

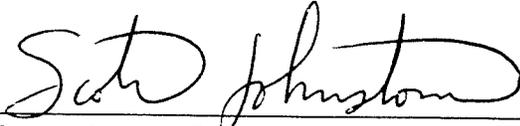
STATE OF VERMONT  
AGENCY OF NATURAL RESOURCES  
DEPARTMENT OF FORESTS, PARKS AND RECREATION

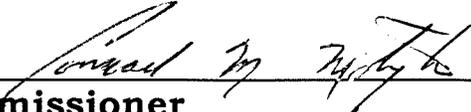


**TOWNSHEND STATE FOREST  
LONG RANGE MANAGEMENT PLAN**

**Prepared by: Springfield Stewardship Team**  
*Contributors listed on backside*

**May 2002**

Approved:  9/6/02  
Secretary of the Agency of Natural Resources Date

Approved:  Aug 28, 2002  
Commissioner Date

**Townshend State Forest  
Long Range Management Plan**

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VERMONT AGENCY OF NATURAL RESOURCES  
DEPARTMENT OF FORESTS, PARKS AND RECREATION  
District I  
Townshend State Forest Long Range Management Plan

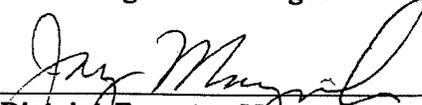
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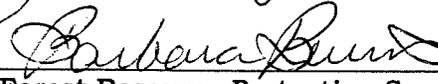
  
Stewardship Specialist

  
Parks Regional Manager

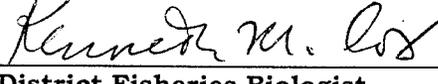
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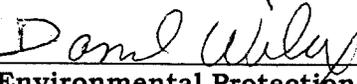
  
District Forestry Manager

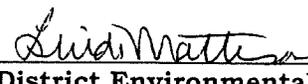
District Review:

  
Forest Resource Protection Specialist

  
District Wildlife Biologist

  
District Fisheries Biologist

  
Environmental Protection Regional Engineer

  
District Environmental Coordinator - ASSISTANT

Central Office:

Nongame & Natural Heritage Program

Director of Lands Administration

Director of Forests

Director of Parks and Recreation

Commissioner of Forests, Parks & Recreation

# 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, native plants, 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, trapping, fishing, 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 and Fisheries management activities are directed at protecting and enhancing wildlife habitat for species needing to be conserved as well as those of public interest and utilization.

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

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

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

**Historical/Cultural and Scenic Values:** Agency lands are managed to be sensitive to historical, cultural, and scenic values. Due to protection under state and federal regulations, sites of archaeological significance are equal in status to legal constraints applicable to the lands.

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

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

## **I. MISSION STATEMENTS**

### ***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, 2001-2005)

Four agency goals address the following:

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

### ***Appropriate Department(s)***

#### **Vermont Department of Environmental Conservation**

Mission Statement - 2001-2005

*To preserve, enhance, restore, and conserve Vermont's natural resources, and protect human health, for the benefit of this and future generations.*

---

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

Mission Statement - 2001-2005

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

---

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

Mission Statement - 2001-2005

*The mission of the Department of Forests, Parks, and Recreation 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.*

---

## II. PARCEL DESCRIPTION

### A. Location/Size Information with Maps

Townshend State Forest consists of a 1,095-acre parcel located entirely within the town of Townshend, Vermont. The entire property is on the steep north-facing slope of the West River Valley. Approximately 18 acres of the parcel is designated as Townshend State Park. Access to the state park is provided by Town Highway #4, a gravel road paralleling the West River. The state park is located at the base of Bald Mountain's north face.

The entire parcel (including the park) is located within the Southern Green Mountains biophysical region very near its boundary with the Southern Vermont Piedmont. Its climate, geology, and its landscape place it better into the Southern Vermont Piedmont because its location along the West River Valley allows more moderation of climate than would otherwise be true within the Southern Green Mountains.

- Locator-Biophysical Region Map
- Topographic with boundaries
- Area base map
- Ortho Photo

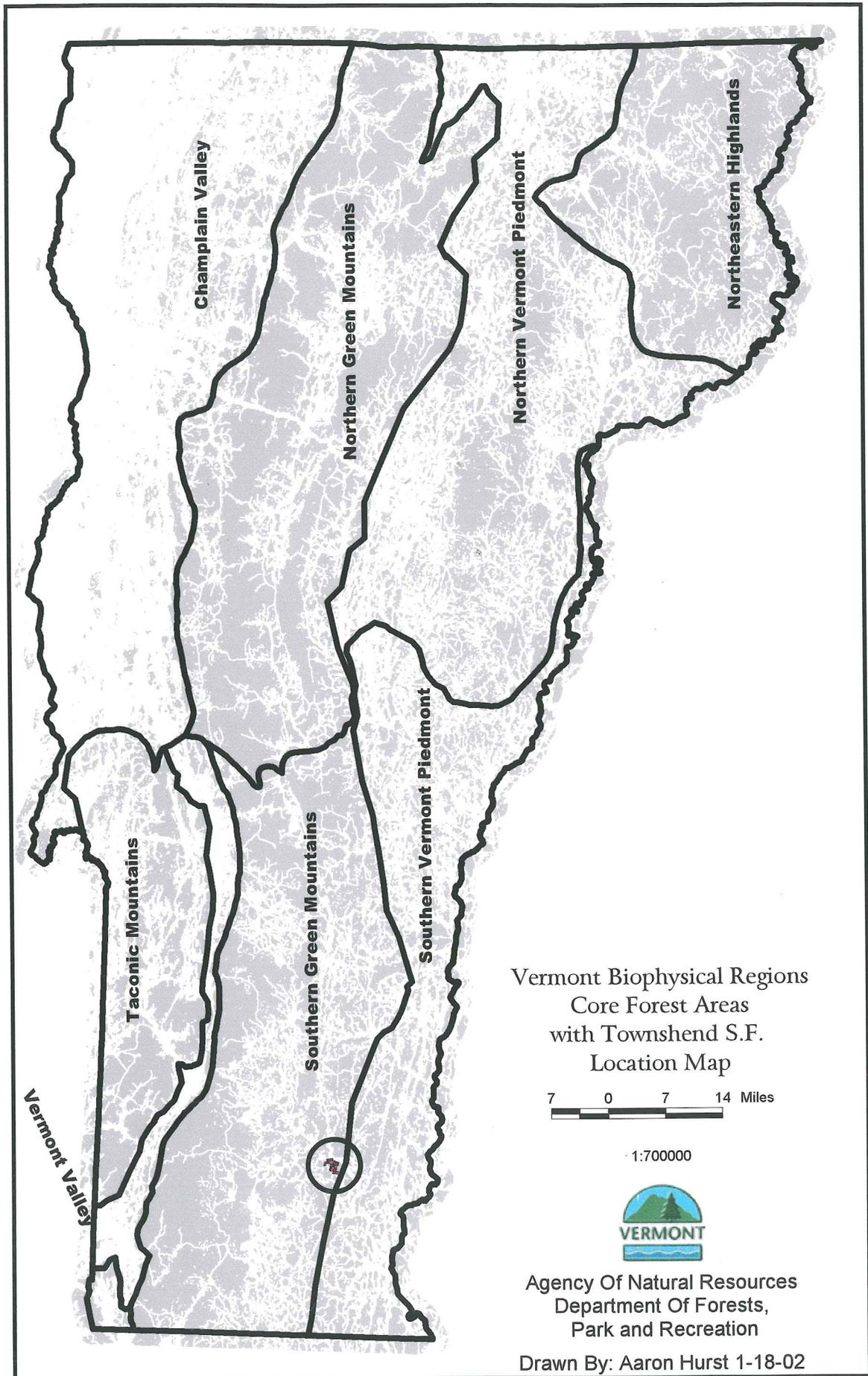
### B. Natural Resource Highlights

The dominant feature, the West River, lies along the northern boundary of the property. A relatively large stream, Negro Brook, bisects the parcel north to south. Other small streams bisect the property and flow into either the West River or into Fair Brook. Bald Mountain is the highest feature at 1,680 feet.

Fifteen of the 80 natural community types recognized in Vermont have been identified on the property. Hemlock Forest and Northern Hardwood Forest cover most of the land area of Townshend State Forest. Smaller natural community types such as Temperate Acidic Outcrops and wetlands are imbedded in these forests. Five wetland natural community types occur here and total 10 acres. There is one beaver-influenced wetland on the property.

The property contains one example of the Poor Fen and one example of the River Cobble Shore natural community types. These are both very rare natural communities, with few occurrences statewide. Further study of these two communities is needed to determine if they are significant on a statewide basis.

A large Hemlock Forest and sections of a Hemlock-Northern Hardwood Forest provide approximately 550 acres of deer wintering habitat, covering nearly 50 percent of the parcel. The Dry Oak Forest at the top of Bald Mountain could function as concentrated fall feeding habitat for bear.



Green's rush *Juncus greenii*, a state endangered plant, occurs on Temperate Acidic Outcrops at Townshend State Forest. Pursh's Bulrush *Scirpus purshianus*, an uncommon to rare plant, occurs in shallow emergent marshes associated with beaver activity.

### **C. Land Use History/Cultural Resources**

To better understand the natural community types found within Townshend State Forest, it is important to become familiar with its history. Similar to much of Vermont, the lands contained within the state forest once had an agricultural focus. Much of the land was cleared for pasture or crops. Stonewalls, cellar holes, and old roads (Buck Hill Road and Scott Road) are evidence of such a past. White, red, and Scotch pine plantations were established on once-open land. Even many natural white pine stands began on old pastures. A walk through the forest, especially near stonewalls and cellar holes, may reveal trees with large spreading crowns, evidence that they began in an area with much space and light. It is important to remember these facts when considering natural community types.

### **D. Recreation Resources**

Approximately 18 acres of the parcel is designated as Townshend State Park which contains 30 camp-tent sites and 4 lean-tos. "Primitive camping" is allowed within the state forest outside of the campground area when done according to specific state regulations.

The Bald Mountain Hiking Trail, rising from an elevation 472 feet to 1,680 feet, offers a rigorous hiking experience to hikers. Snowshoeing and cross-country skiing are also popular here.

The property offers excellent deer hunting along with black bear, grouse, and turkey. The West River, Townshend Lake, and Fair Brook provide local fishing opportunities.

There are opportunities for swimming and boating on the nearby Townshend Lake Project on the West River which is managed by the U.S. Army Corps of Engineers.

### **E. Timber Resources**

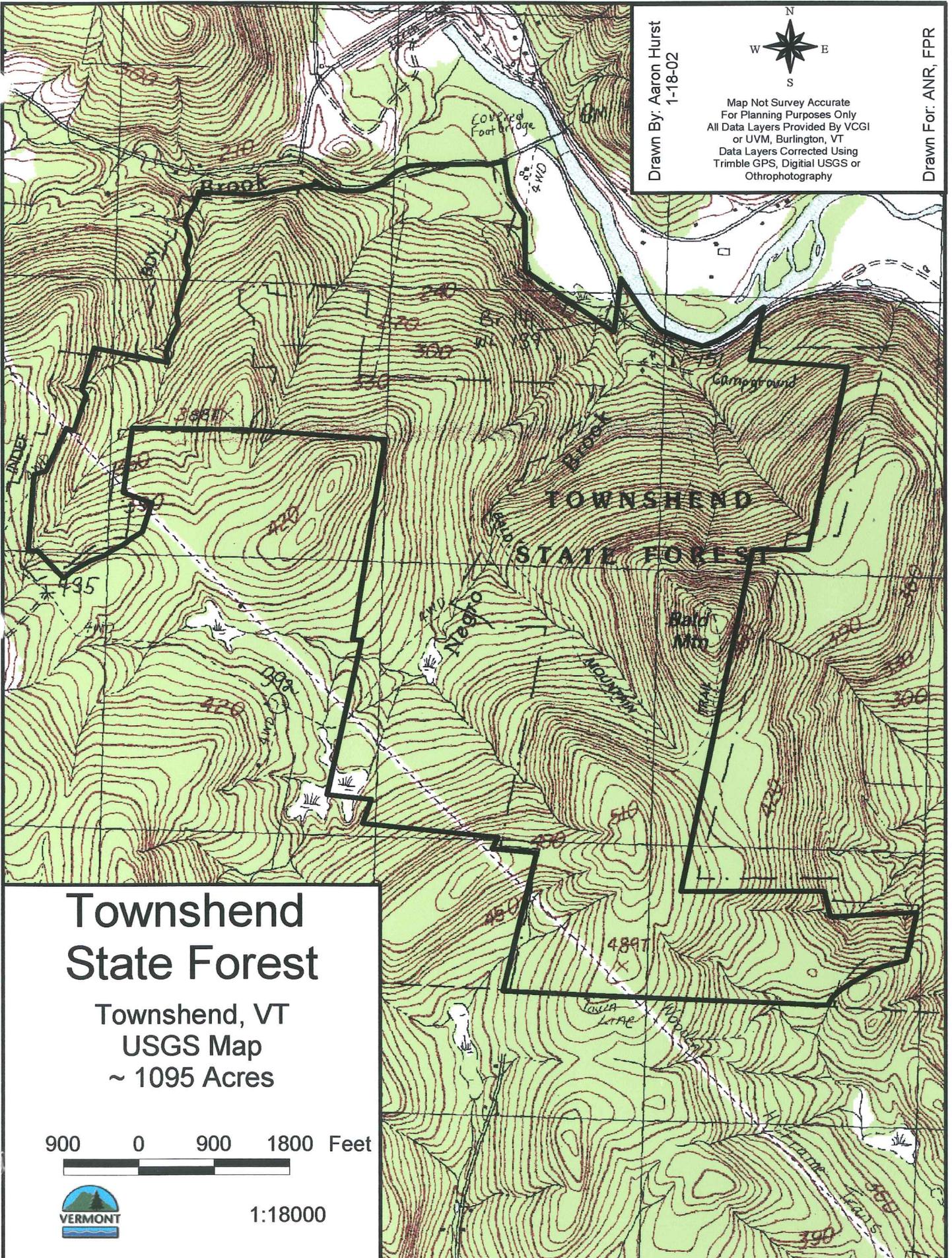
Townshend State Forest is one of the oldest parcels of state land in this region. Most of the trees found in the productive areas are about 90 years old. A commercial clearcut occurred in 1911 resulting in the establishment of hardwood saplings before the state took ownership. Because of good soil productivity and moderate slopes, good timber growth potential exists on about 75 percent of the parcel.

Drawn By: Aaron Hurst  
1-18-02



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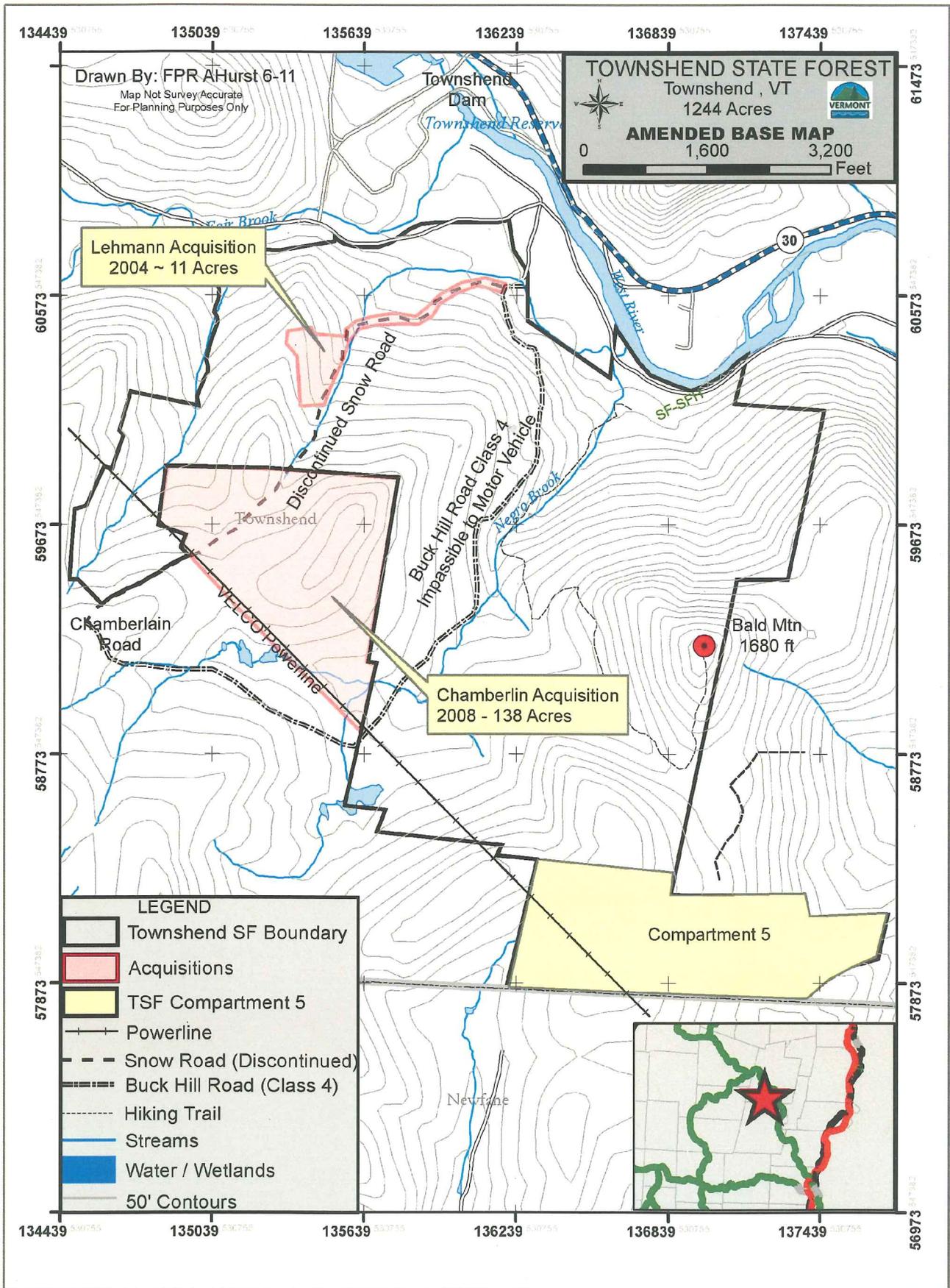
# Townshend State Forest

Townshend, VT  
USGS Map  
~ 1095 Acres

900 0 900 1800 Feet



1:18000



# Townshend State Forest Townshend, Vermont

~ 1095 Acres

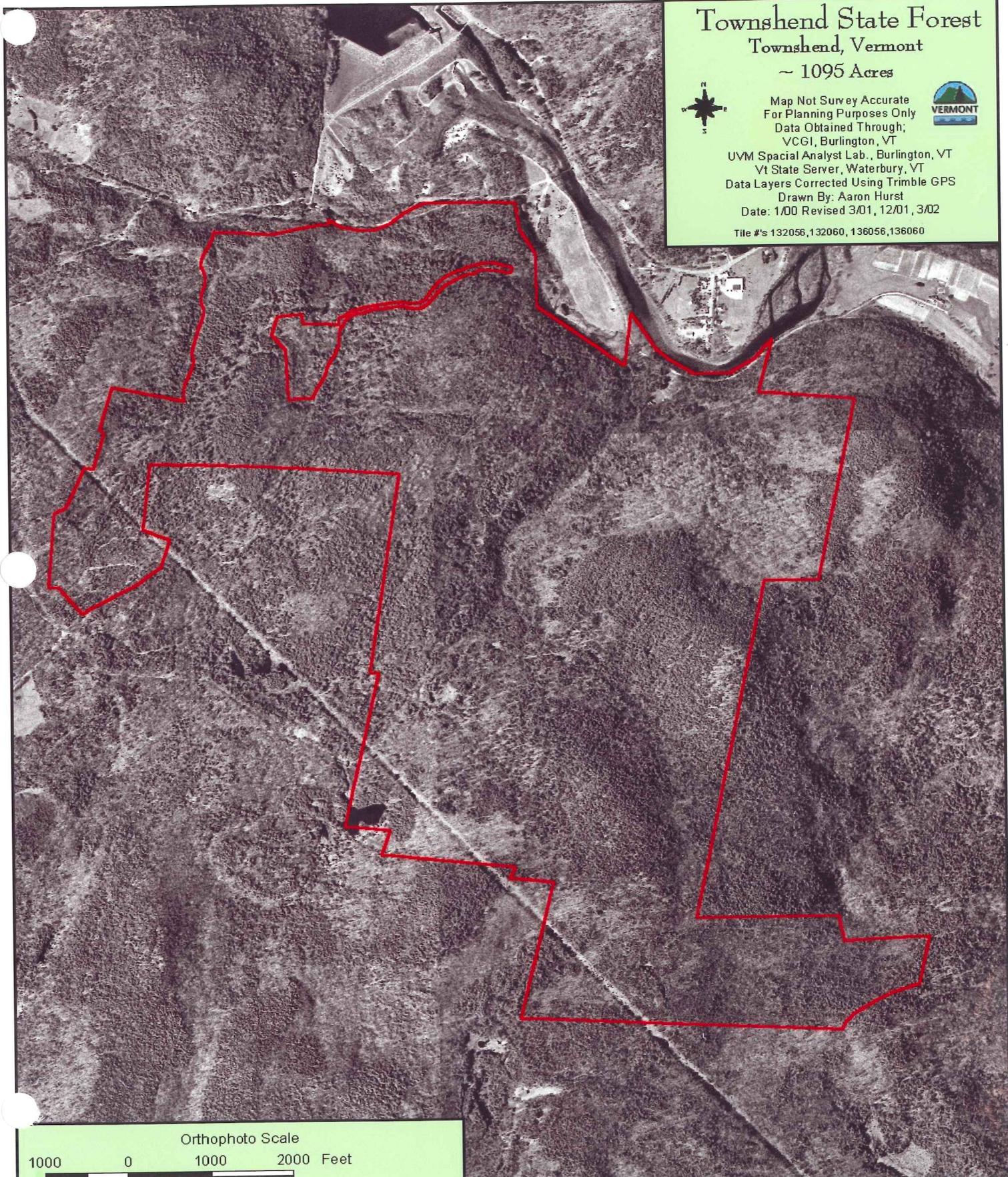


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Drawn By: Aaron Hurst  
Date: 1/00 Revised 3/01, 12/01, 3/02

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Orthophoto Scale

1000 0 1000 2000 Feet



The state began active forest management in the 1950s when the trees began to become marketable. Timber management goals for this parcel are sustainable yields, improved timber quality, and improved carrying capacity of the deer wintering area. Long-term goals for timber include the creation of a balanced distribution of age classes and improved species composition. These are accomplished over a 150-year rotation through many series of three-to five-acre patchcuts. The areas selected for timber management are currently in good health and provide good examples of sustainable forest management techniques.

## **F. Acquisition History**

Townshend State Forest was incorporated into the state forest system in 1912 with the acquisition of the 700-acre Tibbets and Grout lots (*see map on page 39*).

The state forest acreage increased in 1920 with the 4-acre Dauchy Purchase on the West River, in 1964 with acquisition of the 142-acre Lane lot, and again in 1995 with the acquisition of the 239-acre Myerson lot creating the present size of 1,095 acres.

## **G. Legal Constraints, Funding Issues** (*see Appendix A for more details*)

The following legal constraints apply to the Townshend State Forest. Some of the constraints may not still be exercised:

- Velco power line.
- One rod right-of-way granted to Alonzo and Eva Chamberlain.
- Two rod strip of land over the old Scott Road to an 11-acre parcel now owned by the Town of Townshend. The original deed provided owner of parcel must build and maintain suitable fences.
- Spring rights granted to a private residence in 1912 and 1926.
- Conservation easement on Meyerson parcel held in perpetuity by Vermont Housing and Conservation Board

## **H. Purpose for Ownership**

All management objectives and actions in this plan have been developed in collaboration with the Vermont Department of Fish and Wildlife and other departments within the Agency of Natural Resources. Specific objectives that will guide this plan will be:

- Protection of unique, fragile, and scenic resources.
- Maintenance of opportunities for a quality recreation experience.
- Protection and enhancement of critical wildlife habitat.
- Preservation of historic remains.
- Provision of access to property for public enjoyment.
- Demonstration of state-of-the-art wildlife, timber management techniques, and techniques to protect water quality in timber harvesting practices so these techniques may find broader application on private lands.

## **I. Relationship to the Region**

The Long Range Management Plan for the Townshend State Forest is consistent with the Rural Lands, Natural Resources and Community Resources policies within the existing Regional Plan developed by the Windham Regional Commission.

The State Forest is located within a “resource district” identified by the Townshend Town Plan as an area with “high natural, recreational, scenic values, or substantial limitations for development. Resource lands generally have poor access to improved public roads and should be used primarily to protect resource values and perpetuate the settlement patterns which have traditionally characterized such lands.” The state forest also helps to “maintain and enhance recreational opportunities for Townshend residents and visitors.”

Townshend State Forest is a part of a local wildlife habitat planning project initiated by COVERTS volunteer David Clarkson. The project is referred to as the Wildlife Habitat Improvement Group (WHIG) and is made up of 42 landowners owning more than 4,600 acres of land, including the state forest. The goals of the project encourage the state and private landowners to coordinate more closely with each other to identify, protect and conserve important wildlife habitat while also using those habitats for educational and demonstration purposes.

## **J. Future Acquisition/Disposition**

It is the state’s policy to acquire new lands (or interests in lands) necessary for maintaining or enhancing the integrity of existing state holdings, lands such as inholdings and other parcels that serve to consolidate or connect existing state holdings and contain important public values, facilitate public access to agency lands, or that meet a program need for the Agency of Natural Resources. Any future acquisition opportunities near Townshend State Forest will require consultation with both the Town of Townshend and the Windham Regional Commission.

### **III. PUBLIC INPUT**

The public involvement process for Townshend State Forest began in 2002 when the Springfield District Stewardship Team consulted the town selectboard and the regional planning commission informing them that the planning process was underway. A special website was also established for this effort.

On April 24, 2002, an advertized public input meeting to discuss all aspects of the management on Townshend State Forest was held at the Leland and Grey High School in Townshend, Vermont using the open house format. The district staff displayed the draft plan with a series of panels. The public was able to discuss different aspects with individuals at each panel. No comments were made at this meeting. A 30-day public comment period followed the public meeting. People were encouraged to respond by letter, or by e-mail directly to the Stewardship Specialist responsible for developing the LRMP.

After the 30-day public comment period, only one comment had been received. That comment suggested a brief overview at the start of the public input meeting might have been helpful otherwise thought the process was quite educational and suggested it be taken to the schools.

See appendix for additional information, i.e. newspaper articles and welcome handout with focus questions.

## IV. RESOURCE ANALYSIS

### A. Ecological Assessment

Scientific evidence and on-the-ground land management experience have shown that a clear understanding of the biological resources present on public lands is essential if we are to manage those lands effectively. Accordingly, the Agency of Natural Resources has made the inventory and mapping of biological diversity a centerpiece of its long range management planning efforts. Unfortunately, it is difficult to accurately map the biological diversity of a parcel of land such as Townshend State Forest. Field workers cannot possibly visit all areas of a parcel of land of this size. Of the thousands of organisms known to occur in Vermont, only a small percentage (including taxonomic groups such as mammals and birds) lend themselves to easy identification and classification. And, the processes that affect species distribution (natural processes, such as nutrient cycling and ice storm damage to trees, and human induced processes, such as habitat fragmentation and acid rain deposition) may not be easily measured.

Despite these obstacles, we believe that most species occurring at Townshend State Forest (including those we are not aware of) can be conserved through a two-tiered approach emphasizing inventory and management of ecological assemblages or natural communities, as well as individual species, populations and habitats. To this end, the Agency employs a lands inventory tool known as the "coarse filter/fine filter" model. First landscape-level features such as bedrock geology and natural communities are inventoried; this coarse filter is expected to catch most biological diversity. A "fine filter" inventory then focuses on smaller ecological features such as individual populations of rare plants and significant wildlife habitats. The coarse filter/fine filter model is currently the best model for the protection of biodiversity.

#### 1) **Coarse Filter Assessment**

Biophysical Region and Climate - The 1,095-acre Townshend State Forest is located within the Southern Green Mountains biophysical region very near its boundary with the Southern Vermont Piedmont (*see Location map*). While on a map this distinction may be clear, the character of the forest, its climate, geology, and its landscape place it better into the Southern Vermont Piedmont. Its location along the West River valley allows more moderation of climate than would otherwise be true within the Southern Green Mountains.

Bedrock and Surficial Geology and Soils - Surficial deposits in Townshend State Forest include glacial till, outwash, and kame terrace. Outwash contains well-sorted sands and gravels and is found along the northern boundary of the state forest along the banks of the West River. A kame terrace deposit, composed of sands and gravels, is also located at the northern boundary. The majority of the parcel is covered by a thin layer of glacial till over underlying bedrock. Wetlands that have been identified on the state forest occur on mucky or peaty organic soils.

The bedrock includes a variety of schists and gneisses on the southern flanks of the Athens Dome structure. The metamorphic rocks are composed mainly of quartz, micas, and feldspar. This bedrock does not provide an available source of calcium, an important nutrient for plant growth.

There are ten mapped soil types (USDA Soil Survey) for Townshend State Forest (*see Soils Map Section V*). Three of the more common soils on the parcel include Rawsonville-Hogback (rocky, steep, shallow), Houghtonville-Rawsonville (moderately deep to very deep), and Worden loam (somewhat poorly drained, deep). These soils are rated moderate to very high, depending on species, for production of trees. The summits and high elevations are the only areas that do not support good tree growth. The most limiting factor throughout this forest is the extremely steep slopes. However, a variety of other plants are adapted to growing where soils do not support vigorous tree growth.

Hydrology/Streams/Rivers - The hydrology of the area in and around Townshend State Forest helps to influence the development of some of the natural communities found there. A floodplain forest and a Rivershore Grassland are associated with the West River which flows along the northern boundary of the parcel. This large river buffers the lower areas of Townshend State Forest from the harshest winter weather.

Negro Brook has its headwaters in the southeast corner of Townshend State Forest, and flows into the West River. At lower elevations the steep slopes associated with this brook contribute to the establishment of Hemlock Forests. In the southwest corner of the property a Shallow Emergent Marsh occurs where Negro Brook is dammed by beavers. Several unnamed streams flow from the property into the West River. Five Vernal Pools and a Poor Fen occur where water movement is impeded by bedrock at Townshend State Forest.

Natural Community Types - A natural community is composed of an interacting assemblage of organisms, and the physical context—geology, hydrology, climate, natural disturbance regime, etc.— in which they occur. The 80 natural community types described in Vermont repeat across the landscape in patches of various sizes. When two or more unconnected patches occur near each other, they often function as a unit: elevation, hydrology, and geology are similar, organisms move back and forth between the patches, and natural disturbances affect them similarly. Natural community patches of this sort are considered to be a single occurrence of the natural community type. Thus, an occurrence of a natural community type may be composed of one to many patches or polygons.

Twenty-three occurrences of fifteen natural community types have been identified and mapped at Townshend State Forest (*see Natural Communities Map*). A total of 47 natural community and 1 water body polygons were mapped. Natural communities were identified through

aerial photograph interpretation, systematic FOREX inventory, and collection of global positioning system (G.P.S.) data on the ground. A Geographic Information System (G.I.S.) map of natural communities was produced using ArcView software. Because some natural communities occur at very small scales (e.g., less than  $\frac{1}{4}$  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 Townshend State Forest; instead, it should be treated as a first attempt at describing natural communities in this area. Land managers should keep in mind that additional examples of small natural communities (e.g., Vernal Pools and Outcrops) probably occur at Townshend State Forest. As subsequent inventories and site visits are conducted, this map will be improved.

# Townshend State Forest

Townshend, Vermont

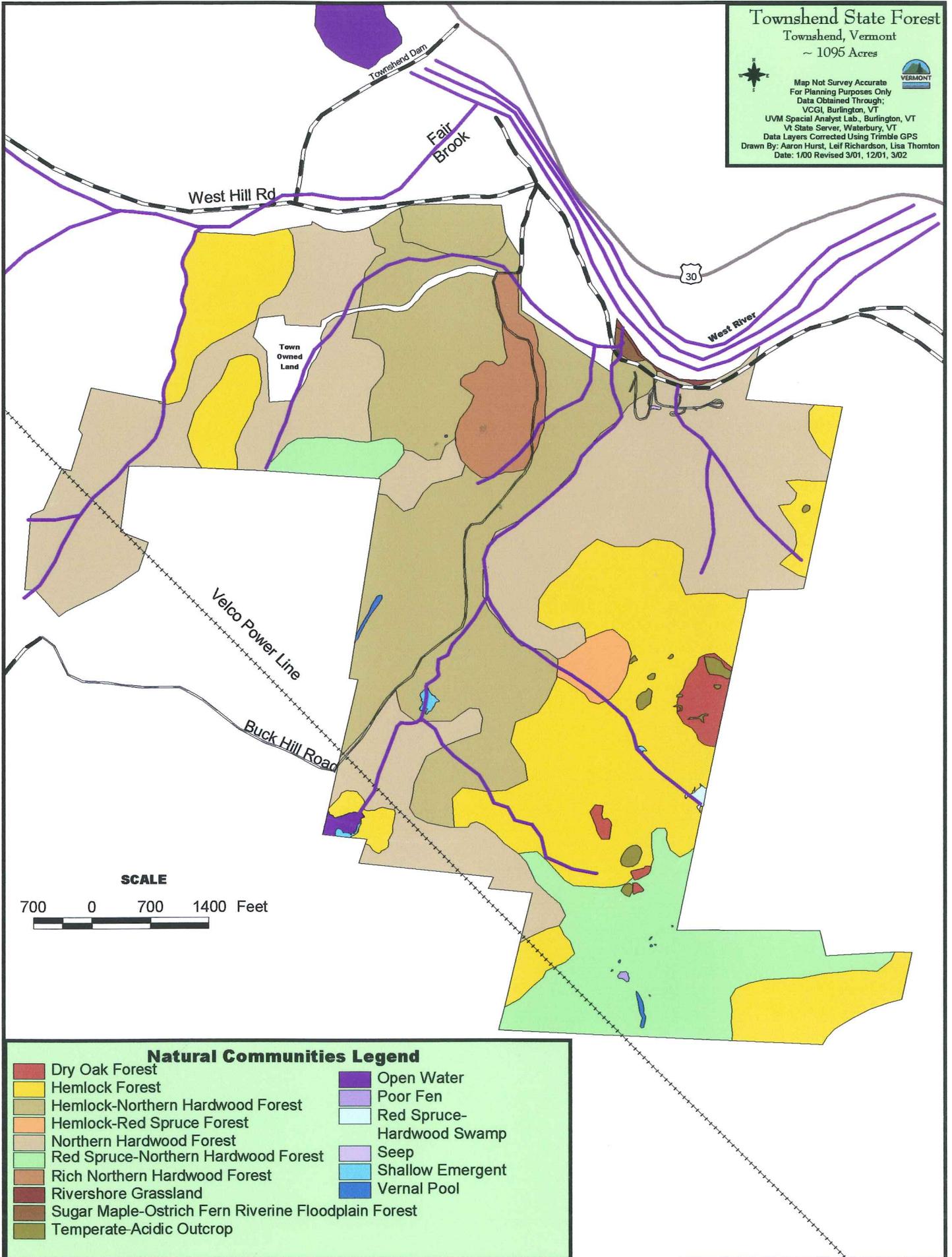
~ 1095 Acres



Map Not Survey Accurate  
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UVM Spatial Analyst Lab., Burlington, VT  
Vt State Server, Waterbury, VT  
Data Layers Corrected Using Trimble GPS  
Drawn By: Aaron Hurst, Leif Richardson, Lisa Thornton  
Date: 1/00 Revised 3/01, 12/01, 3/02



## Natural Communities Legend

- |   |                           |
|---|---------------------------|
| Dry Oak Forest                                      | Open Water                |
| Hemlock Forest                                      | Poor Fen                  |
| Hemlock-Northern Hardwood Forest                    | Red Spruce-Hardwood Swamp |
| Hemlock-Red Spruce Forest                           | Seep                      |
| Northern Hardwood Forest                            | Shallow Emergent          |
| Red Spruce-Northern Hardwood Forest                 | Vernal Pool               |
| Rich Northern Hardwood Forest                       |                           |
| Rivershore Grassland                                |                           |
| Sugar Maple-Ostrich Fern Riverine Floodplain Forest |                           |
| Temperate-Acidic Outcrop                            |                           |

Following is a description of all natural community types identified at Townshend State Forest. For each community type, the unique identifying numbers of all polygons on the map are given. If more than one polygon constitutes a natural community occurrence, this information is given. Polygon numbers are not displayed on the natural communities map, but they are available upon request. A quality rank (A through D) for each natural community occurrence is given. Quality ranks are objectively assigned on the basis of occurrence size, quality, and landscape context. 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. Detailed descriptions of these natural communities may be found in *Wetland, Woodland, Wildland: A guide to the Natural Communities of Vermont*, by Eric Sorenson and Elizabeth Thompson.

## **Description of Natural Communities**

### 1) *Northern Hardwood Forest*

Polygons 15, 16, 17, 18, 19 (B-ranked when considered part of the surrounding landscape, which is largely forested with this natural community type)

Northern Hardwood Forest is the most widespread community type at Townshend State Forest. The five mapped polygons are all part of a large expanse of Northern Hardwood Forest that surrounds the state park. Most of the 389 acres in the park are found at lower elevations on steep slopes, often downhill from Hemlock Forests. An average soil profile includes a 3-5" organic layer, 2-4" sandy organic soil, and 6-12" sandy loam, under which is bedrock. In typical stands, the canopy is dominated by sugar maple (*Acer saccharum*), American beech (*Fagus grandifolia*), yellow birch (*Betula allegheniensis*), and red oak (*Quercus rubra*). Other commonly occurring trees include red maple (*Acer rubrum*), white ash (*Fraxinus americana*), black birch (*Betula nigra*), hemlock (*Tsuga canadensis*), and red spruce (*Picea rubens*). In mature examples of this community type, dominant trees are 55-70' tall, and canopy closure ranges from 70-90%. The shrub layer usually includes striped maple (*Acer pennsylvanica*) and smaller individuals of the canopy species listed above.

Herbaceous vegetation is sparse; common species include wild sarsaparilla (*Aralia nudicaulis*), Canada mayflower (*Maianthemum canadense*), intermediate woodfern (*Dryopteris intermedia*), Christmas fern (*Polystichum acrostichoides*), shining clubmoss (*Lycopodium lucidulum*), painted trillium (*Trillium undulatum*), and several species of violets (*Viola* sp.). The variability of this natural community on the site has not been studied.

### 2) *Rich Northern Hardwood Forest*

Polygon 25 (B)

A single occurrence of this community measuring 36 acres was found on a steep north-facing slope in the northwest corner of the forest. There is little sign of human disturbance and some of the trees are very large, indicating that the stand is probably over 150 years old. The organic soil layer is deep and rich, and there are many boulders and bedrock outcrops on the ground. This community is likely influenced by mineral-rich bedrock, however Vermont Geological Survey maps for this area do not distinguish between bedrock here and in other parts of the State Forest. The 65' canopy is dominated by sugar maple (*Acer saccharum*), yellow birch

(*Betula allegheniensis*), red oak (*Quercus rubra*), and American basswood (*Tilia americana*). Mountain maple (*Acer spicatum*) and red-berried elder (*Sambucus pubens*) are common in the sparse shrub layer. The dense, diverse herb layer is characterized by jack-in-the-pulpit (*Arisaema triphyllum*), plantain-leaved sedge (*Carex plantaginea*), blue cohosh (*Caulophyllum thalictroides*), maidenhair fern (*Adiantum pedatum*), silvery spleenwort (*Athyrium thelypteroides*), sweet cicely (*Osmorhiza claytonii*), wild ginger (*Asarum canadense*), spring beauty (*Claytonia caroliniana*), and Virginia waterleaf (*Hydrophyllum virginianum*). One rare species was found at this site.

3) *Red Spruce-Northern Hardwood Forest*

Polygons 23 (C), 24 (B)

Two examples of this forest type cover 130 acres at Townshend State Forest. They occur on shallow, well-drained soils on gentle slopes. Trees are 55-65' tall, and canopy closure is 80-90%. Dominant species are red spruce (*Picea rubens*) shares the canopy with hardwood species, including sugar maple (*Acer saccharum*), red maple (*Acer rubrum*), yellow birch (*Betula allegheniensis*), and American beech (*Fagus grandifolia*). Herbs include starflower (*Trientalis borealis*), wood sorrel (*Oxalis acetosella*), Canada mayflower (*Maianthemum canadense*), and swollen sedge (*Carex intumescens*).

4) *Hemlock Forest*

Polygons 5, 6, 7, 8, 9 (one C-ranked occurrence); 10, 11 (one D-ranked occurrence)

Hemlock Forests occur throughout the parcel on steep slopes where soil is shallow. Seven hemlock stands total 310 acres in area, and form two separate occurrences. Most (70-95%) trees in the canopy are hemlock (*Tsuga canadensis*), and total canopy cover is high, ranging from 80 to nearly 100%. Scattered hardwoods include sugar maple (*Acer saccharum*), American beech (*Fagus grandifolia*), and yellow birch (*Betula allegheniensis*). Little light penetrates the dense evergreen canopy, so shrub and herb layers are very sparse. Herbs include marginal woodfern (*Dryopteris marginalis*), wood sorrel (*Oxalis acetosella*), and partridgeberry (*Mitchella repens*). Where large areas of bedrock emerge in Hemlock Forests, Temperate Acidic Outcrops natural communities often form. Dry Oak Forest occurs above some examples of Hemlock Forest, where soils are especially shallow and droughty.

5) *Hemlock-Northern Hardwood Forest*

Polygons 12, 13 (one B/C-ranked occurrence)

Hemlock-Northern Hardwood Forests are similar to Northern Hardwood Forests, but hemlock occupies a significant part of the canopy. One large occurrence at Townshend State Forest (268 acres) occurs adjacent to Northern Hardwood Forest and Hemlock Forest. Most of the community occurs on steep, moderately well drained loamy glacial till soils. A 15-acre portion occurs on a deep, gently sloping, well drained sandy loam terrace along the lower reaches of a stream. This polygon (#13) has been mapped separately from the rest of the community (polygon #12) because it is currently a mature white pine (*Pinus strobus*) and Scotch pine (*Pinus sylvestris*) plantation. Despite the soil differences, understory tree and herb species indicate that in time this forest will be similar to the rest of the Hemlock-Northern Hardwood Forest.

6) *Hemlock-Red Spruce Forest*

Polygon 14 (C/D)

Hemlock-Red Spruce Forest occupies approximately 12 acres along the upper reaches of Negro Brook on moderately steep (15-35%) west-facing slopes. The deep loamy glacial till soils are relatively poorly drained, and boulders are frequent on the forest floor. Mature hemlock (*Tsuga canadensis*) and red spruce (*Picea rubens*) occupy most of the canopy; large, mature white pine (*Pinus strobus*) and hardwoods including yellow birch (*Betula alleghaniensis*), black birch (*Betula nigra*), white ash (*Fraxinus americana*), and big-toothed aspen (*Populus grandidentata*) are occasional in the canopy. Canopy trees are 70' tall, and canopy closure is 85%. Mountain maple (*Acer spicatum*) occupies a sparse shrub layer, and sparse herbs include wild sarsaparilla (*Aralia nudicaulis*), shining clubmoss (*Lycopodium lucidulum*), Canada mayflower (*Maianthemum canadense*), Indian cucumber (*Medeola virginiana*), and long beech fern (*Thelypteris phegopteris*). Additional patches of this community may occur in the areas of Townshend State Forest currently mapped as Hemlock Forest and Hemlock-Northern Hardwood Forest.

7) *Dry Oak Forest*

Polygons 1, 2, 3 (one D-ranked occurrence), 4 (B)

There are 13 acres of Dry Oak Forest near the summits of Bald Mountain and an unnamed peak to the south. The 11 acre occurrence on Bald Mountain is of relatively high quality, and the second occurrence (composed of three small polygons) is of lower quality. These Dry Oak Forests are characterized by a stunted (25-30'), sparse (55-70% cover) canopy of red oak (*Quercus rubra*) and white pine (*Pinus strobus*). A grassy understory covers nearly all of the forest floor, and includes hair grass (*Deschampsia flexuosa*), oat grass (*Danthonia spicata*), panic grass (*Panicum lanuginosum*), rice grass (*Oryzopsis asperifolia*), woodland sedge (*Carex pennsylvanica*), bracken fern (*Pteridium aquilinum*), Canada mayflower (*Maianthemum canadense*), wild sarsaparilla (*Aralia nudicaulis*), and wild oats (*Uvularia sessilifolia*). Several invasive species were noted, including sheep sorrel (*Rumex acetosella*) and yarrow (*Achillea millefolium*).

8) *Temperate Acidic Outcrop*

Polygons 32, 33 (one B-ranked occurrence), 34, 35, 36, 37, 38, 39, 40, 41, 42 (one B-ranked occurrence), 43 (D)

Temperate Acidic Outcrops occur throughout Townshend State Forest on steep slopes at higher elevations. Three occurrences composed of twelve polygons covering a total of four acres were mapped. There are probably more polygons, and perhaps additional occurrences, that have not been located. Temperate Acidic Outcrops form where large areas of bedrock emerge from the ground. Most examples are 75-100' diameter openings in the surrounding canopy, but some are much smaller. They have little or no canopy cover, but stunted trees are occasionally present, including red oak (*Quercus rubra*) and red cedar (*Juniperus virginiana*). Shrubs present include striped maple (*Acer pennsylvanica*) and low sweet blueberry (*Vaccinium angustifolium*). Characteristic herbs are bracken fern (*Pteridium aquilinum*), Canada mayflower (*Maianthemum canadense*), wild sarsaparilla (*Aralia nudicaulis*), hair grass (*Deschampsia flexuosa*), panic grass (*Panicum lanuginosum*), pink corydalis (*Corydalis sempervirens*), and various mosses and lichens. A state-listed endangered species, Green's rush (*Juncus greenei*), was found in one of the outcrop communities (polygon #35). This rare plant is known from only one other site in Vermont, in the West River valley several miles downstream from the park. It may occur on other Temperate Acidic Outcrops at Townshend State Forest.

9) *Rivershore Grassland*

Polygon 26 (C)

A narrow strip of Rivershore Grassland occurs along the West River at the north boundary of the state forest. This is an open, densely vegetated assemblage on a rocky alluvial terrace at the water's edge. The dominant plants in this community are herbaceous perennials capable of withstanding regular floods and winter ice scour disturbance events. Scattered woody species include speckled alder (*Alnus incana*), meadowsweet (*Spiraea alba*), and shrubby sycamore (*Platanus occidentalis*). The diverse herb layer is dominated by bluejoint grass (*Calamagrostis canadensis*), manna grasses (*Glyceria striata*, *G. melicaria*), panic grass (*Panicum clandestinum*), reed canary grass (*Phalaris arundinacea*), riverbank wild rye (*Elymus riparius*), joe pye weed (*Eupatorium maculatum*), boneset (*Eupatorium perfoliatum*), false nettle (*Boehmeria cylindrica*), Jerusalem artichoke (*Helianthus tuberosus*), and sensitive fern (*Onoclea sensibilis*). A number of invasive species were found here, including purple loosestrife (*Lysimachia terrestris*) and Japanese knotweed (*Polygonum cuspidatum*). A number of rare species previously found in other Rivershore Grasslands along the West River were not found here.

10) *Sugar Maple-Ostrich Fern Riverine Floodplain Forest*

Polygon 31 (C/D)

This one-acre floodplain forest abuts the Rivershore Grassland near the West River. It is regularly flooded by the river; the road that bounds it may also be a source of disturbance. The forest canopy is dominated by sugar maple (*Acer saccharum*), white ash (*Fraxinus americana*), and slippery elm (*Ulmus rubra*); other trees present include butternut (*Juglans cinerea*), sycamore (*Platanus occidentalis*), and basswood (*Tilia americana*). Blue beech (*Carpinus caroliniana*) forms a dense subcanopy, and mountain maple (*Acer spicatum*) and dogwood (*Cornus* species) are present in the shrub layer. Two species of vines, Virginia creeper (*Parthenocissus quinquefolia*) and riverbank grape (*Vitis riparia*) are common. Herbs include jack-in-the-pulpit (*Arisaema triphyllum*), zigzag goldenrod (*Solidago flexicaulis*), ostrich fern (*Matteuccia struthiopteris*), toothwort (*Cardamine diphylla*), swollen sedge (*Carex intumescens*), and bottlebrush grass (*Elymus hystrix*).

11) *Red Spruce-Hardwood Swamp*

Polygon 22 (B/C)

This swamp is perched on a bench between the summits of bald mountain and the unnamed peak to its south. It measures two acres in area, about half of which is on private land adjacent to the state park. A wooden sign along the Bald mountain trail identifies this as "Alder Swamp". The soil here is a deep (>3' in places) organic muck. The substrate is characterized by low, wet hollows and drier raised hummocks. The relatively open (50-60%) canopy is dominated by red spruce (*Picea rubens*) and red maple (*Acer rubrum*); yellow birch (*Betula allegheniensis*) and hemlock (*Tsuga canadensis*) are also present. Mountain holly (*Nemopanthus mucronata*), speckled alder (*Alnus incana*), and winterberry holly (*Ilex verticillata*) occur in the well-developed shrub layer. The diverse herb layer contains plants characteristic of wet, acidic conditions such as cinnamon fern (*Osmunda cinnamomea*), Canada mayflower (*Maianthemum canadense*), starflower (*Trientalis borealis*), goldthread (*Coptis groenlandica*), fowl mannagrass (*Glyceria canadensis*), blue flag iris (*Iris versicolor*), three-seeded sedge (*Carex trisperma*), and various sphagnum and other mosses. Tip-ups and downed logs are abundant here.

12) *Seep*

Polygon 27 (D)

One small seep was identified near the ranger station at the Townshend State Forest campground. Soils are mucky and organic here, and saturated with water much of the year. Vegetation is dominated by plants characteristic of seeps, including spotted touch-me-not (*Impatiens capensis*) and rough-stemmed sedge (*Carex scabrata*). The hydrology of this small natural community may be affected by the buildings and trails around it.

13) *Vernal Pool*

Polygons 44, 45, 46, 47 (one B-ranked occurrence), 48 (B)

Five Vernal Pools were identified on the property, four of them on a shelf on the east face of the unnamed peak south of Bald Mountain. These occur in small basins where bedrock impedes the flow of water. The pools fill with water in spring, but may be dry most of the year. Pools are shaded by the canopy of the conifer-hardwood forests in which they are imbedded, and contain leaves, branches, and other plant parts. There is little or no vegetation in these pools, but they are important habitat for amphibians. Given the small size and ephemeral nature of Vernal Pools, future surveys may locate additional examples at Townshend State Forest.

14) *Poor Fen*

Polygon 21 (B/C)

A 1 acre Poor Fen was mapped in the southern portion of the parcel near the summit of an unnamed peak south of Bald Mountain at an elevation of 1600 feet. Surrounded by ledge, it sits in a small, isolated depression, and has a very sluggish stream running into it. Like bogs, this Poor Fen contains deep (>3') peat soils; however, unlike them, it receives small amounts of mineral enrichment from ground water flow. The community is open, with scattered, stunted red maple (*Acer rubrum*), yellow birch (*Betula allegheniensis*), and red spruce (*Picea rubens*). The ground is entirely covered by mosses and forbs; the most common plants are peat mosses (*Sphagnum magellanicum* and *S. fallax*). This is a rare community in Vermont.

15) *Shallow Emergent Marsh*

Polygons 28 (B), 29 (C/D), 30 (C/D)

Three examples of this community were mapped at Townshend State Forest. Two are associated with damming activities by beavers and people, and the third occurs along a tributary of Negro Brook along the trail to Bald Mountain. Soils are mucky and organic, but occasionally contain lenses of alluvium deposited by associated streams. All are dominated by shrubby and herbaceous plants, among them steplebush (*Spiraea tomentosa*), meadowsweet (*Spiraea alba*), dwarf raspberry (*Rubus pubescens*), turtlehead (*Chelone glabra*), cinnamon fern (*Osmunda cinnamomea*), sensitive fern (*Onoclea sensibilis*), northern bugleweed (*Lycopus uniflorus*), touch-me-not (*Impatiens capensis*), and a sedge (*Carex gynandra*). The two examples influenced by damming appear to be stable; however, with changes in hydrology (such as breeching of a dam) other natural communities could take the place of these marshes.

## 2) Fine Filter Assessment

- a. Rare, Threatened, and Endangered Species - Greene's rush (*Juncus greenet*), a state-listed endangered plant, was found on a Temperate Acidic Outcrop in the state forest. There is only one other known occurrence of this plant in Vermont, approximately 8 miles downstream on the West River. The plant may occur on other acidic outcrops in the valley, including those at Townshend State Forest. The plant should be sought where ever suitable habitat is known to occur. As a precaution, Temperate Acidic Outcrops Townshend State Forest should not be disturbed by management activities, including those conducted in the adjacent forest.
- b. Critical Wildlife Habitats - Three critical habitat elements were located and mapped on Townshend State Forest (*see Critical Wildlife Resources Map*).

Deer wintering habitat is the largest and most widespread critical habitat element on Townshend State Forest. Deer wintering areas are mapped in most of the hemlock forests and cover approximately 550 acres, nearly 50% of the parcel.

Two additional critical habitat types exist in the form of wetlands and the oak stand at the summit of Bald Mountain.

- c. Wildlife - A wide variety of wildlife is found on this forest which includes all species typically found in the southern Green Mountains. This area is most noted for the large West River deer wintering area which extends from Londonderry to the Connecticut River (*see Appendix D*). Townshend State Forest and its immediate environs (10 square miles) is 90% forested.

- 1) *Bear* - In Vermont, bear are distributed along the length of the Green Mountain Range and in the remote areas of northeastern Vermont. This area functions as core bear habitat which supports the bulk of Vermont's population of cub-producing females. Good bear habitat includes a mixture of mature hardwoods and softwoods, concentrations of mature bear-scarred beech and oak, abandoned farmlands, small forest openings, forested wetlands, and mountain terrain. This parcel is on the eastern edge of the core bear range. Beech and oak are relatively minor components in this forest; however, the oak concentrated at the summit of bald Mountain could function as concentrated fall feeding habitat for bear (*see Bear Habitat Map*).

The VELCO transmission line (150 feet wide) crosses 4,356 feet of Townshend State Forest in a remote, relatively inaccessible area which provides considerable edge, grasses, raspberries, etc. and generally adds diversity to the habitat. During the 1999 inventory there was evidence of bear activity under this power line.

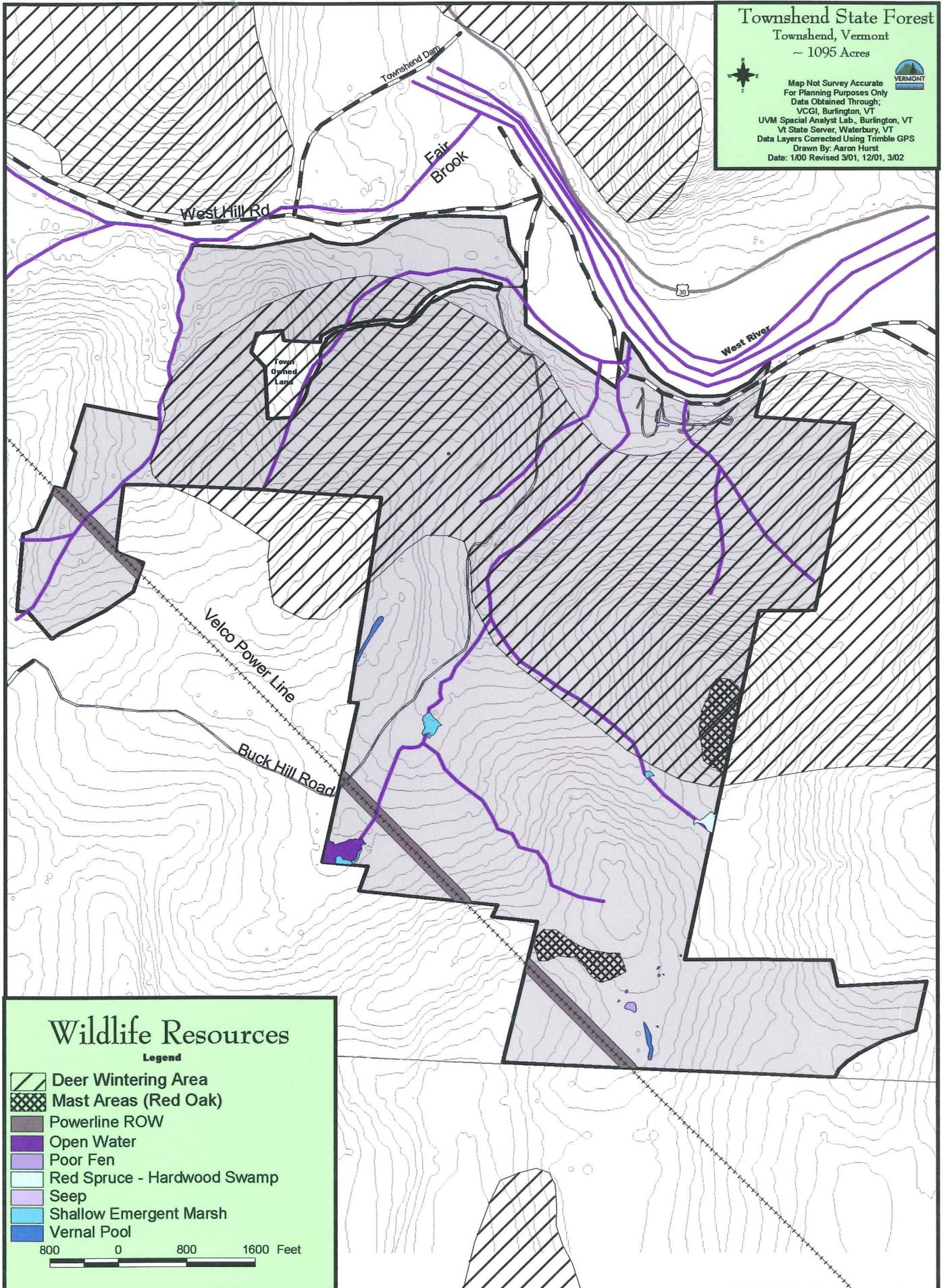
- 2) *Deer* - White-tailed deer is an extremely adaptable species found in all Vermont towns, but are more abundant in southern and central regions. The summer home range of deer is approximately 640 acres. There is a considerable amount of data available discussing summer and winter range which this document is not prepared to discuss. The Vermont Department of Fish and Wildlife has divided the state into management units based on elevation and biophysical regions. This parcel is located in Management Unit Q, the most southeasterly unit in Vermont. Most of this parcel is mapped as critical deer wintering area.
- 3) *Turkey* - This forest bird prefers mature hardwood stands of mast producing trees such as beech, oak, hickory, cherry, hophornbeam, and white ash. Together, beech and oak only comprise 6.1% of the trees in the main canopy on Townshend State Forest. White ash accounts for an additional 5%. Hickory is not a component on this forest, and black cherry is scarce. Hophornbeam does occur at the upper elevations of Bald Mountain and red oak is more prevalent here also. Ferns and sedges, another winter mast source, are common along the wetlands and streams.
- 4) *Grouse (Partridge)* - This upland bird is closely associated with early successional tree species such as aspens and birches. Superior grouse habitat contains three critical age classes of forest (0-10, 10-25, and 25+ years) all located within a 10 to 15 acre area. There is very limited aspen on this parcel, however birches, mostly black birch, make up 21% of the main crown canopy.

# Townshend State Forest

Townshend, Vermont  
~ 1095 Acres



Map Not Survey Accurate  
For Planning Purposes Only  
Data Obtained Through:  
VCGI, Burlington, VT  
UVM Spatial Analyst Lab., Burlington, VT  
VT State Server, Waterbury, VT  
Data Layers Corrected Using Trimble GPS  
Drawn By: Aaron Hurst  
Date: 1/00 Revised 3/01, 12/01, 3/02



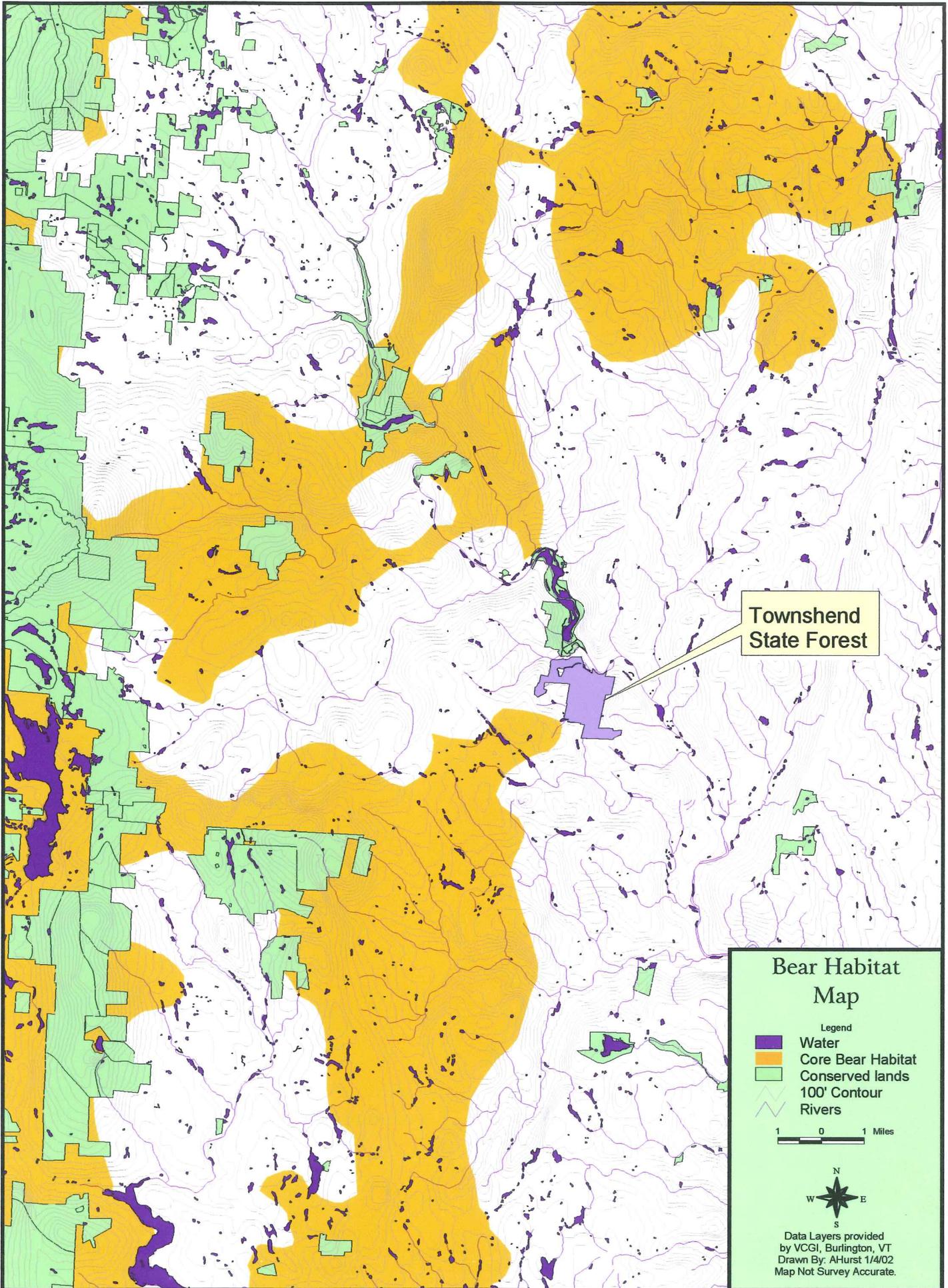
## Wildlife Resources

Legend

-  Deer Wintering Area
-  Mast Areas (Red Oak)
-  Powerline ROW
-  Open Water
-  Poor Fen
-  Red Spruce - Hardwood Swamp
-  Seep
-  Shallow Emergent Marsh
-  Vernal Pool

800 0 800 1600 Feet





- d. Fish - The West River, adjacent to the northern border of Townshend State Forest, supports a varied fish community, including sport and nongame species. Smallmouth bass is perhaps the most notable and abundant game fish in this section of the river, although one or more species of trout may be encountered below Townshend Dam during the cooler months of the year. Negro Brook has yet to be inventoried for fish community composition; however, given that its physical habitat fits into the category of a small, high elevation, cold, headwater stream, this stream probably supports brook trout and possibly slimy sculpin. Nearby Fair Brook with its larger drainage area has a more diverse fish community (6+ species), including wild populations of brook and brown trout. Townshend Lake is stocked annually with catchable-size rainbow trout which also may be occasionally encountered below the dam.

Since the early 1980s the West River has provided habitat for three anadromous fishes (Atlantic salmon, American shad, sea lamprey) which prior to that time had become extirpated from the upper Connecticut River basin, including the West River system. A cooperative, multi-state and federal agency supported program to restore anadromous fishes to the Connecticut River basin has been in place since the early 1970s. Salmon fry are stocked annually into suitable habitat throughout the West River watershed. A fish trapping facility is located immediately below Townshend Dam for the purpose of capturing and relocating returning adult salmon to spawning habitat in the upper basin. The river is also accessible to returning adult shad and lamprey. Salmon and lamprey are known to have spawned in the section of the West River adjacent to the state forest.

### **3) Other Quality of Habitat Concerns**

- a. Non-native Species - Although no exotic species of plants or animals are known to be of significant impact on Townshend State Forest, several exotic species may become important within the current planning period. The Asian insect, hemlock wooly adelgid, is spreading northward, and is currently within thirty (30) miles of this property. It is expected to cause dieback and mortality of hemlock trees, especially on exposed sites or where the soil is shallow. Ground application of pesticides and introduction of bio-control agents are the only strategies currently being used to manage this insect where it is already established.

Several exotic woody plant species are invasive elsewhere in Windham County and may impact regeneration efforts.

There are many known exotic species of plants on this property, but most are not considered invasive or problematic. Natural communities with high abundance and variety of exotics include the Rivershore Grassland, Dry Oak Forest, and Temperate Acidic Outcrops.

- b. Core Forest - Although 90% of the lands surrounding Townshend State Forest are forested, adjacent roads and developments fragment core forest habitat. Assuming a 300 foot zone of impact along roads and openings (results in increased predation on songbirds, infiltration by exotic plants, and increased cowbird populations). Parts of Townshend State Forest function as core forest, and efforts should be made to limit “perforations.” New roads should only be constructed if and where they are necessary to meet management objectives. In these instances, they should be narrow as possible, temporary in nature, and only in area’s less sensitive to human disturbance.
- c. Wildlife Movement Corridors - No record of black bear crossings or motor vehicle collisions exists for any of the roads directly adjacent to or surrounding Townshend State Forest; however, there are road crossings documented in the adjacent towns of Jamaica and Newfane. The property is juxtaposed on the northeastern edge of the black bear core habitat (*see Bear Habitat Map*). Bear core habitat extends to the south and west of the state Forest, and efforts should be made to maintain connectivity to core habitats in adjacent towns. The top of Bald Mountain is a likely fall feeding area for bears in the area, and the maintenance of corridors would ensure access to this critical fall food resource. No permanent roads or developed recreational facilities should be constructed in areas that would restrict movements by bears from the core habitat into the fall feeding areas on Townshend State Forest. The known amphibian breeding sites on Townshend State Forest are already in protection zones so recolonization corridors are already protected.

## **B. Land Use History**

Although human occupation of the region along the lower Connecticut River and its tributaries predates Euro-American settlement by several thousand years, there are no known Native American sites located within Townshend State Forest.

History of the last 200 years has had three dominant phases. The first phase (1780-1850) is generally considered an agricultural age exemplified by the subsistence farm and small scale craft industries. According to historic records, there was a small cluster of dwellings on the upper reaches of Negro Brook including a school. These dwellings were all located along the Buck Hill Road, a class 4 town road that bisects the Townshend State Forest. Much of the land along the Buck Hill Road and in Townshend State Forest (with the exception of the steepest terrain) was cleared for agricultural purposes in the early 1800s.

The second phase of local Euro-American history (1850-1900) brought a period of land abandonment of the steep hill farms immediately after the Civil War. Much of the marginal agricultural land that made up the steep slopes of the West River Valley along with any remaining structures were deserted during the mass migration of farmers out of Vermont and the fields began to revert to woodland.

The third phase of historical development (1900-1990s) is characterized by land acquisition by the state and a period of land conservation and development of the state park. When the state forest was acquired in 1912, the remnants of old fields abandoned after the Civil War were planted to white, red, and Scotch pine in 1913-1915.

Records indicate that in 1927 a small public camping area was available at the park with nearly 1,000 visitors registering. In 1971 most of the old CCC picnic area was converted to campsites. Currently, the campground contains a total of 34 sites.

During the Depression, a Civilian Conservation Corps (CCC) camp was based in the campground. The CCC laid out the present picnic and camping areas in 1934. In 1938 tent platforms were built, the parking area was enlarged, and extensive landscaping was done. The CCC also constructed a stone house and steel fire tower on the summit of Bald Mountain. The house was built from stone quarried in the forest. Although the fire tower was removed in 1949, the park campground has changed little since construction except for updating the water and sanitary facilities.

Two other relatively recent events which have impacted the forest are the 1927 flood and the 1938 hurricane. Both events involved high water which caused serious erosion and/or completely destroyed road systems.

### **C. Recreational Assessment**

- 1) Townshend State Park** - is located about ½ hour drive from Brattleboro and Bellows Falls, the two most populated towns in Windham County. Although the town of Townshend is classified as rural, VT Route 30 has a substantial traffic flow due to its proximity to I-91 and access to several major ski areas. Townshend is readily available to more than 30 million people living in southern New England and the mid-Atlantic states.

Currently, the campground contains a total of 34 sites. Four of these sites include Green Mountain lean-tos and nine of the sites include tent platforms. There is no designated group area; however, affiliated groups are accommodated at tent sites and charged the appropriate group rate. *(See photos in appendix).*

The campground is situated in a wooded area comprised of a mature mixed forest stand (birch, ash, maple, white pine, hemlock, and spruce).

The overall experience at this park is as follows: Interaction between users is relatively low except during peak usage days. The setting appears natural but with occasional evidence of other users.

- 2) **Hiking Trails** - The forest offers nearly 3.5 miles of trail and class IV town road for hiking, snowshoeing, and cross-country skiing. With just 63 miles of managed trails on public land in Windham County, this property provides an important hiking resource.

The main hiking trail is the **Bald Mountain Trail** which leads to the summit of Bald Mountain (elevation 1,680') where excellent views are provided of the West River Valley. The trail is approximately 1.7 miles in length one way and has a vertical climb of 1,100 feet. Its degree of hiking difficulty is moderate to difficult. Starting in the campground near the ranger's quarters, the trail immediately crosses Negro Brook at a 28' long bridge that was constructed by the Vermont Youth Conservation Corps (VYCC) in 1990 and follows the Negro Brook Truck Road built by the CCC's for approximately one-half mile. Geological features along the brook include waterfalls, chutes, and pools. Several short sections of the road have disappeared due to washouts or bank slumps creating very narrow and unstable sections of trail.

The trail crosses Negro Brook a second time at a ford crossing near an old stone bridge abutment. Crossing here can be difficult during periods of high water. The trail swings around the west side of Bald Mountain through some dense stands of hemlock and approaches the summit from the south on a very steep and ledgy section of trail. Views of Bromley Mountain and Mount Monadnock are available from the two vistas maintained on the summit. It is estimated that over 2,000 hikers use the trail each year. In 1996 a VYCC crew spent one week on Bald Mountain Trail conducting maintenance work including construction of waterbars and relocating several short sections of trail.

Prior to 1998 the Bald Mountain Trail was a loop trail that continued down the north and east sides of Bald Mountain and ended by campsite #21 in the park. Although it is still used from time to time by hikers, this section of trail was officially closed in 1998 due to erosion and safety concerns. Before the trail was closed, an attempt was made to try and find more suitable locations for the problem areas, but steep slopes and ledgy areas made relocating the trail not feasible. An earlier trail to the summit from this side of the mountain went straight uphill from the back of the ranger's quarters and may have been the trail that the fire lookout used to access the fire tower (along the original location of the phone line to the fire tower).

In 1988 Gary Fogg, a landscape architect from Hadley, Massachusetts, received a "Take Pride in America" award for his volunteer work designing and clearing the two vistas on the summit of Bald Mountain. Mr. Fogg designed the vistas to appear as natural openings, and he estimated that he spent approximately 260 hours on the project between 1987 to 1988. A minor amount of additional maintenance work has been conducted on the vistas in recent years.

A second trail called the **History Trail** is located in the campground near site #15. This trail is approximately 0.1 mile in length, and it loops around the old CCC encampment. Interpretative signs are located along the trail providing information on the former CCC buildings. A previous park ranger designed and constructed this trail back in the early 1990s. The state lands forester and a VYCC crew expanded and improved the trail during the summer of 1999.

- 3) **Picnic Area** - There is a small picnic area with parking for visitors entering the park for day use.
- 4) **Primitive Camping** - No trace camping is allowed within certain areas of the state forest. These areas are accessed by foot from the Bald Mountain Trail and are located on the southwest side of Bald Mountain. They can be reached by hiking up the trail approximately 1¼ miles from the trailhead then heading south off the trail. Primitive camping must follow the state guidelines established by FPR (*see Recreation Map*).
- 5) **Other Activities** - Cross-country skiing, snowshoeing, and hunting are other popular activities within the state forest.

Hunting and fishing are popular activities in the state forest due to the limited amount of public land within the West River Valley and the abundance of wildlife in the region. The forest located in Management Unit Q which is the most southeasterly management unit in Vermont classified by the Fish and Wildlife Department. Hunting is centered on deer season and turkey seasons. Squirrels, ruffed grouse, and snowshoe hare are also hunted on the property.

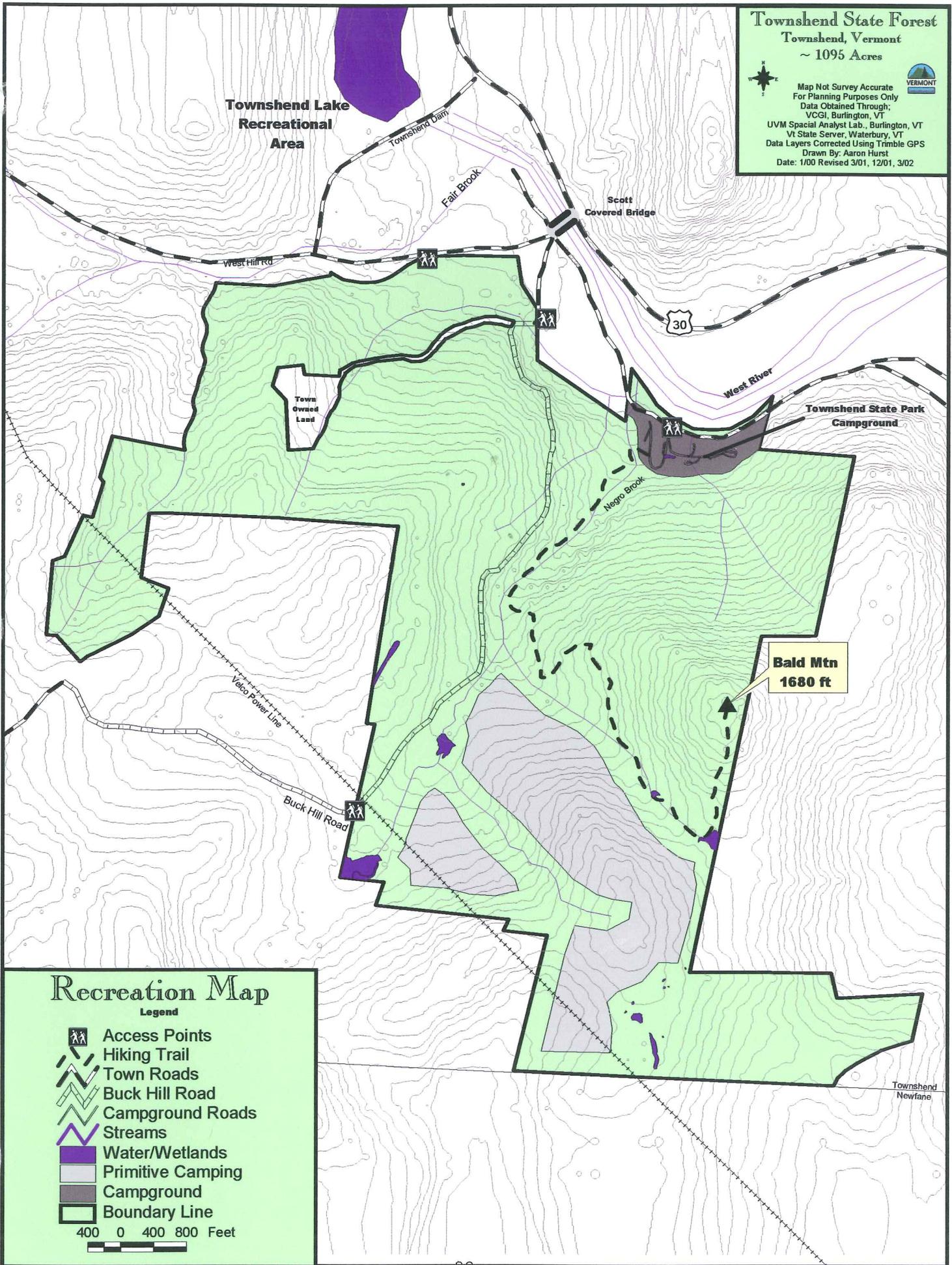
Swimming and fishing are available nearby at the Townshend Lake Recreation area operated by the U.S. Army Corps of Engineers. Fishing opportunities are also available in the West River and its tributaries. Smallmouth bass is perhaps the most notable and abundant game fish in the adjacent section of the West River, although one or more species of trout (brook, brown or rainbow) may be encountered below Townshend Dam during the cooler months of the year. Nearby Fair Brook supports wild populations of brook and brown trout. Townshend Lake also has smallmouth bass and is stocked annually with catchable-size rainbow trout. As a result of flow regulation at Townshend Dam, the waters below the dam and Townshend Lake levels may vary during spring runoff and exceptionally heavy summer rains.

There are no officially designated snowmobile trails within Townshend State Forest. The Vermont Association of Snowmobile Travelers (VAST) has never requested that a trail be located in any part of the property. Since existing class IV town roads bisect the property, both motorized and non-motorized uses that take place on these roads by ATVs and 4WD vehicles are not able to be regulated by the Agency at this time.

**Townshend State Forest**  
 Townshend, Vermont  
 ~ 1095 Acres



Map Not Survey Accurate  
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 Data Obtained Through;  
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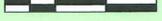


### Recreation Map

Legend

-  Access Points
-  Hiking Trail
-  Town Roads
-  Buck Hill Road
-  Campground Roads
-  Streams
-  Water/Wetlands
-  Primitive Camping
-  Campground
-  Boundary Line

400 0 400 800 Feet



Townshend  
Newfane

## **D. Timber Resource Assessment**

The Townshend State Forest timber resource assessment was conducted using an updated version of the Forest Examination (FOREX) protocol developed by the Vermont Department of Forests, Parks and Recreation as a tool to inventory and evaluate Vermont State Lands. The new FOREX protocol consists of two surveys where data can be collected simultaneously. One survey involves the statistical inventory and analysis of the timber resource and the other documents the site data necessary to determine the natural community classification in a given area which was used in the assessment of the ecological resources in the Ecological Assessment section (Section A page 14).

This section provides a general overview of the timber resources within Townshend State Forest based upon the information derived from the FOREX inventory completed in 1999.

**Soils** - The soils on Townshend State Forest are loamy glacial till origin, generally fine sandy loam, deep to moderately deep, well drained with somewhat poorer drainage along the stream courses. The productivity for trees on these soils is moderate to very high depending on species. The summits and the higher elevations are the only areas that do not support good tree growth. The most limiting factor is the extremely steep slopes.

The moderate slopes were probably originally cleared for pasture. The steeper terrain may have been burned or clear-cut for lumber and was probably not ever cleared for pasture. Most of the cleared land was abandoned 100 to 150 years ago, with evidence of residual white pine remaining in some areas.

**Forest Types** - There are three general forest types found on Townshend State Forest. Northern hardwoods on the most productive sites, mixed softwoods on the areas that were formerly old pastures or that have a seasonally high water table and almost pure hemlock on excessively drained soils.

- 1) **Northern hardwood** - Makes up 42% of the forested acreage. These stands contain up to 50% hemlock and a wide variety of hardwood tree types. Typical mixture found consists of hemlock, black birch, sugar maple, yellow birch with lesser amounts of beech, white ash, red maple, and red oak.
- 2) **Mixed softwood** - Accounts for 25% of the forested acreage. These stands commonly have resulted from previous pasturing with red spruce being common on the shallow sites and white pine more prevalent on the better sites. These stands are transitional with the better sites tending to move towards hardwood and hemlock on the poorer sites.

- 3) **Hemlock** - Accounts for 31% of the forested acreage. These stands are commonly found on the steep slopes with shallow soils. Hemlock generally makes up 90% of the stand with white pine, red spruce, white birch, and red maple making up the remainder.

**Forest Stand Characteristics** - Species mix in Townshend is typical of southern Vermont dry sandy sites. Stand composition and stand structure in Townshend State Forest have been influenced by the past silvicultural practices implemented by the state on the original parcel and by other landowners on the parcels acquired since 1964. The following table illustrates the average existing species mix within the main crown canopy.

**Average Composite of Species Mixture per Acre on the  
Townshend State Forest in the Main Crown Canopy**  
from 1999 inventory data

Species	SQUARE FEET OF BASAL AREA			
	<5"	6"-10"	12"-24"+	TOTAL
Hemlock	1.1	8.6	22.3	<b>32.0</b>
Black Birch	0.5	2.4	7.1	<b>10.0</b>
Sugar Maple	0.4	2.3	6.1	<b>8.8</b>
Red Maple	0.2	1.7	5.7	<b>7.6</b>
White Pine	0.0	0.5	5.1	<b>5.6</b>
Yellow Birch	0.0	1.4	4.0	<b>5.4</b>
White Ash	0.1	1.0	3.9	<b>5.0</b>
White Birch	0.2	1.0	2.9	<b>4.1</b>
Red Oak	0.0	0.9	2.2	<b>3.1</b>
Beech	0.6	1.4	1.2	<b>3.2</b>
Red Spruce	0.2	0.9	1.2	<b>2.3</b>
Basswood	0.0	0.1	0.7	<b>0.8</b>
Aspen	0.0	0.0	0.3	<b>0.3</b>
Striped Maple	0.6	0.1	0.0	<b>0.7</b>
Hophornbeam	0.2	0.2	0.0	<b>0.4</b>
<b>TOTALS</b>	<b>4.1</b>	<b>22.5</b>	<b>62.7</b>	<b>89.3</b>

**Forest Sustainability** - The Agency of Natural Resources defines sustainability as "the production and use of resources to meet the needs of present generations without compromising the ability of future generations to meet their needs."

- E. Cultural Resources** - The Beers Atlas shows two town roads crossing what is now the state forest in about 1863. These were the Buck Hill Road, which is still a class four town road and the Scott Road which was discontinued. The 1912 deed transferring title to the State of Vermont refers to the old Scott Road, from which one could infer that this road was already abandoned. This same map shows a small cluster of development on what was the Myerson lot acquired in 1995. This would be up where Negro Brook flattens off and it is more suitable for agriculture. The remains of a stone dam can be found on Negro Brook

and stone walls are common. No good cellar holes were discovered during our inventory process. The Beers Atlas also indicated School No. Nine was located in this same area.

The Scott covered bridge spanning the West River, near the entrance to Townshend State Park, was built in 1870 by Harrison Chamberlain. This is the longest covered bridge in Vermont at 277 feet.

In assembling the land sold to the State of Vermont, John C. and Mattie Tibbets bought up several properties. References which appear in these deeds are the East pasture of the Snow Farm, Rutter pasture, and the Henry Scott Farm.

James Otis Follet, born in 1843, a local farmer turned stone mason, served as Road Commissioner in Townshend. Using his stone masons' skills, he started building stone arch bridges, completing the first one in 1894, eventually building 13 in Townshend of which 6 remain today. These 6 bridges were added to the National Register of Historic Places in 1976. Two of these bridges are on Townshend State Forest. The Negro Brook bridge on Town Highway #4 leading to the State Park entrance has been passed with a large culvert within the last ten years. The other stone arch bridge is on the Buck Hill Road just as this road enters onto Townshend State Forest from the north. A third nearby bridge is over Fair Brook. For additional information on these bridges, see the Townshend Historical Society web page at [www.townshendvt.com](http://www.townshendvt.com).

The State of Vermont began an acquisition program in 1910. Townshend State Forest was the sixth property to be acquired, with 700 acres purchased in 1912. The 1921 Bi-Annual report stated the average price paid for acquisitions prior to that time had been \$2.85 per acre. The table below lists the dates, grantors, and estimated acreage to bring Townshend up to its current 1,095 acres.

<b>DATE</b>	<b>PARCEL # ON MAP</b>	<b>GRANTOR</b>	<b>ESTIMATED ACRES</b>
1912	1	John C. & Mattie S. Tibbetts	501
1912	2	Moses P. & Delle F. Grout	200
1949	3	Otis B. & Margaret M. Dauchy	4
1965	4	Phillip T. & Priscilla R. Lane	142
1995	5	Bradley D. & John M. Myerson	239

There are a number of small plantations on Townshend State Forest. Planting of openings and fields began in 1913 when 18,000 white pines and 12,000 scotch pines were planted. In 1915 an additional 8,000 white pine and 24,000 red pines were planted. A compass survey and type map by W.E. Bond in 1923 indicates most of the open areas had been planted by that time. (This appears to be the only survey ever done of this property).

A fire observer's cabin was built at the site of the current state park and phone line installed to the summit of Bald Mountain in 1912. The first observer, Lewis Flint, followed by Phillip Chamberlain and his bride, would hike to the summit each day they were to be on duty. Records seem to indicate this observation location was not manned in the years 1915 through 1918. A wood fire tower was built on Bald Mountain in about 1922. The 119<sup>th</sup> CCC Company out of Bellows Falls constructed new steel fire towers on Bald Mountain and Stratton Mountain prior to June of 1936. In 1949 the steel tower on Bald Mountain was dismantled and moved to Mt. Olga where it remains today.

Bank run gravel was made available from Townshend State Forest to help the Town of Townshend rebuild its roads after the 1927 flood. The only borrow pit on this parcel is in compartment three just as the Buck Hill Road enters onto state property.

In 1933 the 119<sup>th</sup> CCC Company arrived at Bellows Falls in June 6, 1933 and was designated as Camp P-54. This company disbanded January 13, 1936 and was replaced by Company 1141 designed as Camp P-66 which was moved from Bethel June 6, 1933. This camp remained in Bellows Falls until April of 1941 when it too was disbanded. The Bellows Falls camp worked on private land as well as public lands. Work on private lands at least consisted of gypsy moth eradication, perhaps white pine blister rust control by the eradication of Ribes (gooseberry and currant), and cleanup efforts after the 1938 hurricane. Work on public land was performed on at least three parcels, those being Mollie Beattie State Forest, Townshend State Forest, and Dutton Pines State Park. Further discussion of the efforts of this camp will relate solely to Townshend State Forest.

The CCC's constructed Townshend State Park, which consisted of a stone caretaker dwelling (still in use today) with picnic shelter, picnic area, and twelve 16' x 16' tent platforms. A truck road, 0.75 miles in length, with four bridges, was built up Negro Brook well toward the summit of Bald Mountain. The current Bald Mountain hiking trail follows this route today, and some of the bridge abutments are still visible.

The CCC's also built the two steel fire towers mentioned above. Two years later, the CCC's dismantled the wooden fire tower. A new telephone line was installed to the fire tower. A winterized building as a side camp was constructed for use by the CCC's. A ski run was cleared from the summit of Bald Mountain to the state park and the Eastern Amateur Championships were held here the winter of 1935-36. The forest plantations established in 1913-1915 were pruned and thinned.

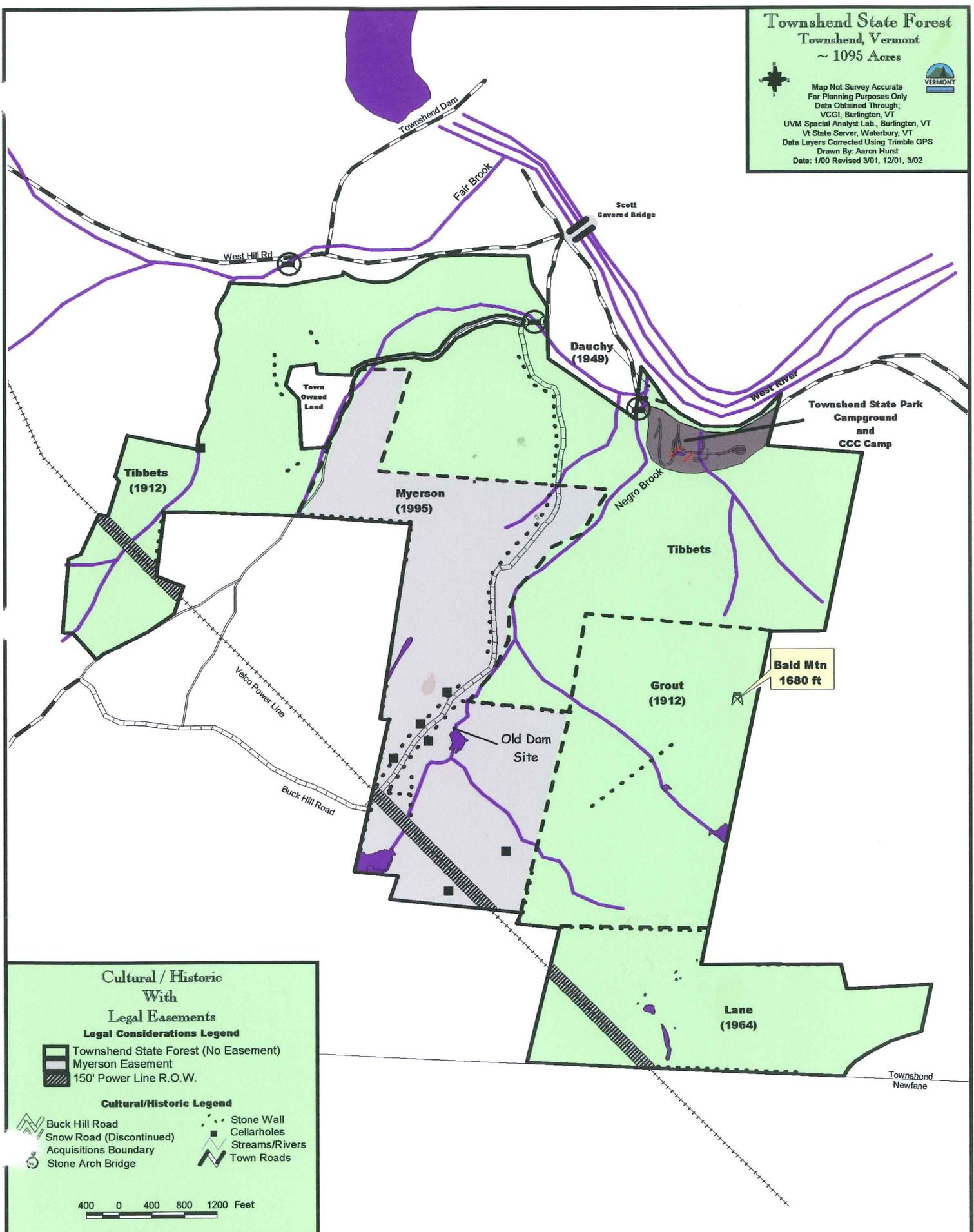
Uphill of the Buck Road in compartment three can be found a site where stone was quarried from vertically-oriented rock layers which may be where the CCC's obtained the rock for the caretaker's cabin.

On September 21, 1938 a hurricane swept through Vermont and left in its wake thousands of acres of damaged timberland between the main range of the Green Mountains and the Connecticut River. The worst damage was in the main valley of the Connecticut River and on adjacent mountain slopes. Little wind damage occurred on Townshend State Forest, but the resulting heavy rain totally washed out the Negro Brook truck road, which was never rebuilt. Bridge abutments of one bridge are still visible from the hiking trail about half way up the trail, and the road grade is still evident at the top of the Negro Brook Gorge where it intersects the Buck Hill Road.

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 ~ 1095 Acres



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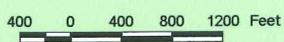


**Cultural / Historic  
 With  
 Legal Easements  
 Legal Considerations Legend**

-  Townshend State Forest (No Easement)
-  Myerson Easement
-  150' Power Line R.O.W.

**Cultural/Historic Legend**

-  Buck Hill Road
-  Snow Road (Discontinued)
-  Acquisitions Boundary
-  Stone Arch Bridge
-  Stone Wall
-  Cellarholes
-  Streams/Rivers
-  Town Roads



## V. MANAGEMENT STRATEGIES AND ACTIONS

- A) **Land Use Categories** This section of the plan identifies areas where different uses are to be allowed and describes how these uses will be managed. Overarching management standards that further the missions of the Vermont Agency of Natural Resources (ANR) and its three departments are used to develop all long range management plans for agency lands. These standards are found in the introductory section "Overview of Lands Management by the Vermont Agency of Natural Resources."

As part of the planning process, the lands, resources, and facilities of Townshend State Forest have been evaluated and assigned to the appropriate land use category (classification). These four categories were developed for lands managed by the ANR and determine where certain activities or uses will be emphasized. Other activities may be allowed within these areas as long as they are compatible with and do not detract from the emphasized activity.

Nearly 100% of the 1,095 acres within Townshend State Forest is forested. Of the forested land, approximately 424 acres are classified as Highly Sensitive Use where timber harvesting will not occur to protect uncommon or outstanding biological, ecological, geological, scenic, cultural or historic features. In addition to those acres, there are 18 acres classified as Intensive Use where timber may be harvested but only to protect the health and vigor of the trees and for safety reasons.

The remaining acreage, includes 653 acres classified as Unique and Special (specifically deer wintering areas) and General Use Areas which may be commercially harvested on occasion to meet timber and wildlife management objectives but these harvests are not expected to produce a regular flow of forest products. The schedule for silvicultural treatments leading to forest harvesting is generally based upon the soils information data, which includes soil potential, soil limitations, slope, surface features, and soils depths. The following map locates these various site classifications as they occur in the Unique and Special Management Area and the General Management Areas classified within Townshend State Forest.

### ***Definitions of Land Use Categories (Classification)***

- 1) **Highly Sensitive Area** - An area with uncommon or outstanding biological, ecological, geological, scenic, cultural, or historic significance where those values are preserved and protected. Human activities and uses should be minimal and regulated to protect the exceptional features on the landscape.
- 2) **Unique and Special Use Area** - An area with unique or special resources where management objectives consider protection and/or enhancement of those resources. These areas do not need to have the same level of protection given to highly sensitive areas and, in some cases, may be intensively managed for specific purposes. There may be some evidence of timber

harvesting, wildlife management, roads, and recreational activities; however, those activities should be compatible with and will not detract from the primary objective of protection and/or enhancement of the unique or special resources.

- 3) **General Use Area** - An area where multiple land uses occur but where the dominant uses may be sustainable timber harvesting, wildlife habitat management, dispersed recreation, or other general land uses. Where one use such as recreation dominates, for example, vegetation will be managed as a secondary use so long as it can be conducted in a way that does not conflict with the dominant use or with other lands categorized as more sensitive that may be adjacent to it.
- 4) **Intensive Use Area** - 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. Vegetative management will be directed toward aesthetic and safety considerations. Other resources maybe managed but in a compatible way with the dominant use.

## **B) Management Strategies**

### **1) Highly Sensitive Areas (424 acres)**

- 1.6) **Bald Mountain Sensitive Area (*map area 1.6*)** - The area makes up the upper elevations of Bald Mountain and associated steep slopes in other areas of the state forest and generally consists of extremely steep slopes and soils shallow to bedrock. Some of the shallow soils may have resulted from sheep pasturing or fire. The only cultural sites that exist within this area consist of stone walls and wire fence which are remnants of pasturing.
  - a) Ecological - Existing natural community types/habitats/ threatened and endangered species will not be disturbed. There are no vegetative or wildlife management practices prescribed for this area in order to allow natural succession to occur.
  - b) Cultural - Existing stone walls and other known cultural features will not be disturbed.
  - c) Recreation - Extensive non-motorized recreational activities such as hiking, snowshoeing, hunting, fishing, cross-country skiing, and primitive camping are allowed within this area. Very limited primitive camping activity occurs within this forest. Townshend State Park staff will monitor primitive camping use during the park season. The existing Bald Mountain hiking trail and vista at the summit of Bald Mountain will be maintained but not expanded.
  - d) Utilization - No timber harvesting activities or vegetative manipulation for wildlife will occur in these areas. Regulated hunting, fishing, and trapping are allowed.

**1.7) Negro Brook and Wooded Buffer Area (*map reference 1.7*)**

- This area is made up of hardwood and mixed wood slopes that border Negro Brook and other significant streams. The only cultural sites that exist within this area consist of stone walls and wire fence which are remnants of pasturing.

- a) Ecological - Existing natural community types/habitats/ threatened and endangered species will not be disturbed. There are no vegetative or wildlife management practices prescribed for this area in order to allow for natural succession to occur.
- b) Cultural - Existing stone walls and other known cultural features will not be disturbed.
- c) Recreation- Extensive non-motorized recreational activities such as hiking, snowshoeing, hunting, fishing, and cross-country skiing are allowed within these areas. The existing Bald Mountain hiking trail passes along the brook on an old logging road. Recreational activities and use of this trail will continue in a way that minimizes disturbance to the ecological and cultural features found within this area.
- d) Utilization - No timber harvesting activities will occur within this area. Regulated hunting, fishing and trapping are allowed.

**2) Unique and Special Areas (370 acres)**

**2.1a) Sugar Maple-Ostrich Fern Riverine Floodplain Forest (*map reference 2.1a*).** A natural community characteristic of flood-plains associated with higher energy, high gradient rivers, primarily in areas of calcareous or surficial geology. Intact examples of this community type are rare in Vermont.

- a) Ecological - This area is ecologically sensitive. Any activities that could adversely impact this community type will not occur. Forest health conditions will be monitored.
- b) Cultural - Existing stone walls and other cultural features will not be disturbed. Any town highway activities that could impact the area will be minimized through coordination with the town.
- c) Recreation - Extensive non-motorized recreational activities that are dispersed activities such as hiking, snowshoeing, hunting, fishing, and cross-country skiing are allowed. No trails or recreational structures are planned for this area. Any future recreational uses will be closely monitored to minimize impacts to the area.
- d) Utilization - No timber harvesting activities will occur within this area. Regulated hunting, fishing and trapping are allowed.

**2.1b) Historic/Cultural Forest (map reference 2.1b).** An area found to have old foundations, stone walls, and signs of previous homesteads along the Buck Hill Road.

- a) Ecological - The area is not ecologically sensitive but will be monitored for changes in forest health conditions.
- b) Cultural - There will be no disturbance to cultural features. Any town road activities that might impact the area will be minimized through coordination with the town.
- c) Recreation - Extensive non-motorized recreational activities that are dispersed activities such as hiking, snowshoeing, hunting, and cross-country skiing are allowed. Any future recreational uses will be closely monitored to minimize impacts to the area.
- d) Utilization - Vegetation management practices may be prescribed to maintain mast-producing trees for wildlife and to remove any trees that might block the Buck Hill Road. Regulated hunting, fishing, and trapping are allowed.

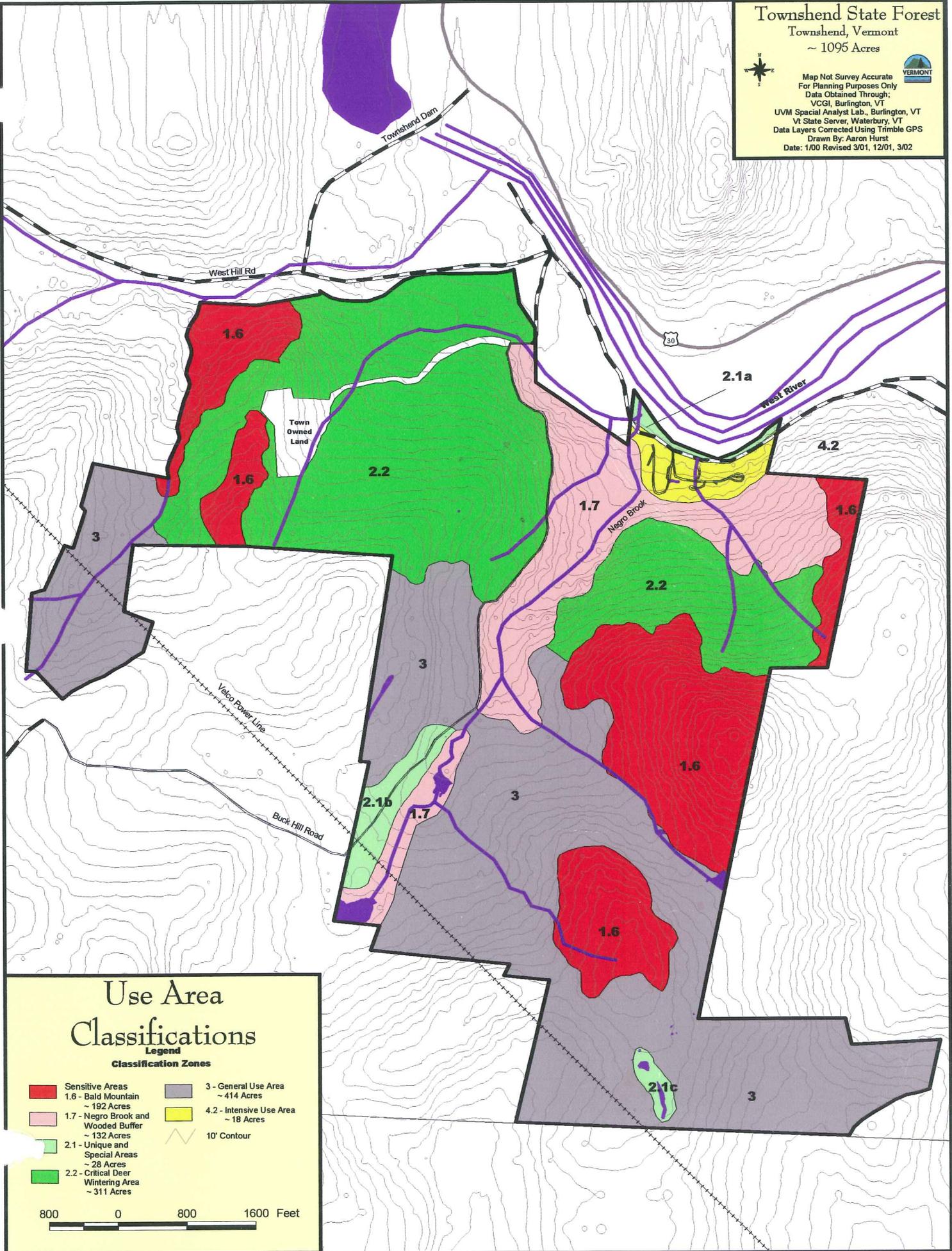
**2.1c) Poor Fen Bog and Vernal Pools (map reference 2.1c).** Poor fen bogs are rare in Vermont. The natural community is characterized by an open peatland, dominated by sphagnum mosses, sedges, and heath shrubs. Vernal pools are temporary woodland pools important as breeding habitat for salamanders and frogs.

- a) Ecological - Protecting the quality and quantity of groundwater that discharges into a fen is critical to maintaining the hydrology and the vegetative structure of the community. No vegetative management activities will occur adjacent to the poor fen bog or vernal pools without prior consultation with the Fsh and Wldlife Department regarding proper buffer distances needed to avoid indirect impacts.
- b) Cultural - There will be no disturbance to cultural features.
- c) Recreation - Extensive non-motorized recreational activities that are dispersed activities such as hiking and hunting are allowed within this area. Primitive camping is allowed within this area according to the ANR Guidelines for Primitive Camping.
- d) Utilization - Timber harvesting and wildlife management activities implemented near vernal pools and poor fen bogs will be conducted to meet ecological standards required to protect the character and physical environment of each pool. All vernal pools will be protected to preserve the character and physical environment of each pool by keeping logging equipment away from the surface of each pool, removing any slash or debris from the surface of each pool, and keeping sediment directed away from each pool during and after timber harvesting. Regulated hunting, fishing, and trapping are allowed.

Townshend State Forest  
Townshend, Vermont  
~ 1095 Acres



Map Not Survey Accurate  
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## Use Area Classifications

Legend

### Classification Zones

- |   |   |   |  |
|---|---|---|--|
|  | 1.6 - Bald Mountain<br>~ 192 Acres                    |  | 3 - General Use Area<br>~ 414 Acres    |
|  | 1.7 - Negro Brook and<br>Wooded Buffer<br>~ 132 Acres |  | 4.2 - Intensive Use Area<br>~ 18 Acres |
|  | 2.1 - Unique and<br>Special Areas<br>~ 28 Acres       |  | 10' Contour                            |
|  | 2.2 - Critical Deer<br>Wintering Area<br>~ 311 Acres  |   |  |

800 0 800 1600 Feet

**2.2) Critical Deer Wintering Area (map reference 2.2)** - The critical deer wintering areas represent the largest and most widespread critical habitat element on Townshend State Forest.

- a) Ecological - The critical deer wintering areas are located in most of the hemlock and some of the northern hardwood community types which are common in Vermont. Management activities will be implemented to preserve and perpetuate the shelter conditions to include leaving strips of softwood along contours which connect blocks of good winter cover. Adjacent or future softwood shelter will also be improved through the regeneration or release of understory softwood. In areas adjacent to winter cover, activities should be implemented to create forest regeneration and high quality browse for deer. *If hemlock woolly adelgid becomes established on this property it is expected to substantially reduce the quality of hemlock winter cover.*
- b) Cultural - There will be no disturbance to cultural features.
- c) Recreation - Extensive non-motorized recreational activities that are dispersed activities such as hiking, snowshoeing, hunting, fishing, and cross-country skiing are allowed within these areas. Primitive camping is allowed in accordance with the ANR Guidelines for Primitive Camping. Motorized access from the existing town roads which pass through the forest will be prevented through gating and enforcement.
- d) Utilization - Management activities to maintain the critical wintering area will be implemented through commercial harvesting. No timber sales will be conducted in the dense hemlock stands considered of premium value to wintering deer. All activities carried out in mixed hardwood-hemlock stands abutting the dense hemlock stands will be planned and implemented according to the Fish and Wildlife Department Guidelines for Deer Wintering Areas in Vermont. There are no new roads needed for commercial timber harvesting because the area is accessible by the Buck Hill Road, an existing Class #4 road. Regulated hunting, fishing, and trapping are allowed.

**3) General Use Area (345 acres)**

**3.0) Productive Forest Land (map reference 3.0)**. The primary emphasis is on production of quality sawtimber, maintenance of wildlife habitat, and recreational uses.

- a) Ecological - The general forest management areas within Townshend State Forest are located in the northern hardwood, red spruce-northern hardwood, and hemlock community types which are common in Vermont. Timber harvesting practices will be implemented to maintain existing community types,

mast-producing trees, snag trees, and aspen stands according to guidelines provided by the Vermont Department of Fish and Wildlife.

- b) Cultural - Stone walls, cellar holes, and other cultural artifacts will be protected according to ANR guidelines for protection of historic and cultural sites.
- c) Recreation - Extensive non-motorized recreational activities such as hiking, snowshoeing, hunting, fishing, and cross-country skiing are allowed within these areas. Primitive camping is allowed but in accordance to the Primitive Camping Map of Townshend State Forest and the ANR Guidelines for Primitive Camping.
- d) Utilization - All timber harvesting practices will be implemented according to the U.S. Forest Service Silvicultural Guides and ANR guidelines for timber harvesting including: AMPs and the Landowner's Guide for Wildlife Habitat Management. All-aged management will be the primary guide; however, even-aged practices may be used to regenerate white pine, aspen, and red oak. Even-aged practices may also be used, if necessary, to get advanced regeneration past heavy deer browse. Management decisions will be based on health and vigor of stands, crown closure, wildlife habitat (mast and den trees), evidence of heavy browsing, and basal area. Regulated hunting, trapping, and fishing are allowed.

#### **4) Intensive Use Area (18 acres)**

##### **4.2) Townshend State Park Campground (map reference 4.2).**

- This campground contains a total of 35 camping sites. Four of these sites include green mountain lean-tos, and nine of the sites include tent platforms. Operational facilities for the campground include a ranger's quarters, picnic shelter, small nature center, garage, tool shed, and two toilet buildings. The ranger's quarters, picnic shelter, and one toilet facility are combined in one structure that is located at the top of a long-grassy rise. The trail head access area for the Bald Mountain Trail is also located near the camp sites.

- 1) Ecological - This campground is within a hemlock-northern hardwood forest community which is common in Vermont. All of the existing camping sites, access roads, and structures were constructed by the Civilian Conservation Corps in the 1930s. No changes are planned for the camping sites that would significantly alter this natural community.
- 2) Cultural - During the Depression, a Civilian Conservation Corps (CCC) camp was based in the campground. The CCC laid out a large camping area and picnic shelter and constructed a stone house and a steel fire tower on the summit of Bald Mountain. The state has completed a nomination of

these structures for the National Register of Historic Places because the CCC built structures and roads are considered to be of historic significance. The CCC built structures will continue to be protected according to State Historic Preservation guidelines.

- 3) Recreation - Very little in the way of change is planned regarding Townshend State Park's operating philosophy and recreational activities. The focus will remain with rustic camping and hiking. Most changes will be related to facilities upgrades and maintenance, which is a high priority for the park.

A Vermont State Park System Infrastructure Study completed in 1999 pointed out the most important needs of the park facilities:

- The two wells are low producing, and a new well should be dug along with the necessary system upgrades.
  - The metal septic tanks should be replaced with concrete tanks.
  - Emphasize improvements that meet requirements for the Americans with Disabilities Act (ADA) accessibility standards.
  - Continue to improve campsites by leveling and improving drainage.
  - Upgrade amenities in the toilet buildings and improve drainage around the foundations.
  - Reinforce and repair the maintenance shed.
  - Continued maintenance on the Bald Mountain hiking trail and summit vistas.
- 4) Utilization - Vegetative management will be directed toward aesthetic and safety considerations. Hazardous trees will be inventoried on a periodic basis and removed according to Department procedures for detection, assessment, and correction of hazardous trees in recreational areas.

- C) **Soil productivity guidelines** Four forest site classes are used in this plan to express potential for forest productivity and for vegetative management (*see Soils Productivity Map*). This information is based on the Windham County Soil Survey. This soil information considers soil potential, soil limitations, slope, surface features, and soil depths. The following map locates these various site classifications, as they occur in this management area.

Soils, site class and slopes are all important information when considering which species to favor, and how intensive the management effort should be.

The relative values can be used for broad planning purposes. However, on-site investigations are recommended to assess variations in site conditions, and slope variations especially in the "E" slope which range from 35% to 60%. (A thru E subscript represents per cent slope and is defined as A less than 3%, B 3 to 8%, C 8 to 15%, D 15 to 35% and E 35 to 60%) As a general rule commercial harvesting operations as we know them in the northeast can easily be accomplished on slopes up to 35% slope. Considerable care and planning are required on slopes up to 50%. We generally consider slopes of 60% and over to be non-commercial.

Sugar maple is the indicator species used to develop soil potential ratings for northern hardwoods. On glacial outwash soils, white pine tends to dominate and was substituted for sugar maple ratings.

**Broad Forest Type Entry Level Interval Table.**

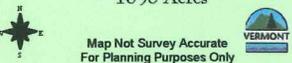
A recommendation can be made for associating intensity of management with these site classes with site one being the best. A recommendation is listed below which gives a guideline for entry\* interval for crop tree release #.

Forest Site Class	BROAD FOREST TYPE ENTRY INTERVAL IN YEARS	
	Northern Hardwood	White Pine
1	18	10
2	25	12-15
3	35	15-20
4	50	25-30

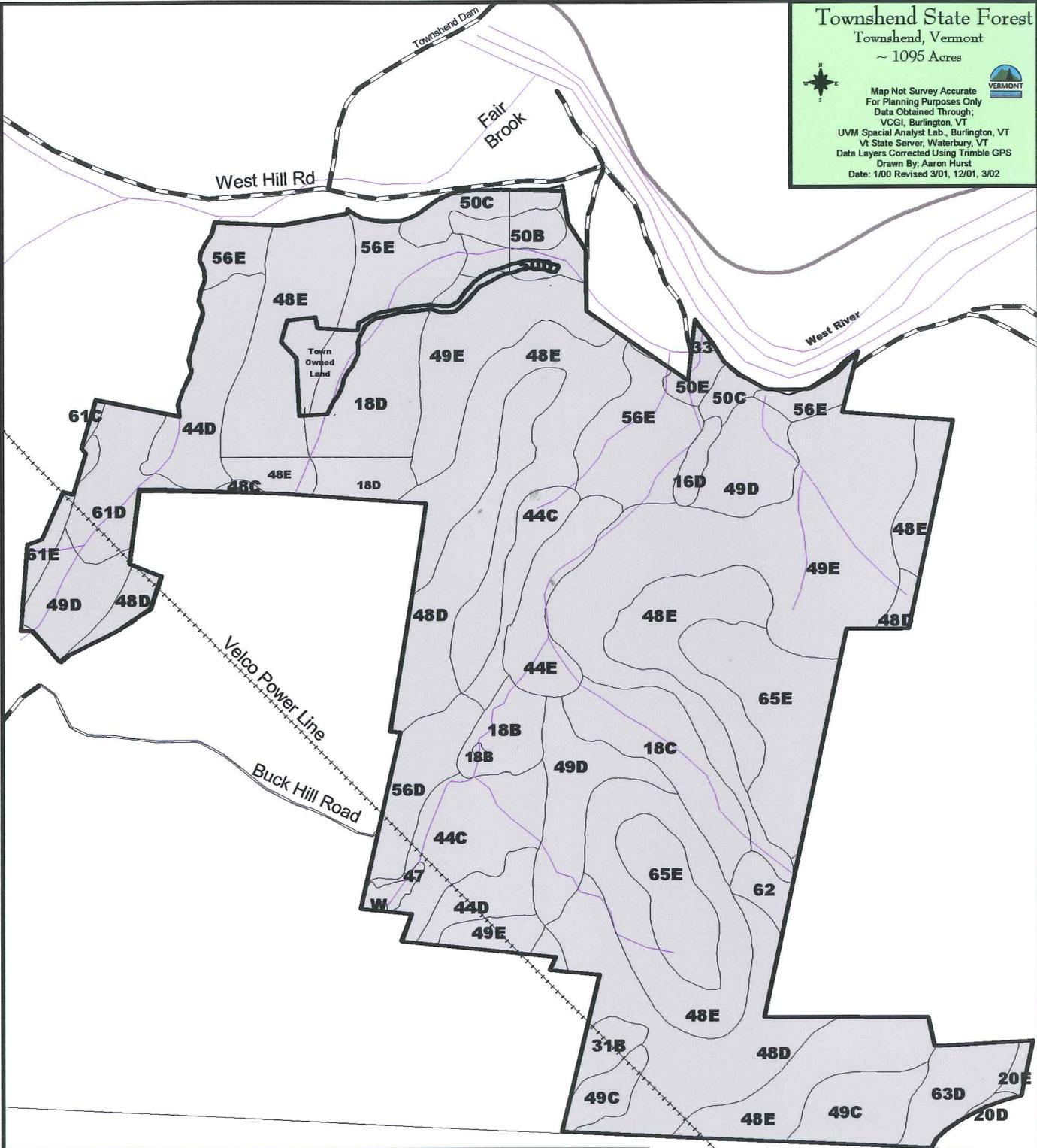
\* Entry can be defined as the minimum interval in years before a particular stand of trees will need to be thinned again in order to maintain a constant growth rate and a thrifty crown.

# Crop tree release can be defined as a process of selecting individual trees in the stand to grow during this planning cycle and then release those trees on at least 3 or 4 sides for same reason as listed above.

Townshend State Forest  
 Townshend, Vermont  
 ~ 1095 Acres



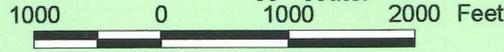
Map Not Survey Accurate  
 For Planning Purposes Only  
 Data Obtained Through:  
 VCGI, Burlington, VT  
 UVM Spatial Analyst Lab., Burlington, VT  
 VT State Server, Waterbury, VT  
 Data Layers Corrected Using Trimble GPS  
 Drawn By: Aaron Hurst  
 Date: 1/00 Revised 3/01, 12/01, 3/02



### Soil Types

#### Legend

- |                      |                                |
|----------------------|--------------------------------|
| 16 - Adams           | 48 - Rawsonville/Hogback       |
| 18 - Worden          | 49 - Houghtonville/Rawsonville |
| 20 - Tunbridge/Lyman | 50 - Colton                    |
| 23 - Ondawa          | 56 - Monadnock                 |
| 31 - Wilmington      | 61 - Houghtonville             |
| 33 - Rumney          | 62 - Markey                    |
| 44 - Mundal          | 63 - Berkshire/Tunbridge       |
| 47 - Lupton          | 65 - Hogback/Rawsonville       |
|                      | W - Water                      |



### Slope Phases

#### Legend

- A = < 3%
- B = 3 - 8 %
- C = 8 - 15%
- D = 15 - 35%
- E = 35 - 60%

# Townshend State Forest

Townshend, Vermont

~ 1095 Acres



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VCGI, Burlington, VT

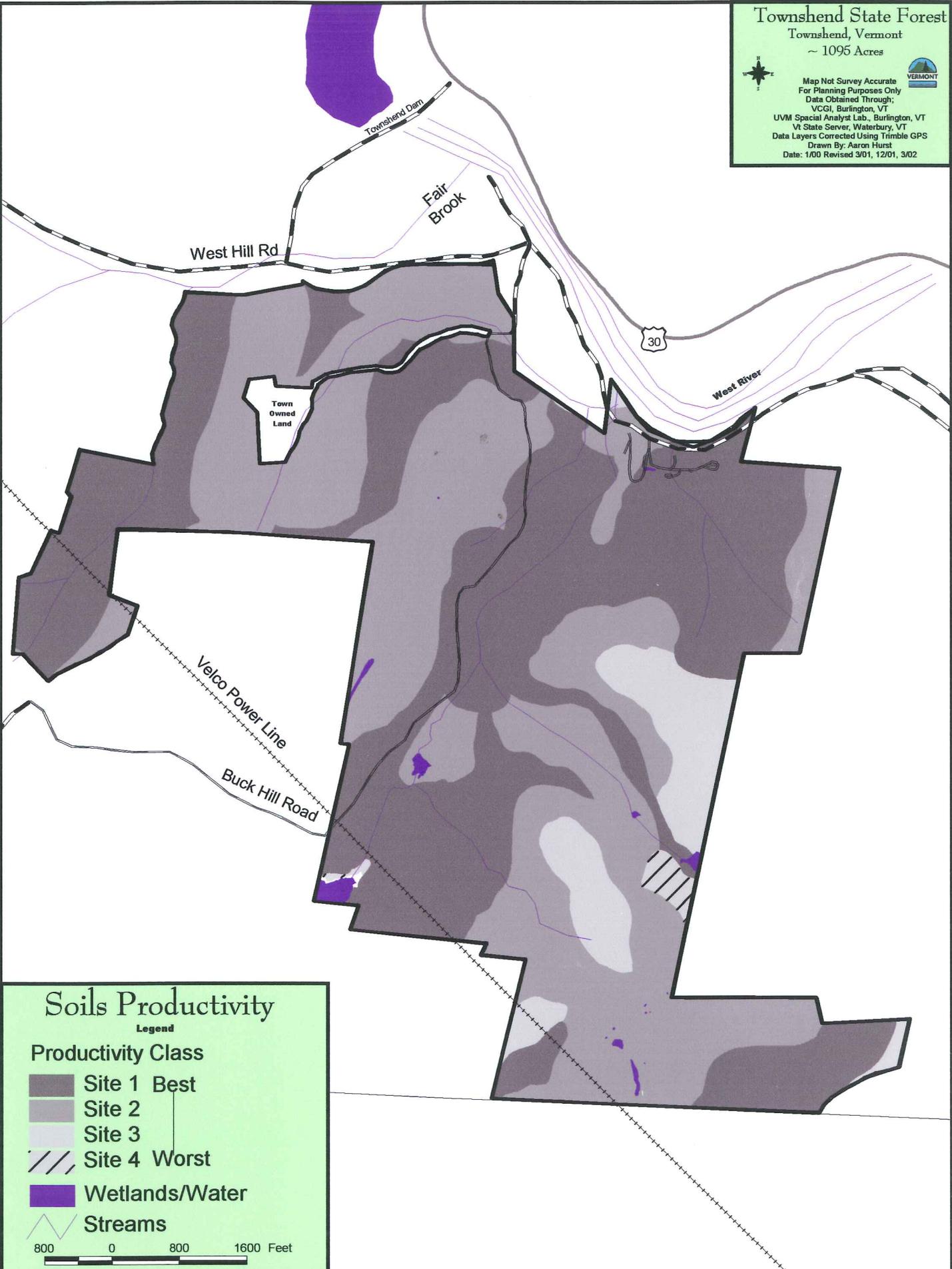
UVM Spatial Analyst Lab., Burlington, VT

VT State Server, Waterbury, VT

Data Layers Corrected Using Trimble GPS

Drawn By: Aaron Hurst

Date: 1/00 Revised 3/01, 12/01, 3/02



## Soils Productivity

Legend

### Productivity Class

-  Site 1 Best
-  Site 2
-  Site 3
-  Site 4 Worst
-  Wetlands/Water
-  Streams

800 0 800 1600 Feet

- D) Timber Harvest Objectives** The state began a program of active forest management in the 1950's when the trees began to become of marketable size. The timber management goals for this parcel are sustainable yields, improved timber quality and improved carrying capacity of the deer wintering area. The long term goals for timber include the creation of a balanced distribution of age classes and improved species composition. These are accomplished over a 150-year rotation through a series of thinnings and three to five-acre patch clearcuts.

The primary objectives for timber harvesting in the Unique and Special and the General Use areas designated within Townshend State Forest will be to:

- 1) Not diminish the recreational experience for the public while at Townshend State Park and/or the Bald Mountain Hiking trail.
- 2) Maintain tree health and vigor.
- 3) Retain the winter deer cover currently offered by dense stands of hemlock.
- 4) Improve timber quality especially in the former Myerson parcel where the last sale (under private ownership) left much of the poorest material.
- 5) Retain red oak component.
- 6) Release desirable regeneration.
- 7) Provide an abundant mixture of different tree species.
- 8) Favor those species most suited to the existing soils.
- 9) Strive to maintain a distribution of tree age classes.
- 10) Maintain the aesthetic nature of this property.
- 11) Produce a sustainable supply of timber products.

Recognized U.S. Forest Service silvicultural guides will be used when developing stand prescription for timber harvests. All-aged management will be the primary guide except where even-aged practices may be used to regenerate white pine, aspen, and red oak. Even-aged silvicultural practices may also be used, if necessary, to get regeneration past heavy deer browsing.

Stand treatment decisions will be based on health and vigor of stands, the rate of individual tree crown closure, wildlife habitat requirements, evidence of heavy deer browsing, and stand basal area,

somewhat in that order. New information, changes in state lands policy, and recommendations from other departments or agencies may change specific recommendations.

Tree species to favor on generally deep sandy well-drained soils are black birch, white birch, white pine, red oak, hemlock, sugar maple, and white ash. The preferred tree species order should be reversed on those soils where water availability is better.

## **E) Water Resources**

Land management practices on ANR lands will not lower the quality of waters associated with those lands. The water quality will be maintained by using acceptable management practices as established by amendments to the Vermont Water Quality Statues in the 1986. These describes practices for truck roads, skid road, surface water and stream crossings, protective strips, and log landings both during logging and after logging. These same amendments describe stream buffers as a 25-foot protective strip either side of all streams where only light selective harvest would be allowed to maintain a protective canopy. The buffers actually applied will always meet these standards and more likely exceed the standards. Buffers will reflect present and future policy guidance on buffers. However, other users may affect the water quality on this forest as the public ownership does not include the entire watershed.

## **F) 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 operations, timber stand improvement crews, and Vermont Youth Conservation Corps crews operating within Townshend State Forest will be carried out in conformance with State regulations for slash disposal and Department 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 warden in Townshend is responsible for wildfire suppression on all fires in Townshend State Forest. The Forest Resource Protection Specialist will assist the town fire warden with overhead fire responsibilities as well as provide guidance in determining compensation to the town involved with fire suppression. State lands personnel will actively assist the town in suppression efforts if requested. The state also has a reciprocal agreement with the U.S. Forest Service to provide equipment and manpower at no charge to the state for the first 24 hours.

**Prescribed Burns** - Prescribed fire may be used as a management tool within Townshend State Forest to maintain vegetation in existing forest openings and to reduce a fire hazard. All prescribed burns will be conducted in accordance with a written prescribed burn plan and Department guidelines for conducting prescribed fires.

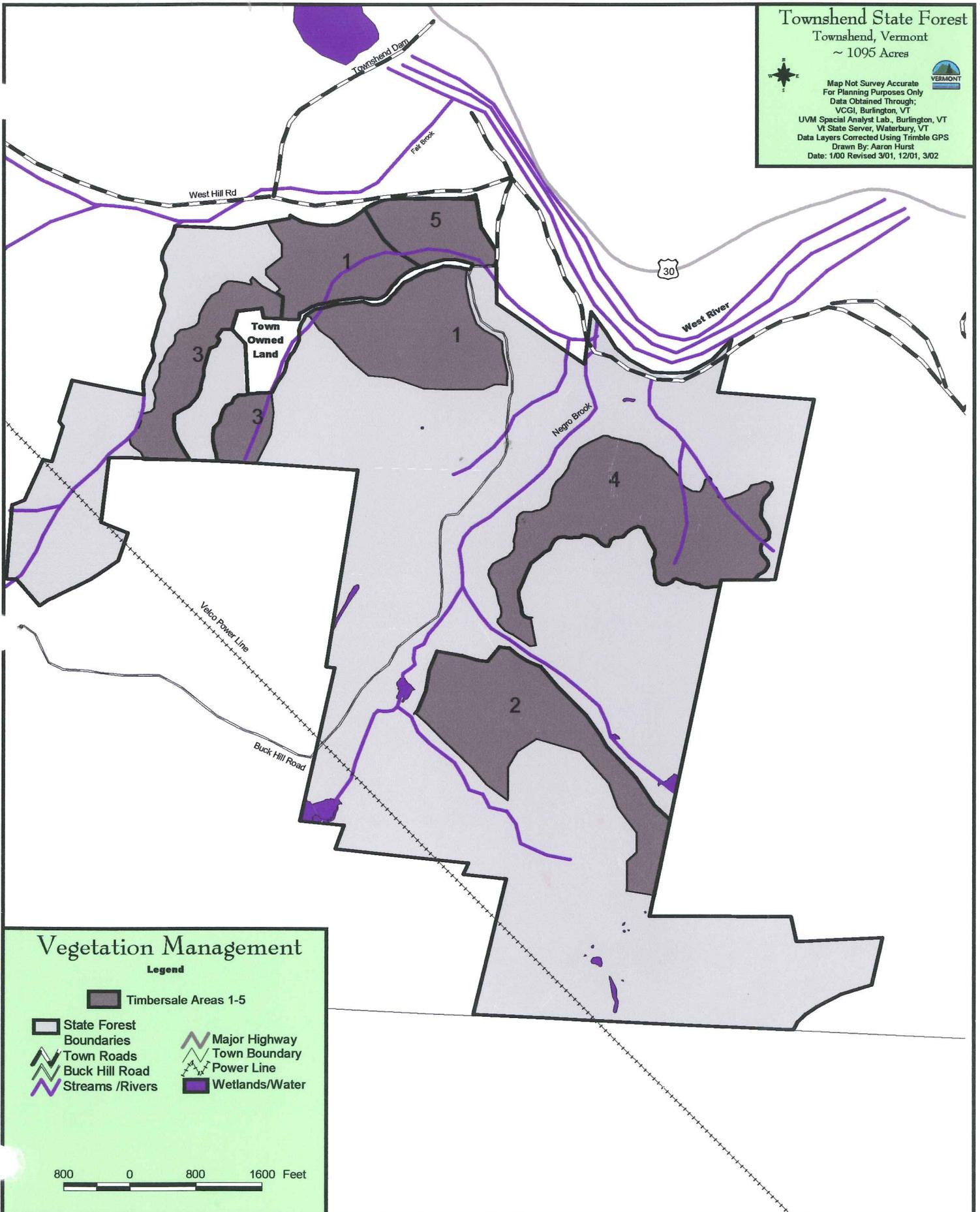
## VI. IMPLEMENTATION SCHEDULE

Year	Actions/Purpose	Sale Number/ Last entry	Acreage	Responsible Parties	Outcomes
2003	-Timber harvest - Leave a band of hemlock on a contour through sale area. Maintain strong oak component.  -Campground maintenance	1  1977	85	Stewardship Specialist  Parks	Maintain critical deer wintering area  Recreational
2003	-Trail maintenance -Campground maintenance	—	00	Trails Specialist Parks	Recreational
2004	-Campground maintenance	—	00	Parks	Recreational
2005	-Campground maintenance	—	00	Parks	Recreational
2007	-Timber harvest - Leave a strong oak component  -Campground maintenance	2  1981	66	Stewardship Specialist  Parks	Maintain mast component for wildlife
2007	-Campground maintenance	—	00	Parks	Recreational
2008	- Trails maintenance -Campground maintenance	—	00	Parks	Recreational
2009	-Campground maintenance	—	00	Parks	Recreational
2010	-Timber harvest in travel corridor  -Campground maintenance	3  1988	40	Stewardship Specialist  Parks	Maintain critical deer travel corridor
2011	-Campground maintenance	—	00	Parks	Recreational
2012	-Campground maintenance	—	00	Parks	Recreational
2013	-Campground maintenance	—	00	Parks	Recreational
2014	-Campground maintenance	—	00	Parks	Recreational
2015	-Timber harvest in hardwood  -Timber harvest in pine plantation  -Campground maintenance	4 1986 5 1995  —	82  22  00	Stewardship Specialist   Parks	maintain mast component   Recreational
2017	-Inventory and review need for new plan  -Campground Maintenance		1095	Stewardship Specialist  Parks	

Townshend State Forest  
Townshend, Vermont  
~ 1095 Acres



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Vegetation Management

Legend

- Timbersale Areas 1-5
- State Forest Boundaries
- Town Roads
- Buck Hill Road
- Streams /Rivers
- Major Highway
- Town Boundary
- Power Line
- Wetlands/Water

800 0 800 1600 Feet

## **VII. MONITORING AND EVALUATION**

Each year the Long Range Management Plan for Townshend State Forest is in effect, monitoring will be conducted by the Agency of Natural Resources to insure that state owned resources are protected from fire, insect and disease, other natural disturbances, encroachments, or unforeseen problems that may occur within the campground and the forest.

Additionally, management activities carried to conform with scheduled actions and planned outcomes will be evaluated to determine how closely the results matched those projected within the plan. The Agency of Natural Resources may make recommendations for changes in planned activities to reflect changed conditions or unanticipated results. Any major revisions to the plan would be proposed as amendments and be subject to public review and approved by the State's Agency of Natural Resources Stewardship Team.

### **A. Forest Health**

The health of the forest stands within Townshend State Forest will be monitored yearly by Department personnel through a system of aerial observation and ground checking. Significant changes in forest stand conditions will be recorded and investigated by the Forest Resource Protection Specialist. The specialist will provide specific information on identified problems sufficient to make informed management decisions and will assist the state lands staff in formulating appropriate management strategies. Strategies for managing forest stands damaged by insect and disease will be ecologically acceptable and will be based upon appropriate silvicultural practices.

### **B. Vegetation Management**

Timber harvests and wildlife management practices completed within Townshend State Forest will be periodically reviewed by the Stewardship Specialist and the District State Lands Stewardship Team to determine how well the state is doing in achieving its planned objectives. If the monitoring results indicate that there is a significant difference between the outcomes predicted by the plan and the actual conditions, the Agency may recommend changes to the plan.

### **C. Natural Communities**

All exemplary, unique, and special natural communities and rare, threatened and endangered (RT&E) species of plants and animals will be periodically evaluated by the Stewardship Specialist and the District State Lands Stewardship Team to determine conservation status (threats from recreational or other land uses) and successional trends.

Management strategies may be developed to insure that those communities and species continue to be afforded the highest level of protection and stability.

## **VIII. Appendix**

**A. Special Constraints**

**B. Additional Historic Information (photos)**

**C. Stand Data and Compartment Maps**

**D. West River Basin Critical Wildlife Habitat Map**

**E. Public Input**

**F. Authorization to Plan and Manage**

**G. Summary of Some Policies and Guidelines**

**H. Glossary**

**I. 2011 Long Range Management Plan Amendment**

**J. Original Base Map**

## APPENDIX A.

### Special Constraints

1. A utility easement 150 feet wide conveyed by Frederick J. Myerson, Trustee for Bradley J. Myerson and John Howard Myerson to Central Vermont Public Service Corporation dated September 23, 1965 and a similar easement for the same power line across the so-called Grout and Rutter Pasture purchased from Phillip and Priscilla Lane and also the Myerson Lot purchased in 1995.

Constraints from original deed to State of Vermont from John C. and Mattie S. Tibbetts:

2. Right-of-way granted by warrant deed dated 1945 to Alonzo Chamberlain. "Beginning on the Buck Hill Road at a point approximately two and one half (2½) rods (42.5') westerly of the plank bridge crossing Negro Brook; thence following the westerly side of said brook in a generally northwesterly direction to land of said Alonzo Chamberlain and Eva Chamberlain; said right-of-way to be one rod in width and the brook side of said right-of-way being marked by four (4) stone posts set in the ground with stones around them, said to be permanent."
3. A piece of land two rods wide, extending westerly from that part of the Scott Farm deeded by Tibbetts to Watson in 1912 (recorded in Book 24, Pages 375 to 380) over the old Scott Road to an eleven (11) acre parcel now owned by the Town of Townshend and subject to the right of the said grantee to pass and repass with teams and on foot.
4. Spring rights granted in a deed dated 1912 for two springs located on Compartment three (3). Another deed dated 1926, recorded in Book 28, Pages 155-156 which identified one spring with directions to it and provided an easement for laying, relaying, and repairing a pipe not to exceed one inch diameter.
5. The original deed of Tibbetts to Watson provides that said Watson, his heirs and assigns, forever shall build and maintain suitable fences around the second and third parcels of land reserved. This refers to the piece of land two rods wide and the eleven-acre parcel now owned by the town.

**APPENDIX B.**  
**Additional Historic Information**

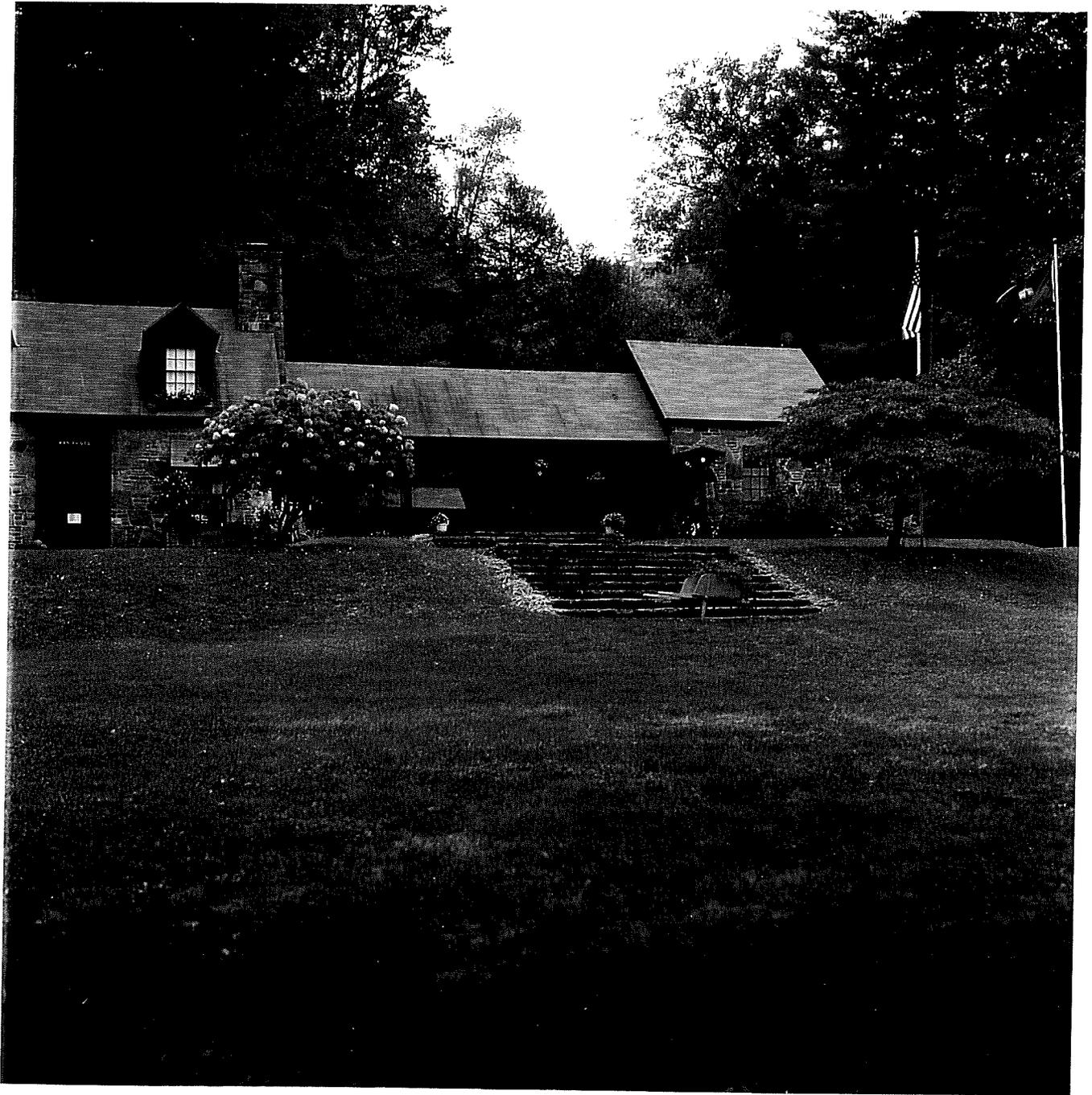


*Negro Brook*  
58

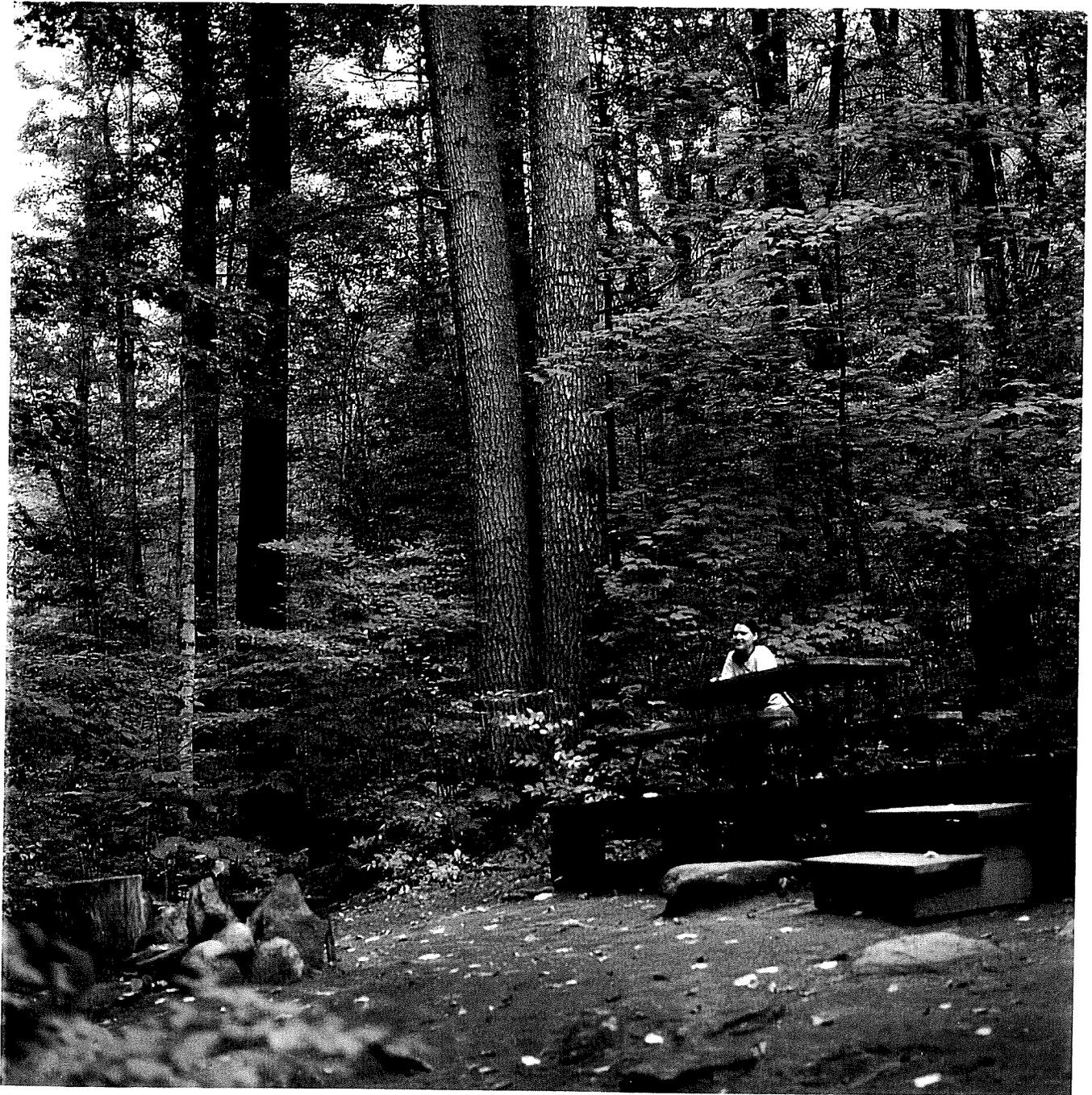


*Buck Hill Road*  
59





RANGERS CABIN & PICNIC SHELTER  
BUILT 1938



**TYPICAL TENT PLATFORM  
in TOWNSHEND STATE PARK**

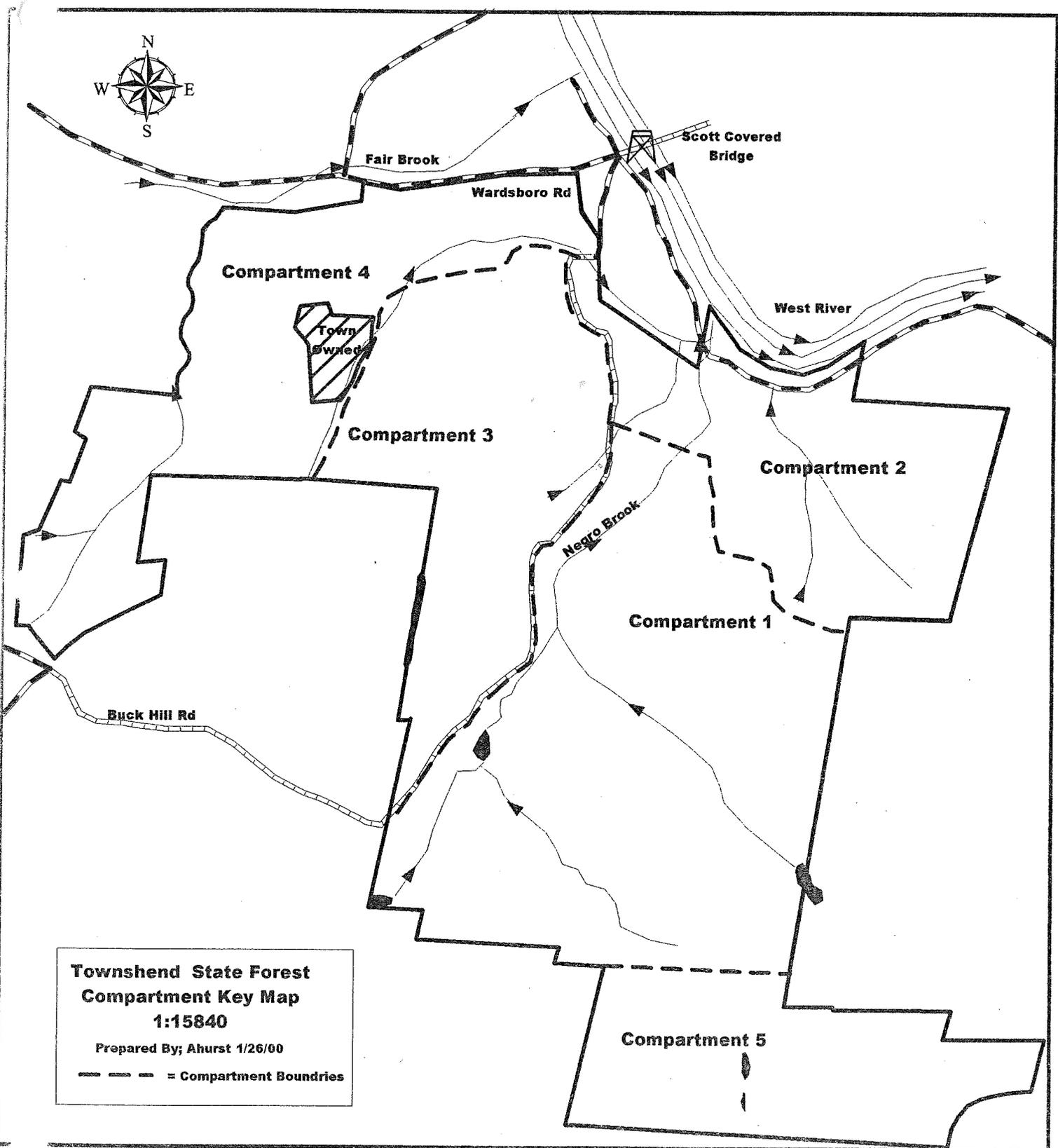
## APPENDIX C.

### MANAGEMENT UNIT Townshend SF. FOREX COMPARTMENT INVENTORY SUMMARY, 1999.

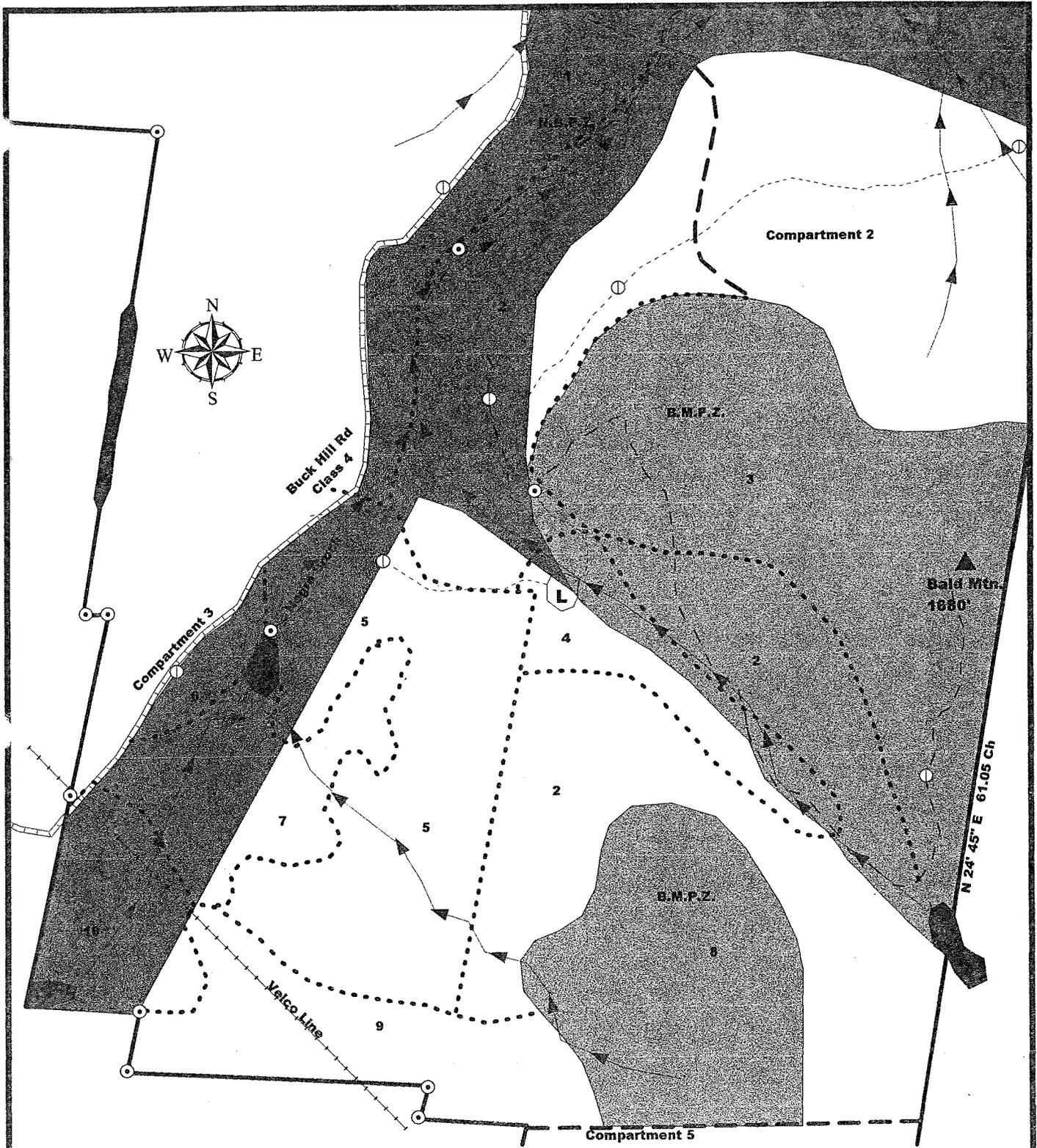
COMP.	STAND	SIZE ACRES	MSD	BA/A * TOTAL	ACC. BA/A	UNACC. BA/A	CULL BA/A	SITE	TIMBER TYPE	SPECIES % BA	RECOMMENDED TREATMENT	ACCESS
1	1	35	12.9	104 84	66	4	34	1	25	he 21 be-23by- 14 bb-21	Negro Reserve	steep
1	2	68	12.3	140 113	105	4	31	2	23	he-48 mr-11	selection	
1	3	109	11.9	183 170	87	17	79	3	23	he 90	none	excessive steep
1	4	16	11.4	122 111	103	8	11	2	22	he-37 pw-18 sr- 14	selection favor pw, or salvage sr	
1	5	98	12.7	115 92	76	63	34		23	he-43 mr-13 ms-13	none	Myerson
1	7	18	11.7	102 92	52	13	37		108	mr-34 ms-29	regenerate	Myerson
1	8	40	11.3	161 141	78	2	81	4	23	he-58 or-16	none	Bald MT reserve
2	1	53	14.1	136 117	92	18	26	2	25	aw-18 he-14 by-13 ms-13 bb-13	protection zone	poor
2	2	60	12.1	84 65	65	11	8	2	25	ms-41 aw-14 he-13	last cut 1986 next entry est 2011	uphill
2	3	12	13.5	205 175	165		40	3	23	he-92	protection	poor
3	1	54	13.7	165 133	130	17	18	2	25	he-31 bb-27	crop tree leave strips of hem	good
3	2	38	13.8	143 140	103		40		21	pw-62 he-21	crop tree release	good

COMP.	STAND	SIZE ACRES	MSD	BA/A * TOTAL	ACC. BA/A	UNACC. BA/A	CULL BA/A	SITE	TIMBER TYPE	SPECIES % BA	RECOMMENDED TREATMENT	ACCESS
3	3	15	11.8	101 95	69	4	28		22	he-29 sr-19 ms-13 mr-12	crop tree release	fair
3	4	18	12.7	115 92	76	6	34		23	he-43 mr-17 ms-13	remove cull & poor quality	good
3	5	24	12.1	123 116	69	21	34		54	ms-22 pw-13 aw-12 by-12	remove poor quality	
4	1	35										
4	2	33	11.1	91 73	73	6	13	2	22	he-22 mr-17 ms-16	none	
4	3	44	12.5	158 141	148	2	8	1	23	he-70	protection zone	
4	4	17	16.3	72 65	67		2	2	21	pw-65 he-10	shelterwood regeneration	
4	6	12	8.5	85 72	60	8	18	3	25	bb-35 mr-23	patch clearcuts	
4	7	15							25		none poor dry	
4	8	13	18.6	95 60	95				Scots pine	pw-32 ps-32 be-32	none	
4	9	16	16.5	137 114	112	13	11	2	22	he-29 pw-28 bb-12	none	
5	1	59	5.7	144 111	116	7	21	3	35	sr-50 bw-21	none	

\* total basal area  
dominant-codominant



**Townshend State Forest**  
**Compartment Key Map**  
**1:15840**  
Prepared By: Ahurst 1/26/00  
- - - - = Compartment Boundaries

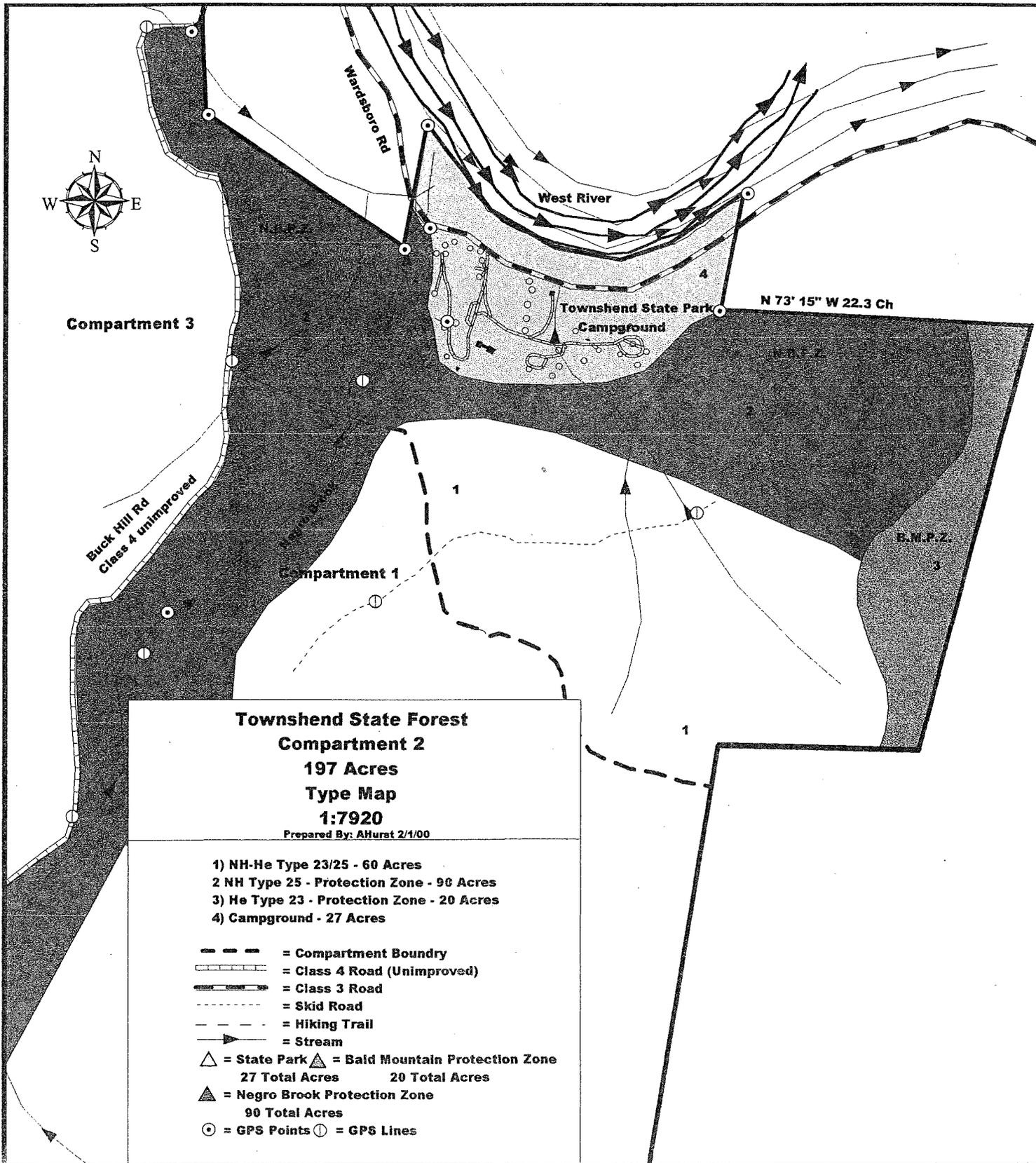


**Townshend State Forest**  
**Compartment 1**  
**376 Acres**  
**Type Map**  
**1:7920**

- 1) NH - Protection Zone - 45 Acres
- 2) He-NH - 37 Acres
- 3) He - 136 Acres
- 4) Pw-Sr-He - 14 Acres
- 5) He-NH - 50 Acres
- 6) Pw-He - 3 Acres
- 7) Red Maple - 18 Acres
- 8) He-NH - 40 Acres
- 9) NH - 26 Acres
- 10) Pw - 7 Acres

- - - - = Trail
- ..... = Skid Road
- = Class 4 Rd (unimproved)
- - - - = Compartment Boundary
- ..... = Stand Boundary
- ▶ = Streams

- ▲ = Bald Mountain Protection Zone  
Total = 148 Acres
- ▲ = Negro Brook Protection Zone  
Total = 71 Acres
- ▲ = Water or Seasonal High Water
- ⊙ = GPS Points
- ⊕ = GPS Lines
- L = Log Landing



Compartment 3

Buck Hill Rd  
 Class 4 unimproved

Wardboro Rd

West River

Townshend State Park  
 Campground

N 73° 15' W 22.3 Ch

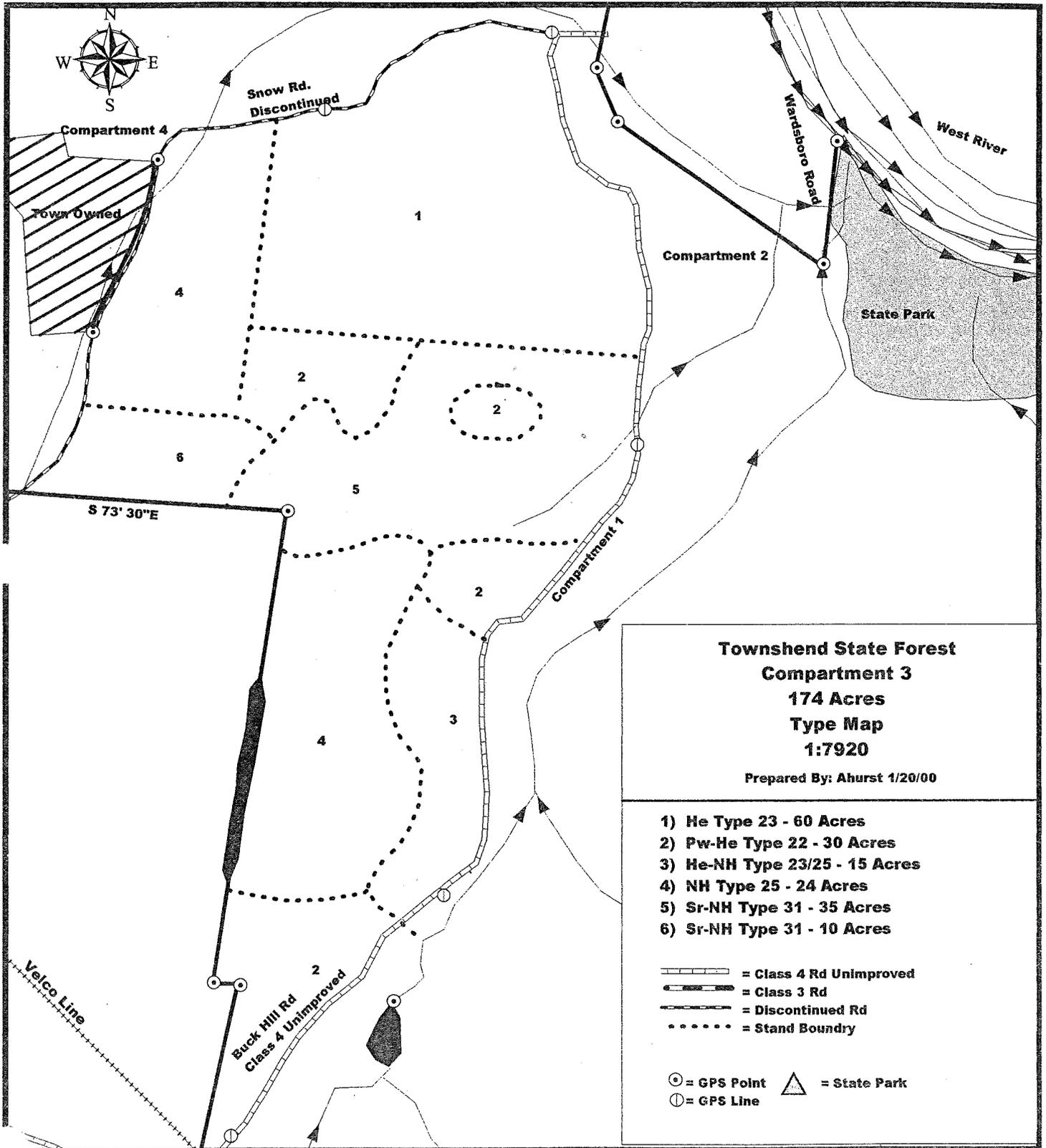
Compartment 1

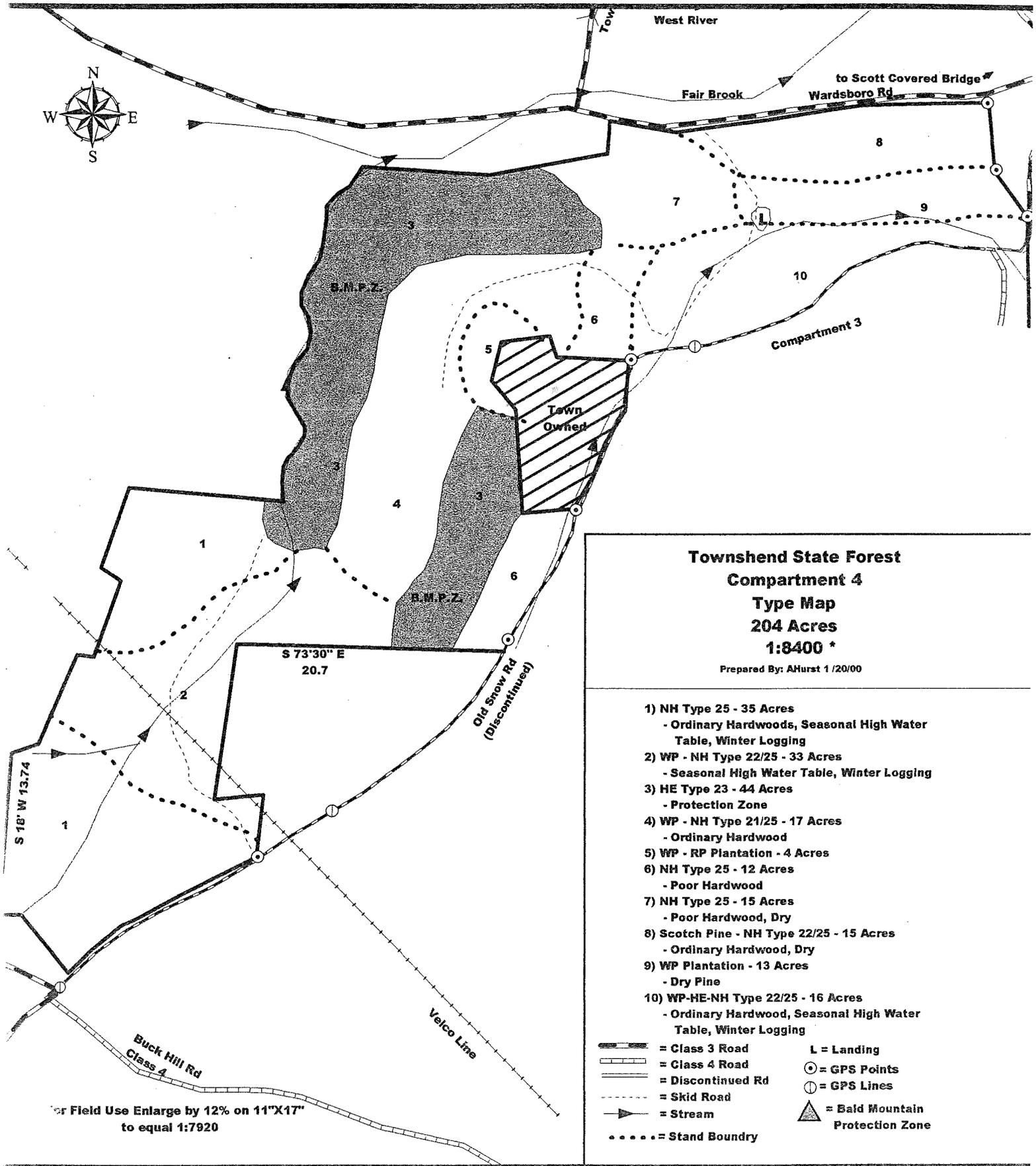
B.M.P.Z.

**Townshend State Forest**  
**Compartment 2**  
**197 Acres**  
**Type Map**  
**1:7920**  
 Prepared By: AHurst 2/1/00

- 1) NH-He Type 23/25 - 60 Acres
- 2) NH Type 25 - Protection Zone - 90 Acres
- 3) He Type 23 - Protection Zone - 20 Acres
- 4) Campground - 27 Acres

- = Compartment Boundry
- - - - - = Class 4 Road (Unimproved)
- - - - - = Class 3 Road
- - - - - = Skid Road
- - - - - = Hiking Trail
- - - - - = Stream
- △ = State Park △ = Bald Mountain Protection Zone  
27 Total Acres 20 Total Acres
- ▲ = Negro Brook Protection Zone  
90 Total Acres
- ⊙ = GPS Points ⊕ = GPS Lines





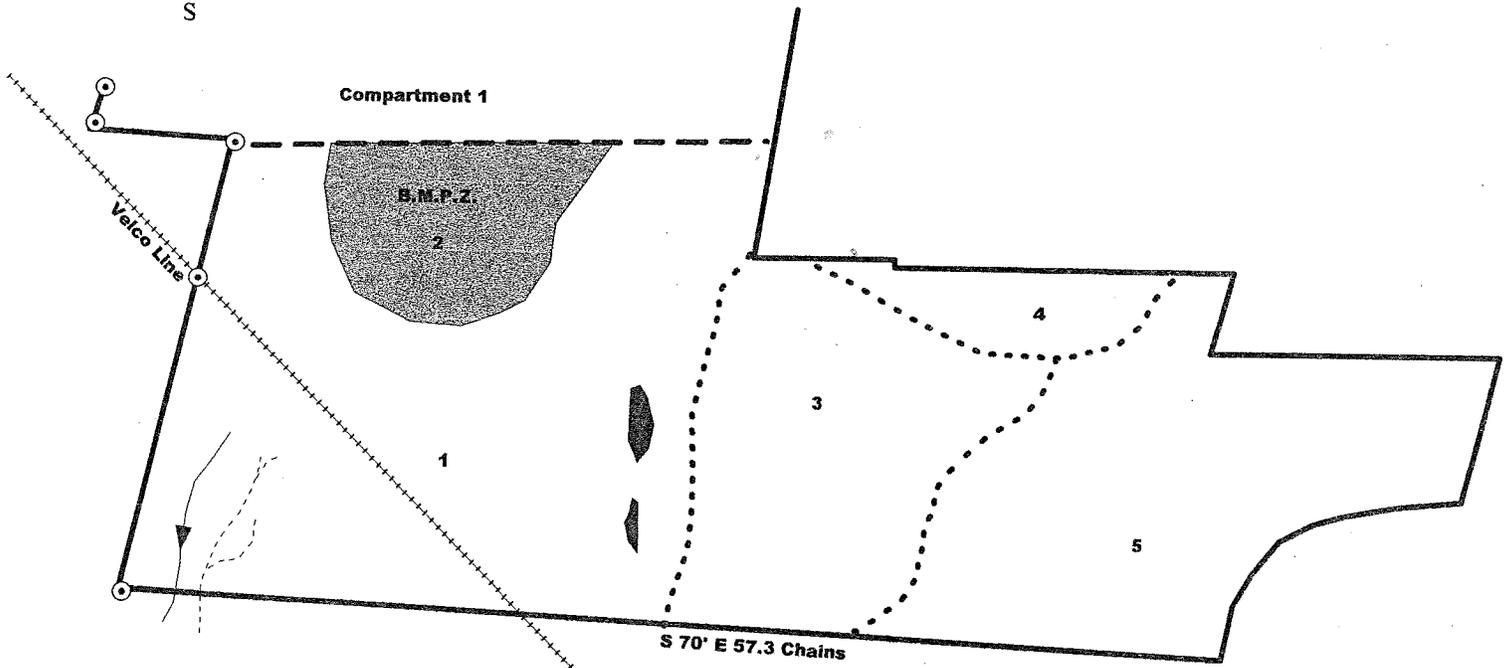
**Townshend State Forest  
Compartment 4  
Type Map  
204 Acres  
1:8400 \***

Prepared By: AHurst 1 / 20/00

- 1) NH Type 25 - 35 Acres  
- Ordinary Hardwoods, Seasonal High Water Table, Winter Logging
- 2) WP - NH Type 22/25 - 33 Acres  
- Seasonal High Water Table, Winter Logging
- 3) HE Type 23 - 44 Acres  
- Protection Zone
- 4) WP - NH Type 21/25 - 17 Acres  
- Ordinary Hardwood
- 5) WP - RP Plantation - 4 Acres
- 6) NH Type 25 - 12 Acres  
- Poor Hardwood
- 7) NH Type 25 - 15 Acres  
- Poor Hardwood, Dry
- 8) Scotch Pine - NH Type 22/25 - 15 Acres  
- Ordinary Hardwood, Dry
- 9) WP Plantation - 13 Acres  
- Dry Pine
- 10) WP-HE-NH Type 22/25 - 16 Acres  
- Ordinary Hardwood, Seasonal High Water Table, Winter Logging

- = Class 3 Road
- = Class 4 Road
- = Discontinued Rd
- = Skid Road
- = Stream
- = Stand Boundry
- = Landing
- = GPS Points
- = GPS Lines
- = Bald Mountain Protection Zone

For Field Use Enlarge by 12% on 11"X17" to equal 1:7920

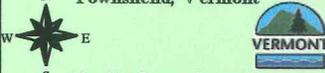


**Townshend State Forest  
Compartment 5  
Type Map  
144 Acres  
1:7920**

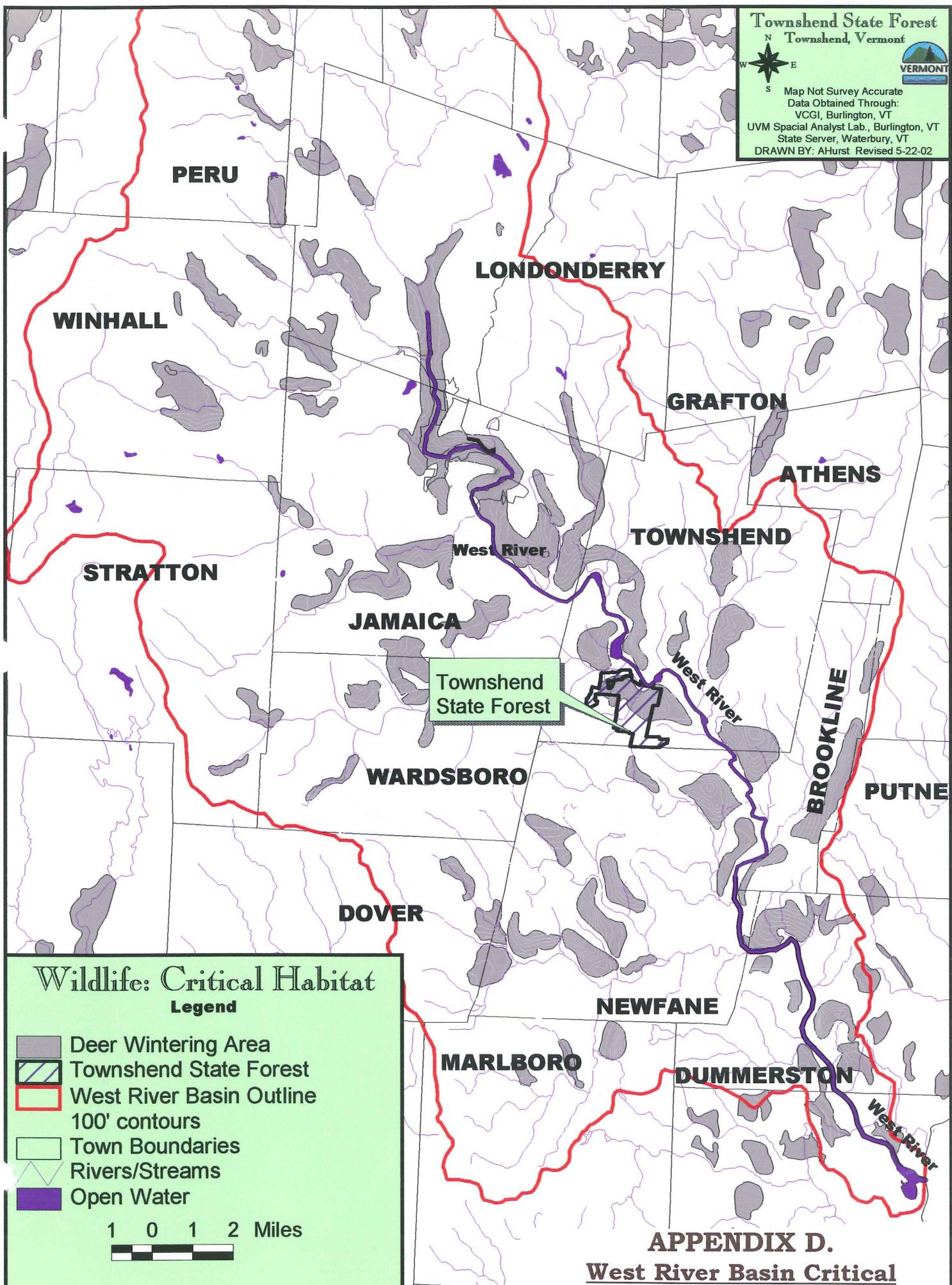
Prepared By; Ahurst 1/26/00

- |   |   |
|---|---|
| 1) NH-Sr Type 25 - 64 Acres<br>- Old Clearcut | — — — = Compartment boundary                          |
| 2) Site 4 - 14 Acres<br>- Protection Zone     | —▶— = Stream  |
| 3) NH-Sr - 22 Acres                           | - - - - = Skid Road                                   |
| 4) NH Type 25 - 4 Acres                       | ..... = Type Line                                     |
| 5) He Type 23 - 40 Acres                      | ■ = Water   |
|   | ⊙ = GPS Points  |
|   | ▲ = Bald mountain Protection Zone<br>Total = 14 Acres |

Townshend State Forest  
 N Townshend, Vermont



Map Not Survey Accurate  
 Data Obtained Through:  
 VCGI, Burlington, VT  
 UVM Spatial Analyst Lab., Burlington, VT  
 State Server, Waterbury, VT  
 DRAWN BY: AHurst Revised 5-22-02



**Wildlife: Critical Habitat Legend**

-  Deer Wintering Area
-  Townshend State Forest
-  West River Basin Outline
-  100' contours
-  Town Boundaries
-  Rivers/Streams
-  Open Water

1 0 1 2 Miles



**APPENDIX D.**  
**West River Basin Critical Wildlife Habitat Map**

## **APPENDIX E.**

### **Public Input**

Due to the relative non-controversial nature of this parcel, the district stewardship team prepared a draft plan for the public to review. On March 24, 2002 a public input session was held at Leland and Grey High School in Townshend using the open house format. Eight panels were used with an employee at each panel to facilitate discussion. Twenty-two people attended the meeting which was generally well received. There were several members of the Townshend Planning Commission present. Individuals who came tended to stay for an hour or so reviewing each panel discussing various aspects with the responsible person. Department personnel present at the public input session were: Linda Henzel (welcome to the open house and the process), Aaron Hurst (new mapping techniques GIS & GPS), Nate McKeen (recreation), Rick White (cultural & historic), Lisa Thornton (natural communities coarse filter), Kim Royar (wildlife fine filter), Roy Burton (timber and wildlife habitat management), and Jay Maciejowski (the land classification system). Photos of the eight panels are available through the stewardship specialist.

The Brattleboro Reformer published a article written by reformer staff member Tom Marshall in advance of the meeting, and Abigail Nitka of the Rutland Herald attended the meeting and wrote a article on the open house format, both contained in this appendix.

A personal invitation was mailed to abutting owners, VAST, associated industries, Army Corps of Engineers, Bill Guenther, local legislators, local sportsman organizations, and local game wardens.

Individuals attending were welcomed by Linda Henzel and were given a handout, copy enclosed, to encourage questions and comments as they reviewed the panels. No comments were made during the session, and only one comment was received in the mail. That one comment suggested a brief overview first might have been helpful, otherwise thought the process was quite educational and suggested it be taken to the schools. No comments were received or made on the content of the plan itself.



Tom Marshall/Reformer

## State eyes new plan for Townshend park

By TOM MARSHALL  
Reformer Staff

TOWNSHEND — All was quiet Wednesday at Townshend State Park, except for a pair of waterfowl seen coasting down a rushing stream.

First one, then the other plunged down Negro Brook, bobbing like corks in the cold spring runoff, before flapping off on warm currents of air.

Next month humans return to the seasonal 856-acre preserve, which was purchased by the state in 1912 and converted into a park in 1935. When they do, they'll be visiting a park with a new land-management plan that advocates are calling historic.

Due to be unveiled in draft form Wednesday, April 24, at 7 p.m. at Leland & Gray Union High School, the Agency of Natural Resources' plan employs a "natural communities" approach to forest management, in which a forest's full resources — including fish, wildlife, culture, history, and recreational

See TOWNSHEND, Page 8

Continued from Page 1

opportunities — are considered in planning.

The forum will be organized differently than the usual "talking heads" meeting, with photographs and maps highlighting different portions of the park. Foresters, wildlife biologists and ecologists will man each of those stations, fielding questions from the public and turning the plan into a living document.

"This will be a public presentation of what's probably the first comprehensive, modern land-management program," said neighbor David Clarkson. "Normally with these state forests, they're primarily concerned with timber production. It's really marvelous."

District forestry manager Jay Maciejowski said the plan envisions four timber sales from portions of the park over the next 20 years, taking care not to disrupt sensitive ecosystems near Bald Mountain, including a rare sugar maple/ostrich fern riverine forest.

No major changes are planned for the park aside from trail maintenance, he said. "It's a fairly sensitive area," he said.

Windham County Forester Bill Guenther said one section the state bought was poorly managed in the past, and is still recovering. "The timber was cut really hard. Things were done from a forestry standpoint

that I don't agree with."

But locals consider the park a treasure, and Clarkson helped organize the Wildlife Habitat Improvement Group to promote good land-management practices throughout the area.

"We have a wonderful habitat," he said. "Just about every species that is native to this area is found here."

He said the area is also rich in historical treasures, with ancient foundations and stories dating back to the Civil War and earlier. He recalled one local bachelor named Kidder who made bayonets for the Union Army.

"He made them out of scythe blades, straightened them out into bayonets," he said. "Sort of reversing the swords-into-ploughshares idea."

Guenther said the stone park buildings — created by the all-volunteer Civilian Conservation Corps during the Great Depression, under the direction of Italian stonemasons — are also a vital treasure. "Some of the stonework is just incredible."

But all of those resources need management, protection, and maintenance, and Maciejowski said he hoped residents would drop by to find out about the area and comment on the draft plan.

"We're really committed to community involvement," he said, adding that changes could be made in light of public input. "Are we getting it right?"

## State has new approach on taking forest input

By ABIGAIL NITKA  
Southern Vermont Bureau

The Agency of Natural Resources is taking a different tack when it comes to public input.

At an "open house" on an updated management plan for the Townshend State Forest at Leland and Grey High School last week, that new tack was readily apparent.

Instead of being asked to sit in folding chairs and listen as state experts bombarded them with information, visitors were greeted with a circular bank of informational boards, each mapping and detailing a different facet of forest management. A state expert, eager to expound on the details of their particular specialty, manned each of the stations.

For those attending the meeting, it was a welcome change.

"I like that you're not sitting and listening to a boring speaker," resident Marki Webber said as she meandered around the bank of stations.

"I feel a lot more involved with this than if they just had a meeting and said, 'This is what we're going to do.'"

The ecologists, foresters, park rangers and other resource managers seemed to have similar feelings.

"People seem really pleased that we put forth the effort to educate them rather than just talk at them," said Lisa Thornton, an ecologist with the state's Department of Forests, Parks and Recreation.

"It's a neat way to interact with people," she said.

In the setting of a sit-down meeting, one or two people usually end up dominating the discussion, while in the "open house" format individuals can stop and talk one-on-one with an expert in a field without the pressure of a group meeting, Thornton said.

The Townshend "open house" was only the third such meeting in the new format, according to Jay Maciejowski, district forestry manager for the Department of Forests.

"What we're going to look at is: Is this an acceptable way to deal with the public?" Maciejowski said. "This is an opportunity to talk to the public one on one."

Before the Townshend hearing, the first two open house meetings were for the Coolidge West Management Unit - a group of state lands that covers much more area and has many more users than the Townshend lands.

The 18,500-acre (and growing) West Coolidge area includes the Coolidge State Forest, Plymbsbury Wildlife Management Area and the Tiny Pond Wildlife Management Area, which straddle the border between Windsor and Rutland counties.

State-owned lands include property at the Killington Ski Area, many snowmobile trails and the Long Trail.

(See Forests, Page 8)

## Forests

(Continued from Page 1)

While changes to the Townshend State Forest plan were relatively few and the process of updating it has been relatively easy - Wednesday's hearing was the only one scheduled - the West Coolidge area has been more intensive, Maciejowski said.

Because those changes to the Coolidge plan are more significant, three public hearings have been scheduled, the third of which will be held Monday from 6 to 8 p.m. at the Howe Center in Rutland.

Maciejowski is hoping for a higher turnout at that meeting because there are so many different users of that land who could have input and who would benefit from the open house, he said.

The public input that comes out of the meetings will be addressed in a final responsiveness summary in the final plan. The summary will include a few paragraphs detailing requests and input from the public and why that information was used (or not used) in the final draft of the plan, according to Ed Leary, operations director for the Department of Forests.

But the open house hearings are not the only difference in how the public is involved in

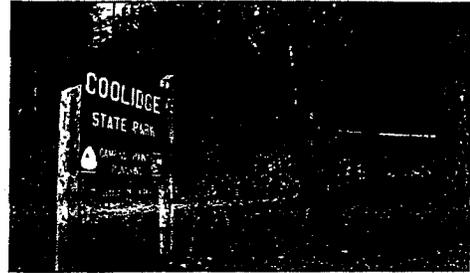


Photo by Margo Smith

The Coolidge State Park in Plymouth has been the subject of two recent hearings seeking input from the public.

the process, Leary said.

Earlier this month, the agency put out its first formal outline detailing the public's role in the planning process for state-owned lands.

The eight-page newsletter, which has been in the works for about a year, defines different levels of public input and how much of that input is to be used in the planning process.

"We wanted to be straight with the public and give them the ground rules: 'Let's try to put all of this down on paper so we have a handout, so you understand why we invited you and here's what we expect of you,'" Leary said.

The agency has always had a clear idea of how public input was used in planning the future

of state lands, but it may have been less clear to the public itself, he said.

The new guidelines will help to define that role, he said.

"These lands are owned by the public, they are not owned by us; but we have a responsibility to manage these lands," Leary said.

Along with public input, he said, the department must consider resource management for maximum biodiversity, legal restrictions on lands and regional constraints.

"We have to manage it for everybody," Leary said. "We are not just managing it for that select group of individuals who show up at the meeting."

Contact Abigail Nitka at [abigail.nitka@rutlandherald.com](mailto:abigail.nitka@rutlandherald.com).

## Rutland Herald

# TOWNSHEND PUBLIC INVOLVEMENT – MARCH 24, 2002

**\*\*PLEASE PRINT LEGIBLY\*\***

## **SIGN-UP SHEET**

	<b>Name</b>	<b>Mailing Address and/or E-Mail Address</b>
1	Elizabeth Garfield	PO Box 174, Townshend, VT 05353
2	Walter Meyer	PO Box 447, Townshend, VT 05353
3	David Clarkson	1068 South Wardsboro Road, Newfane, VT 05345
4	Eve Richards	1510 Windmill Hill Road, South Putney, VT 05346
5	Dale Thiel	PO Box 615, Townshend, VT 05353
6	Bill Uptegrove	PO Box 1351, West Townshend, VT 05359
7	Betsey Uptegrove	PO Box 1351, West Townshend, VT 05359
8	Virginia Pennock	PO Box 427, Townshend, VT 05353
9	Dennis Rosa	PO Box 45, Jamaica, VT 05343
10	Linda Rosa	PO Box 45, Jamaica, VT 05343
11	Tom Lyman	PO Box 508, Townshend, VT 05353
12	Mike Bills	PO Box 24, Townshend, VT 05353
13	Marki Webber	747 South Wardsboro Road, Newfane, VT 05345
14	Clay Coyle	747 South Wardsboro Road, Newfane, VT 05345
15	Joe Wright	131 Route 30, Newfane, VT 05345
16	Abigail Nitka	Rutland Herald, 56 Main Street #202, Springfield, VT 05156
17	Fran Parker	1195 Buck Hill Road, Townshend, VT 05353
18	Erin Hunter	1195 Buck Hill Road, Townshend, VT 05353
19	John Evans	PO Box 58, Townshend, VT 05353
20	Alejandro Jimenez	PO Box 441, Townshend, VT 05353
21	Lorna Hard	PO Box 145, Wardsboro, VT 05355
22	Fred Hard	PO Box 145, Wardsboro, VT 05355

## **Welcome to the Townshend State Forest Draft Plan Open House!**

Staff members from the Vermont Agency of Natural Resources (ANR) thank you for coming to this event tonight. We appreciate your taking the time to learn about and hopefully comment on our proposed management strategies for this outstanding parcel of state land.

Your comments will be taken as advice by the ANR, and every effort will be made to include suggestions which are compatible with the ANR mission statement and management principles and are fiscally realistic. ANR must make decisions about the public good which span this and future generations. As a result, our public involvement process was not designed to institute "majority-rule" management of public land.

We hope you will review the materials at each station in the order they've been set up and discuss your concerns with the staff members available there. We encourage your comments and offer a number of ways in which you can make them:

- \* Tonight, on a flipchart;
- \* Tonight, turn in a comment sheet; and/or
- \* Via mail or email over the next 30 days.

To assist your review of the draft plan for Townshend State Forest, we offer some questions for your consideration on the attached comments handout. These are designed to stimulate your thinking, but feel free to develop your own questions.

The plan is available for your review at the following website address:

**<http://www.state.vt.us/anr/fpr/lands/townshend/index.htm>**

Thank you again for attending. We anticipate that your feedback will help us to do a better job of managing these lands for the people of Vermont and our visitors.

## **Townshend State Forest Draft Plan Focus Questions, Spring, 2002**

You are welcome to turn in any comments you have to us tonight or keep this handout for reference. We offer an additional 30 days for you to make formal comments about this plan. Please send comments to:

Roy Burton, State Lands Forester  
Vermont Department of Forests, Parks & Recreation  
100 Mineral Street, Suite 304  
Springfield, VT 05156-3168

or by email to:  
[roy.burton@anr.state.vt.us](mailto:roy.burton@anr.state.vt.us)

The plan can be accessed at the following website address:

<http://www.state.vt.us/anr/fpr/lands/townshend/index.htm>

### **As you explore the stations tonight, please consider the questions below.**

These questions are suggestions only. Feel free to develop your own. The last page remains blank for the purpose of comments and please add more pages as needed.

### **Does this proposal for managing Townshend State Forest adequately address the following:**

Recreation concerns

Archeological, cultural, and historic resources

Natural communities

Key wildlife issues

Timber resources management

Purposes of public ownership (goals and objectives of the parcel)

## **Townshend State Forest Draft Plan Focus Questions, Spring, 2002**

**Has the recreation section of this plan accurately identified all the recreational issues?** These might include the spectrum of uses and experiences available and resolution of any user conflicts.

**Has the cultural resources section of this plan accurately identified all the archeological, cultural, and historic resources of the parcel?**

**In the ecological assessment section of the plan, have we adequately identified the natural communities found on the parcel?**

**In the ecological assessment of the plan, have we adequately identified all of the key wildlife issues?**

## **Townshend State Forest Draft Plan Focus Questions, Spring, 2002**

**In the timber resources section of the plan, have we adequately identified concerns regarding timber resources and timber harvest?**

### **Land Classification Station**

**Does this proposal for managing Townshend State Forest accurately reflect the purpose for ownership (i.e. the goals and objectives of the parcel)?**

### **Other questions**

**What is the single most important value you place on Townshend State Forest?**

**How do you use Townshend State Forest?**

**What town do you live in?**

## **Townshend State Forest Open House Evaluation, Spring, 2002**

**Do you like this open house style public outreach? Why or why not?**

**Was it held at a convenient time? If not, what would you suggest?**

**Do you have any suggestions for improving public involvement for land held by the Vermont Agency of Natural Resources?**

**Please feel free to give us any other comments you have.**

## APPENDIX F.

### 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.

## **APPENDIX G.**

### **Summary of Some Policies and Guidelines Used in the Management of Vermont Agency of Natural Resources Lands**

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 plan. If more information is needed, refer to current policies and guidelines which can be made available upon request. The information is grouped into some general categories to make this document easier to use.

#### **Acquisition of Land**

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

#### **Cultural and Archaeological Resources**

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

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

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

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

#### **Gravel Pits**

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

## **Land Use and Development**

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

## **Mountain Top Communications Facilities**

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

## **Natural Area Designation**

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

## **Pesticides Use**

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

## **Prescribed Fire**

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

## **Recreation**

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

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

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

## **Scientific Research**

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

## **Silviculture**

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

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

Wetlands 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 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.

## APPENDIX H.

### 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.

**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.

**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.

**Special use.** Lands that are leased or designated for a specific purpose, usually beyond the scope of normal department operations.

**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.

(updated 2002)

# APPENDIX I.

## 2011 Long Range Management Plan Amendment

STATE OF VERMONT  
AGENCY OF NATURAL RESOURCES  
DEPARTMENT OF FORESTS, PARKS AND RECREATION  
DEPARTMENT OF FISH & WILDLIFE

### *Townshend State Forest*

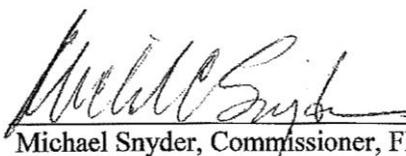
Long Range Management Plan Amendment

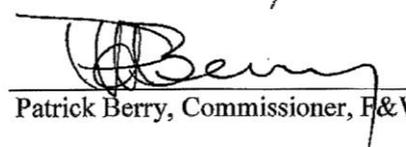
### **Chamberlin and Lehmann Parcel Addition Compartment 5 Prescription Amendment**



**Prepared by:** Tim Morton and Aaron Hurst

Date: November 30, 2011

Approved by:  2/13/12  
Michael Snyder, Commissioner, FPR Date

Reviewed by:  2/21/12  
Patrick Berry, Commissioner, F&W Date

**LONG RANGE MANAGEMENT PLAN AMENDMENT  
TOWNSHEND STATE FOREST  
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## **I. Introduction**

### **A. Purpose of Amendment**

The Long Range Management Plan (LRMP) for Townshend State Forest, approved in 2002, was completed before acquisition of the Chamberlin (2008) and Lehmann<sup>1</sup> (2004) parcels. In addition, no management was scheduled for the remote unit Compartment 5, due to the unknown status of access over the woods road that leads to the parcel. This LRMP amendment will schedule stewardship activities in all three units that comply with the following goals and objectives set for the larger parcel in the 2002 LRMP.

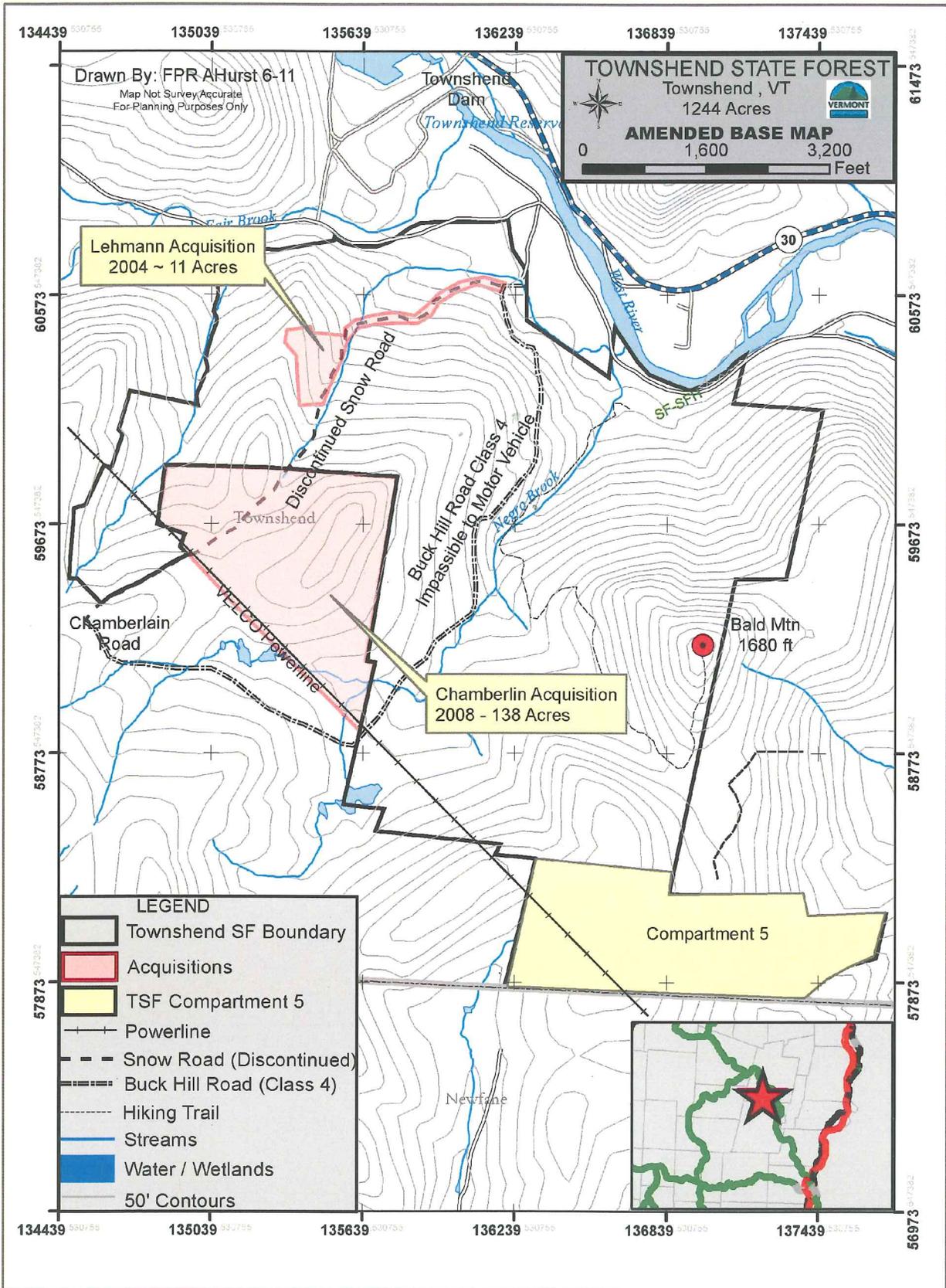
### **B. Purpose of Ownership**

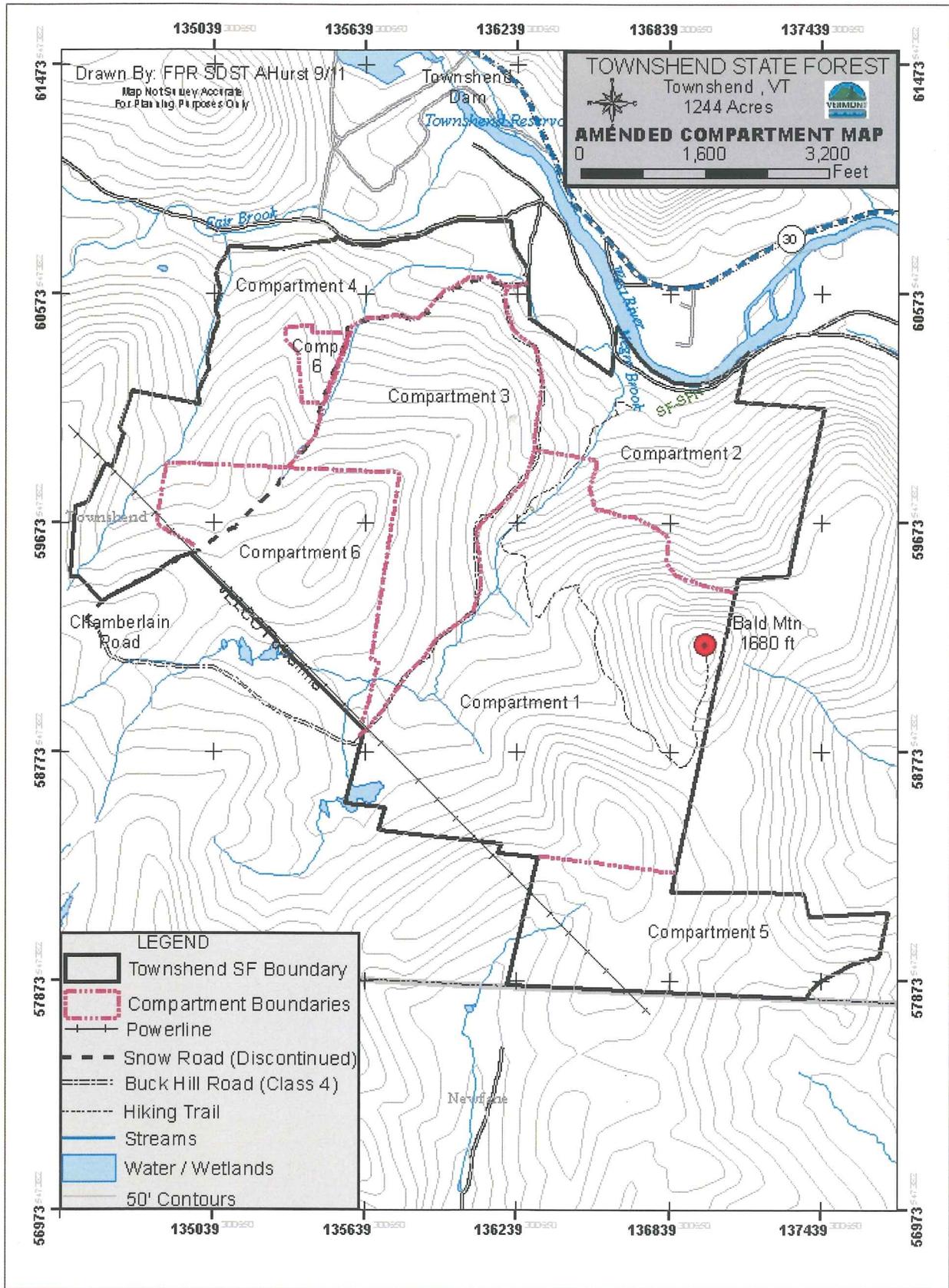
All management objectives and actions in this plan have been developed in collaboration with the Vermont Fish & Wildlife Department and other departments within the Agency of Natural Resources. Specific objectives that will guide this plan will be:

- Protection of unique, fragile, and scenic resources.
- Maintenance of opportunities for a quality recreation experience.
- Protection and enhancement of critical wildlife habitat.
- Preservation of historic remains.
- Provision of access to property for public enjoyment.
- Demonstration of state-of-the-art wildlife, timber management techniques, and techniques to protect water quality in timber harvesting practices so these techniques may find broader application on private lands.

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<sup>1</sup> Also known as 'Town' parcel (held by Town of Townshend briefly before tax sale).





## II. Chamberlin and Town Parcels

### A. Parcel Information

#### 1. Property description and acquisition goals:

##### a. Chamberlin Parcel:

- Forested with elevations ranging from 1100 to 1400'.
- Forest type is mixed hemlock and northern hardwood with strong white pine component.
- Productive soils, slopes 0 to 25%.
- Interior roads abundant and stable. Access via discontinued snow road or by temporary right-of-way over adjoining private lands.

##### Original acquisition goals:

- Improve management access and public recreation opportunities on Townshend State Forest.
- Protect and add significant remote recreation area.
- Protect numerous historic sites.
- Maintain large unfragmented forest area with important functions pertaining to source waters for the West River and critical wildlife habitat.

##### b. Lehmann Parcel:

- Forested, lower elevation.
- Forest type is mixed white pine, red spruce, and northern hardwood.
- Productive but wet soils with moderate to steep slopes.
- Accessed by existing road network of Townshend State Forest; old snow road along brook unusable and in buffer strip.

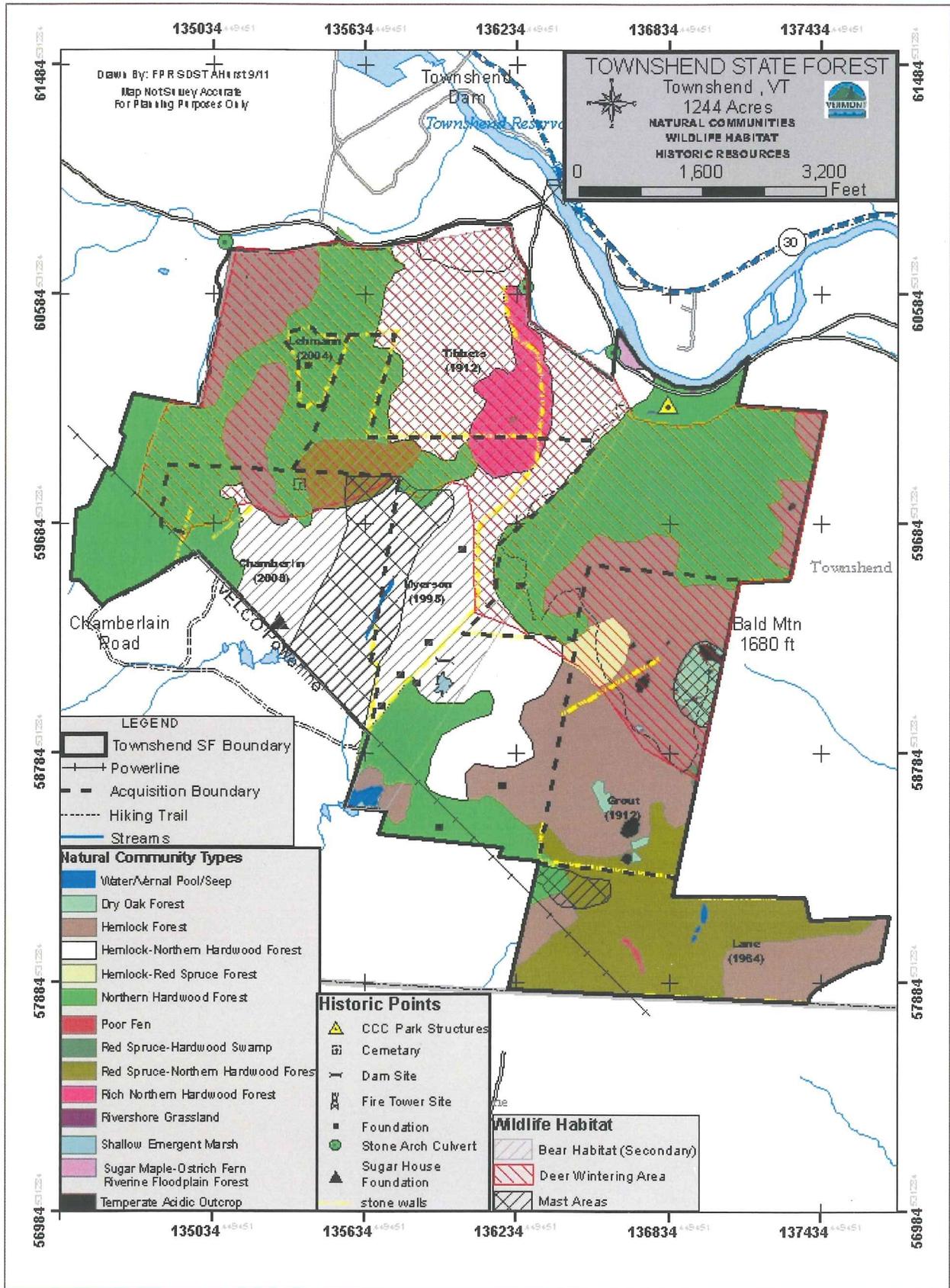
##### Original acquisition goals:

- Protection of sensitive tributary of the West River.
- Extinguishing access rights through the state forest to an inholding and preventing residential development in the center of the state forest.
- Maintaining a large area for public recreation without the threat of a key parcel and its owned right-of-way being posted and bisecting the state forest.

#### 2. Existing conditions and assessments:

Natural community types of the two parcels are consistent with community types on adjacent portions of Townshend State Forest. The three community types (Hemlock, Hemlock-Northern Hardwood, and Red Spruce-Northern Hardwood) are common types in the state and here are B and C ranked occurrences.

3. Wildlife habitat:
  - Locally significant mast (oak) trees and oak tree groups on the Chamberlin parcel.
  - Entire area mapped as important bear habitat by the Fish & Wildlife Department.
  - Approximately 40% mapped as and serving as deer wintering area.
  - No rare, threatened, or endangered plant or animal species.
  - A lack of early successional habitat.
  - Remoteness of areas is beneficial to wildlife species that rely on remote forested habitat.
  
4. Historic resources and archeological sensitivity:
  - Historic farmstead remnants on Lehmann parcel.
  - Historic woodland cemetery on Chamberlin parcel.
  - Historic sugarhouse foundation on Chamberlin parcel.
  - Due to a lack of water features and/or flat ground, archeological sensitivity is low on both parcels.
  
5. Legal and special constraints:
  - Two rights-of-way through the state forest were extinguished by the acquisitions; the owned right-of-way to the Lehmann Lot that paralleled the old Snow Road and the Chamberlin right-of-way easement off Buck Hill Road along the west branch of the Negro Brook.
  - Historic water rights Lehmann Lot to Watson. No indication they are or would be utilized.
  - Easement and right-of-way in common with Grantors (Chamberlin) along the discontinued Snow Road.
  - 150' wide easement granted to CVPS by deed of Alonzo and Eva Chamberlin dated December 9, 1964 and recorded in Book 38, page 26 of the Townshend Land Records.
  
6. Conservation agreement:
  - a. Chamberlin Parcel
    - Parcel is subject to a Conservation Agreement between the State of Vermont Agency of Natural Resources and the Vermont Housing & Conservation Board.
    - Permitted uses include public outdoor recreation, natural area protection, forestry, and open space purposes.
    - A summary of permitted and restricted uses is found in the Baseline document in Appendix A.
  
  - b. Lehmann Parcel
    - No conservation easements exist on the Lehmann parcel. Funding source was Vermont Land Trust pass through funds from a water quality violation on the West River.



### III. Land Use Classification and Management (Chamberlin and Town Parcels)

#### A. Special Management (34 acres)

##### 2.1b) Historic/Cultural Areas (2 acres)

Three sites feature historical remnants of use and settlement:

- 1) The historic farmstead on the Town Lot
- 2) The historic cemetery on the Chamberlin Lot
- 3) The Sugarhouse site on the Chamberlin site

These sites are in fair condition with ample stone works in good condition and little, if any, negative impacts from past management. The cemetery site is small, nondescript, and difficult to locate.

There are no unique ecological features or recreational trails near or within these three sites.

Forestry trails are located near all three sites used in past harvesting and may require relocation in future stewardship activities.

Following protocols established by the Division of Historic Preservation for protection when conducting management activities will give these sites adequate protection. For additional specifications, see page 43 of the original LRMP.

##### 2.2) Deer Wintering Area (32 acres)

The entire Lehmann Lot and a portion of the Chamberlin parcel is mapped and functioning deer wintering area. Consistent with the adjacent 2.2 Land Use Classification in Townshend State Forest, management focus will be on improving conditions for deer habitat primarily through the development of softwood cover and food sources. For additional specifications, see page 45 of the original LRMP.

Natural communities in this Land Use Classification are common community types, primarily Northern Hardwood and Red Spruce-Northern Hardwood. Deer wintering use is focused in pockets of dense hemlock nested in the Northern hardwood and spruce types. Deciduous trees and red spruce (scattered and low vigor) offer limited deer winter cover.

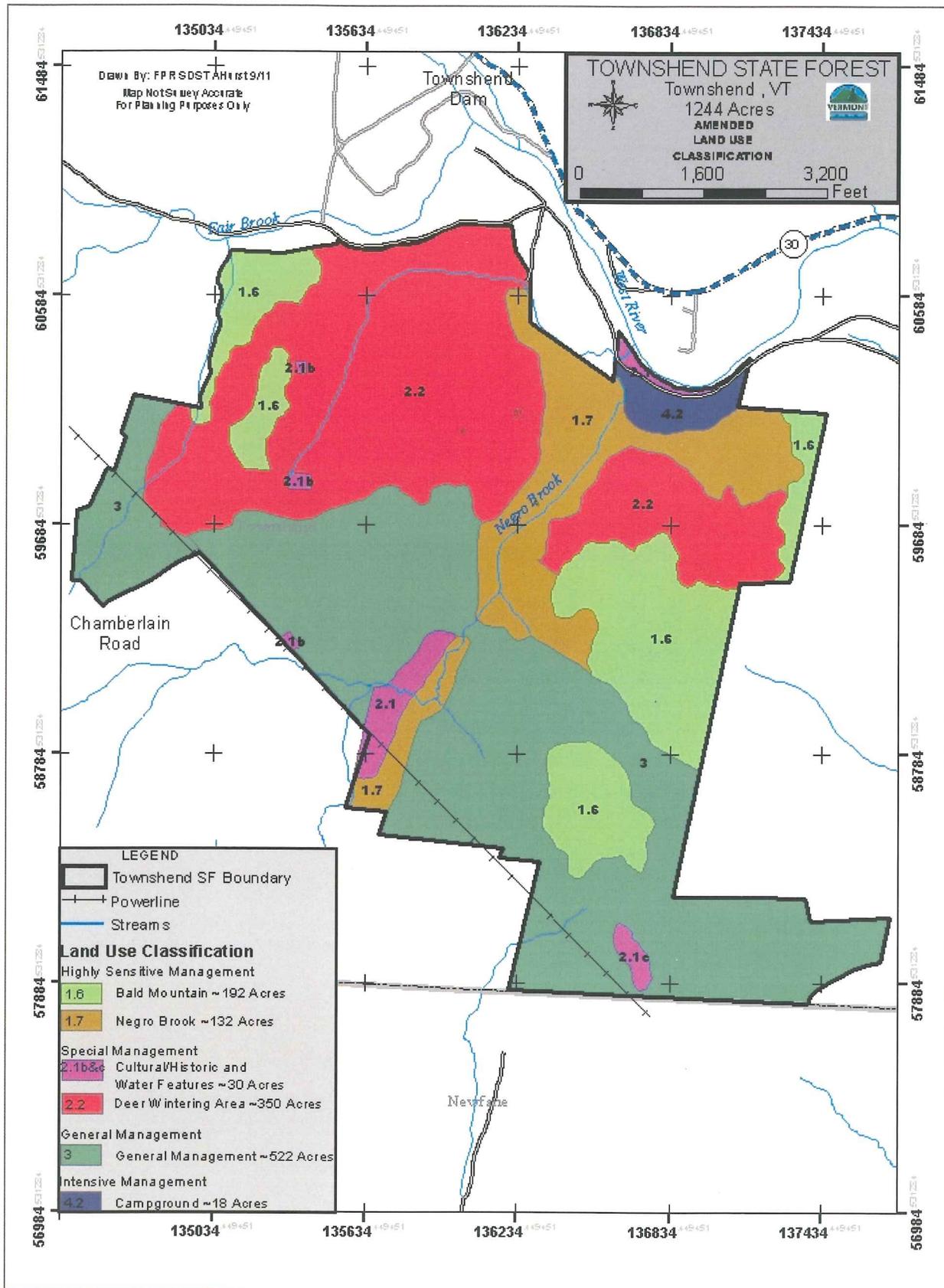
Two historic sites are located within the mapped deer wintering area and will require protection during stewardship activities.

Recreational uses are primarily hunting in the fall.

B. General Management (115 acres)

3.0 Productive Forest Land

The remainder of the Chamberlin parcel is typical woodland for the parcel and region. No unique or sensitive features occur here. Management will focus on improving wildlife habitat for game species and improving the growth of quality sawtimber. Improvement of management access via the old Snow Road and interior woods roads is needed. For additional specifications, see pages 45 and 46 of the original LRMP.



#### IV. Vegetative Management

**Treatment Goals:** Protection of historic sites, improvement of conditions for wintering deer and game species in general, production of high quality sawtimber, and establishment of northern hardwood seedling/sapling class.

##### Prescriptions (Chamberlin Parcel):

###### Chamberlin Parcel

- Hemlock-Hardwood Types – Hardwood removal to favor growth of Hemlock and White Pine and to release pockets of softwood regeneration. Residual BA variable due to variable stocking of softwood.
- Northern Hardwood – Crop tree release to favor growth of high quality sawtimber trees and mast producers (Oak). Crop tree spacing 15 to 40 feet.
- White Pine – Thinning. Residual BA 80-100 ft<sup>2</sup>/acre.

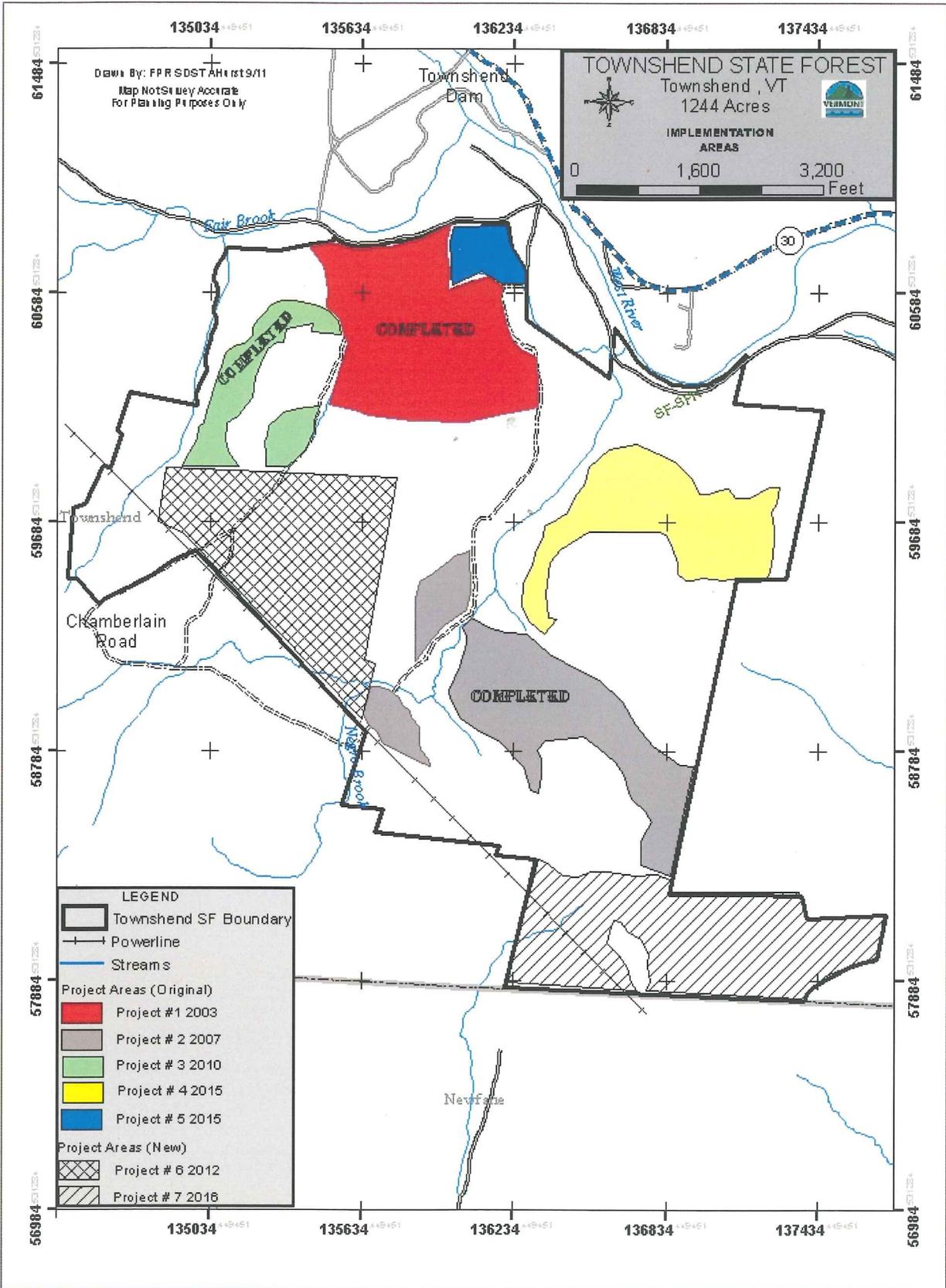
###### Lehmann Parcel

- None scheduled due to low BA, historic site, and steep slopes above brook.

#### Implementation Schedule

2012	Treatment #6, 116 acres, improvement of truck access	Compartment 6, Chamberlin Lot, Stands 2-7
2016	Treatment #7* 144 acres maximum, operable area estimated at 70 acres	Compartment 5, all stands

\*See page 12.



## V. Compartment 5 Amendment

The bulk of Compartment 5 was classified general management in the 2002 LRMP, though with no management scheduled due to access constraints. In the spring of 2011, staff conducted research in the Newfane and Townshend Town Office and examined historical access points on the ground. Current research indicates that while rights-of-way over private land are alluded to in deeds, nothing definitive was set down. On the ground, it appears timber was hauled off the western section via Eddy Road extension and from the eastern section to the northeast through adjoining private land.

The forest is generally comprised of overstocked stands of pine-spruce-oak and hemlock-hardwood. The area is used heavily by wildlife for foraging (acorns) and remote cover, and access to the powerline corridor for feeding on grasses, herbs, and berries. Recreational use is primarily by a small but dedicated local group of bear and deer hunters. Individual tree health is variable, though most trees suffer from excess competition from other trees, and red spruce are generally declining in health.

Completion of prescribed activities contingent on securing access.

1. Sensitive and Special Management Areas: No harvest will occur in Land Use Classification 2.1c and 1.6 (page 44 LRMP).
2. Overall Treatment Objective: Two-aged management, promote growth of higher quality stems, mast trees, and softwood cover patches. Salvage declining red spruce and create  $\frac{1}{4}$  to 2 acre openings (groups and patches) to generate woody browse and soft mast.
3. Prescription: Thinning to 60-80 ft<sup>2</sup>/acre deciduous stands and 90 to 130 ft<sup>2</sup> coniferous stands. Salvage groups of declining red spruce as indicated by tree condition. Generate browse and new seedling/sapling class by removing groups and patches of trees up to 2 acres in size. Regenerate  $\frac{1}{3}$  of sale area with patches and groups.

## **VI. Appendices**

**Appendix A:** Baseline Documentation Report

**Appendix B:** Stand, Soils and Natural Community Data

**Appendix C:** Stand Map

**Appendix D:** Original Base Map 2002

# Appendix A: Baseline Documentation Report

## BASELINE DOCUMENTATION REPORT

Park and Stephen Chamberlin

Townshend, VT

October, 2008  
VHCB # 2008-085

Prepared by:  
Timothy Morton, Stewardship Forester  
Aaron Hurst, State Lands Forester  
Vermont Agency of Natural Resources  
Department of Forests, Parks & Recreation

**This Report Contains the Following Information:**

- Signature pages
- Introduction and Description of the current uses of the property
- References
- Photographs of the property
- Location map
- 1:5,000 Orthophotograph depicting the surveyed boundaries of the property and photopoints
- Property Survey – none available

This is to certify that I, **Ethan Parke**, duly authorized agent of **The Vermont Housing and Conservation Board**, and **Kate Willard**, duly authorized agent of the **Vermont Department of Forests, Parks and Recreation**, do accept and acknowledge the following document, including the attached photographs, as being, to the best of our knowledge, an accurate description of the physical features and current land uses on the subject property, and we affirm that there are no activities ongoing on this property that are inconsistent with the covenants contained in the Grant of Development Rights and Conservation Restrictions of the Vermont Housing and Conservation Board, dated \_\_\_\_\_, 2008 and recorded shortly thereafter in the Town of Ludlow Land Records.

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

By: \_\_\_\_\_  
Its Duly Authorized Agent  
**Kate Willard**

Witness to FPR

\_\_\_\_\_  
Date

**VERMONT HOUSING AND CONSERVATION BOARD**

By: \_\_\_\_\_  
Its Duly Authorized Agent  
**Ethan Parke**

Witness to VHCB

\_\_\_\_\_  
Date

## **I. Introduction**

The purpose of the enclosed information is to describe the physical features and current land uses of the former Park and Stephen Chamberlin property purchased with a grant from the Vermont Housing and Conservation Board. This report is based, in part, on documentation visits by Aaron Hurst and Tim Morton of the Vermont Agency of Natural Resources for the Vermont Housing and Conservation Board in the spring of 2008.

### **Description and Current Use**

This 138-acre parcel was purchased from Park and Stephen Chamberlin as an addition to Townshend State Forest. A wooded, hilly parcel surrounded on three sides by Townshend State Forest, the parcel contains numerous resource features. Notable are portions of an important deer wintering area, multiple historic sites, access to portions of Townshend State Forest, black bear habitat, and stands of white pine and young hardwood that fit well with current management regimes practiced on Townshend State Forest. The property will be managed for timber production, wildlife habitat, and outdoor recreation.

### **Inventory of Existing Buildings and Structures**

There are no buildings or structures on the parcel. The poles and lines of the VELCO power line are located interior to the southern boundary of the parcel.

### **Special Use Areas**

None.

### **Exclusions and Reserved Rights**

None.

### **Public Access**

Public access to this parcel is from the class IV Buck Hill Road, the discontinued Snow Road, the VELCO power corridor, and the interior of Townshend State Forest.

### **Outstanding Habitat Resources**

The property contains deer wintering area, black bear habitat, Buck Hill, an important local mast production area, and a number of seeps and streams.

### **Management Plan(s)**

Management of the property shall be guided by the Interim Stewardship Plan (ISP), until prior to the adoption of the long-range management plan amendment. There are certain activities that **FPR will carry out** during an interim period between acquisition and adoption of a long-range management plan amendment to the recent long-range management plan for Townshend

State Forest. These property stewardship activities include maintenance on existing roads, timber stand or wildlife habitat pre-commercial activities, erosion control, and building gates (see complete list in interim management plan), and are all designed to protect the new property until the long-range management planning efforts are completed. The long-range management plan amendment will consist of at least the following components.

- (a) General Information: pertinent maps, general description of property, overall purpose for protecting the parcel.
- (b) Existing Conditions: field inventories including vegetation types and natural community classification, soils, forest productivity classification, wildlife, recreation, cultural, archaeological and historic resources, special constraints (natural areas, Rare, Threatened and Endangered species sites, deed, easement or other legal restrictions) and emphasis zones; pertinent maps.
- (c) Conservation Objective (Desired Condition): the condition of the land and resources at the end of the planning period and how it will be used, as determined by the goals, objectives, and public vision (including public input and FPR responses).
- (d) Implementation: a description of how the parcel will be managed, taking into consideration all existing conditions (roads, trail, in-holdings), and to achieve the Conservation Objective; it includes active management strategies such as recreational or wildlife enhancements, timber harvesting, new parking, etc.

#### **Summary of Grantor('s')<sup>1</sup> Reserved Rights**

Conservation restrictions allow the property to be used for education, forestry, public outdoor recreation, and scientific purposes only (except as otherwise permitted in the Grant), and to conduct all activities allowed by the Management Plans. The following restricted and permitted uses have been granted.

## **II. Restricted Uses of Protected Property.**

The restrictions hereby imposed upon the Protected Property and the acts, which Grantor shall do or refrain from doing, are as follows:

1. The Protected Property shall be used for public outdoor recreation, natural area protection, forestry, and open space purposes only. No residential, commercial, industrial or mining activities shall be permitted on the Protected Property and no building or structure associated with such activities shall be constructed, created, erected or moved onto the Protected Property. The term structure as used in the preceding sentence shall include, but not be limited to, any telecommunications, broadcasting, or transmission facility. No other building or structure shall be constructed, created, erected or moved onto the Protected Property, except as specifically permitted by the Management Plans or by this Grant.

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<sup>1</sup> Grantor includes , their heirs, executors, administrators, and assigns.

2. Except as otherwise specifically permitted under this Grant, no rights-of-way, easements of ingress or egress, driveways, roads, utility lines, other easements or use restrictions shall be constructed, developed, granted or maintained into, on, over, under, or across the Protected Property without the prior written permission of Grantee, which permission shall not be unreasonably withheld or conditioned if the proposed right-of-way, easement of ingress or egress, driveway, road, utility line, other easement or use restriction is consistent with the Purposes of this Grant.

3. There shall be no signs, billboards or outdoor advertising of any kind erected or displayed; provided, however, that the Grantor may erect and maintain reasonable signs indicating the name of the Protected Property, boundary markers, directional signs, signs informing the public about reasonable use or restricting access on the Protected Property, memorial plaques, historical markers and interpretive/educational markers. With prior written permission of Grantor, Grantee may erect and maintain signs designating the Protected Property as land under easement protection by Grantee.

4. The placement, collection or storage of trash, human waste, or any other unsightly or offensive material on the Protected Property shall not be permitted except at locations, if any, and in a manner which is consistent with this Grant and permitted by the Management Plans. The temporary storage of trash in receptacles for periodic off-site disposal shall be permitted.

5. There shall be no disturbance of the surface, including, but not limited to, filling, excavation, removal of topsoil, sand, gravel, rocks or minerals, or change of the topography of the land in any manner, except as may be reasonably necessary to carry out the uses permitted on the Protected Property under the terms of this Grant and provided for in the Management Plans. In no case shall surface mining of subsurface oil, gas or other minerals be permitted.

6. ANR is not allowed to sell, subdivide or otherwise encumber the property without the written approval of VHCB

7. There shall be no operation of motorized vehicles on the Protected Property except for uses specifically reserved, such as wildlife and forest management, trail grooming and/or maintenance, and for emergency purposes. Snowmobiling may be permitted at the discretion of the Grantor and as provided for in the Management Plans. There shall be no all-terrain vehicle use permitted on the Protected Property except for emergency or management purposes. However, Grantor may permit motor-driven wheelchairs or all-terrain vehicles for use by handicapped persons on the Protected Property if consistent with the Purposes of this Grant, including access permitted by paragraphs III(1) and IV. For purposes of this Grant, all-terrain vehicles include motorized four-wheeled, three-wheeled and two-wheeled or tracked vehicles.

8. There shall be no manipulation of natural watercourses, wetlands, or other water bodies, nor shall there be activities conducted on the Protected Property which would be detrimental to water purity, or which could alter natural water level or flow, except as is minimally necessary to carry out the uses permitted on the Protected Property under this Grant

9. No use shall be made of the Protected Property and no activity thereon shall be permitted which, in the reasonable opinion of the Grantee, is or is likely to become inconsistent with the Purposes of this Grant.

### **III. Permitted Uses of the Protected Property.**

Notwithstanding the foregoing, Grantor shall have the right to make the following uses of the Protected Property:

1. The right to use the Protected Property for all types of non-commercial, non-motorized outdoor recreational purposes (including, but not limited to, bird-watching, cross-country skiing, fishing, hunting, snowshoeing, swimming, trapping, walking, wildlife observation) consistent with the Purposes of this Grant and permitted under the Management Plans.

2. The right to conduct all activities allowed by the Management Plans, provided such activities are reasonably necessary to carry out the Purposes of this Grant and are consistent with this Grant.

3. The right to conduct sustainable forestry and wildlife management together with the right to construct and maintain roads necessary for such activities, in accordance with a management plan developed with the collaboration of the Vermont Department of Fish and Wildlife. All shall be done in accordance with the publication "Acceptable Management Practices for Maintaining Water Quality on Logging Jobs in Vermont," a Vermont Department of Forests, Parks and Recreation publication dated August 15, 1987 (or such successor standard approved by Grantee).

4. The right to maintain, repair, improve, and replace existing recreational trails, together with the right to clear, construct, repair, improve, maintain and replace new trails provided they are consistent with the Purposes of this Grant and permitted by the Management Plans.

5. The right to issue temporary special use permits or licenses authorizing the commercial or non-commercial use of the Protected Property for recreational, educational, forestry, or scientific research purposes, provided that any such permit or license (i) does not unreasonably interfere with the access of the general public to the Protected Property, and (ii) is for uses consistent with the Purposes of this Grant.

#### **Summary of Grantee's<sup>2</sup> Rights**

*This is not a description of the actual legal rights. For a more complete description of these rights, refer to the Conservation Agreement.*

#### **References**

- Conservation Agreement
- Interim Stewardship Plan

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<sup>2</sup> Grantee refers to the Vermont Housing and Conservation Board, its successors and assigns.

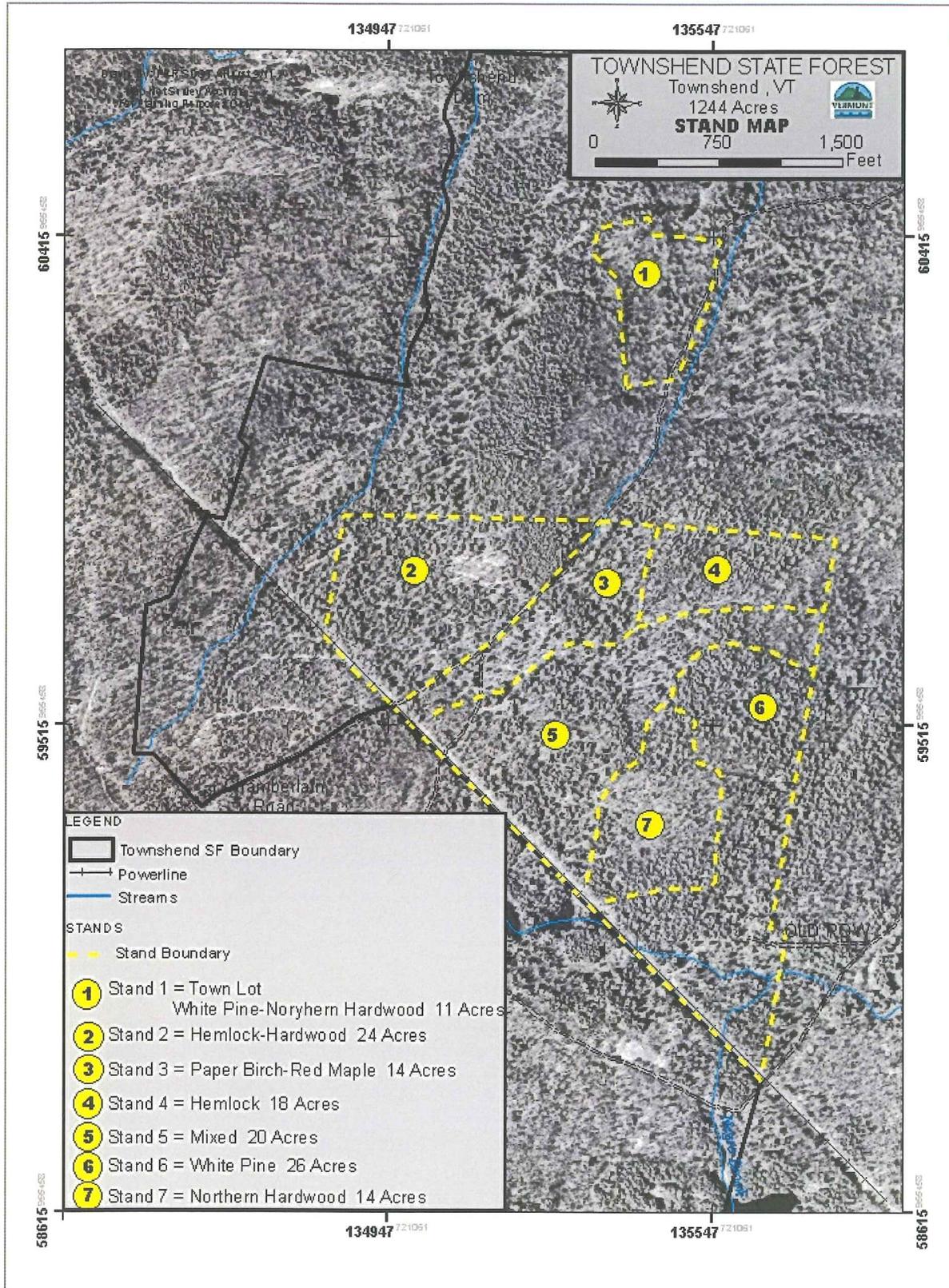
### Appendix B: Stand\*, Soils and Natural Community Data – Chamberlin Parcel and Compartment 5

Comp./Stand	Type/Age	Acres	MSD	BA	AGS	Soil/Site	% Species	Regeneration	Natural Community Type**	Implementation recommendation at time of inventory
1	Pine-Hardwood	11	No data collected			Rawsonville-Hogback Mundal FSL I & II	No data	NH-sparse	Hemlock-Northern Hardwood	none
2	Hemlock-Hardwood 92 years	24	14.7	88	78	Houghtonville-Rawsonville-Hogback I & II	Hem 53 SUM 11 REM 9 YED 9 WHP 6 RES 6	NH-sparse	Hemlock-Northern Hardwood	Single tree and group selection
3	Paper Birch-Red Maple 72/25	14	11	60	42	Houghtonville-Rawsonville Mundal I & II	PAB 38 REM 28 RES 11 HEM 11	NH-sparse	Hemlock-Northern Hardwood	TBD
4	Hemlock 100+	18	19.3	72	53	Mundal FSL Rawsonville-Hogback I & II	HEM 80 SUM 11 WHP 3 REO 3 HHB 3	SUM and RES-sparse	Hemlock Forest	Deer wintering area improvement
5	Mixed 92	20	15.7	82	66	Rawsonville-Hogback Houghtonville-Rawsonville I & II	RES 27 HEM 27 BLB 11 SUM 7 WHP 6	SUM and RES-sparse	Red Spruce-Northern Hardwood Forest	Salvage red spruce, crop tree release
6	White Pine 63	26	14.6	129	90	Rawsonville-Hogback II	WHP 75 RES 10 REM 7 REO 4	RES and NW-sparse	Red Spruce-Northern Hardwood Forest	Thinning
7	Northern Hardwood 57	14	11.4	58	43	Rawsonville-Hogback II	SUM 49 WHA 22 WHP 13 REO 4	SUM-sparse	Red Spruce-Northern Hardwood Forest	Mast tree release and patch clearcuts
ROW-Power Line	11									
Compt. 5 Composite data 1999	144	11	10.2	116	76	Rawsonville-Hogback II	Mixed	RES/AMB	Red Spruce-Northern Hardwood Forest	Spruce salvage/mast tree release

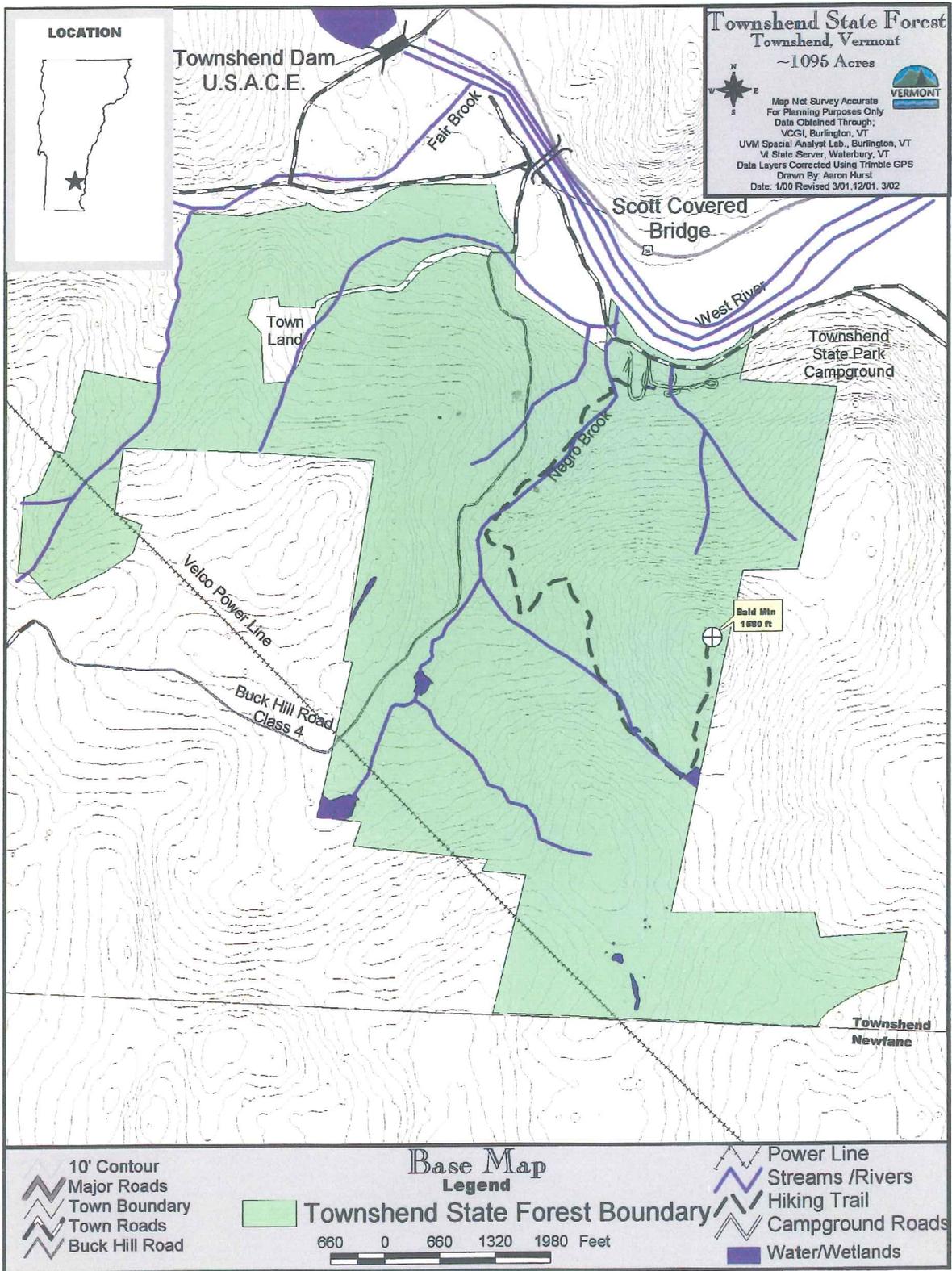
\*Inventory data from previous owner, ground truthed 2011 by Tim Morton.

\*\* See original Long Range Management Plan for descriptions.

# Appendix C: Stand Map



# Appendix D: Original Base Map 2002



# APPENDIX J.

## Original Base Map

