

F O R E S T M A N A G E M E N T P L A N
HITCHINER TOWN FOREST

Property of

TOWN OF MILFORD

Located in

Milford, New Hampshire

Tax Map 46 Lot 2

194+- Acres

PREPARED FOR:

Town of Milford
Conservation Commission

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INTRODUCTION

Town of Milford's, Hitchiner Town Forest totaling 194 acres $\pm$; 182 forested acres and 12 non-forested acres shown as Lot 2 on Town of Milford Tax Map 46, in the state of New Hampshire, was cruised in April of 2008, by Daniel D. Reed, NH Licensed Forester #66, to review the general health and condition of the woodland; to inventory the timber volume by species and estimate its value; to determine the advisability of cordwood and sawtimber harvests; to evaluate the recreational and wildlife resources, and to prepare a Forest Type Map, Forest Management Plan, and Wildlife Action Plan which will assist the owners in the decision making for the management of their forest and property.

Compass lines were systematically spaced 300 feet apart throughout the property and one-tenth-acre measurement plots were taken at intervals of 500 feet along the lines to gather data for the calculation of the timber volume. A yellow flag was hung at each plot center to allow for verification.

All merchantable trees within each plot are tallied by recording their species, diameter (DBH), and merchantable height. Notes are also taken as to regeneration, past and recommended timber harvesting, soils, wildlife, timber stocking, quality, soil drainage, slope, insect and disease damage.

Timber volumes are based on the International $\frac{1}{4}$ " Log Rule with deductions for visible defects. Merchantability standards used were: minimum diameter at breast height (DBH) 4.5 feet above the ground of 12 inches for sawtimber; minimum merchantable height of 12 feet; at least 50 percent sound; and minimum top diameter of 10 inches for hardwood and 8 inches for softwood (unless limited by visible defect or form). Pulp and hardwood cordwood include all trees 6 inches DBH or larger of suitable form and not meeting sawtimber criteria. A 3.1 percent cruise, 30.6 sample plots per 100 acres, was used to generate tract volumes.

The stumpage values given in Table I are based on recent sales of sawtimber and cordwood comparable in size, quality and accessibility in southern New Hampshire.

FOREST STEWARDSHIP MANAGEMENT OBJECTIVES

1. Maintain the property as multiple use open space for wildlife, recreation, forestry, and education for the benefit of wildlife and the citizens of Milford.
2. Implement environmentally sound, long-term, multiple-use forest management and practices which, over time, will upgrade the quality and health of the timber resource; improve access for forest management operations and appropriate recreation; and protect, enhance, and improve the habitat for game and non-game birds and animals.
3. Conduct forestry operations to promote the reproduction and improved growth of commercially valuable hardwood and softwood species with a particular emphasis on white pine and red oak along with other high quality softwoods and northern hardwoods as appropriate to the site.
4. Assist the Town of Milford Conservation Commission with decisions regarding the management of the property for access, timber productivity, recreation, aesthetics, and wildlife.

LOCATION AND ACCESSIBILITY

This property is located in the southwest part of Milford and can be accessed by Mullen Road off of Osgood Road. Mullen road is a town maintained gravel road suitable for passenger car and truck access most times of the year.

GPS Coordinates to the property are: 042° 48.51'N 071° 41.05'W NAD 27.

An old woods road runs from the parking area at the end of Mullen Road west and south connecting to the southern part of the Hitchiner Town forest by crossing through an abutting property. Because of the steep slopes and shallow bed rock associated with Burns Hill on the north west side of the property, access by vehicle to the southern part of the Hitchiner Town Forest is not possible without crossing through an abutting property.

Elevations range from a high of about 745 feet above sea level near the top of Burns Hill on the north west side of the property to a low of about 330 feet along the brook on the south west side of the property. The property is shown on the USGS map entitled Milford, N.H. Quadrangle, 1968 (Topographic) 42071-G6-TF-024. Photorevised 1985.

The brooks on the Hitchiner Town Forest drain northwest into Great Brook. Then flow northeast joining the Souhegan River in the center of Milford.

BOUNDARIES

The Forest Type Map shows the boundary lines and corner monuments. This information was developed from the fieldwork necessary to complete this plan. However, the Forest Type Map is not a boundary survey nor should it be construed as such. Boundaries following stone walls are easily accurately identified on the ground. The boundaries not bounded by stones walls were blazed and painted in 1989. The blazes are still visible but the paint is somewhat faded.

The boundary lines should be repainted. The boundaries not bounded by stone walls were blazed and painted in 1989. The blazes are still visible but the paint is somewhat faded. Blazing and painting boundaries bounded by stone walls would also help to clearly identify that the stone wall is the boundary line. Signs at the points of entrance to the Hitchiner Town Forest where roads or trails enter the property would help the public to identify the boundary line, and gain a better understanding and appreciation of the Hitchiner Town Forest.

Blazing and painting is done by first determining the exact location of the boundary line. The trees along the line are then blazed by cutting through the bark on the tree with an axe at about 4.5 feet above the ground leaving approximately a 4" by 6" patch of bare wood. This creates a permanent mark or scar on the tree called a blaze that will be observable for years



into the future. The blazes are then painted to make them more visible.

Trees along the side of the boundary line are blazed facing the line. Where the boundary line passes through a tree the tree is blazed on both sides. Trees near corner markers are triple blazed facing the marker and are known as witness trees. Blazing and painting boundary lines clarifies the location of the boundary and helps to guard against timber trespass, boundary disputes and other unauthorized activity. Well-maintained boundary lines enable not only the owner, but also adjoining owners to easily locate and identify the common boundary. This is especially important where the lines are not marked by stone walls or fences.

The acreage as shown on the Forest Type Map was determined from the field work to do this plan.

WEATHER DAMAGE

No significant weather damage was observed.

Evidence of the 1938 hurricane can occasionally be observed in areas on the property. While this storm occurred over sixty years ago, it had a tremendous impact on the forest throughout New England. Storms of this magnitude occur at a frequency of one in a hundred years and represent the most extensive natural disturbance to our forests. Damage from hurricanes and other, more localized severe windstorms represents a major risk as timber reaches mature size classes.

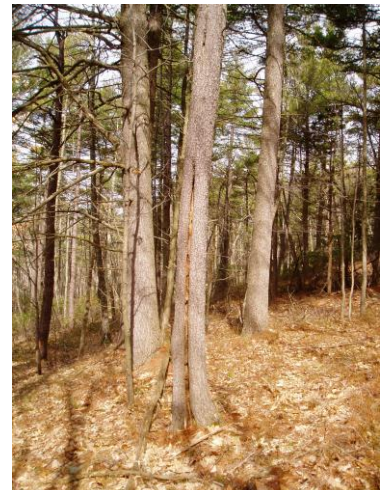
The most severe areas damaged by the Hurricane of 1938 were wet, poorly drained and shallow soils. Trees were easily uprooted by the high winds since the roots could not develop well in such growing conditions. Other evidence of damage is still visible as curved trunks and mounds of earth created as trees were uprooted and blown over.

Minor damage from The Ice Storm of 1998, was observed on the east slope of Burns Hill, but the damage was not significant and salvage of damaged trees unless included as part on another harvest is not warranted. The Ice Storm of 1998 caused damage to high elevation east facing slopes resulting in broken and down tops and limbs.

INSECTS AND DISEASE

Evidence of past forest fire damage was observed on the south slope of Burns Hill. This fire probably occurred sometime in the 1950's. Trees that were damaged show fire scars in the trunk and evidence of interior decay. Intense or prolonged heat from the fire damages the bark allowing decay to enter the tree. The tree over time attempts to heal over the damage, but as the interior decay expands through the tree more evidence of the decay becomes observable, and the tree eventually becomes structurally unsound.

Trees with extensive decay have benefits to wildlife for cavities for nesting and shelter and food for wildlife that feed on insects and wildlife that occupy the decaying wood.



Fire scared white pines.

Salvaging by harvesting trees that are damaged from decay is recommended when there are more trees than can be well utilized by wildlife. Harvesting trees that will not be productive for timber or wildlife allows other trees that will be productive to regenerate in their place.

No other serious or significant amount of insect or disease damage was observed during the field work.

WILDLIFE

The variety of the timber types, regeneration, cover, swamps, and drainages create desirable habitat for game and non-game wildlife. Evidence and sightings of deer, coyotes, porcupines, hawks, beavers, woodcocks, turkeys, grouse and snowshoe hare were observed during fieldwork. Signs and sightings of animals such as bears, moose, fisher and bob cat can also be expected.

Maintaining a dynamic diversity of timber types and age classes on varied soils will provide good habitat for a large variety of wildlife.

Wildlife Action Plan

This section of the plan briefly explains the portions of the NH Wildlife Action Plan (NH WAP) that are applicable to the Milford Town Forests and indicates how management can be applied to accomplish the stated strategy goals of the plan.

The plan was required for federal money to be distributed to the states for wildlife conservation and management. The plan addresses 8 specific elements required by the National Advisory Acceptance Team (NAAT) in order for the plan to qualify for federal aid. This section of the forest management plan will discuss portions of Chapters 2, 3 and 5 which address what habitat elements are present, what species of concern are potentially present and how to manage the land to maintain or enhance current and future habitat elements. This section contains extensive information and quotes from both the NH Wildlife Action Plan by New Hampshire Fish and Game and Natural Communities of New Hampshire by The New Hampshire Natural Heritage Bureau and The Nature Conservancy. These elements may or may not be specifically cited in the text.



Forest Types

In order to accomplish Element 1 of the NAAT Guidelines requiring, “information on the distribution and abundance of species of wildlife.”, an inventory of the current habitat types present throughout the state was needed. This can be used to predict the potential for populations of wildlife species by knowing where their habitat exists.

In order to get an idea of the distribution of the important habitats present in the state, New Hampshire Fish and Game identified 19 different critical habitat types that could be mapped

throughout the state. These habitat types are based on the needs of all species and species of greatest conservation need and were established by the Project's Scientific Advisory Group and modified by the Project's Wildlife Working Group. Included within each of these habitat types are several natural communities which may occur that are thought to "contain a unique set of environmental conditions that support certain species adapted to those conditions." *Sperduto and Nichols, 2004*. According to the plan by mapping and managing these communities the species depending on them can be managed and conserved. GIS modeling was used to create a map of the predicted locations of these habitat types throughout the state. Inputs into the models included information about soils, topology, and hydrology. It is important to understand that models are only as good as the information and assumptions used to develop them. Specific details of the needs of many species whether considered endangered or threatened can be limited. Thus the models give us a starting point and help to indicate where future work should be focused. Often they indicate potentials but, must be supplemented by specific information from a given site. In general managing for a diversity of forest structure and composition can help to provide habitat for the greatest number of species.

Hitchiner Town Forest Critical Habitat Types

Using the WAP Forest Types data layer and data from the forest inventory conducted by NEFCo foresters, a map of the predicted habitats and forest types can be created. These two classifications are unique in their focus: habitat types for wildlife management or conservation purposes and forest types for timber management purposes. Using these two systems a forest management planning system can be created which allows the forestry activities to enhance the habitat elements on the property.

The WAP Habitat Types layer indicates that the Hitchner forest contains three main categories: Hemlock-Hardwood-Pine, Appalachian Oak-Pine and Shrublands. Within these types the forest on the Hitchner contains mostly the drier communities with a combination of northern and southern species of trees and shrubs.

Appalachian Oak-Pine /Hemlock-Hardwood-Pine

The majority of the area not occupied by the field is classified as either Appalachian Oak-Pine or Hemlock-Hardwood-Pine according to the Wildlife Action Plan Type maps. The inventory indicates that this property contains a transition forest containing elements of both the Hemlock-Hardwood-Pine type and the Appalachian-Oak-Pine habitat type making it hard to draw a hard line between each type. While the forest is dominated by white pine and red oak there is a significant component of Appalachian Oaks such as chestnut oak, white oak, and black oak. Many of these Appalachian tree species are at the northern limits of their range and are more common in drier, warmer, climates with well drained soils. Thus the habitat type Appalachian-Oak-Pine is mapped on the southern facing slopes. According to the forest inventory the majority of the area contains a component of both Appalachian oaks and northern hardwood species adapted to cooler moister climates with deeper, richer soils. This evidence suggests that any of the natural communities associated with each of the habitat types could be located on the property.

Within the area one specific natural community was observed. Portions of this area contain Appalachian Oak Mountain Laurel Forest, which can be plainly observed in areas where the understory is dominated by dense mountain laurel thickets.

The most unique forest type in the area is the white pine mixed hardwood pitch pine type located on the slopes of Burns Hill. This type resembles the pitch pine-appalachian oak-heath forest natural community and may support some of the diverse insect assemblages specific to pitch pines, scrub and other oaks. While the area is dominated by white pine and appalachian oaks, there is a significant component of pitch pine present in the stand. This area contains a mixture of fire adapted species such as oaks and pitch pine and may have been resulted from past fires. Maintaining the Pitch pine component during the harvest can preserve any habitat features specific to this less common species. Clearcuts may increase soil temperatures significantly enough to open pitch pine cones and permit regeneration of this species.

Species

The following species of special concern are found to depend on natural communities found in the Appalachian-Oak-Pine and Hemlock-Hardwood-Pine habitat types. These species have the potential to be present based on the variety of possible natural communities present on the property. This list does not include all of the species listed for each type but, a subset taking into account that certain species are very unlikely to occur in the area.

Amphibians:

- Blue-spottend Salamander
- Fowler's Toad
- Jefferson Salamander
- Marbled Salamander

Of the amphibians listed as occurring in either Appalachian-Oak-Pine or Hemlock-Hardwood-Pine habitat types these four have had either current or historic populations in the Milford area. The likelihood of them occurring on the property is limited by the fact that most of the property is upland with well drained soils. No vernal pools or other significant wetlands have been noted.

Reptiles:

- Black Racer
- Eastern Box Turtle
- Eastern Hognose Snake
- Smooth Green Snake
- Timber Rattlesnake



Many of the listed snake species use open forests and ledgy areas for feeding, basking and hiding. The upper slopes of Burns Hill have shallow soils and rock outcrops that may be good habitat for these species. The eastern box turtle is mainly an upland species but uses wet areas and could be found using the seeps and springs on the property.

Birds:

American Woodcock
Canada Warbler
Cerulean Warbler
Cooper's Hawk
Northern Goshawk
Veery
Wood Thrush

These bird types use various forest types and often need a combination of different forest structures which is common in a managed forest.



Mammals:

Wildlife snag created during 1999 harvest

Bobcat

Bobcats are widely distributed throughout the state and can use the dense stands created by regenerated forest for hunting small mammals that use these areas and the rocky ledgy areas for den sites.

Managed forests have value to game species as well. Evidence of a deer population is present and in fact three deer stands and a trail camera were located on the property. Moose and turkey are probably also present on the property with numbers comparable to regional averages.

Periodic entries for timber harvesting will maintain some level of browse for these species.

These species lists indicate potential habitat for species of concern. In order to determine the actual presence of such animals a field survey done by knowledgeable people would be necessary. DES and NH Fish and Game staff are available to take field visits with no cost to the landowner. The Natural Heritage Bureau staff is always looking for sites to do surveys but, may have to charge for their visits. Another good resource is local amateur enthusiast groups. While the members may have varying degrees of knowledge they often have a certain number of very experienced members who can help to locate and identify rare or interesting wildlife on the property as part of their regular club activities.

Shrublands

The shrublands classification includes shrublands and grasslands. Maintained fields such as the field containing the pavilion function as grasslands or shrublands depending on how much brush is growing in them and thus are classified as such. This field is limited in that many of the species that use these areas would prefer 25 acres or more. While not ideal, this area is likely valuable for woodcock to do their mating flights and turkeys to strut. The model predicted this area well. However, in the southern portion of the property, areas indicated as shrublands by the GIS model are more accurately classified in one of the other two habitat types in the area. This error likely occurred due to past harvesting which may have confused remote sensing modeling. While recent heavily cut forest may temporarily provide some of the habitat elements provided by shrub land habitats, as these young stands develop into less dense stands, they lose their effectiveness. This area is also not designated to be maintained permanently as shrub land or

grassland and thus should be classified as Appalachian-Oak-Pine or Hemlock-Hardwood-Pine.

Conservation Strategies

Chapter Five of the WAP identifies some general strategies for conserving certain habitat types considered limited in New Hampshire. Section 500 concerns Habitat Management and contains several objectives that can be accomplished through the forest management program. Many of the objectives are general in that they focus on the maintenance of certain stand conditions and do not require certain species compositions or locations. Through the forest management program a greater diversity of habitats can be maintained for the greatest diversity of species.

Objective 501 Reclaim or maintain grassland and shrubland habitats

Currently, the field in the northeast corner of the property can be valuable for this type of habitat. Continuing the vegetation management program is important to maintaining the value of this area. Field maintenance should be done on a regular schedule and avoided during the breeding season to avoid interfering with nesting or courtship behaviors.

This area is smaller than the unit considered optimal for grassland habitat and thus is not mapped as such. Despite the fact the field likely has value to species requiring open habitats.

Objective 502 Generate early successional and young forest habitats

During management early successional and young forest are created when a stand is regenerated. In an even aged system this is most effectively done through clearcuts of varying sizes. This creates large openings in the forest followed by a flush of dense young forest which maintains its effectiveness for some species needing these thick habitats for 12 to 15 years. After this time most native forests become significantly less dense and the value of the young forest is diminished.



White pine and hardwood regeneration resulting from the 1999 harvest

Objective 503 Restore and maintain late-successional forests

Late successional forests are thought to provide unique habitat elements for some species of wildlife. The WAP suggests that these stands are mainly important for mosses, lichens, and some invertebrates. These stands often contain a larger number of cavity trees and coarse woody debris than managed stands where dying and rotten trees are often removed to maintain the growth of the healthiest and best quality trees. Maintaining reserves of unmanaged forest can lead to an overall diversity of forest structure while providing areas for recreation that are unique from the managed forest.

Objective 504 Develop and implement an urban wildlife management plan

This objective applies mainly to adjacent land as the vast majority of town forestland is

undeveloped with the exception of picnicking areas and parking lots. This objective could be used to get adjacent landowners involved and interested in the habitat management program through the planting of species valuable to wildlife. On a regional or townwide basis cultivated or garden plants that provide significant habitat elements can supplement habitat management efforts within the property.

Objective 505 Restore rare habitats and natural communities

This objective is very specific and requires certain rare natural features to be present such as salt marshes or pine barrens. None were noted during the inventory. If rare natural communities are noted on the property in the future, steps can be taken to enhance these areas if sufficient evidence is available to suggest that unique management techniques will be effective.

Objective 506 Develop and implement a terrestrial invasive species control program.

Invasive species are often but not always non-native species which are prolific enough to out compete sensitive or more slow growing native species in their natural habitat. These species were often originally selected for propagation for their heartiness as well as their specific aesthetic or utilitarian qualities. In order to protect susceptible species, it is often desirable to prevent the unchecked growth of these species.

Few invasive species were noted during the inventory on the Hitcher Forest and these species are restricted to the field area which was once a homesite. Multiflora rose, and possibly autumn olive are present in this area but, are limited in the scope of their coverage. A combination of mechanical and chemical methods can be used in order to manage the possible spread of this species.

Objective 507 Restore or maintain natural flow regimes

This objective is not applicable to the Hitchner Town Forest since it applies mainly to large perennial watercourses with significant aquatic wildlife.

Objective 508 Restore and maintain watershed continuity

This objective is also of limited applicability to the Hitchner Forest since it also applies mainly to larger aquatic habitats. Following BMP's for Timber Harvesting in New Hampshire can limit any disturbance to the small watercourses during timber harvests.

Highest Ranked Wildlife Habitat by Ecological Condition

This map coverage provided by the WAP indicates areas of high value based on two main attributes: quality of the habitat risk of degradation. For example, a shrub swamp bordering a river, with surrounding forestland that is on public land is ranked more highly than a common upland hardwood forest located just outside of Manchester. The ranking takes into account the needs of species of special concern and the likelihood that these features would continue to exist in the future. An important thing to note is that most of these rankings are based on remote sensing data and what data is available about species and habitats on the property. This data is

limited to what the framers of the model had available which is quite limited. Thus these rankings are general and require verification to locate specific types not readily observed.

The Hitchiner Forest is ranked very low and is not even considered a supporting landscape. This is likely due to the fact that the forest types are fairly common and no large wetlands are present on the property. Wetlands score high because of their association with many species of concern and the fact that they are not likely to be developed. While the Hitchner is not likely to be developed, it does not have any significant rare natural features that can be detected by remote sensing data. The potential exists that the springs on the property can contain some rare seep communities and that the pitch pine forest could be improved by favoring pitch pine and creating large a more open canopy through forest management.

Conclusions

Inventory data and data available from the WAP and Natural Diversity Data Base do not indicate that the Hitchiner Forest contains significant habitat features on a statewide basis. However, forests under long-term forest management commonly contain a range of forest characteristics that are valuable to many game and non-game species common to New Hampshire. Evidence of recent hunting on the property indicates that deer populations are likely consistently high enough to encourage hunters to set up trail cameras and permanent tree stands. Getting hard data on the presence of animals takes long-term monitoring efforts since they are mobile and may not be present at the time of any one visit. Maintaining a data base of sightings or evidence of species in a trail kiosk or through local wildlife clubs can help to gather information on what species may use the property. Coordinating with state agencies can also help to identify rare species and provide advice and resources for maintenance of significant habitats.

WETLANDS

Wetland and water features are shown on the Forest Type Map. The tract has two small perennial brooks and several small intermittent brooks. There are several natural springs coming out of the sand and gravel soils on the south side of the property, and a spring on the north side of the property which was stoned up and at one time probably used as a water supply for the house that was near where the parking area on Mullen Road is now. There is a beaver pond just off the south west side of the property which the brooks drain into.

Any brook or wet soils crossings during timber harvesting require proper crossing structures such as pole fords, skidder bridges or brush corduroy. This minimizes the impact to the wet soil or water body, and requires a permit from the NH Wetlands Bureau. Water bars should be installed on any steep skid roads following timber harvesting to prevent erosion.

RECREATION

Easy access, open fields, and hiking trails up to Burns Hill make recreation one of the primary uses of the property. In the past few years a pavilion has been built at the west end of



the parking area complete with picnic tables. The Forest Type Map shows the location of woods roads, trails, buildings, open land, brooks, and boundaries, and may be used for locating features on the ground and expanding the trail network. The most used trails are generally well designated and maintained. Lesser used trails, mostly in the south part of the property, have become somewhat overgrown and are not clearly designated.

Suggested trails that may enhance hiking on the Hitchiner Town Forest are:

- A trail connecting the trail back of the pavilion to the spring on the north line of the property and looping up to existing trail on Burns Hill.
- A trail running from Burns Hill west, then south, following near the western boundary and connecting to the existing trail near where the brooks exit the property.
- A trail connecting the two trails near the south line of the property and running near the springs on the south side of the brook. See the work map for these suggested routes.



Burns Hill

If a parking area could be built off of Badger Hill Drive on the south side of the property it would facilitate access to the trail network from that development. All layout and construction of new hiking trails and parking areas should take into consideration future timber harvesting operations to prevent conflicts of use when timber is next harvested. All harvesting activities should also be conducted not only to improve the productivity of the forest, but also to enhance opportunities for recreation and minimize the negative impact to existing recreational improvements. Included with this could be clearing of views if timber harvesting is done on Burns Hill.

Threats to the recreational and aesthetics values on this property are mainly abuse by the public using the property. The public has occasionally left litter, built campfires, and rutted roads and trails with off road vehicles. Although those causing the problem are less than one percent of those who pass through the property, they can create a substantial problem. Limiting access of off road vehicles, a clear understanding by the public of activities not permitted on the property, and a willingness of the public to pick up after the careless few will prevent most problems.



Deer stand and trail camera

The Hitchiner Town Forest is also used for hunting.

Three deer stands were observed on the property and one trail camera. The deer stands were located well away from the hiking trails, and the stands and area around them appeared to be carefully maintained.

TRACT HISTORY

The property has a long history of land use since the time of the American Revolution. The stone walls on the property were built as a permanent replacement to the temporary brush fence during in the mid to late 1700's and early 1800's when land throughout Milford and the surrounding towns were used for pasture and agriculture. Most of this property was probably pastured as open fields in the mid 1800's, and the less rocky land was cultivated.

The 1858 map of Milford shows A. Burns as dwelling on the property in the location of the current parking area. The 1892 map shows the same location as being occupied by N. Holland.

When the West was opened in the 1860's and 1870's, much of New Hampshire's farmland was abandoned, particularly the less productive and/or more remote areas, and trees reclaimed the land. Barbed wire was developed in the second half of the 1800's which replaced the brush fence and ended the construction of stone walls.

White pine easily seeds into grassy or exposed fields and is often the first species to reclaim abandoned farmland. The quality of the pine can be quite variable, depending on the number of stems per acre, the attack of the white pine weevil, soil type, and the number of years a tree grew without competition from nearby stems. As the white pine reaches merchantable size, and is harvested, a variety of hardwood trees usually become dominant on the more fertile loamy soils by sprouting from existing root systems, or from the advanced growth of existing saplings. Loamy soils are generally more suited to hardwood than white pine.



Based on timber types and other evidence found on the ground, it is estimated that the parts of this tract were not cultivated or with poor soils have been out of agricultural production since the early 1900's. The areas of better soils, and more conducive for agriculture, were probably farmed up until the early 1960's with the most easily maintained fields still open today.

Evidence of quarrying small amounts of granite can be observed on the property, specifically near where the woods road crosses the boundary line on the inside corner of the property. Rows of drill holes can be observed in the large granite slabs where feathers and plugs were used to split the stone by hand.

Most all of this property shows evidence of past logging activities. The 1938 hurricane probably damaged much of the larger white pines on the property at that time particularly in the lower wet areas. Salvage operations in the following few years cleaned up much of the severely damaged timber. Hurricanes on the magnitude and damage of the 1938 hurricane occur in New England on average once every hundred years.

Based on evidence of old stumps, woods roads, and skid roads, timber was harvested sometime in the 1960's throughout much of the property.

Hitchiner Town Forest was acquired by the Town of Milford in 1985 from Hitchiner Manufacturing Co, Inc. The deed is recorded in Hillsborough County Registry of Deeds Volume 3421 Page 526.

In the fall of 1987 the Town of Milford had a forest management plan prepared by the New England Forestry Foundation.

In the winter of 1988 and 1989 five acres of timber stand improvement was done. Timber stand improvement is a pre-commercial thinning of overcrowded immature high quality trees and cull removal of trees that will not develop into quality timber. This was done by girdling the trees to be eliminated with a chain saw in the young white pine stands surrounding the open fields and in the pine stand on the east side of the midsection of the property.

In the summer of 1989 the boundaries not bounded by stone walls were blazed and painted yellow.

In the summer of 1997 an improvement harvest was done in the north part of the property. This was a conventional cable skidder and chainsaw harvest of mature and low quality timber. Total volume harvested was 56,780 board feet of sawtimber, 65 cords of firewood, and 19 tons of softwood pulp on 44 acres. Access was over Mullen Road through the field where the pavilion now stands.

In 1998 through 1999 the an improvement harvest was done in the south part of the property. This was a mechanized feller buncher and whole tree chipper operation that mechanically fell the trees selected for harvest and removed the entire trees for processing at the landing for sawtimber, firewood, and chips. The chips were sent to an electrical generation plant where the chips are burned to produce steam which powers the generators. . Total volume harvested was 404,205 board feet of sawtimber, 96 cords of firewood, and 3,670 tons of chips on 112 acres. Access was from the south over land then owned by SEVAR Corp as that property was being developed. Now know as Badger Hill Drive and Deerwood Drive. The landing was in the south west corner of the property.

These two timber harvests produced enough timber to build 25 new homes; then heat them with firewood for 2 winters, and provide them with electricity for 9 years.

Forestry activities since 1988 have focused on the removal of nonproductive, slow growing, low quality, low value trees, plus trees that have reached maturity, and thinning over crowded stands. Immature high quality trees were retained to continue growing. The result of these carefully constructed timber sales is a more valuable, healthier, and more productive forest.

INVENTORY OF TOTAL FOREST VOLUME AND GROWTH 1987 to 2008

This table shows the volume of the timber on Milford's Hitchiner Town Forest when inventories were done in 1987 and 2008 and the volumes harvested in 1997 and in 1999. Minor tree species are grouped to allow for ease in comparison. Pulp and whole tree chips were not computed in 1987 and are therefore not shown.

	Volume <u>1987</u>	Harvest <u>1997</u>	Harvest <u>1999</u>	Volume <u>2008</u>	Total <u>Growth</u>
White Pine	925.200	45.425	287.940	1,071.100	479.265
Pitch Pine	4.900			5.600	0.700
Hemlock	18.400	3.815	2.850	10.200	
Total Softwood	948.500	49.240	290.790	1,086.900	479.965
Red Oak	32.900		2.555	115.900	85.555
Red Maple	63.400	5.665	47.110	13.000	2.375
Birch	2.500	1.300	23.385	23.700	45.885
Other Oak	43.100		31.665	39.300	27.865
Other Hardwood	5.800	0.575	1.530	5.000	1.305
Total Hardwood	147.700	7.540	106.245	196.900	162.985
Total	1,096.200	56.780	397.035	1,283.800	642.950
Cordwood	364	65	96	808	605

Total timber growth between 1987 and 2008 was 641,400 board feet. 479.300 MBF (thousand board feet) of white pine, 85,600 MBF of red oak, and 77.400 MBF of hardwood. Per acre and per year the Hitchiner Town forest grew 158 board feet.

The annual growth rates from 1987 to 2008 were: White Pine 2.5%, Red Oak, 1.2%, and hardwood 3.2%, This is based on the 1988 volumes. Growth rates can be expected to improve on this approximate growth rate in the future dependant on management.

ENDANGERED SPECIES

No evidence of rare or endangered plants or animals was noted during fieldwork. Evidence of rare or endangered plants and animals can be determined by consulting the New Hampshire Natural Heritage Inventory, the New Hampshire Fish and Game Department and the New Hampshire Audubon Society. These groups maintain information about the location of threatened, rare or endangered species. A review of the Natural Diversity Data Base did not locate any rare or endangered plants or animals on the Mayflower Hill Town Forest.

FOREST PROTECTION

The property is not subject to a Conservation Easements which would restrict the Town's owner's potential use or development of the property.

No serious forest fire, insect, or disease risks were noted during fieldwork.

SOILS AND PRODUCTIVITY

The soil types shown on the Soil Type Maps, and the following soils information is based

on: The 1981 USDA Soils Survey of Hillsborough County Eastern Part. Information given on forest productivity is based primarily on this book and should not replace the actual examination, working knowledge and experience. Soils in some areas vary distinctly from what is shown in the USDA Soils Survey. Observed variances are described in the individual Stand Descriptions.

FOREST PRODUCTIVITY

Forest soils are rated in five category groups: Loamy (IA), sandy loam (IB), outwash sand and gravel (IC), Soils with physical limitations (IIA), and poorly drained soils (IIB). Most all of the forest land on this property is (IB), sandy loam, with a small amount of (IA) loamy soil around the open fields and (IIB) poorly drained in the drainage south east of the fields.

A description of these sandy loam forest soils found on this property is as follows:

Group IA

This group consists of the deeper, loamy textured, moderately well, and well-drained soils. Generally, these soils are more fertile and have the most favorable soil moisture relationships.

The successional trends on these soils are toward stands of shade tolerant hardwoods, i.e., beech and sugar maple. Successional stands frequently contain a variety of hardwoods such as beech, sugar maple, red maple, white birch, yellow birch, aspen, white ash, and northern red oak in varying combinations with red and white spruce, balsam fir, hemlock, and occasionally white pine.

Hardwood competition is severe on these soils. Softwood regeneration is usually dependent upon persistent hardwood control efforts.

<u>Map Symbol</u>	<u>Soil Name</u>
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SsB	Scituate fine sandy loam, 3 to 8 % slope.
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StB	Scituate stony fine sandy loam, 3 to 8 % slope.
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Group IB

The soils in this group are generally sandy or loamy over sandy textures and slightly less fertile than those in Group IA. These soils are moderately well and well drained. Soil moisture is adequate for good tree growth, but may not be quite as abundant as in Group IA soils.

Soils in this group have successional trends toward a climax of tolerant hardwoods, predominately beech. Successional stands, especially those which are heavily cut over, are composed of a variety of hardwood species such as red maple, aspen, paper birch, yellow birch, sugar maple, and beech, in combinations with red spruce, balsam fir, and hemlock.

Hardwood competition is moderate to severe on these soils. Successful softwood regeneration is dependent upon hardwood control.

<u>Map Symbol</u>	<u>Soil Name</u>
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CaC	Canton fine sandy loam, 8 to 15 % slope.
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CmC – Canton stony fine sandy loam, 8 to 15 % slope.

CmD – Canton stony fine sandy loam, 15 to 25 % slope.

Group IIB

The soils in this group are poorly drained. The seasonal high water table is generally within 12 inches of the surface.

Productivity of these poorly drained soils is generally less than soils in other groups.

Successional trends are toward climax stands of shade tolerant softwoods, i.e., spruce in the north and hemlock further south. Balsam fir is a persistent component in stands in northern New Hampshire and red maple is common on these soils further south.

Due to abundant natural reproduction in northern New Hampshire, these soils are generally desirable for production of spruce and balsam fir, especially pulpwood. Red maple cordwood stands or slow-growing hemlock sawtimber are common in more southerly areas. However, due to poor soil drainage, forest management is somewhat limited. Severe wind throw hazard limits partial cutting, frost action threatens survival of planted seedlings, and harvesting is generally restricted to periods when the ground is frozen.

<u>Map Symbol</u>	<u>Soil Name</u>
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LvB	Leicester – Walpole complex stony, 3 to 8 % slope
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THE FOREST RESOURCE

DISCUSSION OF TABLE I

This table, developed from the cruise data with the aid of a computer spreadsheet program, shows the volume and value of sawtimber by species and diameter group as well as the volumes of pulp and cordwood. While the stumpage prices shown are based on sales of comparable timber, they also reflect the value of both immature and mature timber, its quality and volume per acre, market conditions, and logging chance. As such, they should not be used as the basis for any specific sale of timber on this or any other property. The timber liquidation value is given to show the gross stumpage value in the Spring of 2008. The value available for harvest under proper forestry practices at any time is usually considerably less than the timber liquidation value since this value includes many stems which are economically immature and their harvest would not be in the long-term interest of the owner. The final silvicultural decision, though, rests with the landowner and must balance forest health, ownership objectives, aesthetic impact, recreation, and a host of other factors.

SAWTIMBER DIAMETER GROUPS

The majority of the 12 to 14-inch DBH group should be considered immature sawtimber and growing stock. This timber is the forest capital necessary to yield sawtimber two, three or more decades into the future. Only the lower valued species and the unhealthy, poorly formed, or salvageable dead trees in this group are ready for harvest. An uncontrolled or diameter limit harvest of this immature timber is shortsighted and would have significant, detrimental impact on the long-term management objectives. A minor amount of the sawtimber timber recommended for harvest would come from this group during the coming decade.

The next group, 16 to 20 inches DBH, contains both mature and immature sawtimber depending on tree species, stem quality, and vigor. Certain species in this group, such as hemlock, white birch, beech, and red maple, can be considered mature. Above average quality and healthy white pine, red oak, and other species should be reserved for additional rapid growth in both volume and value. Some volume recommended for harvest would come from this group, but many individuals should be reserved for subsequent harvests in the decades ahead.

The timber in the last group, 22 inches and up DBH, can be considered economically mature. Much of the volume typically recommended for harvest would come from this group.

These groups illustrate diameter distribution by species. Many other factors, other than diameter, contribute to the decision to harvest or grow a particular tree. Some of these are: landowner objectives, aesthetics, wildlife requirements, the presence or absence of desirable regeneration, evidence of poor health, quality or overcrowding, and the potential for improvement with additional growth. Careful selective marking takes all these factors as well as market and logging considerations into account.

TABLE I: ESTIMATE OF VOLUME AND VALUE BY SPECIES AND SIZE GROUP

OWNERSHIP: Town of Milford

TOWN OF: Milford

TAX MAP: 46

LOT: 2

TOTAL ACRES: 182**FOREST ACRES: 194**

SPECIES	VOLUME	VOLUME	VOLUME		AVERAGE					TOTAL VALUE
	MBF	MBF	MBF	MBF**	VALUE	MBF**	CORD	VALUE	CORD	
	12"-14"	16"-20"	22" & UP	TOTAL	PER	TOTAL	WOOD	PER	WOOD	
	GROUP	GROUP	GROUP	VOLUME	MBF	VALUE	VOLUME	CORD	VALUE	
WHITE PINE	211.700	605.500	253.900	1,071.100	\$165	\$176,732	1,326	\$2.5	\$3,315	\$180,047
HEMLOCK	6.200	4.000		10.200	\$35	\$357	30	\$15	\$450	\$807
PITCH PINE	2.400	3.200		5.600	\$30	\$168	30	\$2.5	\$75	\$243
RED CEDAR							2	\$2.5	\$5	\$5
TOTAL SOFTWOOD	220.300	612.700		1,086.900		\$177,257	1,388		\$3,845	\$181,102
RED OAK	40.200	33.500	42.200	115.900	\$300	\$34,770	235	\$10	\$2,350	\$37,120
CHESTNUT OAK	9.500	9.600		19.100	\$100	\$1,910	130	\$10	\$1,300	\$3,210
BLACK BIRCH	11.600	4.600		16.200	\$100	\$1,620	152	\$10	\$1,520	\$3,140
RED MAPLE	9.400	3.600		13.000	\$100	\$1,300	170	\$10	\$1,700	\$3,000
WHITE BIRCH	7.500			7.500	\$50	\$375	70	\$10	\$700	\$1,075
WHITE ASH	5.000			5.000	\$100	\$500	12	\$10	\$120	\$620
WHITE OAK				0.000		\$0	26	\$10	\$260	\$260
BLACK CHERRY				0.000		\$0	12	\$10	\$120	\$120
TOTAL HARDWOOD	83.200	51.300	42.200	176.700		\$40,475	807		\$8,070	\$48,545
TOTAL SAWTIMBER	303.500	664.000	42.200	1,263.600		\$217,732	2,195		\$11,915	\$229,647

TOTAL TIMBER LIQUIDATION VALUE: \$229,647 ***

**MBF = THOUSAND BOARD FEET

PER FOREST ACRE

MBF: 6.513

CORDS: 11.3

VALUE: \$1,184

***THE VALUE AVAILABLE UNDER SOUND FORESTRY PRINCIPLES IS LESS
THAN THE TIMBER LIQUIDATION VALUE.

ALL VOLUMES BASED ON INTERNATIONAL 1/4" LOG RULE AND STANDARD CORDS.
STUMPAGE PRICES BASED ON RECENT SALES OF TIMBER COMPARABLE IN SIZE AND QUALITY.

TIMBER TYPE STAND DEFINITION

Distinct timber types have been identified within each management area. They vary in species composition, size class, and stocking levels. Because of these differences, the recommended treatments will vary between types.

Descriptions of the timber types are listed under each management area, with a Table II Stocking and Volume by forest type.

The timber types are coded using a letter and number system. The first letters indicate the species composition: (MH) mixed hardwood, (HM) hemlock, (WP) white pine, (RO) Red Oak, (PP) Pitch Pine, etc. The number indicates size class: (3) saplings 0-4 inches DBH, (2) poletimber 5-10 inches DBH, (1) sawtimber 11 inches and up DBH.

DISCUSSION OF TABLE II : Stocking and Volume

This table, developed with the aid of a computer program from the data collected in the field, shows the number of trees and volume per acre by species and diameter size group, and the average diameter for pulpwood. The average height of merchantable timber for each species and size group is also shown. Height is shown in number of 16' lengths. These numbers are expanded to show overall number of trees and volume per acre, average height of the timber, and basal area by species. Basal area is the per acre sum of the cross-sectional area of all stems at DBH. i.e., The square feet of stem per acre at 4.5 feet above the ground. The final 3 columns show the total number of trees and board feet volume in the entire stand.

MANAGEMENT RECOMMENDATIONS BY AREA and FOREST TYPE

Specific data and recommendations for each forest type in each area are given below. This data, together with field notes, observations made within each type, accepted silvicultural practices for the species and conditions involved, and the owner's management objectives, form the basis for the recommendations.

**TABLE II STAND STOCKING AND VOLUME BY TIMBER TYPE
HITCHINER TOWN FOREST**

Owner: Town of Milford

FOREST ACRES +/-: 182

Lot: Milford, Tax Map 46, Lot 2

Number of plots: 55

Plot size: 0.10 Acre

SPECIES	SAWTIMBER 12" - 14" DBH			SAWTIMBER 16" - 20" DBH			SAWTIMBER 22"+ DBH			CORDWOOD AND PULP			TOTAL PER ACRE					STAND TOTAL		
	TREES ACRE	AVG. HGT.	BF ACRE	TREES ACRE	AVG. HGT.	BF ACRE	TREES ACRE	AVG. HGT.	BF ACRE	AVG. DBH	TREES ACRE	AVG. HGT.	BASAL AREA	AVG. DIA.	TREES ACRE	BF ACRE	CORDS ACRE	# TREES	BF	CORDS
WHITE PINE	11.9	1.6	1,163	12.8	2.4	3,327	2.9	2.7	1,395	10.7	15.6	1.9	48.0	14.3	43.1	5,885	7.3	7,851	1,071,006	1,326
HEMLOCK	0.4	1.3	34	0.2	1.0	22				8.1	2.8	1.0	1.6	9.2	3.3	56	0.2	600	10,180	31
PITCH PINE	0.2	1.0	13	0.2	1.0	18				8.6	1.7	1.5	1.0	9.7	2.0	31	0.2	368	5,643	29
RED CEDAR										6.0	0.5	1.0	0.1	6.0	0.5	0	0.0	92	0	2
TOTAL SOFTWOOD	12.4	1.6	1,209	13.1	2.3	3,367	2.9	2.7	1,395	10.1	20.5	1.7	50.7	13.6	49.0	5,972	7.63	8,911	1,086,828	1,388
RED OAK	3.4	1.1	221	1.1	1.5	184	0.7	1.5	232	8.4	5.3	1.3	8.1	11.7	10.5	637	1.3	1,912	115,965	235
CHESTNUT OAK	0.7	1.0	52	0.4	1.5	53				8.7	9.2	1.2	4.9	9.3	10.3	105	0.7	1,872	19,038	131
BLACK BIRCH	1.1	1.1	64	0.2	1.0	25				9.1	8.1	1.5	4.8	9.6	9.3	89	0.8	1,700	16,180	152
RED MAPLE	0.7	1.1	52	0.2	1.0	20				9.0	9.5	1.5	5.1	9.4	10.4	71	0.9	1,894	12,952	169
WHITE BIRCH	0.7	1.0	41							9.6	3.2	1.6	2.2	10.0	4.0	41	0.4	721	7,500	71
WHITE ASH	0.3	1.2	28							7.3	0.5	1.3	0.5	9.5	0.9	28	0.1	161	5,017	13
WHITE OAK										9.6	1.5	1.3	0.8	9.6	1.5	0	0.1	279	0	26
BLACK CHERRY										8.8	0.8	1.5	0.4	8.8	0.8	0	0.1	154	0	13
TOTAL HARDWOOD	6.9	1.1	457	1.8	1.4	282	0.7	1.5	232	8.9	38.3	1.4	26.6	10.0	47.8	971	4.46	8,693	176,651	811
TOTAL SAWTIMBER	19.3	1.4	1,667	14.9	2.2	3,649	3.6	2.4	1,627	9.3	58.8	1.5	77.3	11.8	96.7	6,942	12.09	17,604	1,263,479	2,200

HGT. = Number of 16 foot lengths

BF = Board feet.

DBH = Diameter breast high (4.5').

BASAL AREA = Square feet of stem per acre.

STAND DESCRIPTION

TIMBER TYPE: MH 2,1
WP 1

Acres: 57

COMPOSITION AND SIZE CLASS:

Mixed hardwood pole timber and sawtimber with scattered White Pine sawtimber.

UNDERSTORY VEGETATION AND REGENERATION:

Abundant regeneration resulting from the harvest in 1999. A variety of hardwood species: birch, maple, and oak; white pine, witch hazel and mountain laurel which has been abundant in some of this stand prior to the harvest.

LOCATION:

In the mid section of the tract.

STAND HISTORY:

This stand was at one time pasture land. In the 1870's the pastures were over time not maintained then abandoned and became overgrown with trees, mostly white pine. As the pine became merchantable for saw timber it was harvested and a mixture of hardwoods with white pine regenerated.

The most recent timber harvest was in 1999. The 1999 was a mechanized biomass whole tree chip harvest which is able to utilize otherwise un-merchantable timber as biomass energy chips and creates more and larger openings which are beneficial to wildlife and regeneration of high quality timber.

Prior harvesting occurred in the 1960's $\pm$ and salvage harvesting following the 1938 hurricane. .

TIMBER QUALITY:

Much of the lower quality timber was harvested in 1999 leaving mostly good quality white pine and hardwood.

INSECT AND DISEASE DAMAGE:

None noted.

WILDLIFE HABITAT VALUE:

Extensive use by deer was noted from browse, scraps, droppings, and hoof prints. Dead snags and cavity trees are present, and acorn mast from mature oak trees. There are r

SOIL TYPE:

CmC – Canton stony fine sandy loam, 8 to 15 % slope.

CmD – Canton stony fine sandy loam, 15 to 25 % slope.

Generally sandy or loamy over sandy textures. Moderately well and well drained but adequate moisture for good tree growth. Hardwood competition is moderate to severe and the successional trend is toward a climax of tolerant hardwoods.

MANAGEMENT PRESCRIPTION:

FORESTRY:

Allow this stand continued growth for 10 to 15 years before reviewing for potential for

next timber harvest.

WILDLIFE:

Snags created during the last harvest are reaching the stage of decay where they become valuable for cavity trees and insects which many birds use for food. .

RECREATION:

Maintain trails.

**TABLE II STAND STOCKING AND VOLUME BY TIMBER TYPE
HITCHINER TOWN FOREST**

Owner: Town of Milford

ACRES +/-: 57

Lot: Milford, Tax Map 46, Lot 2

TIMBER TYPE: MH 2.1; WP 1

Plots: 17

SPECIES	SAWTIMBER 12" - 14" DBH			SAWTIMBER 16" - 20" DBH			SAWTIMBER 22"+ DBH			CORDWOOD AND PULP			TOTAL PER ACRE					STAND TOTAL		
	TREES ACRE	AVG. HGT.	BF ACRE	TREES ACRE	AVG. HGT.	BF ACRE	TREES ACRE	AVG. HGT.	BF ACRE	AVG. DBH	TREES ACRE	AVG. HGT.	BASAL AREA	AVG. DIA.	TREES ACRE	BF ACRE	CORDS ACRE	# TREES	BF	CORDS
WHITE PINE	4.1	1.5	383	7.1	2.7	2,116	2.4	2.5	1,152	10.3	8.8	1.6	26.3	14.7	22.4	3,651	4.14	1,274	208,117	236
HEMLOCK										8.0	1.2	1.0	0.4	8.0	1.2	0	0.04	67	0	3
PITCH PINE																				
RED CEDAR																				
TOTAL SOFTWOOD	4.1	1.5	383	7.1	2.7	2,116	2.4	2.5	1,152	10.0	10.0	1.5	26.7	14.4	23.5	3,651	4.19	1,341	208,117	239
RED OAK	1.8	1.0	99	1.2	1.3	164	1.8	1.5	587	8.4	2.9	1.1	8.2	14.0	7.6	850	1.41	436	48,450	80
CHESTNUT OAK	1.8	1.0	125	1.2	1.5	168				9.3	8.2	1.1	6.9	10.6	11.2	293	0.98	637	16,698	56
BLACK BIRCH	1.8	1.0	99							8.8	9.4	1.5	5.2	9.3	11.2	99	0.89	637	5,633	51
RED MAPLE	0.6	1.0	33	0.6	1.0	62				9.1	13.5	1.4	7.3	9.5	14.7	95	1.21	838	5,432	69
WHITE BIRCH	1.8	1.0	99							9.8	5.9	1.7	4.4	10.3	7.6	99	0.82	436	5,633	47
WHITE ASH										6.0	1.2	1.0	0.2	6.0	1.2	0	0.03	67	0	2
WHITE OAK										12.0	0.6	2.0	0.5	12.0	0.6	0	0.11	34	0	6
BLACK CHERRY										10.0	0.6	1.5	0.3	10.0	0.6		0.05	34		3
TOTAL HARDWOOD	7.6	1.0	454	2.9	1.3	395	1.8	1.5	587	9.1	42.4	1.4	33.0	10.4	54.7	1,436	5.50	3,118	81,845	313
TOTAL SAWTIMBER	11.8	1.2	837	10.0	2.3	2,511	4.1	2.1	1,739	9.3	52.4	1.4	59.7	11.6	78.2	5,087	9.68	4,459	289,962	552

BF = Board feet.

DBH = Diameter breast high (4.5').

BASAL AREA = Square feet of stem per acre.

STAND DESCRIPTION

TIMBER TYPE: WP 1
MH 2,1

Acres: 51

COMPOSITION AND SIZE CLASS:

White Pine sawtimber and mixed hardwood pole timber and saw-timber.

UNDERSTORY VEGETATION AND REGENERATION:

Abundant regeneration resulting from the harvest in 1999. A variety of hardwood species: birch, maple, and oak; white pine, witch hazel and mountain laurel which has been abundant in some of this stand prior to the harvest.

LOCATION:

In the south end of this tract with 3 smaller stands in the mid section.

STAND HISTORY:

This stand was at one time pasture land. In the 1870's the pastures were over time not maintained then abandoned and became overgrown with trees, mostly white pine. As the pine became merchantable for saw timber it was harvested and the mixture of white pine and hardwood regenerated.

The small most northeastern stand was a field until the 1940's when it was allowed to regenerate into white pine. Timber Stand Improvement was done in 1988 to girdle the less desirable trees and allow the better straighter trees improved growth.

The most recent timber harvest was in 1999. The most recent timber harvest was in 1999. The 1999 was a mechanized biomass whole tree chip harvest which is able to utilize otherwise un-merchantable timber as biomass energy chips and creates more and larger openings which are beneficial to wildlife and regeneration of high quality timber.

Prior harvesting occurred in the 1960's $\pm$ and salvage harvesting following the 1938 hurricane. .

TIMBER QUALITY:

Much of the lower quality timber was harvested in 1999 leaving mostly good quality white pine and hardwood.

INSECT AND DISEASE DAMAGE:

None noted.

WILDLIFE HABITAT VALUE:

Extensive use by deer was noted from browse, scraps, droppings, and hoof prints. Dead snags and cavity trees are present, and acorn mast from mature oak trees. There are wild grape vines in some areas. There is an active beaver pond in the brook just off the west side of the Tract.

SOIL TYPE:

CmC – Canton stony fine sandy loam, 8 to 15 % slope.

CmD – Canton stony fine sandy loam, 15 to 25 % slope.

Generally sandy or loamy over sandy textures. Moderately well and well drained but adequate moisture for good tree growth. Hardwood competition is moderate to severe and the

successional trend is toward a climax of tolerant hardwoods.

MANAGEMENT PRESCRIPTION:

FORESTRY:

Allow this stand continued growth for 10 to 15 years before reviewing for potential for next timber harvest.

WILDLIFE:

Snags created during the last harvest are reaching the stage of decay where they become valuable for cavity trees and insects which many birds use for food. .

RECREATION:

Maintain trails.

**TABLE II STAND STOCKING AND VOLUME BY TIMBER TYPE
HITCHINER TOWN FOREST**

Owner: Town of Milford

ACRES +/-: 51

Lot: Milford, Tax Map 46, Lot 2

TIMBER TYPE: WP 1; MH 2,1

Plots: 17

SPECIES	SAWTIMBER 12" - 14" DBH			SAWTIMBER 16" - 20" DBH			SAWTIMBER 22"+ DBH			CORDWOOD AND PULP			TOTAL PER ACRE					STAND TOTAL		
	TREES ACRE	AVG. HGT.	BF ACRE	TREES ACRE	AVG. HGT.	BF ACRE	TREES ACRE	AVG. HGT.	BF ACRE	AVG. DBH	TREES ACRE	AVG. HGT.	BASAL AREA	AVG. DIA.	TREES ACRE	BF ACRE	CORDS ACRE	# TREES	BF	CORDS
WHITE PINE	17.1	1.9	1,809	12.9	3.1	4,218	3.5	3.1	1,845	9.8	6.5	2.0	48.7	14.9	40.0	7,872	7.15	2,040	401,460	365
HEMLOCK										6.0	1.2	1.0	0.2	6.0	1.2	0	0.03	60	0	2
PITCH PINE																				
RED CEDAR																				
TOTAL SOFTWOOD	17.1	1.9	1,809	12.9	3.1	4,218	3.5	3.1	1,845	9.2	7.6	1.8	48.9	14.7	41.2	7,872	7.18	2,100	401,460	366
RED OAK	1.2	1.0	92	0.6	1.5	84	0.6	1.5	171	10.0	2.4	1.9	4.5	13.3	4.7	346	0.82	240	17,670	42
CHESTNUT OAK	0.6	1.0	46							10.0	1.8	1.8	1.6	11.0	2.4	46	0.27	120	2,340	14
BLACK BIRCH	0.6	1.0	33							7.6	2.9	1.1	1.3	8.3	3.5	33	0.18	180	1,680	9
RED MAPLE	1.2	1.0	79							9.3	7.1	1.6	4.4	9.9	8.2	79	0.80	420	4,020	41
WHITE BIRCH										8.0	1.2	1.3	0.4	8.0	1.2	0	0.07	60	0	3
WHITE ASH	0.6	1.5	62										0.6	14.0	0.6	62	0.09	30	3,150	5
WHITE OAK																				
BLACK CHERRY										10.0	1.2	2.0	0.6	10.0	1.2		0.15	60		8
TOTAL HARDWOOD	4.1	1.1	311	0.6	1.5	84	0.6	1.5	171	9.1	16.5	1.6	13.4	10.5	21.8	566	2.38	1,110	28,860	122
TOTAL SAWTIMBER	21.2	1.7	2,120	13.5	3.0	4,302	4.1	2.9	2,015	9.2	24.1	1.7	62.4	13.2	62.9	8,438	9.57	3,210	430,320	488

BF = Board feet.

DBH = Diameter breast high (4.5').

BASAL AREA = Square feet of stem per acre.

STAND DESCRIPTION

TIMBER TYPE: WP 1,2
MH 2,1
PP 2,1

46 Acres

COMPOSITION AND SIZE CLASS:

White pine sawtimber and poletimber, with mixed hardwood poletimber and sawtimber, and scattered pitch pine poletimber and sawtimber.

UNDERSTORY VEGETATION AND REGENERATION:

Hemlock and mixed hardwood.

LOCATION:

The northwest part of the tract surrounding Burns Hill.

STAND HISTORY:

Old pasture land that was allowed to convert to forest in the early 1900's. Evidence was observed of damage from forest fire probably in the 1950's. The last timber harvest probably occurred in the 1960's and probably harvested most of the merchantable white pine. The scattered un-merchantable smaller pines were left to grow into the white pine found today.

TIMBER QUALITY:

Mostly low quality timber with pockets of higher quality white pine timber in the north and west corners of the stand. The low quality is a result of the very shallow ledge, poor quality soils, and past fire damage.

INSECT AND DISEASE DAMAGE:

Extensive scars and internal decay was observed from past fire damage.

WILDLIFE HABITAT VALUE:

Cavity trees for birds and mammals. Den sites in ledge outcrops for snakes and bats. Potential Timber rattlesnake habitat. Acorn mast. Evidence of use by deer as a corridor. Crows nests were observed.

SOIL TYPE:

Listed in the soils map as:

CmD – Canton stony fine sandy loam, 15 to 25 % slope.

Generally sandy or loamy over sandy textures. Moderately well and well drained but adequate moisture for good tree growth. Hardwood competition is moderate to severe and the successional trend is toward a climax of tolerant hardwoods.

Most of stand is shallow bedrock and ledge outcrop.

MANAGEMENT PRESCRIPTION:

FORESTRY:

Poor quality shallow soils make this stand less productive for growing timber than other stands on the property. Steep slopes and poor quality timber present difficult timber harvesting challenges. Harvesting mature and non productive trees would allow for regeneration of white pine and other tree species and make this stand more productive than it is currently. Carefully

planned harvesting may have additional benefits for wildlife and recreation.

WILDLIFE:

Consider having a herpetologist review this site for potential Northern Rattlesnake habitat. If any timber harvesting is done reserve good cavity trees, mast trees, and nesting sites.

RECREATION:

If any timber harvesting is done consider clearing for views and leaving buffers along trails. Establish new trails with consideration of harvesting and loops to other interesting destinations that exist within the stand.

**TABLE II STAND STOCKING AND VOLUME BY TIMBER TYPE
HITCHINER TOWN FOREST**

Owner: Town of Milford

ACRES +/-: 46

Lot: Milford, Tax Map 46, Lot 2

TIMBER TYPE: WP 1,2; MH 2,1 PP 2,1

Plots: 15

SPECIES	SAWTIMBER 12" - 14" DBH			SAWTIMBER 16" - 20" DBH			SAWTIMBER 22"+ DBH			CORDWOOD AND PULP			TOTAL PER ACRE					STAND TOTAL		
	TREES ACRE	AVG. HGT.	BF ACRE	TREES ACRE	AVG. HGT.	BF ACRE	TREES ACRE	AVG. HGT.	BF ACRE	AVG. DBH	TREES ACRE	AVG. HGT.	BASAL AREA	AVG. DIA.	TREES ACRE	BF ACRE	CORDS ACRE	# TREES	BF	CORDS
WHITE PINE	15.3	1.5	1,403	17.3	1.8	3,255	3.3	2.2	1,307	11.1	37.3	1.9	72.0	13.4	73.3	5,965	11.44	3,373	274,405	526
HEMLOCK																				
PITCH PINE	0.7	1.0	52	0.7	1.0	71				8.6	6.7	1.5	4.1	9.7	8.0	123	0.63	368	5,643	29
RED CEDAR										6.0	2.0	1.0	0.4	6.0	2.0	0	0.05	92	0	2
TOTAL SOFTWOOD	16.0	1.4	1,455	18.0	1.7	3,326	3.3	2.2	1,307	10.5	46.0	1.8	76.5	12.9	83.3	6,088	12.12	3,833	280,048	558
RED OAK	4.0	1.0	239							8.1	12.0	1.1	7.3	9.2	16.0	239	0.93	736	10,979	43
CHESTNUT OAK										8.3	21.3	1.1	7.9	8.3	21.3	0	1.08	981	0	50
BLACK BIRCH										8.4	3.3	1.2	1.3	8.4	3.3	0	0.19	153	0	9
RED MAPLE										7.0	2.7	1.3	0.7	7.0	2.7	0	0.14	123	0	6
WHITE BIRCH										9.0	1.3	1.0	0.6	9.0	1.3	0	0.06	61	0	3
WHITE ASH										10.0	0.7	2.0	0.4	10.0	0.7	0	0.09	31	0	4
WHITE OAK										9.3	5.3	1.2	2.5	9.3	5.3	0	0.44	245	0	20
BLACK CHERRY										6.0	0.7	1.0	0.1	6.0	0.7		0.02	31		1
TOTAL HARDWOOD	4.0	1.0	239							8.3	47.3	1.1	20.8	8.6	51.3	239	2.95	2,361	10,979	136
TOTAL SAWTIMBER	20.0	1.4	1,694	18.0	1.7	3,326	3.3	2.2	1,307	9.4	93.3	1.5	97.3	11.2	134.7	6,327	15.07	6,195	291,027	693

BF = Board feet.

DBH = Diameter breast high (4.5').

BASAL AREA = Square feet of stem per acre.

STAND DESCRIPTION

TIMBER TYPE: MH 1,2
WP 1

Acres: 20

COMPOSITION AND SIZE CLASS:

Mixed hardwood sawtimber and pole timber with scattered White Pine sawtimber.

UNDERSTORY VEGETATION AND REGENERATION:

Pockets of regeneration resulting from the harvest in 1999. A variety of mixed hardwood species; white pine, and mountain laurel which has been abundant in much of this stand prior to the harvest.

LOCATION:

In the northeast section of the tract.

STAND HISTORY:

This stand was at one time pasture land. In the 1870's the pastures were abandoned and became overgrown with trees, mostly white pine. As the pine became merchantable for saw timber it was harvested and a mixture of hardwoods with white pine regenerated.

The most recent timber harvest was in 1997. The 1997 harvest was a conventional cable skidder and chain saw harvest which had a less drastic affect the biomass harvest don on the south part of the lot in 1999, but did not create as many openings for regeneration or remove non merchantable timber.

Prior harvesting occurred in the 1960's $\pm$ and salvage harvesting following the 1938 hurricane. .

TIMBER QUALITY:

Much of the lower quality timber was harvested in 1997 leaving mostly good quality white pine and hardwood.

INSECT AND DISEASE DAMAGE:

None noted.

WILDLIFE HABITAT VALUE:

Extensive use by deer was noted from browse, scraps, droppings, and hoof prints. Dead snags and cavity trees are present, and acorn mast from mature oak trees.

SOIL TYPE:

CaC – Canton fine sandy loam, 8 to 15 % slope.

CmC – Canton stony fine sandy loam, 8 to 15 % slope.

CmD – Canton stony fine sandy loam, 15 to 25 % slope.

LvB – Leicester – Walpole complex stony, 3 to 8 % slope.

Generally sandy or loamy over sandy textures. Moderately well and well drained but adequate moisture for good tree growth. Hardwood competition is moderate to severe and the successional trend is toward a climax of tolerant hardwoods.

MANAGEMENT PRESCRIPTION:

FORESTRY:

Allow continued growth for 10 to 15 years before reviewing for potential for next timber harvest. If harvesting in the WP 1,2; MH2,1; PP2,1 stand additional harvesting could be included from this stand.

WILDLIFE:

Reserve cavity and mast producing trees.

RECREATION:

Maintain trails and consider additional trails to create a loop to the top of Burns Hill. .

**TABLE II STAND STOCKING AND VOLUME BY TIMBER TYPE
HITCHINER TOWN FOREST**

Owner: Town of Milford

ACRES +/-: 20

Lot: Milford, Tax Map 46, Lot 2

TIMBER TYPE: MH 1,2; WP 1

Plots: 6

SPECIES	SAWTIMBER 12" - 14" DBH			SAWTIMBER 16" - 20" DBH			SAWTIMBER 22"+ DBH			CORDWOOD AND PULP			TOTAL PER ACRE					STAND TOTAL		
	TREES ACRE	AVG. HGT.	BF ACRE	TREES ACRE	AVG. HGT.	BF ACRE	TREES ACRE	AVG. HGT.	BF ACRE	AVG. DBH	TREES ACRE	AVG. HGT.	BASAL AREA	AVG. DIA.	TREES ACRE	BF ACRE	CORDS ACRE	# TREES	BF	CORDS
WHITE PINE	5.0	2.0	537	8.3	3.3	2,965	1.7	3.5	920	9.5	6.7	1.9	25.2	14.6	21.7	4,422	4.29	433	88,433	86
HEMLOCK	3.3	1.3	305							9.6	8.3	1.0	7.5	10.9	11.7	305	0.76	233	6,100	15
PITCH PINE																				
RED CEDAR																				
TOTAL SOFTWOOD	8.3	1.7	842	8.3	3.3	2,965	1.7	3.5	920	9.6	15.0	1.4	32.7	13.3	33.3	4,727	5.05	667	94,533	101
RED OAK	13.3	1.1	947	5.0	1.7	997				8.5	6.7	1.8	21.9	12.7	25.0	1,943	3.52	500	38,867	70
CHESTNUT OAK										8.5	6.7	1.6	2.6	8.5	6.7	0	0.58	133	0	12
BLACK BIRCH	3.3	1.3	217	1.7	1.0	227				10.1	30.0	1.6	21.7	10.7	35.0	443	4.09	700	8,867	82
RED MAPLE	1.7	1.5	175							10.0	15.0	1.8	9.8	10.4	16.7	175	2.20	333	3,500	44
WHITE BIRCH	1.7	1.0	93							10.0	5.0	2.0	4.0	10.5	6.7	93	0.79	133	1,867	16
WHITE ASH	1.7	1.0	93										1.3	12.0	1.7	93	0.14	33	1,867	3
WHITE OAK																				
BLACK CHERRY																				
TOTAL HARDWOOD	21.7	1.2	1,525	6.7	1.5	1,223				9.7	63.3	1.7	61.4	11.0	91.7	2,748	11.31	1,833	54,967	226
TOTAL SAWTIMBER	30.0	1.3	2,367	15.0	2.5	4,188	1.7	3.5	920	9.7	78.3	1.6	94.1	11.6	125.0	7,475	16.36	2,500	149,500	327

BF = Board feet.

DBH = Diameter breast high (4.5').

BASAL AREA = Square feet of stem per acre.

STAND DESCRIPTION

TIMBER TYPE: WP 1, 2

Acres: 5

COMPOSITION AND SIZE CLASS:

White Pine sawtimber and poletimber.

UNDERSTORY VEGETATION AND REGENERATION:

Varied stocking of mixed hardwood and white pine.

LOCATION:

Two stands on the south west and north east part of the tract.

STAND HISTORY:

This stand was at one time cultivated for agricultural crops and was probably farmed until the late 1950's . Timber Stand Improvement was done in 1988 to girdle the less desirable trees and allow the better straighter trees improved growth.

TIMBER QUALITY:

Mostly good quality white pine.

INSECT AND DISEASE DAMAGE:

Past white pine weevil damage.

WILDLIFE HABITAT VALUE:

Field edge providing cover for birds and mammals.

SOIL TYPE:

SsB – Scituate fine sandy loam, 3 to 8 % slope.

CaC – Canton fine sandy loam, 8 to 15 % slope.

MANAGEMENT PRESCRIPTION:

FORESTRY:

Harvest mature and low quality white pines in combination with harvesting in adjacent stands. Reserve immature high quality timber for continued growth.

WILDLIFE:

Reserve cavity and mast producing trees.

RECREATION:

Maintain trails.

**TABLE II STAND STOCKING AND VOLUME BY TIMBER TYPE
HITCHINER TOWN FOREST**

Owner: Town of Milford

ACRES +/-: 5

Lot: Milford, Tax Map 46, Lot 2

TIMBER TYPE: WP 1,2

Number of plots: 1

Plot size: 0.10 Acre

SPECIES	SAWTIMBER 12" - 14" DBH			SAWTIMBER 16" - 20" DBH			SAWTIMBER 22"+ DBH			CORDWOOD AND PULP			TOTAL PER ACRE					STAND TOTAL		
	TREES	AVG.	BF	TREES	AVG.	BF	TREES	AVG.	BF	AVG.	TREES	AVG.	BASAL	AVG.	TREES	BF	CORDS	#		
	ACRE	HGT.	ACRE	ACRE	HGT.	ACRE	ACRE	HGT.	ACRE	DBH	ACRE	HGT.	AREA	DIA.	ACRE	ACRE	ACRE	TREES	BF	CORDS
WHITE PINE	50.0	1.4	4,450	60.0	1.6	12,130				11.3	30.0	2.5	168.5	14.9	140.0	16,580	20.16	700	82,900	101
HEMLOCK																				
PITCH PINE																				
RED CEDAR																				
TOTAL SOFTWOOD	50.0	1.4	4,450	60.0	1.6	12,130				11.3	30.0	2.5	168.5	14.9	140.0	16,580	20.16	700	82,900	101
RED OAK																				
CHESTNUT OAK																				
BLACK BIRCH																				
RED MAPLE																				
WHITE BIRCH																				
WHITE ASH																				
WHITE OAK																				
BLACK CHERRY																				
TOTAL HARDWOOD																				
TOTAL SAWTIMBER	50.0	1.4	4,450	60.0	1.6	12,130				11.3	30.0	2.5	168.5	14.9	140.0	16,580	20.16	700	82,900	101

BF = Board feet.

DBH = Diameter breast high (4.5').

BASAL AREA = Square feet of stem per acre.

STAND DESCRIPTION

TIMBER TYPE: HM 2,1

WP 1

MH 2,1

Acres: 3

COMPOSITION AND SIZE CLASS:

Hemlock poletimber and sawtimber, White Pine sawtimber and mixed hardwood pole timber and saw-timber.

UNDERSTORY VEGETATION AND REGENERATION:

Scattered hemlock, hardwood and white pine. The dense shade prevents productive growth of regeneration and in the under story from lack of sun light. .

LOCATION:

On the south line of the tract along the brook.

STAND HISTORY:

This stand was at one time pasture land. In the 1870's the pastures were over time not maintained then abandoned and became overgrown with trees, mostly white pine. As the pine became merchantable for saw timber it was harvested and the mixture of hemlock, white pine and hardwood regenerated. The steep slope and brooks made it difficult to harvest timber in this stand.

The most recent timber harvest in 1999 harvested a limited amount of timber in this stand. Prior harvesting occurred in the 1960's $\pm$ and salvage harvesting following the 1938 hurricane. .

TIMBER QUALITY:

Much of the hemlock is low quality. The white pine and hardwood quality is varied.

INSECT AND DISEASE DAMAGE:

None noted.

WILDLIFE HABITAT VALUE:

Added variety of tree species. Cavity trees. Potential for deer yard is limited by the north facing slope.

SOIL TYPE:

Soils map show:

CmC – Canton stony fine sandy loam, 8 to 15 % slope.

CmD – Canton stony fine sandy loam, 15 to 25 % slope.

Generally sandy or loamy over sandy textures. Moderately well and well drained but adequate moisture for good tree growth. Hardwood competition is moderate to severe and the successional trend is toward a climax of tolerant hardwoods.

Actual soils are sand and gravel with springs seeping water out of the base of the slopes.

MANAGEMENT PRESCRIPTION:

FORESTRY:

Clear-cutting would allow regeneration to become established. Make potential wildlife

and recreation benefits a priority.

WILDLIFE:

Reserve for variety of tree species and cavity trees.

RECREATION:

Reserve for unique ascetics of an open understory. Consider the construction on a trail to link trails and provide access to the springs.

**TABLE II STAND STOCKING AND VOLUME BY TIMBER TYPE
HITCHINER TOWN FOREST**

Owner: Town of Milford

ACRES +/-: 3

Lot: Milford, Tax Map 46, Lot 2

TIMBER TYPE: HM 2,1; WP 1; MH 2

Number of plots: 1

Plot size: 0.10 Acre

SPECIES	SAWTIMBER 12" - 14" DBH			SAWTIMBER 16" - 20" DBH			SAWTIMBER 22"+ DBH			CORDWOOD AND PULP			TOTAL PER ACRE					STAND TOTAL		
	TREES ACRE	AVG. HGT.	BF ACRE	TREES ACRE	AVG. HGT.	BF ACRE	TREES ACRE	AVG. HGT.	BF ACRE	AVG. DBH	TREES ACRE	AVG. HGT.	BASAL AREA	AVG. DIA.	TREES ACRE	BF ACRE	CORDS ACRE	# TREES	BF	CORDS
WHITE PINE							10.0	2.5	5,230				31.4	24.0	10.0	5,230	4.18	30	15,690	13
HEMLOCK				10.0	1.0	1,360				7.4	70.0	1.0	33.4	8.8	80.0	1,360	3.79	240	4,080	11
PITCH PINE																				
RED CEDAR																				
TOTAL SOFTWOOD				10.0	1.0	1,360	10.0	2.5	5,230	7.4	70.0	1.0	64.8	10.4	90.0	6,590	7.97	270	19,770	24
RED OAK																				
CHESTNUT OAK																				
BLACK BIRCH										8.0	10.0	1.0	3.5	8.0	10.0	0	0.40	30	0	1
RED MAPLE										7.7	60.0	1.2	19.2	7.7	60.0	0	3.20	180	0	10
WHITE BIRCH										10.0	10.0	1.5	5.5	10.0	10.0	0	0.90	30	0	3
WHITE ASH																				
WHITE OAK																				
BLACK CHERRY										8.0	10.0	1.0	3.5	8.0	10.0		0.40	30		1
TOTAL HARDWOOD										8.0	90.0	1.2	31.7	8.0	90.0	0	4.90	270	0	15
TOTAL SAWTIMBER				10.0	1.0	1,360	10.0	2.5	5,230	7.8	160.0	1.1	96.5	9.2	180.0	6,590	12.87	540	19,770	39

BF = Board feet.

DBH = Diameter breast high (4.5').

BASAL AREA = Square feet of stem per acre.

STAND DESCRIPTION

TIMBER TYPE: Open Field

6.5 Acres

COMPOSITION AND SIZE CLASS:

Non forest

UNDERSTORY VEGETATION AND REGENERATION:

Grasses, Areas of brush.

LOCATION:

North east part of tract.

STAND HISTORY:

Formerly cultivated farm land.

TIMBER QUALITY:

None.

INSECT AND DISEASE DAMAGE:

None.

WILDLIFE HABITAT VALUE:

Grazing, fruit bearing shrubs small mammal cover, hunting for hawks and foxs.

SOIL TYPE:

SsB – Scituate fine sandy loam, 3 to 8 % slope.

StB – Scituate stony fine sandy loam, 3 to 8 % slope.

CaC – Canton fine sandy loam, 8 to 15 % slope.

MANAGEMENT PRESCRIPTION:

FORESTRY:

Monitor and control invasive species.

WILDLIFE:

Maintain bird and bat houses. Continue to mow at least once every three years.

RECREATION:

Maintain parking, hiking, and picnicking opportunities.

TIMBER SALE RECOMENDATION

The areas that were treated with timber stand improvement in 1988 or harvested in 1997 or 1999 are healthy and vigorous and should be allowed continued growth for 10 or more years before reexamination for consideration of a timber harvest. The area on the east and south sides of Burns Hill have not been harvested since the 1960, and may be considered for a harvest. Steep slopes, shallow soils, low quality timber, and the consideration of wildlife and recreational features may combine to make this harvest undesirable or unfeasible.

The harvest recommendations are based on the management objectives given earlier in this plan. Any harvesting should remove mature, and low quality low value timber which will allow improved growth of high quality valuable immature timber, and create conditions favorable to the regeneration of white pine, red oak, and other valuable commercial species. At the same time, wildlife habitat and the aesthetic quality of recreational areas such as trails, brooks, and vistas should be protected.

Improvement harvesting has multiple goals:

1. Upgrading stand quality by removing diseased, over-topped, and poorly formed stems of all sizes and species.
2. Release of well-formed, high quality stems of valuable species capable of growing rapidly to larger size.
3. Release of advance regeneration of a more desirable quality or species.
4. Creation of openings allowing full sunlight to reach the forest floor so that seeds can germinate, and seedlings and sprouts to grow without being suppressed by the shade of larger trees.

As a harvest is carried out, trees of value to wildlife should be reserved and the needs of wildlife, both birds and animals, carefully considered

The proposed harvesting should remove low quality and damaged white pines, low-valued pole-sized hardwood as cordwood / hardwood pulp, or chips plus high valued species which are reduced in value as a result of poor form or over-crowding. Sawtimber size trees that are of low or decreasing value from rot, branching, or poor form should also be removed. Areas that are opened to sunlight will regenerate naturally, and high quality, high valued trees will benefit from improved growth from additional sunlight and better spacing.

Areas where all trees have been removed allowing full sunlight to reach the soil quickly regenerate from the germination of seeds and the sprouting of hardwoods. This regeneration generally will trend toward a better stocking of white pine and red oak than areas that have been lightly thinned. These areas do not need to be planted as this natural regeneration generally will out grow any planted trees.

While timber harvesting may have an unwanted visual impact, careful logging during strong markets can minimize aesthetic impact. Also, owners must remember that the visual impact is temporary. Improvement harvesting is extremely important to the long-term health,

productivity and quality of the woodland. Proper stewardship requires periodic harvesting to give the best trees improved growing conditions and regenerate new stands of timber providing for an excellent forest resource now and many decades into the future.

A harvest as outlined above and described in the Stand Descriptions can be expected to generate approximately the following volumes and income.

Estimated Harvest Volume and Value:

<u>Species</u>	<u>Estimated Cut Volume</u>	<u>Value</u>	<u>Total</u>
White Pine	85 MBF*	\$100.00	\$8,500.00
Red Oak	4 MBF*	\$200.00	\$800.00
TOTAL	130 MBF*		
Cordwood	50 cords	\$10.00	\$500.00
Whole tree chips	1,000 tons	\$0.50	\$500.00
*MBF = Thousand board feet		Total	\$10,300.00

Estimated gross value of timber sale: \$10,300.00

SUMMARY OF RECOMENDATIONS

1. Paint boundary lines. The boundaries not bounded by stone walls were blazed and painted in 1989. Blazing and painting the boundaries would accurately and properly defines the boundary lines, and make the lines easily identifiable. Boundaries on stone walls may also be blazed and painted to allow for easy identification of all boundaries.
2. Review for expansion of hiking trails. Examine possibilities for extending the trails into other parts of the property such as a loop trail to Burns Hill passing by the spring, a loop to the south part of the lot through the hemlock stand, and parking on Badger Hill Drive. Take into consideration future timber harvests.
3. Consider having a herpetologist review the WP 1,2; MH 2,1; PP2,1 stand on the east and south sides of Burns Hill for potential Northern Rattlesnake habitat.
4. Timber Sale. Consider harvesting mature and non productive trees in the WP 1,2; MH 2,1; PP2,1 stand on the east and south sides of Burns Hill. Harvesting would allow for regeneration of white pine and other tree species and make this stand more productive. Take into consideration pitch pine, red cedar, unique wildlife habitats, and recreational use. Views could be cleared in combination with this harvest. Access will need to be reviewed to determine the best location for the landing, and access to the sale area.

Whole tree chipping harvesting may be used to remove most of the tops and limbs and utilize otherwise un-merchantable timber, but would require a larger landing and more room for tractor trailers. Conventional harvesting with chainsaw and cable skidder would require less room to operate but leave un-merchantable portions of the trees where they are cut.
5. Tree Farm certification.

6. Re-evaluate the property in 10 to 15 years to assess the timing of harvesting timber, and to update and revise the Forest Management Plan.

New England Forestry Consultants is ready and able to continue management of this timberland and looks forward to implementing these recommendations.

CONCLUSION

Present timber volumes and stand conditions, productive soils, and varied vegetation; wildlife and recreational use and potential, all combine to produce a property with excellent management potential for timber, recreation, and wildlife into the future. By following the recommendations as outlined, this plan will meet the owner's objectives and enhance the open space values of the property.