It is important due to its potential as Bicknell's thrush habitat and habitat for the rare small-flowered rush (*Luzula parviflora*). The Shrewsbury Peak and Mendon Peak Natural Areas are located within this cover type.

Issues / Concerns: Impacts of all management activities on rare species, steep slopes and fragile, high elevation soils, and state significant ranking of the natural community occurrence (F4)

Spruce-Fir (red spruce-balsam fir) – low elevation

The Spruce-fir cover type (lowland) makes up 11% of the forests of CWMU. Canopy position is dominated by red spruce and balsam fir. Occasional canopy associates include a variety of hardwoods such as paper birch, yellow birch, red maple, quaking aspen and American beech. This spruce-fir cover type is found on flats and gentle slopes in cold, relatively low areas. Soils generally have a compact layer within 20" of the surface limiting drainage and rooting depth.

The majority of the acreage occupied by this cover type is found in the Plymbsbury basin between the CCC Road and TH #20 making it a very accessible area of CWMU. Timber management has occurred within this cover type for many years. Winter recreation is popular with both motorized and non-motorized use trails available for cross-country skiing, snowshoeing, and snowmobiling.

Timber quality is good on the more productive soils in the basin where there is a long history of agriculture and timber management.

Issues / Concerns: Conflicts between timber and recreation management (F6); state significant ranking of Lowland Spruce-Fir Forest natural community occurrence (F7)



Spruce-Fir mixed with yellow birch or other hardwood

This mixed hardwood/softwood stand makes up approximately 18% of CWMU forests. Spruce is also present in association with hardwood species such as red maple, yellow birch, and paper birch. Other occasional canopy associates include sugar maple, beech, striped maple (*Acer pensylvanicum*), mountain maple (*Acer spicatum*), and mountain ash (*Sorbus americana*). This stable mixture of hardwood/softwood type is found in stands throughout the management unit. It is generally located higher on the slope and acts as a transition between the lower elevation northern hardwood type and the high elevation spruce-fir forests. Its presence is due both to site condition (as a transition between northern hardwoods and spruce-fir types) and past harvesting practices. Other mixed wood stands are located in the Plymbsbury basin adjacent to TH #20 and in the CCC Road area. Many of these are the result of past timber management treatments and land use history and are in transition toward softwood dominance.

Recreational uses occurring within this cover type are cross-country skiing and snowmobiling in winter and hiking, hunting and fishing in summer.

Issues/Concerns: Management activities affecting the quality ranking of state significant natural community type (F8); potential conflicts between timber management and recreation management activities – primarily in the winter (F9)

Aspen-White Birch

Aspen, both quaking (*Populus tremuloides*) and bigtooth (*P. grandidentata*), dominate this early successional cover type which is found in only 1% of the forests of CWMU. Canopy associates include white birch and pin cherry (*Prunus pensylvanica*). These species often colonize clearcuts, burned areas, and old fields. The Aspen-White Birch cover type, despite its limited acreage on CWMU, is part of an important early successional habitat mix on CWMU.

Issues/Concerns: Maintenance/enhancement of the early successional habitat component (F10) to meet wildlife habitat management objectives.

Plantations

Plantations total only 34 acres, less than 1% of the total acres of the management unit. There are several remnant Norway spruce (*Picea abies*) plantations on CWMU. Most plantations were established by the Civilian Conservation Corps in the 1930s. They are located adjacent to the CCC Road near the pavilion, adjacent to TH #20 across from the North Shrewsbury parking lot, and on the newly acquired lands on TH #20 in Shrewsbury. There is one red pine plantation (*Pinus resinosa*) of less than an acre in the Plymbsbury basin.

Norway spruce plantations have been managed for their timber value and thinned several times under state ownership and are considered aesthetic by many users. Norway spruce is an exotic species.

Issues/Concerns: Existence/maintenance of plantations of exotic species particularly within state significant natural communities (F11); historic significance of CCC plantations (F11a).

Timber and Vegetation Management

Management objectives on over 12,000 acres of land within CWMU will strive to maintain a balance of vegetative types and vegetative stages. This balance is intended to enhance biological



diversity; healthy natural communities; wildlife habitat diversity and abundance; and to produce marketable forest products.

Assessment of the CWMU lands reveals that a timber and vegetation management program can be carried out on a sustainable basis on approximately 12,000 acres. Not all of that acreage can or should be managed for the same products using the same techniques or prescriptions, however. Nearly 59%, or roughly 7000 of those acres, are located on highly productive soils; gentle to moderate terrain; with healthy and diverse forest stands; and good access through an established network of logging roads and skid trails. These lands are capable of producing high quality timber products through a timber management program which includes both even and uneven age silvicultural treatments.

The remaining 41%, or 5000 acres, are found at higher elevations with steeper slopes and more fragile and less productive soils; contain areas of critical wildlife habitat; contain less common natural community types; trees exhibit relatively slower growth and structural damage from heavy snow and ice loading; and are less accessible with more limited network of logging and skid roads. While these lands are capable of producing quality forest products, it is unrealistic to manage them at the same intensity as those areas described in the preceding paragraph. Nearly 70% of these forests are found above 2500 feet in elevation. Timber sales will be designed to attempt to mimic natural disturbances by managing on longer rotations, leaving higher residual stocking, using uneven age silvicultural treatments, greater attention to ecological structure (i.e. retention of large den and snag trees, coarse woody debris, larger diameter trees and vertical structure).

Vegetation management on the remaining lands of CWMU, nearly 7000 acres, will focus on control of invasive exotic species, natural community restoration, and trail corridor management.

Vegetation management is used to meet specific wildlife habitat goals. These include management of deer wintering areas, key mast stands and early successional and mature forest habitat. Within all of CWMU there is a lack of early successional habitat as represented by forest stands in the 0-15 year age classes (see *Wildlife Assessment*). A variety of vegetation management techniques can be used to increase and maintain this habitat component (i.e. manual cutting, mechanical mowing) alone or as part of a timber sale program. Accomplishment of this objective within a timber sale program would involve regeneration cuts through a variety of methods including clearcutting, patch cuts, group selection (with groups greater than ½ acre) and shelterwood cutting. Such activities would result in the creation of stand structure and species composition necessary to meet this habitat objective.

Elements of wildlife habitat are considered and included in every timber sale (i.e. den and snag trees, individual mast crop trees, amphibian breeding sites, critical habitat). Management of deer wintering areas, key mast stands and mature forest habitat can be achieved through timber sale prescriptions designed to include specific guidelines for these habitat types.

Creating and maintaining habitat features, especially early successional habitat and permanent openings, will consider many things including site potential, sensitive areas, ownership objectives and department missions. On the Coolidge State Forest ownership where the primary objective may be improving timber quality, USFS silvicultural guides are used to direct management activities. Those activities may result in the creation of early successional habitat, but as a by-product of timber management not solely to create the desired habitat component. On Plymbsbury



and Tiny Pond Wildlife Management Areas, however, where habitat management is be the primary goal, creating early successional habitat may be the primary activity and the production of timber secondary.

Recreation and travel corridors can also be managed to enhance trail and road conditions or public safety through a variety of vegetation management techniques (i.e. removal of hazardous trees, management of exotic species). Management of vegetation to keep trees growing vigorously and maintain healthy trail and road side forests can be accomplished through a timber sale program.

Silvicultural Techniques

Timber sale schedules are based upon understanding of such stand characteristics as condition, structure, species composition, stocking levels, quality, site, productivity, and presence of exotic species, derived from the analysis of forest inventory data. Other considerations include an understanding of vegetation management goals including those for forest regeneration, thinning, even and uneven-age management, and wildlife habitat (i.e. early successional habitat, permanent openings and critical habitats) and careful consideration of other uses and resource limitations. Operational considerations would include application of Acceptable Management Practices (AMP's), wetland, lake and stream riparian area protections, trail considerations, aesthetic considerations, timing of activities, etc.

Recognized silvicultural guides developed by the U.S. Forest Service are used in developing stand prescriptions for both commercial and non-commercial treatments within CWMU. Additionally, research on natural systems silviculture, natural community management and restoration practices, and systems which emulate natural processes will also be considered. The result is a "schedule of events" to achieve the desired conditions. The following silvicultural practices can be used to achieve acreage objectives in meeting goals for timber management, early successional wildlife habitat, scenic vistas, and mature forest conditions.

<p>Even-aged Management – forest of trees with little difference in age.</p>	<p><i>Valuable for Managing:</i></p> <ul style="list-style-type: none"> • Early successional habitat
<p>Practices:</p> <p><u>Even-age intermediate harvests</u> –</p> <ul style="list-style-type: none"> • thinning – removal of individual trees in an immature forest or stand • shelterwood – series of cuts that gradually open stand and stimulate regeneration <p><u>Even-age regeneration harvests</u> –</p> <ul style="list-style-type: none"> • clearcuts – removal of all trees in specific area with goal of creating regeneration and new even-age stand (can be up to 10 acres in size but generally no more than 5 acres) 	<ul style="list-style-type: none"> • High risk trees/stands • Salvage operations • Regeneration (to regenerate intolerant species, meet browse needs, future forests) • More efficient for timber production
<p>Uneven-aged Management – forest of trees of a wide range of ages.</p>	<p><i>Valuable for Managing:</i></p> <ul style="list-style-type: none"> • Diversity of age classes
<p>Practices:</p> <p><u>Uneven-age harvests</u> –</p> <ul style="list-style-type: none"> • single tree selection – removal of individual trees • group selection – removal of a small group of trees. Group size varies with objective and could be ½ acre or greater. In some areas with specific goals group size could be ¼ acre or less. <p>* single tree and group selection methods are often used in combination</p>	<ul style="list-style-type: none"> • Maintaining continuous forest cover • Recurring regeneration of tolerant species • Meeting ecological goals • Recreation corridors and other areas where visual quality is a concern

Issues/Concerns: Potential conflicts with other uses during active timber sales (F-12); protecting soils, wetlands, streams, and water quality (F-13); effects on wildlife and wildlife habitat (F-14); potential introduction and spread of exotic species (F-15); ATV use of timber sale skid road infrastructure (F-16)

Recreation – Soil conditions dictate that most operations be on frozen ground which coincides with the winter recreation season. Many roads serve the dual purpose of forest management access and winter recreation trails. Timber sale activity means some roads are plowed and not available as quality trails during that time (F-17). The amount of timber harvesting in any one area of the forest at one time creating concentrated noise, potential conflicts with other uses, potential disruption to area residents (F-17a).



Noise/traffic – Active timber sales involve chainsaws and large equipment (i.e. skidders and log trucks). All contribute to increased noise and traffic. Although temporary and usually of relatively short duration, it can be disturbing to some individuals and user groups (F-18)

Aesthetics – Definitions of aesthetics vary by individual. As a result timber sale activity can affect aesthetics by varying degrees and timeframes depending upon personal perspective (F-19)

Change in forest cover - Timber sale activity always causes a change in forest cover that can be measured from small changes over small areas (single tree) to larger changes over larger areas (clearcuts). Reaction to these changes are based on an individual's perception and therefore perceived impact varies as well. Change in forest cover affects scenic qualities and, dependent upon scale – spatial and temporal. (F-20)

Forest Sustainability

The Agency of Natural Resources defines sustainable forestry as “the production and use of resources to meet the needs of present generations without compromising the ability to meet the needs of future generations.” Sustainable forest management involves practicing a land stewardship ethic that encompasses ecological, economic and social values.

Ecological

The forest is managed to provide viable populations of existing native plants and animals, enhance biodiversity, and maintain properly functioning ecosystems. The continuous forest cover provides protection on steep slopes, along streams, and surrounding wetlands to maintain water quality; and important wildlife habitat such as deer wintering and key mast areas and a diversity of habitat including late successional forest conditions. The forest contributes to a continuous band of undeveloped forestland along the Green Mountain range offering landscape continuity for many species of wildlife and plays an important role in carbon sequestration.

Social

Many recreational pursuits benefit from the availability of large areas of forestland. CWMU offers many miles of trails for hiking, cross-country skiing, and snowmobiling. It is also large enough to offer areas to pursue hunting, fishing and trapping as well as areas with a sense of remoteness for quiet activities such as nature observation and other contemplative activities. Vermont is known for the scenic beauty large blocks of forestland, such as CWMU, provide.

Economic

Timber management on CWMU contributes to the local, state, and regional economies. In the past all state forest timber sale receipts were deposited into the general fund. In 2002 the legislature established the state Lands and Facilities Trust Fund, and receipts from state forest timber sales are now deposited into this account. Receipts from timber sales on Wildlife Management Areas are deposited into the Fish and Wildlife Fund. Timber sale receipts are not the only revenues generated from forest land. Activities including hunting, fishing, trapping, hiking, snowmobiling, and tourism also contribute to the local, state and regional economy. There receipts are not as easily quantified as those generated from the timber program.



G. Roads Assessment

Access to and through Coolidge West Management Unit is supported by both public and forest road systems.

Public Highways

There are several public highways that serve CWMU including the Class 3 town roads and Route 100 which pass through or near the state ownership. These roads, currently maintained by individual towns or the state Agency of Transportation, were established during the colonial settlement period, and persist today as public highways.

Town roads in Vermont are classified as class 1, 2, 3, or 4, and the Agency of Transportation maintains design, construction, and maintenance standards for each class. Under these standards Class 2 is a town maintained paved road, class 3 is town maintained gravel road, and these are supported with state aid. Class 4 roads are public rights-of-way, but they receive no state aid, and towns are only obligated to maintain bridges and culverts. Some roads that, in fact or appearance, serve only State land are town roads. As such, they are not subject to the department's classification system, and use of these roads may not be regulated by the Agency of Natural Resources. When State land is clearly the principal beneficiary of these roads, or when use of the roads by the State generates the greatest maintenance burden, there is usually a high degree of cooperation between the State and town officials. When the State, in its capacity as a landowner, desires to have a class 4 road maintained or improved, approval of the local selectboard is needed, but the State usually covers the cost of the work.

Public highways in the CWMU area include:

- **Town Highway #20** (Old Plymouth Road), class 3 in Shrewsbury, class 4 in Plymouth
- **CCC Road** west of the gate near Meeting House Rock, Shrewsbury class 3
- **Gilman Road** (to Bove's camp), Shrewsbury class 3
- **Patch Brook Road** (west of Ninevah Four Corners), Plymouth class 4
- **Tin Shanty Road**, Shrewsbury class 3

Forest Road Classification

Classification of roads on lands owned by the Department of Forests, Parks, and Recreation is done in accordance with FPR Policy #13, adopted on May 15, 1991. This policy states that **"...classification of roads identifies appropriate uses (at appropriate times), insures proper resource management and protection, and informs the public about which roads may be used under what conditions."** The policy goes on to state that State forest highways do not meet the definition of a public highway (19 VSA, 1, (12)), and that they exist solely to meet the purposes of the department (10 VSA, 2601).

Class A Roads are paved or unpaved roads open for year-round public vehicle use. There are no Class A Forest highways on Coolidge West Management Unit.

Class B Roads are paved or unpaved roads that are generally open for public vehicle use, but may be closed at certain times of the year to restrict such access.

Class C Roads are unpaved roads not generally open for public vehicle use. The majority of truck roads on CWMU fit into this category. These roads are all gated, and the gates are usually closed. The opening of gates to accommodate snowmobile use or timber harvesting operations



does not change the road classification. These roads are usually gated or barricaded because they were not constructed to a standard that can withstand frequent motorized use by the public. They were built for infrequent timber harvesting access and not general recreational access.

COOLIDGE WEST MANAGEMENT UNIT – Forest Roads & Public Highways

Road name	Miles	Class	Condition *	Needs
CCC Road	3.3	B	Excellent, gravel, closed to winter vehicle travel	Annual maintenance as a town highway. Does not meet AOT standards for public highway
Camp Loop	0.6	B	ditched, waterbars, spot gravel, fair	Periodic maintenance, protect historic resources, gate or barricade
Saltash Access Rd.	1.46	B	ditched, culverts, surface, fair	Road subject to use by other landowners. Improvements cannot be protected, not maintained in winter
Tin Shanty Rd	0.46 TH # 19 0.82	Class 3 B	Town maintained, excellent. Rough ditches, no crown or surface	Needs ditches, culverts, gravel surface, and gate. Reclassify to C. Needs bridge
Eddy Brook Rd	1.35	C	Ditched, culverts, coarse surface, poor	Periodic maintenance, subject to heavy illegal use. Maintenance needed prior to harvesting use.
Crossman Rd	1.1	C	Ditched, culverts, waterbars, coarse surface, fair	Periodic maintenance, subject to heavy illegal use
Gov. Clement Shelter. Rd	1.0	B	waterbars, no surface, poor	ROW on USPS. Gate, reclassify to C, limit to VAST use
Bove's west line	0.21	B	Waterbars, fair	Culverts, gate, re-classify to C, shared ROW w/ Vargas
Gilman Rd	0.84	class 3	partial ditches, culverts, good gravel, good	No routine obligation, but must be prepared to repair damage by log trucks
Robinson Hill Rd	0.75 planned	C		Truck access to Willie's camp to replace Gov. Clem Road access
Red Bars Rd	0.33	C	unimproved, no drainage, fair	No change needed unless subject to damage
Henkel ROW	0.7	C	ditched, waterbars, no surface, fair	Periodic maintenance
Stone House	0.26	C	ditched, culverts, good, waterbars, gravel surface	Periodic maintenance
Black Swamp Rd	0.9	C	ditched, culverts, gravel, good	Absence of routine maintenance allows veg . encroachment on travel surface, brushing
Tinker Brook Shelter	0.18	C	waterbars, outslope, barricade	None if barricades maintained
Grouse Hill North Rd	1.75	C	ditched, culverts, gravel, good	Periodic maintenance, attention to culverts
Grouse Hill South Rd	1.43	C	ditched, culverts, gravel, good	Periodic maintenance, attention to culverts
TH #20 (Shrewsbury)	1.70	class 3	ditched, culverts, gravel, excellent	Town highway, not subject to state land policies
TH #20 (Plymouth)	0.13 (adj to TL)	class 4	ditched, culverts, bridge, gravel, fair	Maintained at FPR expense for management access



<i>Road name</i>	<i>Miles</i>	<i>Class</i>	<i>Condition *</i>	<i>Needs</i>
TH #20 (Plymouth)	0.67 (E of Gr Hill So)	class 4	w-bars, no drainage structures, no surface, poor	
Schoolhouse Meadows Rd	0.56	C	ditched, culverts, some gravel, fair	Periodic maintenance
Three Sisters Rd	0.48	C	ditched, culverts, spot gravel, fair	Bridge to be replaced in 2003
Chimney Rd (Burditts Mill)	0.3	C	ditched, culverts, spot gravel, fair	Replace wetland crossing (two 24" culverts) with bridge
Saltash Snowmobile Trail	1.0	C	waterbars, outslope, no surface, fair	VAST maintenance
Ninevah Comp 1	0.45	C	waterbars, outslope, fair	VAST maintenance
Ninevah Comp 2 (two roads)	0.1	C	waterbars, spot gravel, fair	Periodic maintenance
Patch Brook Rd	0.62(Ninevah comp 1)	class 4	Partial ditches, few culverts, spot gravel, poor	Drainage repairs as necessary for our use at our expense
Tiny Pond Access (on Rte 100)	0.1	C	Outslope, gravelly soils, fair	Periodic maintenance
Total	18.38 0.75 plan 4.47 TH			

- * Excellent – graveled, maintained annually
- Good – graveled, drainage structures, periodic maintenance
- Fair – spot surfaced, maintenance as needed
- Poor – not maintained

Truck Roads

Access to the forest interior is on roads that were constructed as farm roads in the nineteenth century, or roads established during the height of timber extraction in the first half of the twentieth century. Except for the Killington Access Road built in 1957, none of the roads ever established on CWMU by the State were intended for year-round use and were never built to a standard that would accommodate year-round use. For roads to be used in non-frozen conditions, they must be adequately drained or located on essentially dry sites, an uncommon condition on CWMU.

The first construction of roads for summer and fall use started with the CCC Road, Black Swamp Road, and Saltash Road in 1935. In the 1980s the Grouse Hill North and South Roads, Chimney Road, Schoolhouse Meadows Road, Eddy Brook Road, Three Sisters Road and Crossman Road were upgraded from winter-only to include summer use through substantial drainage improvements. These roads are referred to as truck roads, and are part of the permanent forest infrastructure to provide access for timber harvesting and non-motorized recreational use by the public.

Skid Roads and Trails

Access into the forest from truck roads is on roads commonly called main skid roads, indicating their origins. These roads have been purposefully located and constructed to accommodate repeated use by large timber harvesting equipment. They are used under appropriate soil conditions, and are stabilized upon completion of each logging operation. They are also



considered a part of the permanent infrastructure, however they are not suitable for motorized recreational use by the public and receive no maintenance between operations. From the end of the main skid roads, the last dead-end roads are called skid trails. These trails are usually narrow, may have had some soil disturbance, but they are the first to be reclaimed by forest regeneration. These skid trails are closed out after use and usually reused in each succeeding harvest operation. These roads have current and future value for access for timber management. They are the least disruptive to the landscape.

ATVs

All terrain vehicles (ATV's) are not allowed on State land. Most truck and skid roads are gated or otherwise barricaded and signed against damaging vehicle traffic including ATV's, yet nearly all are seeing evidence of use, oftentimes heavy. This results in resource damage and user conflict. Most of the roads and trails (*see Recreation Assessment*) have not been constructed nor have the soils and drainage needed to withstand such abuse. Many are designed for winter use only and suffer serious erosion and potential water quality issues.

The Town of Plymouth has opened Class 4 roads within their jurisdiction to ATV's with written permission. The Town of Shrewsbury has not.

Issues/Concerns:

Resource Protection: Damage from ATV's and four wheel drive vehicles on truck, skid roads, and winter recreation trails, even those signed and gated or otherwise barricaded leads to erosion, road infrastructure degradation and associated repair expense and damage to sensitive areas (G-1); vandalism of gates and signs (G-2); potential to serve as conduit for invasion of exotic species (G-3)

Fragmentation: Number, size, and location of roads can contribute to forest fragmentation (G-4)

Aesthetics: Some people view roads as a means to explore the interior lands of CWMU, others view them as aesthetically displeasing (G-5)

Emergency Access: Emergency winter snowmobile access to rescue out-of-bounds skiers (G-6)

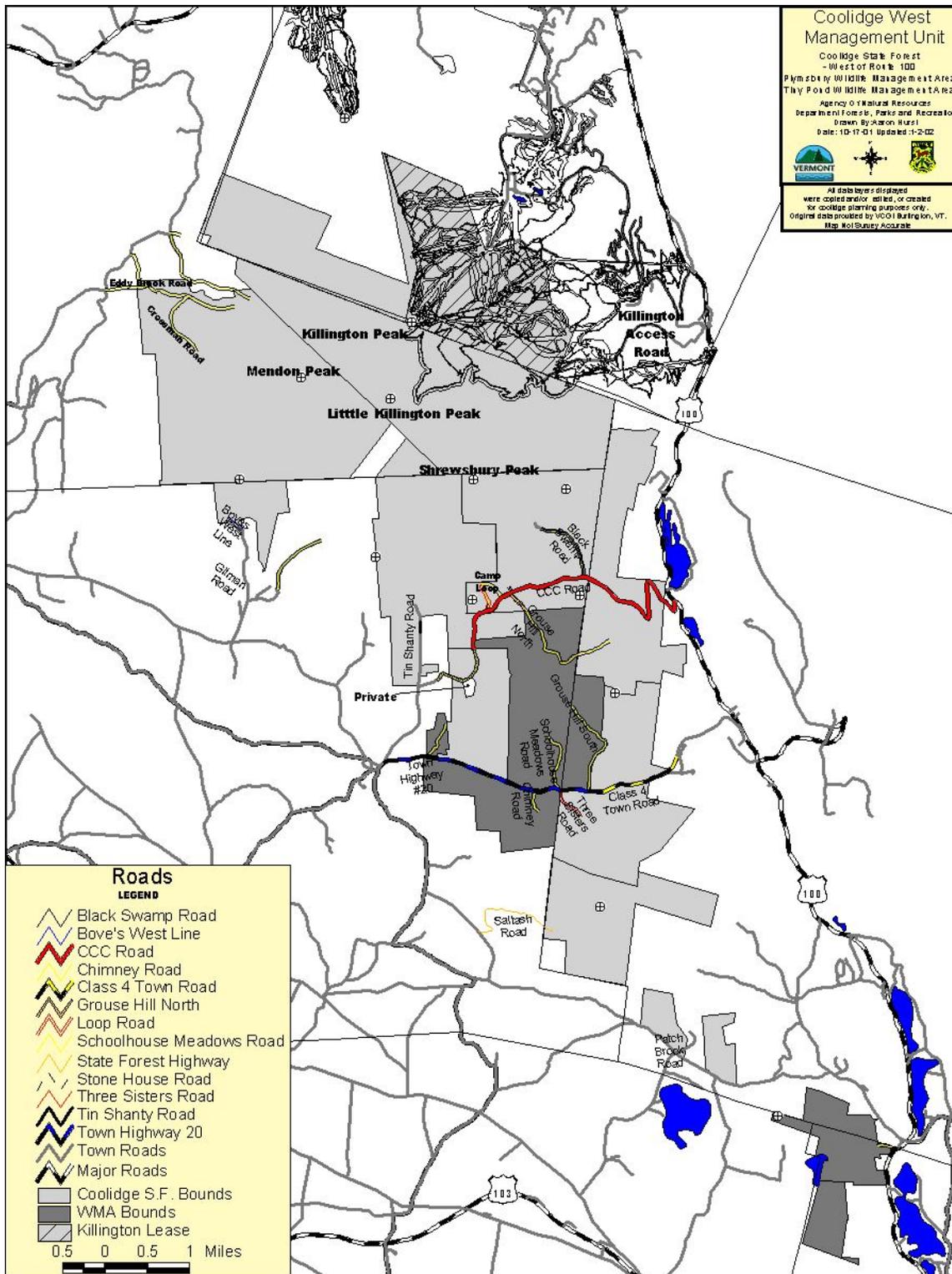
User Conflict: ATV use conflicts with legitimate uses and user groups (G-7); noise, excessive speed, pollution; lack of education of users with respect to the location of town roads, particularly Class 4 town roads in Plymouth (G-8).

Liability: Use of unplowed roads by vehicles and ATV's when in use as snowmobile and cross-country ski trails (G-9); gated and barricaded roads (G-10); need for more user education with respect to rules, policies and appropriate uses (G-11).

Enforcement: Need for more specific documentation of extent of ATV problem (G-12); Need for adequate and dedicated funding source for targeted enforcement effort (G-12a).

Maintenance: Funds to repair and maintain roads are limited and don't allow for additional upgrades to increase existing public recreational access (G-13).





H. Water Resources Assessment

The management of the Coolidge West Management Unit by the Departments of Forests, Park and Recreation and Fish and Wildlife will, at minimum, maintain the quality of all the surface waters associated with the land. It is understood that agricultural and silvicultural activities which follow Accepted Agricultural Practices and Acceptable Management Practices are the minimum standard required to conform to the Water Quality Standards.

Managers of ANR land holdings will cooperate with the ANR's Department of Environmental Conservation (VT DEC), Water Quality Division with their watershed planning initiatives for the Black River, Ottauquechee, and Otter Creek river basins as they are undertaken.

The watershed basin planning effort includes the determination of the water classification and water management type of all waters located within the basins. Through this process, the assignment of water classification and water management type for all waters will take into consideration the existing water quality, the desired water quality, and whether or not the desired quality is attainable.

By Vermont statute, all waters above 2500 feet in elevation are classified as A1 (water management type) and are managed to maintain their natural condition. The goal for the water management type of waters below 2500 feet that flow through ANR lands is of a high level (potentially B1). B1 waters are managed to maintain an almost natural condition showing minimal changes from reference conditions for aquatic macroinvertebrates and fish assemblages.

Possible exceptions to B1 typing include the following:

- where water level is fluctuated for ski area water withdrawal;
- situations where B1 water quality is otherwise unattainable.

The largest drainage area of CWMU flows into the Otter Creek Basin, approximately 13.5 square miles (44%). The Black River Basin collects another 10.4 sq. mi. (34%) and the Ottauquechee Basin the remaining 6.9 sq. mi. (22%).

Streams

All of the streams and rivers within CWMU, which have been studied by VT DEC, are characterized by the VT DEC Water Quality Division as High Elevation Small Gradient Streams. Studies and inventory data have been conducted and collected on four (4) rivers/streams within or directly adjacent to CWMU lands. Complete results of the findings can be viewed upon request. Freshwater invertebrates were a main focus of these studies because they are a key component in ecological processes. Presence and absence data of macroinvertebrates can also provide indicators of water quality due to stress sensitivity by some species. However, there are many seasonal streams that have not been studied.

There has been limited sampling of the fisheries found in streams within the CWMU. However, generalizations can be determined based on size, elevation and physical characteristics of a stream. Following is a brief outline of these generalizations.



Name	Town	Length on CWMU	Drainage Area	DEC Classification	Community Assessment	Sampling Years
<i>Otter Creek Drainage</i>						
Sargent Brook	Shrewsbury	7500 feet	15.6 sq. km.	High elevation small gradient stream	Class A1 – good condition	1993, 1997, 1998
Brewer's Brook	Mendon	3000'	15.6 sq. km.	High elevation small gradient stream	Class A1 – very good	1986, 1987
Eddy Brook	Mendon	9100'	<i>Not studied by DEC</i>			
Gould Brook	Shrewsbury	<i>Not studied by DEC</i>				
<i>Black River Drainage</i>						
Tinker Brook	Shrewsbury	14000'	0.51 sq. km.	high elevation small gradient stream	Class A1 – average, Class B1 below 2500'	1997, 1998, 1999
Tiny Brook	Ludlow	4000'	<i>Not studied by DEC</i>			
Great Roaring Brook	Shrewsbury Plymouth	31,700'	<i>Not studied by DEC</i>			
Unnamed	Shrewsbury	21000'	<i>Not studied by DEC</i>			
<i>Ottaquechee Drainage</i>						
Falls Brook	Killington	6000'	0.57 sq. km.	High elevation small gradient stream	Class A1 – average	1989, 1998, 1999
Madden Brook	Mendon	<i>Not studied by DEC</i>				

For most coldwater streams, the fish assemblages are simple. In most headwater streams the fish community is usually comprised of brook trout and slimy sculpin. Species diversity usually increases as one travels downstream in a watershed.

In general 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. The presence of ponds in CWMU can also influence re-colonization of stream reaches because they provide refugia during the most extreme drought conditions.

Ponds

The 29-acre Tiny Pond is the only pond located on CWMU. At just under 1800 foot elevation, this pond has a local watershed of 616 acres with a maximum depth of 17 feet. It is a mesotrophic



pond with periods of low dissolved oxygen (2.7 mg/l). A study conducted in 1990 by the Water Quality Division (VT DEC) determined that Tiny Pond was not threatened by acid deposition (Alkalinity = 13.75). Tiny Pond is considered to be a biologically moderately productive pond with slightly greenish water. Tiny Pond supports a cool water fishery. Common species found there are smallmouth bass, chain pickerel, yellow perch and brown bullhead.

Classified as “wilderness-like” due to its undeveloped shoreline it was recommended by the water quality division that management efforts attempt to maintain this classification by limiting motorized access and development on the shoreline and within view from the pond. However, control over this aspect of management does not solely rest with the State. Approximately ¼ of the perimeter is in private ownership.

Wetland Features

Vernal pools are a critical habitat type for many species of wildlife. Due to their size and location on the landscape it is likely that more Vernal Pools exist than were mapped during the inventory process. Very little specific knowledge about these pools is known and future studies are needed. Seeps are prevalent throughout the property. These also provide critical habitats for many wildlife species.

There are approximately 80 additional acres of wetlands including swamps, marshes and beaver flowages. Significant wetlands on CWMU include Black Swamp, the large wetland in Plymbsbury Basin located between the CCC Road and TH #20, and the wetland associated with Tinker Brook. These provide many critical components in a forested landscape for wildlife habitat, water quality, and biodiversity. No formal aquatic studies have been conducted in these areas.

There are several beaver flowages with some ponding located throughout the management unit that change in size and number depending upon beaver populations and activity levels.

Issues/Concerns: Impact of road culverts on in-stream habitat connectivity (H-1); impact of parking lot and ski trail management on water quality (H-2); protection of historic features along streams (dam and mill sites, bridge abutments which act as obstructions to free flowing, interconnected aquatic ecosystems (H-3); wilderness-like character of Tiny Pond (H-3a)



Public Involvement Summary

The Vermont Agency of Natural Resources offered a series of public involvement opportunities with respect to the Coolidge West Management Unit long range management planning process. Planning officially began with a scoping letter in 2001. That was followed by eight other opportunities for the public to view material, discuss concerns and issues and comment on the future direction of these parcels of state land. There were three open-house style meetings designed to present the resource inventory data collected in preparation of planning. These were followed by three meetings on specific topics of concern including recreation and vegetation management. There were two less formal meetings with neighbors and interested parties. We have received over 200 comments to date through emails, letters and comments at meetings. All have been categorized and documented. Another comment period will follow the presentation of the draft plan.

Answers to Focus Questions presented at Public Meetings

General

What is the single most important value you place on the Coolidge West Management Unit (Coolidge State Forest, Plymbury Wildlife Management Area and Tiny Pond Wildlife Management Area)?

- Preservation of contiguous and undeveloped lands
- Publicly accessible forest
- Trail Access, forested landscape
- Preservation of wild areas with no possibility of development in the future - both for recreation and wildlife habitat.
- That it is undeveloped and will hopefully remain so.
- Keeping the land as close to its present state as possible
- Scenic qualities, hiking and skiing
- Now that the trees have been harvested, what do you do with those gravel truck roads? Beside VAST?
- Wildlife protection
- Habitat, forest and wildlife diversity, combined with low impact recreation.
- Undisturbed, fully developed natural community, including old growth.
- Natural beauty and opportunity to observe wildlife; opportunity to take long walks or cross-country ski in all of the area; an afternoon away from machines and schedules is very restorative to my spirit.
- Recreational access for hiking, cross-country skiing, and camping. Management practices that promote forest canopy cover. Viewshed promotion. Shelter access. Trail access. Multiple uses that prioritize water quality and wildlife habitat. Continuation of appropriate management practices to promote bear habitat and enhance the corridor between national forests.

In what ways can we promote or encourage citizen involvement and appreciation of the Coolidge West Management Unit (provide more information, opportunities to participate in biological surveys, natural history tours, other ideas)?

- Tours, possibly run with the local Green Mt Club section
- Present level of use is adequate



- Educational opportunities for kids, some interactive programs with schools, summer camps, after school recreation programs.
- I regret missing the open house. My impression is that you are doing a good job.
- Newsletter telling what's going on there of interest to those who want to conserve.
- Site visits
- More time spent educating the people & kids, better knowledge means better understanding! More open hikes & hands on in the woods.
- Quality slide shows and videos of wildlife and timber management techniques, shown & discussed by a talented speaker.
- The best way to promoted involvement and appreciation is to ensure that it stays undisturbed. Consistent, well-organized, non-motorized activities that promote holistic view of the environment and some well monitored nature trails providing educational information could be included.
- Provide written material about the plants, animals, geologic features one might see. Lead bird walks. Encourage science teachers at Mill River Union HS to use the area for educational projects/field trips. Collaborate with the Shrewsbury Outing Club for hikes, guest lectures, local nature enthusiasts. Speak to community about special features of this area. Create maps, perhaps label trails for hiking.

What scenic areas on Coolidge Management Unit do you value most?

- I am probably most fond of the Bucklin Trail and Mendon Peak.
- Shrewsbury Peak
- Shrewsbury Peak
- I spend more time in the Plymsbury area and at Tiny Pond.
- I value the whole thing
- Tiny Pond area
- The distant view of Mendon Mountain
- Tiny Pond Trail (snowshoeing) from Rte 100 & Plymsbury area-from Shrewsbury Peak area (mountain biking).
- Tiny Pond Wildlife Management Area
- The Old Plymouth and its disappearing "Alpine Meadows." The Tin Shanty Road & its overgrown agricultural habitat.
- All. Management should maintain the visual and aesthetic identity of the landforms.
- Hiking Shrewsbury Peak and views from the peak. XC skiing between Old Plymouth and CCC Roads. Views of Shrewsbury Peak from CCC Road. Walking along the banks of Tinker Brook.

What town do you live in?

- Rutland City.
- City of Rutland
- Plymouth
- Rutland
- Shrewsbury
- Woodstock/Mt. Holly
- Chittenden
- Newton, MA. Member of Forest Echo Farm in Ludlow, Vt



- Shrewsbury
- Shrewsbury
- Shrewsbury

Natural Communities

Do you support the concept of considering natural communities (living organisms, their physical environment and the processes that affect them) as a foundation for management decisions? (please circle one) Yes No Unsure

Please comment.

- Yes, I think that we can't afford to lose one more acre to development. The precious forestlands of Vermont are productive & important in their natural state, more so than if developed.
- YES. How could this not be done? These lands are distinct communities that happen to host stuff that humans like: places for trails, animals to hunt, wood for paper. We are secondary. If the natural communities can thrive, we can take some of its stuff.
- Yes.
- Yes. There are different types of life that like different areas, those areas are needed for growth
- Yes, I believe that a healthy ecosystem means protecting all the natural communities and that there is little point to protecting a natural area if this isn't considered
- Yes, I believe that this concept is the essence of sound natural resource use and planning
- Yes. I didn't think species should be allowed to become extinct because of man (women's) practices.
- yes, It is the most important aspect of land management planning.
- Unsure. Need more hands on and info.
- Yes
- Yes. This should create a good base line. However, one must keep in mind that these are dynamic resources and are always changing so the plans will change.
- Yes. We enthusiastically support the concept of natural communities as a foundation for management decisions. In fact, we see no viable alternatives.
- Absolutely support making land management decisions based on natural communities. Keep the rest of us informed. Is this a new method of operation? Take whatever time you need to make decisions with the health of the natural world at the core.
- Yes. Natural communities and the web of relationships among living organisms within these communities must be the foundation and their conservation the priority for planning and management of CWMU.

Recreation

What recreational activities do you feel should be part of the Coolidge Management Unit? Which are inappropriate?

- Hiking, hunting, x-c skiing. I understand that there is allot of interest in motorized recreation, but I think it's inappropriate.
- No motorized anything. Only quiet sport, hunting okay.
- Hiking, XC skiing, snowmobiling in places. Inappropriate: ATV's
- Commercial snowmobiling needs managing, 4-wheel access is hard to regulate.



- I'd prefer non-motorized uses as less disturbing and polluting to both wildlife and other people using the area. Logging itself doesn't bother me as much as the road building usually entails, which provides greater access to ATV's and trucks.
- Current uses seem reasonable. I'd hate to see motorized uses expanded in any way, however.
- Walking, hunting, nature walks. No motorized vehicles
- All but ATV's- limited motorized use – focus on pedestrian recreation, separate mtn bikes & hiking.
- Mountain biking excess, get more trails, to access these areas.
- Yes - hiking, walking, xc skiing. No - motorized vehicles, all terrain or snowmobile, hunting
- All current uses plus mountain bike touring (limited & non commercial) seem appropriate. ATV's & motorcycles are not appropriate for this area! Snowmobiles should be geared to touring not racing. (snowmobiles) Some trails should be relocated or closed for wildlife dormancy.
- We support stewardship activities, plus snowshoeing, birding, hiking, canoeing, and non commercial activities which are educational in nature. We believe that off road motorized or mechanized vehicles are not appropriate activities for the CWMU.
- Appropriate – low impact activities: hiking, XC skiing, fishing, snowshoeing, bicycling on existing main roads (CCC, Grouse Hill, Old Plymouth). Inappropriate – motorized vehicles off road, snowmobiles, ATVs, dirt bikes, motorcycles.

We are aware that there are conflicts between user groups (e.g. motorized and non motorized recreation, etc) In your opinion what conflicts exist or could exist and how do you propose they be resolved?

- I can't think of any good suggestion for this one.
- Primarily hiking, XC skiers vs. ATV riders. Allow ATV's
- Over use of snowmobile trails by commercial groups need to limit by licensing (permitting).
- The conflict is serious; I see it at Plymbsbury in the winter.. mostly disputes over limited parking with snowmobilers. If they were prohibited from using the area I feel that the animosity would be great and counter productive (much as I'd love to see them gone!). ATV's are a huge problem and I feel more destructive to habitats and trail systems within the Coolidge State forest, and enforcement will be difficult. Overcoming people's feeling of entitlement to use public lands in any way they choose, will take a great deal of education and diplomacy.
- If ATV's & snowmobiles are restricted to established network of trails (the ones that VAST maintains), I'd find little complain about. The only problem I personally encounter is that limited parking is completely dominated by snowmobiles and their trailers on weekends. But I hate the thought of more parking lots, so go figure.
- Speed limits on snowmobile trails. Like use of ROS
- 4-wheelers & jeeps & motorcycles do not belong on State lands, they do more damage, trash, etc! These groups have very little respect four our lands!
- I am completely against ATV's during the summer, fall, spring as I believe they are noisy and destructive to the environment. Snowmobiles I believe are just noisy, but not as destructive. So I believe compromises can be reached through dialogue and

communication. Signs posted, websites are also fine ways to communicate. Perhaps management unit representatives could also visit local sports clubs.

- Compromise! Separation of skiing and snowmobile trails where possible. Respectful & civilized discussions at snowmobile clubs. Compliment them on what they are doing well and show examples of how they can improve. Video or pictures of trash, excessive signage, land machines, excessive smoke, speeding or drinking parties will speak volumes. Documented citations are good evidence. Reminders that snowmobiling is a privilege and not a right should result in a better outdoor experience for all.
- We feel that those people who do not hunt should have an opportunity for a safe, quiet area during the many hunting seasons that now exist.
- Motorized pollute, use fossil fuel for questionable ends at expense of people, animals, noise.
- Education regarding detrimental effects to the environment of some uses. Promote non-detrimental uses so public feels it still has access to public lands. Designate certain areas/corridors for different uses. Limited logging – spaced over long time intervals – smaller land areas. I don't believe commercial interests have a right to public lands.
- The use of trails and wilderness by unauthorized (and illegal) ATV and snowmobile use. Volume of motorized vehicle access and over-use of existing trails and roads that have multiple use. Creation of larger non-motorized corridor for the Catamount Trail. Commercial development pressure. Danger of future automobile access (so far the restrictions being implemented are working). Future encroachment of concessionaires into non-motorized areas. Resolutions: Confining motorized use to specific corridors. Reduce the number of permits to concessionaires. Improved restrictions and enforcement of motorized vehicles and mountain bikes.

How do you use The Coolidge West Management Unit (Coolidge State Forest, Plymbsbury Wildlife Management Area and Tiny Pond Wildlife Management Area)?

- I hike, cross-country ski, in these areas.
- Hiking, cross-country skiing
- Hiking, cross-country skiing
- Hiking
- Hiking, snowshoeing, cross-country skiing, bird and wildlife watching, I bring groups from Green Mountain club and spend a lot of time there alone also.
- Cross-country Skiing, snowshoeing & walking
- Walking, enjoying the quiet, unspoiled beauty & wildlife.
- I look at it every morning, evening hiking & skiing
- Recreation-snowshoeing, hiking, mountain biking
- Part of Tiny Pond is on Forest Echo property, which is owned by several families, including mine.
- Hiking, hunting, fishing, forest and wildlife appreciation, exploring and stress relief.
- Hiking, tracking, birding, snowshoeing, cross-country skiing, canoeing, snowmobiling.
- Walking; cross-country skiing; snowshoeing, bicycling on CCC Road, Old Plymouth Road, Grouse Hill Road



Should we monitor and manage the level of recreational use on the Coolidge West Management Unit?

- It should be managed according to impact if the given activities cause disruptive impacts. They should be managed.
- You absolutely should monitor & manage the level of recreational use. Enforcement is a huge issue. The groups that do the most damage, (snowmobiles, ATVs, etc.) should fund the enforcement through extra fees on their licenses & sales taxes.
- The values of motorized recreational people seem to me, to be in direct conflict with the concept of a sustainable natural community.
- Yes
- Only winter uses so far
- Not at this time, I never see people there except snowmobilers so I don't think numbers are high enough for controls.
- Certainly not all such uses are infinitely benign
- Yes, please!
- I would suggest a use survey to establish a base line-monitor any negative impacts.
- Yes
- Yes
- Yes, intensive promotion and lack of respect for the scenic beauty and solitude will compromise the resource and the experience.
- Yes, especially for sensitive areas. Information should be correlated to before and after management actions, with the degree and extent of use of the different areas for recreation. The impact on civic functions (noise, traffic, etc.) should also be monitored for those communities surrounding the management areas. If you develop a carrying capacity information base, you could easily monitor what is happening by having self registration, passes, etc. at the entrances to the management units. Enforcement has to be a critical piece to avoid abuse and over use.
- Ideally yes. But do you have the resources? How would you do it?

Timber and Wildlife Habitat Management

We are aware there are conflicts between recreationalists and timber harvest (for example visual and noise impacts). How would you propose these conflicts be managed?

- I have no problem with well managed logging operations of these lands.
- Have separate areas for loggers and hikers, especially in wet areas. Hiking in mud is not fun
- Education
- This is difficult. I doubt that there's a formula or that everyone can be happy. Involving all concerned in planning dialogue should help.
- I don't feel qualified to have an opinion about this issue; there are valid considerations on both sides. As I said before, I think road building is the most destructive aspect of well run logging operations, because of the access it provides to motorized vehicles.
- I am one of the people who strongly feels that need for a certain amount of unmanaged (as in uncut) forest, not a large amount, but enough to give us a glimpse of succession with no tampering.
- As few roads as possible & make them impassible after you no longer need them. Logging by horses or oxen.



- Educate recreation users about process-impact recreation as little as possible.
- More selective harvesting, less impact on logged areas, smaller operation (logging) clean up log landings when finished!
- Dialogue, communication and compromise. Perhaps selective harvesting instead of clear cut, for example.
- Signage and education. Clear cuts, for example, are often looked at as unsightly or wasteful. The in fact, create exciting opportunities for most living organisms; including straight, tall, branchless, cheap timber for the future.
- We believe that there needs to be less timber harvesting – there is plenty of private land producing timber. Public land should serve a higher function with timber management being just one – and perhaps not the main – means of maintaining natural associations and communities. It is not necessarily true that timber management is wildlife habitat management. We strongly encourage that there be a core area that allows for old growth with no mechanized or motorized activities and no hunting so that we can monitor what actually happens to the natural communities without those impacts. When timber harvest does occur, notice should be give to all those who will be impacted by noise, traffic, etc. so that there can be some mitigation such as limiting the time, days, etc. Such notice should also be posted at the gateways to the forest.

Please feel free to give us other comments you have!

- I feel badly that the name Tiny Pond was used. People will think the State owns all the land around the lake when the only own one third of it. The rest is privately owned.
- More get togethers like this one tonight.
- I am concerned about spreading milfoil to Tiny Pond so would rather no boats brought into Tiny Pond. I am also opposed to any development at al all around Tiny Pond.
- The most significant “loss” in Shrewsbury and Plymouth has been a change in habitat not a loss of habitat. Carefully returning the diversity to the habitat should improve the opportunities for the greatest numbers & types of living organisms and genetic pools.

Fine Filter: Wildlife

In your opinion, has the stewardship team adequately considered all of the key wildlife issues?

- yes
- yes
- I wasn't at the open house, so I don't know.
- Yes
- Seem to have hit most of them, good approach
- Yes
- Unknown
- Yes overall. I did notice serious lapses in the orchard and choke cherry documentation. There is an immediate need to release some of these orchards and over grown fields.

Are there specific wildlife species that you feel should be favored in management for the purpose of providing or enhancing wildlife viewing, photography, or hunting?

- No
- No
- I'd like to see the whole range of indigenous species, game and non-game. Wolves!!
- Bears, loons, Osprey, otters, coyotes, foxes, blue herons, song birds, beaver, ferns, lady slippers, bottled gentian.
- Threatened & endangered species
- Whitetail deer.
- Bears, birds, moose, beaver
- The deer herds have been decimated in the CCC road and Old Plymouth Rd area. The deeryards, agricultural habitat and isolation need to be restored.

Should new roads or trails be established if, in the future, they will need to be closed or reclaimed to minimize their effects on forest fragmentation?

- Not if they surely will. But how much do we now know about fragmentation caused by back roads or trails?
- No
- Trails are okay, but go very slow on roads. The main purpose of these lands should be to promote wildlife
- I would say generally no. There may be cases where exceptions are legitimate, but ease of access can certainly provoke unintended consequences.
- No, probably have enough. Can you maintain them?
- Yes.
- No. I am opposed to any development in the area.
- Only if necessary. I was disappointed with the highway built for snowmobiles, which parallels the Old Plymouth Rd. I was told it needed to be that wide to accommodate the grooming machines. It promotes racing and not trail touring.

Open House Evaluation

Do you like this open house style public outreach? Why?

- Yes, I can learn at my own pace.
- Yes, good access and informative
- Yes, much less time consuming and confrontational than open meetings and hearings.
- Yes, good for time, flexibility.
- More hand/ one on one
- Yes
- Great information at all stations, can texts of each station be put on the Coolidge website?

Was it held at a convenient time? If not, what would you suggest?

- Yes
- Yes
- Yes



- Yes
- Yes
- I did not attend, but other members of our corporation did attend.
- It was relaxing to visit with the individual policy makers but there was too much information to absorb so quickly and a public forum was not achieve.
- Yes! Should be longer 3-4 hours.

Do you have any suggestions for improving our public outreach?

- Education, getting kids out in the woods to learn about the value of natural areas and habitat protection
- Public information about problem areas and possible solutions would be helpful before actions are taken; we (GMC) learned that the hard way when we put barriers and tank traps on the Bucklin Trail, prompting many angry responses.
- Always a question.
- Start with the kids and maybe their parents will follow.
- Maintain an e-mail mailing list and send updates/notices to interested people.
- Make the seminars exciting with quality photos and current videos. Format the displays towards organized and flowing outlines in layman's language. Reserve the heady technical language to handouts. An informed and enjoyable speaker can make all the difference.

Comments recorded at open houses at onset of planning process and in subsequent written comment. Comments grouped by broad topic area.

Timber

- No timber cutting along stream. Must have greater buffer than in past.
- Skiing v. Slash
- Emphasize long rotation saws timber as the silvicultural objective. This comment is not directed to other timber management objectives, e.g. wildlife.
- Going forward, it will be important to monitor silvicultural treatments over time (extended plot monitoring). Also to review and report results of past treatments by sale tract in terms of extent to which the results/regeneration/TSI objectives were or were not achieved and what other unanticipated results are now observed.
- Conflict between timber harvest and recreation can be lessened by separating trails from logging or skid roads, especially in wet areas. Mud can be worse than noise.
- If the Tiny Pond area is to be logged, we'd be glad not to have roads from Route 100. We'd be open to discussing coming across Forest Echo Farm land.
- Continue a program of timber harvests are part of Vermont's need for forest products grows.
- Should educate adjoining private owners and assist in their timber harvesting to favor wildlife.
- Silviculture should be targeted to "prime" sawtimber.
- Pursue "green certification".
- Appreciate the use of sustainable forestry language. The cutting of forests with an eye towards sustainable harvests will benefit Vermonters for many generations. The native wood products used by industries in Vermont provide jobs for thousands of people. The renewable forests undergo a transformation that yields some of the most beautiful and sought after furniture and building supplies in the world.
- I trust the Dept. of Forests, Parks and Recreation professionals to identify areas, using BMPs to prohibit logging where it could prove detrimental.

Recreation

- Enforce ban on ATVs
- Would like lands kept for individuals, not for commercial endeavors (except logging) private people won't have as many uses because groups take advantage. Cutting of trees in summer on Shrewsbury Peak shut snowmobile trails down in winter. Could happen again elsewhere. Scratch marks on rocks were considered bad for erosion.
- No snowmobile or other motorized traffic, 3&4 wheelers, ATVs, SUVs, etc.
- No mountain bikes, they rut the land.
- Motorized vehicles are polluting, noisy, disruptive to wildlife and people who are there for quiet reasons.
- Snowmobiles have plenty of land to ride on; we need to establish more places where they cannot ever go
- Let XC skiing and snowshoeing and foot travel be the only allowed recreation.
- Physical - pollution, huge fuel consumption and is wasted, noise - their noise and smell make XC ski trails near them impossible to use and have a positive experience. When snowmobiles pass me on a trail where I am skiing I feel physically sick and have a headache for at least an



hour. How can their noise and smell be a neutral for wildlife? No human activity is neutral. Not hiking or skiing either.

- Non-Physical - Motorized recreation in our forests is one more example of the oil and car/machinery industry infiltrating another corner of the planet. We have sold out to them, sold our souls, in the mistaken belief that speed and ease will really allow people to rejuvenate from the stress of their lives. This is the tragedy of technology. Use of motorized recreational vehicles compromises the very peace people purport to seek.
- What is the policy on dog sledding?
- More quiet trails for cross-country skiers.
- Non-motorized uses must be encouraged. ATVs and snowmobiles are damaging in our fragile areas. Especially troubling to me is Shrewsbury Peak. We need more land for quiet activities.
- Could the State promote non-motorized uses of the land through educational information pieces? I support more quiet experiences of the natural world.
- There are some privately maintained ski trails on Plymbsbury WMA lands. The primary trail begins on an old town road that has old cellar holes and orchards along it. It would be wonderful if the plans for this area recognized the continued appropriateness of this use. These trails have been used for decades.
- Can NRA educate and encourage more passive, non-consumptive uses of our state lands? Thank you for this information meeting, very helpful.
- Please keep existing ATV prohibition on state lands and enforce it. Thank you for protecting Shrewsbury Peak from motorized vehicles. Keep it up!
- Existing ATV policy and recognition of limited capacity of the resource accommodate more (or even present) motorized use is well founded. Please maintain and enforce this policy and include or strengthen this policy in the new plan. Monitoring and tabulation of use days in various categories (though difficult) is really important. Data for management planning. If necessary, user restrictions are entirely appropriate to maintain quality of the respective recreation user.
- ATV use is generally not appropriate because they often are misused and tear up hiking and skiing trails. Unlike snowmobiles, ATV users have little reason to join clubs and police themselves.
- No paintball games
- No mountain biking
- Stand firmly behind the current policy, which keeps ATVs off Vermont public lands. The study which finds these lands cannot support ATV use is very helpful.
- Conflict between timber harvest and recreation can be lessened by separating trails from logging or skid roads, especially in wet areas. Mud can be worse than noise.
- How well established is the role of hiking of XC ski trails in forest fragmentation? Need more data? Where fragmentation is and issue, either make no new trails or keep them so unimproved so few will want to use them.
- As a Tiny Pond neighbor, it is important to us that only foot traffic comes up to the lake. We also fear that new boars would bring milfoil where it does not exist at present.
- Snowmobile trails should not intrude on fine filter areas
- I fear that VAST will buy its way into the politics of this plan, they have money, the oil industry, the snowmobile industry and lots of people with short sights will back them up.
- No ski areas for downhill, No motorized anything.



- Most important value is peace and quiet, natural processes at work, quiet recreation.
- Separate cross-country skiing from snowmobile trails. Appreciate work on Shrewsbury Peak.
- Examine closure of TH #20 and Grouse Hill Road to snowmobiles.
- Principal concern is motorized traffic especially ATVs. Need more signs.
- Most important values are wildlife observation and quiet recreation.
- Expand trail network for foot-only-travel.
- Separate motorized trails from non-motorized.
- Serious need for parking near Tin Shanty.
- Continue current policy on camping and hiking. Continue registration and licensing of concessionaires and motorized vehicle use. Safety concerns addressed with properly restricted parking at CCC and Route 100 intersection and no commercial parking allowed. Increased number of shelters, latrines, and water sources with proper maintenance. Continued maintenance of hiking trails. Appropriate silvicultural management of forests with wildlife component.

Natural Communities

- Please help us protect our state lands (lands that belong to all of us) from overuse by any kind of recreation, especially invasive, disruptive noisy sports. Natural community protection and health must be the department's primary focus. Thank you for the work you are doing towards this purpose.
- The natural community is as one organism. To change any part of this is to compromise its health and balance. Human intervention at its most minimal will always alter it. The less we do, the better. We need to be thinking of centuries from now not the next few decades, if there is to be anything remaining after the next few decades. The most we can do now will in hindsight be recognized as insufficient.
- I use the Coolidge SF extensively in all season for recreation and it's a fine place for reflection. I enjoy hiking the trails and skiing or snowshoeing them in winter. I have come to understand that the greatest value of these lands is in its role as a biodiversity zone. There now exists an almost continuous strip of protected land linking the north and south sections of the Green Mountain National Forest. The permanent establishment of such a solid strip of wilderness would be the greatest gift we could give future generations. Wild forest in large, undivided tracts is essential to maintain the many plant and animal species we rely on to perform the natural processes so important to us all. I urge you to consider this aspect of the forest most in planning your management program. Activities that are relatively higher impact or disruptive to natural communities should be discouraged or contained and lower impact activities encouraged.

Wildlife

- Need to preserve and expand wildlife corridors so species can move as needed for food, etc.
- Need to promote and preserve diversity of species as the greatest natural buffer a community can have. Diversity of plant and animal species.
- Habitat and home range requirements for wildlife and movement corridors should be key factors in determining the locations and extent of human activities that might impinge upon natural communities. Non-game species need at least equal emphasis to game species.
- Search for rare, etc. species over several years to be certain about presence/absence. If found data collection monitoring should be done scientifically.



- Everyone except working wildlife biologists should stay out of deer yards in winter.
- Would like to see emphasis on nongame species at least equal to game, preferably paramount. Also attention to more deep woods species (e.g. thrushes), furbearers (weasel, mink and otter), predators (fox), owls and rodent prey. Existing roads are a big problem already (cowbirds). Can any of these be closed/revegetated? New ski trails only/hiking trails, yes, but nothing larger, and keep even foot only away from the most sensitive habitats.
- Strong emphasis on non-game wildlife.
- Plymbsbury WMA, PCB Block and Parker's Gore should have no bear hunting.
- Tiny Pond WMA should be managed only for wildlife with minimum intrusion.
- Likes the way apple trees are maintained.
- Planned harvests provide wildlife with a variety of habitats in various stages of succession. At the same time I realize that part of the management plan will allow some areas to reach a climax forest.
- Instead of traditional forestry, encourage designating areas as permanent wildlife openings to be maintained over time to meet needs of species benefiting from early successional habitat. Feel it is preferable to dedicating much larger area of the forest to providing the same amount of early successional habitat via longer-rotation traditional forestry methods.

Land Acquisition

- Please make every effort to acquire land through purchase or conservation easement on the Wheelerville Road corridor. This fine forest is currently a combination of public and private lands. It is still relatively undeveloped, but will not stay that way indefinitely unless protected. I urge you to consider this area for future land acquisitions.
- Please consider purchase of cave adjacent to Coolidge lands a priority and protection of state forest near this site to provide habitat for Indiana and small footed bats. Please monitor this important habitat.
- Keep on acquiring more land for protection of nongame species as well as game species. Plants need more emphasis as well.
- Enthusiastic about Besseney acquisition.

Public process

- Maps (buffer) too general, not specific enough. You've reached an end point (conclusion already).
- Thank you for this excellent presentation. I would be interested in obtaining copies of the maps in the future. Maps and pictures were most helpful.
- Excellent visual, linear, sequential presented tonight - the color coding on maps is great. The timeline on the first bulleting board is essential.
- Appreciate effort and quality of information.
- Presentations of components without description of the whole picture.

Access/Roads

- No more roads, please
- We are concerned that there not be road access, even for all terrain vehicles in the Tiny Pond Wildlife Management Area. The pond is a pristine treasure and needs to be preserved for fishing, hiking, bird watching and hunting.



Reserves

- Ecological reserve(s)
- Old growth regions

Management Philosophy

- Regarding habitat fragmentation stakeout on the wildlife board, you state that additional fragmentation in the form of new roads, trails, openings ... could have little short-term impact. This immediately after you talked about the Southern Green Mountains being relatively unfragmented. Suggests you support fragmenting untouched regions because they are now untouched and wouldn't be harmed. Contradictory, leave them unfragmented. Hard to get okay to delete roads once established.
- Manage at landscape level using science based conservation biology concepts of core "zones", corridors and buffers. Expand the three Natural Areas officially designated with acreage or with buffers.
- Should explain why you can't do all the desirable things because some are mutually exclusive.
- Stipulate a "temporal dimension" to planning effort, 50-200 years.
- Import (cooperatively) adjacent private land into the planning process.
- Lack of emphasis on landforms (watersheds, slopes, viewsheds, wetlands, elevations). Need to show how state land fits in with adjacent private lands. Management areas should be watersheds. Highest priority should be fully mature series of natural associations.
- Support the consideration of the triad concept. Encourage emphasis on natural forest and ecological forestry on state land. Allow traditional forestry on private land.
- Pleased to see nearly 5000 acres recommended as natural forest.

Research/Monitoring

- Designate sizeable portion of CWMU to be a forest research area
- Reestablish fragmented corridors, undertake ambitious field research
- Need explicit commitment to monitoring all resources, including climate change.
- Forge monitoring partnerships with academic institutions and use volunteers.

Miscellaneous

- Shrewsbury conservation commission - need maps - cultural, soil, productivity, natural community, aquatic community
- Public land should provide benefits (wilderness, deep forest habitat, quiet recreation, clean air and water) that private lands cannot guarantee are protected.
- There is no assessment of economic impact of various options on the region.
- Smaller signs
- Meeting House Rock - historic site
- No cell towers on state land.
- Natural areas should be expanded, plus add limited use buffer around them, join them together.
- Likes the way the forest is being managed.
- Applaud the thoughtful, inclusive, well-designed objectives presented.



Summary of Public Comment and Responses

RECREATION – winter

Conflicts between motorized and non-motorized uses

Motorized uses in the form of snowmobile use on existing designated trails will continue within Coolidge West Management Unit. There are no plans to expand the snowmobile trail network.

We have recognized a need to designate non-motorized trails for those wishing to separate motorized and non-motorized uses. The Bessenyey acquisition will be managed for cross-country skiing, snowshoeing, and winter hiking. There is now a designated loop trail which be managed by the Shrewsbury Outing Club under a Memorandum of Agreement.

There are other areas available for remote, non-motorized winter recreation pursuits. These include lands designated as Highly Sensitive Management (under the Land Management Classification) including the high peaks area, the Saltash and Bear mountain areas and the area around Tinker Brook. While these lands do not all have designated trails, they are available for remote, dispersed pedestrian activities.

Concern with Commercial Snowmobile Tour Groups

Commercial snowmobile tour groups can continue to operate on CWMU on trails designated for commercial use. However, the amount of land available for this use is severely limited throughout much of CWMU due to easement conditions that restrict such use. We are doubtful that this type of recreational activity will increase in the future. We have placed restrictions on the number of permits issued and the number of vehicles allowed per permit.

Catamount Trail Relocation

We will work with the Catamount Trail Association to find a suitable trail location that is safe and meets resource designation, capabilities, and limitations. It is unlikely, due to these limitations, that it can be relocated so that it is completely separate from its current location shared with the snowmobile trail network.

Parking Opportunities

Parking facilities currently exist at the North Shrewsbury lot, end of the Black Swamp Road, on Tiny Pond WMA (Route 100), Brewer's Corners, and the pavilion on the CCC Road in the summer. In winter parking is available at North Shrewsbury, Brewer's Corners, end of the Tin Shanty Road, Aitken State Forest lot, and on Route 103. Parking will be maintained at existing sites. These facilities are open and available for all recreational users. We acknowledge that some people access CWMU lands from private parking locations.

If there is a demonstrated need for additional parking areas we will review the request, hold public meetings, and consider a response based upon the legal considerations, resource capabilities, and carrying capacity.

Search and Rescue

There has been an increase in the number of lost skiers coming from the Killington Ski Area. We will continue to work with the Killington Ski Area, law enforcement agencies, and easement holders to develop a winter recreation plan allowing use of existing trails to expedite winter search and rescue.



Road Plowing, Impact of Logging Activity and Conflicts with Winter Recreation

The existing road infrastructure serves both as forest management access for timber sales and as trails or paths for hiking or walking, cross-country skiing, or snowmobiling. It is likely that during each winter (most sales will need to occur in the winter due to soil and site conditions) a number of roads will be plowed for access to active timber sales. To alleviate some of the conflict between uses, sales will be scheduled around the CWMU so that not all roads will potentially be plowed in the same winter or that a given road (i.e. CCC Road, TH #20) will be plowed for many years in a row. Creative scheduling for trucking operations on busy winter weekends may also be a solution to lessen conflict between these uses.

Concern with Ski Area expansion onto protected lands

In 1997 the State of Vermont and Killington Ltd. were involved in a land exchange which resulted in conservation easements being placed on certain parcels of land. These easements prevent the expansion of ski area activity into Parker's Gore and the Carris-Bigelow block. Further development of land adjacent to the leasehold area is also restricted due to conservation easements.

RECREATION – summer

ATV Use on CWMU

All ATV trails are designated by the Secretary of the Agency of Natural Resources. At this time the Secretary has not chosen to designate any trails on CWMU lands. The Governor's collaborative on ATV's is studying this issue. If trail designation changes, the public will be informed through the public meeting process.

Despite not being permitted on state land, ATV's continue to operate on skid trails, hiking trails, and truck roads throughout CWMU. ANR is coping by gating and barricading roads; closing trails; and working with Game Wardens from the Fish and Wildlife Department to eliminate ATV access into the forest.

ANR will continue to keep roads and trails that can be damaged by ATV and other motorized traffic gated. The Eddy Brook Road will be gated. The road was not constructed to a standard that will withstand such use and is easily damaged.

Other Motorized Vehicle Use/Access on CWMU

Conservation easements legally obligate the ANR to prevent vehicle access to Parker's Gore.

A number of roads within CWMU are open to motorized uses including the CCC Road and TH #20. The CCC Road is a state forest highway and is maintained in the summer months only. It serves as a VAST snowmobile trail and cross-country ski trail in the winter. TH#20 is a town road. ATV's are not permitted on the CCC Road.

Remote Recreation – Hiking Trails

All designated hiking trails that exist within CWMU will be maintained to department standards. There are no plans for expansion of the trail network on any of the parcels within CWMU.

Quiet Recreation

Application of the ROS model indicates that there are no truly quiet places on CWMU. There is always the potential for sights and sounds from adjacent activities. There are, however, several



places on CWMU, that through conservation easement provisions or Land Management Area Classification designation, provide areas of non-motorized uses and therefore “quieter” recreation opportunities.

AT/LT and Related Trails

The National Park Service maintains a legal right-of-way for the Appalachian Trail / Long Trail corridor across CWMU. We will continue to work with the Green Mountain Club, Appalachian Trail Conference, and National Park Service on trail issues.

Recreational Structures

Trail shelters and other recreational structures will be maintained according to standards. These facilities will continually be evaluated for public safety and integrity of structure. If at sometime these structures become unsafe they will be evaluated for removal. There is no plan to increase the number of structures within CWMU.

Primitive Camping

CWMU will continue to be available for primitive camping according to ANR regulations. Campfires will be allowed only as they comply with state regulations. Camping is not allowed along the CCC camp loop. Such use impacts historic resources and does not comply with ANR primitive camping regulations. There is no water or waste facilities at that site.

Camping facilities are available at Coolidge State Park and Camp Plymouth State Park.

Mountain Biking on CWMU

Mountain biking and bicycling are permitted according to ANR policy 4 which states that mountain bikes, horseback riding and pack animals are permitted only on state-owned roads and trails specified by the Commissioner. The Commissioner has designated gravel surfaced roads only on CWMU for bicycle use.

Mountain bikes are prohibited on the Appalachian Trail and Long Trail. The Killington Ski Area offers a significant mountain bike trail network on the leasehold lands within CWMU. This activity will continue to be managed and maintained under the Act 250 conditions.

There are no plans to develop trails on other areas of CWMU. Several of the parcels with the management unit have conservation easements or other legal conditions that limit the development of mountain bike trails.

Hunting, Fishing, Trapping

Hunting and trapping are permitted on all lands of CWMU according to state regulations.

All streams within CWMU and Tiny Pond are open to fishing. ANR has no plans to improve access to the state-owned portion of the Tiny Pond shoreline for canoe and boat access.

Forest Management Access Roads

Other than one location there are no plans to build additional truck roads on CWMU. The possible exception is on the western portion of Coolidge State Forest as an alternative to current access along the Poczobut Road. The current road exists as a right-of-way to state land and is in very bad condition. An alternative route to create suitable reliable winter truck access to that area will need to be explored. There are no plans to connect the Grouse Hill North and South roads.



Most roads were designed and built to a standard suitable for occasional use for timber sale access and not for public access traffic. Therefore, most are closed and gated to protect the road investment and the resource.

All roads will be maintained to department standards as funding permits. Any existing roads will not be permanently closed due to need for timber management access.

Community Outreach / Education

ANR will continue to work with user groups, hiking community, recreational users and other partner organizations to facilitate sound management, public understanding and education. This process will continue to provide opportunity for ongoing community input (through the Annual Stewardship Planning process, Agency and department websites, email, etc.).

We will continue to offer educational opportunities for user groups and members of the public through recreational brochures; maps and information on the ANR and individual department websites; information on trailhead kiosks; workshops; and other educational opportunities.

Natural Processes

Areas designated as Highly Sensitive Management under the Agency's Land Management Classification will not be managed for timber or wildlife habitat such as early successional vegetation. Vegetation may be managed to restore natural community species composition or to control invasive exotic species. Within these areas natural processes will prevail.

Some areas designated as Special Management Areas will be managed for timber but activities will strive to mimic natural processes. Management will be based on review of silvicultural guides and research regarding natural systems.

Land Designations

All lands within CWMU were classified according to the Agency's Land Management Classification. Through this process all lands were allocated to appropriate uses and therefore not all areas are open to all uses.

Natural Areas

There are three existing designated Natural Areas on CWMU – all on Coolidge State Forest. They include Mendon Peak Natural Area, Shrewsbury Peak Natural Area and Tinker Brook Natural Area. Classification of lands of CWMU have effectively “connected” the Mendon Peak and Shrewsbury Peak Natural Areas through the designation of adjacent high elevation lands as Highly Sensitive Management. This is a planning designation not a legal one.

We will recommend that the Tinker Brook Natural Area be expanded by approximately 10 acres to include the entire natural community and extend to the top of the bank to better protect the area.

Historic Resources

There are a number of Native American and Historic resources on lands of CWMU. Documented information on these resources varies. We will continue to collect documentation on these sites so that they may be both better understood and protected during management activities.



Vegetation Management - Timber and Wildlife Habitat Management

Vegetation management for timber and wildlife habitat will continue on lands of CWMU. Specific strategies will be dependent upon many factors including Land Management Classification. Management objectives on over 12,000 acres of land within CWMU will strive to maintain a balance of vegetative types and stages. This balance is intended to enhance biological diversity; healthy natural communities; wildlife habitat diversity and abundance; and to produce marketable forest products.

Vegetation management on the remaining 7000 acres will focus on control of invasive exotic species, natural community restoration and trail corridor management.

Vegetation management activities will consider conflicts with other uses, particularly recreation. To alleviate some of the conflict between uses, sales will be scheduled around the CWMU so that not all roads will potentially be plowed in the same winter or that a given road (i.e. CCC Road, TH #20) will be plowed for many years in a row. Creative scheduling for trucking operations on busy winter weekends may also be a solution to lessen conflict between these uses. Aesthetic hiking trail buffers, viewshed consideration, temporary trail relocation during sale activity, and sale requirements regarding slash in and immediately adjacent to trails are other techniques that may be used to lessen conflict.

Green Certification

Vermont, as the owner and manager of over 300,000 acres, has looked at certification of state forest lands. There are several existing certification programs, all are expensive. We have made a decision not to go forward because the cost of certification, recertification, and implementation exceed our fiscal capacity. This plan may not be certified but we fell it meets or exceeds certification standards.

Public Comments and ANR Responses - CWMU LRMP

<i>Comment</i>	<i>Response</i>
<i>A. Planning Process and Public Participation</i>	
<p>A1 - I am advised that the Vermont Traditions Coalition did not receive notice of this process until the final public hearing, and many of its 20 member groups did not receive notice. It is also obvious from the public comment section of the plan that little input was made by sportsmen. (Hunters, Anglers, Trappers Association of Vermont)</p> <p>We believe that your public participation process has been a significant factor in producing a high-quality draft. We ask that you continue to provide for periodic public comment on the overall management plan once it is formally adopted (and not just the annual work plans). Natural conditions, public perceptions, and management priorities will change; please do not wait 15 years – until 2023 – before you solicit public input again. (Shrewsbury Outing Club)</p> <p>Thank you for the fine work by District staff that went into preparation of the Coolidge West Management Plan and for your excellent effort to solicit public input. (Individual)</p> <p>Overall we believe that the state lands stewardship teams have done a commendable job in preparing the draft LRMP. The assessments are thorough and provide a good baseline for commenting on the draft plan. We acknowledge that there are diverse interest groups that make the planning process an exercise in compromise and balance. (Vermont Natural Resources Council)</p> <p>Vermont Traditions Coalition and its member groups did not participate in the public input process until the final Public Hearing in July 2007 and therefore assume that the public input you received during the earlier stages of your deliberation was unduly slanted toward passive land management philosophies. (Vermont Traditions Coalition)</p>	<p>AR1 - Our goal in planning for Coolidge West Management Unit (CWMU) was to be as inclusive as possible. We held a number of meetings so that we could provide opportunity for many people over the course of the planning period.</p> <p>Some Vermont Traditions Coalition member organizations were invited to and some participated in the CWMU planning process. In an effort to contact a broad range of interested groups and individuals, we notify through our website, mailings, media releases as well as through regional planning commissions, selectboards, local planning commissions and/or conservation commissions.</p> <p>The planning process for CWMU has been thorough, collaborative and inclusive, a process ANR plans to continue as we enter the plan implementation phase. Public participation, notification and outreach will continue in a number of ways.</p> <ul style="list-style-type: none"> • The Annual Stewardship Plan (ASP) is a district-specific work plan developed from approved long range management plans. The ASP outlines management activities scheduled to occur within a fiscal year. Notification is sent to the appropriate select board and regional planning commissions in July. • When management priorities change significantly from the long-range management plan, ANR will file a plan amendment and engage in the public input process. • ANR is committed to open, collaborative and ongoing partnerships with all organizations and individuals interested in CWMU. • The public can make comments regarding CWMU at anytime via mail, email or telephone. • We also inform the public through informational signage, kiosks, and educational programs. • Our hope is that web-based technology will be improved as a means of ongoing communication.
<p>A2 - Commit to provide two intermediate management reviews, with full public input, in year 5 and year 10 of the 15-year life of the</p>	<p>AR2 - Page 26 of the plan provides a detailed description of the public process specific to CWMU. The previous comment response outlines the public participation process as we move</p>



<p>plan. Submission of annual work and timber sale plans is inadequate to elicit public interest and comment. (Individual)</p>	<p>forward in the implementation phase.</p>
<p>A3 - Policy level review is needed to ensure that management actions are meeting desired goals and public needs. (Individual)</p>	<p>A3 - We have a process and an organizational structure in place at the agency level called the ANR Lands Stewardship Team that regularly meets to insure that management actions on ANR land are meeting desired goals and public needs.</p>
<p>A4 - If there is a spot where I could view the general input from the meetings and keep up with any changes let me know. (Individual)</p>	<p>AR4 - Public comments can be viewed at the Rutland North District office. A summary of comments and ANR's response is posted on our website and in the appendix of the final plan.</p>
<p>B. General Comments</p>	
<p>B1 - Please change the name of the <i>Tiny Pond Road</i> to the more correct <i>Tinney Road</i>. (Individual)</p> <p>There is a road on some maps which leads to a cabin on Forest Echo Farm Land. Could it be removed? (Individual)</p>	<p>BR1 - The change has been made in the final plan to the more recently accepted Tinney Road.</p> <p>The road you refer to is part of a state-wide Agency of Transportation data layer. We made that correction on CWMU maps.</p>
<p>B2 - I wonder what the forestry plan is for the former Pierce land (Tin Shanty Road). The Pierces kept these lands clear and clean for years and note that they are no longer mowed or cleared of dead fall. (Individual)</p>	<p>BR2 - The understory was mowed by the previous owner, Glendon Pierce. While aesthetically pleasing to many, habitat value is higher when the understory is not as manicured. We plan to periodically mow (dependent upon funding) this area to maintain the historical character of the land and maintain wildlife habitat value. This activity is permitted under the conservation easement with the Vermont Land Trust. We added this language to the final plan.</p>
<p>B3 - Your labors are appreciated and keep up the good stewardship. (Individual)</p>	
<p>B4 - The plan speaks of the objective of demonstrating good forestry practices. Please identify specific practices to be illustrated including a commitment to demonstrate green certification. (Individual)</p>	<p>BR4 - Forestry practices outlined within the CWMU long-range management plan serve as demonstration of sound forestry practices. Green certification has been considered by the Agency of Natural Resources and thus far has been cost prohibitive.</p>
<p>B5 - The draft plan does not give a context for proposed management actions in CWMU. Please include a brief discussion of what is occurring on contiguous private lands in terms of timber management, habitat trends, and recreation opportunities. Is the goal for CWMU to complement what is occurring in the surrounding area or will CWMU be managed in isolation from neighboring lands? (Individual)</p>	<p>BR5 - It is not an explicit goal to compliment adjacent land uses but they were considered in plan development particularly recreational activities and wildlife habitat. Timber management on CWMU may be re-evaluated periodically to reflect changing conditions on adjacent parcels through the plan and amendment.</p>
<p>B6 - In the Legal Constraints Assessment, list the constraints by block in a table and be more specific. Identify any conflicts between Pittman-Robertson Act objectives for wildlife habitat and recreation uses within CWMA, especially motorized corridors. State clearly what changes are needed to eliminate or</p>	<p>BR6 – Legal constraints are by acquired parcel as shown on the legal assessment and map on pages 111 through 116. More detailed information on legal constraints is available at the district office.</p> <p>Pittman-Robertson constraints, as interpreted by the US Fish and Wildlife Service (USFWS), may limit any activity that</p>



<p>minimize these conflicts. (Individual)</p>	<p>conflicts with the original purpose of ownership of the parcel (wildlife species restoration and public hunting). Recreational activities that, in the opinion of the Fish and Wildlife staff in consultation with the USFWS, conflict with these purposes are not allowed.</p>
<p>B7 - The map that depicts other conserved lands in the region needs to be updated to include recent Forest Legacy tracts including PK Brown in Mt. Holly and Meadowsend Tract in Bridgewater. (Individual)</p>	<p>BR7 - An updated conserved lands map with these recently added Forest Legacy tracts is included in the final plan.</p>
<p>B8 - The draft plan fails to propose an acceptable level of this operational integrity, presenting instead a forest management opinion statement based on popular field guides and very little peer-reviewed and/or juried scientific literature. (Ruffed Grouse Society)</p> <p>We feel it's clear that very little real science actually went into this plan. Where is the real science that we have seen used in other land plans? (Hunters, Anglers, Trappers Association of Vermont)</p>	<p>BR8 –The CWMU planning process relied upon extensive and current scientific information (i.e. GIS/digital mapping, timber cruising and data analysis, ecological concepts, management prescriptions based upon published silvicultural literature, habitat surveys).</p> <p>The CWMU long-range management plan is a science-based planning effort written for a general audience.</p> <p>A more complete list of some of the reference used in developing this plan have been added to the literature cited section of the final plan.</p>
<p>B9 - An indefinite extension should be provided the Tin Shanty Camp owners and any other lease camp owners. (Vermont Traditions Coalition)</p>	<p>BR9- The warranty deed prohibits the continuation of the camp lease; the conservation easement requires the removal of the structure with no occupancy beyond the end of the lease. Within the terms of the agreement, ANR extended the lease for an additional 10-year period; however, it cannot be extended beyond 2/24/2010. If an individual or group is interested in the camp building itself we would be willing to explore the possibility and receive proposals for moving the camp to a location off state land.</p>
<p>B10 - Evaluation of the triad approach makes a strong case for rejecting that approach and adoption of a land planning approach that gives proper weight to traditional forestry ecologies and techniques. (Vermont Traditions Coalition)</p>	<p>BR10 - The triad concept was used only as a discussion format for better public understanding of allocation of resources within CWMU.</p>
<p><i>C. Land Management Classification</i></p>	
<p>C1 - The plan should not limit Highly Sensitive Areas to areas with poor soils or otherwise unsuitable for timber management. (Individual)</p> <p>Designation of 4500 acres in Highly Sensitive Management is a positive feature of the draft plan. However, these HSMA's coincide, for the most part with high, rocky, and wet areas with poor soils that are "unsuitable for forestry". An area of northern hardwoods on productive soils should be included in this HSMA. This would contain some of the more productive northern</p>	<p>CR1 - Assignment of Land Management categories is based on a comprehensive assessment of the resources as well as ANR land management policies and standards.</p> <p>An example of lower elevation Northern Hardwood Forest is included within the Highly Sensitive Management Area designation (HSMA), however, on CWMU, lower elevation is relative. The lowest elevation on the contiguous parcel is 1550'. Approximately 170 acres of this forest type are in the Sargeant Brook headwaters. There is also a 55-acre area of Northern Hardwood Forest in the Highly Sensitive Management Area around Tinker Brook which is at about</p>



<p>hardwood sites (now General Management areas) – along Sargeant Brook, for example, and some of the seepage areas and it should definitely include the rich northern hardwood sites along the CCC road and on the southern edge of the forest. (Individual)</p> <p>We request that you expand the Highly Sensitive Management Areas to include a representative sample of lower elevation northern hardwoods that is more accessible to the public and on better soil and site conditions. This natural community is currently classified in the General Management category. Yet the plan says that only 0.2% of the entire forest is in “mature forest habitat”. Many of the public comments you received asked for more of the forest to be left undisturbed and allowed to mature according to natural ecological processes. It is important that the northern hardwood forest in CWMU – which the plan says is “state significant” – be included in the Highly Sensitive and better protected category for ecological study and for future generations. (Shrewsbury Outing Club).</p> <p>Vermont Natural Resources Council strongly supports the designations of highly sensitive to protect state significant examples of natural communities and outstanding ecological resources. ...in general we support the thoughtful designation of the various lands within the Highly Sensitive Category and believe they provide an important role in providing for a high degree of remoteness, mature forest conditions, and in protecting high quality examples of natural communities. (Vermont Natural Resources Council)</p>	<p>1900' elevation. These areas represent 33% of the full 671-acre Northern Hardwood Forest HSMA.</p>
<p>C2 - Lowland Spruce-Fir Complex – no where in this plan is the term “passive management” defined which leads us to believe this is another term for wilderness area where no management will take place. This plan does not state the size of the area or where the area is within the designation. (Hunters, Anglers, Trappers Association of Vermont)</p>	<p>CR2 - Passive management refers to areas where timber management is not a primary management objective, however, vegetation management for the control of invasive exotic species, natural community species restoration, and recreation may be. The Norway spruce plantation within this area will be managed with the goal of removing exotic species and restoring natural community species composition. The term passive management has been added to the glossary in the final plan.</p>
<p>C3 - We applaud the proposed expansion of the Tinker Brook Natural Area and we agree with the need for more opportunities for nature observation and educational materials. (Shrewsbury Outing Club)</p>	<p>CR3 – Although small, the additional acreage recommended for expansion of the Natural Area provides a wider buffer to protect vegetation within the Tinker Brook gorge.</p>



<p>C4 - In general, VNRC supports the designation of special management areas including the Special Forest Management Area where management activities will maintain natural community quality rankings; employ silvicultural systems designed to mimic natural process; and be adaptive to natural disturbances. (Vermont Natural Resources Council)</p>	
<p>C5 - Proposed vegetation management actions appear to be based solely on their relationship to Agency Land Management Classifications defined primarily by the presence or absence of natural community polygons and matrices. (Ruffed Grouse Society)</p>	<p>CR5 – Land Management Classification is based on inventory and evaluation including those done to assess natural community, wildlife, social (public involvement), timber, recreation, water, historic, roads, and legal aspects of the management unit. Application of the ANR Land Management Classification follows that analysis and allows the public and land managers to have a common understanding of the overall level of use or type of management to occur on ANR lands.</p>
<p>C6 - The society rejects the concept that absolutely no active, beneficial management should take place across 23%+ of the CWMU simply as an unqualified precaution based on the assumption that all active vegetation management is deleterious to the ecological function or contributions of unique or uncommon forest elements. (Ruffed Grouse Society)</p> <p>Does the Coolidge plan utilize the full timber cutting potential of the Coolidge lands? 23% of the Coolidge lands are categorized as Highly Sensitive and cutting is arbitrarily banned. (Vermont Traditions Coalition)</p> <p>We question the rationale by which significant areas of public land are eliminated from active forest management and public access on the basis of the assumed absence of unidentified natural processes that may be needed to support wildlife species when those same wildlife specie are identified as either having their habitat needs met using older, managed forests or being provided under current management. (Ruffed Grouse Society)</p>	<p>CR6 – Assigning 23% of the management unit to Highly Sensitive Management Areas is a qualified decision based on the inventories and evaluations done in development of the plan including natural community, wildlife, social, timber, recreation, water, legal, and roads assessments.</p> <p>68% of the management unit will have active vegetation management. Steep slopes, soil limitations, legal constraints and other site concerns contribute to the limitations on harvesting.</p>
<p><i>D. Hunting, fishing and Trapping</i></p>	
<p>D1 - Give historical information on numbers of animals taken by trapping and hunting so that data and trends area presented in the final plan. Reduce the emphasis on trapping, so as to increase the populations of furbearers, including beavers for expansion of shrubland. Commit to examining establishment of a no-</p>	<p>DR1 - Hunting, fishing and trapping data is collected and summarized by town not by a specific parcel of land.</p> <p>Plymbsbury WMA was purchased using Federal Aid in Wildlife Restoration Act (Pittman-Robertson Act) funding for the purposes of providing hunting, fishing and trapping by the public.</p>



<p>trapping area or limited trapping season in the Plymbsbury wetland complex. (Individual)</p>	<p>The taking of furbearing animals by hunting and trapping is governed by statewide rules and regulations established by the Vermont Fish and Wildlife Board and are permitted on public lands.</p>
<p>D2 - Page 38 says there is “limited fishing” on the 98-acre Saltash Mountain HSMA – this is probably incorrect. (Individual)</p>	<p>DR2 - Fishing is allowed throughout the CWMU.</p>
<p>D3 - The plan should provide for the use of U-shaped fish-friendly culverts. (Individual)</p>	<p>DR3 - Culvert replacement on state land is done in cooperation with fisheries biologists with the VT Fish and Wildlife Department and the River Management Section of the Department of Environmental Conservation. Passage of fish and other aquatic organisms is considered when replacing these structures.</p>
<p><i>E. Recreation – General</i></p>	
<p>E1 - Buffers between logging operations and hiking trails should be greater than the 25 feet now proposed. (Shrewsbury Outing Club)</p> <p>Timber cuts provide the best views for hikers, and educate the hikers on the value of all forest types and therefore cutting within the area governed by the National Park Service Conservation Easement is not prohibited. (Vermont Traditions Coalition)</p>	<p>ER1 – The National Park Service right-of-way easement allows trees to be cut along the Appalachian Trail corridor in accordance with the National Trail System Act. The National Park Service easement on the Carris-Bigelow block specifies a no-cut buffer. See comment ER-13. The 25-foot buffer figure was discussed at one of the public meetings and was considered acceptable by trail users and others attending. This figure only applies to designated trails that are not part of the Appalachian Trail/Long Trail system.</p>
<p>E2 - Page 40 says there are two trails to Shrewsbury Peak, page 108 says four. (Individual)</p>	<p>ER2 - There are 4 hiking trails to Shrewsbury Peak including the Shrewsbury Peak Trail (from the pavilion), Black Swamp Trail, Appalachian Trail connector, and the trail to Smith Peak. Only 2 of these trails, Shrewsbury Peak Trail and the Appalachian Trail connector trail reach the peak, the others intersect these trails below the peak. This has been clarified in the final plan.</p>
<p>E3 - State now that certain new uses are not considered consistent with the Plan e.g. car races, paintball, etc. Do not open the door to these unacceptable uses. (Individual)</p>	<p>ER3 - Requests for new trails or other recreational facilities will be considered by the District Stewardship Team in the context of the experience-driven Recreational Opportunity Spectrum (ROS) as it applies to CWMU, the Land Management Classification within this long-range management plan, and an environmental review of the proposal.</p>
<p>E4 - VNRC supports the goal in the draft LRMP to separate motorized and non-motorized recreation where possible and to create separate non-motorized designations in the plan. (Vermont Natural Resources Council)</p>	<p>ER4 - The issue of conflicts between motorized and non-motorized recreational uses came to light very early in the planning process. The conflict and subsequent management recommendations in the plan are based on incompatibility of uses, safety, and the Recreational Opportunity Spectrum. A goal for this plan is to provide areas for non-motorized uses where possible.</p>
<p>E5 - In HSMA area descriptions all areas state “no construction of new trails” except for the 1.1C Lowland Spruce-Fir Forest complex. Is this an oversight, or will new trails be officially allowed in this area. (Individual)</p>	<p>ER5 – The plan considers the possibility for new trail construction to connect the Winter Recreation Trail and the cross-country loop (on former Besseney parcel) with the Catamount Trail.</p>



<p>E6 - Why does the plan propose to remove bootleg trails on Mendon Peak Natural Area and yet to allow the Farm and Wilderness trail through Tinker Brook NA? Eliminate the inconsistency by relocating F&W trail. (Individual)</p> <p>Supports the no hiking trails policy of the plan for the Mendon Peak Natural Area. (Green Mountain Club)</p>	<p>ER6 - Trails are permitted within areas designated as Natural Areas (title 10 VSA Chapter 83 § 2607). The trail within Tinker Brook Natural Area protects the steep bank from erosion as people access the Tinker Brook gorge.</p> <p>There are very few trail-less high elevation peaks. Keeping Mendon and Little Killington peaks trail-less represents an opportunity to keep remote high elevation peaks undisturbed.</p>
<p>E7 - GMC supports no construction of new structures within High Peaks area but would like to see language allowing maintenance of existing structures should a decision be made to retain a campsite in the vicinity of Cooper Lodge. (Green Mountain Club)</p>	<p>ER7 – That activity is permitted under the right-of-way agreement between the state and the National Park Service. There is guidance for management of this site under the Green Mountain Club long-range plan for the Long Trail. Language regarding continued maintenance of the existing tent platform and outhouse has been added to the final plan.</p>
<p>E8 - Request clarification of vegetation management language regarding maintenance of existing vistas in the high peaks. (Green Mountain Club)</p>	<p>ER8 - Existing scenic vistas along hiking trails are considered to be part of the trail infrastructure and its regular maintenance and will be permitted under the National Park Service right-of-way agreement and the Green Mountain Club long-range plan for the Long Trail.</p>
<p>E9 - Would like statements limiting hiking trails to non-motorized, non-mechanized pedestrian uses. (Green Mountain Club)</p>	<p>ER9 – Designated hiking trails have restrictions on motorized and mechanized uses where appropriate.</p>
<p>E10 - Maintain funding and support for the continuation of the ridge runner position in recognition of our cooperative management of the Long Trail/Appalachian Trail. (Green Mountain Club)</p>	<p>ER10 - There is a great collaborative relationship between ANR, US Forest Service, Killington Ski Area, and Green Mountain Club with respect to the management of this high elevation trail system. The ridge runner position funding is subject to a competitive grant allocation each year.</p>
<p>E11 - GMC supports the Agency's kiosk maintenance and requests ANR incorporate cooperation with partners with regard to trailhead kiosk information particularly for Long Trail System trails; (Green Mountain Club)</p>	<p>ER11- ANR will continue to cooperate with partners in presenting kiosk trailhead information particularly within the Long Trail system.</p>
<p>E12 - GMC welcomes the opportunity to work with the state on Shrewsbury Peak shelter as a CCC-era historic resource and recreation campsite within the Long Trail System. (Green Mountain Club)</p>	<p>ER12 - The ANR will work with GMC and other partners to evaluate and maintain the Shrewsbury Peak shelter.</p>
<p>E13 - Please clarify the trail corridor width: is it 400-foot primary protection zone centered on the trail tread with a 300-foot secondary zone on each side of the primary protection zone? (Green Mountain Club)</p>	<p>ER13 – Easement language defines the trail corridor as being a 400-foot primary protection zone centered on the Bucklin Trail in its current or future location. Trees may be cut within this zone to open scenic vistas, to make clearings for shelters and as part of normal trail maintenance. The secondary protection zone extends 300 feet outward on either side of the primary protection zone. Trees within this zone may be cut or removed with prior approval of the Grantee.</p>
<p>E14 - A strategy is needed to build adequate barriers and boost law enforcement to control illegal activity and environmental damage.</p>	<p>ER14 - We have had an increase in law enforcement by partnering with Fish and Wildlife Department game wardens. Funding and size of the warden force are two barriers to</p>



(Vermont Natural Resources Council)	increased effectiveness.
<i>F. Recreation – horseback riding</i>	
F1 - We would appreciate a little attention to the convenience and maintenance of horse access throughout this section. Many folks from this area are horse owners and would utilize it more if it were more horse friendly. As an example, the current gating method at most logging/access roads presents something of a hazard to horse travel because it is designed to keep ATVs, etc. out. (Individual)	FR1 - Department of Forests, Parks and Recreation Policy #4 addresses horseback riding and limits its use to graveled surface roads and state forest highways within CWMU. Horseback riding is prohibited on the Appalachian Trail/Long Trail system. This is a topic that did not come to light during the planning process. Interested parties can pursue this with the district stewardship team using the procedure outlined on page 73 of the final draft. Refer to comment/response ER3.
<i>G. Recreation - mountain biking</i>	
G1 - I am involved with mountain biking and would request some consideration be given to utilizing the juggernaut trail (Killington Ski Area) as a beginner friendly route to descend from the peak via bicycle. I know this has been considered bear habitat and thus not utilized. We simply ask that it be considered. (Individual)	GR1 - The Act-250 Land Use Permit issued in 1999, allows for a summer mountain biking program within the Killington Ski Area trail network. However, it restricted mountain biking on the Juggernaut Ski trail to minimize the potential for impact to a black bear feeding area in Parkers Gore. In addition, the Vermont Land Trust holds a conservation easement for the Parkers Gore land which does not allow mountain biking to occur.
<i>H. Recreation - snowmobiling</i>	
H1 - Is there a map showing snowmobile trails on the management unit? (Green Mountain Club)	HR1 - The map on page 134 shows snowmobile trails. The recreation trails map shows all trails within CWMU. A map more clearly showing specific trails has been added to the final plan.
H2 - Regarding commercial snowmobile leases state the applicable and very limited circumstances/conditions for renewal. Do not issue new leases. (Individual)	HR2 - Legal constraints on many parcels of the CWMU restrict commercial recreational uses resulting in few trails available for these operations. Lack of opportunities results in commercial operations that are neither successful nor economical to operate. There are currently no commercial snowmobile operations on CWMU.
<i>I. Recreation - Cross-country skiing</i>	
I1 - With respect to the Land Management Classification and the areas designated as Highly Sensitive Management – would the proposed relocation of the Catamount Trail be considered “construction of new trail”? (Catamount Trail Association) We endorse the relocation of the Catamount Trail to a quieter route off the VAST trail. We also support a connector trail for cross-country skiers from the Bessenyey block to the Catamount trail. (Shrewsbury Outing Club)	IR1 – The district stewardship team has held numerous discussions with the Catamount Trail Association regarding trail location and have supported their request for relocation of segments of the Catamount Trail off of the VAST trail to improve safety and enjoyment for both motorized and non-motorized uses. The Catamount trail cannot be relocated to an area with easement restrictions. This position is clarified in the final plan.
<i>J. Recreation - Downhill skiing</i>	
J1 - We are also concerned about the free-heeling telemark and other alpine skiers who have deemed it necessary to ski out of bounds and to cut some sensitive vegetation for trails,	JR1 - While backcountry skiing is an allowed use of CWMU land, cutting of ski glades outside of the leasehold land is a concern to many and is against state law.



<p>originating from the Killington Ski Area. (Shrewsbury Conservation Commission)</p> <p>There should be a stronger statement against glading at KSA. Can timber management occur on the KSA leased area? If so, why is this not proposed? (Individual)</p>	<p>The Agency of Natural Resources and the managers of Killington Ski Area will work cooperatively to prevent unauthorized cutting of trees and other vegetation for the purposes of creating ski trails outside of the Killington Leasehold land. Killington Ski Area will continue to place “out-of bounds” signs along the leasehold boundaries. The Agency of Natural Resources will prosecute individuals who cut vegetation on state owned land outside of the leasehold boundary under existing State Statute: Title 13 – 13 V.S.A. 3701 (a) Destruction of State Property which carries a maximum penalty of \$5000.00 and five years in jail.</p> <p>This statement is in the final plan.</p> <p>The lease between Killington Ski Resort and the State of Vermont provides ANR the right to make “selective cutting of timber or wood within the leasehold area provided that the cutting does not interfere with the ski area operations”. The advent of recreational use of the leasehold area during the summer as well as winter use of the wooded terrain between ski trails as glades make “selective cutting of timber or wood products” conflict with ski area operations.</p>
<p><i>K. Vegetation Management</i></p>	
<p>K1 - I am wondering if logging projects will interfere with the already established ski trails (Besseneyey) in Coolidge. I would urge adequate buffers. (Individual)</p>	<p>KR1 - The logging scheduled to occur on the former Besseneyey property is within the Norway spruce plantations It is scheduled for 2009. The ski trails are located on old skid roads some of which may be used for logging. As with all timber sales, these roads will be smoothed, seeded, and/or water barred as necessary to protect water quality and the quality of road for continued use as a trail.</p>
<p>K2 - Hunters, Anglers, Trappers Association of Vermont proposes that the plan calls for timber cuts in all areas suitable for timber cutting... the maximum timber cutting capacity of this land should be utilized due to the wildlife, economic, recreational, and forest health benefits maximum cutting provides. (Hunters, Anglers, Trappers Association of Vermont)</p> <p>Game animal counts per square mile in the Green Mt. region are among the lowest in Vermont due to a lack of timber cutting. Coolidge staff needs to heed the call of hunters throughout the state for an improved deer population by maximizing the deer and small game carrying capacity of the Coolidge lands. (Vermont Traditions Coalition)</p>	<p>KR2 - There are many ecological, social and economic factors that affect management of CWMU. Timber management occurs in locations that can support forestry in stands that are suitable for commercial timber management and that are practical and economically feasible to operate.</p> <p>Deer populations on the Coolidge lands are greatly influenced by its elevation, its less than productive soils, and lack of quality winter range. Early successional forest and field management directed in a focused area should provide suitable deer summer range and maturing forests will yield fall beechnut supplies.</p>
<p>K3 - The (Shrewsbury) Conservation Commission is concerned about the notification process to the people who will be impacted by the massive logging operations that will be occurring in our community.</p>	<p>KR3 -. The long-range management plan is the beginning, but not the end, of our engagement with the public concerning management of CWMU. The Timber Management Implementation Schedule (p. 61,62) outlines 33 timber sales over the next 14 years (2008-2021). Logging operations signs</p>



<p>Additionally, the impact on driving could be quite severe, as our roads are rural winding roads with limited room to maneuver. We endorse the plan to scatter logging at different places over the years, but feel that folks can more easily deal with what they know. (Shrewsbury Conservation Commission)</p>	<p>will be posted as a notification to people living along the town roads which access the unit. In addition, we will provide annual notification through the Annual Stewardship Planning process. Refer to comment/response AR1. We will keep the avenues of communication open.</p>
<p>K4 - Your concept of rolling sequence of even-aged cuts means that the entire GMA will be treated as an extractive landscape with continual human impact and no portion allowed to mature in a natural process. Please consider maintaining a number of permanent early succession areas as an alternative approach of in order to eliminate or reduce the number, frequency and impacts of a rolling series of patch cuts. (Individual)</p> <p>Give a projection of estimated amounts of timber that will be removed by sale and year so readers can assess the magnitude or economics of timber management. State what the district guidelines for how close together in time and space patch cuts and clearcuts will occur. (Individual)</p> <p>The suggested management strategy to conduct group/patch size openings of up to 10 acres for early successional habitat. We encourage you to create early successional habitat through smaller patch cuts that better replicate natural processes and protect water quality. Group selection cuts should be limited to ¼ to ½ acres in size depending upon the forest type with an occasional opening that is larger based on demonstrated need. The practice of making small patch cuts greater than an acre has little ecological justification when judged against natural disturbance regimes for this region unless some diversity in age or vertical structures is left within the patch. The state lands stewardship teams should disclose the frequency of group selection cuts it wishes to conduct above a half-acre in size, and consider limiting them in individual treatment areas. (Vermont Natural Resources Council)</p>	<p>KR4 - Timber management is an important objective within the General Management Area (GMA) and both even-aged and uneven-aged silvicultural treatments will be used in implementing the timber management program. Uneven-aged management techniques will be used at the higher elevations (Special Management Areas).</p> <p>The plan outlines each timber sale giving specific timber sale information. See comment/response K3. Economic projections are difficult given the rise and fall of timber markets and stumpage prices therefore such information would have limited value for long range planning.</p>
<p>K5 - Coolidge Land Plan staff altered or constrained timber cut schedules to accommodate neighbors and some winter users of the forest. The cuts should not be delayed due to undue deference provided to</p>	<p>KR5 - Individual timber sales were grouped around the management unit by points-of-access to alleviate potential conflict with winter recreational uses including both snowmobiling and cross-country skiing. This approach lessens or eliminates the need to plow a given road for several years</p>



<p>neighbors and select winter users. (Vermont Traditions Coalition)</p> <p>Vermont Tradition Coalition calls for exercising the entire timber cutting capacity of all state lands, maintaining and increasing motorized access, and management that supports traditional uses such as hunting, fishing, trapping and snowmobiling. (Vermont Traditions Coalition)</p> <p>HAT believes the plan gives too much consideration to so-called low impact recreational user groups. Timber cutting and motorized recreational use should not take a back seat to folks who established residences near public land. Expectations that timber cutting and recreation won't occur are unreasonable and should be disregarded. Early successional forests are pretty to look at and provide the best scenic views within the forest. With all these concessions, we feel you have opened the door to failure in reaching the important harvesting goals of the unit. (Hunters, Anglers, Trappers Association of Vermont).</p>	<p>in a row with the associated impact on winter trail users. This approach does not delay timber sales based on recreational needs but allows for better planning and coordinator for timber sales and winter recreational uses.</p> <p>Within the plan vegetation management will occur on 68% of CWMU; motorized access has been maintained; and hunting, fishing and trapping occur on all CWMU lands as governed by rules and regulations established by the Vermont Fish and Wildlife Board. Cross-country skiing, hiking and areas dedicated to non-motorized recreation are part of that balance.</p>
<p>K6 - The plan speaks of possible summer logging. In this case, it should also state that summer logging will be scheduled after mid-August so as not to disrupt the second nesting of forest bird species. In addition, road width and patch/clearcut size should be minimized to reduce nest parasitism by cowbirds. (Shrewsbury Outing Club)</p>	<p>KR6 –The amount of acreage that can accommodate summer logging is very small relative to the available acreage of forest on CWMU. Thus the relative impact of summer logging to forest birds is minimal.</p>
<p>K7 - We suggest that you extend the practice of ecological forestry to the general management category. Public land managers should no longer be practicing traditional forestry. It is troubling to see that the SMA strategy to maintain and enhance ecological structure is missing from vegetative management guidelines for the GMA. (Individual)</p> <p>VNRC supports the extension of ecological forestry guidelines to other areas on the CWMU that are in active forest management and believe this should be the predominant focus for the management on our state lands. (Vermont Natural Resources Council)</p>	<p>KR7 - We believe that all forestry practices outlined in this plan serve as demonstration of sound forest management. Standard state lands timber management practices include ecological considerations (i.e. riparian buffers, cull, snag and den trees).</p>
<p>K8 - Please refer to TNC publications "Managing Rich Northern Hardwood Forests" and "Natural Dynamics Silviculture" for further</p>	<p>KR8 - Both documents were considered in the development of the plan.</p>



<p>perspectives on applicable silvicultural techniques. (Individual)</p>	
<p>K9 - The overwhelming number of public comments requested less commercial forestry, but the proposed intensity of timber harvest and commodity extraction seems unresponsive. (Individual)</p>	<p>KR9 - Vegetation management for timber and wildlife habitat are part of the missions of ANR and the Department of Forests, Parks and Recreation. As is evidenced from the comments within this document not all were supportive of less timber management.</p> <p>Timber management will occur on 68% of CWMU and is the primary management objective within the General Management Area. Based on inventory analysis there are also areas where timber management will either not be the primary objective or not occur at all. Refer to comment/response CR5, CR6, KR2, KR5.</p>
<p>K10 - Define more specifically the diversity of forest products for which GMA will be managed. State whether wood chipping will be included. Management for high-quality timber and veneer for value-added, Vermont branded furniture should be an explicit priority objective. (Individual)</p>	<p>KR10 - Management of the timber resource yields a variety of forest products. Our goal is sound and sustainable forest management to grow the highest quality forest products possible. Harvest of low-grade material is also an output of the management process.</p>
<p>K11 - A decent percentage of CWMU is classified as General Management Areas. Commercial timber management will utilize both even and uneven-age silvicultural treatments. VNRC supports the rotation lengths that are proposed in the draft LRMP. The draft LRMP is lacking in detail about the degree to which even-aged treatment will be preferred over uneven-aged management. it would be helpful to know how many acres will be treated by each silvicultural technique. (Vermont Natural Resources Council)</p> <p>The society questions how a blanket prescription of uneven-age, single tree and small group selection can be proposed when there is no referenced information regarding how this decision was arrived at. (Ruffed Grouse Society)</p>	<p>KR11 - Timber management on CWMU will include both even and uneven-aged management. Generally uneven-aged will be used more than even-aged silvicultural techniques. All of the Special Management Area will be managed using uneven-aged techniques. Both will be used in the General Management Area. General treatment descriptions can be found on Page 61 of the plan. These indicate whether even or uneven aged treatments will be used. Descriptions of silvicultural techniques in general can be found on page 146.</p>
<p>K12 - We strongly encourage you to maintain a balanced focus in the plan by designating Highly Sensitive Areas to protect unique natural communities and biological resources. We encourage you to employ ecological forestry techniques on the majority of land in active management. within GMA, while it is important to meet goals for maintaining early successional habitat at presettlement conditions, we encourage you to reconsider the degree to which ten acre clearcuts are the preferred mechanism to create this vegetative condition. (Vermont Natural Resources Council)</p>	<p>KR12 - Ten acres is the upper limit given for clearcut size in the plan. Clearcuts will range in size from 2 to 10 acres but will generally be no more than 5 acres (p. 146). It should be noted that natural disturbance in these communities periodically exceeds 10 acres.</p> <p>By design, the Land Management Classification is used to allocate resources. Highly Sensitive Management Areas protect unique natural communities and biological resources. All forestry on CWMU considers ecological elements.</p>



<p>K13 - Reference is made to “district buffer considerations”, but the actual buffer distances are not given in the plan. (Individual)</p> <p>There are no suggested riparian buffer guidelines in the draft plan for minimizing disturbance. The plan should articulate the buffers that will be employed. (Vermont Natural Resources Council)</p> <p>There should be significant setbacks from streams, swamps, and wetlands. (Shrewsbury Outing Club)</p>	<p>KR13 – The ultimate objective of these guidelines is appropriate management and protection of these vital riparian areas. Objectives-based operational guidelines are considered in management of riparian areas. Because these guidelines are science-based they continue to evolve as more research is conducted and because they are objectives-based they vary by situation. They are part of the operational guidelines (i.e. den trees, snag, buffers, raptors, AMP, etc.) that are considered with all management on state land. They have been reviewed by all members of the stewardship team (including ecologists and biologists).</p>
<p>K14 - Given the unmanaged federal wilderness and other unmanaged public and private forest land in close proximity to the CWMU we suggest there already exists ample late-seral acreage and large diameter trees in the vicinity of CWMU to more than meet the needs of wildlife species and that the most unique and scarce of CWMU forest age classes and conditions is that of larger patches (>2 ha) of early seral (0-15 years) forest distributed equitably across the landscape and unassociated with residential development. (Ruffed Grouse Society)</p>	<p>KR14 – It is important to carry the full range of successional stages on a large parcel such as this one. While the Green Mountain National Forest has planned for a large area of late successional forest, species that use this forest type are found in other parts of Vermont too, including at CWMU. Similarly, some degree of early successional habitat management would be a part of this plan, regardless of the age structure of adjacent conserved and private lands.</p>
<p>K15 - The proposed management plan seems to continue the concept that most of the trees are for the taking. (Shrewsbury Conservation Commission)</p>	<p>KR15 - Inventory and analysis of all of the CWMU lands have resulted in the Land Management Classification map with activities prescribed for areas capable of supporting them. Areas designated as Highly Sensitive Management are done for a number of reasons. Vegetation management is not an objective for Highly Sensitive areas but harvesting does occur for specific purposes (exotic species control, trail maintenance, natural community restoration). Vegetation management is an important, although not the primary, objective within the Special Management Areas. Refer to comment/response CR1, CR5, CR6, KR2, KR5, LR1.</p>
<p><i>L. Wildlife Habitat Management</i></p>	
<p>L1 - The plan states that 0.2% of the forest is in mature forest habitat. I would like to see that percentage increased. (Individual)</p> <p>More sensibly, the plan should consider approaching the reference condition in the context of surrounding lands in the region and their likely management in the future. It is highly likely that investigation would show that lands in the broader region have significantly more early successional forest than the presettlement forest did, and vastly less unmanipulated mature and old growth</p>	<p>LR1 - Development of this long-range management plan included a conceptual planning process based on a regional context. CWMU is within the Southern Green Mountain biophysical region.</p> <p>Not all of the areas designated are in places that are unsuitable for forest management. The representation of state significant Northern Hardwood Forest and that for Lowland Spruce-Fir Forest are on productive soils. Refer to comment/response BR5, KR14.</p>



<p>forest. If this is so, it makes no sense at all to try to increase early successional habitat while making no significant effort to eventually produce more old-growth forest, particularly at low elevations and on productive soils. (Individual)</p> <p>The Shrewsbury Conservation Commission has long been on record for the need of more old growth forest sections. ...we also realize that these are for the most part in areas that are most unsuitable for forestry. (Shrewsbury Conservation Commission)</p>	
<p>L2 - The society questions the usage of the term mature forest. We also suggest that mature forest is far from an import habitat element to actively manage for in the sense that its distribution across the CWMU and surround landscape is significant and overwhelming in relation to other habitat types. (Ruffed Grouse Society)</p> <p>Mature Forest is not defined. Portions of the Coolidge lands that are unsuitable for timber cutting create significant mature forest conditions by default. (Vermont Traditions Coalition)</p>	<p>LR2 - Mature forest habitat is a specific forest condition that focuses on mature forest structure and function and generally coincides with dominant trees over 150 years old. The term "mature forest" is in the glossary of the final plan.</p> <p>The plan calls for an increase in the 1-15 year age class.</p>
<p>L3 - What is the definition of first successional habitat? Where do presettlement models come from? Why are the management plans for first successional forests being implemented at presettlement times when the current management practices and ecosystem make up is quite different than presettlement times? Your team is calling for a goal of 3% first succession forests. Why not 4% as the so-called presettlement estimates call for. Part of the new Agency focus is to heighten hunting opportunities on state land and if you look at other models a 5-6% or greater goal for first succession forests would be preferred for game species and many non-game species management. The first succession forests should not be cut over and over in the same areas, but cut in different areas dispersed throughout the unit and especially in areas bordering the deer yard. (Hunters, Anglers, Trappers Association of Vermont)</p> <p>ANR provides no justification for an early successional habitat management target of only 3% of CWMU lands, and fails even to</p>	<p>LR3</p> <p>The goal of early successional habitat management within CWMU is to create this habitat component throughout the General Management Area as part of the timber management program.</p>



<p>define what habitat components are considered as early successional habitat beyond the 0-15 year age class. Early successional habitat types including regenerating forest acreage, permanent openings, brushy post- agricultural acreage, and scrub-shrub wetlands comprise between 10-20 percent of the landscape to optimize early successioanl; species diversity. (Ruffed Grouse Society)</p> <p>The presettlement goal is ill advised and has no basis in logic, science or fact. This goal is already over abundantly attained by the designation of wilderness in the Green Mountain National Forest. Coolidge Land Plan staff should modify the early successional habitat percentage to create the maximum amount of early successional habitat that the Cooldige lands can sustain. (Vermont Traditions Coalition)</p> <p>The presettlement goal pays insufficient regard to the decline in wildlife species that require an early successional habitat. 20% early successional habitat management should be incorporated into this Plan. (Vermont Traditions Coalition)</p> <p>RGS reminds ANR that unspecified pre-settlement period forest ecological conditions have little bearing on contemporary resource management challenges. (Ruffed Grouse Society)</p>	
<p>L4 - The society requests revision of the Intensive Management Area associated with the Killington Ski Area to reflect the potential for regeneration of the predominantly aspen/birch communities in these areas. (Ruffed Grouse Society)</p>	<p>LR4 - As a result of the Killington Land Exchange completed in 1998, the state exchanged all of its leased land below 2500' in elevation for more than 3000 acres of black bear habitat owned by Killington within Parkers Gore in the towns of Mendon and Plymouth. The remaining leasehold land is higher in elevation and used for trail and wooded glade skiing. There are management strategies and actions for regeneration of predominantly aspen/birch communities in other lower elevation stands within CWMU. Refer to comment/response JR1.</p>
<p>L5 - The rationale for the limitation of cutting along the CCC road and Old Plymouth Road for bear movement seems dubious. (Vermont Traditions Coalition)</p>	<p>LR5 - Vermont studies on black bear road crossings demonstrate the need for adequate hiding cover proximate to roads.</p>
<p>L6 - The creation of mature spruce-fir habitat for the Cape May Warber is not justified because the lands are either on the southern edge of this bird's habitat or outside its normal habitat. (Vermont Traditions Coalition)</p>	<p>LR6 - The fact the habitat lies on the edge of the species range suggests that it is more important to maintain in order to retain the species on the property.</p>

<p>L7 - Reduction of fragmenting does not enhance wildlife health and abundance; rather non-fragmented mature forest can reduce wildlife health and abundance. Logging roads, power line right-of-ways have proven to be beneficial to wildlife, and also serve as assets to hunter/public access and future logging operations. (Vermont Traditions Coalition)</p> <p>We suggest that minimally used and unimproved forest roads necessary for current and future active vegetation management activities are of little significance to habitat fragmentation and should be retained to meet goals outlined for forest management on the CWMU. (Ruffed Grouse Society)</p>	<p>LR7 – While there are some species that do, in fact, benefit from habitat diversity, there are many other species with habitat requirements (home range, size, vulnerability to edge effects) that make fragmentation a major concern.</p>
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M. Research and Monitoring

<p>M1 - The plan should include specific budgeting techniques that will ensure that the kind of monitoring it recommends will actually take place. Ecological research should be a primary goal of the monitoring program. (Individual)</p> <p>Within CWMU, one or more areas should be specifically designated as ecological study areas. These would be in areas in the same watershed or forming a contiguous block across several topographic landscapes. This recommendation is consistent with the Shrewsbury Town Plan which calls for designation of contiguous portions of the public woodlands as a forest preserve in order to maintain viable expanse of public and private lands in natural, unmanaged natural conditions. The Department of Forests, Parks and Recreation has had before it just such a proposal since 1990. Now is the time to act on this long standing request, which is wholly compatible with the natural community focus of the plan. (Individual)</p> <p>Include a discussion of “lessons learned” from review of past timber management operations. The plan should explain how this experience and knowledge have shaped the actions proposed for the future. (Individual)</p> <p>In addition, the monitoring section should state clearly what monitoring will be conducted specifically for the CWMU timber resource; what issues and uncertainties need to be clarified; and what data will be collected.</p>	<p>MR1 - Monitoring is done at several scales from assessment of specific management activities (i.e. pre and post timber sale analysis) to annual assessment of natural process events (I.e. aerial insect, disease, and wind events). Ecological research is encouraged on Coolidge West Management Unit and licenses will continue to be granted for appropriate research studies. Monitoring is incorporated into our Annual Stewardship Plan.</p> <p>ANR staff will continue to do a great deal of monitoring of the natural communities on the CWMU. Ecological research has been conducted in some areas of the CWMU, and this use will be encouraged during the life of the plan. ANR staff will participate in any such research projects to the extent that they can.</p> <p>The monitoring section of the plan (p.78) outlines the monitoring strategy for the timber resource. Research on CWMU is encouraged and we consider research proposal from a variety of sources on a variety of topics. However proposals may not be compatible in all locations within the management unit or with ANR goals and objectives and must be considered within that context. (Text deleted)</p>
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<p>(Individual) Broaden the monitoring section to make ecological research an explicit and positive goal. Scientific study should be a rationale for inclusion of an area in HSMA or SMA, but it is conspicuous by its absence. The monitoring section twice cites "potential conflict" of research with "goals and objectives of CWMU" and with "other uses and users". Actively encourage needed ecological and silvicultural research by developing a research agenda. (Individual)</p>	
<p><i>N. Climate Change</i></p>	
<p>N1 - The plan should include as a primary goal a major contribution to the reduction of emissions of carbon dioxide and other greenhouse gases that contribute to global climate disruption. Implementation of this goal would include initiatives such as pilot timber management projects to enhance carbon sequestration and a long-term de-emphasis of carbon-emitting motorized recreation by not expanding and eventually curtailing trail systems and leases that promote carbon-emitting activities. (Individual)</p> <p>What contingency plans have been made for dealing with global climate change? (Shrewsbury Conservation Commission)</p> <p>Include a section summarizing the possible impacts of global climate change on our forests in Vermont. How will CWMU management adjust for these changes? (Shrewsbury Outing Club)</p> <p>Consider a pilot project for maximizing/ Measuring/marketing carbon sequestration, including sale of carbon credits through the new exchange or offset mechanisms now being developed. (Individual)</p>	<p>NR1 – If the most conservative current models of climate change are accurate (e.g., Iverson et al. 1999), the Coolidge West Management Unit, like the rest of the region, will experience strong impacts over the next 50-100 years. These changes may have important consequences for forest nutrient cycling, timber productivity, forest pest ecology, wildlife habitat, and our enjoyment of the forest.</p> <p>Language regarding this subject has been added to the final plan.</p>

O. Roads and access

O1 - It is stated that many roads will be gated and access restricted to motorized uses. Access during the hunting season is crucial to hunters who rely on access roads to reach more remote areas of the unit and retrieve large game such as moose, deer and bear. ...it will restrict those sportsmen with physical handicaps from enjoying their traditional, remote hunting areas and experiences. We request all roads previously open for public use remain open under this plan and opening of new roads be considered where it benefits public access. (Hunters, Anglers, Trappers Association of Vermont)

It is also stated that no further roads, motorized trails or parking areas (except one) will be allowed, but there are plans for further x-ski and hiking trails. An arbitrary ban on access and parking areas creates potential issues for the already overburdened access and parking areas, and could hinder multiple use in the future. (Hunters, Anglers, Trappers Association of Vermont)

We agree with your decision that the Old Plymouth Road parking area is adequate, and no new parking lots are needed. (Shrewsbury Outing Club)

I strongly oppose any additional parking (winter primarily) on the CCC Road and the associated snowmobile traffic. I think this is best focused on non-motorized recreation in the future. (Individual)

Gating of access road seems to indicate that public access takes a back seat to passive management. The gates to passable roads should be opened during seasonable times. (Vermont Traditions Coalition)

O2 - The CCC Road itself is too nicely maintained the last several years and we find a big increase in the speed of traffic. Another huge point is that it is utilized by large truck traffic (56000#) vehicles, often, simply to avoid having to go the long miles around. Perhaps stronger signage and some spot enforcement might work. (Individual)

If the CCC Road and TH 20 cross a bear

OR1 - Public access within CWMU is always allowed. Vehicle access is sometimes restricted. Roads within CWMU are open seasonally – all are open for walking, most are open in winter, TH 20 is always open (although unplowed in winter), and the CCC is open all year but gated during mud season to protect the road surface.

Roads (skid trails, state forest highways and truck roads) are, at times, gated or otherwise barricaded to protect the resource, to restrict Off highway vehicle travel and to protect the roads themselves. The majority of the forest management roads were designed and built as for use as winter truck roads due to wet soil conditions particularly within in the Plymbsbury basin. Upgrading them to summer use is cost prohibitive.

The plan states that should the need arise a public process would be initiated with respect to access topics.

ANR allows persons with disabilities ATV access to designated state lands. Permission is granted through permit with adequate proof of disability. The Grouse Hill South Road, a forest management truck road off of TH 20 has been designated for this use. Access for handicapped hunters can be requested by contacting the District Forestry Manager.

OR2 – The CCC Road will be maintained as a scenic corridor as well as important management access. In addition to regular maintenance of the road, the adjacent vegetation will be managed to maintain the health of those stands and to consider some vistas. The road will be kept at its current width and configuration to discourage speed. The plan also states that no more than ½ of the forestland adjacent to the CCC Road and TH #20 (within 800 feet of road) be harvested within a 10-year period as guidance within our timber management program with respect to impact on bear road



<p>corridor and CCC is also a scenic road the strategy of cutting up to 1/2 of the land within 800 feet in 10 years is inappropriate. Cutting should be significantly reduced to a lower level, or eliminated entirely to make the CCC road a true scenic corridor. (Individual)</p>	<p>crossing. Refer to comment/response LR5.</p> <p>We will seek advice from the Vermont Agency of Transportation on appropriate signage.</p>
<p>P. ATVs</p>	
<p>VASA believes that the Stewardship Team needs to address sections of the plan where ATVs were directly or indirectly referenced to include language so that the door is open if the need should arise for a Coolidge West Management Unit connector trail through non-encumbered environmentally appropriate sections of Coolidge. (Vermont ATV Sportsman's Association)</p> <p>VASA proposes "boilerplate" language to be added to all Long-Range Management Plans regarding ATV use on Agency of Natural Resources land. (Vermont ATV Sportsman's Association)</p> <p>There should be no establishment of prohibitions against ATV crossings, dogsleds, or bridge use on multi-use trails that do not include ATVs. Overall the CWMU plan needs to sound less ATV-negative and modified to reflect newer state policy regarding ATVs. (Vermont ATV Sportsman's Association)</p>	<p>PR1 – The final CWMU plan was revised to include references to the language developed by the "2004 ATV Collaborative Report and Recommendations for the Governor" which limits consideration of ATV trail crossing state land to those trails serving as a corridor link between trail systems found on adjacent private land or other public land. The criteria for considering a carefully selected connecting corridor include full site specific environmental review and evaluation, public involvement, and a designated user group agreement for use, repairs and maintenance.</p> <p>Language has been added to the final plan that outlines a process whereby ATV connector trails linking to established trails on adjacent private lands could be considered at CWMU, consistent with the 2004 ATV Collaborative recommendations.</p> <p>All references in the plan were updated to reflect this information.</p> <p>Refer also to Comment/Response OR1.</p>
<p>P1 - Would like similar language to 1.1C regarding barricading ATV access on trails within the High Peaks area; (Green Mountain Club)</p>	<p>PR1 - We will continue to barricade trails which access the high peaks area that are vulnerable to ATV activity.</p>
<p>P2 - New and increasing use of ATV's on hiking and cross-country ski trails on (former) Besseney property and continued use of ATV's and snowmobiles to Shrewsbury Peak. Do not recall any mention of enforcement or prevention of motorized vehicles in these areas. (Individual)</p> <p>My main concern is motorized vehicles in fragile areas and what to do about them. Shrewsbury Peak continues to see regular trips up the trail by snowmobiles in the winter...and ATVs in the summer. I would urge greater enforcement. (Individual)</p> <p>The Shrewsbury Conservation Commission has some concerns about the illegal use of ATVs</p>	<p>PR2 - We recognize the increasing use of trails and gated roads by off road vehicles. The plan calls for continued prevention and enforcement. (p. 41 - section 1.8a). Barricades been placed as a preventative measure on trails and roads as well as along the trail to Shrewsbury Peak. They have, in some cases, been moved or removed by people continuing to access the peak with motorized vehicles.</p> <p>Enforcement efforts are done in partnership with the Fish and Wildlife Department game wardens. Partnerships with state-wide organizations including VAST (Vermont Association of Snow Travelers) and VASA (Vermont ATV Sportsman's Association) will continue to be strengthened and must be part of the solution.</p>



<p>which has been occurring off the CCC Road. (Shrewsbury Conservation Commission)</p> <p>We strongly support greater enforcement and use of barriers to control ATVs and to prevent motorized access to Shrewsbury Peak. (Shrewsbury Outing Club)</p>	
<i>Q. Invasive, Exotic</i>	
<p>Q1 - With respect to exotic/invasive species – We would strongly encourage you to develop plans and models of certain scenarios now to mitigate the possible long term implications of invasions which seem to be fairly imminent. With the amount of watersheds in this region, we request that all natural processes be used to the fullest extent, as opposed to massive cutting (as happened with elm and chestnut) or aerial spraying of pesticides and/or herbicides. If it is deemed that these operations need to be used, we would strongly advise that the people in the region be given clear and early notification of exactly how the management teams will adjust for these changes. This means that not simply the select board should be notified. (Shrewsbury Conservation Commission)</p>	<p>QR1 – ANR conducts regular monitoring of invasive species using both aerial and ground techniques. Inventory data indicates that invasive plants are not currently a problem on CWMU. The plan calls for continued monitoring.</p> <p>An action plan is being developed by the Department of Forests, Parks and Recreation for responding to introductions of invasive species. Plan development and response to invasive pests is coordinated with partner organizations. Response to this growing ecosystem threat requires keeping current with emerging research on successful control measures.</p> <p>The plan doesn't specify use of aerial applications and we don't currently anticipate aerial spraying of herbicides or pesticides for exotic species control. If aerial spraying were to become an option ANR response would be coordinated with partner organizations including the Vermont Pesticide Advisory Council and the VT Fish and Wildlife Nongame and Natural Heritage Program. In addition, ANR would initiate an outreach process with public input and notification. The process would follow the Pesticide Use Impact Assessment developed by ANR.</p>
<p>Q2 - The potential for cowbird parasitism is underestimated. The draft speaks of proposed 10-acre clearcuts but this is at variance with page 99 which says that openings over 0.5 acres near mature forest can pose problems. How will cowbirds be controlled? Is trapping an option? All road canopies should be revegetated or kept intact and cut size reduced. (Individual)</p>	<p>QR2 – Our staff is aware of the potential threat from cowbird parasitism when clearcuts are created. This issue is a legitimate concern particularly when cuts are located proximate to preferred and occupied cowbird agricultural habitat. This potential threat can be substantially minimized when the cuts are located in the matrix of forests typical of CWMU, well beyond any agricultural lands and the ability of cowbirds to exploit the habitat.</p>
<i>Water Resources</i>	
<p>Page 152 says five streams have been studied but the chart on page 153 shows only 4. (Individual)</p>	<p>The language with respect to streams studied by DEC has been changed. There are four.</p>

January 9, 2003

Dear Friend of Coolidge State Forest:

We recently invited you to a workshop at the Shrewsbury Town Hall on December 12, 2002 to address the issues of motorized vs non-motorized winter recreation, and parking facilities to accommodate recreational visitors. The workshop was attended by 39 persons, representing the interests of neighbors, skiers, snowmobilers, and municipal officials. The attendees were divided into five groups who discussed the merits and drawbacks of eight alternatives, including six potential new parking areas. Each group was facilitated by a staff member from the Agency of Natural Resources' Pittsford Office, and the recommendations were recorded. Prior to and since that date we have received written and email communications from several persons. Summaries of the comments are attached, and are posted on the Coolidge website at www.state.vt.us/anr/fpr/lands/currentplans.htm. We have received strong support for most people for the structure and process of the workshop.

On December 9, 2002 the Pittsford District stewardship team reviewed all the comments, and discussed the impact of the desires and opinions expressed. We evaluated the input at face value, and compared it to the purposes of public land ownership, the purposes for which these particular parcels were acquired, legal and environmental constraints as well as the carrying capacity of the Coolidge State Forest for winter recreational use. As we proceed with the development of the draft management plan, we will embrace the following positions:

- We acknowledge the desirability of a significant area of land with minimal impacts by motorized vehicles.
- No existing or future parking facilities on public land will be limited to specific user groups.
- There will be no future proposals for winter recreational use parking facilities at the pavilion, on the Tin Shanty Road, or at Mandigo Meadows.
- Existing winter recreational use parking facilities on the Old Plymouth Road (TH#20) will be maintained at existing use levels, and any future modifications will be evaluated in the context of the Long Range Management Plan for Aitken State Forest.
- Any future plan for a new winter recreation use parking facility at Ninevah (Pollard) Four Corners in Plymouth would have to be evaluated on its own merits, and with formal discussions with user groups, neighbors, and the tow towns involved.
- A potential parking area to provide winter recreation use access to Coolidge State Forest on Route 100 near Killington's Northwest passage area or Woodward Reservoir poses significant environmental, legal, and physical terrain challenges due to its proximity to Parker's Gore east.

We do not see a need to meet again on this subject, but you will have another opportunity to comment when the draft plan is released. We appreciate your interest in Coolidge State Forest, and look forward to working with you in the future.

Sincerely,

Russell S. Reay, Lands Stewardship Specialist



FOR IMMEDIATE RELEASE

OPEN HOUSES ON THE COOLIDGE WEST MANAGEMENT UNIT

The Vermont Agency of Natural Resources, Pittsford District Office is sponsoring two open houses for the public to view natural resource maps and discuss the results of the resource inventories that have been recently completed on the Coolidge West Management Unit in preparation for revision of the long range management plan. Each open house will be held from **6:00-9:00 PM**. **The first open house will be held on March 12, 2002 at the Shrewsbury Town Hall in Shrewsbury Vermont and will be repeated on March 14, 2002 at the Sherburne Elementary School in Killington Vermont**

Coolidge West Management Unit is an assemblage of three state-owned parcels comprising more than 18,500 acres of state owned land located west of Route # 100 including Coolidge State Forest, Plymbsbury Wildlife Management Area and Tiny Pond Wildlife Management Area. The ownerships are located in the towns of Killington, Mendon, Ludlow, Mt Holly, Plymouth and Shrewsbury. The planning process for these parcels of land began in 1999 with resource inventories which have identified natural communities, rare threatened and endangered species, forest cover types, unique wildlife habitats, rare plant communities and sensitive areas. Recreational, cultural and historic land uses are also mapped for presentation and future analysis. General information about these lands is available at www.state.vt.us/anr/fpr/lands/coolidgewest.

The format for the two open houses will be less formal than in past public meetings on state land sponsored by the Agency of Natural Resources. The format will feature (ten) individual stations that display resource inventory findings on Geographic Information System (GIS) maps with educational information attached. There will be an opportunity at each station for unstructured interaction with foresters, biologists, and planners from the District Office who are prepared to answer questions and solicit comments about any aspect of Coolidge West Management Unit. Since there will be no formal presentation, people can attend an open house at their convenience and leave when they want to.

For more information about the open house or the planning process for the Coolidge West Management Unit please contact:

Maria Mayer
Parks Regional Manager
Vermont Department of FP&R
317 Sanitorium Road
West Wing, Pittsford, VT 05763
Telephone: 802-483-2314
Maria.mayer@anrmail.state.vt.us



November 25, 2002

Dear Friend of Coolidge State Forest:

As you are aware, we held three open houses for the Coolidge planning process last winter and spring. Over the course of the summer, the Agency of Natural Resources Stewardship Team in Pittsford reviewed all of the comments, issues and ideas received both in writing and during the open houses. We want to thank everyone who wrote letters or attended those meetings. The conflict between motorized versus non-motorized recreation, particularly in winter, was one of the most recurring issues, and one that we feel needs to be resolved before moving on to others.

We received a number of requests to designate areas where motorized and non-motorized recreation experiences would not compete. One such area in North Shrewsbury would require the discontinuance of the current parking area on the Old Plymouth Rd for motorized uses, discontinue snowmobile use of the Old Plymouth Road and the parallel "bypass trail", and establish a new parking facility for snowmobile use. Such action would not affect north-south snowmobile traffic, but would confine east-west snowmobile traffic to the CCC Road corridor, and would reduce the noise in the Old Plymouth Road corridor.

We have identified six possible locations for a new parking area, and each has attributes and limitations. The enclosed sheet is a map of these locations, and our preliminary list of pros and cons. We must emphasize that this is only our list, and the best solution may not yet be identified. We believe there are other alternatives which may come out in discussions. Every option proposed will affect snowmobilers, other recreation users, neighbors, and town officials. Any departure from the current situation will require cooperation and support from all concerned.

We invite you to a meeting at the Shrewsbury Town Hall from 7 to 9 pm on Thursday, December 12, 2002 to discuss this matter. This will be a workshop, not a traditional presentation/comment format. Please come prepared to work in small groups with persons with different interests. The groups will work with foresters and biologists, maps, and data to develop ideas in hopes of reaching consensus on this challenging subject. To help us plan for this meeting, please indicate your plan to attend by calling or e-mailing me at the Pittsford office. **(802) 492-3323**
russ.reay@anrmail.anr.state.vt.us

Sincerely,

Russell S. Reay
State lands stewardship specialist

Cc: President and trailmaster-Shrewsbury Snobirds, Plymouth Snow Sneakers, Green Mountain
Sno Flyers, Mt Holly Sno Drifters
Shrewsbury Outing Club
Catamount Trail Association
North Shrewsbury homeowners
Selectboards of Shrewsbury, Mt. Holly, Mendon, Plymouth
Shrewsbury Conservation Commission



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.

Summary of Policies and Guidelines

Some of the highlights of the many policies and guidelines used in managing Vermont Agency of Natural Resources lands are listed below. In general, these were in effect at the start of this long range management planning process. 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.

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 deer wintering areas.

Landowner's Guide to Wildlife Habitat Management, Fish and Wildlife, Fish and Wildlife, 1995 – Standards for managing 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.

Gravel Pits

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

Historic and Archeological Resources

State of Vermont laws, rules and guidelines applicable to historic and archeological resources, especially 22 V.S.A. 14 and Division for Historic Preservation's *Guidelines for Conducting Archeology in Vermont*, as well as federal laws that apply.

Land Use 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 park lands.



Pesticide Use

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

Prescribed Fire

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

Recreation

Use of State Lands, Agency of Natural Resources Policy, 1999 – Criteria for appropriate uses when permits and licenses 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 forest and parks 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 (AM) Guidelines, 1987 – Practices for maintaining water quality on logging jobs.

Wetlands Regulations, 1990 – Regulations which 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.

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.

Glossary

The following is a series of key words and their definitions used in the development of Long Range Management Plans for Vermont Agency of Natural Resource lands.

Acceptable management practices (AMPs). In this plan, a series of erosion control measures for timber harvesting operations, as identified in state statutes. The AMPs are the proper method for the control and dispersal of water collecting on logging roads, skid trails, and log landings to minimize erosion and reduce sediment and temperature changes in streams.

All-aged (Uneven-aged) system. Timber management which produces a stand or forest composed of a variety of ages and sizes. Regeneration cutting methods in this system include single tree selection and group selection.

Basal area. A measure of the density of trees on an area. It is determined by estimating the total cross-sectional area of all trees measured at breast height (4.5 feet) expressed in square feet per acre.

Best management practices. A practice or combination of practices determined to be the most effective and practicable means of preventing negative impacts of silvicultural activities.

Biodiversity. The variety of plants and animals, their genetic variability, their interrelationships, and the biological and physical systems, communities, and landscapes in which they exist.

Biophysical region. A region with shared characteristics of climate, geology, soils, and natural vegetation. There are currently eight biophysical regions recognized in Vermont.

Block. A land management planning unit.

Browse. The part of leaf and twig growth of shrubs, vines, and trees available for animal consumption.

Buffer (Riparian Buffer Zone). The width of land adjacent to streams or lakes between the top of the bank or top of slope or mean water level and the edge of other land uses. Riparian buffer zones are typically undisturbed areas, consisting of trees, shrubs, groundcover plants, duff layer, and a naturally vegetated uneven ground surface, that protect the water body and the adjacent riparian corridor ecosystem from the impact of these land uses.

Canopy. The more or less continuous cover of branches and foliage formed collectively by the crowns of adjacent trees and other woody growth.

Capability. The potential of an area to produce resources, supply goods and services, and allow resource uses under an assumed set of management practices and at a given level of management intensity. Capability depends on current conditions and site conditions such as climate, slope, landform, soils, and geology as well as the application of management practices such as silvicultural protection from fire, insects, and disease.

Cleaning (Weeding). Regulating the composition of a young stand by eliminating some trees and encouraging others, and also freeing seedlings or saplings from competition with ground vegetation, vines, and shrubs.



Clearcutting. A cut which removes all trees from a designated area at one time, for the purpose of creating a new, even-aged stand.

Commercial forest land. Land declared suitable for producing timber crops and not withdrawn from timber production by statute or administrative regulation.

Conservation. The careful protection, planned management, and use of natural resources to prevent their depletion, destruction, or waste.

Conservation easement. Acquisition of some rights on a parcel of land designed to keep the property undeveloped in perpetuity.

Cover. Vegetation which provides concealment and protection to wild animals.

Cultural operation. The manipulation of vegetation to control stand composition or structure, such as site improvement, forest tree improvement, increased regeneration, increased growth, or measures to control insects or disease. Examples of methods used are timber stand improvement, cleaning or weeding, release, and site preparation.

DBH (diameter at breast height). The diameter of the stem of the tree measured at breast height (4.5 feet or 1.37 meters) from the ground.

Deer wintering area. Forest area with at least 70 percent conifer that provides suitable, stable habitat to meet deer needs during the winter.

Den tree. A live tree at least 15 inches DBH (diameter at breast height) containing a natural cavity used by wildlife for nesting, brood rearing, hibernating, daily or seasonal shelter, and escape from predators.

Developed (or intensive) recreation. Activities associated with man-made structures and facilities that result in concentrated use of an area. Examples are campgrounds and ski areas.

Diameter at breast height (DBH). The diameter of the stem of the tree measured at breast height (4.5 feet or 1.37 meters) from the ground.

Dispersed recreation. Outdoor recreation activities requiring few, if any, support facilities.

Ecological processes. The relationships between living organisms and their environment. Among these processes are natural disturbances such as periodic fire, flooding, or beaver activity; natural stresses such as disease or insects; catastrophic weather-related events such as severe storms or lightning strikes; or more subtle ongoing processes such as succession, hydrology, and nutrient cycling.

Ecological reserve. An area of land managed primarily for long-term conservation of biodiversity.

Ecosystem. A complex array of organisms, their natural environment, the interactions between them, the home of all living things, including humans, and the ecological processes that sustain the system.



Ecosystem management. The careful and skillful use of ecological, economic, social, and managerial principles in managing ecosystems to produce, restore, or sustain ecosystem integrity, uses, products, and services over the long-term.

Endangered species. A species listed on the current state or Federal endangered species list (VSA Title 10, chapter 123). Endangered species are those which are in danger of becoming extinct within the foreseeable future throughout all or a significant portion of their range.

Even-aged system. Timber management that produces a forest or stand composed of trees having relatively small differences in age. Regeneration cutting methods in this system include clearcutting, seed tree (seed cut) method, and shelterwood method.

Forest health. Condition in which forest ecosystems sustain their complexity, diversity, resiliency, and productivity.

Forest type. A natural group or association of different species of trees which commonly occur together over a large area. Forest types are defined and named after the one or more dominant species of trees, such as the spruce-fir and the birch-beech-maple types.

Forestry. The art and science of growing and managing forests and forest lands for the continuing use of their resources.

Fragmentation. Division of a large forested area into smaller patches separated by areas converted to a different land use.

Game species. Animals habitually hunted for food, particular products, sport, or trophies.

Geographic Information Systems. A computer-based means of mapping lands and resources and communicating values associated with them (GIS).

Green certification. A process, sponsored by several international organizations, that promotes sustainable forest management practices, providing a marketplace identify for forest products certified to have been grown and manufactured in a sustainable manner.

Group Selection. The removal of small groups of trees to meet a predetermined goal of size, distribution, and species.

Habitat. A place that provides seasonal or year round food, water, shelter, or other environmental conditions for an organism, community, or population of plants or animals.

Hardwood. A broad leaved, flowering tree, as distinguished from a conifer. Trees belonging to the botanical group of angiospermae.

Healthy ecosystem. An ecosystem in which structure and functions allow the maintenance of the desired conditions of biological diversity, biotic integrity, and ecological processes over time.

Heritage Sites. Sites identified by the Vermont Nongame and Natural Heritage Program of the Department of Fish and Wildlife, which have rare, threatened, or endangered species of plants or animals. Heritage sites are identified using a common standards-based methodology, which



provides a scientific and universally applicable set of procedures for identifying, inventorying, and mapping these species.

Intensive (or developed) recreation. Outdoor recreation activities requiring major structures and facilities.

Interior dependent species. Those wildlife species that depend on large unbroken tracts of forest land for breeding and long term survival. The term is also often used in conjunction with neotropical migratory bird species requiring large patches of fairly homogeneous habitat for population viability.

Intermediate treatment. Any treatment or tending designed to enhance growth, quality vigor, and composition of the stand after its establishment or regeneration and prior to the final harvest.

Land conservation. The acquisition or protection through easements of land for wildlife habitat, developed state parks, and working forests.

Landscape. A heterogeneous area of land containing groups of natural communities and clusters of interacting ecosystems. These can be of widely varying scales but normally include a range of elevations, bedrock, and soils.

Mast. The fruit (including nuts) of such plants as oaks, beech, hickories, dogwood, blueberry, and grape, used for food by certain wildlife species.

Mature Forest. A specific forest condition that focuses on mature forest structure and function and generally coincides with dominant trees over 150 years old.

Motorized use. Land uses requiring or largely dependent on motor vehicles and roads.

Multiple-use forestry. Any practice of forestry fulfilling two or more objectives of management, more particularly in forest utilization (e.g. production of both wood products and deer browse).

Multiple-use management. An onsite management strategy that encourages a complementary mix of several uses on a parcel of land or water within a larger geographic area.

Native (species). A plant or animal indigenous to a particular locality.

Natural Area. Limited areas of land, designated by Vermont statute, which have retained their wilderness character, although not necessarily completely natural and undisturbed, or have rare or vanishing species of plant or animal life or similar features of interest which are worthy of preservation for the use of present and future residents of the state. They may include unique ecological, geological, scenic, and contemplative recreational areas on state lands.

Natural community. An assemblage of plants and animals that is found recurring across the landscape under similar environmental conditions, where natural processes, rather than human disturbances, prevail.

Nongame species. Animal species that are not hunted, fished, or trapped in this state. This classification is determined by the state legislature.



Northern hardwood. Primarily sugar maple, yellow birch, and beech. May include red maple, white ash, white birch, black cherry, red spruce, and hemlock.

Old growth forest. A forest stand in which natural processes and succession have occurred over a long period of time relatively undisturbed by human intervention.

Outdoor recreation. Leisure time activities that occur outdoors or utilize an outdoor area or facility.

Overstory. That portion of the trees, in a forest of more than one story, forming the upper or upper-most canopy layer.

Passive Management. Management strategies that do not include timber management as a primary objective, however, vegetation management for the control of invasive exotic species, natural community species restoration, and recreation may be considered.

Pole. A tree of a size between a sapling and a mature tree.

Pole timber. As used in timber survey, a size class definition; trees 5.0 to 8.9 inches (varies by species) at DBH. As used in logging operations, trees from which pole products are produced, such as telephone poles, pilings, etc.

Regeneration treatment (harvest cut). Trees are removed from the stand to create conditions that will allow the forest to renew or reproduce itself. This is accomplished under either an even-aged management system or an uneven-aged management system. The four basic methods used to regenerate a forest are clearcutting, seed-tree, shelterwood, and selection (group selection or single tree selection).

Regeneration methods. Timber management practices employed to either regenerate a new stand (regeneration cutting) or to improve the composition and increase the growth of the existing forest (intermediate treatment).

Regulated Hunting/Fishing/Trapping. The harvest of wildlife under regulations stipulating setting of seasons, time frame of lawful harvest, open and closed zones, methods of take, bag limits, possession limits, and reporting or tagging of species.

Release (release operation). The freeing of well-established cover trees, usually large seedlings or saplings, from closely surrounding growth.

Removal cut. The final cut of the shelterwood system that removes the remaining mature trees, completely releasing the young stand. An even-aged stand results.

Salvage Cutting. The removal of dead, dying, and damaged trees after a natural disaster such as fire, insect or disease attack, or wind or ice storm to utilize the wood before it rots.

Sanitation cutting. The removal of dead, damaged, or susceptible trees to improve stand health by stopping or reducing the spread of insects or disease.

Sapling. As used in timber surveys, a size class definition. A usually young tree larger than seedling but smaller than pole, often 1.0 to 4.9 inches at DBH.



Seedling. A very young plant that grew from a seed.

Seed-Tree (Seed Cut) method. The removal of most of the trees in one cut, leaving a few scattered trees of desired species to serve as a seed source to reforest the area.

Shelterwood method. A series of two or three cuttings which open the stand and stimulate natural reproduction. A two cutting series has a seed cut and a removal cut, while a three cutting series has a preparatory cut, a seed cut, and a removal cut.

Silvicultural systems. A management process whereby forests are tended, harvested, and replaced, resulting in a forest of distinctive form. Systems are classified according to the method of carrying out the fellings that remove the mature crop and provide for regeneration and according to the type of forest thereby produced.

Single tree selection method. Individual trees of all size classes are removed more or less uniformly throughout the stand to promote growth of remaining trees and to provide space for regeneration.

Site Preparation. Hand or mechanical manipulation of a site, designed to enhance the success of regeneration.

Snag. Includes standing dead or partially dead trees that are at least 6 inches in diameter at breast height (DBH) and 20 feet tall.

Softwood. A coniferous tree. Softwood trees belong to the botanical group gymnospermae, including balsam fir, red spruce, and hemlock.

Stand improvement. An intermediate treatment made to improve the composition, structure, condition, health, and growth of even or uneven-aged stands.

Stewardship. Caring for land and associated resources with consideration to future generations.

Sustainability. The production and use of resources to meet the needs of present generations without compromising the ability of future generations to meet their needs.

Sustained yield. The yield that a forest can produce continuously at a given intensity of management.

Thinning. Removing some of the trees in a dense immature stand primarily to improve the growth rate and form of the remaining trees and enhance forest health.

Threatened species. A species listed on the state or Federal threatened species list. Threatened species are those likely to become endangered within the foreseeable future throughout all or a significant portion of their range.

Timber lands. Properties that are managed primarily for the maximum production of forest products.



Timber Stand Improvement. Activities conducted in young stands of timber to improve growth rate and form of the remaining trees.

Traditional uses. Those uses of the forest that have characterized the general area in the recent past and present, including an integrated mix of timber and forest products harvesting, outdoor recreation, and recreation camps or residences.

Uneven-aged (All-aged) system. Timber management which produces a stand or forest composed of a variety of ages and sizes. Regeneration cutting methods in this system include single tree selection and group selection.

Watershed. The geographic area within which water drains into a particular river, stream, or body of water. A watershed includes both the land and the body of water into which the land drains.

Weeding (cleaning). Regulating the composition of a young stand by eliminating some trees and encouraging others, and also freeing seedlings or saplings from competition with ground vegetation, vines, and shrubs.

Wilderness. Areas having pristine and natural characteristics, typically roadless and often with some limits on uses. (This is not the federal definition of wilderness.)

Wildlife habitat. Lands supplying a critical habitat need for any species of wildlife, especially that which requires specific treatment and is of limited acreage.

Working forest. Land primarily used for forestry purposes but also available for recreation, usually where both managed land and land not presently being managed is present.

Working landscape. A landscape dominated by land used for agricultural and/or forestry purposes.

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