

# AUSTIN FOREST MANAGEMENT PLAN

MAY 1, 2008

*Prepared for the Town of Warren Conservation Commission*

By:



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## CONTRIBUTORS/ACKNOWLEDGEMENTS

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Many others were contacted and supplied information. The Friends of the Mad River shared work on the geomorphic assessment. Arrowwood Environmental summarized information from their natural heritage assessment, County Forester Russ Barrett and State Lands Forester Matt Leonard volunteered extensive time in the completion of the forest inventory and forest stewardship plans. Ecologist Brett Engstrom, biologist Steve Hagenbuch from Audubon, and Timber and Stone trail planners all contributed their expertise to this plan. Rita Goss was a huge help in bringing the history of these parcels to life.

We also had support from all the Warren town staff and boards including the town clerk, town manager, zoning administrator, and listers office.

Finally, we offer our sincere gratitude to the citizens of Warren. This is an amazing community of caring individuals who offer freely of their time to make our community a better place.

## ADOPTION OF THIS PLAN

*This Management Plan was adopted by the Selectboard on ...*

*It will remain in force for a period of ten years, during which time it may be amended by a vote of the Selectboard, after additional public input and the consideration of all pertinent factors. Specific activities and management actions listed in Section III may change due to many factors, but all activities should be consistent with the goals and guidelines contained in this document.*



## READER'S GUIDE

This document guides future actions on the Austin Forest. After a preface introduces the reader to the plan development process, the body of the plan follows, and is organized into three main sections that collectively serve to direct the management this parcel. Section I. states the vision and management goals for the property; Section II contains a discussion of the parcel's features and capacity; and Section III outlines the management actions that will be implemented as a result of this plan.

### ***I. A VISION FOR THE FUTURE***

The *Vision Statement* communicates the priorities for the future use and management of the Austin Forest. The vision attempts to integrate the interests and goals for the use of this property with the inherent features and capacity of the property to meet these goals. Specific goals for the major uses of the property are also outlined in this section and much of the document is organized around these goals.

Both the vision and the goals were developed with input from the public. They are also informed by the practical, legal, and physical characteristics of the property itself.

### ***II. PROPERTY DESCRIPTION AND GUIDELINES FOR STEWARDSHIP***

Section II offers a comprehensive description of property features and limitations. It sets management objectives consistent with the goals and offers a set of management guidelines that are intended to frame management action. The guidelines are shaped by what is known about the opportunities and limitations at the Austin Forest and the priorities set out in the vision and goals. Guidelines reference established and scientifically sound management practices.

### ***III. GETTING TO THE VISION: AN AUSTIN ACTION PLAN***

The last section of the plan brings what we *know* about the property and what we *want* for the property together into a set of management actions. Some of these actions relate to the general stewardship of the property and some relate to very specific goals. Some will be undertaken by town boards or citizens; other may engage contracted professionals, non-profit groups, students, or state personnel.

A *Schedule of Management Activities* outlines specific activities that should be undertaken in the next 10-15 years to work toward meeting the long-term goals identified in the *Vision Statement and Goals*. The schedule describes how and when particular activities, such as boundary maintenance, timber harvests, trail building, and educational activities will take place and who will bear the responsibility for implementation.



Oak tree

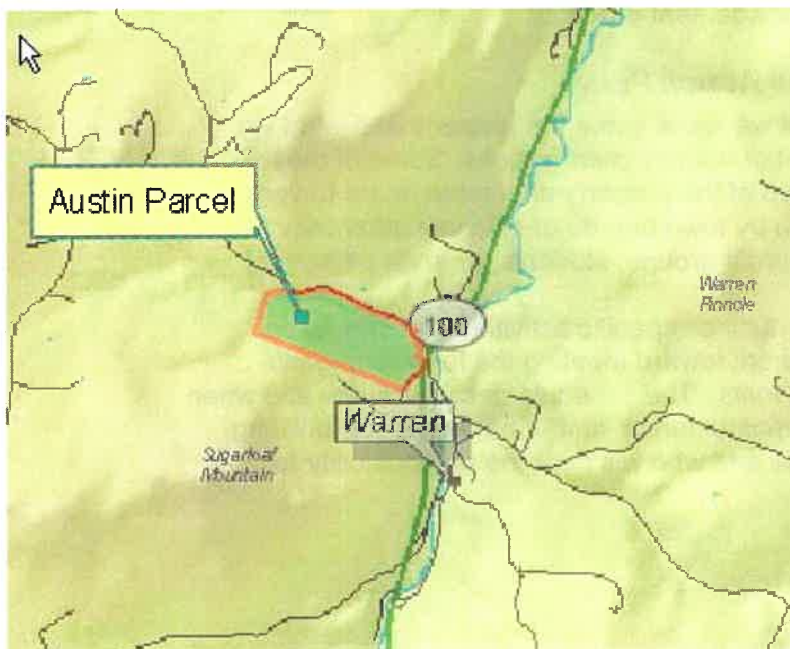
## PREFACE

### WHY PLAN?

We ask a lot of our undeveloped lands. We use and value them as places for recreation, as part of the backdrop of the Vermont rural landscape, as economic resources, and as systems that provide us and other living organisms with critical habitat and ecological services. With so many potentially competing values and uses, planning becomes a critical step in the land management process. The process of planning requires landowners to prioritize their values and goals, develop an understanding of the capacity of their forest, and think through management activities that will help them meet their goals while maintaining the health and integrity of their forest for a long time to come. Without a plan, the complex nature of forests may go unconsidered, forest health and ecological function may be compromised, and short-term gain may be chosen over long-term investment. Even with the best of intentions, it can be easy to make very bad mistakes in the management of forests. Good planning facilitates wise – rather than reckless – use.

The Warren Town Plan (2005) addresses the question of why planning is important at the town-scale: planning allows towns to “protect community interests, maintain a measure of local control, better manage public investment and the allocation of scarce tax dollars, protect important resources, promote development in appropriate locations, and nurture the institutions that define community life.” The same rational for planning applies at the scale of the town-owned land. The planning process allows the town to identify and act to protect land and its resources, address possible conflicts between different uses and interests, anticipate potential legal and liability issues, and plan for expenses and revenue associated with the management of the land.

### PLANNING FOR WARREN’S TOWN-OWNED PARCELS



Location Map

Since most of Warren’s land is federally or privately owned, Warren’s town-owned lands are special. The Austin Forest, located on the west side of Route 100 opposite Warren Village, is the site of the old town gravel pit and is currently still used for fire-pond water and gravel storage. The parcel also includes slopes of forest above the gravel pit and a portion of Bradley Brook where it runs through a ravine before draining into the Mad River at Route 100.

This parcel may be relatively small in acreage, but town-owned parcels have value beyond their size. A few of these values are highlighted here:



- They can serve as a place for community programs, celebrations, education, demonstration, and stewardship.
- They can support various services including:
  - Watershed protection
  - Forest products
  - Wildlife habitat
- They provide a place for public recreation – maintaining access to open space in a time when land is becoming increasingly broken up and restricted.

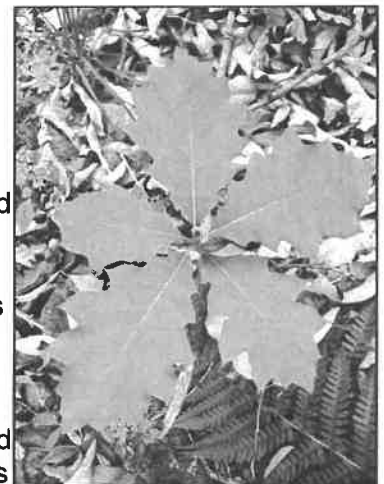
Planning for the management of public land is complicated and enriched by the fact that they are owned collectively by all of Warren’s residents – current and future. Just as in the process of town planning, people must come together to share and debate their values, opinions, and beliefs related to the use of these lands. They must also work together to define actions that will serve the land and the community for generations to come.

### ***WHAT IS A MANAGEMENT PLAN?***

At a minimum, a management plan is a written document or series of documents that:

- Defines landowner(s) management goals and objectives.
- Describes the land (including maps).
- Outlines a schedule for specific management activities.
- Addresses how these activities will act to meet the management goals and objectives.

Historically, management plans for forested or predominantly forested parcels have focused primarily on maximizing revenue from timber (Donovan, 2002). Today, many plans, such as this one, address and attempt to balance a wide range of values placed on economic, social, and ecological resources associated with the land, such as recreation, water quality, wildlife habitat, and renewable energy. For example, management plans may act to identify areas where active management or use by humans is not appropriate, such as in particularly rare or fragile natural communities.



Oak seedling

Management plans come in many different formats, depending how they will be used and by whom. Plans that are created and used solely by professional foresters may be very brief with little background information. However plans intended to be interpreted and used by a diverse audience, such as this one, can include much more extensive background information and explanation. The plan hopes not only to guide, but to educate and connect the community to the property.

Since forests are dynamic, changing systems and our knowledge about how they function is constantly being expanded by scientific research, the management plans should be evaluated and updated every 10-15 years.

### ***WHY HAVE A MANAGEMENT PLAN?***

In addition to providing a framework for the planning process, management plans are a form of documentation and communication that help ensure high-quality and consistent management over time (Donovan, 2002). A plan is an organized record of

what is known about the land, what is wanted from the forest, what has been done, and what will be done (Snyder, 2006).

In this case, since these lands are town owned, documentation is particularly important as a vehicle for the clear communication of Warren residents' values and decisions to public officials who will interpret and implement the plan. With changes over time in municipal staff, elected officials, public servants (such as County Foresters), and in the resident population itself, there are likely to be many different people who look to this plan to provide direction for the management of the Austin Forest; the more people who are involved, the more important it is to clearly document and communicate.

There are other practical reasons why management plans are a good idea. In Vermont, individual landowners are required to create a forest management plan in order to be in the state's Use Value Appraisal (UVA) Program – also known as the Current Use Program – which provides property tax relief to landowners who actively manage their forests. Third-party certifiers concerned with setting standards for ecological and sustainable forest management, such as SmartWood and Vermont Family Forests, also require landowners to submit management plans as part of the certification process.

### ***HOW WILL THESE PLANS BE USED?***

Overseeing the management of Warren's town-owned lands is the responsibility of the Warren Select Board and the Warren Conservation Commission. These plans are official documents that have been adopted by the Select Board and will direct the decisions that these governing bodies make regarding the future of the forests.

The *Action Plan* in Section III calls for specific activities to be carried out on the forests over time (see *Schedule of Management Activities*). Management activities, such as boundary line maintenance, timber harvests, and trail construction, will be carried out with the help of professionals, such as the Washington County Forester. These plans give those professionals the specific information they need to implement those treatments or activities so that they work to meet the long-term goals and objectives outlined in other sections.

This management plan is meant to be read and used by others as well, including:

- Public officials and employees
- Teachers
- Students
- Private forest landowners
- Hikers, bikers, walkers, naturalists, hunters etc. – anyone who uses and visits the forest

Warren residents who own forestland can find ideas and approaches in the plan that may be helpful to them in planning for the management of their own forests. Teachers and students can find information that helps them understand the ecology, function, and human use of the properties and think about and plan educational opportunities in the forest. This plan is an educational resource for all Warren residents to learn more about the Austin Forest, forest management, and Warren's forested landscape. The plan is meant to enrich the experience of everyone who spends time at the Austin Forest – or wants to – by an opportunity to learn more about these special public places.

## **CREATING THE PLANS**

### ***THE CALL FOR A MANAGEMENT PLAN***

Overseeing the management of the Austin Forest and Warren's other town-owned parcels is the responsibility of the Warren Select Board. It is the role of the Warren Conservation Commission to advise the Select Board and support the appropriate stewardship of town-owned lands. This plan is an official document adopted by the Select Board and will direct the decisions that these governing bodies make regarding the future of the Austin Forest.

### ***GATHERING PUBLIC INPUT***

The creation of this plan was guided by the input from Warren's residents:

- 2005 Warren Town Plan
- 2006 Town meeting survey
- 3<sup>rd</sup>/4<sup>th</sup> Grade Interviews of Elders and Forest Statement, Spring 2006
- Listening sessions Oct 25 and 30, 2006
- Municipal property charrette – November 2006
- Management Plan Steering Committee
- Public input sessions – February 2008

### ***LEARNING ABOUT THE FOREST***

In order to gain a better understanding of the capacity and features of the forest, the Conservation Commission undertook the following assessments:

- Natural Community Inventory of the Eaton, Gravel Pit, and Riverside Park Parcels, Warren, VT – June 2007 (Brett Engstrom, Ecologist)
- Town-wide Natural Heritage Inventory – 2008 (Arrowwood Environmental)
- Timber and forest resources – County and State Foresters, 2007
- Bird Habitat - Audubon Vermont, 2007
- Trail assessment and recommendations – Timber and Stone, 2007
- History – local residents

### ***PUTTING IT ALL TOGETHER***

In June 2007, the Warren Conservation Commission released a request for professional assistance to collect and analyze the information generated from a wide variety of sources, to conduct public input on proposed goals and management actions, and to assemble and integrate this material into a plan document. Proposals were received from two contractors and were then reviewed by the conservation commission. Interviews were conducted and R. J. Tuner Company of Bristol, VT was selected as the contractor.

## I. A VISION FOR THE FUTURE

### VISION STATEMENT

The following statement articulates a vision for the future use and management of Austin Forest by the Town of Warren:

*We as a community in Warren, collectively and individually, rely on the forested landscape in our town for our health, wellbeing, economy, and sense of place. As a town-owned forest, we value the Austin Forest as a public place where we can come together to enjoy, learn about, and care for the forest and its inhabitants for many generations to come.*

*The Austin Forest exemplifies a “working forest.” The forested areas have been managed and harvested in the past; there is an established road network; and it is capable of yielding multiple benefits including wood products, recreation, wildlife, and clean water. The Austin Forest offers a typical range of management challenges and opportunities, and as such it represents an ideal vehicle for demonstrating careful and considerate stewardship as a model for other landowners. With due consideration for sensitive areas including riparian and deer wintering zones, we want the Austin Forest to remain productive while also offering opportunities to walk, hike, ski, hunt, and find space for quiet contemplation. Management of this property should also serve to reinforce the community’s commitment to strengthening connections between people and products from the land, for current and future generations.*

*We recognize that a portion of the Austin Forest currently serves very utilitarian uses: gravel storage and fire pond water storage. We expect these uses to continue for the foreseeable future but accept that subsequent revisions to this plan may address other uses for these areas.*

## MANAGEMENT GOALS FOR THE AUSTIN FOREST

The vision frames the future direction of activities on the forest in terms of a desired future condition. Goals are designed to provide an organizing framework for management guidelines and actions. Eight goals for the property are stated below.

Forests in general and public forests in particular are being asked to supply a much greater range of public services than was true in the past. Most of the actions undertaken to achieve the below goals will be compatible with each other, but conflicts will inevitably arise. To guide current and future managers, these goals are listed in order of their importance, based on the opinions of the steering committee and on the results of other forms of public input.

### ***Austin Forest Goals***

**1. Sustain and Enhance Ecological Health:** The Town will manage this property such that the functioning of ecological systems will be protected or enhanced. Forests provide a range of ecological services in addition to the production of wood products. To the extent possible with consideration for site conditions, legal restrictions, and current knowledge, activities and practices will not degrade the ecological health of this parcel.

**2. Continue Existing Uses:** Gravel storage and fire-pond water storage serve important town needs and will continue as long as the public continues to express the value of these uses over possible alternative uses.

**3. Promote Use of the Forest for Recreation:** Management actions will encourage and support a wide range of recreational uses of this property.

**4. Sustain and Enhance Wildlife Habitat:** Impacts to a wide range of game and non-game species will be considered in actions that promote forest products and recreation.

**5. Model Sustainable Management Practices:** As a demonstration to the present generation and as a legacy to future generations, the Town's management will employ practices that model sustainability, adapting and changing as this concept continues to evolve.

**6. Use the Tangible Products of the Forest:** Management will support the production of forest products. To the maximum possible extent, these products should be used for local projects.

**7. Recognize and Appreciate Cultural History:** Cultural features of the landscape will be managed along with the physical features. Opportunities to research, protect, and share the cultural history and features will be pursued.

**8. Provide Diverse Opportunities for Place-Based Education and Interpretation:** The Town will pursue grants and partnerships with a variety of groups to support the use of the Austin Forest as an outdoor classroom, for children and adults.

## **COMMENTS ON THE PUBLIC INPUT PROCESS**

These properties are owned by the public and citizens should have a voice in their management. This is often easier said than done, partly because opinions are diverse and difficult to assess, but also because the issues are complex and diverse, often requiring additional information to become “informed.” The Warren Conservation Commission has endeavored to follow the “early and often” maxim regarding public input, employing a diverse group of methods over an extended period. Town-owned lands were the subject of a 2006 town meeting questionnaire, where citizen’s opinions about a variety of uses were compiled. Later in 2006, Warren’s forests were the focus of two Listening Sessions. These sessions resulted in the mandate to gather more background and data about these properties, culminating in this document, the Management Plan. (Hamilton, 2007)

One of the initial actions by the Conservation Commission at the inception of the management planning process was the creation of a broadly constituted steering committee of Warren residents. This committee consisted of 3 Conservation Commission members, the director of the Mad River Path Association, a Selectboard member, a Planning Commission member (also on the school board), a naturalist, and an elementary school teacher. The committee’s job was to guide the planning process, provide feedback on drafts of the plan, and represent their constituents’ values as sincerely as possible. The draft plans that resulted were then presented to the public in January 2008.

On February 8, 2008, the community was invited to a public forum. The forum was designed to summarize the information for each property, extracted from the plans, and then to solicit opinions about the relative importance of the goals. Suggestions were also taken on modifications to the goal language and for any additions to the list of goals. Approximately 40 residents attended the forum. The results of the forum process (interpreted and reviewed by the steering committee) established the order and priority of the goals listed above. The results of the forum voting and a summary of attendees’ comments are included as Appendix B.

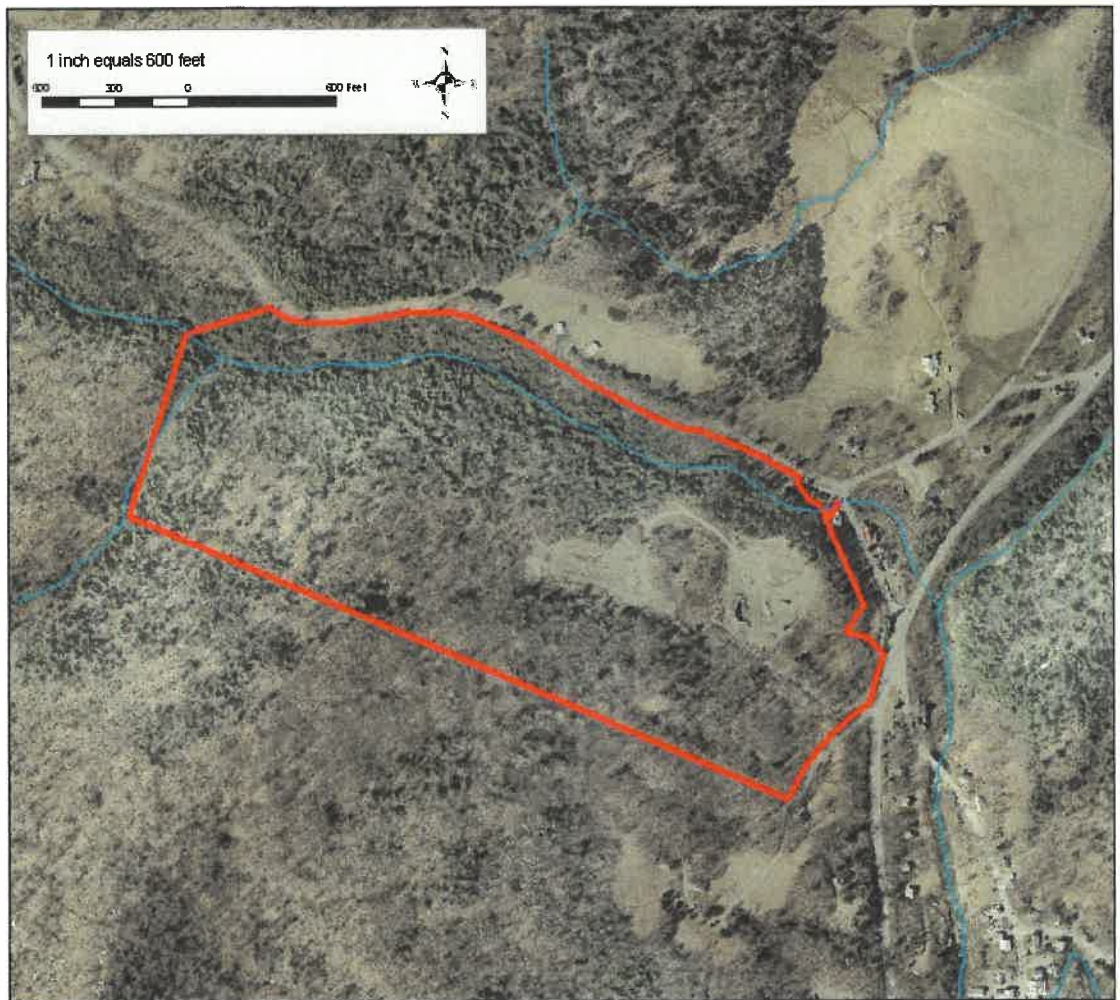
Input from the community on the management of these properties doesn’t end with the publication of these plans. The plans are designed to *guide* management, not to dictate management. Specific actions and activities are suggested here, but exactly which activities are undertaken, how and when they are attained will mostly likely rely on continued direction and commitment from residents.





## II. PROPERTY DESCRIPTION AND MANAGEMENT GUIDELINES

This section of the plan offers descriptions of many of the important features and characteristics of the Austin Forest. At the end of each descriptive section are statements of general management objectives, along with guidelines that direct how this parcel will be used and managed in the future. The guidelines are shaped by what is known about the opportunities and limitations of the parcel and the priorities described in the *Vision Statement* and *Goals*.



**Figure 1 Aerial view with Austin Forest boundaries (c. 2004)**

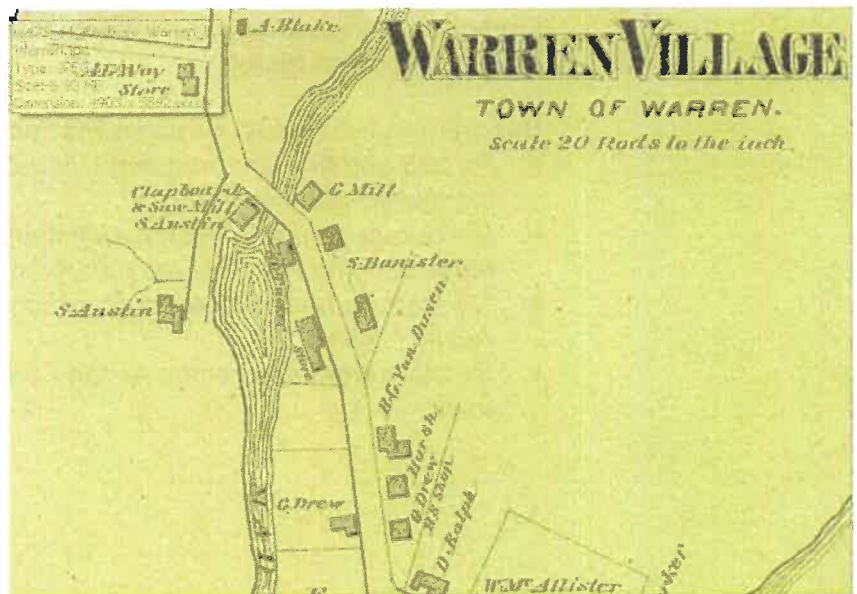
## CULTURAL HISTORY

### PRE- FOREST: AN AGRICULTURAL PAST

Given the long history of settlement and agriculture in Vermont, it is likely that people have used the Austin Forest for a long time. Given the uneven topography of the current forest floor, it is unlikely that much of the area that is currently forested was ever cultivated. It is likely that a substantial portion was, at one time, cleared and used for pasture. Portions may have been forested for a long time and used as a woodlot.

Prior to 1983, Lewis and Douglas Coates owned the Austin Forest. The Austin Forest is still sometimes referred to as the “Coates Parcel” for these owners held the property for some time. (Kit Hartshorn, personal communication). The parcel was deeded to Lewis Coates and his wife, Vera, in 1956 from Gertrude I. Sutherland. Gertrude Sutherland and her husband, Norman, had acquired the property – which is referred to in the deeds at “the homeplace” – in several pieces in 1941. Mina Buhl and descendents of Ulysses G. Austin owned the pieces. Ulysses had died in 1924 and divided “the homeplace” between Daniel Austin, Isabella Randall and her husband, Asa, and Madelyn Carelton. Town records indicate that the parcel was home to Warren’s first rope tow in 1939 (Austin forest stewardship plan 2007). The deeds that transferred ownership from Mina Buhl’s estate and the relatives of Ulysses Austin to the Sutherland’s also show that the Ward Lumber Company performed a timber harvest on the property in December of 1954.

It is unclear who owned the Austin “homeplace” before Ulysses. However, it is possible that the land was in the Austin family for a long time. The 1873 Beers *Atlas* shows that there was a clapboard and sawmill owned by an S. Austin along the Mad River just south of where Bradley Brook joins the River. The mill owner’s house is shown on a side road above the millpond, which is probably part of, or very near to, the current Austin Forest. With more effort, it would be possible to construct a more complete record of historic land ownership and use of the Austin Forest.



Warren Village from the 1873 Beers Atlas

### TOWN-OWNED FOREST: 1986 – PRESENT

The Town of Warren purchased the 74-acre Austin Forest from Lewis and Douglas Coates on January 21, 1986 (Warren Land Records). The Town received an Act 250 permit to operate a municipal gravel pit on the property later that year. The gravel pit was actively used for the next 20 years until the permit expired in 2006.

Since then, the Town has continued to use the Austin Forest for gravel and fire-pond water storage.

A portion of the forested slopes above the gravel pit was harvested most recently in 2002 (Leonard, 2007); skid trails and stumps are still evident in this part of the forest. There are older stumps and remnant skid trails throughout the rest of the forest which suggests that this forest has a long history of logging.

Currently, there is not a formal recreational trail system through the Austin Forest, although much the skid trail network is still passable by foot. Since town trucks are still actively using the gated access road to the parcel and there is no defined public parking, access for recreation has remained limited. It does not appear that illegal or inappropriate uses are occurring with any regularity. There is some evidence that hunters are using the property.

### ***RESTRICTIONS ON USE***

The deed transferring ownership of the Austin Forest from the Coates to the Town of Warren includes a covenant running “with the land in perpetuity” that restricts the future use of the property to non-motorized recreation, forestry, agriculture, and as a municipal water supply. (Appendix A) The choices that are made about how the gravel and water storage areas will be used, as well as how the property’s forests will be managed, must take these restrictions into account.

### **Objective 1 Provide opportunities to celebrate and teach about the Austin Forest’s cultural history.**

#### **Recommended Guidelines and Practices:**

- *Protect and highlight remnant cultural features in the Austin Forest including stonewalls and line trees.*
- *Encourage further research and study of the Austin Forest’s cultural history, particularly by Warren Elementary School students.*
- *Conduct and record interviews of community elders who have memories of the Austin Forest.*
- *Relate current uses of the Austin Forest, such as timber management, to historic uses.*



## GEOLOGY, TOPOGRAPHY AND CLIMATE

### BIOPHYSICAL REGION

Biophysical regions categorize the landscape into units that share aspects of topography, geology and climate (Thompson and Sorenson, 2000). These units provide an organizational hierarchy for understanding aspects of the underlying physical and vegetative landscape. The Austin Forest lies in the Northern Green Mountains biophysical region and is fairly typical of the region lying south of the Winooski River.

### BEDROCK GEOLOGY

The bedrock of Warren is the solid rock that creates the shape of the town's mountains and valleys. Around the old gravel pit area at the Austin Forest the bedrock has been buried far below the surface under gravels and sands. In other places the bedrock is close to the surface and protrudes in places as outcrops. The bedrock not only defines the Austin Forest's topography, but also often affects the fertility and properties of the soil above it, which has a significant impact on the plants growing on the site.

The bedrock that is exposed at these outcrops throughout much of the Austin Forest is part of the Hazen's Notch

Formation, which is dominated by phyllites and schists.

These metamorphic rocks were originally sedimentary mudstones which formed by the slow processes of deposition, compaction, and cementation of fine-grained sediments in the waters of the ancient Iapetus Sea – a shallow, tropical ocean that covered the area that is now Vermont 650 – 445 million years ago. From about 550 – 440 million years ago, these mudstones were uplifted, metamorphosed, folded, and faulted into the Green Mountains by the crushing heat and pressure of a mountain-building event called the Taconic Orogeny. The rocks at the Austin Forest, and in much of rest of the Green Mountains, were later further deformed by another mountain-building event that created the White Mountains to the east. Since their formation, the Green Mountains have been slowly weathering and eroding into the landscape that we know today.

The schists and phyllites at the Austin Forest are acidic and non-enriched, which means that they lack the minerals such as calcium and magnesium that increase the fertility of soil. As a result, only plants that can tolerate relatively nutrient-poor and acidic conditions, such as those that are typically part of the Northern Hardwood Forest natural community, have been found on the Austin Forest.

### SURFICIAL GEOLOGY

A much more recent geologic event – the last ice age – has had a lasting impact on

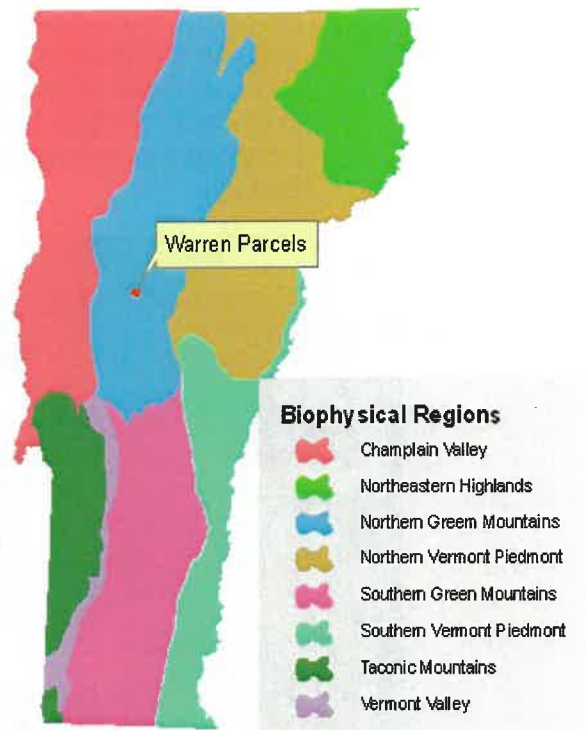


Figure 2 Biophysical Regions

Warren and the Austin Forest's topography and soils as well. Retreating glaciers that covered Warren during this time deposited the gravel at the Austin Forest as well in other places along the Mad River Valley. The gravels and other sediments left by the glaciers also affect the texture, drainage, and fertility of many of the area's soils. Since soils are so critical to the growth of plants, surficial sediments are an important part of understanding the ecological capacity and limitations of the Austin Forest.

Between 15,000 and 13,000 years ago the ice sheet that covered Warren and the rest of New England began to melt and retreat northward. In its wake, it deposited a rocky, jumbled mix of sediments, called glacial till, over most of Vermont's scoured landscape. Where the bedrock is not exposed, till covers the slopes of the Austin Forest and is the source of stones in the site's rocky soils (Vermont Geological Survey).



The melting ice also generated a tremendous amount of meltwater that collected in valleys throughout the region, creating a series of glacial lakes. The glacial lakes that flooded the Mad River Valley during this time changed in depth as the lake waters gradually broke through barriers and found drainages to the

**Figure 3 Surficial geology in the vicinity of the Austin Forest**

south. The shores of one of the earliest and deepest lakes, Glacial Lake Granville, rose to just below the top of Sugarloaf Mountain, completely submerging the Austin Forest (surficial map, VTGS). As water levels dropped, the flooded Mad River Valley became part of Glacial Lake Winooski, a large glacial lake that flooded the Winooski River Valley, as well as the Lamoille River Valley and the path of Route 100 north to Eden up to elevations of 915 feet. Bradley Brook, which was probably more like a raging river at the time, met Glacial Lake Winooski at the Austin Forest. Sands and other sediments in the Brook fell out of the fast-moving water at this spot, creating a large fan terrace, which underlies the current gravel storage area at the gravel pit.

Some of the gravel in the upslope, western portion of the pit at the Austin Forest was probably deposited along the edge of a retreating glacier before the glacial lakes filled the Mad River Valley. As the glaciers melted, water flowed off and along the edges of the ice, depositing layers of gravel and other sediments.



## TOPOGRAPHY AND ASPECT

The Austin Forest encompasses the lower, northeast-facing slope of the 2115-foot Sugarloaf Mountain. A half-mile section of Bradley Brook runs through a ravine along the northern boundary of the parcel. The forested slopes rise about 900 feet in elevation from the lowest point along the Mad River Valley to about 1300 feet at the highest point on the property. The gravel storage area and water storage pond are located in the eastern portion of the parcel near Route 100 on the site of the old municipal gravel pit.

Slopes are steepest between the northern boundary and Bradley Brook, but generally slopes range from 0% to 35%. The map shows the steepest slopes shaded in orange.

## CLIMATE

Climate describes the average weather patterns in an area over time, particularly temperature and moisture parameters. Climate is an important consideration in forest management because of its impact on soil development and erosion and plant growth, which is particularly impacted by the length of the growing season. All of Warren is part of the Northern Green Mountain biophysical region, which is defined by high elevations, cool summers, and acidic, metamorphic bedrock (Thompson and Sorenson, 2000). The tree species that compete best in the forests in this region are well adapted to long, cold winters, and nutrient-poor soils.

Climate also impacts forest management. In Vermont, the seasons often dictate when it is best to do different management activities. For example, logging during the winter when the ground is frozen would minimize damage to thin and wet soils at the Austin Forest.

**Objective 2. 1 Protect the physical attributes and processes that are unique to Austin Forest.**

**Objective 2.2 Insure that any proposed activities or management are appropriate for the physical characteristics of the site.**

### Recommended Guidelines and Practices:

- *Any permanent or semi-permanent improvements should carefully consider the disturbance to the site and the capacity of the site to support the use.*
- *Minimize disturbance to the site to protect soil and vegetation.*
- *Slope steepness affects erosion and access for management. Topography should be an important consideration for forest management and recreational uses.*



**Figure 4 Topography and slope**

## SOIL

Without soil, the Austin Forest would look very different – dominated by bare rock and blowing sands. There certainly wouldn't be any trees covering the hillside. Soil is the relatively thin boundary, comprised of mineral particles, organic matter, air and water that creates the transition between the non-living bedrock and sediment layers below and the living world at the surface.

Soil and dirt are not the same thing. Dirt is just messy; soil is the complex substrate that supports plant, microbial, and animal growth. Trees and other woodland plants take up water and essential nutrients from soil through their roots, and return nutrients and organic matter to the soil through the leaf litter and decomposition of woody material. Soil microbes and invertebrates influence the chemical properties of soil through the decomposition of organic matter and can also act to aerate soil through activities such as tunneling.

Not all soils are the same. The complex structure and characteristics of different soils are derived from interactions between: the parent material (the primary input of new mineral material into soil, such as bedrock or sand), climate, time, topography, and vegetation. Each of these factors influences the development of a soil's structural, chemical and biological properties.

The structural, chemical, and biological characteristics of soil on a particular site are directly connected to that site's productivity – or fertility. It is difficult and often prohibitively expensive to enhance the productivity of a forest's soil; forests cannot be fertilized in the way that cultivated fields can. However, it is very easy to lower the productivity of a site through poor management. Soils can quickly be lost and damaged by compaction and disturbance caused by heavy equipment, which leads to erosion. Recognizing that soils take a long time to form and have a fundamental role in forest growth and health is critical for the sustainable management of forests.

### SOIL TYPES

#### ***BERKSHIRE FINE SANDY LOAM, 15 – 35% SLOPES***

This soil covers the forested slopes in the western portion of the Austin Forest. Since it is primarily derived from till that underlies it, it is very stony.

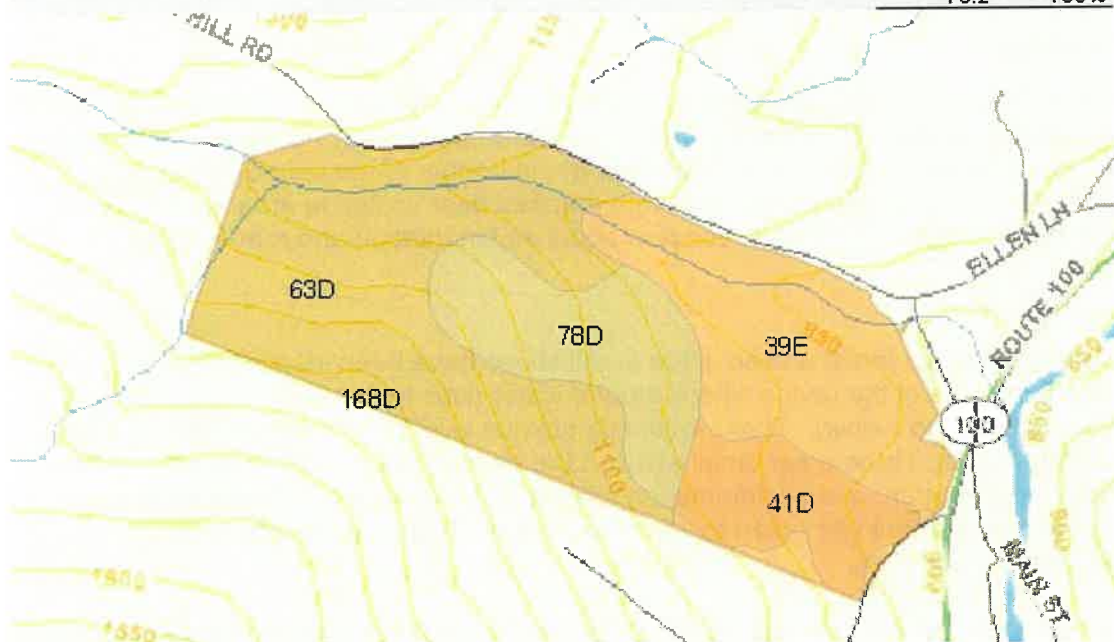
#### ***COLTON GRAVELLY LOAMY SAND, 25 – 60% SLOPES***

This soil is formed from the large sandy fan terrace that was deposited at the mouth of Bradley Brook when Glacial Lake Winooski flooded the valley. It underlies the forests in the ravine along the northern portion of the property, where Bradley Brook eroded a path through the sandy sediments after the draining of the glacial lakes. The gravel storage area is also mapped as this soil type, although the soil, and much of the underlying sand and gravel, has been removed.

#### ***PERU GRAVELLY FINE SANDY LOAM, 15 – 35% SLOPES***

This soil is mapped over the old gravel pit and the forest surrounding, although the soil and most of the underlying gravel have been removed.

Unit Code	Name	Acres	%
39E	Colton gravelly loamy sand, 25 to 60 percent slopes	20.5	26.9%
63D	Berkshire fine sandy loam, 15 to 35 percent slopes, very stony	34.4	45.1%
78D	Peru gravelly fine sandy loam, 15 to 35 percent slopes, very stony	13.0	17.1%
168D	Hogback-Rawsonville complex, 15 to 35 percent slopes, very rocky	0.1	0.2%
41D	Buxton silt loam, 15 to 25 percent slopes	8.2	10.7%
		<b>76.2</b>	<b>100%</b>



### ***BUXTON SILT LOAM, 15-25% SLOPES***

Buxton soils are also deposited by water. They are finer and less sandy than Colton soils and generally well suited to a variety of uses.

All of these soils are rated as “highly erodable” by the Natural Resource Conservation Service. In their potential for forestry, these soils are rated close to the average, relative to all soils in Vermont.

### **Objective 2. Maintain soil productivity through practices that avoid soil disturbance and promote nutrient retention.**

#### **Recommended Practices:**

- *When possible, perform timber harvests in winter when the ground is frozen to minimize soil compaction and erosion, and disruption of soil layers and processes.*
- *Follow best management practices (BMPs) for control of soil erosion when logging and constructing or maintaining skid and recreation trails.*
- *Perform regular maintenance of recreation trails, including clearing water bars, culverts, and ditches.*
- *Avoid whole-tree removal on low-fertility sites where lost nutrients will have an especially high impact on site productivity.*



## WATER



Bradley Brook



Austin alder wetland

The Austin Forest is located within the Mad River Watershed. Therefore, water drains off the parcel's slopes into the Mad River, which flows into the Winooski and, eventually, into Lake Champlain.

### STREAMS

Bradley Brook is the only permanent stream that runs through the Austin Forest. It runs easterly along the northern boundary of the property, over boulders and through a series of bedrock channels and potholes at the bottom of the ravine. Much of the length of Bradley Brook is coincident with mapped deer wintering area. Its adjacency to West Hill Road also elevates concern about sedimentation and road runoff.

### WETLANDS

A sloping seepage forest and six other small seeps have been identified along the north-facing side of the ravine where ground water rises to the surface (see Natural Communities Map below). These wetlands provide wildlife with critical feeding and breeding habitat. Three other small seeps have been located on the property. Soil compaction, erosion, and sedimentation are particular concerns in these fragile areas and care should be taken to minimize human impact during use and management activities.

A small, half-acre alder swamp which transitions into an open seepage meadow is located on a gentle slope just south of the main access road (Natural Communities Map).

**Objective 3.1 Protect the wetlands on the parcel (seeps, seepage forests, alder swamp)**

**Objective 3.2 Protect the riparian areas around Bradley Brook.**

### Recommended Practices:

- *Forestry activity will be excluded from wetland areas.*
- *Protective strips -- characterized by minimal soil disturbance, nearly-complete canopy closure, and many large, mature trees - should be maintained. The access network (roads and trails) and surface waters should be constructed and maintained according to Table 4 in the Vermont Acceptable Management Practices for Maintaining Water Quality (AMPs).*
- *Areas of exposed soil that occur within the protective strip should be seeded using native species and sources to the maximum extent possible and mulched with material free of invasive exotics and applied according to Table 3 in the AMPs.*
- *Stream buffer strips should: be kept free of logging vehicles; have only little or no tree cutting; and be at least 25 feet in width.*

- *Stream crossings used for logging should be restored and non-permanent structures should be removed as soon as possible.*
- *Streams should be crossed with bridges or culverts which are properly sized according to Table 2 in the Vermont AMPs and installed at right angles.*
- *Sediment should be prevented from reaching streams by using turn-ups or broad-based dips on truck roads and skid trails prior to all stream crossings.*
- *Drainage ditches should not feed directly into streams or other surface waters.*



*Swimming hole along Bradley Brook*

## VEGETATION

A forest is made of much more than trees; it includes rocks, soil, water, wildlife, as well as all the ecological processes that connect these individual pieces. Plants, because they have particular growing needs and tendencies, are an expression of the soils and other non-living components of the ecosystem, so we also often think about ecosystems in terms of what plants are growing in them. Since plants are central to the interconnections within ecosystems, we can categorize different places and sites by the communities of plants found there.

This section examines the vegetation growing on the Austin Forest from two related but different perspectives: natural communities and forest stands.

### NATURAL COMMUNITIES

Since forests are dynamic and changing systems, ecologists find it useful to classify them, not only by how they are now, but also by their *potential*. Classifying the forest into natural communities is a process that evaluates the current vegetation and physical site to suggest the type of plant community that will persist on a site over time in the absence of major disturbances, including natural disturbances, such as wind storms, or human disturbances, such as logging. As defined in *Wetland, Woodland, Wildland*, a natural community is “an interacting assemblage of organisms, their natural environment and the processes that affect them” (Thompson and Sorenson, 2000).

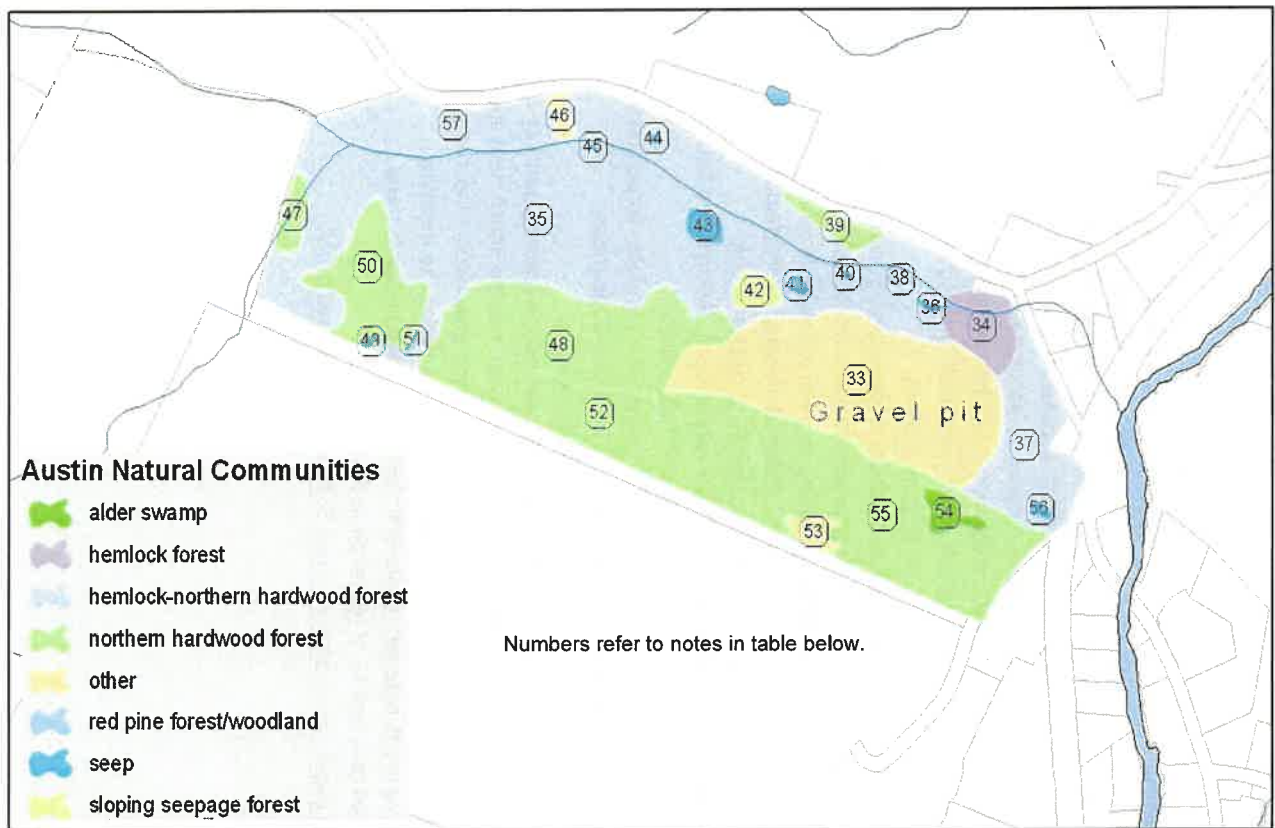
Having an informed prediction of the forest types that will persist on the Austin Forest over time helps managers tailor their management practices to complement the natural development and tendencies of a forests and to mimic ecological processes, such as the most likely natural disturbance regimes. Knowing about any rare or unusual natural communities also helps managers protect these areas.

### TYPES

The natural communities in the Austin Forest were classified in the report by ecologist, Brett Engstrom in 2007. They are shown in the Natural Communities map below and described in Table 1.

- Hemlock- Northern Hardwood Forest
- Hemlock Forest
- Northern Hardwood Forest
- Alder Swamp
- Red Pine Forest/Woodland
- Sloping Seepage Forest
- Seep





**Figure 5 Natural communities map**

## INVASIVE SPECIES

Invasive vegetation that displaces native vegetation represents a serious problem in Vermont. Both the number of invasives and the extent of invaded areas are increasing. Forests are most at risk from Multiflora rose (*Rosa multiflora*), bittersweet (*Celastrus orbiculatus*), Japanese barberry (*Berberis thunbergii*), honeysuckle (*Lonicera spp*), garlic mustard (*Alliaria petiolata*), winged euonymus (*Euonymus alatus*), common buckthorn (*Rhamnus cathartica*), Norway maple (*Acer platanoides*), and smooth buckthorn (*Rhamnus frangula*). These species were not noted in the recent inventories, but volunteers should be trained to recognize these species and invasive monitoring should occur. Most of these species tend to establish themselves initially in openings in the forest canopy.

Infestations are best treated early, when mechanical removal (cutting/pulling) is most effective. *Herbicides treatments should be used only after mechanical alternatives are deemed insufficient.*

Table 1. Natural Community Observations (see Engstrom, 2007)

Id	Acres	Natural Community Type	NC Rank	Notes
33	10.63	other		Large sand/gravel borrowpit. Supposedly coarse kame and deep till parent materials.
34	1.32	hemlock forest	S4	Mature hemlock forest on very steep NE-facing slope above Bradley Brook. Trees 20-45cm dbh.
35	29.26	hemlock-northern hardwood forest	S4	Mature hemlock-N. hardwood forest on very steep to mod.-steep slopes of brook ravine & trib.
36	0.08	seep	S4	Shaded seep on low terrace, 1 m above stream, at base of steep slope. 10-20cm black muck soil
37	3.82	hemlock-northern hardwood forest	S4	Successional old field hardwood forest at present; forest type based on coarse well-drained soil
38	0.12	red pine forest/woodland	S2	Grove of ~12 mature red pine, 30-50cm dbh and ~20m tall on high stream terrace
39	0.64	northern hardwood forest	S5	Red maple-sugar maple-beech-white ash canopy with lush ferny sparse herb groundcover
40	0.03	seep	S4	25m2 seep, touch-me-not dominated, on S. side of brook.
41	0.10	seep	S4	20x15m steeply-pitched seep (50% gradient) at old slope failure, S. side of brook.
42	0.46	sloping seepage forest	UNK	Broken canopy hemlock-N. hardwoods with anastomosed seep complex.
43	0.32	seep	S4	40x30m seep/seepage forest on steep, N.-facing slope of old slope failure, S. side of brook
44	0.04	seep	S4	5x15m degraded seep on N. side of brook. Coltsfoot dominated. Very muddy.
45	0.02	seep	S4	2-5x12m steeply-pitched seep leading down to brook, S. side of brook.
46	0.26	other		Recent slope failure opening; dry (not seepy) on very steep S. facing slope below rd.
47	0.54	northern hardwood forest	S5	Y. birch-sugar maple-white ash forest in ravine of tributary brook.
48	11.76	northern hardwood forest	S5	Even-aged, sugar maple-dominated forest some hardwood + hemlock, spruce understory
49	0.06	seep	S4	12x35m seep on moderate slope bisected by wood rd. along S. boundary.
50	2.79	northern hardwood forest	S5	On moderately-steep, NNE-facing slope below woods road.
51	0.04	seep	S4	7x30+m seep running down slope. Touch-me-not & seep sedge (carex scabrata) dominant
52	2.24	northern hardwood forest	S5	Even-aged sugar maple woods with hay-scented fern cover + some enrichment species
53	0.37	other		0.1 ha moist old field glade of step-in-slope with few sapling gray birch, pine, red maple
54	0.45	alder swamp	S5	Alder-shrub willow-tussock sedge swamp grading into open seepage meadow.
55	8.44	northern hardwood forest	S5	Old field woods heavy to pole red maple, with few white pine and apple trees.
56	0.09	seep	S4	Seep in very short drainage N. of gravel pit access rd.
57	0.52	hemlock-northern hardwood forest	S4	Mature quaking aspen grove on very steep S. facing slope above brook.

## FOREST STANDS

In the Austin Forest, there are several different types of forests within the larger one. These forest types are typically classified by foresters into smaller units called stands, based on similar characteristics such as: tree species composition, age, and spacing; land slope and aspect; and other physical site characteristics such as soils and geology. While natural communities groupings are based on site conditions and vegetation assuming *no disturbance*, stands descriptions take a “management” orientation. They reflect primary considerations for silviculture. Silviculture – the art and science of forest management—is applied at the stand level, so it is important that these subunits be clearly described in this plan.

Stands are classified based on how the forest is now. However, forests are dynamic systems; characteristics such as tree species composition, age, and spacing change over time due to the natural processes of forest succession and disturbance, as well as the impact of human activities such as logging. Therefore, the boundaries and types of the stands classified and described in this plan could change over time and will need to be reassessed in the future. Current stands are based on a formal inventory of conditions conducted during the spring of 2007. The discussion below draws heavily from the Forest Stewardship Plan for this parcel, prepared by Matt Leonard, Vermont state lands forester. The Forest Stewardship Plan is an important companion document to the summary presented here.

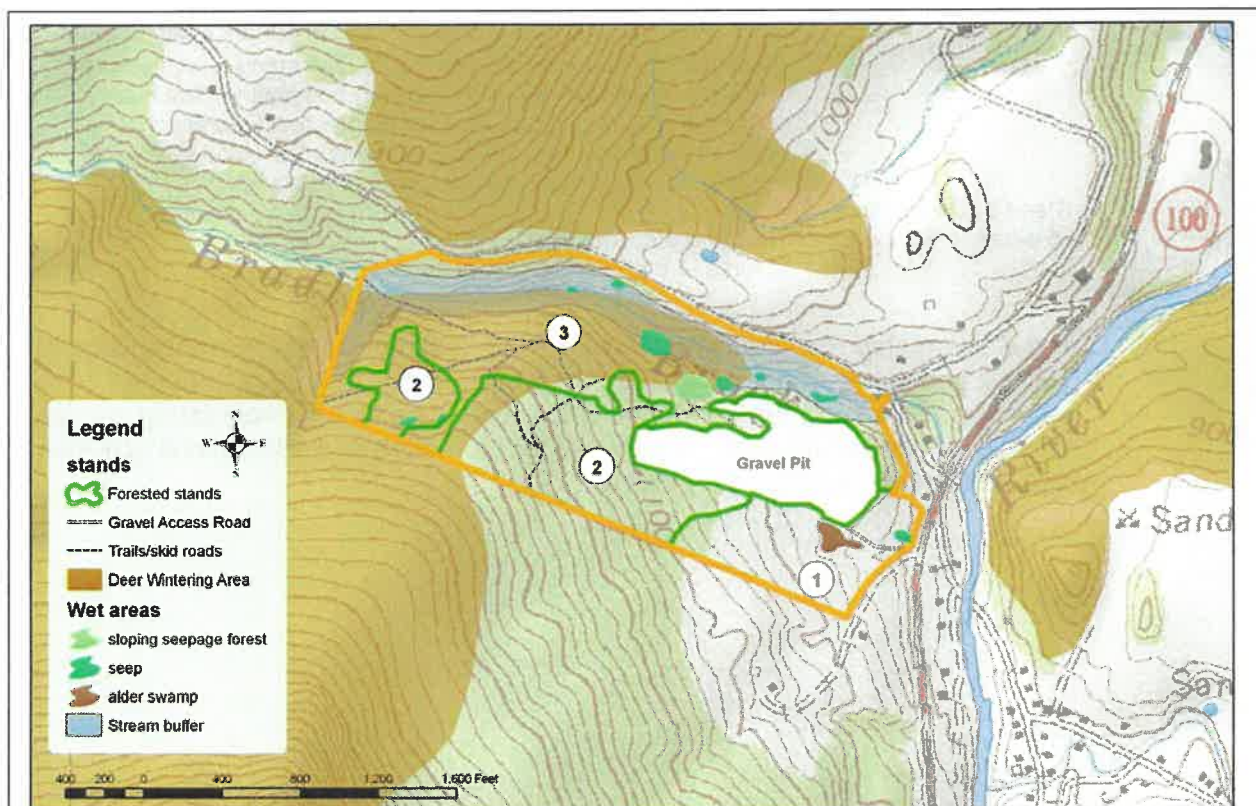
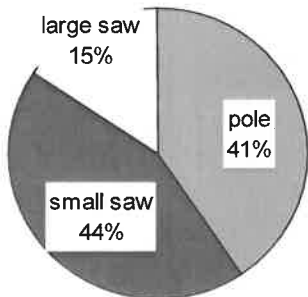
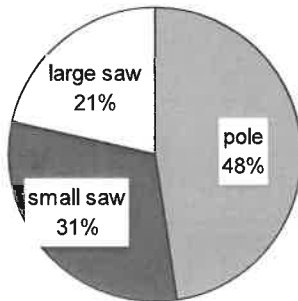
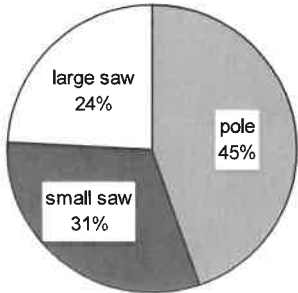


Figure 7 Forest Stand Map

Table 2. Austin Lot Stand Summary

Basal area composition by size class



UNIT	COVER TYPE	Comments
Stand 1 11 acres	Red Maple	<p>Dominated by early successional species; most trees between 5" and 10" in diameter. Fairly well stocked with poor quality trees. Contains wildlife habitats beneficial to a variety of species. Soils are limiting—steep slopes, low productivity, poor drainage.</p> <p>Timber quality: low. Volume: 5.3 MBF/ 14 cords pulp</p> <p>Management opportunity: maintain current species mix, improve stand quality with intermediate cutting, re-evaluate for timber harvest in 10 years. Release apple trees for wildlife.</p>
Stand 2 17 acres	Northern Hardwoods	<p>Sugar maple dominates the species mix. The stand is well stocked with pole and small sawtimber trees. Red spruce, hemlock, and a variety of hard and soft mast producing trees support a variety of wildlife. Mapped as deer wintering area. Moderately low site productivity.</p> <p>Timber quality: low to moderate, substantial cull Volume: 4.4 MBF/ 16 cords pulp</p> <p>Management opportunity: re-evaluate for timber harvest in 10 years. Promote softwood where possible to enhance deer habitat.</p>
Stand 3 36 acres	Hemlock-Hardwoods	<p>Dominated by hemlock and red maple. The stand is well stocked with small sawtimber trees (11.5-17.5") dominating. The majority of the stand is mapped as deer wintering area. Recreational access should be limited during winter months. Moderately low site productivity. Bradley Brook bisects this stand.</p> <p>Timber quality: medium Volume: 5.6 MBF/ 19 cords pulp</p>

The Stewardship Plan contains more detailed descriptions of the stands listed in Table 2 and makes recommendation for management. In general, the plan recognizes little short-term opportunity for generating income from forest management, but finds considerable opportunity for recreation and educational activities, which are considered more fully below.

## MANAGEMENT STANDARDS AND GUIDELINES

Standards for forest management activities are essential to maintaining the health and productivity of the forest. The goal of ecologically based forest management can be stated as intending to conserve native biodiversity, water quality, site productivity and scenic beauty. (VFF, 2007) The management guidelines below were developed by Vermont Family Forest to support ecologically based forest management.

### VEGETATION MANAGEMENT

- The single tree and small group selection methods should be used for communities with gap-phase replacement (e.g. northern hardwoods) and the irregular shelterwood method should be used for communities with stand-replacing disturbance regimes (e.g. spruce-fir). Uneven-aged management by area regulation is recommended. Where the group-selection method is employed, canopy openings of 0.25 acres or less are preferred but up to 1.25 acres are accepted. Where the groups helterwood method is employed, the size of the regenerated areas can be increased. Clear-cutting should be avoided.
- Promote an uneven canopy in the forest by creating small canopy gaps through natural processes or by cutting.
- Gradual or soft edges between habitats are preferred. Allow native shrubs, saplings, and some overstory trees to remain along the harvest boundary. Edges may also be “feathered” by retaining more trees closer to the uncut forest and gradually fewer trees closer to the harvested area.
- Manage for at least 6 cavity, snag, and/or decadent, living trees per acre on average, with one exceeding 18 inches diameter breast height (DBH) and 3 exceeding 16 inches DBH.1 Leave trees that have cavities of varying sizes and are located in the upper trunk of the tree. Also, give priority to hardwood trees with cavities, rather than softwood, as they remain intact longer.
- Manage for at least 2 down trees or logs per acre exceeding 14 inches in diameter on average. (To address safety issues, this may be accomplished by clustering cavity and snag trees in areas such as riparian zones and wetlands and away from access roads and trails.)
- Grow the largest trees and use the longest rotations possible within site and log quality limitations. Use uneven-aged management by area regulation whenever possible. Intermediate treatments should generally raise the average (mean) diameter of the residual dominant and co-dominant trees of the forest while improving timber quality.
- Any forest management in natural communities that are ranked as “very rare”(S1) and “rare”(S2) or in natural communities ranked as “uncommon”(S3), “common”(S4), and “very common”(S5) but with little or no evidence of past human disturbance should be reviewed and approved by the VT F&W Natural Heritage Biologists.
- When planting, use only local sources of native species, plant three or more species, and include deciduous species.
- When thinning or regenerating stands, favor native species over non-native species and trees and shrubs that produce seeds and fruits.
- Use natural regeneration to the maximum practical extent.
- Biological legacies of the forest community -- including coarse dead wood, logs, and snags; trees that are large, living, and old; buried seeds; soil organic matter; invertebrates; sprouting plants; and mycorrhizal fungi -- should be protected to aid in post-harvest recovery and to keep the forest from becoming “oversimplified”.
- Promote the seed bearing capacities of poorly represented members of the forest.
- Tree felling should be avoided on slopes exceeding 60%.

- Leave all materials that are less than 3 inches in diameter on the site.
- Promote a vertical stand structure that includes over-story, mid-story, shrub, and herbaceous vegetation layers.
- The use of pesticides -- including insecticides, fungicides, and herbicides -- should be extremely limited and only those pesticides accepted by the Northeast Organic Farming Association should be used.
- The use of non-petroleum bar and chain oil and hydraulic fluid is strongly encouraged.
- The use of genetically modified organisms or "GMOs" should be avoided.
- Residual stand damage -- including basal wounds, broken and/or scraped tops, and exposed roots -- should be confined to 10% or fewer of the dominant or co-dominant trees.
- It is recommended that all trees to be removed be marked prior to the inception of harvest.
- Average annual removal of woody biomass from the site should not exceed 70% of the average annual growth.
- Avoid grazing by domestic animals.

### ***SKID TRAILS, TRUCK ROADS, AND LOG LANDINGS***

- Truck roads, skid trails, and log landings should be built and maintained in compliance with the standards contained in the Vermont Acceptable Management Practices for Maintaining Water Quality on Logging Jobs in Vermont.
- Avoid spring harvests and/or rutting that extends beyond the A soil horizon.
- It is strongly recommended that all skid trails, truck roads, and log landings be flagged or otherwise marked prior to the inception of harvesting
- Properly buffer and protect special habitats such as cliffs, caves, talus slopes, beaver meadows, vernal pools, spring seeps, and remnant patches of old growth forest.
- Use logging equipment that minimizes residual stand damage and soil compaction.
- The timber harvesting access network -- including truck roads, skid trails and log landings -- should be carefully designed and constructed and should not expose mineral soil on more than 10% of the treated area.
- Winter harvesting is preferred to protect breeding birds. When possible, delay summer harvests until after August 1<sup>st</sup>.
- Skid trails, truck roads, and log landings -- located on easily compacted soils -- should only be used when adequately dry or frozen. Employing small forwarders can reduce impacts and may allow some sites to be operated under less than ideal conditions.
- Minimize the width, number and extent of truck roads and skid trails -- particularly in or near sensitive areas such as stream crossings, protective strips, and steep slopes.
- Road and trail networks should be planned to avoid fragmenting forest blocks and to avoid creating linear openings in the forest. These can serve as vectors for predators or contribute to desiccation of leaf litter on the forest floor.
- Truck roads and skid trails should be properly drained during and after use according to Table 1 in the Vermont Acceptable Management Practices (AMPs). The drainage structures should remain fully functional with post-harvest use.
- Log landings should: be located on nearly-level, stable ground; be kept away from protective strips; have water diversions installed; and be graded to prevent erosion



and sedimentation.

### ***PROTECTIVE STRIPS AND BUFFER STRIPS***

- Protective strips -- characterized by minimal soil disturbance, nearly-complete canopy closure, and many large, mature trees - should be maintained between the access network and surface waters according to Table 4 in the Vermont AMPs at a minimum.
- Areas of exposed soil that occur within the protective strip should be seeded using native species and sources to the maximum extent possible and mulched with material free of invasive exotics and applied according to Table 3 in the AMPs.
- Stream buffer strips should: be kept free of logging vehicles; have only little or no tree cutting; and be at least 25 feet in width on small streams, 100 feet along Bradley Brook.

### ***STREAM CROSSINGS***

- Stream crossings should be restored and non-permanent structures should be removed as soon as possible.
- Streams should be crossed with bridges or culverts which are properly sized according to Table 2 in the Vermont AMPs and installed at right angles.
- Sediment should be prevented from reaching streams by using turn-ups or broad-based dips on truck roads and skid trails prior to all stream crossings.
- Drainage ditches should not feed directly into streams or other surface waters.

### ***CLOSEOUT***

- Post-harvest use of the access network should be restricted in order to prevent erosion, compaction, and site disruption.

### ***SENSITIVE AND SPECIAL HABITAT AREAS***

Areas including wetlands, raptor nests, upturned tree roots, seeps, vernal pools, hard/soft mast species, and other unique or fragile, natural or cultural sites including areas of historical or community significance sites require identification and protection.

Harvesting and road building in wetlands, including the construction of new roads or expansion of the width of existing roads by more than 20%, will require a permit or review by the Wetlands Office of the Water Quality Division (802) 241- 3770. The UVM publication "Wetlands Rules and Regulations: What they mean to your logging operation in Vermont" should be referred to when building or upgrading access and managing vegetation around wetlands.

## WILDLIFE HABITAT

When managing a forest, it is important to identify and consider habitat features that are particularly critical to the survival of wildlife, especially if human use or management activities could affect the integrity of these habitat elements. The following are critical habitat features that have been identified at the Austin Forest so far:

### STREAMS AND RIPARIAN AREAS

There are two permanent streams on the Austin Forest, Bradley Brook and a smaller tributary that joins Bradley Brook along the western boundary. Areas that form a transition zone between land and water are called “riparian.” Streams and riparian areas are among the most diverse and important parts of a forested ecosystem, and provide important habitat for a wide range of species.

The Bradley Brook riparian zone is particularly significant for two reasons. First, it is quite broad, extending from West Hill Road on the north to well into the property (see the stand map, p. 21). Second, streams and riparian areas often act as corridors for wildlife and the Bradley Brook corridor is a likely link between forest blocks on the western and eastern sides of Route 100.

### EARLY SUCCESSIONAL HABITAT

The portions of the Austin Forest that are characterized by young, often densely growing, trees and shrubs – particularly in the areas on and around the old gravel pit – are classified as early successional habitat which is critical habitat for many wildlife species, especially song birds. If allowed to develop in the absence of natural or human disturbance these habitats would eventually develop into mature forests. However, small gaps and patches of early successional habitat that are created by ice storms, disease or wind throw are natural – and critical – components even of mature forests.

American woodcock



Early successional habitat provides protected foraging and nesting sites for a diversity of birds, such as: song sparrow, field sparrow, chestnut-sided warbler, common yellowthroat, grey catbird, indigo bunting, brown thrasher, veery, American woodcock, and ruffed grouse (Arrowwood, Waitsfield, 2007). In addition to the early successional habitat in and around the old gravel pit, the alder swamp south of the access road in Stand 1 is also dominated by dense, shrubby alder and willow

vegetation, which provides similar habitat to birds and other small animals. However, because the soils of the swamp are saturated and most tree species

cannot establish, it is likely that the alders will naturally continue to persist on and dominate the site.

## **DOWNED WOODY MATERIAL, SNAGS, AND CAVITY TREES**

The Austin Forest has a long history of logging and was harvested most recently in 2002 and 2003 (Leonard, 2007). Since many trees were removed before they had a chance to naturally die and fall, there are currently relatively few dead and downed trees on the property. To many people, dead trees and debris can make a forest look “messy.” However, standing and dead wood are essential components of healthy forests; they serve several important ecological functions, including providing critical habitat for a diversity of wildlife species at a variety of scales.

Downed woody material – logs and limbs laying the forest floor – is home to a diversity of microorganisms, insects, and other invertebrates during its various stages of decay. These organisms decompose the woody material and are also important food sources for birds, mammals, and amphibians. Even larger species, such as black bear, can have diets that rely heavily on invertebrates found in decaying logs, such as ants and larvae. Downed logs are also used by a diversity of wildlife species for shelter, displaying, resting, basking, and traveling across barriers such as streams.

Snags – standing dead trees – also provide habitat for a diversity of small organisms that contribute to the decay of wood which are food sources for species such as woodpeckers. Birds, including woodland raptors and owls, perch on the dead branches of snags in order to rest or as a vantage point for hunting. These species, as well as other bird species and small mammals, also often nest or den in excavated cavities in snags and living trees. Most species only nest and den in cavity trees of a minimum size; larger trees provide better insulation and more room to house large clutches and litters, as well as better protection from predators and more perches (Flatebo et al., 1999). Larger cavity trees are also more likely to stay standing for a longer time.

## **MAST**

Trees, such as oak, beech, apple and cherry, and other plants, such as raspberry, that produce large volumes of hard mast (nuts and seeds) or soft mast (fruit and berries) are especially important to wildlife survival. American beech makes up a small component of the northern hardwood forest and hemlock – northern hardwood forest at the Austin Forest. Beech produces beechnuts (hard mast) that are especially high in fat and protein. Red squirrels, wild turkey, black bears, mice and other wildlife are dependent on these mast species for survival, particularly through the winter. When mast species, such as beech, grow clumped together and dominate a forest stand, they are most valuable for wildlife that will regularly visit the stands to forage in the fall and spring. No pure beech stands have been identified at the Austin Forest.

There are some overgrown apple trees (soft mast) in Stand 1 at the Austin Forest that are probably relics from past agricultural use (Stand Map). Apples can be important food sources for a wide diversity of wildlife species and often bear more plentiful and larger fruit if they are released from the competition for light from the surrounding canopy.

Trees such as maple, birch, white ash, red pine, white pine, and eastern hemlock, can be found throughout the Austin Forest. These trees produce masts of small seeds that are important food sources for a diversity of small mammals and songbirds, such as red squirrels, mice, pine grosbeaks, black-capped chickadees, and nuthatches. Serviceberry is present in small numbers and highly prized by many birds,

Herbaceous plants growing on the forest floor also provide a diversity of small fruits and seeds that contribute to wildlife food sources. At the Austin Forest these small plants probably include Canada mayflower, trillium, sarsaparilla, and partridgeberry.

## **SEEPS**

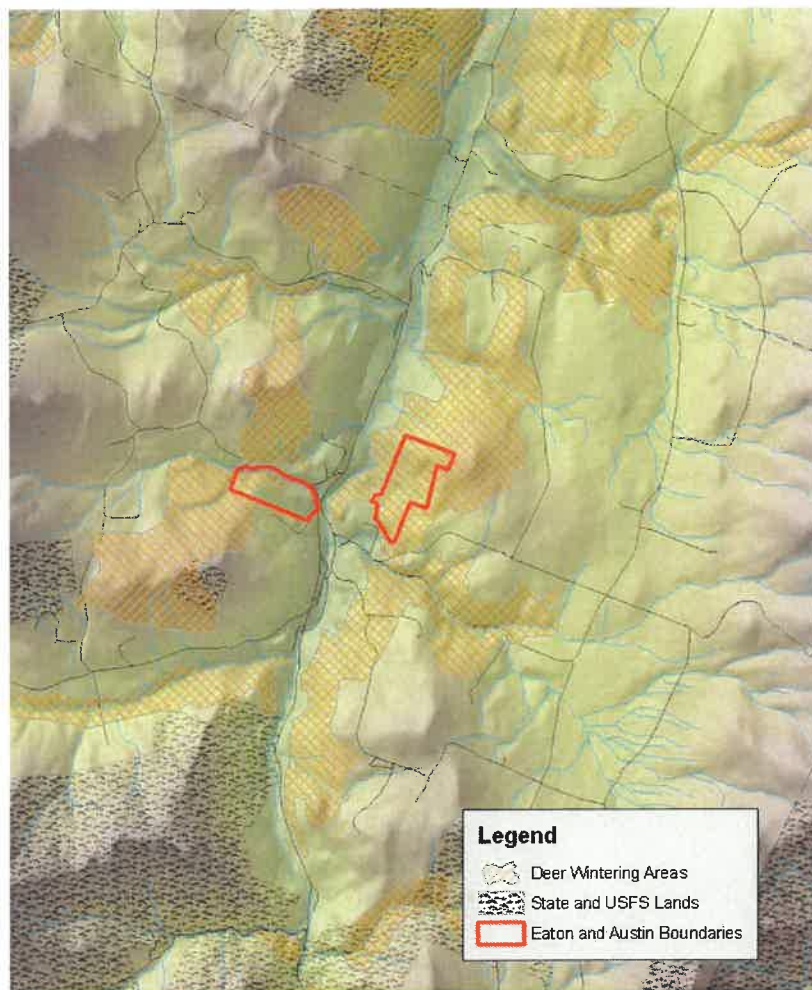
Six seeps have been identified along the slopes of the ravine in the northern part of the Austin Forest, along with a sloping seepage forest (Engstrom, 2007, Natural Communities Map). In addition, two small seeps have been recorded in the higher elevations of the parcel along the southern boundary (Engstrom, 2007; Natural Communities Map). All of the seeps are quite small (less than 0.1 acre in size), but collectively have the potential to provide critical habitat for wildlife species. All of these areas would be good places to watch for wildlife throughout the winter, spring, and summer.

Seeps are small areas (usually less than ¼ acre) where the soil is saturated by ground water that flows to the surface for part or all of the year. These areas are particularly important food and water sources for many winter wildlife residents, such as wild turkey, deer, and moose, because they can remain unfrozen throughout the winter. They are also early sources of green vegetation and invertebrates for hungry animals in the spring. Early migrants, such as the American robin and American woodcock rely on the food and water seeps provide, especially after late snowfalls (Flatebo et al., 1999). Skunk cabbage, grasses and the roots of plants growing in seeps can comprise a major part of black bears' spring diets, and grasses, sedges, jewelweed, and the bulbous roots of plants growing near seeps can be a major part of their summer diets (Elowe, 1984 in *Society for the Protection of NH Forests*, 1997). In addition, amphibians bury themselves in the mud and leaf litter around seeps to hibernate through the winter. Amphibians also use seeps during the warmer months, which attracts skunks, raccoons, and other hunters.

## DEER YARD

The majority of the hemlock – hardwood forest (Stand 3) at the Austin Forest has been mapped by the Vermont Department of Fish and Wildlife as part of a large deer yard that extends onto portions of adjacent properties (Leonard, 2007). This deer yard is an example of a particular habitat feature whose quality and function have been protected because it has not been extensively fragmented by human development. The Warren Town Plan (2005) specifically identifies deer wintering areas as habitat features that should be protected from “development and other uses that threaten the ability of the habitat to support deer” (Objective 3.3).

Deer yards are mixed stands of evergreens and hardwoods that provide food and shelter critical for the survival of deer and other wildlife through the winter months. Under the dense evergreen canopy at the Austin Forest, temperatures are slightly warmer, winds are more moderate, and the snow pack is shallower, which helps deer expend less energy staying warm and moving about. Deer yards also provide critical habitat for other wildlife species. For example, more than 40 bird species breed in the conifers in deer yards (Flatebo et al., 1999).



**Figure 8 Deer wintering areas**

In combination with the shelter provided by the dominant softwood cover at the Austin Forest, the hardwood communities in the parcel offer sources of browse. The adjacent northern hardwood stands and early successional patches containing young maple, moosewood, hobblebush, mountain maple, and birch provide easily accessible browse for deer so that they do not need to draw on precious energy reserves to travel through deep snow in search of food (Flatebo et al., 1999).

Deer do not necessarily use all forests with dense evergreen cover as wintering areas year after year; therefore mapped areas must be regularly monitored for use and updated (Flatebo et al., 1999).

**Management Objective 6.1. Protect stream water quality and the functions of riparian areas.**

**Recommended Practices**

- Observe a 100-foot special management zone along each side of Bradley Brook. Any management in this zone should maintain a wind-firm, structurally stable forest that protects surface and groundwater quality; provides shade, coarse woody material, leaves and nutrients to the aquatic system; and maintains the zone function as a wildlife travel corridor.

**Management Objective 6.2. Perpetuate early successional habitat in Stand 1.**

**Recommended Practices**

- Manage for early successional species by creating openings in the existing forest (0.25 to 1.5 acres) on a relatively short (10- year) cutting cycle.
- Remove competing vegetation around apple trees and prune these trees for maximum fruit production.

**Management Objective 6.3. Manage for at least six cavity, snag, and/or decadent, living trees per acre on average, with one exceeding 18 inches diameter breast height (DBH) and three exceeding 16 inches DBH. Manage for at least two down trees or logs per acre exceeding 14 inches in diameter on average.**

**Recommended Practices**

- Leave trees that have cavities of varying sizes and are located in the upper trunk of the tree. Also, give priority to hardwood trees with cavities, rather than softwood, as they remain intact longer.
- Avoid damaging existing downed woody material, snags or cavity trees during harvest operations, especially large trees or stumps greater than 18" diameter.
- Leave downed woody material, such as tree limbs, on the site after harvests when possible.
- Leave several different sized logs of low timber quality dispersed throughout the harvest.
- Inventory standing and dead coarse woody material and cavity trees.

**Management Objective 6.4 To maintain a variety and abundance of mast-producing plant species at the Austin Forest.**

**Recommended Practices**

- Retain beech, oak and cherry trees with the potential for good fruit production, when they are scattered throughout other stands (i.e. northern hardwood, hemlock).
- Red Oak
  - Cut stands less frequently (manage on long rotations) to encourage the development of large trees with large crowns that have the potential to produce many acorns.



- Beech trees
  - Leave trees that show signs of resistance to beech blight
  - Leave some large trees, regardless of health, that have the potential to produce mast
- Apple trees – retain, release, and prune carefully
- Maintain small openings throughout that can support early-successional mast plants, such as raspberry.
- Particularly in stands where oak and beech are concentrated, monitor use of mast species by wildlife, such as bear.

**Management Objective 6.5 To maintain the vernal pool(s) at the Austin Forest as an undisturbed site and protect the habitat around the pool.**

**Recommended Practices**

- Mark the edge around the vernal pool in the spring when it is full to prevent damage by harvesting during times when the pool is difficult to detect.
- Maintain 100- to 500-foot management buffers around vernal pools (depending on significance of the pool, season of harvest, etc.)
- Document and monitor the pool for use by indicator species
- Look for and document other pools in the spring season.
- Keep slash and debris out of the vernal pool depression (if falls in during breeding season, remove after to avoid disturbance).

**Management Objective 6.6 To monitor deer activity on the parcel and assess the winter use of softwood stands.**

- Consider managing the mapped deer yard as a larger unit in collaboration with neighboring landowners in order to enhance habitat function.
- Small patch cuts included within a softwood matrix can provide regeneration and sources of browse.



## SURROUNDING LANDSCAPE

The Austin Forest is connected in many ways to the larger landscape that surrounds its boundaries. Ecological features, such as natural communities, and processes, such as water flow and the movement of wildlife, observe boundaries defined by the physical features of the landscape, rather than by human property boundaries. Landowners are impacted by the land use choices made by their neighbors. Therefore, it is important to consider the Austin Forest's context in the surrounding landscape and the impacts management activities could have outside of its boundaries.

### ZONING

The Town of Warren's Land Use and Development Regulations, or zoning ordinance, play a critical role in balancing community interests with the rights of individual landowners, protecting important natural and cultural features, and promoting development in appropriate places (Warren Town Plan, 2005). The Austin Forest is located in the Rural Residential District, which, together with the Forest Reserve District, accounts for over 90% of Warren's land. The primary purpose of the Rural Residential District is to "protect environmental resources while allowing for low density development" with a maximum density of one dwelling per acre (Warren Town Plan, 2005). Moderate or high-density development that models a historic pattern of clustered farmyards surrounded by open fields could be considered in within this district in "appropriate areas."

### CORE AREA AND CONNECTIVITY

The Austin Forest is part of a larger unfragmented block of forest that encompasses Sugarloaf Mountain at its center. The interior forest in this core area is removed from humans and their development, which includes powerlines, roads, houses, and active agricultural fields. Interior forest habitat, such as that in the Austin Forest and the larger core area it is a part of, provides:

- Roaming and foraging space for animals with large ranges and territories, such as raptors, woodpeckers, and most medium- and large-sized mammals (Flatebo, 1999).
- Critical nesting, denning, and mating sites, and food sources for many species, including many species of forest songbirds, only found away from the edge of forests.
- Protection from predators and parasites that prefer the habitat on the edges of forests and along trails and roads through the forest.

Larger blocks of forests can also support larger populations of many species than smaller forest fragments. These larger, interbreeding populations are important for providing a source of individuals who can repopulate smaller forest areas whose populations may be too small to reproduce successfully (Flatebo, 1999). Core areas of forest are also important for the reproductive success of species that cannot or will not travel long distances or cross through human development to mate.

The core block the Austin Forest is a part of is bounded by Route 100 to the east, Lincoln Gap Road to the south, and West Hill Road to the north and west. For the most part, houses and agricultural fields are along these roads on the edge of the core area and do not permeate far into the forest. However, the forest is divided into several different parcels owned by different landowners. Parcelization can eventually lead to fragmentation if all landowners do not work together to protect the integrity of the larger core area.

The core area that the Austin Forest is a part of is not isolated, even though it is surrounded by roads and artifacts of human development. Many forest wildlife species travel between large and small patches of forest to forage for food, find mates, disperse from over populated areas, and find new habitat if their old habitat is destroyed or no longer useable (Flatebo, 1999, p113). Riparian areas along streams, rivers, and wetlands; culverts under roads; and hedgerows along fields often serve as travel corridors for species moving between patches of forest.

Arrowwood Environmental has been working on a town-wide natural resource inventory of Warren's natural resources over the past year which will include the identification of potential travel corridors used by wide-ranging animals and places where amphibians cross roads in large numbers each spring to reach breeding grounds. Preliminary results from this study suggest the importance of the Austin Forest to the surrounding blocks:

*The Austin Forest is likely to provide an important corridor and habitat linkage between the large Contiguous Habitat Unit (Sugarloaf Mtn CHU) to the south and another CHU to the north of West Hill Road (Double Top Mountain). Based on proximity of habitat elements to one another, this area may provide the best (least costly to wildlife) wildlife travel into and out of the Sugarloaf CHU. The presence of beech forests in both CHUs may make this corridor important for black bears moving between habitat features.*

### **BATTELL FOREST BIRD HOT BLOCK**

The North American Bird Conservation Initiative (NABCI) has identified the entire town of Warren as being part of the Atlantic Northern Forest Bird Conservation Region, which encompasses expanses of temperate forest from eastern New York up through Vermont, New Hampshire and Maine into the Maritime Provinces of Canada (Hagenbuch, 2006). These forests have been identified as being particularly critical breeding habitat for northern bird species, especially neotropical migrants.

Vermont Audubon has identified several large, core areas in Vermont that are a part the Atlantic Northern Forest Bird Conservation Region and are particularly critical habitat for the diversity of forest birds that breed in the state. The Battell Forest Bird Hot Block is one of these areas. The Battell Block encompasses approximately 127,000 acre of contiguous forestland bounded by the Winooski on the north, Mount Horrid on the South, Route 100 on the east, and Route 116 on the west (Hagenbuch, 2006). The Austin Forest is within the Battell Block and contains the general forest types that the NABCI has identified as being particularly critical breeding habitat for forest birds in the region: northern hardwood and mixed deciduous-coniferous forests.

Birds that may utilize the northern hardwood forest at the Austin Forest for breeding include: ruffed grouse, yellow-bellied sapsucker, wood thrush, veery, black-throated blue warbler, American redstart, ovenbird, blue-headed vireo, and rose-breasted grosbeak (Hagenbuch, 2006). Species that may breed in the hemlock-northern hardwood forest at the Austin Forest include: Canada warbler, blackburnian warbler, and black-throated green warbler. Steve Hagenbuch from Vermont Audubon (2006) has documented several other forest bird species on the property so far, including: dark-eyed junco, blue jay, and ruffed grouse.

### ***FOREST RESERVE DISTRICT***

Relative to the expansive core areas of forest in Warren's Forest Reserve district, which includes all the National Forest land in the town, the core area that the Austin Forest is a part of is only medium-sized. However, the peak of Sugarloaf Mountain is zoned within the Forest Reserve District because of its high elevation and is included in the Austin Forest's core area. In addition, the core area is separated by relatively little human development from the larger core areas of Green Mountain National Forest in the western part of town. Given its position between the large Green Mountain core area and the more highly populated valley, the smaller core area that the Austin Forest is a part of could serve as a steppingstone for large, wide-ranging animals, such as fisher, bobcat, and black bear that may want or need to travel through the valley between the Green and Northfield Mountain core areas.

### **Management Objective 7.1 Pursue opportunities for the conservation of other lands adjacent to the Austin Forest and within the same core area.**

#### **Recommended Practices**

- Communicate and collaborate with abutting landowners and others in the core area to maintain the function and integrity of the interior forest and wildlife habitat features, such as the deer yard and the Bradley Brook corridor.

### **Management Objective 7.1. Integrate results from the Natural Heritage Inventory and data from other regional sources, including the State's Wildlife Action Plan and VT Audubon, into wildlife management for the Austin Forest.**

#### **Recommended Practices**

- Consider breeding forest bird habitat in management activities, since the Forest is near the Battell Forest Bird Hot Block.

## RECREATION

Outdoor recreation is culturally very important to Warren's residents and to the town's tourist economy (Warren Town Plan, 2005). Objective 8.5 in the Warren Town Plan calls for the maintenance of "the land resource necessary to support recreation and public access to recreation areas."

The Austin Forest is well suited to a variety of recreational activities. There is an established network of trails and logging roads. The terrain is generally suitable and the fragile areas are mostly contained in isolated wet areas and stream corridors.

While the continued use of the pit area for gravel storage poses the potential for conflict between this use and recreational uses, the risk of conflict appears manageable. Should the use of this area for gravel storage cease, the pit area could be reclaimed for parking, picnicking, and possibly more intensive recreational use.

Currently, the following recreational uses are envisioned on the Austin Forest:

- Hiking (birding, jogging, etc.)
- Hunting
- Horseback riding
- Non-motorized vehicles (mountain biking)

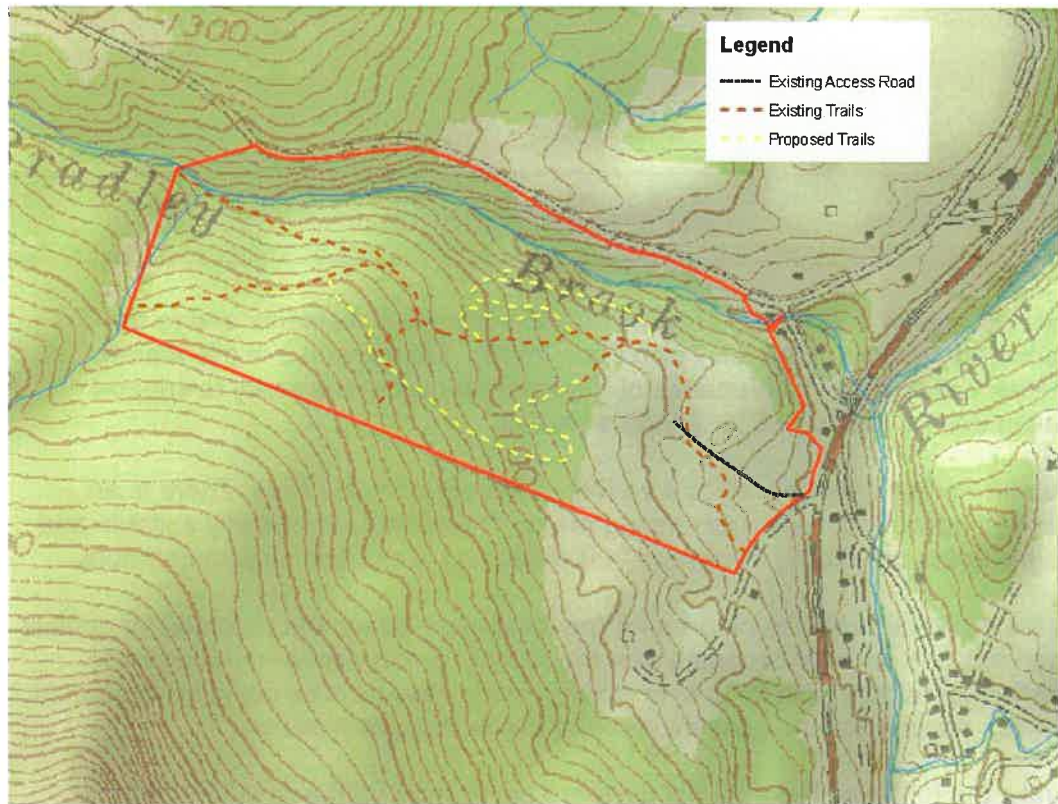
Possible uses in the future might include:

- A community sledding hill
- Picnic areas
- A mountain bike park

## TRAILS

Based on public interest, in 2006 the Warren Conservation Commission obtained funds to hire the Calais-based trail construction company *Timber and Stone* to create plans for improving and expanding the trail network at the Austin Forest. In its final report to the Conservation Commission, *Timber and Stone* identified priorities for the trail network at the Austin Forest and action plans for their implementation (Proposed Trails Map; *Proposed Trail Management Priorities for Austin Forest, Warren Town Forest.*, 2007).

The trail work proposed in this report highlights a) repairing and maintaining existing trails; b) connecting various existing trails into a loop by adding new trails; and c) specifically designing the network of trails to support mountain biking. The report also outlines some concerns including additional protection around the fire pond and gating the access road against use during inappropriate times.



**Figure 9 Existing and proposed trails**

It is anticipated that a more complete evaluation of the costs and benefits of the *Timber and Stone* recommendations would need to be pursued in a public forum before making plans for trail construction.

## HUNTING

Hunting is a traditional use on the Austin Forest. In addition to deer season, the early successional habitat areas are popular with bird hunters. Opportunities exist to use this parcel as a demonstration site for habitat improvement activities and workshops. Patch cutting in the alder areas of stand 1 could be designed to promote grouse and woodcock habitat. Apple tree pruning and release would enhance the attractiveness of these features for deer and bear. Openings in the forest would support a variety of species including turkey and rabbit, along with the predator species that rely on these.

In order to reduce potential conflicts between hunters and non-hunting users, signage should educate and inform non-hunters about the risks and benefits of recreating alongside hunters.



### **Objective 8.1. Adequately maintain the existing trail network**

#### **Recommended Practices:**

- Perform essential trail maintenance including restoring erosion control structures and cutting back brush.
- Hold an annual Trail Building/maintenance day that involves students from the school and community members.

### **Objective 8.2. Pursue the construction of additional recreation trails.**

#### **Recommended Practices:**

- Work with the Town Recreation Committee or form a trails committee that would solicit additional public input on trail design and construction, monitor the use and condition of the trails, and deal with any unauthorized activities.

### **Objective 8.3. Support hunting as a recreational use.**

#### **Recommended Practices:**

- Engage local hunters in educating non-hunters by demonstrating management practices designed to promote wildlife.
- Encourage hunters who use the property to be part of planning the trail network. Their local knowledge of wildlife use can be an asset.

## EDUCATION

### COMMUNITY EVENTS AND PROGRAMS

In 2006, the Town of Warren received funding from the Vermont Town Forest Project to conduct a series of events designed to promote connections between the community and its forests. The activities of this project included:

- Interviews between the 3<sup>rd</sup> and 4<sup>th</sup> grade Warren Elementary School students and Warren residents with a strong connection with the woods
- Creation of a "Forest Statement"
- Warren Forest Discovery Day
- Photo Exhibit of Vermonters working and recreating in the state's woodlands
- Two Stewardship Listening Sessions
- Determination of stewardship priorities during two Listening Sessions

The Town Forest Project resulted in a number of suggestions and recommendations including sponsoring:

- o Trail building and maintenance days
- o Guided field walks
- o Citizen monitoring (birds, amphibians, reptiles)
- o Annual Forest Discovery/Celebration day
- o Small-scale forestry projects that benefit community/have educational focus (harvesting timber to be used in flooring, bookshelves, building structures etc).
- o Community Firewood

Community-sponsored events could also include workshops and projects that demonstrate sustainable management for town landowners. Some towns have taken on small-scale harvests that benefit community projects in need of wood including town forest flooring in the Hinesburg Town Hall, library bookshelves from the Starksboro Town Forest, and community gazebos or other structures.

### III. MANAGEMENT ACTIONS

Section III of the plan brings together what we want for the property with what we know about the property and forms the basis for actions.

Below, the actions are presented, clustered around the goals. Following that, the actions are presented in a summary matrix organized by priority and “feasibility.” Finally, a subset of preferred actions are listed along a time line, associated with responsible parties and estimated costs.

Some of these actions pertain to the general stewardship of the property; that is, they represent the obligation of the town to responsible stewardship. Others relate very specifically to broader management goals.

#### **Goal 1: Sustain and Enhance Ecological Health.**

*The Town will manage this property such that the functioning of ecological systems will be protected or enhanced. Forests provide a range of ecological services in addition to the production of wood products. To the extent possible with consideration for site conditions, legal restrictions, and current knowledge, activities and practices will not degrade the ecological health of this parcel.*

##### **Actions:**

- Inventory/monitor:
  - Existing roads and trails: do they meet State Acceptable Management Practices? Are they stable?
  - coarse woody material (dead and down trees)
  - cavity trees
  - shrubs and herbaceous cover, especially invasive plants
- Set up permanent plots to monitor growth and change. Possibly include trees, vegetation, wildlife use, and other aspects depending on interest and on the availability of resources.
- Study and monitor change to Bradley Brook, including an assessment of the potential impacts to the stream from near- and off-site sources.

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#### **Goal 2: Continue Existing Uses**

*Gravel storage and fire-pond water storage serve important town needs and will continue as long as the public continues to express the value of these uses over possible alternative uses.*

##### **Actions:**

- Continue to explore options to site the town’s gravel storage and town garage in the same location.

---

#### **Goal 3: Promote Use of the Forest for Recreation**

*Management actions will encourage and support a wide range of recreational uses of this property.*

Actions:

- Perform trail maintenance (annually).
  - Work to implement recreational trails proposed in Timber and Stone study.
  - Contact adjoining landowners and explore the possibility of expanding the trail network to existing trails on neighboring lands.
- 

**Goal 4: Sustain and Enhance Wildlife Habitat**

*Impacts to a wide range of game and non-game species will be considered in actions that promote forest products and recreation.*

Actions:

- Review recommendations in the Vermont Wildlife Action Plan for natural communities and species of greatest conservation need.
  - Determine whether target communities and species exist on the Austin Forest and what specific management might be advised.
- 

**Goal 5: Model Sustainable Management Practices**

*As a demonstration to the present generation and as a legacy to future generations, the Town's management will employ practices that model sustainability, adapting and changing as this concept continues to evolve.*

Actions:

- Pursue designation as an official "Town Forest" through the State of Vermont.
  - Investigate FSC or other green certification options (may require updates to stewardship plans).
  - Implement recommendations contained in the Forest Stewardship Plan.
  - Perform regular boundary line inspection and maintenance.
- 

**Goal 6: Use the Tangible Products of the Forest**

*Management will support the production of forest products. To the maximum possible extent, these products should be used for local projects.*

Actions:

- Inquire among town organizations that may be planning small construction projects whether the timing and material needs of these projects could be coordinated with harvesting on the Austin Forest.
  - Investigate the possibility of providing community firewood as a use for materials harvested through planned forest management activities.
  - Investigate the possibility of supplying biomass fuel to the Harwood High School wood chip boiler.
- 

**Goal 7: Recognize and Appreciate Cultural History.**

*Cultural features of the landscape will be managed along with the physical features. Opportunities to research, protect, and share the cultural history and features will be pursued.*

Actions:

- Document the use and history of this parcel through interviews with residents that have history to share. Extend this research into the town records.  
Aspects that could be pursued include:
    - Where was the town rope tow? How long did it operate? Are there photos? Does any evidence exist on the property?
    - Can historic land uses be documented? Were there structures? Can evidence of farming be documented with a combination of field evidence and record research?
    - Map stone walls, cellar holes and other cultural features.
  - Integrate cultural information with recreation planning, educational activities, and forest management planning.
- 

**Goal 8: Provide Diverse Opportunities for Place-Based Education and Interpretation.**

*The Town will pursue grants and partnerships with a variety of groups to support the use of the Austin Forest as an outdoor classroom, for children and adults.*

Actions:

- Schedule at least one educational activity per year on the Austin Forest.

Develop and maintain a list of curriculum resources that could be shared with educators.





## RESOURCES

### MAPS

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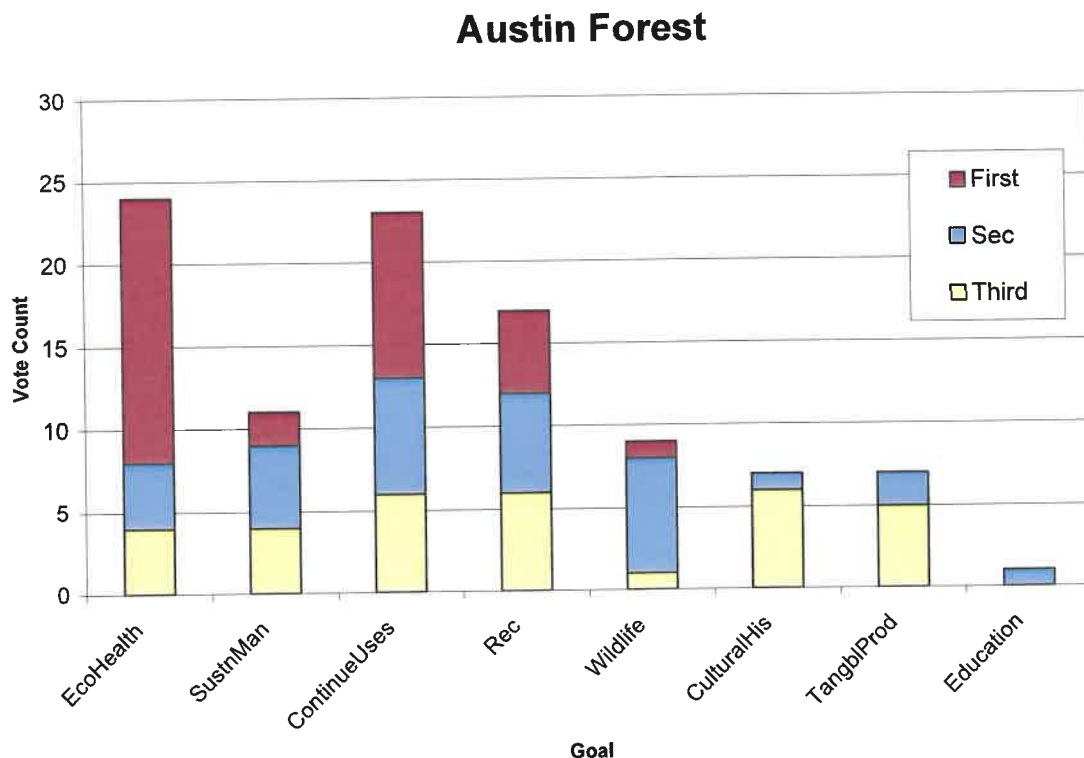
## APPENDICES

### **APPENDIX A. AUSTIN DEED RESTRICTION**

## APPENDIX B. RESULTS AND COMMENTS FROM FEBRUARY 7, 2008 PUBLIC FORUM

The attendees at the February forum listened to an overview of the information in this plan and then were asked to discuss and vote on the goals. A summary of the voting is presented in the chart below and comments from participants follow.

These results were reviewed by the Steering Committee and informed changes to the priority listing of goals and changes to objectives and actions.



### AUSTIN PARCEL COMMENTS FROM GROUP PARTICIPANTS

#### Ecology/Wildlife

Sustain wildlife, enhance Wildlife  
 Sustain and enhance ecological health  
 Diverse wildlife  
 Keeping the whole area wild  
 Are there wildlife corridors at National Forest?  
 Sustain ecological health  
 Water issues  
 Preserve water  
 Erosion risk – wet  
 Deer yard – issue with dogs off leash  
 Animal corridors via adjoining properties

#### Existing Uses

Continue existing uses  
 Restore gravel pit  
 Water storage will stay  
 Gravel – no more new excavation, just storage



Storage of culverts  
Fire hydrants fed by pond

#### Housing

Housing, low income  
(note: housing and most other structures are prohibited by a deed restriction)

#### Recreation

Camping  
Up-grade trails  
Motor cross track  
hiking  
Hunting  
No motorized vehicles (recreation)  
Marked winter trails  
Trails (4) : Signs, Money, Steep , difficult access  
X-C skiing, sledding, walking, biking  
Trail shelter  
Hunters, logging & trails – don't work well together  
Is there a need for trails?

#### Safety

Discourage recreation because of safety  
Unsafe because of water and gravel

#### Timber

Tangible products, power plant that uses wood  
Is there logging access to other properties  
Adjoining property logged – view?  
Bio-Mass – trees used for fuel to heat town properties  
Log landing / storage for Austin and adjoining properties

#### MISC

Scenic Views  
Move gravel  
Reclaim apple orchard  
Great blackberry patch  
Reduce eye-sore  
All are compatible / interconnected  
Gravel pit as parking area  
Yestermorrow build structure  
Concerns about getting state involved  
Keep them out  
Hard to separate  
Possibility of purchasing adjoining properties  
Over use ? More likely – under use  
Parking problem – deed restriction prohibits  
Park & Ride nearby  
Dogs ?  
On leash / off leash  
Clean up after  
Garbage cans  
Doggie doo-doo disposal cans  
"Promote" is active action  
What cultural history?  
"Enhancing" is action  
Locked gate (not)  
Delineate sections

Use and preserve  
Dogs on leash  
Develop a successor use  
Break deed restrictions