



FOREST MANAGEMENT PLAN

Submitted to: Massachusetts Department of Conservation and Recreation
For enrollment in CH61/61A/61B and/or Forest Stewardship Program



CHECK-OFFS

CH61	CH61A	CH61B	STWSHP	C-S
cert. <input type="checkbox"/>	cert. <input type="checkbox"/>	cert. <input type="checkbox"/>	new <input checked="" type="checkbox"/>	EEA <input checked="" type="checkbox"/>
recert. <input type="checkbox"/>	recert. <input type="checkbox"/>	recert. <input type="checkbox"/>	renew <input type="checkbox"/>	Other <input type="checkbox"/>
amend <input type="checkbox"/>	amend <input type="checkbox"/>	amend <input type="checkbox"/>	Green Cert <input checked="" type="checkbox"/>	
Plan Change: _____ to _____			Conservation Rest. <input type="checkbox"/>	CR Holder <u>MT Grace</u>

Administrative Box

Case No.	<u>217-9127</u>	Orig. Case No.	<u>New</u>
Owner ID	<u>502841</u>	Add. Case No.	
Date Rec'd	<u>5.11.11</u>	Ecoregion	<u>M212Dd</u>
Plan Period	<u>2012-2021</u>	Topo Name	<u>Nfd</u>
Rare Sp. Hab.	<u>No</u>	River Basin	<u>CT</u>

OWNER, PROPERTY, and PREPARER INFORMATION

Property Owner(s) The Town of Northfield, Massachusetts. Attention: Conservation Commission
 Mailing Address 69 Main Street, Northfield, MA 01360 Phone (413) 498-2901

Property Location: Town(s) Northfield Road(s) Gulf Road*

Plan Preparer Michael Mauri, Forester Mass. Forester License # 161
 Mailing Address 20 West Street, South Deerfield, MA 01373 Phone (413) 665-6829

RECORDS

Assessor's Map	Lot/ Parcel	Deed Book	Deed Page	Total Acres	CH 61/61A/ 61B Excluded Acres	CH 61/61A/ 61B Certified Acres	Stwdshp Excluded Acres	Stwdshp Acres
45	11			123.22	0.0	0.00	0.0	123.22
45	5			28.00	0.0	0.00	0.0	28.00
Totals				151.22	0.0	0.00	0.0	151.22

Excluded Area Description(s) (if additional space needed, continue on separate paper)

None.

HISTORY Year acquired 2010 Year management began unknown

Are boundaries blazed/painted? Yes No Partially

What treatments have been prescribed, but not carried out (last 10 years if plan is a recert.)?

stand no. _____ treatment _____ reason _____
 (if additional space needed, continue on separate page)

Previous Management Practices (last 10 years)

Stand #	Cutting Plan #	Treatment	Yield	Value	Acres	Date

Remarks: (if additional space needed, continue on separate page)

* with frontage on Brush Mountain Road (status: not maintained) and off part of Old Wendell Road (status of that part: not maintained -- see Locus Map and also Forest Stand and Boundary Map). Parcel 45-11 was under a Forest Stewardship Plan (when owned by MT Grace Land Conservation Trust)

Property Overview: Brush Mountain
Land of the Town of Northfield
(combining Brush Mountain II and the Fowler parcel)
Northfield, MA

Notable Aspects

Ownership: This property is comprised of two parcels, formerly in private ownership, which the town is acquiring as a package with the help of the Mount Grace Land Conservation Trust and the Forest Legacy Program. The main parcel (Brush Mountain II) was last owned by the Mount Grace Land Conservation Trust. The smaller parcel (the Fowler Parcel) was owned by the Fowler family. Interestingly, both parcels were previously owned, or partly owned, by the town, having been taken for back-taxes.

The larger parcel has a survey. This property has an interesting recent history. Acquired in 1896 by George Stearns, it was then left to his minor children when he died on Halloween, 1903. Perhaps the property was held up in probate or in some way abandoned, because in 1939 the Town of Northfield took the property (presumably for taxes). At this point, the forest had been hammered by the 1938 hurricane. Presumably, the Town cut off the timber at that time. 27 years later, in 1966, the land passed into private hands (Oscar and Mary Dillman), then into the Dillman Family Trust (1982), then back to Oscar and Mary Dillman (1996), then to the Linden Hill School (1996), then into the retirement plan of Allyn and Joan Coombs (2002) (Allyn Coombs is a noted local developer of large tracts of land), then to the current owner (2005).

The smaller parcel (the Fowler parcel) was acquired by Norm Fowler in 1973. This parcel consisted of two parcels, one of which was called "the Stratton Lot". The Stratton Lot had been taken by the town for back-taxes in 1966, then sold back into private ownership in 1970. In 1985, Norm Fowler transferred the parcels to Deborah Fowler.

In conclusion, the town has already owned most of this land before.

Brush Mountain Road is considered an unmaintained town way, and is also known as "Prospect Hill Road" and "Holden Road".

Major Events Shaping this Forest (i.e. forest disturbance): Clearing of the original (primary forest) by settlers, for purposes of farming, presumably in the late 18th/early 19th century. Any better soils would have been tilled (though there is not much tillable soil on this parcel) while the more rugged or wetter terrain was pastured with cattle and/or sheep, to a greater or lesser degree, keeping the forest fully or partially at bay. The two cellar holes are reminders of this earlier time and land-use. Sugar bushes were established during this time (see small remnant near Gulf Road). Abandonment of farming ensued on the rougher terrain, allowing natural regrowth of forest to white pine (sometimes called old-field white pine),

probably well before the end of the 19th century. Then logging (“logging off”) of old-field pine at various times, allowing land to grow back into hemlock and hardwoods (“second-growth forest”), usually with less pine. In general, the timing of these human activities/changes can vary within a woodlot, as can the response of the forest, creating heterogeneous forest conditions.

Along with major changes caused directly by human activities, major natural events that have shaped the forest include the introduction of chestnut blight and gypsy moths, and the 1938 hurricane, which seemed to cause more blow-down on top of Brush Mountain, and more bending-over of trees lower down. The chestnut blight led to chestnut disappearing from the forest except as minor shrub-like sprouts from stumps. The gypsy moth has not eradicated any species but has reduced the overall growth and vigor of hardwoods, especially oaks. Regionally, the 1938 hurricane damaged large areas and led to follow up logging, often clearcutting. More recently, the hemlock woolly adelgid has moved into the area, including to this parcel, calling into question the long-term survival of hemlock. Another, more recent concern, is the Asian long-horned beetle: currently present only in the Worcester area — as far as we know — this insect is a major pest of red and sugar maple, and ash, but not oaks or hickories.

In addition, sporadic and limited logging since about 1960, tending to remove larger oaks, created a brushy midstory of beech and hemlock in places. Currently, the main noticeable use of the property seems to be ATV-driving on the main trails.

Landscape/Regional Context

The local pattern of land use is overwhelmingly forested with slowly increasing single family home development. Major rural land uses are forestry/logging, hunting and recreation (trails). There is a nearby sawmill and sugar house, and several neighbors operate log trucks. The M & M trail is nearby. A small cabin on an abutting parcel is abandoned and burned.

Distinguishing or special features include: a large tract of forest with a strong component of red oak and good trails; an interesting cave with a large “standing stone/boulder” and numerous cairns.

Property Overview

Total property is about 151 acres, all forest.

Topography: the land rises abruptly from Gulf Road, heading west, then more gradually to the backbone running across a saddle, then drops back down, abruptly over ledges, before flattening out along the western boundary of the Brush Mtn parcel, then stepping down and gradually dropping to the western Fowler parcel boundary.

Dominant forest types are oak and hardwoods and hemlock-hardwoods. Much of the current forest originated after clearcutting of old-field pine (many stumps are still visible), probably prior to the 1938 hurricane (as evidenced by sweep in some of the oaks).

Main tree ages tend to be about 80-100 (stemming from clearcutting of pine). Hemlocks may be much older if these are holdovers from clearcutting. Trees in Stand 1 may be over 120 years old; trees in Stand 2 are about 30 years old.

Overall forest health is "good" — in the sense that there are no apparent diseases/insects/beavers or other external agents compromising tree health — with the main exception of the hemlock woolly adelgid, which has been detected on a limited basis, and, fortunately, does not seem to be in an advanced stage of infestation. With hemlock woolly adelgid, the long-term health of hemlock is considered at risk. Though not significant for its timber value, the habitat role of hemlock is significant.

Non-native invasive plant species are absent.

Main habitat types are maturing forest within a large area of forest, with lots of red oak and lots of hemlock; numerous streams and adjoining riparian habitat; lots of exposed ledge with den capability for small animals; a large cave; several vernal pools.

Unique cultural and physical features A large white oak and a red oak near a tall boulder and cave with numerous cairns; two cellar holes; an area that was excavated down to the water table (Stand 2).

Water resources concerns are avoiding sediment run off into the nameless brooks that feed Millers Brook and Roaring Brook, which feed the CT River. The focus of concern is on sediment from runoff from roads and fording of streams by ATV's..

Property-wide stewardship concerns include: (see "Landowner Goals" page). The emphasis is on enhancing habitat, recreation and scenery (views), protecting water quality, and, less so, enhancing long-term timber/income options, as well as attaining Green Certification and educational outreach.

Role/Impact wrt. nearby Protected Lands

Water supply None: the property is not within the watershed of a surface water reservoir.

Wildlife habitat No expected mutual impact: no specific wildlife habitat or population concerns have been identified.

Recreation: motorized recreation is an ongoing, multi-directional, cross-property phenomenon that needs to be addressed within the wider area in conjunction with hiking trails, water quality and habitat concerns.

The between-property impact of any management: is expected to be essentially non-existent.

Role/Impact wrt. local economy

This woodlot is part of a larger landscape of smaller and medium-sized woodlots, which, though usually not significant on their own, form, when taken together, an important economic resource. Though the impact of this individual woodlot on the local economy will be positive, and at times important, it will not be large. There is the *possibility* of work for a local forester and for local loggers with reputations for quality work (along with affiliated trucking and service industries), and the *possibility* of forest products being produced, some of which may be used locally (including firewood, sawlogs, and sugaring wood). Timber, firewood, pulpwood and chipwood are part of a regional/global economy with a small number of local sawmills (for timber) and no current local pulp mills. Chipwood, if manufactured, is usually taken to power-generating plants within the larger region.

Summary of Management Recommendations

The landowner's goals for this property are drawn from the "Landowner Goals" page following this section, and are summarized in the Property-wide stewardship concerns listed above.

The property's potential to achieve the landowner's goals is outstanding in terms of forest composition & condition, and clarity of boundaries. Access is better to the eastern part than to the western part. A challenge will be addressing ATV use (see reference to "Recreation" above).

Working towards these goals, the main recommendations include:

1. Develop and follow a forest management plan approved by the MA Department of Conservation and Recreation (DCR) that incorporates the following elements:
 - a. Forest Stewardship: a comprehensive assessment and set of forest management considerations not limited to harvestable forest products.
 - b. Green Certification: the highest official standards for forest management currently available in Massachusetts, involving third party verification by Smartwood and ongoing monitoring of forest conditions by the owner/owners's forester (Green-Certified woodlots may qualify for carbon-credit trading).
2. Maintain boundaries with abutters
3. Determine allowable uses of trail system and provide this information to the public (e.g. via signage)
4. Be aware of and limit and reduce, if and when needed, the spread of non-native invasive vines and shrubs
5. Conduct an initial harvest designed to promote and maintain a diverse, mixed-age forest with a strong component of maturing red oak trees (Stands 3, 5 & 6), diversify habitat and open views (Stand 4) and pre-salvage hemlock to avoid a considerable roadside mess (Stand 1). Use this harvest to address erosion concerns and upgrade roads. Possible follow up of initial harvest with additional thinning.
6. Create early successional bog habitat in Stand 2.
7. Research the history/importance of the cave area.

Numbers indicate voting by town participants at Conservation Commission meeting and reflect "weighting" of citizen preferences for each item.

Revised May 2009

Landowner Goals

Please **check** the column that best reflects the importance of the following goals:

Goal	Importance to Me			
	High	Medium	Low	Don't Know
Enhance the Quality/Quantity of Timber Products*	2	1	2	
Generate Immediate Income			5	
Generate Long Term Income		5		
Produce Firewood		2	3	
Defer or Defray Taxes		1	4	
Promote Biological Diversity	5			
Enhance Habitat for Birds	4		1	
Enhance Habitat for Small Animals	3	2		
Enhance Habitat for Large Animals	2	3		
Improve Access for Walking/Skiing/Recreation	5			
Maintain or Enhance Privacy		3	2	
Improve Hunting or Fishing	1	1	3	
Preserve or Improve Scenic Beauty	5			
Protect Water Quality	4	1		
Protect Unique/Special/ Cultural Areas		5		
Attain Green Certification	3		2	
Other: Promote Env'l Education & Interpretation	3			

*This goal must be checked "HIGH" if you are interested in classifying your land under Chapter 61/61A.

In your own words, describe your goals for the property:

Goals for this property include promoting long term forest product production while maintaining a forest that can provide recreational opportunities, improve biodiversity, and maintain good aesthetics.

Stewardship Purpose

By enrolling in the Forest Stewardship Program and following a Stewardship Plan, I understand that I will be joining with many other landowners across the state in a program that promotes ecologically responsible resource management through the following actions and values:

1. Managing sustainably for long-term forest health, productivity, diversity, and quality.
2. Conserving or enhancing water quality, wetlands, soil productivity, carbon sequestration, biodiversity, cultural, historical and aesthetic resources.
3. Following a strategy guided by well-founded silvicultural principles to improve timber quality and quantity when wood products are a goal.
4. Setting high standards for foresters, loggers and other operators as practices are implemented; and minimizing negative impacts.
5. Learning how woodlands benefit and affect surrounding communities, and cooperation with neighboring owners to accomplish mutual goals when practical.

Signature(s): Bill Llewellyn

Date: 5/5/11

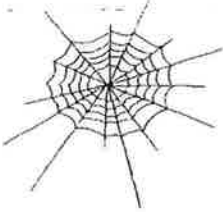
Owner(s) (print) BILL LLEWELLYN

(This page will be included with the completed plan.)

Page _____ of _____

Stewardship Issues

Massachusetts is a small state, but it contains a tremendous variety of ecosystems, plant and animal species, management challenges, and opportunities. This section of your plan will provide background information about the Massachusetts forest landscape as well as issues that might affect your land. **The Stand Descriptions and Management Practices sections of your plan will give more detailed property specific information** on these subjects tailored to your management goals.



Biodiversity: Biological diversity is, in part, a measure of the variety of plants and animals, the communities they form, and the ecological processes (such as water and nutrient cycling) that sustain them. With the recognition that each species has value, individually and as part of its natural community, maintaining biodiversity has become an important resource management goal.

While the biggest threat to biodiversity in Massachusetts is the loss of habitat to development, another threat is the introduction and spread of invasive non-native plants. Non-native invasives like European Buckthorn, Asiatic Bittersweet, and Japanese Honeysuckle spread quickly, crowding out or smothering native species and upsetting and dramatically altering ecosystem structure and function. Once established, invasives are difficult to control and even harder to eradicate. Therefore, vigilance and early intervention are paramount.

Another factor influencing biodiversity in Massachusetts concerns the amount and distribution of forest growth stages. Wildlife biologists have recommended that, for optimal wildlife habitat on a landscape scale, 5-15% of the forest should be in the seedling stage (less than 1" in diameter). Yet we currently have no more than 2-3% early successional stage seedling forest across the state. There is also a shortage of forest with large diameter trees (greater than 20"). See more about how you can manage your land with biodiversity in mind in the "Wildlife" section below. (Also refer to *Managing Forests to Enhance Wildlife Diversity in Massachusetts* and *A Guide to Invasive Plants in Massachusetts* in the binder pockets.)



Rare Species: Rare species include those that are **threatened** (abundant in parts of its range but declining in total numbers, those of **special concern** (any species that has suffered a decline that could threaten the species if left unchecked), and **endangered** (at immediate risk of extinction and probably cannot survive without direct human intervention). Some species are threatened or endangered globally, while others are common globally but rare in Massachusetts.

Of the 2,040 plant and animal species (not including insects) in Massachusetts, 424 are considered rare. About 100 of these rare species are known to occur in woodlands. Most of these are found in wooded wetlands, especially vernal pools. These temporary shallow pools dry up by late summer, but provide crucial breeding habitat for rare salamanders and a host of other unusual forest dwelling invertebrates. Although many species in Massachusetts are adapted to and thrive in recently disturbed forests, rare species are often very sensitive to any changes in their habitat

Indispensable to rare species protection is a set of maps maintained by the Division of Fisheries and Wildlife's Natural Heritage & Endangered Species Program (NHESP) that show current and historic locations of rare species and their habitats. The maps of your property will be compared to these rare species maps and the result indicated on the upper right corner of the front page of the plan. Prior to any

regulated timber harvest, if an occurrence does show on the map, the NHESP will recommend protective measures. Possible measures include restricting logging operations to frozen periods of the year, or keeping logging equipment out of sensitive areas. You might also use information from NHESP to consider implementing management activities to improve the habitat for these special species.



Riparian and Wetlands Areas: Riparian and wetland areas are transition areas between open water features (lakes, ponds, streams, and rivers) and the drier terrestrial ecosystems. More specifically, a **wetland** is an area that has hydric (wet) soils and a unique community of plants that are adapted to live in these wet soils. Wetlands may be adjacent to streams or ponds, or a wetland may be found isolated in an otherwise drier landscape. A **riparian area** is the transition zone between an open water feature and the uplands (see Figure 1). A riparian zone may contain wetlands, but also includes areas with somewhat better drained soils. It is easiest to think of riparian areas as the places where land and water meet.

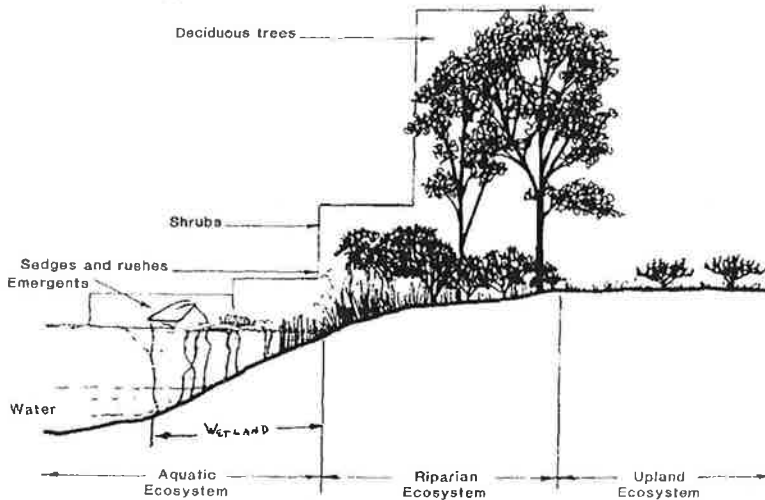


Figure 1: Example of a riparian zone.

The presence of water in riparian and wetland areas make these special places very important. Some of the functions and values that these areas provide are described below:

Filtration: Riparian zones capture and filter out sediment, chemicals and debris before they reach streams, rivers, lakes and drinking water supplies. This helps to keep our drinking water cleaner, and saves communities money by making the need for costly filtration much less likely.

Flood control: By storing water after rainstorms, these areas reduce downstream flooding. Like a sponge, wetland and riparian areas absorb stormwater, then release it slowly over time instead of in one flush.

Critical wildlife habitat: Many birds and mammals need riparian and wetland areas for all or part of their life cycles. These areas provide food and water, cover, and travel corridors. They are often the most important habitat feature in Massachusetts' forests.

Recreational opportunities: Our lakes, rivers, streams, and ponds are often focal points for recreation. We enjoy them when we boat, fish, swim, or just sit and enjoy the view.

In order to protect wetlands and riparian areas and to prevent soil erosion during timber harvesting activities, Massachusetts promotes the use of "Best Management Practices" or BMPs. Maintaining or reestablishing the protective vegetative layer and protecting critical areas are the two rules that underlie these common sense measures. DCR's Massachusetts Forestry Best Practices Manual (included with this plan) details both the legally required and voluntary specifications for log landings, skid trails, water bars, buffer strips, filter strips, harvest timing, and much more.

The two Massachusetts laws that regulate timber harvesting in and around wetlands and riparian areas are the Massachusetts Wetlands Protection Act (CH 131), and the Forest Cutting Practices Act (CH132). Among other things, CH132 requires the filing of a cutting plan and on-site inspection of a harvest operation by a DCR Service Forester to ensure that required BMPs are being followed when a commercial harvest exceeds 25,000 board feet or 50 cords (or combination thereof).



Soil and Water Quality: Forests provide a very effective natural buffer that holds soil in place and protects the purity of our water. The trees, understory vegetation, and the organic material on the forest floor reduce the impact of falling rain, and help to insure that soil will not be carried into our streams and waterways.

To maintain a supply of clean water, forests must be kept as healthy as possible. Forests with a diverse mixture of vigorous trees of different ages and species can better cope with periodic and unpredictable stress such as insect attacks or windstorms.

Timber harvesting must be conducted with the utmost care to ensure that erosion is minimized and that sediment does not enter streams or wetlands. Sediment causes turbidity which degrades water quality and can harm fish and other aquatic life. As long as Best Management Practices (BMPs) are implemented correctly, it is possible to undertake active forest management without harming water quality.



Forest Health: Like individual organisms, forests vary in their overall health. The health of a forest is affected by many factors including weather, soil, insects, diseases, air quality, and human activity. Forest owners do not usually focus on the health of a single tree, but are concerned about catastrophic events such as insect or disease outbreaks that affect so many individual trees that the whole forest community is impacted.

Like our own health, it is easier to prevent forest health problems than to cure them. This preventative approach usually involves two steps. First, it is desirable to maintain or encourage a wide diversity of tree species and age classes within the forest. This diversity makes a forest less susceptible to a single devastating health threat. Second, by thinning out weaker and less desirable trees, well-spaced healthy individual trees are assured enough water and light to thrive. These two steps will result in a forest of vigorously growing trees that is more resistant to environmental stress.



Fire: Most forests in Massachusetts are relatively resistant to catastrophic fire. Historically, Native Americans commonly burned certain forests to improve hunting grounds. In modern times, fires most often result from careless human actions. The risk of an unintentional and damaging fire in your woods could increase as a result of logging activity if the slash (tree tops, branches, and debris) is not treated correctly. Adherence to the Massachusetts slash law minimizes this risk. Under the law, slash is to be removed from buffer areas near roads, boundaries, and critical areas and lopped close to the ground to speed decay. Well-maintained woods roads are always desirable to provide access should a fire occur.

Depending on the type of fire and the goals of the landowner, fire can also be considered as a management tool to favor certain species of plants and animals. Today the use of prescribed burning is largely restricted to the coast and islands, where it is used to maintain unique natural communities such as sandplain grasslands and pitch pine/scrub oak barrens. However, state land managers are also attempting to bring fire back to many of the fire-adapted communities found elsewhere around the state.



Wildlife Management: Enhancing the wildlife potential of a forested property is a common and important goal for many woodland owners. Sometimes actions can be taken to benefit a particular species of interest (e.g., put up Wood Duck nest boxes). In most cases, recommended management practices can benefit many species, and fall into one of three broad strategies. These are **managing for diversity, protecting existing habitat, and enhancing existing habitat.**

Managing for Diversity – Many species of wildlife need a variety of plant communities to meet their lifecycle requirements. In general, a property that contains a diversity of habitats will support a more varied wildlife population. A thick area of brush and young trees might provide food and cover for grouse and cedar waxwing; a mature stand of oaks provides acorns for foraging deer and turkey; while an open field provides the right food and cover for cottontail rabbits and red fox. It is often possible to create these different habitats on your property through active management. The appropriate mix of habitat types will primarily depend on the composition of the surrounding landscape and your objectives. It may be a good idea to create a brushy area where early successional habitats are rare, but the same practice may be inappropriate in the area's last block of mature forest.

Protecting Existing Habitat – This strategy is commonly associated with managing for rare species or those species that require unique habitat features. These habitat features include vernal pools, springs and seeps, forested wetlands, rock outcrops, snags, den trees, and large blocks of unbroken forest. Some of these features are rare, and they provide the right mix of food, water, and shelter for a particular species or specialized community of wildlife. It is important to recognize their value and protect their function. This usually means not altering the feature and buffering the resource area from potential impacts.

Enhancing Existing Habitat – This strategy falls somewhere between the previous two. One way the wildlife value of a forest can be enhanced is by modifying its structure (number of canopy layers, average tree size, density). Thinning out undesirable trees from around large crowned mast (nut and fruit) trees will allow these trees to grow faster and produce more food. The faster growth will also accelerate the development of a more mature forest structure, which is important for some species. Creating small gaps or forest openings generates groups of seedlings and saplings that provide an additional layer of cover, food, and perch sites.

Each of these three strategies can be applied on a single property. For example, a landowner might want to increase the habitat diversity by reclaiming an old abandoned field. Elsewhere on the property, a stand of young hardwoods might be thinned to reduce competition, while a “no cut” buffer is set up around a vernal pool or other habitat feature. The overview, stand description and management practice sections of this plan will help you understand your woodland within the context of the surrounding landscape and the potential to diversify, protect or enhance wildlife habitat.



Wood Products: If managed wisely, forests can produce a periodic flow of wood products on a sustained basis. Stewardship encompasses finding ways to meet your current needs while protecting the forest’s ecological integrity. In this way, you can harvest timber and generate income without compromising the opportunities of future generations.

Massachusetts forests grow many highly valued species (white pine, red oak, sugar maple, white ash, and black cherry) whose lumber is sold throughout the world. Other lower valued species (hemlock, birch, beech, red maple) are marketed locally or regionally, and become products like pallets, pulpwood, firewood, and lumber. These products and their associated value-added industries contribute between 200 and 300 million dollars annually to the Massachusetts economy.

By growing and selling wood products in a responsible way you are helping to our society’s demand for these goods. Harvesting from sustainably managed woodlands – rather than from unmanaged or poorly managed forest – benefits the public in a multitude of ways. The sale of timber, pulpwood, and firewood also provides periodic income that you can reinvest in the property, increasing its value and helping you meet your long-term goals. Producing wood products helps defray the costs of owning woodland, and helps private landowners keep their forestland undeveloped.



Cultural Resources: Cultural resources are the places containing evidence of people who once lived in the area. Whether a Native American village from 1,700 years ago, or the remains of a farmstead from the 1800’s, these features all tell important and interesting stories about the landscape, and should be protected from damage or loss.

Massachusetts has a long and diverse history of human habitation and use. Native American tribes first took advantage of the natural bounty of this area over 10,000 years ago. Many of these villages were located along the coasts and rivers of the state. The interior woodlands were also used for hunting, traveling, and temporary camps. Signs of these activities are difficult to find in today’s forests. They were obscured by the dramatic landscape impacts brought by European settlers as they swept over the area in the 17th and 18th centuries.

By the middle 1800’s, more than 70% of the forests of Massachusetts had been cleared for crops and pastureland. Houses, barns, wells, fences, mills, and roads were all constructed as woodlands were converted for agricultural production. But when the Erie Canal connected the Midwest with the eastern cities, New England farms were abandoned for the more productive land in the Ohio River valley, and the landscape began to revert to forest. Many of the abandoned buildings were disassembled and moved, but the supporting stonework and other changes to the landscape can be easily seen today.

One particularly ubiquitous legacy of this period is stone walls. Most were constructed between 1810 and 1840 as stone fences (wooden fence rails had become scarce) to enclose sheep within pastures, or to exclude them from croplands and hayfields. Clues to their purpose are found in their construction. Walls that surrounded pasture areas were comprised mostly of large stones, while walls abutting former cropland accumulated many small stones as farmers cleared rocks turned up by their plows. Other cultural features to look for include cellar holes, wells, old roads and even old trash dumps.



Recreation and Aesthetic Considerations: Recreational opportunities and aesthetic quality are the most important values for many forest landowners, and represent valid goals in and of themselves. Removing interfering vegetation can open a vista or highlight a beautiful tree, for example. When a landowner's goals include timber, thoughtful forest management can be used to accomplish silvicultural objectives while also reaching recreational and/or aesthetic objectives. For example, logging trails might be designed to provide a network of cross-country ski trails that lead through a variety of habitats and reveal points of interest.

If aesthetics is a concern and you are planning a timber harvest, obtain a copy of this excellent booklet: *A Guide to Logging Aesthetics: Practical Tips for Loggers, Foresters & Landowners*, by Geoffrey T. Jones, 1993. (Available from the Northeast Regional Agricultural Engineering Service, (607) 255-7654, for \$7). Work closely with your consultant to make sure the aesthetic standards you want are included in the contract and that the logger selected to do the job executes it properly. The time you take to plan ahead of the job will reward you and your family many times over with a fuller enjoyment of your forest, now and well into the future.



Invasive Species Management: Invasive species pose immediate and long-term threats to the woodlands of MA. Defined as a non-native species whose introduction does or is likely to cause economic or environmental harm or harm to human, animal, or plant health, invasives are well-adapted to a variety of environmental conditions, out-compete more desirable native species, and often create monocultures devoid of biological diversity. The websites of the Invasive Plant Atlas of New England, www.nbii-nin.ciesin.columbia.edu/ipane, and the New England Wildflower Society, www.newfs.org are excellent sources of information regarding the identification and management of invasive plants. Some of the common invasive plants found in MA are listed below.

- Oriental Bittersweet (*Celastrus orbiculata*)
- Glossy Buckthorn (*Frangula alnus*)
- Multiflora Rose (*Rosa multiflora*)
- Japanese Barberry (*Berberis thunbergii*)
- Japanese Knotweed (*Fallopia japonica*)
- Autumn Olive (*Eleaagnus umbellata*)

Early detection and the initiation of control methods soon after detection are critical to suppressing the spread of invasive species. Selective application of the proper herbicide is often the most effective control method. See the next section for information on the use of chemicals in forest management activities.



Pesticide Use

Pesticides such as herbicides, insecticides, fungicides, and rodenticides are used to control “pests”. A pest is any mammal, bird, invertebrate, plant, fungi, bacteria or virus deemed injurious to humans and/or other mammals, birds, plants, etc. The most common forest management use of a pesticide by woodland owners is the application of herbicide to combat invasive species. MA DCR suggests using a management system(s) that promotes the development and adoption of environmentally friendly no-chemical methods of pest management that strives to avoid the use of chemical pesticides. If chemicals are used, proper equipment and training should be utilized to minimize health and environmental risks. In Massachusetts, the application of pesticides is regulated by the MA Pesticide Control Board. For more information, contact MA Department of Agricultural Resources (MDAR), Pesticide Bureau at (617) 626-1776

On MA Private Lands Group Certification member properties, no chemicals listed in CHEMICAL PESTICIDES IN CERTIFIED FORESTS: INTERPRETATION OF THE FSC PRINCIPLES AND CRITERIA, Forest Stewardship Council, Revised and Approved, July 2002, may be used.

This is your Stewardship Plan. It is based on the goals that you have identified. The final success of your Stewardship Plan will be determined first, by how well you are able to identify and define your goals, and second, by the support you find and the resources you commit to implement each step.

It can be helpful and enjoyable to visit other properties to sample the range of management activities and see the accomplishments of others. This may help you visualize the outcome of alternative management decisions and can either stimulate new ideas or confirm your own personal philosophies. Don't hesitate to express your thoughts, concerns, and ideas. Keep asking questions! Please be involved and enjoy the fact that you are the steward of a very special place.



STAND DESCRIPTIONS

Green Certification Notes Applying to All Stands

Desired future condition of the forest: (state a management vision of the future forest landscape within a specified timeframe including a description of the desired structural or compositional condition by identifying species, age class distribution, future product potential and other desired ecological features):

The overarching vision is for is a mixed-age forest (ages from less than 10 years old to well over 100 years old, with mixed ages present in all areas at all times). The forest will be comprised of a variable mix of native tree species suited to the site, with a strong presence of red oak, which is important economically and for habitat. This forest will provide a range of habitat types, including tree-specific habitat (standing dead trees, trees with cavities and sections of rot, and downed trees). A forest with these features will be visually interesting. This forest is, already, generally 80–100 years old, with some older elements, and some younger elements. Any specific variations from this management vision will be articulated in stand-level descriptions that follow below.

A forest in the above-described condition should provide the desired mix of conditions laid out in the Landowner Goals section of this plan.

Unique natural communities: Are there areas designated (1) to establish and/or maintain an ecological reference condition; and/or (2) to create or maintain a representative system of protected areas; and/or (3) to serve as a set of refugia for species, communities and/or community types)? Yes (to #3): there are a number of vernal pools; these have been mapped and will be protected from any unwanted changes caused by any logging. Also, the are in the northwest corner (of the Fowler parcel) borders a black gum swam; no alterations are intended here.

Cultural features: (cellar holes, stone walls, known Native American camp sites, trails, etc.): Two cellar holes and related stone structures (stream crossing/bridge; possible barn foundation; stone wall sections; a small sugar bush) attest to early European settlement and then abandonment.

It is possible that there are Native American features present, these being a number of cairns in the vicinity of a ledge cave and tall boulder. The origin of the cairns has not been confirmed for purposes of this Stewardship Plan.

**(interpret the site index and the site's suitability for growing timber)*

OBJECTIVE CODE: CH61 = stands classified under CH 61/61A; STEW = stands not classified under CH 61/61A; STD = stand; AC = acre; Mbf = thousand board feet; BA = basal area; VOL = volume; cds = cords

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The modern cultural feature is the network of ATV trails (using older woods roads) and the nearby "party spot" (see 'view" on the Forest Stand and Boundary Map).

Aesthetic quality: The appearance of the forest from any vantage point, but in particular from roads and trails, is an important concern at all times. From a practical point of view, the Town is well aware that logging creates a certain amount of temporary mess. Any logging and logging-related activity will be designed to minimize short-term adverse effects; over time, as the forest responds to specific logging activity, the aesthetic effects will become increasingly positive. Aesthetic effects also apply to the condition of roads, which is poor (e.g. "mud holes", etc.) in some places at the moment but could certainly be improved with judicious excavating and installation of stone/gravel and possibly culverts.

Overview of Soils: (information in quotation marks is taken from Soil Survey of Franklin County, Massachusetts).

Main soils occurring in this woodlot are Shapleigh and Gloucester, and are described below:

SmF, SmC and SkC: Shapleigh shallow sandy glacial till, derived from granite and quartzite, occurring as a thin, excessively-drained layer, over grey granite bedrock with frequent exposures, typically running north-south. Site index is 44-54 for upland oaks, which is a bit below average for tree growth. However, in lower landscape positions (in hollows and on lower slopes) the site index appears to be much higher.

GxC, GvC, GvD: Gloucester well-drained, stony/bouldery slightly droughty loam in loose glacial desposits derived from granite, gneiss and quartzite with similar fertility as Shapleigh.

Both soils are typically for this general run of forest and, though not highly productive compared to some other soils, are certainly worth working with to grow and harvest timber. When conditions allow, both red oak and white pine can establish and thrive here.

Are there slopes greater than 30%? Yes. In a few areas there are exposed cliffs; also, the southwest corner of the land drops off steeply, as does the Northeast corner. None of this steepness will affect the use of the land.

Is this soil highly erodible? No.

**(interpret the site index and the site's suitability for growing timber)*

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Protection from fire: fire danger is not high here and there is no evidence of any recent or historical fire; maintaining the existing roads in useable condition will contribute to any effort to fight fire, should there be one. There are no railroad tracks nearby so the most likely cause of any fire would be a careless offshoot of recreation (smoking, bonfires, etc.) on this or on a nearby property.

Field method for volume per acre: Standard basal area cuise using BAF 20 (See: "Is BAF 10 a Good Choice for Point Sampling, Wiant, Yandle and Andreas, *Journal of Forestry*, pp. 23 & 24, June, 1984). Product volumes are calculated in an Excel spreadsheet using formulas published in Mawson and Rivers

Field method for site index: from USDA soil survey.

Any additional stewardship issues: None.

**(interpret the site index and the site's suitability for growing timber)* _____

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STAND DESCRIPTIONS

Overview of Stands

OBJ	Stand	Type	Acres	Size	BA	Mbf per acre	Cords per acre	Site Index
Stew/GC	1	HH 4-5a	3.5	11	150	7.0	5	50 OR
Stew/GC	2	HH 1-3a	2.8	3	N/A	0.0	1	50 OR
Stew/GC	3	OH 3-4a	51.6	9	110	2.5	18	50 OR
Stew/GC	4	HH 2-3a	40.0	2	140	2.0	10	46 OR
Stew/GC	5	OH3-4a	25.1	8	90	2.0	12	50 OR
Stew/GC	6	HH 3-4a	28.0	12.1	125	6.0	12	50 OR

Total 151

**(interpret the site index and the site's suitability for growing timber)*

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STAND DESCRIPTIONS

MT Grace Parcels, Stands 1-5

OBJ	Stand	Type	Acres	Size	BA	Mbf per acre	Cords per acre	Site Index
Stew/GC	1	HH 4-5a	3.5	11	150	7.0	5	50 OR

HH = hemlock and hardwoods

Type and Overstory (species and condition): Dense hemlock overstory with mix of white pine, red oak, and beech, red maple, ash and birches. Hemlock is both timber sized (in the overstory) and pulp-sized (midstory). Hemlocks range to 24" diameter. Pines are scattered and very large (to 30" diameter) with big crowns. Red oaks range to 24" diameter. Other hardwoods are 10"-18" mainly.

Regeneration (species and distribution): Totally absent due to hemlock shade; exceptions to this are areas lacking hemlock with striped maple and witch hazel.

Understory: Totally absent due to hemlock shade; exceptions to this are areas lacking hemlock with an understory of lowbush blueberry with hobblebush and witch hazel.

Invasives (species, distribution, potential threat): none noted.

Soils (type, moisture, drainage and productivity*): Mostly Shapleigh (see Overview of Soils above)

For tree growth purposes: average and better for red oak and white pine (and hemlock) due to better soil depth/moisture on lower slope.

For logging purposes: difficult in the northern half due to steepness and Gulf Road at the bottom, but partly accessible from Brush Mtn Road; the southern half is easier to access.

Special Habitat: Large trees (hemlocks, pines, red oak); riparian (however, the vicinity of Gulf Road impairs this riparian zone).

Management history: No evidence of recent forest management.

Desired future condition: Normally, maintaining this type would be desired because the trees are old and this type is to this small area on this parcel; however, the beginnings of a hemlock woolly adelgid infestation do not bode well for this sentiment. If hemlock will gradually become moribund and die here, right next to the road, the desired condition might become: keeping mature hemlocks where they are out of the way (i.e. not in roadside areas) but harvesting hemlocks near roads. This would allow hemlock to be retained, even if it dies, without creating unnecessary hazards and mess near the roads.

**(interpret the site index and the site's suitability for growing timber)*

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Recommended Management for the next 10 years: as part of a larger harvest in other stands, selection system cut sometime in 2011-2015 to (1) reduce/salvage hemlock; (2) create openings adequate for regeneration oak and pine and scarify the soil in these; (3) Brush Mtn Road and fix drainage as needed.

Growth Rate Method and Volume: using Forest Inventory and Analysis rate of 162 board feet per acre per year for CH 61 purposes, expected growth would be about 0.6 Mbf/year for the stand.

OBJ	Stand	Type	Acres	Size	BA	Mbf per acre	Cords per acre	Site Index
Stew/GC	2	HH 1-3a	2.8	3	N/A	0.0	1	50 OR

HH = hemlock and red maple (typically a swamp)

Type and Overstory (species and condition): closed dense overstory of doghair hemlock (10-20') with red maple, poplar and birches on drier soil arranged almost in a ring around a shrub-swamp and wet meadow overstory on very wet soil. This central area includes a pocket of speckled alder; other areas have striped maple and hemlock seedlings; other areas have spirea, highbush blueberry, grey birch, horsetails and lowbush blueberry. Plant diversity here is high and is only partially catalogued here.

This area was artificially created by excavated and removing soil- probably gravel, to a depth of up to 15.

Regeneration (species and distribution): Hemlock will probably encroach in all areas, with limited red maple, birches and poplar.

Understory: See "Overstory".

Invasives (species, distribution, potential threat): none noted.

Soils (type, moisture, drainage and productivity*): Mostly Shapleigh (see Overview of Soils above) but the original soil was totally altered by gravel removal leaving what was once the subsoil, a nutrient-poor, presumably acidic glacial till mix that is at or below the water table. Fertility is low for timber species, but species that can thrive in nutrient-poor boggy conditions could thrive here (e.g. sundews).

Special Habitat: Manmade wetland; shrubby, boggy habitat.

Management history: No evidence of recent forest management, but site alterations as described above.

Desired future condition: capitalize on the extreme re-configuring of the site conditions here to develop and interesting shrub swamp/bog/wet meadow in what would normally be an upland landscape position.

**(interpret the site index and the site's suitability for growing timber)*

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STAND DESCRIPTIONS

Recommended Management for the next 10 years: Cut trees to eliminate shade and promote shrubs and wet meadow/bog species..

Growth Rate Method and Volume: using Forest Inventory and Analysis rate of 162 board feet per acre per year for CH 61 purposes, expected growth would be about 0.5 Mbf/year for the stand, though actual growth will be less at this stage of development.

OBJ	Stand	Type	Acres	Size	BA	Mbf per acre	Cords per acre	Site Index
Stew/GC	3	OH 3-4a	51.6	9	110	2.5	18	50 OR

OH = red oak and affiliated hardwoods

Type and Overstory (species and condition): Nice red oak, 60'-70' tall, 10" - 16" (rarely up to 18"-20") diameter, with good crowns and well-formed stems, mixed with red maple, black birch, paper birch, and ash (in wetter areas). Sugar maple occurs to a minor extent on the lower slope, sometimes in clusters. Hemlock is scattered throughout, sometimes as timber-sized trees. The potential to develop the oak as a timber resource is excellent. Crowns are on the verge of becoming too constricted so a thinning should occur soon (within 5-10 years). Some of the oaks have a decided sweep which presumably was caused by the 1938 hurricane and indicates the trees predate the hurricane.

To a forester's eye, this stand has tons of potential, with the result, someday, being a large number of tall, mature, well-formed red oaks.

Regeneration (species and distribution): Generally absent due to overstory shade, but where regeneration occurs it is mainly beech and striped maple.

Understory: Typical of a post-old-field-pine oak forest, including lowbush blueberry, sheep laurel, starflower, Canada mayflower, wintergreen, various ferns plus witch hazel..

Invasives (species, distribution, potential threat): none noted.

Soils (type, moisture, drainage and productivity*): Mostly Shapleigh (see Overview of Soils above) As evidenced by tree heights, these soils are productive for tree growth, probably moreso than the Soil Survey suggests (site index up to 65 or so) Logging on this soil and slope can cause damage (compaction, re-channeling water) unless conditions are adequately frozen or dry. Furthermore, the ight nature of a recommended thinning (see below) requires careful logging so that roots, stems, and crowns are not unduly damaged: trees do not heal from damage, they merely compartmentalize it, or attempt to do so, and thus any damage to a tree will remain (sometimes hidden) with the tree (e.g. and negatively affect future timber value).

**(interpret the site index and the site's suitability for growing timber)*

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STAND DESCRIPTIONS

Special Habitat: Abundant acorns; riparian areas; a huge downed oak tree (near the power lines).

Management history: numerous pine stumps with low branches suggest this was an old-field pine stand that was clearcut, but the sweep in some trees indicates this was done before the 1938 hurricane. Many oak stands in this region were created in this manner. Some logging was done after 1960, but there is no evidence of recent forest management.

Desired future condition: good oak timber growing to maturity (20"-22" and beyond). Harvests of mature timber can be anticipated in about 2026+/- and 2046+/- . Thinning in the 2011-2015 timeframe would accelerate the growth of timber, resulting in more timber of higher quality and at an earlier date. Even if timber is never harvested, the trees will be bigger, more vigorous, and better suited to long-term acorn production.

Recommended Management for the next 10 years: Thinning to promote red oak and preserve sugar maple.

Growth Rate Method and Volume: using Forest Inventory and Analysis rate of 162 board feet per acre per year for CH 61 purposes, expected growth would be about 8.4 Mbf/year for the stand, though actual growth will be less at this stage of development.

OBJ	Stand	Type	Acres	Size	BA	Mbf per acre	Cords per acre	Site Index
Stew/GC	4	HH 2-3a	40.0	2	140	2.0	10	46 OR

HH = hemlock and affiliated hardwoods

Type and Overstory (species and condition): Hemlock forest, mostly very thick, sometimes mixed with red oak, black oak, birches, and red maple, alternating with pockets of hardwoods largely devoid of hemlock. Timber was picked out of here in the 1980's (highgrading). Hemlocks are occasionally of timber size, but mostly pulp-sized. Hemlock may be shaky due to the shallow bedrock and, in particular, those trees pre-dating the 1938 hurricane. Red oak are mainly firewood size, sometimes small-timber sized, but quality is mixed and seems to correlate strongly with soil depth. Other hardwood species are primarily of firewood size. Large trees are lacking. One exception is a 35" large-limbed hemlock near the trail in the southwest corner.

Regeneration (species and distribution): Generally absent due to overstory shade. In hardwood groves, hemlock seedlings are present..

Understory: very similar to Stand 3: including lowbush blueberry, sheep laurel, starflower, Canada mayflower, wintergreen, various ferns plus witch hazel. The larger vernal pool has a shrub layer of winterberry and highbush blueberry and has a few spindly black gums in the overstory.

*(interpret the site index and the site's suitability for growing timber)

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Invasives (species, distribution, potential threat): none noted.

Soils (type, moisture, drainage and productivity*): Mostly Shapleigh (see Overview of Soils above) As evidenced by tree heights, these soils are not very productive for tree growth. This is no surprise because bedrock is very close to the surface, restricting rooting zones and causing these to be either poorly drained or excessively drained. The hilltop exposure to wind further limits potential height growth and quality, such that, taken together, soil and site factors preclude attempting to grow appreciable valuable timber here. However, habitat and recreational values are high.

Special Habitat: Dense hemlock (thermal cover); 2 vernal pools; riparian areas; small den/caves in bedrock; lots of exposed bedrock forming "cliffs"; various subtle cascades, including one over a long chunk of exposed ledge that resembles a shipwreck or beached whale

Management history: apparently cut after 1938 hurricane, but not completely salvaged; picked over (highgraded) in 1980's.

Desired future condition: The same factors affecting hemlock in Stand 1 apply here, but the concerns about roadside appearance and safety do not, so that pre-salvage is not a real concern. Nonetheless, openings can be made to diversify habitat and also potentially to develop a view looking north (see Forest Stand and Boundary Map).

Recommended Management for the next 10 years: Selection harvest to implement openings for habitat and view (see above).

Growth Rate Method and Volume: using Forest Inventory and Analysis rate of 162 board feet per acre per year for CH 61 purposes, expected growth would be about 6.5 Mbf/year for the stand, though actual growth will be less at this stage of development.

OBJ	Stand	Type	Acres	Size	BA	Mbf per acre	Cords per acre	Site Index
Stew/GC	5	OH3-4a	25.1	8	90	2.0	12	50 OR

OH = oak and affiliated hardwoods (with scattered hemlock concentrations)

Type and Overstory (species and condition): Similar to Stand 3, with nice, immature red oak but was cut (highgraded) in, approximately, the 1980's. The red oak is mixed with red maple, black birch, heavy paper birch in places, ash and also yellow birch (in wetter areas). Hemlock is scattered throughout, sometimes as timber-sized trees, often in concentrations. The potential to develop the oak as a timber resource is excellent. Crowns are on the verge of becoming too constricted so a thinning should occur soon (within 5-10 years), but this is less of a priority than in Stand 3 (partly because the highgrading reduced crown competition

**(interpret the site index and the site's suitability for growing timber)*

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somewhat, and also because many potential crop trees were damaged by logging (butt scars) and so are not worth investing improvement effort in.

Regeneration (species and distribution): absent where hardwoods were not cut in the 1980s, otherwise 10'-20' tall beech, striped maple and witch hazel.

Understory: Mostly absent where regeneration is thick, and otherwise a sparse mixture of lowbush blueberry and various common associates (sheep laurel, starflower, Canada mayflower, wintergreen, various ferns). Thick hobble bush between the steep ledge and the boundary (riparian area only)

Invasives (species, distribution, potential threat): none noted.

Soils (type, moisture, drainage and productivity*): Essentially the same as Stand 3.

Special Habitat: Several very large oaks configured with a large boulder, steep ledge, caves, and a vernal pool, in the southwest corner; riparian areas; lots of acorns.

Management history: cut after 1938 hurricane; picked over (highgraded) in the 1980's.

Desired future condition: Similar to Stand 3: develop nice red oak timber.

Recommended Management for the next 10 years: Similar to Stand 3, but create openings in some places where desirable overstory trees are sparse.

Growth Rate Method and Volume: using Forest Inventory and Analysis rate of 162 board feet per acre per year for CH 61 purposes, expected growth would be about 4.1 Mbf/year for the stand, though actual growth will be less at this stage of development.

Fowler Parcel

OBJ	Stand	Type	Acres	Size	BA	Mbf per acre	Cords per acre	Site Index
Stew/GC	6	HH 3-4a	28	12.1	125	6.0	12	50 OR

HH = hemlock and hardwoods

Type and Overstory (species and condition): irregular mix of red oak with red maple, black and paper birch, and beech; these hardwoods occur both with and without timber-sized hemlock.

The timber quality of the red oak ranges from average to very good; sizes (of trees with good crowns) range from 8" to 18"-20", rarely 22", with plenty of trees in the 12"-14" range. Potential log heights range from 20' to 40'. The size and

**(interpret the site index and the site's suitability for growing timber)*

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concentration of the red oak is noticeably greater along, and to the west of, the long central woods road, possibly reflecting a differential management history, or a better site (due presumably to deeper soil), or both. A main part of the timber potential in this stand is to grow the viable red oaks to a larger size.

The other hardwoods, not surprisingly, are not as large or well-formed and do not have the same timber potential as the red oak. Beech bark disease does affect the beech here; nectria canker affects some of the black birch; the paper birch is mature (age-wise). Only a small percentage of these trees is at, or is likely to reach, a mature timber size. The main exception might be red maple along the brook; here there are a number of tall trees 12"-14" and well formed.

The hemlock occurs both as scattered large individuals, and also in concentrated groves, up to 3/4-acre in size. The quality of the hemlock timber appears good; sizes range from 12"-20". One large hemlock (see map) (32" diameter) seems to be a relic from an earlier time and condition, possibly when the surrounding land was pastured.

White pine, usually tall and well-formed, occurs infrequently, typically where the soil is wetter, either as scattered individuals or in small groups.

Exceptions to the general forest type include the edge of a black gum swamp, in the northwestern part of the stand (see map). The actual gum swamp is on the abutting land to the west. The swamp on the Fowler parcel is a transitional zone from upland to gum swamp, with yellow birch more abundant. A minor tributary (entering the swamp south of the cellar hole) drains out of a small yellow birch swamp (the woods road is essentially a mud hole where it crosses the swamp).

Regeneration (species and distribution): Desirable regeneration (e.g. oak, pine) is totally lacking, due to a thick intermediate layer of hemlock, beech, red maple and striped maple and witch hazel; there may have been desirable regeneration after the last harvest (see below); if so, a combination of shading and browsing would explain its disappearance.

Understory: in addition to the midstory described above, upland areas have wintergreen, clubmoss, bracken fern, limited mountain laurel, whereas wetter areas have sphagnum moss, and cinnamon fern.

Invasives (species, distribution, potential threat): none noted.

Soils (type, moisture, drainage and productivity*): Mostly Gloucester (see Overview of Soils above)

For tree growth purposes: average for red oak and white pine with considerable variability depending on soil depth and moisture in given microsites.

For logging purposes: average: this soil can be logged throughout much of the year provided the soil is dry enough or frozen enough. One challenge is that weather and soil conditions can change rapidly within the duration of a logging operation.

**(interpret the site index and the site's suitability for growing timber)*

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Main (and Special) Habitat: mixed, tall forest with abundant acorns and interspersed evergreens and streams feeding a tall swamp; (also numerous ledge overhangs serving as potential "caves" for small mammals, but potentially as large as a bear)

Topography: the land steps down along the eastern and western edges and generally slopes mildly to the north

Management history: cut about 30-40 years ago as evidenced by numerous skid trails, stumps and butt-scarred trees. The rutting in the skid roads indicates that the ground was wet at the time of the cut. Much earlier, as evidenced by the cellar hole and nearby barn (?) foundation, this area was farmed.

Desired future condition: Within the general "Desired future condition of the forest" described above, this stand would ideally feature at least two age classes of oak and pine.

Recommended Management for the next 10 years: selection system cut sometime in 2011-2015 to (1) reduce/salvage hemlock; (2) create openings adequate for regeneration oak and pine and scarify the soil in these; (3) thin around viable, promising red oaks; (4) upgrade the woods roads and fix drainage

Growth Rate Method and Volume: using Forest Inventory and Analysis rate of 162 board feet per acre per year for CH 61 purposes, expected growth would be about 4.5 Mbf/year for the stand.

**(interpret the site index and the site's suitability for growing timber)*

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MANAGEMENT PRACTICES
to be done within next 10 years

Explanation of Silvicultural Methods

“Silviculture” is the body of ideas and practices used by foresters to shape the forest. Ideally, the forester will mark the silviculture (by painting trees to be cut). A crucial aspect of success is to find a logger who is willing and able to carry out the marked cutting as the forester intends.

To the landowner: recommended silvicultural methods for your particular forest stands are referred to in Stand-level management practices on subsequent pages and are drawn from the following list, which is based on (proposed) Chapter 132 (Forest Cutting Practices Act) regulations. Silvicultural methods are broadly divided into two groups, **intermediate cuts** and **regeneration cuts**. Intermediate cuts focus on improving growth existing overstory trees. Regeneration cuts focus on establishing and promoting new stands of trees. Please note that in considering or implementing any of the methods described below there are numerous factors that must be contemplated and addressed, such as competing vegetation, browse, optimal logging systems, woodlot access (roads, landings, etc.), time of year and ground conditions, and measures to protect state-listed species, watercourses and wetlands, etc.

Intermediate Cuts

***** Thinnings & Improvement Cuts:** these reduce the density of trees to enhance the vigor of residual trees. An improvement cut is usually an initial treatment that removes trees of low quality or undesirable species. Thinnings are subsequent adjustments to continue focusing growth on selected trees. Intermediate cuts that are overly “heavy” (i.e. cuts that let in a lot of light) are classified as regeneration cuts: *proposed* (pending as of this writing) basal area thresholds are as follows: BA = 100 for conifer stands, BA = 60 for hardwood stands, BA = 80 for conifer-hardwood stands.

Regeneration Cuts

Regeneration cuts use existing stands of trees to create future stands of trees. The future stands of trees can be of a single age (known as “even-aged”), two ages (two-aged) or of three or more ages (uneven-aged). In regeneration cuts, particular attention is paid to seed sources and/or existing seedlings/saplings for the future stand, light conditions in the understory, and interfering factors (e.g. native or non-native competitor plants in the understory, browsing by deer or moose, etc.). A regeneration cut can be sudden and decisive (clearcutting, seed-tree, coppice, single-cut shelterwood), or a regeneration cut can be staggered (multiple cut shelterwood), or ongoing (uneven-aged, i.e. “selection system” or “irregular shelterwood”).

Even-aged Regeneration Methods

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Clearcut: All established trees are removed to allow new trees to grow from seed in full sun. Clearcutting is especially appropriate for early-successional species (e.g. paper birch, poplar and black cherry plus gray birch and pin cherry) and may grow with mixes of hemlock, red maple and other birches. Seeding is assumed to occur from edge trees or from seed stored in the soil (cherry). Clearcuts may be up to 5 acres, or, if artificial seeding or planting is used, up to 10 acres. Larger clearcuts require special permission. Clearcuts separated by more than 100 feet are considered separate. Clearcutting is sometimes confused with the final cut ("overstory removal cut") in a shelterwood system (see below), but the difference is that clearcutting is done to grow new trees from seed, whereas the overstory removal cut in a shelterwood system is done to release existing seedlings or saplings. Clearcutting is also sometimes confused with patch selection (see below); in fact, the distinction between two practices falls into a gray area.

Seed-Tree Cut: Similar to a clearcut except that seed trees are retained to provide seed (and either cut later or leave) and except that any species may be grown. There is no acreage limitation. At least 4 seed trees (20-inch diameter or greater (BA = 10)) or 12 seed trees (14-20 inches diameter) (BA 20) must be retained per acre.

***** Shelterwood/ Shelterwood System:** usually a multi-step approach to establish desirable trees in the understory in medium-light conditions before the overstory is eventually removed to release the seedlings. The final step in the shelterwood system is the overstory removal, which is done to release the established young trees. Used especially for oak, sugar maple (giving these species years to establish well-developed root systems) white pine and hemlock (giving these species years to establish competitive height). Black birch typically becomes abundant as well. Regeneration that is adequate for release must typically be 2 feet tall, well-distributed and abundant. Interfering vegetation must be identified and (ideally) controlled.

Coppice: a complete "cutting off" of small or medium-sized hardwoods, especially oaks, hickory, red maple) to cause these to re-sprout and form a new stand from the same root systems. This is an old system that sometimes occurs inadvertently, and is useful for reliably producing firewood or whips.

Two-aged Regeneration Methods

Clearcut, Seed-tree, Shelterwood with "reserves": Same as methods described above but with retention of trees (12 inches diameter or larger) (possibly for timber, seed source, habitat or aesthetic reasons, but not for the purpose of managing understory light conditions).

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Uneven-aged Regeneration Methods (Selection/Irregular Shelterwood)

In an uneven-aged stand there will always be trees in a range of size and age classes that are *free to grow*. Often current conditions will be an approximation of this, but over time a true multi-aged stand can be created and maintained. A selection cut is a mix of thinning and creating or enlarging openings. Openings are defined either as groups or patches; new openings generally do not cover more than 50% of the stand area.

***** Group Selection:** openings may range from single-tree-size up to 1/4 acre (e.g. equivalent to a circle about 120 feet in diameter in size, which is about 1.5 times the mature height of many trees (80'-100')). No special provisions are needed to prepare the understory for this more conservative opening size, though, to achieve the ideal outcome, it may be necessary to control competing vegetation (native vegetation such as beech or striped maple, or non-native invasive vegetation such as bittersweet, buckthorn, etc.).

Patch Selection: openings may range up to 2 acres (e.g. equivalent to a circle about 333 feet in diameter). Interfering vegetation (if present) should be identified and ideally controlled so that seedlings can be established/released. Please note: in Massachusetts, patch cuts will appear identical (to the public) as clearcutting.

***** Continuous-Cover Irregular Shelterwood:** (see "The Irregular Shelterwood System", Journal of Forestry, December, 2009) is used to "create and maintain an unbalanced, multi-aged stand for a long and indefinite period of time by successive regeneration fellings." This system is perhaps the most complex, but is the most versatile or creatin or maintaining complex forests. In this system, elements of thinning, shelterwood, and group selection are combined and applied in ways that reflect the current conditions and ultimate potential of specific woodlot areas, and strongly reflect the judgement and vision of the forester. A forest managed in this way will not have an "industrial" feel and should be rewarding for people with a wide range of interests ranging from on-going timber production to contemplative enjoyment of nature. This system is not used when the landowner wants to maximize short-term income or dramatically alter the landscape (for this see "Even-Age Regeneration Methods" above).

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Overview of Harvesting (optional): The purpose of the harvesting described below is to develop recreational/scenic (e.g. roads, views, etc.), habitat (e.g. openings, new growth), and water-quality attributes (e.g. road upgrades to reduce erosion/sedimentation) of the property while developing the longer-term red oak timber resource without incurring net costs in the process. Thinning refers to improving spacing among crowded trees; selection includes thinning but also includes making small openings in irregular patterns and leaving some areas uncut.

OBJ	Stand	Type	Silviculture (harvesting)	Acres to Cut	BA to Cut	Mbf to Cut	Cords to Cut	Timing
Stew/GC	1	HH 4-5a	Selection	2	30	5	5	2011-15
Stew/GC	2	HH 1-3a	None	N/A	N/A	N/A	N/A	N/A
Stew/GC	3	OH 3-4a	Thin	49	30	8	123	2011-15
Stew/GC	4	HH 2-3a	Selection	20	70	20	100	2011-15
Stew/GC	5	OH3-4a	Selection	24	30	4	48	2011-15
Stew/GC	6	HH 3-4a	Selection	25	38	30	63	2011-15
Totals				120.1		67	339	

OBJ	Stand	Type	Silviculture (harvesting)	Acres to Cut	BA to Cut	Mbf to Cut	Cords to Cut	Timing
Stew/GC	1	HH 4-5a	Selection	2	30	5	5	2011-15

Practice purpose (how it helps create desired future condition

Helps by addressing anticipated loss of hemlock, diversifying age-structure and providing a thinning benefit to promising trees.

Trees to be removed & retained (types, conditions, sizes): Remove mainly hemlock timber and affiliated hemlock pulp and hardwood firewood, in accessible areas (on roughly ½ the acreage) with particular focus on preventing a situation with large dead trees near roads. Retain dense, uncut areas with hemlock that are not accessible or near roads, as well as oaks and pines throughout.

Special considerations (erosion, habitat, access, timing, cultural, etc.):

Gulf Road is a fast road with limited visibility and tight guard rails in this section, so care is needed when using the bottom of Brush Mtn Road and in any cutting near Gulf Road. This would be a good time to post temporary signs further up and down Gulf Road (e.g. trucks entering).

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OBJ	Stand	Type	Silviculture (harvesting)	Acres to Cut	BA to Cut	Mbf to Cut	Cords to Cut	Timing
Stew/GC	3	OH 3-4a	Thin	49	30	8	123	2011-15

Practice purpose (helps create desired future condition by...)

Enhancing the growth of well-formed red oaks (with good crowns) and promoting residual sugar maples by reducing competition around crowns.

Trees to be removed & retained (types, conditions, sizes):

Remove firewood grade trees including suppressed or codominant red oaks directly competing with well-formed oaks. Strive to release crop trees on 2 or 3 sides, but not over-release these (to reduce the risk of epicormic sprouting). However, well-formed trees that are close together should be retained. Retain well-formed oaks, with room to grow for at least 20 years as well as relic sugar maples and scattered large hemlocks.

Special considerations (erosion, habitat, access, timing, cultural, etc.):

TSI will cause the least damage to the stand and not open up any new ATV trails. However, TSI is a substantial net cost. Firewood thinning is roughly break-even for the landowner (in the present), but is likely to damage some of the keep trees, compact the soil, and open up new trails. Ideal conditions for logging would be on truly frozen ground – a condition that has not reliably occurred in recent winters. Logging could be done in two stages, with an initial harvest (in conjunction with work in nearby stands) harvesting some of the more accessible firewood (presumably with larger equipment, e.g. whole-tree chipping) followed by a more detailed harvest in harder to get areas using small equipment (e.g. hand-felling and skidding with a small skidder)

OBJ	Stand	Type	Silviculture (harvesting)	Acres to Cut	BA to Cut	Mbf to Cut	Cords to Cut	Timing
Stew/GC	4	HH 2-3a	Selection	20	70	20	100	2011-15

Selection = both group and patch selection.

Practice purpose (helps create desired future condition by...)

Developing habitat and views.

Trees to be removed & retained (types, conditions, sizes):

Remove in concentrated pockets typically up to ¼ acre, but as large as 2 acres (to implement the view); pockets will be located by a general lack of desirable trees and appropriate setbacks from streams, etc. (or where needed to effect a view).

Retain uncut patches, as well as coarse woody debris within openings (if the harvest is done by whole-tree chipping, then whole trees will marked to be cut and left in the openings).

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Special considerations (erosion, habitat, access, timing, cultural, etc.):
Locating skid trails and openings will be tricky due to the considerable number of north to south streams created by the north-south bedrock outcrops

OBJ	Stand	Type	Silviculture (harvesting)	Acres to Cut	BA to Cut	Mbf to Cut	Cords to Cut	Timing
Stew/GC	5	OH3-4a	Selection	24	30	4	48	2011-15

Selection = group selection

Practice purpose (helps create desired future condition by...)
Enhancing the growth of well-formed red oaks (with good crowns) and creating habitat-diverse areas of new growth.

Trees to be removed & retained (types, conditions, sizes): Remove firewood grade trees including suppressed or codominant red oaks directly competing with well-formed oaks. Strive to release crop trees on 2 or 3 sides, but not over-release these (to reduce the risk of epicormic sprouting). However, well-formed trees that are close together should be retained. Remove all trees in selected pockets with few promising overstory trees. Retain well-formed oaks, with room to grow for at least 20 years and scattered large hemlocks.

Special considerations (erosion, habitat, access, timing, cultural, etc.):
Both Stand 5 and Stand 6 would be best accessed from Old Wendell Road (see discussion below).

OBJ	Stand	Type	Silviculture (harvesting)	Acres to Cut	BA to Cut	Mbf to Cut	Cords to Cut	Timing
Stew/GC	6	HH 3-4a	Selection	25	38	39	108	2010/11

Practice purpose (how it helps create desired future condition)
Helps by diversifying age-structure and providing a thinning benefit to promising trees.

Trees to be removed & retained (types, conditions, sizes): Remove mainly firewood, pulpwood and intermediate mixed-species brushwood as well as about 2/3 of the hemlock timber and 5% of the oak timber. Retain mix of groves and openings where groves are comprised mainly of well-spaced, well-formed trees. Retain wet areas mainly not cut.

Special considerations (erosion, habitat, access, timing, cultural, etc.):
Access is a main issue to be resolved: though, in theory, logging access could be to Brush Mtn Road, this is a long, costly uphill skid that also would create erosion control challenges (both during the job, and afterwards, if/when ATV's ride on the skid road). These problems could be partly avoided by skidding to Old Wendell Road; however, doing so would need the permission of the southern

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abutter and might require some upgrading of Old Wendell Road. ATV and jeep/truck use of this southern parcel and Old Wendell Road is considerable, which presents the challenge of erosion control and control of use. The western abutting parcel has a woods road that is also used by off-road vehicles. Trying to work through this question may provide a platform for working with neighbors to address erosion and use concerns.

Any logging should be done on dry or frozen ground.

Timber harvest methods/equipment

Any system could be used here as long as ground conditions are stable. In any case, a marking system will be used that results in loggers leaving adequate slash, tops (including whole, unlopped tops) and whole trees as coarse woody debris but without elevating fire danger. If this work is not done by a whole-tree chipping system, the loggers will have to cut and leave a lot of material in order to create the openings; typically such extra work is paid for by a reduction in the price of the timber.

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Other Management Activity:

Property Boundaries (optional):

All corners are monumented. Much of the boundary is blazed and has fading paint in various colors (reflecting different owners and times) (the boundary with Parcel 10 is not well-marked). The entire boundary should be clearly painted in one color; ideally, signs would be posted to indicate the town's ownership including who to contact with questions about use.

Maintain Brush Hill Road (optional):

Maintain the road in a condition that does not contribute to erosion.

Habitat work not related to harvesting (optional):

Stand 2: Enhance wetland forest structure for habitat and visual interest by promoting spring-fed shrub-swamp, bog and wet meadow vegetation. Allow sunlight to reach saturated soil or understory vegetation. Cut and leave all shading trees (except those retained as snags or for other habitat reasons) and speckled alder (normally, beavers would do this, but they are absent here). Allow natural vegetation to regrow. It is assumed that no permit is needed to cut trees in this isolated wetland, but this needs to be verified.

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Monitoring (Required for green certification):

Monitoring will be done annually for the first ten years via a field-visit by the Town or its assign using a copy of the checklist below in conjunction with a copy of the Forest Stand and Boundary Map and reported in writing. The following elements will be part of monitoring:

Timber Condition (health, vigor and growth of timber-quality trees, storm damage, etc., and any need for response or modification to the management plan)

Regeneration (establishment and growth of young trees, occurrence/prevalence of competing effects, etc, and any need for response or modification to the management plan)

Treatments (forest response to any treatments such as logging, pest control, etc.)

Non-Native Invasive Plant Species (occurrence, pervasiveness, or effects of control efforts)

Non-Native Tree Pests (e.g. occurrence, spread and effect of pests such as hemlock woolly adelgid, Asian long-horned beetle, etc.)

Condition of Roads/Landings (e.g, erosion, ATV use, dumping)

Condition of Trails (e.g, erosion, blockage, unauthorized use, etc.)

Condition of Boundaries (e.g, visibility, encroachment, etc.)

Northfield Town Forest Stewardship Outreach Plan Implementation Guidelines

Summary

The following document contains the Stewardship Outreach Plan for the Northfield Town Forest. It begins with the goals of the Forest Stewardship Plan listed in the table below. These goals were defined by members of the Northfield community.

The guidelines include activities designed to meet the community's goals for the Town Forest. The activities are broken down into an implementation timeframe (1-3 years, 4-6 years, and 7-10 years). The timeline is arranged to gradually build community around the forest while simultaneously building the community's capacity to engage in Town Forest related projects. Many of the activities are designed to be annual events so that the total number of outreach activities occurring at the Town Forest will increase cumulatively over the course of the plan.

Each activity is then described in detail. The goals that each activity has been designed to meet are listed. The target audience for each activity is defined. The principle message that each activity is intended to convey is stated. The means of advertising for the activity are given. Finally, a method for evaluating the effectiveness of each activity is outlined.

The activities have been created with an eye toward connecting town residents to the forest and increasing their sense of place. The activities also aim to increase town residents understanding of the ecological processes involved in the forest and their understanding of and appreciation for the forest stewardship plan. Activities have been designed around the concept of an inclusive outreach plan that will appeal to different ages, potential user groups, and segments of the population.

Forest Stewardship Goals

Preserve or Improve Scenic Beauty
Improve Access for Walking/Skiing/Recreation
Promote Biological Diversity
Enhance Habitat for Birds
Protect Water Quality
Enhance Habitat for Small Animals
Promote Environmental Education and Interpretation
Attain Green Certification
Protect unique/ Special/Cultural Areas
Increase Public Awareness of FSP and Forest Stewardship
Improve Public Attitudes about FSP and Forest Stewardship
Increase Local Participation in Forest Stewardship

Activities Years 1-3

Activity	Annual
"Getting to Know the Land" Series	X
"Photograph your Forest" Contest	X
BioBlitz	
Trail Creation/Adoption	
Vernal Pool Certification	
Vernal Pool Data Collection	
Welcome Kiosk	
Wolf Tree Inventory	

Activity: "Getting to Know the Land" Series: A series of workshops on wildlife tracking, birding, and native flora and fauna identification.

Goals Met by Activity: Promote Biological Diversity, Increase Public Awareness of your FSP and Forest Stewardship

Target Audience: Forest landowners, community members, recreational users, schools, civic and other non-governmental organizations, natural resource professionals, land trusts, and conservation commission

Message: Forest Stewardship helps promote ecological integrity and biodiversity while fostering a connection between people and the forest.

Advertising: Newspaper press release, newspaper feature article, town website, email, flyers, bulletin boards, posters, face-to-face encounters

Evaluation: Post workshop surveys

Activity: Annual "Photograph your Forest" Contest: Photos taken by community members are selected for inclusion in a calendar.

Goals Met by Activity: Increase Public Awareness of your FSP and Forest Stewardship, Preserve or Improve Scenic Beauty

Target Audience: Recreational users, community members, town board or community group willing to judge photos and organize calendar creation

Message: The Town Forest has important resource and aesthetic values that deserve celebration and special emphasis.

Advertising: Newspaper feature article, newspaper press release, websites, bulletin boards email, calendars created with winning photographs

Evaluation: Success of this photo contest can be measured by number of photos submitted and the number of calendars printed and sold. Tracked annually, this will show if the "Photograph your Forest" activity is popular in the community.

Activity: Vernal Pool Certification: Utilize groups to identify, process, and submit data to the Natural Heritage and Endangered Species Program in order to further protect this important natural resource.

Goals Met by Activity: Promote Biological Diversity, Protect Water Quality, Promote Environmental Education and Interpretation, Protect Unique/Special/Cultural Areas, and Increase Local Participation in Forest Stewardship

Target Audience: Middle/High Schools, community youth groups, and interested community members

Message: Vernal pool habitat should be protected for special breeding grounds of state listed species.

Advertising: Brochures, fact sheets, displays, town website, workshop

Evaluation: Success of protection from NHESP, post-event survey from students and group leaders

Activity: Vernal Pool Data Collection: Utilize groups to collect water, wildlife, and plant data to track the changes of the vernal pool throughout the year and over time.

Goals Met by Activity: Promote Biological Diversity, Protect Water Quality, Promote Environmental Education and Interpretation, Protect Unique/Special/Cultural Areas, and Increase Local Participation in Forest Stewardship

Target Audience: Middle/High Schools, community youth groups, and interested community members

Message: As part of protection, monitoring key features of vernal pools helps people understand this unique and valuable habitat.

Advertising: Brochures, fact sheets, displays, town website, workshop

Evaluation: Post-event survey from students and group leaders

Activities Years 4-6

Activity	Annual
Trail to Waterfall off Hobo Trail	
Stream Monitoring	X
Reading the Landscape Workshops	X
Owl Boxes	
Owl Prowl	X
Bat Boxes	
Town Forest Celebration Day	X

Activity: Trail to Waterfall off Hobo Trail: This trail will continue efforts to connect the Hobo Trail (and the waterfall) with the New England National Scenic Trail.

Goals Met by Activity: Preserve or Improve Scenic Beauty

Target Audience: community members, youth groups, trails groups

Message: This trail will increase access to scenic views and promote national trail connections.

Advertising: Newspaper press release, town website, flyers, library, general stores

Evaluation: Post-project volunteer surveys, periodic user surveys

Activity: Stream monitoring: This activity would provide an opportunity to engage community members in stream sampling methodologies. The data collected would provide a baseline to track any changes in stream health, especially if done on an annual basis.

Goals Met by Activity: Protect Water Quality

Target Audience: Community members, watershed groups

Message: Stream health is directly related to sound forest stewardship practices.

Advertising: Newspaper press release, newspaper feature article, town website, flyers, library, general stores

Evaluation: Post-project volunteer surveys, analysis of collected data

Activity: Owl Prowl: A speaker will give an informational lecture about owls of the region and their natural history followed by a walk around the Town Forest calling owls for the group to observe.

Goals Met by Activity: Promote Environmental Education and Interpretation, Increase Local Participation in Forest Stewardship

Target Audience: Community youth groups, community organizations, landowners

Message: Owl prowls promote education of species in the area and about the forest community.

Advertising: Newspaper press release, bulletin boards, displays, signs

Evaluation: Post-event surveys

Activity: Bat Boxes: Focus on having a group or groups construct bat boxes and place them in appropriate locations. Host a workshop about bat habitat and natural history.

Goals Met by Activity: Promote Biological Diversity, Enhance Habitat for Birds, Promote Environmental Education and Interpretation, Increase Local Participation in Forest Stewardship

Target Audience: Community youth groups, community organizations, landowners

Message: Bat boxes increase nesting areas for bats and the workshops promote understanding of habitat and natural history.

Advertising: Brochures, newspaper press releases, bulletin boards, displays, signs

Evaluation: Post-workshop surveys

Activities Years 7-10

Activity	Annual
Neighborhood Outreach to ATV Users	
Green Certification Workshop	
Pre and Post Timber Harvest Walks	

Activity: Neighborhood Outreach to ATV Users: Illegal ATV use on the property is an issue that threatens the conservation values and recreational resources for the rest of the community. This workshop would engage local ATV users and inform them of the ecological values of the property to prevent future destructive use. This would help foster a relationship between the town and the group in a positive manner. This workshop, in conjunction with other measures such as signs and road blocks, could decrease illegal ATV activity.

Goals Met by Activity: Protect Water Quality, Protect Unique/Special/Cultural Areas

Target Audience: ATV users, community members

Message: This workshop will create a positive relationship between the town and ATV users.

Advertising: ATV clubs, newspaper press release, flyers, library, general stores

Evaluation: Monitor ATV use on property by site visits

Activity: Green Certification Workshops: Green Certification is a professional acknowledgement of a landowner's responsible forest management that is deemed environmentally appropriate, socially beneficial and economically viable through independent audits of landowner practices. The goals of this workshop are to increase public awareness of Green Certification and determine the steps needed to attain certification for this property.

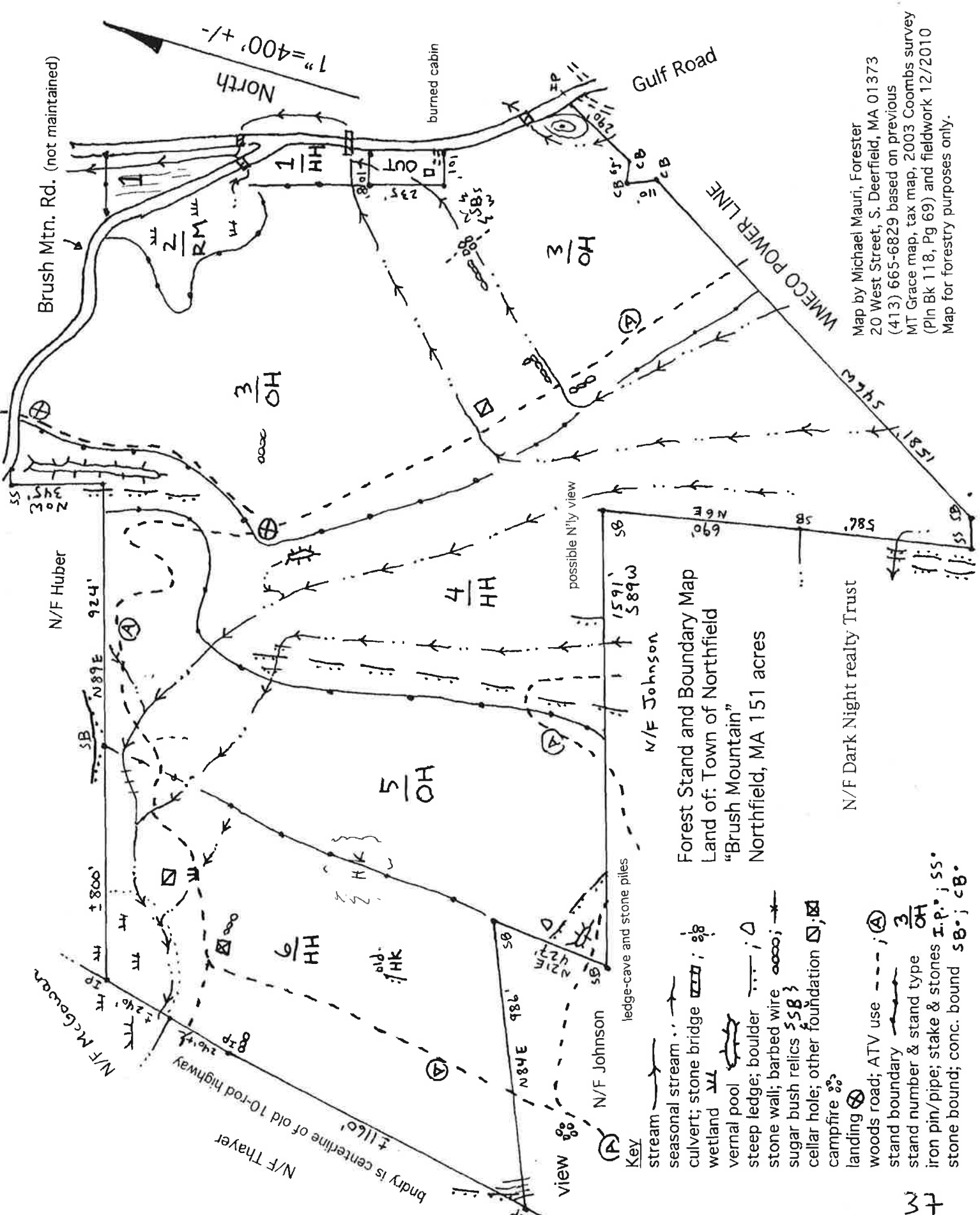
Goals Met by Activity: Attain Green Certification, Increase Public Awareness and Public Attitudes of FSP and Forest Stewardship, Increase Local Participation in Forest Stewardship

Target Audience: Landowners, foresters, loggers, conservation commission, natural resource professionals

Message: This workshop is designed to help people identify the steps needed to attain Green Certification by providing them with information about sustainable forestry and the process of Green Certification.

Advertising: Newspaper press release, town website, email

Evaluation: Post-workshop survey



Brush Mtn. Rd. (not maintained)

1" = 400' +/-
North

burned cabin

Gulf Road

WMECO POWER LINE

N/F Huber

N/F McGowan

N/F Thayer

N/F Johnson

N/F Johnson

N/F Dark Night Realty Trust

Forest Stand and Boundary Map
Land of: Town of Northfield
"Brush Mountain"
Northfield, MA 151 acres

Map by Michael Mauri, Forester
20 West Street, S. Deerfield, MA 01373
(413) 665-6829 based on previous
MT Grace map, tax map, 2003 Coombs survey
(Pln Bk 118, Pg 69) and fieldwork 12/2010
Map for forestry purposes only.

possible N'ly view

- Key
- stream →
 - seasonal stream →
 - culvert; stone bridge [hatched]
 - wetland [wavy lines]
 - vernal pool [circle]
 - steep ledge; boulder [irregular shape]
 - stone wall; barbed wire [zigzag]
 - sugar bush relics [SBS]
 - cellar hole; other foundation [square]
 - campfire [circle with dots]
 - landing [circle with cross]
 - woods road; ATV use [dashed line]
 - stand boundary [solid line]
 - stand number & stand type [e.g., 3/HH]
 - iron pin/pipe; stake & stones [I.P., j, ss]
 - stone bound; conc. bound [SB, j, CB]

TM

LOCUS MAP

LAND OF: Town of Northfield

151 ACRES

"Brush Mountain"

TOWN: Northfield

TOPO SHEET: Northfield

1 inch = 2083 feet



Signature Page Please check each box that applies.

CH. 61/61A Management Plan I attest that I am familiar with and will be bound by all applicable Federal, State, and Local environmental laws and /or rules and regulations of the Department of Conservation and Recreation. I further understand that in the event that I convey all or any portion of this land during the period of classification, I am under obligation to notify the grantee(s) of all obligations of this plan which become his/hers to perform and will notify the Department of Conservation and Recreation of said change of ownership.

Forest Stewardship Plan. When undertaking management activities, I pledge to abide by the management provisions of this Stewardship Management Plan during the ten year period following approval. I understand that in the event that I convey all or a portion of the land described in this plan during the period of the plan, I will notify the Department of Conservation and Recreation of this change in ownership.

Green Certification. I pledge to abide by the FSC Northeast Regional Standards and MA private lands group certification for a period of five years. To be eligible for Green Certification you must also check the box below.

Tax considerations. I attest that I am the registered owner of this property and have paid any and all applicable taxes, including outstanding balances, on this property.

Signed under the pains of perjury:

Owner(s) Bill Slensky Date 5/5/11

Owner(s) _____ Date _____

I attest that I have prepared this plan in good faith to reflect the landowner's interest.

Plan Preparer [Signature] Date 4-13-2011

I attest that the plan satisfactorily meets the requirements of CH61/61A and/or the Forest Stewardship Program.

Approved, Service Forester Helen Johnson Date 6-1-11

Approved, Regional Supervisor _____ Date _____

In the event of a change of ownership of all or part of the property, the new owner must file an amended Ch. 61/61A plan within 90 days from the transfer of title to insure continuation of Ch. 61/61A classification.

Owner(s) Town of Northfield