

Natural Resource Inventory & Management Plan

Town of Avon, CT

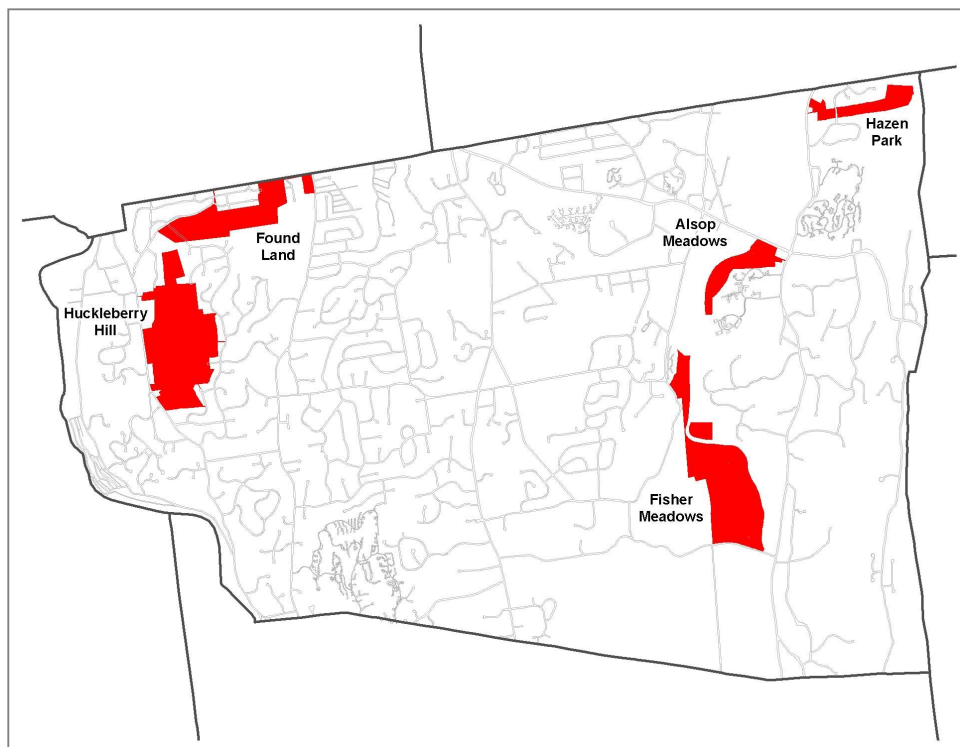
Alsop Meadows

Fisher Meadows

Found Land

Hazen Park

Huckleberry Hill



Ferrucci & Walicki, LLC
Middlefield, CT
November, 2009

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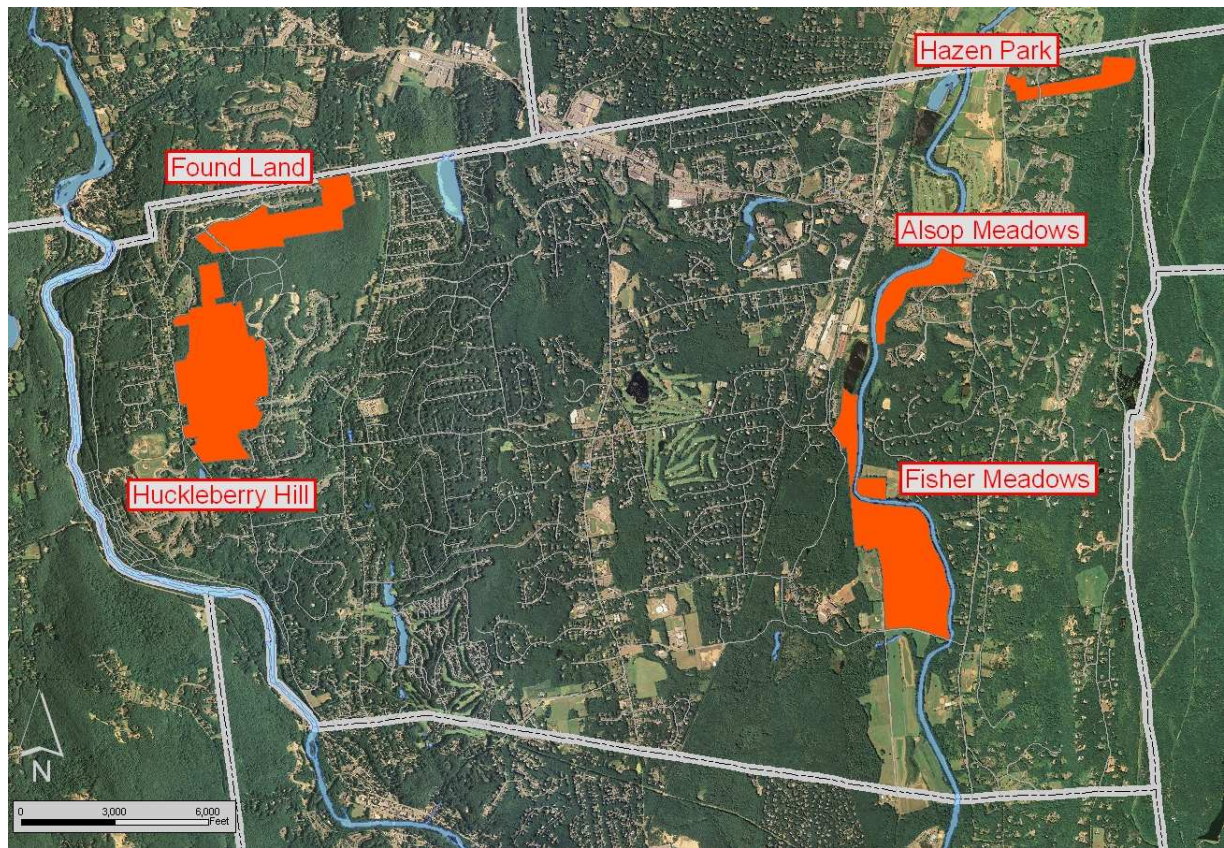
Executive Summary

This Natural Resource Inventory & Management Plan guides the management of five properties owned by the Town of Avon, CT, including Alsop Meadows Conservation Area, Fisher Meadows Natural Area, Found Land Conservation Area, Huckleberry Hill Conservation Area, and Hazen Park. The natural resources on these properties are to be sustainably managed to improve forest health and habitat conditions for native wildlife, protect any threatened and endangered species, maintain balanced and properly functioning ecosystems, protect water quality, and provide recreational and educational opportunities for the general public. Sound, sustainable land stewardship is the basis for all management decisions within the plan.

Together, the properties covered by this plan have a total of 722 acres, the largest being the Huckleberry Hill Conservation Area with over 282 acres, and the smallest being Hazen Park with just under 54 acres. All of these properties have been covered by previous management plans and have had some form of previous management. Changes in property boundaries are noted where applicable.

The forest resources on all properties were recently inventoried by Ferrucci & Walicki, LLC. The results of that inventory, as well as forest management recommendations for the next ten years, are included in this report. Overall our inventory revealed that the forests are generally healthy with many good quality trees that, if properly managed, will produce valuable saw logs at regular intervals for many years. Most of the forests are dominated by broadleaf, deciduous trees, with some scattered conifers found throughout.

Most of the forests are well suited to a conservative open space and forest management program. Such a program involves many elements and actions, including periodic sale and removal of trees in some areas, and a more “hands off” approach in other areas. In general, we have recommended that the forest resources on these properties be managed through a long-term silviculture program designed to maintain and improve overall forest health, encourage diversity of vegetation and wildlife, and maintain good aesthetics.



INTRODUCTION

The open space and forestland properties owned by the Town of Avon have and continue to provide recreational opportunities for present and future residents, and contain valuable wild-life habitat, healthy, productive forests and cleanse drinking water. In an ever-expanding suburban community, such as Avon, the protection of open space areas becomes increasingly important to the quality of life within town.

<u>Property</u>	<u>Acres</u>	<u>Acquired</u>
Alsop Meadows Conservation Area	60	late 1970s
Fisher Meadows Natural Area	205	1976
Found Land Recreation Area	121	1950s
Hazen Park	54	1963
Huckleberry Hill Recreation Area	282	unknown

The Town of Avon was on the forefront of the multiple use/multiple benefit approach to municipal natural resource management in 1988 when an initial Natural Resource Management Plan was written. A subsequent plan was written in 1998 to continue the program, and this third 10-year plan is intended to guide the program through its third decade.

Since the program's inception, the health and aesthetics of the forests as a whole have been markedly improved through a series of forest thinnings, timber stand improvement (TSI) opera-

tions, road improvements, boundary location work, conifer plantings, wildlife habitat improvement, and trail building work.

During the first management cycle, approximately 380 acres of land were harvested. Mostly diseased, dying, and poorly formed or overcrowded trees were removed, and TSI operations girdled cull-trees and younger poletimber trees to further release the healthiest, fastest growing trees.

During the second management cycle, two timber harvests were completed at Huckleberry Hill in 1999 and 2003 and one was marked in 2009 but has not been cut yet. Also, two timber harvests were completed at Found Land in 2002 and 2006 and one at Alsop Meadows in 2006. Additional trail work and boardwalk construction was done at Hazen Park, and trail maintenance was done on all of the properties.

The result of past harvests and TSI work is a generally much more vigorous and productive forest. More vigorous trees are better able to withstand insect and disease attacks and also retain nutrients more effectively. Properly thinned forests are capable of increased growth of higher value wood products, which will in turn produce increased future revenues from the sale of standing timber.

Some of the revenues generated by the sale of unhealthy trees for timber were allocated for various improvement projects. One of the main goals during the first management cycle was to establish and maintain a network of hiking trails throughout the various properties. Extensive trail systems were developed on the Huckleberry Hill, Fisher Meadows and Alsop Meadows parcels.

Being the dynamic places that forests are, however, there is additional work that should be done to both maintain successes achieved and make further improvements to these valuable properties. Maintenance activities are required to ensure that property boundaries and hiking trails are properly marked. Routine monitoring is needed to monitor invasive species, and actions should be taken when these threaten to disrupt or replace native species.

This Natural Resource Inventory & Management Plan aims to assess the current conditions of the subject properties, make science-based recommendations, incorporate other goals of the Town related to the properties, and lay out a guideline for management activities for the next 10 years.

Notes on organization of this Management Plan:

Section 1 of the Plan includes discussions on topics such as forest management objectives, forest history, silvicultural techniques, and Best Management Practices.

Section 2 of the Plan includes detailed information and management recommendations for the five properties studied.

Appendix A details general and property-specific recreation recommendations.

Appendix B includes a detailed management implementation plan.

Section 1

General Management Guidelines

1.1 MANAGEMENT OBJECTIVES

The forests within Alsop Meadows, Fisher Meadows, Found Land, Hazen Park, and Huckleberry Hill provide numerous benefits to the community surrounding them and to the wildlife that live within them. Some of the properties can also provide a sustainable flow of wood products to the regional economy. One premise of modern, scientific forest management is that these benefits can be obtained in perpetuity if the forests are properly protected and cared for. This is the overall objective of the open space and forest management program recommended herein.

Goals of the open space and forest management program:

1. Demonstrate sound, sustainable land stewardship
2. Improve forest health
3. Protect and enhance wildlife habitat
4. Provide recreational and educational opportunities
5. Conserve soil and water resources
6. Help achieve stated open space goals of the Town

These goals, the conditions of the resources, and the inter-relationships between all of the elements of the forested ecosystem were considered while developing this plan. The properties are suited to varying degrees of a sustainable open space and forest management program. Such a comprehensive program involves many elements and actions, including periodic sale and removal of trees on some properties, and the maintenance of other properties' forests as "reserves".

The recommended harvests and other actions have been carefully considered and balanced within the general overall objectives of the Town of Avon, and specifically, as stated within existing documents including the Town's 2006 Plan of Conservation and Development. In some cases, recommended harvests are lighter and more conservative than if standard silvicultural methods were applied for optimal timber production.

1.2 SOUTHERN NEW ENGLAND FOREST USE & DEVELOPMENT

1.2.1 Historic Conditions and Use

Southern New England's pre-native American forests had a large component of semi- and shade-tolerant species on all, except the driest of sites. As Native Americans occupied the region in relatively low numbers, they began to use fire as a tool to remove and control understory vegetation. The fires also killed or damaged many of the thin-barked species. The resulting forest could be described as savanna-like. However, these savanna-like forests covered a relatively minor area of the region due to the difficulties of sustaining a burn in these moist for-

ests, and to the large number of natural firebreaks that occur in the form of streams, rivers, lakes and wetlands.

Over the majority of the region the forests were shaped by periodic, severe hurricanes, which tended to topple large swaths of mature forests, leaving seedlings and saplings, and their sprouts, to regrow. This “top-down” stand disturbance pattern led to the establishment of forests dominated by hardwood trees such as chestnut, oak, hickory, maple, and birch that are capable of surviving in partial shade when young and then responding when released, either by quickly growing in height and crown width, or by sprouting new stems when damaged as older, larger trees were toppled by tropical storms. Since 1600, southern and central New England have been subjected to 3 destructive hurricanes, the most recent of which was in 1938.¹

The pre-settlement forest was also shaped by the complex pattern of geology, landforms, and soils. The resulting forest, when viewed at the landscape scale, likely consisted of a mosaic of forest stands that were generally even-aged and comprised of multiple species. Portions of the landscape protected from fires and windstorms, such as deep ravines, developed multiple-age stands of shade-tolerant beech, sugar maple, and hemlock. Where soils were dry and sandy fire-dependent pitch pine/oak barrens communities developed.

Although major hurricanes were likely the dominant disturbance factor in this area, fire has also played a role. The effect of fires set by Native Americans on forest structure and composition is subject to some debate. At one extreme is the contention that the pre-settlement forests throughout the state were in a savannah or semi-savannah condition. At the other extreme is the contention that fires set by Native Americans had no effect on most upland forests. It is likely that the truth lies somewhere in between. Thus it is probably that the combined effects of natural and human-caused fires in the pre-settlement forests were modest and varied. Even an occasional (once every 20 or more years) fire in mixed-species upland forests will reduce the amount of thin-barked maple and birch, and favor the development of thicker-barked oak trees. Further, Connecticut’s forests contain many species of shrubs with thin bark or aromatic, easily burned twigs that are killed to the ground or completely with a light ground fire. The resultant reduction in low shade favors oak and hickory, which can survive in the understory far better when there is a relatively open shrub layer.

Contemporary forest composition, in an era of nearly complete fire exclusion, is having a drastic decrease in oak, and increase in birch and maple. While this trend is partially caused by harvests that until recently generally removed more oak than maple, the trend has been evident for decades in smaller, younger trees and in the understory of stands with little or no harvesting. Fires set by Native Americans must occasionally have encountered large concentrations of wind-thrown trees that were dead sufficiently long to burn vigorously. Thus it is safe to assume that the upland forests of Connecticut were impacted occasionally by fires of sufficient duration and intensity to maintain oak trees in parts of the landscape that might favor maple, beech, and birch as well.

¹ Foster, D.R., 1988, Disturbance History Community Organization and Vegetation Dynamics of the Old Growth Pisgah Forest, southwestern New Hampshire, USA *Journal of Ecology* 76:105-134.

Most forest stands in Connecticut had essentially even-aged structure that started following windstorms or occasionally following severe fires. Neither of these stand initiation events commonly killed or removed all of the older trees from extensive areas. Fires and all but the strongest hurricanes leave “skips” where small clusters, groves, or even small stands of older trees survived. It is likely that a two-aged stand condition was somewhat common. Some less severe storms, as well as localized wind-bursts (micro-bursts), damage from ice storms, occasional insect or disease outbreaks, or even occasional twisters helped create some forests where groups of older and younger trees were intermixed as well.

Native Americans used these forests for hunting and gathering, as a source of fuel and building materials (for wigwams or stick-built structures). The early colonists had similar uses, but were far more interested in converting the forests for tillage or forage lands than in using the natural bounty of the forest. Over time, the post-Columbian forests (those present after the “discovery” of the New World by Christopher Columbus) were reduced to the areas that were unsuitable for tillable agriculture, the grazing of animals and to small farmstead areas used to supply fuel wood. Most forested areas were often repeatedly harvested for fuel wood and charcoal production. Starting in the late 1800’s much of the marginal farmland was abandoned, and this process continued with the industrial development of the area and with the advent of WWI.

More recently, many of southern New England’s forests have been high-graded (repeated diameter limit cutting of the valuable species). High-grading results in residual forests of low stocking, less desirable species composition, trees of lower vigor, and a higher percentage of defective trees. This contrasts dramatically to the forest management approach recommended for the properties discussed in this plan.

Currently, most of the region’s forests are even-aged due to past land use history. However, forest management operations designed to mimic natural disturbance patterns are beginning to restore the diversity in stand structure, age-classes, and plant communities that were more common in pre-Columbian times. Also, managing for the germination and establishment of natural regeneration of native species, and controlling invasive species, will help to restore historic plant communities.

1.2.2 Forest Development

Nearly all of the forestland in central Connecticut developed from abandoned agricultural fields or pastures. Soon after the fields were abandoned, trees began to reclaim these areas. This stage of forest development is known as stand initiation. This stage can continue for as long as the canopy remains open enough for seedlings to become established. The mix of forest and fields at Alsop Meadows, Fisher Farms, and Hazen Park contain living examples of this process, which takes hold immediately after agricultural lands are allowed to go fallow.

Some forests in Connecticut started following timber harvests that removed most or all of the previous forest, such as charcoaling. Others may have been cleared, regrown as described above, and then been subject to harvests of varying intensity and now resemble sprout-origin post charcoal stands. These sprout origin stands are characterized by trees with multiple stems

growing from the same root system. The upper portion of Hazen Park contains many such multiple-stemmed trees.

Regardless of method of stand initiation, eventually the young forest of newly established seedlings may have more than 5,000 trees per acre. As the canopy closes and increases in height, the available growing space is fully occupied by the trees. Some trees begin to die, while others begin to express their dominance and expand their crowns. This stage of forest development is known as stem exclusion, which can take several decades. Approximately twenty to thirty years after stand initiation, there may only be 500 of the original 5,000 trees per acre left. Fifty years after stand initiation there may only be 200-300 six-inch diameter trees per acre, and in another fifty years there are 50 sawtimber trees per acre. After 100 years, approximately 97% of the original 5,000 seedlings per acre have died leaving the remaining 3% of the trees to grow into the trees of a mature forest. Therefore, as a forest ages, the trees grow to larger sizes and in that process become fewer in number.

The exact numbers vary from forest to forest, but the process of forest maturation is the same. What is happening here? The other 4,950 trees died and rotted away because they lost the competition for limited growing space and resources. This process continues until the mature trees die from old age or disease, blow over, burn in a forest fire, or are cut. Each time a tree dies, the surrounding tree crowns expand to fill in the canopy opening. When a large tree dies, or a group of trees die, the opening is too large for the surrounding trees to fill. When this happens, the understory trees will fill the gap. This stage of development is known as understory reinitiation. Eventually all the trees we see today will die and be replaced by their progeny in the understory. This process of forest development has occurred on these properties over the past 80 to 100 years.

Forest development can be accelerated and improved upon by selecting the trees that would likely dominate a stand. Favored trees can be the healthiest and most vigorous trees, those with value to wildlife (like red cedar) those with desirable products (like sugar maple for syrup), or those with the potential for longevity, like oak or hemlock. Much of the chance out of the development process can be removed by guiding how the forest develops, based on stated goals. The best way to favor an individual tree's survival and vigor is to open up growing space around its crown. This allows the tree to expand its crown and receive more sunlight. In turn, this increases the tree's photosynthetic capability, which will make the tree more resistant to insect and disease problems and increase its growth rate.

In summary, forestry mimics and manipulates natural forest development to produce a healthier and more valuable forest. This scientific manipulation can produce wood products, improve wildlife habitat, create more recreational opportunities, and form a more attractive forest.

1.3 NATURAL DISTURBANCE REGIMES

As described in section 1.1 above, the major natural disturbance regimes in central Connecticut consist of wind, ice, hurricanes, insects and diseases, and to a much lesser degree - fire. Mild events can create small gaps in the canopy, while more serious events can destroy whole stands. Although mild events are much more typical, infestations of native and nonnative in-

sects, such as the gypsy moth and hemlock woolly adelgid, have had dramatic effects on the forests of southern New England.

In general, mild events that create small to moderate openings in the canopy allow the release of advanced regeneration, and, if the openings are large enough, the establishment of less shade tolerant species. Larger scale disturbances, such as the death of large areas or whole stands of hemlock trees, often lead to a dramatic change in the composition of the forest (i.e. conversion from conifer dominated stands to hardwood dominated stands).

Mild events tend to have very little impact on plant animal communities as they are adapted to and often times are dependant on small disturbances to meet their needs. Larger scale disturbances are much more troublesome. Often times they can lead to extreme changes in the plant and animal communities (i.e. birch often colonizes sites where hemlock has died, resulting in loss of habitat for species requiring mature conifer forests). However, not all these changes are negative. For example, major events that lead to stand replacement can be very beneficial to many species of wildlife that require early successional habitat.

In general, recommended management involves encouraging the development of diverse, multiple aged forests with a variety of tree sizes, ages, and species over relatively small areas. This can be accomplished by using uneven-aged regeneration techniques (which most closely mimic mild disturbance events), even-aged regeneration techniques (which most closely mimic major disturbance events), and by using shelterwood methods (which mimic “top-down” stand replacement events). These methods can be applied in mixture in various spatial patterns, which are more natural than large, uniform treatments in appearance and in resulting stand structure. The forests derived from such treatments should contain a variety of species and age classes, which are generally less susceptible to insect infestation or disease epidemics, and which may be more capable of recovering (closed forest canopies) following major wind events. Active management can thus minimize the risk and impact of inevitable forest disturbances by developing spatially, structurally and temporally diverse forests.

1.4 WILDLIFE HABITAT

1.4.1 Overview

Many species of wildlife need various types of habitat in order to survive. Scientists studying the needs of wildlife during their life cycles call these needs life requisites. These life requisites are necessary for successful survival and reproduction of a species and are often the limiting factors that determine whether or not a species will survive in a given area. These life requisites include shelter from predators, shelter from weather, places where they can find food, and areas where they can breed. Areas of potential habitat with particular vegetative characteristics satisfy these requisites.

The amount of habitat in each of these areas relative to each other can affect the carrying capacity of the area for a given species. The carrying capacity is the number of individuals of a given species that can live in a given area. Carrying capacity can also be influenced by the over-

all size of an area, depending on the range of the species considered. For example, a given acreage with the right types of habitat for a given species can support more individuals of a species with a small home range, than a species with a large home range.

A forest is a living thing, so it is constantly changing. As it develops, the character of the forest changes and so does its usefulness for satisfying the life requisites of a given species. As a result, a mosaic of different habitat types is often necessary for most species of wildlife to be successful. Wild turkeys for example use mature forest with downed woody debris or shrubby areas for nesting habitat or breeding habitat. After the young have hatched they use open fields where soft-bodied insects are abundant for them to feed on. As the young turkeys develop they are able to use the mature forest for feeding on hard mast from oak and beech trees.

Use of different types of habitats can also be seasonal. For example, during the spring and summer turkeys will often feed on insects and grasses in fields and other open areas, then return to the mature forest in fall and winter to feed on hard mast.² (DeGraaf and Yamasaki, 2001)

Mature forests also offer **stratification**, which is a quality important to the survival of some species of wildlife. There can be many strata in a forest but generally there is the main or upper canopy, the mid canopy and the forest floor. These strata develop because trees with different tolerances to shade grow at different rates. As the forest matures, trees that are tolerant of shade begin to fall behind the fast growing shade intolerant species, creating a mid canopy strata. These trees also have the ability to regenerate under a dense canopy creating another vegetation stratum near the ground. This lower stratum may also contain shrubs, vines and herbs that are tolerant of shade. These strata contribute to the life requisites of different species in different ways. The wood thrush, for example, sings from the canopy, nests in the mid-story, and feeds on the ground. Therefore, a mosaic of different stands from open fields to mature forests will provide the best potential habitat for many different species of wildlife.

As the forest develops and trees become stressed by intense competition, drought, disease, insects or are damaged by severe weather, many begin to rot producing live trees with cavities in them that are useful as shelter and feeding habitat for many small mammals and birds. As some of these trees die they remain standing and continue to rot or they fall down. These two types of trees are classified into standing dead woody debris and down woody debris respectively. As a whole they are known as coarse woody debris (CWD). Standing dead trees, often called snags, provide habitat and a source of insects that birds and other small mammals will eat. Down woody debris provides cavities for ground dwelling animals, cover for amphibians (salamanders) and reptiles (snakes), and good conditions for the germination of the seeds of some tree species.

CWD is considered to be any downed or suspended woody material that is 4 inches and larger in diameter. This definition for CWD would include such items as snags, fallen logs, wind blown trees and large branches. It is introduced into the management equation in numerous ways:

² DeGraff, R. M.; Yamasaki, M. 2001. New England Wildlife Habitat, Natural History and Distribution. Hanover, N.H.: University Press of New England. 482 pp.

logging debris, seedbeds, carbon pool, wildlife habitat, fuel, etc. Wildlife biologists, ecologists, mycologists, foresters, and fuels specialists are some of the people interested in CWD because it helps describe the quality and status of wildlife habitats, structural diversity within a forest, fuel loading and fire behavior, carbon sequestration, and the storage and cycling of nutrients and water. (Mount, J.R., 2002, Water, Wildlife, Recreation, Timber...Coarse Woody Debris, USDA Forest Service GTR, PSW-GTR 181, 2002)

As a forest matures and the trees become over mature large trees die and fall to the ground increasing CWD in the forest. Thus, barring any human influence such as timber harvesting, CWD will likely increase over time. This input is reduced by periodic harvests, which will remove the main stem of trees that may otherwise have died. Since few harvests in Connecticut also remove firewood or other top wood the tops of these trees are left and would an increase CWD. Adding the tops of healthy trees and cull trees removed during the harvest would increase CWD even more. While harvesting generally results in a net increase in CWD, the increase is generally in small diameter material that has less value than large diameter material. Leaving large snags and cavity trees may counter this effect on wildlife species using large CWD for habitat by replacing large down material with live vertical stems.

Stone walls, of which there are many as a result of the intense, past agricultural uses throughout the region, also provide habitat for small animals such as chipmunks, and can hide the locations of the entrances for burrowing animals.

Of particular habitat importance are wetlands, watercourses, and vernal pools. In addition to purifying and storing water, wetlands provide food and water for both upland animals and the resident aquatic animals. Watercourses and forested wetlands provide habitat requirements different from those in upland forest types. Many species that mainly inhabit upland areas also need water for drinking and thus may use the wetlands and watercourses periodically.³

Vernal pools are essential habitat for many species of amphibians and invertebrates. Some of these species breed only in these pools, and/or may be rare, threatened or endangered species, such as the wood frog. "The area in the immediate vicinity of these pools also provides these species with important non-breeding habitat functions, such as feeding, shelter and overwintering sites. Therefore, the protection of vernal pool habitat and the area immediately surrounding the pool is vital for the continued survival of wildlife species that are dependent upon these unique habitats." ⁴

1.4.2 Land Use History and Habitat Implications

Before European settlement portions of southern New England were quite open due to the presence of Native American agricultural clearings, as a result of fuel wood gathering, and the occurrence of periodic hurricanes. Also, throughout the region beaver meadows and periodic

³ Mount, J.R., 2002, Water, Wildlife, Recreation, Timber...Coarse Woody Debris, USDA Forest Service GTR, PSW-GTR 181, 2002

⁴ The Commonwealth of Massachusetts Division of Fisheries and Wildlife, Guidelines For Certification of Vernal Pool Habitat, May 1998.

fires next to very small Native American settlements provided for a shifting mosaic of open habitats within the forested landscape.⁵

Since then the New England landscape has undergone dramatic changes. Land was cleared for agriculture, slowly until the 1750s and then at an increased pace. Between 1800 and 1860, more than 75 percent of the arable land in southern and central New England was in pasture and farm crops, with an estimated peak of 81% in 1860. One hundred years later, New England was again mostly forested as the result of a long period of farm abandonment that began soon after the opening of rich farmlands in Ohio and the Midwest.⁶

Forest and Farmland Area of Connecticut, 1600 - 1977

(adapted from Irland, 1982)

Year	Acreage ('000)	
	Forest (%)	Farms (%)
1600	3,010 (96)	- no data -
1700	2,130 (68)	- no data -
1800	1,644 (52)	- no data -
1860	923 (29)	2,504 (81) - Estimated peak of cleared land in Connecticut
1900	1,276 (41)	2,312 (75)
1977	1,860 (60)	470 (15)

About 1910 the cutting of the trees that had seeded into the abandoned agricultural and pasture land constituted the last major land clearing in this region. Once cut, these sites tended to regenerate to hardwoods. Today about 65 percent of southern New England remains forested.⁷

The decline of agriculture and the resulting regrowth of the forest have essentially eliminated many species of wildlife, especially grassland birds, from most of the New England landscape. This current trend underscores both the dynamic nature of the landscape and the long-term effects of past human activities. Active forest management has the best potential for maintaining habitat for these early successional species in a forested landscape that is continuing to increase in age and extent⁸, if that is a management objective.

All of the properties within this plan have had past land use practices that closely followed this progression. Portions of Alsop Meadows, Fisher Farms, and Hazen Park are still in this transitional process, which will continue forward if fields are allowed to revert.

⁵ DeGraff, R. M.; Yamasaki, M. 2001. *New England Wildlife Habitat, Natural History and Distribution*. Hanover, N.H.: University Press of New England. 482 pp.

⁶ *ibid.*

⁷ *ibid.*

⁸ *ibid.*

1.4.3 Wildlife Habitat and Timber Management

In general a variety of tree, species, sizes and ages are essential for maintaining productive habitat for a variety of native wildlife. Any habitat management program should encourage different successional stages of a forest and a wide variety of forest cover types in close proximity to each other in order to help support the largest variety of wildlife species. It is estimated that approximately 80 percent of wildlife species in New England utilize two, three or four habitat combinations throughout the year and their life cycle. Therefore, the habitat, not the individual species, should be managed for relative diversity so as to meet the varied habitat requirements of wildlife species found in southern New England.

At this time, most of the forest cover found on the properties within this region is composed of sawtimber size trees, with a very small amount in the seedling/sapling and poletimber size classes. Most of the true early successional habitat on the properties is confined to reverting fields and powerline corridors. However, the forest cover adjacent to and surrounding these properties contains at least the same percentage, if not more, of the sawtimber size class, and very likely less of the seedling/sapling and poletimber size classes, except in rare circumstances where neighboring properties have had some management directed at creating early successional habitat. Additionally, the properties adjacent to the lands covered in this plan have generally become less forested over time, as land has been converted to residential and commercial uses.

It is safe to assume that early successional species will continue to have less and less suitable habitat available to them throughout the region, unless techniques such as forest management are actively used to create this essential habitat.

In general, the current forest conditions on the Town of Avon's properties covered in this Plan are accommodating for a variety of wildlife species, but are somewhat limited for species that require dense poletimber or sapling stage forests. The forest is constantly growing and changing, so early successional stages of a forest such as dense sapling stands or open areas quickly convert into timber stands. The various forest management recommendations outlined in this plan, such as shelterwood establishment harvests with reserves, group selection harvests and overstory removal harvests will continually add sections of open, herbaceous, brushy and then dense young forest to replace existing areas of young forest that will quickly grow into mature stands. Also, an attempt has been made to take into consideration the existing, surrounding forest cover when making our recommendations. If the surrounding landscape contains a significant amount of young forest cover or "potential" young forest cover it is not as important that we create it on the Town of Avon properties in question.

1.4.4 Rare, Endangered or Species of Special Concern

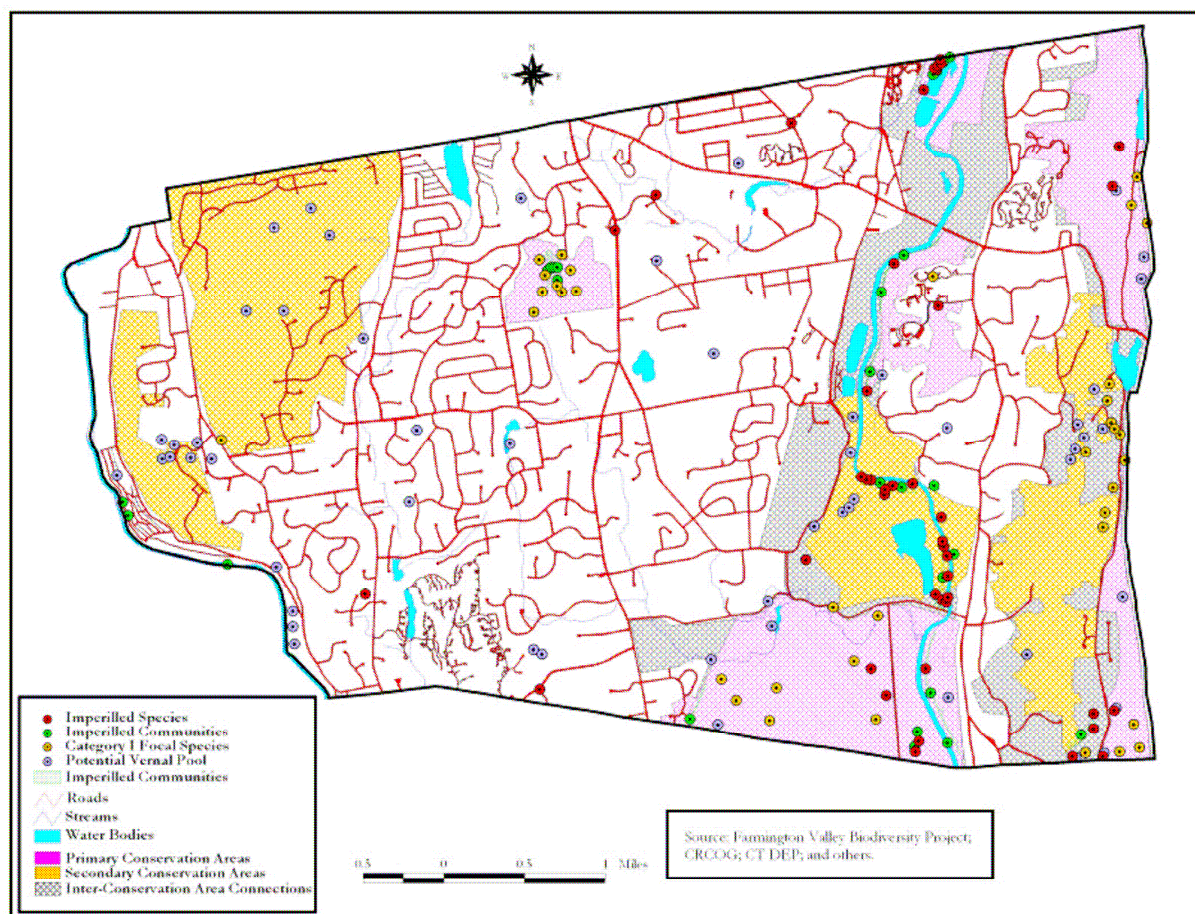
Management objectives also include maintaining wildlife habitat and protecting any threatened, endangered or rare species that may be found. As part of this management program, all the parcels have been reviewed for threatened, endangered or rare species by checking with the Connecticut Natural Diversity Data Base (NDDDB). The Connecticut Department of Environmental Protection (DEP) maintains the NDDDB as a resource for the general public to use to help make informed decisions regarding the presence of federally or state listed species. It is a com-

pilation of data collected by the Environmental and Geographic Information Center's Geological and Natural History Survey and cooperating units of the DEP, private conservation groups and the scientific community. This database includes species of flora and fauna that have limited or low populations, or have populations that are thought to be in danger of extirpation and extinction.

For purposes of this Plan, NDDDB data available from the DEP was utilized to identify areas where there is a possibility that rare or endangered species are present on the subject properties. This data is regularly updated by DEP; the June 2009 data update was utilized for this Plan. It is recommended that a follow-up check be performed and that NDDDB staff be contacted prior to any management activities being performed.

The 2006 report "The Farmington Valley Biodiversity Project: A Model for Intermunicipal Biodiversity Planning in Connecticut" also identifies several areas with biodiversity importance on properties covered by this Plan. Specific referenced to these areas are made within specific property discussions in Section 2.

Figure 1.1. Avon Biodiversity Map



Source: The Farmington Valley Biodiversity Project: A Model for Intermunicipal Biodiversity Planning in Connecticut. 2006.

Alsop Meadows:	Primary Conservation Area, Imperiled Species, Imperiled Community
Fisher Meadows:	Primary Conservation Area, Imperiled Species, Imperiled Communities, Potential Vernal Pools
Found Land:	Secondary Conservation Area, Potential Vernal Pool
Hazen Park:	Primary Conservation Area
Huckleberry Hill:	Secondary Conservation Area, Potential Vernal Pool

1.4.5 Wildlife Management

The following summary of habitat management recommendations is provided as a starting point for diversifying habitat. It is a general list of wildlife management techniques recommended by wildlife biologists. All of these activities improve the food and cover opportunities for the native wildlife. In general, forest management can provide habitat elements that are lacking or in short supply, thus improving the overall density and diversity of wildlife within a forest. Most of these recommendations can be implemented through the timber management program without any additional expenditure of funds.

1. In general, almost any type of cutting done in the present forest will diversify the amount of food and cover vegetation that will present in the future. Cutting can also purposely create a variety of vegetation types and ages that provide a wider variety of living sites for a wider variety of wildlife.
2. Where possible, at least 70% of the current tree canopy cover will be maintained on each property as a whole to prevent any negative effects to forest interior birds. Exceptions to this recommendation would be areas where even-aged management techniques are being used to meet silvicultural or wildlife habitat goals.
3. Patch cuts of 0.2 to 3.0-acres should be created each time a sawtimber harvest is implemented. Some clusters of trees can be retained in the larger patches (over 0.5 acre), especially if there are any productive mast or fruit producing trees, den trees, or snags. Such patch cuts diversify wildlife habitat tremendously. Roughly, 80% of the bird and mammal species in Connecticut use early successional forest created by patch cuts to meet their habitat needs.
4. A conifer component should be maintained when possible. Conifers provide protection for wildlife against harsh winter weather.
5. A variety of mast (hard seed) producing tree species should be maintained and encouraged to provide food and insurance against a seed failure of any one species. Mast producing trees include the various oaks and hickories, and American beech.
6. After harvesting operations are completed, all main skid trails and landings subject to erosion should be seeded with a conservation mix beneficial to wildlife.
7. A small portion of the brush from harvesting operations should be piled whenever possible and practical to provide additional wildlife cover. This can be combined with ef-

forts to move slash away from hiking trails. Small mammals will use such piles for cover and they are particularly beneficial if located near water.

8. Wetlands, watercourses, and their associated habitats should be protected by using practices designed to minimize soil disturbance, erosion, and sedimentation. This includes proper skid trail location, use of proper water crossing techniques, limiting harvesting to dry conditions, water bar installation, mulching eroding bare soil, and selective seeding of bare soil with a conservation grass seed mix.
9. Approximately 3 to 7 snags and/or den trees should be maintained per acre. Such snags provide homes and food for many birds and insect.
10. Maintain at least 200 cubic feet of coarse woody debris per acre. It is recommended that 50 cubic feet come from large diameter (>18") material.

1.4.6 Biodiversity Considerations

The open space and forest management program helps provide a wide variety of wildlife habitat, but no program can simultaneously benefit all species of wildlife. Ultimately the prescriptions recommended in this plan will promote the development of forests with a greater vertical structural diversity, but limited horizontal structural diversity. This type of forest structure will make the habitat somewhat unsuitable for some species of wildlife that require large, homogeneous forests. However, in some instances forest management and agricultural activities on some of the neighboring properties may offset some of these concerns.

1.5 INVASIVE SPECIES CONTROL

Non-native, invasive species are those that have evolved elsewhere, and were either purposefully or accidentally relocated from their native range. Many are now well established on the landscape of Connecticut and have significant ecological and economic impacts. Invasive plants are very aggressive and can, and on some of the properties within this plan have easily out-competed native vegetation changing the look and composition of the forest. Human activities, such as increased land disturbances and overuse of the land for agricultural, commercial and recreational purposes, also have and continue to improve the odds for the invasion and establishment of these species.

Complete removal of an invasive species may be possible if the population is isolated or if the population is small. However, once these species become established, measures to control their spread are often costly and very labor intensive. Control methods generally include the following, or a combination of the following:

- Chemical control: using pesticides
- Mechanical control: physical removal of the invading species
- Biological control: introduction of natural enemies or predators
- Ecological control: manipulation of environmental factors to favor native species

Also because these species do not recognize property boundaries, cooperation among land-owners may be important to control the spread of these species.

1.5.1 Invasive Species of Note

Several invasive species were noted in the properties covered by this Plan, and are briefly described below. Property-specific information and management recommendations can be found within Section 2 of this Plan.

Japanese Barberry



Figure 1.2. Barberry encroaching on a trail in Fisher Meadows.

Japanese barberry was introduced from Japan in the late 1800's. It was commonly planted, and sometimes still is planted, as an ornamental, for erosion control and for wildlife habitat. It has easily naturalized into the landscape mainly because birds readily eat the fruits, and then subsequently disperse the seeds. The plants also regenerate by creeping roots and drooping branches that root easily when they touch the ground.

Plants are common along roadsides and fences, and in old fields and open woods, but it can also survive under the shade of a dense oak canopy. Well-drained soils are preferred, but plants will

tolerate a variety of soil conditions.

Very little is known about the control of Japanese barberry. Mechanical removal of the entire plant, including the root system, in winter or early spring is recommended. If the plants are cut, a stump treatment of Triclopyr has proven successful. Glyphosate has also proven effective, but it is a non-selective herbicide that will also kill native vegetation, so care in application is extremely important. Chemical controls are generally recommended only for plants that are difficult to remove mechanically.

Studies by Dr. Jeffery Ward at the Connecticut Agricultural Experiment Station have found that use of propane torches to burn root collars can be extremely effective at barberry removal. The lack of chemicals required for this removal method make it recommended for consideration on watershed lands, within aquifer areas, and in areas adjacent to sensitive water resources.

Winged Euonymus

Winged euonymus was introduced to the United States from Asia around 1860. The bright red fall foliage made it popular as an ornamental planting in urban settings, but as it spread to woodlands and pastures it has become problematic. The main means of seed dispersal is through birds.

Plants can tolerate a wide range of soil, moisture and light requirements. They have been found in pastures, mature, upland forests, open, lowland forests and even shady hillsides and small ravines.

Control of this plant is often difficult because they are capable of producing huge amounts of seed annually. However, mechanical, chemical, and even ecological controls have proven to be effective at reducing small, isolated populations of this species.

Norway Maple

Norway maple was introduced to the United States in 1756 as a street, shade, and ornamental tree. It has been very widely planted throughout the northeastern United States and elsewhere because of its ability to grow quickly on a wide variety of sites and a wide range of light conditions, withstand pollution and other harsh growing conditions, such as compacted soil, and to provide thick shade and colorful foliage. Seed dispersal into wooded habitats is done mostly by wind and the seeds can lay dormant for several years before germinating.

Control of Norway maple is mostly done through mechanical means. Cutting of larger trees and pulling seedlings out of the ground are the most common and effective means. However, subsequent cutting of stump sprouts is often needed and can become quite costly.

Japanese Honeysuckle

Japanese honeysuckle was introduced to the United States in 1862 as ornamental ground cover and wildlife food. It grows mostly in areas converting to forest or at the edge of an existing forest. It grows quickly horizontally and vertically, which can lead to trees being damaged or malformed. It also hinders the ability of native vegetation to germinate because of the dense ground cover it can create.

Control of Japanese honeysuckle can be done by mechanical means or chemical. Pulling the plants out of the ground can work for small areas, and mowing and prescribed burning can control the spread, but they do not eradicate the plant. The use of a glyphosate herbicide can be very effective because the Japanese honeysuckle retains living leaves longer than most surrounding plants.

Multi-flora Rose

Multi-flora rose was introduced to the United States in 1866 as rootstock for ornamental roses. Beginning in the early to mid 1900's its use was promoted for erosion control and as "living fences" to contain livestock. Soon after it was discovered to have value as cover for many species of wildlife, including pheasant, quail, rabbit and some songbirds.

The plants reproduce by seed (birds are the primary dispersers) and by branches that droop to the ground and then take root. A single plant may produce many hundreds of thousands of seeds annually that can remain viable in the soil for up to 20 years.

Plants are common along stream banks and roadsides and in fields, pastures and sometimes-dense woods, where fallen or dead trees have opened a hole in the main forest canopy. It will

tolerate a wide variety of soil, moisture and light conditions, but it is generally not found in standing water or on extremely dry sites.

Mechanical and chemical methods of control have proven to be the most effective and are most commonly used. Repeated cutting or mowing over a two to four year period has been shown to be very effective at reducing population levels. Application of herbicides, such as glyphosate, to freshly cut stumps has also proven to be very effective. Some work with prescribed fire and biological controls is also being investigated by researchers. They have identified several biotic agents, but the major drawback at this time is that they also impact other rose species and cultivars.

Oriental Bittersweet Vine

Oriental bittersweet was first introduced to North America in 1879. It was used as a way to control soil erosion along roadsides, and was popular within the horticulture industry.

The primary means of reproduction is through fruit dispersal by birds, small mammals, and sometimes humans.

Plants are commonly found along roadsides, fences and other “edges”, but they are also found in thickets and open woods.

Currently, mechanical and chemical control methods are the most effective. Cutting followed by an herbicide application to the new foliage or the vine stump surface has produced excellent results. There is also some research with biological controls, but none have proven to be effective.

Autumn Olive

Autumn olive is a shrub or small tree introduced from Asia that has a spreading crown and is found on a variety of sites. In general the plant is hardy and grows moderately fast throughout its range. The primary means of reproduction is through fruit dispersal by birds, small mammals and sometimes humans.

Plants are commonly found along roadsides, old pastures and waste areas in dense thickets. They were initially recommended as desirable plantings for erosion control along roadside slopes and bridge abutments, and as screening.

Seedlings and sprouts can be hand pulled, but the entire root system must be removed. On larger plants, cutting and burning result in vigorous resprouting. Therefore, herbicides are often recommended. Foliar applications of glyphosate work well, but it is a nonselective herbicide so it kills many native plants it comes in contact with. Application of this herbicide to freshly cut stumps also works well where selectivity is important. Roundup (when used as a 10-20% solution) has also proven effective when applied directly to a fresh cut stump. This treatment is also particularly effective in July through September or during the dormant season. Use of livestock, such as goats or sheep, have also proven to be effective in controlling this species as well as many others.

1.5.2 Harvesting Implications

Properly planned harvests can increase access into some areas, which will provide better opportunities to implement more aggressive mechanical and chemical control techniques on invasive species. Skid roads created during commercial harvests could be left free of logging slash to allow future access for these treatments if conditions warrant.

Since it is very unlikely that all invasive species will be eradicated, it is important to provide ecological conditions that will favor the native tree species. Harvesting some of the trees in the main canopy will allow more sunlight to reach the forest floor. This will hopefully stimulate the germination and establishment of desirable tree species, which can hopefully gain a competitive advantage over any invasives that may become established or are already present.

1.6 FOREST MANAGEMENT

1.6.1 Introduction

The following are four important considerations when developing a long-term open space and forest management program.

1. Sustain Site Quality
2. Obtain Desirable Regeneration
3. Retain High Quality
4. Maintain High Growth Rates

Sustaining site quality requires preventing erosion to keep the soil and its nutrients in the forest and out of the streams. This means using erosion control methods commonly referred to as best management practices (BMPs) during and after a harvest. Such methods include proper location of woods roads, wetland or watercourse crossings and loading areas, installing water bars, spreading mulch, and reestablishing ground cover on disturbed areas. It also means controlling when, where, and how the timber is removed. Timber harvest contracts, harvest planning, and harvest inspections are the tools to ensure that site quality is sustained.

Sustaining site quality especially means installing water bars on trail surfaces to divert water off hiking trails and logging trails. Water bars are made of bermed soil or logs and are placed at a 30-degree angle to the direction of slope. Trail use inevitably wears a slight depression in the center of the trail or in the wheel tracks. Running water that is caught in these depressions must be diverted off the trail before it reaches sufficient volume and velocity to erode the soil. Properly placed and spaced water bars are extremely important for this reason.

Obtaining desirable regeneration requires the use of various silvicultural methods to encourage new trees to sprout and survive to take the place of the older forest as it reaches maturity. These methods include creating canopy openings of various sizes and maintaining desirable seed sources. Forest canopy openings shed sunlight on the ground, which can foster the growth of new trees and the young growth already present and encourage the germination of others. Therefore, it is important that the trees that are not cut provide a high quality seed

source because they are the genetic source for future generations. Leaving healthy trees of desirable species fosters the reproduction of those species.

Retaining high quality requires focusing the growth on the healthiest trees with the greatest potential to increase in value. Trees left after a harvest are the beneficiaries of increased growing space and sunlight, and are the best genetic source for future generations of trees. They have the best DNA for vigor, adaptation to the environment, and high tolerance to insect and disease attacks.

Maintaining high growth rates requires creating canopy openings for the residual trees to fill. Trees are harvested to create canopy openings around the healthiest trees. These openings bring more sunlight to the healthiest crowns and allow these crowns to expand. This in turn produces a forest of extremely healthy and vigorous trees that are not competing fiercely for limited resources.

1.6.2 Silviculture

We recommend that, where appropriate, the timber resources on the properties covered by this plan generally be managed through a long-term silviculture program designed to maintain and improve overall forest health. In some areas, the forest should continue to be thinned periodically in order to maintain rapid tree growth and promote tree health. Wood products associated with forest management are a unique resource, in that they can be effectively and profitably managed while improving other resource conditions. Therefore, continuing the long-term timber stumpage sale program is very important. These sales provide a positive financial return while at the same time contributing to the overall health of the forest. In other areas, such as those with steep slopes or close proximity to fragile water resources, a more conservative approach is recommended where only damaged and diseased trees should be periodically removed. This approach greatly limits that areas recommended for active management on some properties.

We have recommended using a combination of the shelterwood silvicultural system and selection system to accomplish the goal of maintaining and improving the overall health, through the scientific management, of the forests on these properties. Shelterwood and group selection systems emulate natural disturbance and stand replacement events described in Section 1.2 “Historic Conditions and Use”. They are intended to maintain or increase tree species diversity while increasing structural diversity. They are also designed so as to favor oak regeneration, in part because of the health, vigor, and value of oak on these sites and in part because oak is so difficult to maintain in the absence of fire and in the presence of high deer populations.

Over the course of this management cycle, several different silvicultural treatments are recommended to continue the process of regenerating the forest started in previous harvests over the past 10-15 years. The result will be the continued development of a future forest containing trees that are more varied in species and age, and thus more resistant to destructive tropical storms, insect and disease agents and other natural occurrences, such as severe winter storms. Because a wide variety of desirable native hardwood and softwood species are seeding in be-

neath the existing forest, we recommend relying on natural regeneration. Reforestation costs can thus be substantially reduced by working in concert with natural processes, although some work to influence composition will be needed later.

Three types of commercial harvests and one type of precommercial thinning are suggested for most stands as follows:

Thinning: This involves removing 15 to 35% of the main canopy trees to release the crowns of selected crop-trees on three or four sides to promote maximum growth and health. Healthy, well-formed trees of high value species will be favored for release, and unhealthy, poorly-formed trees, trees with defects, old-field trees, and trees of low-value or which are poorly adapted to the site will be removed where possible. Some of these “thinning” areas will be thinned again in 10-12 years, and others will receive the heavier intensity “shelterwood establishment harvest with reserves” described next.

Shelterwood Establishment Harvests with Reserves: This involves the removal of enough trees to create conditions suitable for the germination and/or establishment of desirable tree seedlings and associated woody browse. Such harvests often resemble a moderately heavy thinning, but the primary intent is to stimulate the growth of younger trees rather than release larger trees (which also occurs). Oaks are one of the more desirable trees for most portions of the hardwood areas, with hickory and ash having similar regeneration requirements as oak trees. The objective of shelterwood thinnings is to create about 50% canopy crown cover, requiring the removal of one-half to two-thirds of the sawtimber volume. Because there is generally a lack of a market for large volumes of poletimber the harvest must be heavier in the sawtimber component. Poletimber and small sawtimber trees can be retained as part of the shelterwood for 10-20 years until they reach 14 inches or larger dbh. Large, full-crowned seed trees must be retained in locations where oak or other desirable regeneration is not already present and should be retained in smaller numbers throughout the stand as reserves. These reserve trees provide a diversity of forest structure, are valuable for aesthetic reasons, and could prove to be desirable if the land is ever converted to other uses.

Group Selection Harvest: This type of treatment includes creating patch harvests covering areas of varying size, from groups of several sawtimber trees (at least 1/4 acre where possible) to patches up to 1 acre. The harvesting of small groups of trees should be done where the removal of several mature trees and a small number of cull trees will easily create an opening (limited investment in terms of layout and implementation efforts). These smaller patch harvests should result in the establishment of some regeneration, but it will likely be species that are more shade tolerant than some of the preferred species such as oak and tulip poplar. The larger patch harvests will be located where habitat improvements, through regeneration of a dense, young stand of hardwood trees, shrubs, and herbaceous growth, will provide excellent habitat and young trees needed for long-term forestry. These larger patch harvests should result in regeneration of preferred species in amounts that are sufficient to grow past deer browsing height provided the slash is left fairly high.

Precommercial Treatments: Not every acre can be expected to yield profitable timber during every ten-year management cycle. Young stands, past cutting practices, and other factors have

created some areas that will require modest investments (in precommercial thinning of young stands, pruning, or planting) or patience as seedlings and saplings grow to commercial size.

Timber Stand Improvement (TSI) is one form of precommercial thinning used to increase individual tree health, influence species composition and increase a stand's overall value. Stands most suitable consist mostly of poletimber size trees that do not yet contain enough volume and quality to be merchantable, or stands where the trees that are to be removed have a commercial value less than the cost of removing them. TSI is therefore an investment made in a forest with the intention of removing unmerchantable or extremely low value trees for the purpose of increasing the stand's future overall value, health, composition or other qualities deemed beneficial by the owner. In TSI crop-tree crown release treatments, stands are thinned as follows:

- Crop trees (trees with certain characteristics that make them desirable, i.e. form, future value, aesthetics, wildlife habitat, etc.) are selected to be retained as a future component of the stand.
- Adjacent trees with crowns competing with the selected crop trees are cut down in order to provide more growing space for the crop trees.
- For maximum benefit, trees on at least three sides, but preferably four sides of the crop tree should be cut down.

1.6.3 Timber Harvesting Equipment

Loggers currently active in Connecticut utilize a variety of harvesting equipment including cable skidders, grapple skidders, forwarders, harvesters, and cut-to-length systems. Largely due to the region's often steep and rocky terrain, operators seem to favor hand felling and skidding over other equipment that may be top-heavy and less stable. On terrain where they can be safely operated, forwarders are preferred for moving wood out of the forest. However, in many cases the few operators with such machines may not be available. Skidders remain the most commonly available method for extracting timber from the forest on most properties, but use of forwarders is increasing as more operators gain the confidence that they can safely and profitably operate forwarders in Connecticut.

1.7 BEST MANAGEMENT PRACTICES FOR TIMBER HARVESTING

A practice or set of practices determined by responsible state and federal agencies to be an effective and practicable means of controlling non-point source pollutants are commonly referred to as best management practices (BMPs). The most important BMPs in forestry involve roads, streams, and their interactions. The key provisions include the proper location of all roads and trails, adequate protection of streams and their banks at all crossing points and use of water diversion structures (water bars) on logging roads where necessary. A successful erosion control plan starts before a tree has even been marked. Useful tools for developing a good plan include topographic maps, aerial photos, property surveys and soil maps. Pre-harvest planning with these tools should be done to locate wetlands, watercourses, seeps, vernal pools and

other areas with poor drainage; steep slopes; rock outcrops; and other obstacles that should be avoided if possible. After locating the possible obstacles on the maps, walk the entire area to layout skid roads, watercourse and/or wetland crossings if necessary, and log landing areas. All this information should be transferred to an appropriate scale map to be used in the field while marking the timber.

An erosion control plan detailing other BMPs required during and after the harvest should also be developed at this time. BMPs designed specifically for Connecticut are detailed in **“Best Management Practices for Water Quality While Harvesting Forest Products – 2007 Connecticut Field Guide”** published by the Connecticut RC&D Forestry Committee. These BMPs, specific to Connecticut, should be included as a requirement for all timber harvests. The plan should include the location of silt fence and/or hay bales, water bars, culverts, etc. that are necessary, as well as post harvest stabilization of roads, landings and stream crossings, and other monitoring requirements. Any equipment limitations should also be noted at this point.

The plan should also confirm that when spreading seed to stabilize roads, landings, etc., a seed mixture containing non-invasive, native species will be used.

The following general guidelines for minimizing erosion and sedimentation problems during harvesting operations are from The Forestry Handbook:

1. Consider the use of buffer strips along stream channels, seeps, swamps and other sensitive areas. (See Wetland and Watercourse Management Zone Guidelines, below).
2. Carefully select logging methods and equipment in order to minimize roads and to reduce disturbance to soils and stream channels.
3. Maximum grade on truck roads and skid trails should not exceed 10%, except for short stretches. A minimum grade of 3% is desirable for adequate drainage.
4. Cross-drains or broad-based dips are necessary to channel flowing water from roads and trails. Placement interval in feet can be calculated by 1,000 divided by percent of grade.
5. During logging minimize tire ruts to minimize ponding of drainage water.
6. Require care and flexibility in logging operations. For example, skidding should be discontinued during wet periods.
7. Finish the operation as soon as possible without increasing the potential for erosion.
8. At the completion of logging operations, remove all temporary stream crossings and revegetate problem areas.

1.7.1 Wetland and Watercourse Management Zone Guidelines

The following guidelines are recommended when marking trees for removal near surface water wetland features such as lakes, ponds, marshes, vernal pools, swamps, rivers, and streams (see Section 1.4.1). The setbacks represent minimum distances that are appropriate for the protec-

tion of the wetland feature. The setback distance can be increased for a variety of reasons, but is rarely decreased except where health, safety, or other overriding management reasons prevail. In these cases the reason for decreasing the setback is documented.

Intermittent watercourses and forested wetlands are not included in this definition of a surface water wetland feature. In most cases forest management can be done right up to (in the case of an intermittent watercourse) or within (in the case of a forested wetland) these areas provided it is carefully planned and properly executed. Therefore if setbacks are necessary they are decided upon on a case-by-case basis.

Guidelines:

1. Five-Foot Setback from Wetland Features

No trees will be harvested within 5 feet of the shore, bank, edge, or high water mark. There will be no skid roads or skid trails used within 15 feet, except as part of a necessary wetland crossing or when there are no alternatives. Trees are to be felled away from the surface water wetland feature where feasible. If trees are accidentally dropped into surface water wetland features they will be removed from these features before being lopped.

2. Guidelines for Buffer Zone Extending Fifty Feet

In the management zone extending from 5 feet to 50 feet, no more than 25% of the trees will be removed, measured over areas of one-half acre or larger. In general, individual or small-group selection silvicultural systems are favored, in which only single trees or groups of 2 to 5 trees are removed during a single harvest operation. Later harvests are likely to occur at least ten years later. There will be no skid roads (used more than 4 times) located in the buffer zone except as part of a necessary wetland crossing or when there are no alternatives. Skid trails, which are used only 1 to 3 times, are allowed in these areas when ground conditions are suitable.

3. Best Management Practices

Connecticut Best Management Practices designed to minimize soil disturbance, erosion, or sedimentation are to be strictly applied. This includes proper skid trail location, use of proper water crossing techniques, limiting harvesting to dry conditions, water bar installation, mulching eroding bare soil, and selective seeding of bare soil with a conservation grass seed mix.

4. Wetland Delineation

All wetlands and watercourses will be delineated with flagging. In some cases trees may be marked for removal from areas within the flagging, but in most cases equipment will not be allowed beyond the flagging.

1.7.2 Vernal Pool Protection Guidelines

Timber harvesting near vernal pools must be modified to protect vernal pools and the species that use them (see Section 1.4.1). Based on information within the 2006 "Farmington Valley

Biodiversity Project” report and field observations, it is likely that likely that sites with vernal pool characteristics exist within at least some of the properties covered by this Plan.

Within any vernal pool depression there is to be no activity. It is important to maintain the physical integrity of the pool, otherwise its ability to hold water could be altered. No activity means keeping equipment and treetops and slash out of the pool. Also, sedimentation from any disturbed areas nearby should be avoided as this can change the breeding habitat. Maintaining shade around the pool is also important so that the soil surface remains cool and moist.

Around any vernal pool, a 50-foot wide buffer zone where only light partial cuts are done is generally recommended. Equipment use in these areas should be severely limited, especially if the ground is not dry or frozen, in order to avoid creating ruts. Winching logs out of these areas at all times is recommended.

Section 2:

Property Descriptions & Recommendations

2.1 ALSOP MEADOWS CONSERVATION AREA



Figure 2.1.1. Alsop Meadows contains a mixture of forest and field areas. This creates beneficial “edge” habitat.

2.1.1 Property Description

Alsop Meadows Conservation Area consists of 60 acres in the northeastern portion of Avon. The property is bounded to the west by the Farmington River, to the north by Route 44, to the east by Route 10 and commercial buildings, and to the south by the River Mead condominium complex.

The Alsop Meadows property contains a mix of several forest types and open field areas that are used for haying, recreational, and community gardening purposes.

The most distinctive elements of this property include the long frontage along the Farmington River, and a mix of rolling woods and fields that create several local vistas, including one looking south from Route 44.

2.1.2 Property History

Alsop Meadows was acquired from the Woodford Farm Corporation in the late 1970s. Alsop Meadows is named for Steward Johonnot Oliver Alsop (1914-1974), an Avon native who was a prominent newspaper columnist and political analyst. Many native American spear and arrow points have been found in the vicinity of this property.

1935 DEP airphotos show that a mixture of fields and forest has existed on the property since at least that time. In the 1930s, it appears that the southwestern portion of the property contained more pine than it currently does, and the northeastern portion of the property was in more of an open field condition. The only cultural feature of note on the property is a small barn close to Route 10. No stonewalls and only scattered wire fence remains are found on the property.

2.1.3 Access

Excellent access currently exists throughout Alsop Meadows. A mixed pavement and gravel access road (Figure 2.1.3) leads through most of the property from Route 10, off the end of Nassau Drive, extending as a trail/woods road into the southwestern portion of the property. In addition, a short section of woods road leads north from this driveway, and a former skid trail leads into the area behind the barn. At least light vehicle access via all of these roads is possible if necessary. No signage for Alsop Meadows exists at the entrance of the main driveway.

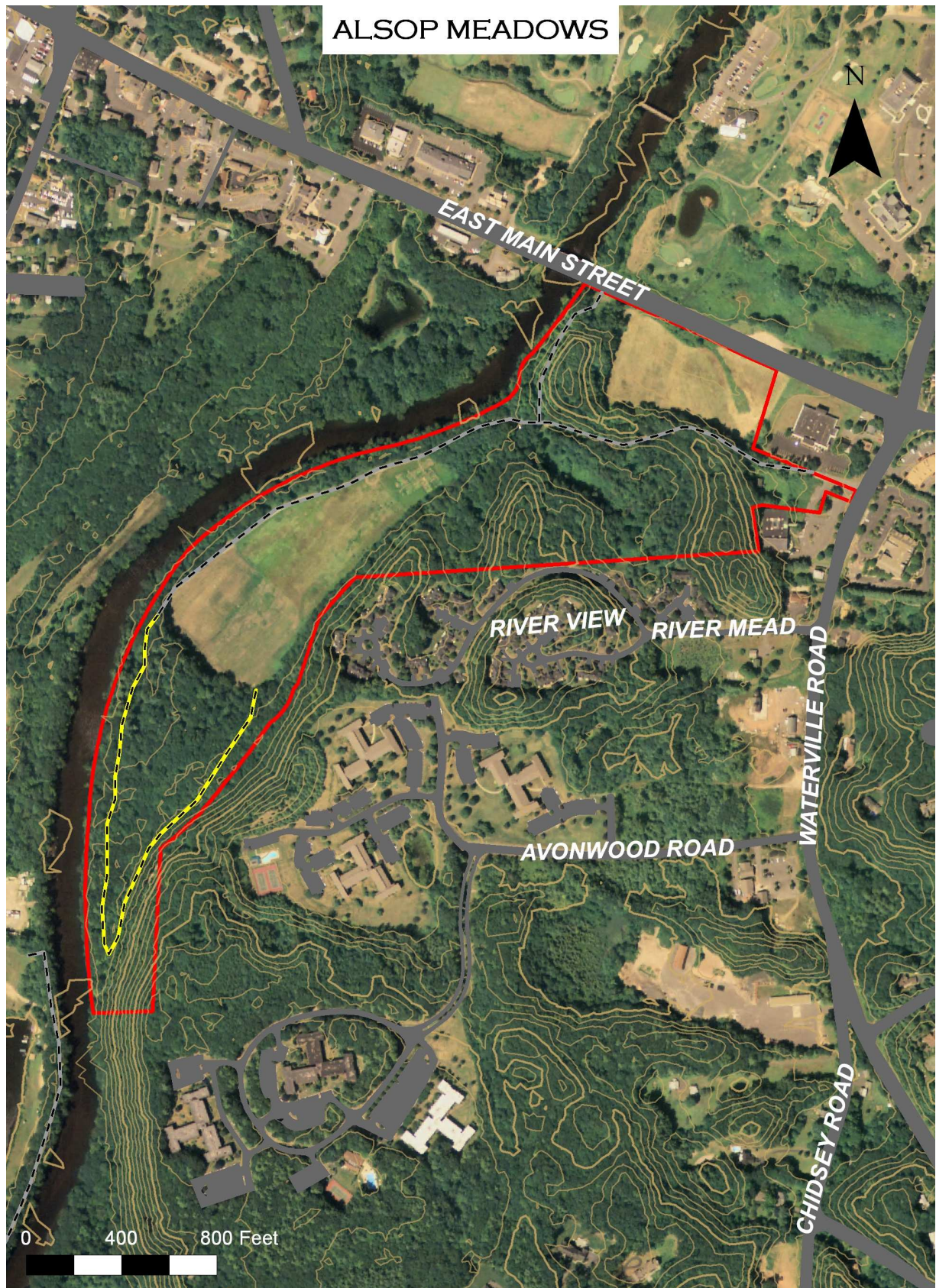


Figure 2.1.2. Alsop Meadows.

2.1.4 Water Resources

The Farmington River, which forms Alsop Meadows' western boundary, is the most significant water resource associated with the property. Wooded areas in Alsop Meadows form an excellent wooded riparian buffer for over 4,000 feet of riverfront, helping to protect this river that has both local and regional significance.

Other hydrologic features within Alsop Meadows include a handful of small, seasonally wet areas throughout the property, and two intermittent watercourses in the property's eastern portion. Both of these drainages appear to be largely made up of stormwater runoff from upstream development, and both are being impacted by sedimentation. The easternmost watercourse runs under the Alsop Meadows driveway, and feeds a wet meadow area just south of Route 44.

As of the writing of this Plan in 2009, the lower Farmington River, including the area adjacent to Alsop Meadows, was being studied for designation as "Wild & Scenic" by the National Park Service. If designation is granted, additional funding sources may become available to assist with management activities within Alsop Meadows.



Figure 2.1.3. Un-signed main entrance to Alsop Meadows, at end of Nassau Way.

2.1.5 Rare, Endangered or Species of Special Concern

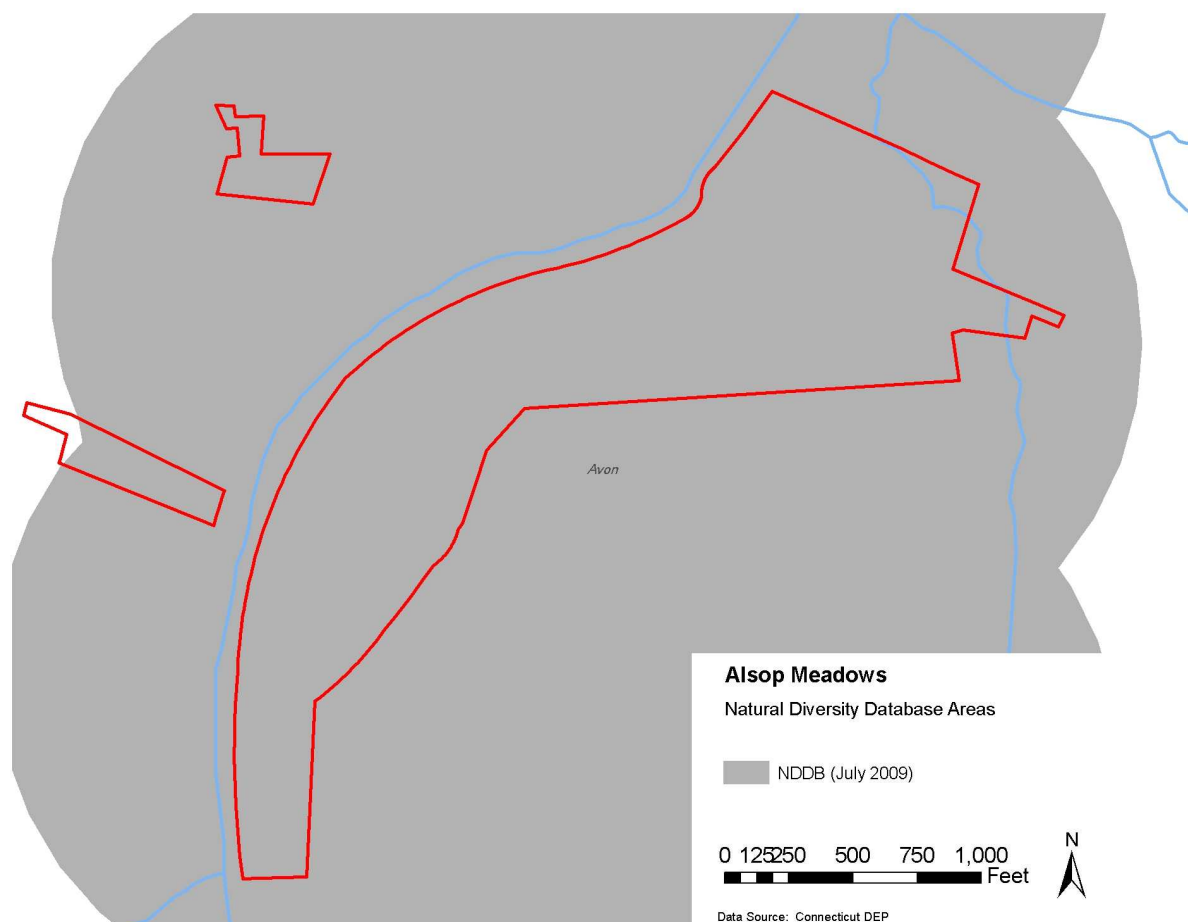
According to the State's Natural Diversity Database (June 2009 update), there is a possibility that rare or endangered species are present throughout all of Alsop Meadows (Figure 2.1.4).

The presence of rare species within Alsop Meadows has been documented in, at least, a 2006 Metropolitan Conservation Alliance Report: "The Farmington Valley Biodiversity Project: A Model for Intermunicipal Biodiversity Planning in Connecticut." This report notes the presence the rare Davis' sedge. The Alsop Meadows sighting is cited as being part of "the largest New England occurrence" of this sedge.

2.1.6 Invasive Species

Several invasive species were noted within Alsop Meadows and are discussed below. The Farmington River Watershed Association has previously applied for grants to help with invasive species control – such efforts should be supported and continued.

Figure 2.1.4. Alsop Meadows Natural Diversity Database Map.



Japanese barberry was found scattered throughout the property. At this time the population is not very extensive, but this species has proven to be quite aggressive and capable of establishing itself and then very methodically spreading from the initial point of establishment.

The best chance of eliminating Japanese barberry is before it has gained a strong foothold and become well established. Pulling plants out and then spraying after they resprout, or cutting the stems and then applying herbicide with a paintbrush. are the best ways to kill this plant. This work will likely take 2 to 5 years to completely eliminate all the plants. If the plant is present on adjoining properties, educating the neighbors and working with them to eliminate the plants on their properties will increase the chances of success. Studies by Dr. Jeffery Ward at the Connecticut Agricultural Experiment Station have found that use of propane torches to burn root collars can be extremely effective at barberry removal. The lack of chemicals required for this removal method make it recommended for consideration on properties close to sensitive water resources.

Oriental bittersweet was found in several areas of Alsop Meadows. In particular, there is an extremely dense concentration in and around a former field area in the southeastern portion of the property (see Stand 4, below). Light amounts of grapevines were also noted.

Currently mechanical and chemical control methods are the most effective for bittersweet. Cutting followed by an herbicide application to the new foliage or the vine stump surface has produced excellent results. There is also some research with biological controls, but none have proven to be effective.

2.1.7 Recreation

Trails

A yellow-blazed hiking trail currently runs through the southern portion of the property in a loop (see Figure 2.1.5). This trail connects to two unmarked trails that lead off the property at its southern end. The driveway between the playing field and the property's entrance from Route 10 also functions as a de facto walking trail, and a short woods road runs between the parking area and the hayfields along Route 44. A former trail along the river has been largely abandoned, as recommended in a former management plan. All existing trails are rather flat and dry, and only minor signs of erosion are present. In general, the trails appear to receive a good amount of use.



Figure 2.1.5. Alsop Meadows Hiking Trails.

Canoe Launch

A somewhat informal, but active, canoe launch (Figure 2.1.6) is located at the property's parking area. A series of rope swings are adjacent to the launch area.

Picnic Areas

A small picnic area is located along the yellow trail near to the river in a nice white pine grove; several small access points to the river (presumably for fishing) are also in this location. These access points are showing signs of erosion. A second picnic area is found along the main driveway into the property; this area is very lightly maintained.



Figure 2.1.6. Group using canoe launch at Alsop Meadows.

Community Garden

A community garden (Garden Plot Program) has been started on the northern portion of the property's large field. A functioning well is in place, and several garden plots appear to be well established. This garden was not mentioned in the previous management plan, but appears to be successful and a good use of the property. The existing arrangement for gated access to the community garden appears to be functioning well. Several instances were observed where gardeners' vehicles entered and exited without apparent problem.

Environmental Education

Some previous environmental education efforts within Alsop Meadows appear to have stalled. Improvements that have previously been started include the renovation of an old barn for use as a nature center, the release of a 2-3 acre stand of young sugar maple trees which someday could be an excellent sugar bush, and the planting of many rare and exotic trees for education and diversity purposes along the western edge of the field in the central portion of the property.

2.1.8 Forest Management

The current open space and forest management program should be continued in order to maintain the health, aesthetic appeal, diversity and stability of this valuable forested property.

NOTE: Given the size, orientation, and location of the forested stands within Alsop Meadows, only limited or minor forest management activities are recommended in some stands. Those activities recommended (such as invasive species control or TSI) are generally not for timber production purposes, but rather to encourage healthy, diverse forest conditions. In this sense,

some portions of Alsop Meadows can be considered “reserves”. While only limited forest management activities are recommended in most areas of Alsop Meadows at this time, the process of regularly collecting forest inventory data can provide valuable insights into changes that are occurring over time on the property in terms of species compositions, tree growth rates, etc.

Stand Descriptions and Management Recommendations

Stands are separate natural communities that are distinct from each other. Dividing a property into stands makes it easier to correctly describe the property and to make appropriate recommendations. Once identified, each stand is treated separately based on its unique characteristics. Non-forested areas are also broken out as “stands” for descriptive purposes.

Alsop Meadows Stands

Stand	Acres	Description	Recommendation
1	10.9	Oak Sawtimber	Selective thinning
2	19.1	Oak/Mixed Hardwood & Pine Sawtimber	Selective thinning
3	7.5	Hardwood with Pine Saplings & Poles	TSI
4	3.9	Old Fields (unmaintained)	Control Invasives
5	13.5	Meadow & Hayfield	Mowing
6	5.3	Recreational Field	Mowing
7	1.1	Community Garden	n/a
Total	61.3 acres		

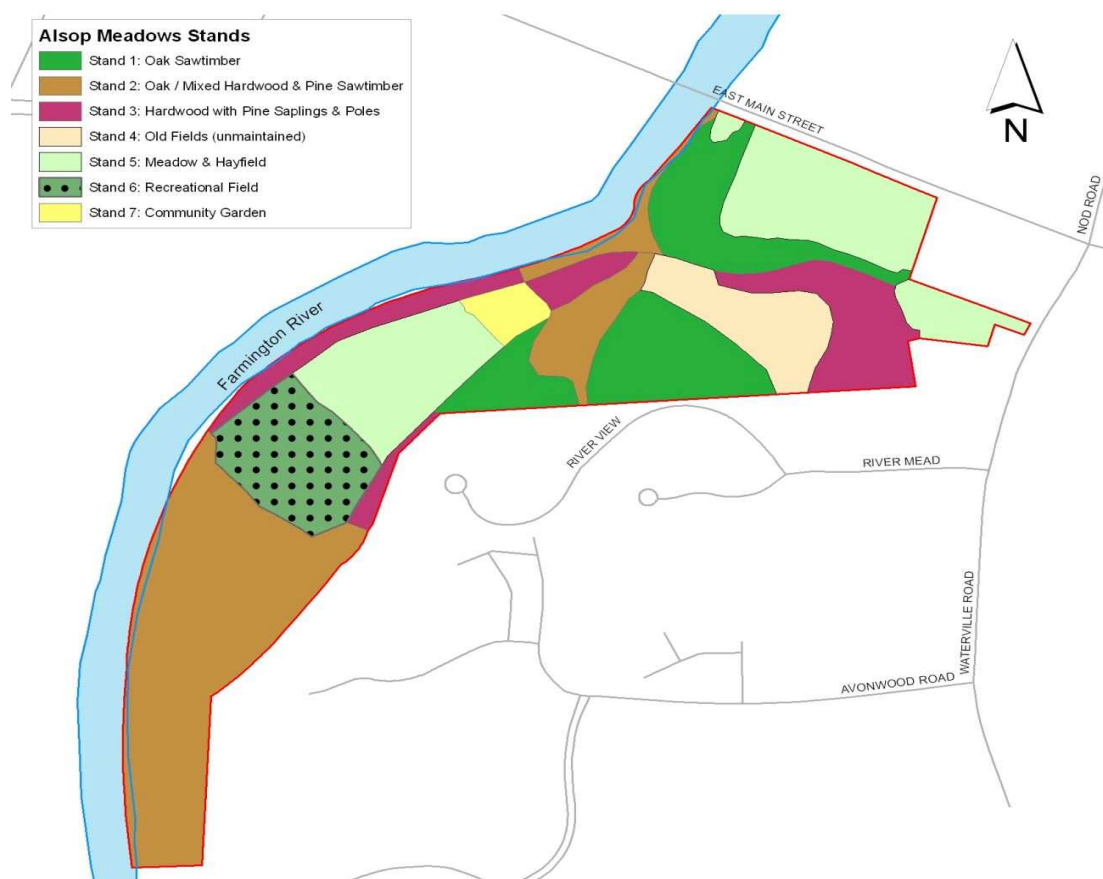
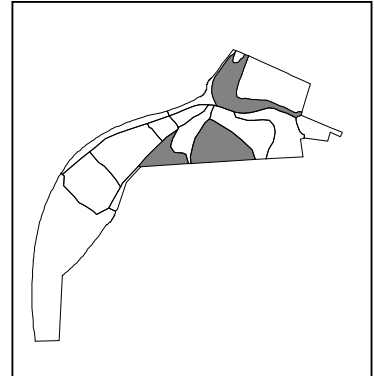


Figure 2.1.7. Stands of Alsop Meadows.

Stand 1: Oak Sawtimber (10.9 Acres)

Description:

This is a 3-part stand covering 10.9 acres in the eastern portion of the property. It is located on moderately sloping hillsides easily accessible by an old woods road, secondary trails, and skid roads from previous timber harvests. There are very few, if any, rocks and some moderately steep slopes, but the entire stand is easily operable. Most of the area was probably at one time pastureland.



This stand continues to primarily contain 14 to 18 inch black, white and red oak, and other mixed hardwood trees growing over poletimber and small sawtimber mixed hardwood and hemlock trees. Sugar maple will likely have a larger presence in the stand in the future, based on the current number of sapling and poletimber sugar maple trees. The existing forest is a result of the abandonment of pastureland in the early 1900's. Thus, many of the dominant overstory trees are approximately 100-110 years old.

The current basal area is 116 square feet per acre, which is above the optimum stocking level. Many of the stand's trees are in fair to good health and are benefiting from the increased space and light created by previous harvests. Many of the larger black oaks in the stand have broken tops, have suffered through several gypsy moth infestations, and show signs of rot and decay.

The understory is fairly open in most places. However, there are some areas where the mountain laurel is dense and difficult to move through in the southern portions of the stand. Tree species most commonly seen include black oak, red maple, sugar maple, black birch, and hemlock.

Soils

There are four different soil types found within this stand, three of which are closely related. They are identified in the Hartford County Soil Survey as Udorthents (UD), Manchester gravelly sandy loam with 0 to 3 percent slopes (McA), Manchester gravelly sandy loam with 3 to 15 percent slopes (McC), and Manchester gravelly sandy loam 15 to 45 percent slopes.

Udorthents occur where the surface soil and subsoil have been stripped, and where earth, trash, or both have been used as fill. It may also occur where sand and gravel have been removed and the unwanted material was left in ridges or mounds. This is the most likely explanation for the material within this stand.

The Manchester gravelly sandy loam, with 0 to 3 percent slopes is an excessively drained, shallow, droughty soil. They are underlain by coarse sand and gravel.

The Manchester gravelly sandy loams, with 3 to 15 and 15 to 45 percent slopes are very similar to the last except for the increased slopes.

Recommendations:

The goals for the management of this stand are to continue maintaining a mixed species forest with a high degree of diversity, continue to improve wildlife habitat, and maintain aesthetics along the trails. To accomplish these goals, the selection system approach to harvesting should be continued. With this system, individual trees or small groups of trees are selected for harvesting. All sizes of trees usually removed. Large, mature trees are harvested for wood products and to create openings for new growth; smaller trees are cut in order to remove diseased and/or poorly formed trees or undesirable species to reduce crowding and stimulate growth on remaining trees.

The next harvest should occur in about nine years and should remove 2000 to 2500 board feet per acre, focusing mostly on low quality/low value black and white oak sawtimber, and 20 cords of firewood. The highest quality trees will be left behind to continue growing and to provide a seed source for the future.

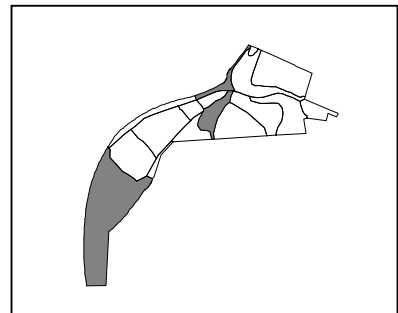
A very low intensity Timber Stand Improvement (TSI) operation should be done to kill some of the larger, unmerchantable cull-trees that remain in this stand in order to create some snags and to release some of the smaller diameter shade tolerant trees.

Future Management:

Stand 1 should continue to be thinned every 8 to 10 years in order to maintain favorable conditions for tree growth, salvage dead and dying trees and stimulate the growth within the understory.

Stand 2: Oak / Mixed Hardwood & Pine Sawtimber (19.1 Acres)**Description:**

This 19-acre stand is the largest forested stand within Alsop Meadows. The majority of the stand lies in the southwestern portion of the property; small portions lie in the central portion. The stand's terrain ranges from flat to slightly sloping with relatively few rocks and good access via an old woods road (much of which is blazed as a yellow trail) and also some secondary trails.



Most of the trees in this stand are 14 to 18 inch hardwoods. Some very large white pine (up to 30 inches in diameter) are also present. The most common species observed are white ash, sugar maple and red maple along with red and black oak, black birch and some hemlock. There are also many very healthy, well-formed poletimber size trees that are extending their crowns into the canopy. The understory contains a mix of sparse areas and somewhat dense area where the first harvests have opened the overstory enough to allow significant sunlight light to reach the ground. Portions of the stand appear to be slowly converting to a sugar maple-dominated stand.

The current basal area is 180 square feet per acre, which is well above the optimum stocking level. However, due to previous group selection harvests, the standing timber is not evenly distributed across the stand. Many trees are in fair to good health and are benefiting from the increased space and light following previous harvests. Many of the larger oak trees and white pine trees have broken tops and show signs of rot and decay.

Soils:

There are three main soil types within Stand 2, They are identified in the Hartford County Soil Survey as Manchester gravelly loam, with 0 to 3 percent slopes (McA), Manchester gravelly loam, with 3 to 15 percent slopes (McC), and Suncook loamy sand, with 0 to 3 percent slopes (StA). Very small amounts of Pootatuck sandy loam, Hartford sandy loam, and Occum fine sandy loam are also present

The Manchester gravelly loam, with 0 to 3 percent slopes is also found in Stand 1. It is an excessively drained, shallow, droughty soil underlain by coarse sand and gravel. The Manchester gravelly loam, with 3 to 15 percent slopes is very similar to the last except for the increased slope.

The Suncook loamy sand is an excessively drained soil that lies on the flood plain along the Farmington River where fresh material is deposited during periods of flooding. It is derived from chiefly from granite, gneiss, schist and quartzite. The site index for white pine averages 59 and for mixed oaks it averages 54. The trees grow slowly because the soils are droughty and their available moisture capacity is low. Plant competition is moderate for white pine and mixed oaks and their growth can be increased by thinning the stand. Windthrow is only a slight hazard because the root systems tend to be deep and rapid percolation of water through the soil prevents waterlogging.

Recommendations:

The goals for the management of this stand continue to be similar to those for Stand 1, therefore a group selection approach to harvesting is recommended for Stand 2. When using this technique, individual trees or small groups of trees (5 or less) are removed during harvesting in order to maximize all of the stated goals.

The next harvest should occur in about five or six years, at the same time Stand 1 is harvested, and should remove 2000 to 2500 board feet per acre of mostly low quality black and red oak, white pine and hemlock sawtimber and 25 to 35 cords of firewood. The highest quality trees will be left behind to continue growing and to provide a seed source for the future.

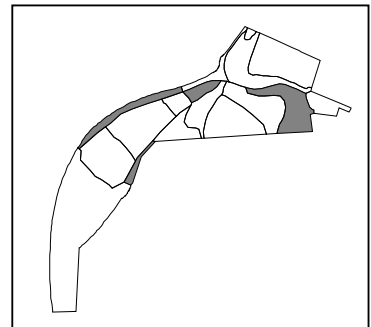
A low intensity Timber Stand Improvement (TSI) operation should be done to kill some of the larger, unmerchantable cull-trees in order to create some snags and to release some of the smaller diameter shade tolerant trees.

Future Management:

Stand 2 should continue to be thinned every 8 to 10 years in order to maintain favorable conditions for tree growth, salvage dead and dying trees, and stimulate the growth of the understory.

Stand 3: Mixed Hardwood & Pine Saplings & Poles (7.5 Acres)**Description:**

Stand 3 is a 7.5-acre stand made up of several small pieces, including a long, narrow piece that forms a wooded riparian buffer between the property's large field and the Farmington River. The terrain is generally flat to slightly sloping with very few rocks. Access to this stand is via the property's main driveway and previous skid roads.



The stand is overcrowded, with a basal area of 112, and consists of a rather unusual mixture of species. The area behind the barn is predominantly black oak, pitch pine, and cedar, while the other areas consist mainly of maple and ash trees. The understory and ground layers are generally quite open throughout the whole stand. A small section of the stand along the old farm road was thinned about 16 years ago by girdling some of least desirable trees in order to focus the growth on the healthiest trees. Released trees continue to respond well and have overtopped many other trees. The portion of the stand along the Farmington River contains trees of all sizes, with a good amount of elm and hickory pole timber.

Soils:

There are three main soil types within Stand 2. They are identified in the Hartford County Soil Survey as Manchester gravelly loam with 15 to 45 percent slopes (McA), Manchester gravelly loam with 3 to 15 percent slopes (McC), and Occum fine sandy loam.

The Manchester gravelly loam, with 3 to 15 percent slopes is an excessively drained, shallow, droughty soil underlain by coarse sand and gravel. The Manchester gravelly loam, with 15 to percent slopes is very similar to the last except for the increased slope.

The Occum fine sandy loam is a very deep, well-drained loamy soil formed in alluvial sediments, and subject to common flooding. It is commonly found within flood plains and along rivers.

The Suncook loamy sand is an excessively drained soil that lies on the flood plain along the Farmington River where fresh material is deposited during periods of flooding. It is derived from chiefly from granite, gneiss, schist and quartzite. The site index for white pine averages 59 and for mixed oaks it averages 54. The trees grow slowly because the soils are droughty and their available moisture capacity is low. Plant competition is moderate for white pine and mixed oaks and their growth can be increased by thinning the stand. Windthrow is only a slight hazard because the root systems tend to be deep and rapid percolation of water through the soil prevents waterlogging.

Recommendations:

The parts of this stand in the eastern portion of the property continue to be in need of a TSI thinning. Approximately 40 of the healthiest, straightest white pine, pitch pine, black oak and some healthy apple and cedar trees on each acre should be released by girdling 1 to 3 of the nearest competing trees. While doing this, an effort should be made to maintain the diversity of species that are now present. Some small patch cuts leaving white pine, cedar and some oak and grape vines could also be done to enhance the wildlife habitat. After this release work is done, some brush piles should be created to lessen the visual impact of having cut all the brush and to provide additional shelter for many species of wildlife.

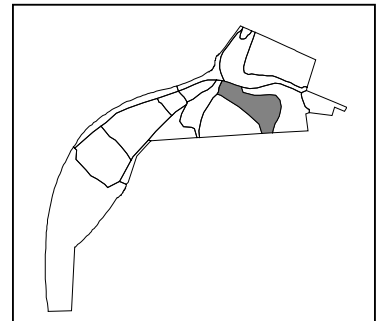
The portions of this stand along the Farmington River and to the southeast of the athletic field should not be thinned. These areas are both long and narrow and provide important buffers along the river to the north and the Rivermead condominium complex to the east.

Future Management:

Once a pre-commercial thinning is completed, this stand should receive no management for approximately 30 to 40 years, except for periodic entries to remove diseased, dying or broken trees. At that point the stand will likely be ready for a light sawtimber harvest to further release the best trees.

Stand 4: Old Fields - Unmaintained (3.9 Acres)

This is a 3.9-acre stand in the southeast portion of the property, located on generally flat terrain with good access via the property's main driveway. The stand was likely pasture or agricultural land in the somewhat recent past. The stand was described in the 1998 Management Plan as being dominated by seedling and sapling size trees and shrubs, along with some open areas.

**Description:**

This stand is currently being severely impacted by invasive species, notably Oriental bittersweet, which are smothering previously noted seedlings and saplings, along with larger trees. The northwestern part of the stand is mostly in a meadow-like condition.

Soils

There are three closely related soils within this stand, identified in the Hartford County Soil Survey as Manchester gravelly sandy loam with 0 to 3 percent slopes (McA), Manchester gravelly sandy loam with 3 to 15 percent slopes (McC), and Manchester gravelly sandy loam 15 to 45 percent slopes.

The Manchester gravelly sandy loam with 0 to 3 percent slopes, which makes up the majority of the stand, is an excessively drained, shallow, droughty soil. They are underlain by coarse sand and gravel.

The Manchester gravelly sandy loams, with 3 to 15 and 15 to 45 percent slopes are very similar to the last except for the increased slopes.

Recommendations:

Invasive species control is urgently needed within this stand. A combination of mechanical and chemical controls is recommended to return the stand to a more meadow-like condition.

This stand has the potential for being valuable to many species of wildlife for foraging, nesting and shelter. It is recommended that meadow conditions be encouraged through regular cutting and mowing in a very random pattern. Construction and placement of nest boxes and planting native fruiting and flowering shrubs could also enhance habitat conditions.



Figure 2.1.8. Bittersweet infestation in Stand 4.

Future Management:

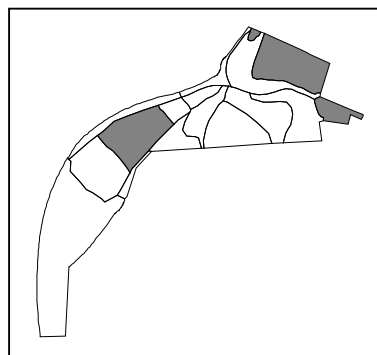
Random mowing and cutting should be done to maintain meadow conditions and habitat diversity.

Stand 5: Meadow & Hayfield (13.5 acres)

Description:

This is a 13.5-acre stand containing meadows and hayfields found in three areas on the property: along Route 44, within the property's large central field area, and at the eastern of the property near the entrance along Route 10. All portions of the stand are flat to gently sloping, contain no rocks, and are easily accessible.

All portions of Stand 5 are kept open either by regular or periodic mowing. The portion along Route 44 is currently maintained as a hayfield, the other portions appear to be less-frequently mowed, and are taking on more meadow character-



istics. The western portion of the stand also contains a collection of ornamental tree specimens planted along the edges to create a small arboretum, established in the early 1990s through a grant from the Connecticut DEP. Most of these trees are in fair to good health, but some are dead or dying largely due to lack of proper care and maintenance.

Recommendations:

These areas should continue to be managed largely as they are. They provide valuable wildlife habitat, provide aesthetic backdrops from surrounding areas and land uses, and generally enhance the diversity of Alsop Meadows as a whole.

The ornamental trees planted along the western edge of the large field complex continue to be in great need of regular maintenance and care. Some of these trees have been overtopped by surrounding trees and are also being overwhelmed by vines. The vines and trees hindering the growth and survival of the ornamentals should be killed.

Along all field edges, other tree species that are beneficial to wildlife, or are rare, could be released by killing adjacent vegetation. After this release work is done, some brush piles should be created to lessen the visual impact of having cut all the brush and to provide additional shelter for many species of wildlife.

Future Management:

Continued mowing and cutting should be done to maintain field or meadow conditions for habitat diversity.

Stand 6: Recreational Field (5.3 Acres)

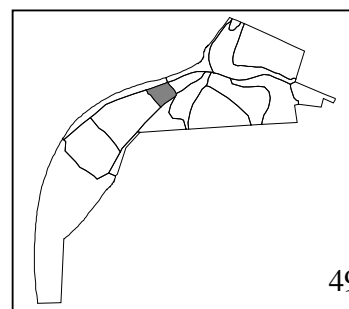
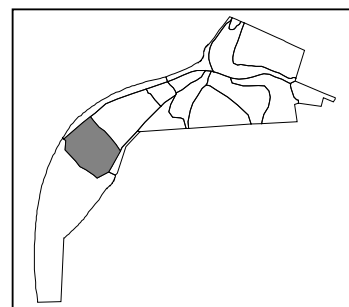
This is a 5.3-acre low-maintenance active recreational field in the western portion of the property. Over time, some tree trimming around the field may be necessary as trees abutting the field age and send additional branches over the field's edges.

Stand 7: Community Garden (1.1 Acres)

This is a 1.1-acre community garden in the western portion of the property. A hand pump well has been installed, and many garden plots appear to be becoming well established. The use of this area as a garden is an excellent diversification within Alsop Meadows,



Figure 2.1.9. Portion of Stand 5, looking towards Talcott Mountain.



and its continuation is recommended. If interest in the program grows, it could easily be expanded into the field area to the south.

2.1.9 Recommendations

Previous management plans have called for management activities that promote species diversity, mixed habitat types, and aesthetics. A continuation of these overall goals is generally recommended for this plan. In addition to the stand-specific recommendations above, more general recommendations include the following:

1. Boundaries have been previously blazed and posted with Town Forest signs – these should be periodically inspected and maintained to keep the paint visible and the signs in place. The property's existing blazes and signs are becoming faded/worn in places. Additional markings, especially at the southwestern tip of the property, are also recommended.
2. Some form of signage at the property's entrance from Nassau Way is needed. Currently, no signage exists.
3. Two intermittent watercourses that flow through the property are being impacted by sedimentation from upstream sources. An outreach effort should be considered by the Town to promote more aggressive cleaning and maintenance of stormwater systems that discharge onto or through Alsop Meadows.
4. Ten-year management plans should be used to guide future forest management activities on this parcel.



Figure 2.1.10. Watercourse sedimentation near Alsop Meadows' entrance.

Recreation Improvement Recommendations

Alsop Meadows is a somewhat active recreational area, due in part to the array of activities available. During the course of site visitations for this plan, observed activities included hiking (several people and dogs), lunchtime walking from nearby offices, canoe launching, informal swimming, gardening, and lacrosse practice. In addition to continuing these activities, it is generally recommended that efforts be restarted to develop and use Alsop Meadows as an environmental education/demonstration park.

1. Some form of signage at the property's entrance from Nassau Way is needed. Currently, no signage exists.

2. Better signage is highly recommended at the southern end of the property. Under current conditions, it is very easy for trail users to wander off of Town property.
3. Two new trails are recommended for the eastern portion of the property. One would utilize the existing woods road in the northeastern portion of the property and then loop back to the main driveway via the edge of the hayfield along Route 44. A second trail would utilize the skid road in the southeastern portion of the property, and loop to the area of the community garden by roughly following the property line. Together, these trails would wind through different habitat types and add to the property's overall hiking opportunities.
4. Both existing and new trails could be developed into an interpretive nature trail with several stations or teaching areas that illustrate the property's natural features and demonstrate silvicultural techniques, wildlife habitat management techniques. Signage that has been used at Fisher Meadows would be an excellent model. A printed guide to the nature trail could further explain the features at each station, and be made available on-site or placed on the Town's website.
5. Erosion control measures are recommended at the property's canoe launch site. This area appears to be heavily used, and while not seriously eroding, it is in need of some stabilization measures to help ensure that more severe erosion does not occur. This item is also recommended in the Town's 2008 Recreational Master Plan. Establishing more vegetation on the slope and/or creating a more formalized launch to limit traffic to one area are possibilities to assist with this goal.
6. Efforts to revitalize the previously established arboretum area are recommended. This would entail maintenance of both the planted trees and surrounding vegetation. A printed guide could be made available on-site or placed on the Town's website.
7. As suggested in previous management plans, the barn at Alsop Meadows could be used as a nature center if renovated. While efforts to begin this appear to have occurred in the past and then stalled, this is still a viable goal. If the Town were to pursue this as a project, it would be extremely important to secure a long-term commitment for funding to accomplish both renovation work and subsequent operational costs. One possibility to offset costs could be to establish an agreement with another organization, such as a local civic group, to operate the facility. A parking area to accommodate several cars would have to be developed as well. It is noted that the Town's 2008 Recreational Master Plan recommends removal of this barn.
8. Existing trail blazes are becoming faded and should be refreshed.
9. Regular maintenance of all trails is recommended to remove trash and debris such as fallen branches/trees and check for erosion.

2.2 FISHER MEADOWS NATURAL AREA

2.2.1 Property Description

Fisher Meadows consists of two parcels totaling 205 acres in the eastern portion of Avon adjacent to the Farmington River. The property is bounded to the south by Old Farms Road, to the west by Avon Old Farms School and properties along Old Farms Road, and to the east by the Farmington River. A small portion of the property is located on the eastern side of the Farmington River, accessed from Pine Hill Road.

The Fisher Meadows property contains a complex mix of forest and field areas that are used for haying, recreational, and public water supply purposes. Spring Lake (41 acres) dominates much of the southern half of the property.

The most distinctive elements of this property include the very long frontage along the Farmington River, an intricate mix of water, fields, and forests, very flat topography, and a wide range of community uses.

2.2.2 Property History

The majority of what is now the Fisher Farms Natural Area was gifted to the Town by the Stanley D. Fisher Family in 1976, and the park was established in 1977.

1935 DEP airphotos show that much more of the property was open at that time (and presumably used for agriculture) compared to present conditions. This suggests that portions of the property have reforested following agricultural abandonment sometime in the early 20th Century.

No significant foundations are found on the property, by many areas contain dug channels and other drainage-related earthwork. No stonewalls and only scattered wire fence remains are found on the property.

An Environmental Review Team report was prepared for this property in 1986.



Figure 2.2.1. Main parking area at Fisher Meadows.

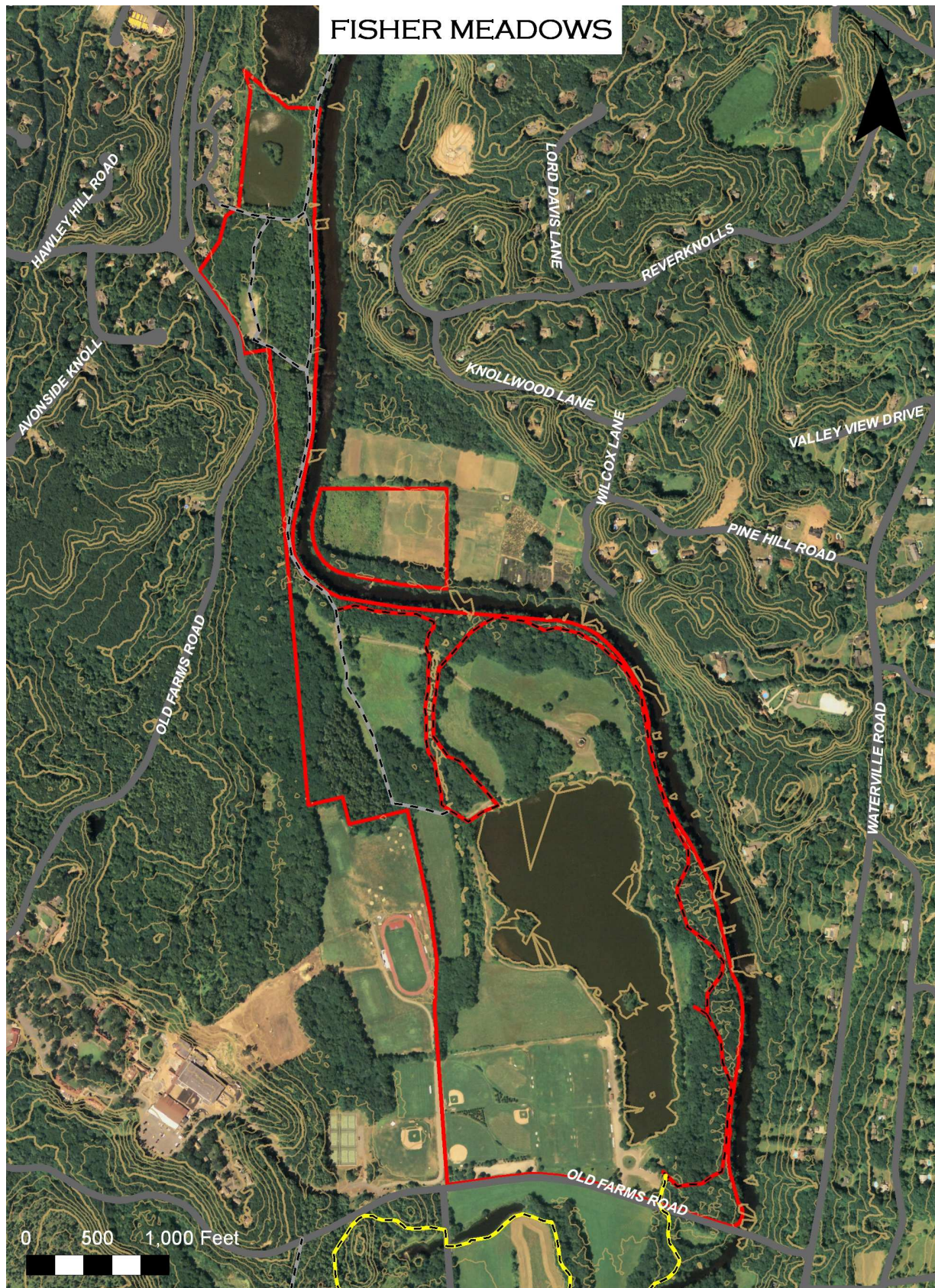


Figure 2.2.2. Fisher Meadows Recreation Area.

2.2.3 Access

Good access is present throughout Fisher Meadows. Parking areas are found at the main entrance (at the south end of the property) and at a “Trailhead” parking lot along Old Farms Road. Drivable dirt and gravel roads ring Spring Lake and run from the new wellhouse north to the Trailhead entrance. These roads are flat and in very good condition. Additional farm roads run through several of the property’s fields. Many of the property’s roads also serve as hiking/walking trails.

2.2.4 Water Resources

Fisher Meadows contains several significant water resources:

The **Farmington River** runs along the eastern border of the property; Fisher Meadows contains approximately 1.9 miles of river frontage. Most of the Fisher Meadows property lies within the river’s floodplain. As of the writing of this plan in 2009, the lower Farmington River, including the area adjacent to Fisher Meadows, was being studied for designation as “Wild & Scenic” by the National Park Service. If designation is granted, additional funding sources may become available to assist with management activities within Fisher Meadows.



Figure 2.2.3. Farmington River at south end of Fisher Meadows.

Spring Lake, located in the southern portion of the property, is a man-made lake resulting from a former sand and gravel quarry. The lake is now used for fishing.

No watercourses of note run through the property, but a **former drainage canal** runs from the northwestern corner of Spring Lake to the river, and several drainage channels also run towards the river throughout the property.

DEP GIS data (July 2009 update) shows that nearly all of Fisher Meadows lies within a **Level A Aquifer Protection Area**. Approximately 12 acres in the far north end of the property lie outside this aquifer. In 2003, a well/pumping station facility was completed in Fisher Meadows by the Avon Water Company to further utilize this resource by pumping up to 3 million gallons per day.

2.2.5 Rare, Endangered or Species of Special Concern

According to the State's Natural Diversity Database (June 2009 update), there is a possibility that rare or endangered species are present on nearly all of Fisher Meadows (Figure 2.2.4). (A small area in the southwest portion of the property is excluded.)

The presence of rare species within Fisher Meadows has been documented in, at least, a 1986 Environmental Review Team Report, and a 2006 Metropolitan Conservation Alliance Report: "The Farmington Valley Biodiversity Project: A Model for Intermunicipal Biodiversity Planning in Connecticut." This second report lists Fisher Meadows as a Primary Conservation Area within the Farmington River's alluvial floodplain region.

The 1986 ERT report for Fisher Meadows noted the presence of Virginia Waterleaf (*Hydrophyllum virginianum*). At that time, this plant was found in 2 other locations along the Farmington River and only had a total of 12 extant populations in Connecticut.

The 2006 MCA report notes the presence of the purple giant hyssop, which is "on the brink of extirpation", and the rare Davis' sedge. The Fisher Meadows sighting is cited as being part of "the largest New England occurrence" of this sedge.

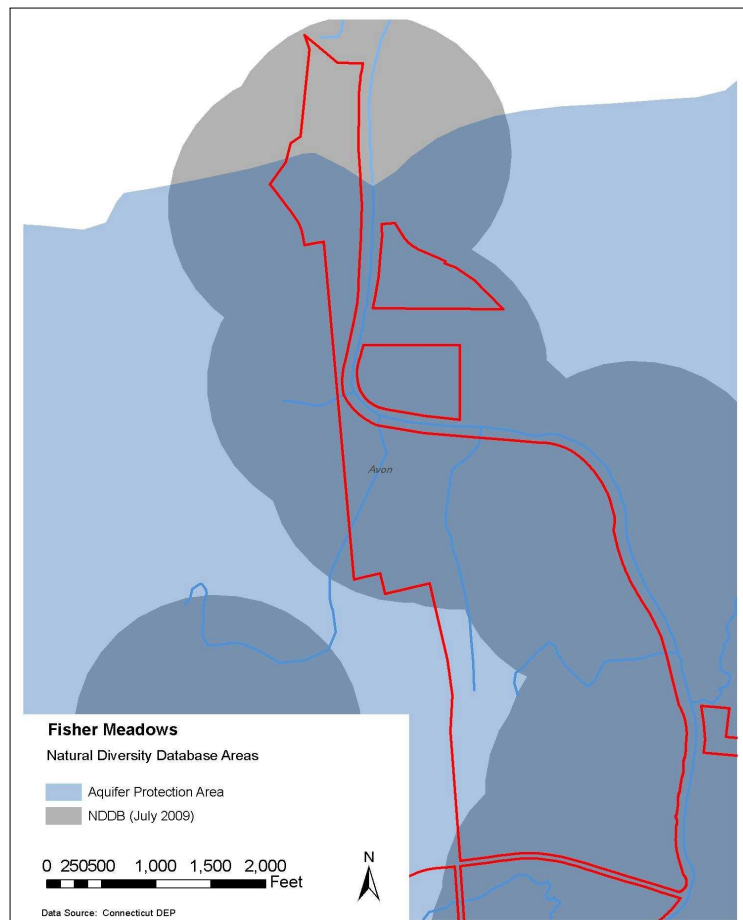


Figure 2.2.4. Fisher Meadows Natural Diversity Database Map

2.2.6 Invasive Species

Several invasive species were noted within Fisher Meadows and are discussed below. The Farmington River Watershed Association has previously applied for grants to help with invasive species control – such efforts should be supported and continued.

Japanese barberry was found scattered throughout the property. In places, it is rather dense and is dominating the understory, prohibiting regeneration of natural tree and shrub species. As in many places, this species has proven to be quite aggressive and capable of establishing itself and then very methodically spreading from the initial point of establishment.

The best chance of eliminating Japanese barberry is before it has gained a strong foothold and become well established. Pulling plants out and then spraying after they resprout, or cutting the stems and then applying herbicide with a paintbrush. are the best ways to kill this plant. This work will likely take 2 to 5 years to completely eliminate all the plants. If the plant is present on adjoining properties, educating the neighbors and working with them to eliminate the plants on their properties will increase the chances of success. Studies by Dr. Jeffery Ward at the Connecticut Agricultural Experiment Station have found that use of propane torches to burn root collars can be extremely effective at barberry removal. The lack of chemicals required for this removal method make it recommended for consideration on watershed lands, within aquifer areas, and in areas adjacent to sensitive water resources.

Oriental bittersweet was found in several areas throughout Fisher Meadows. Light amounts of grapevines were also noted.

Currently mechanical and chemical control methods are the most effective for bittersweet. Cutting followed by an herbicide application to the new foliage or the vine stump surface has produced excellent results. There is also some research with biological controls, but none have proven to be effective.

Winged euonymus (also know as burning bush) is found in several parts of Fisher Meadows, with one of the largest concentrations found along the trailhead-wellhouse gravel road. This species was introduced to the United States from Asia around 1860. The bright red fall foliage made it popular as an ornamental planting in urban settings, but as it spread to woodlands and pastures it has become problematic. The main means of seed dispersal is through birds.

Plants can tolerate a wide range of soil, moisture and light requirements. They have been found in pastures, mature, upland forests, open, lowland forests and even shady hillsides and small ravines.

Control of this plant is often difficult because they are capable of producing huge amounts of seed annually. However, mechanical, chemical and even ecological controls have proven to be effective at reducing small, isolated populations of this species.



Figure 2.2.5. Picnic area on east side of Spring Lake.



Figure 2.2.6. Access point at north end of Spring Lake.

2.2.7 Recreation

Fisher Meadows is currently used for a wide variety of recreational uses, and appears to be somewhat heavily used by the public. Oftentimes, athletic fields receive much more attention than walking/hiking trails with a property. This does not appear to be the case within Fisher Meadows, where a good balance of active and passive recreational opportunities seems to have been struck.

Playing Fields

Approximately 35.5 acres of the property is currently dedicated to athletic fields, parking areas, and mowed/maintained areas, and the Town's 2008 Recreational Master Plan calls for an expansion of these fields into areas that have recently been used for haying. These active recreational areas are generally not discussed in this plan.

Trails

Many miles of walking and hiking trails have been developed within the property (Figure 2.2.5), some of which appear to get very heavy use and others only light to moderate use. Some portions appear to have been partially or totally abandoned, as was recommended in the previous management plan for the property. The trail system winds its way through many different forest types, as well as along the Farmington River and around Spring Lake.

Work associated with the Fisher Meadows wellhouse has added to the property's recreational opportunities. An additional "trailhead" parking area has been added along Old Farms Road, the trailhead-wellhouse road serves as a walking trail, and a series of informational signs provide historical and environmental information about the property and the region. Boy Scout projects have also added a small sitting pavilion and riverside bench near the trailhead parking area.



Figure 2.2.7. Red trail in Fisher Meadows.



Figure 2.2.8. Fisher Meadows wellhouse.

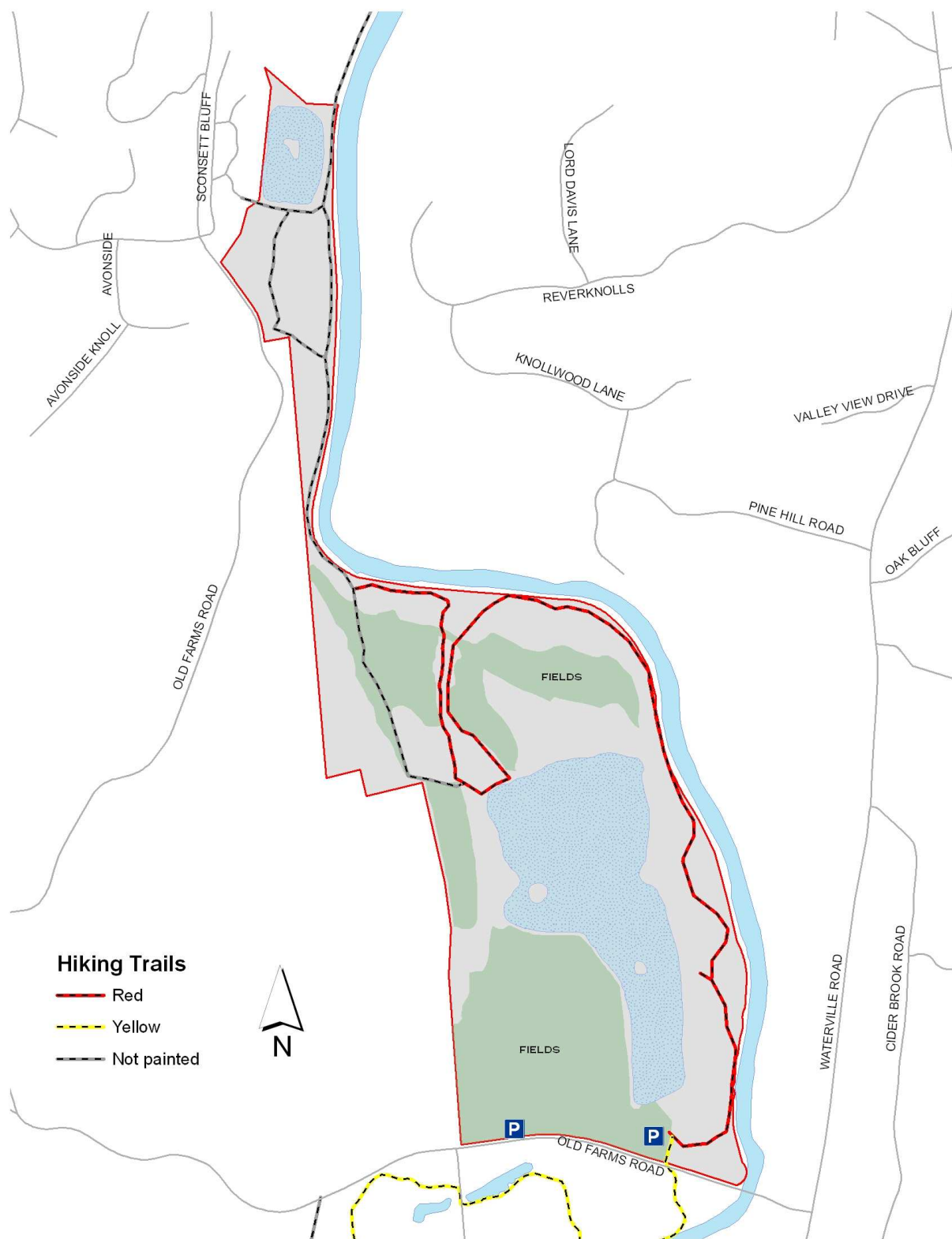


Figure 2.2.9. Trails of Fisher Meadows.

Taken together, the property's trail system can be considered multi-modal, as hiking, jogging, mountain biking, and dog walking are all possible. The Spring Lake trail and trailhead-wellhouse trail provide very flat and easy walking/biking opportunities; the wooded trails are also rather easy, but do have some small areas that some users may find moderately difficult.

Canoe Launches

Several access points exist for launching canoes into Spring Lake, including a launch established at the southern end of the lake near the parking lot. This area not only provides access to the lake but also to the Farmington River via a short portage over land. No formal canoe launch site for the Farmington River currently exists.

Fishing

A number of fishing spots exist both around Spring Lake and along the Farmington River. A small dock also exists on the south side of a small pond at the far north end of the property. These fishing areas appear to be somewhat informal, and generally do not have any significant erosion problems.

Picnic Areas

Small picnic areas are located in several areas throughout Fisher Meadows, including on the south side of Spring Lake (near the parking area), on the east side of Spring Lake, and at the trailhead parking area. Benches around the wellhouse could also serve as defacto sitting/lunch spots. All of these areas appear to be well maintained.

Environmental Education

The new informational signs that have been installed around the property provide environmental educational opportunities for the public, and help encourage walkers/hikers to explore all areas of Fisher Meadows. A series of older sign boards also contain information, but have become somewhat run down. These should be replaced.

2.2.8 Forest Management

The current open space and forest management program should be continued in order to maintain the health, aesthetic appeal, diversity and stability of this valuable forested property.

NOTE: Given the size, orientation, and location of most of the forested stands within Fisher Meadows, only minor forest management activities are recommended. Those activities recommended (such as invasive species control or TSI) are generally not for timber production purposes, but rather to encourage healthy, diverse forest conditions. In this sense, many portions of Fisher Meadows can be considered "reserves". While only limited forest management activities are recommended in most areas of Fisher Meadows at this time, the process of regularly collecting forest inventory data can provide valuable insights into changes that are occurring over time on the property in terms of species compositions, tree growth rates, etc.

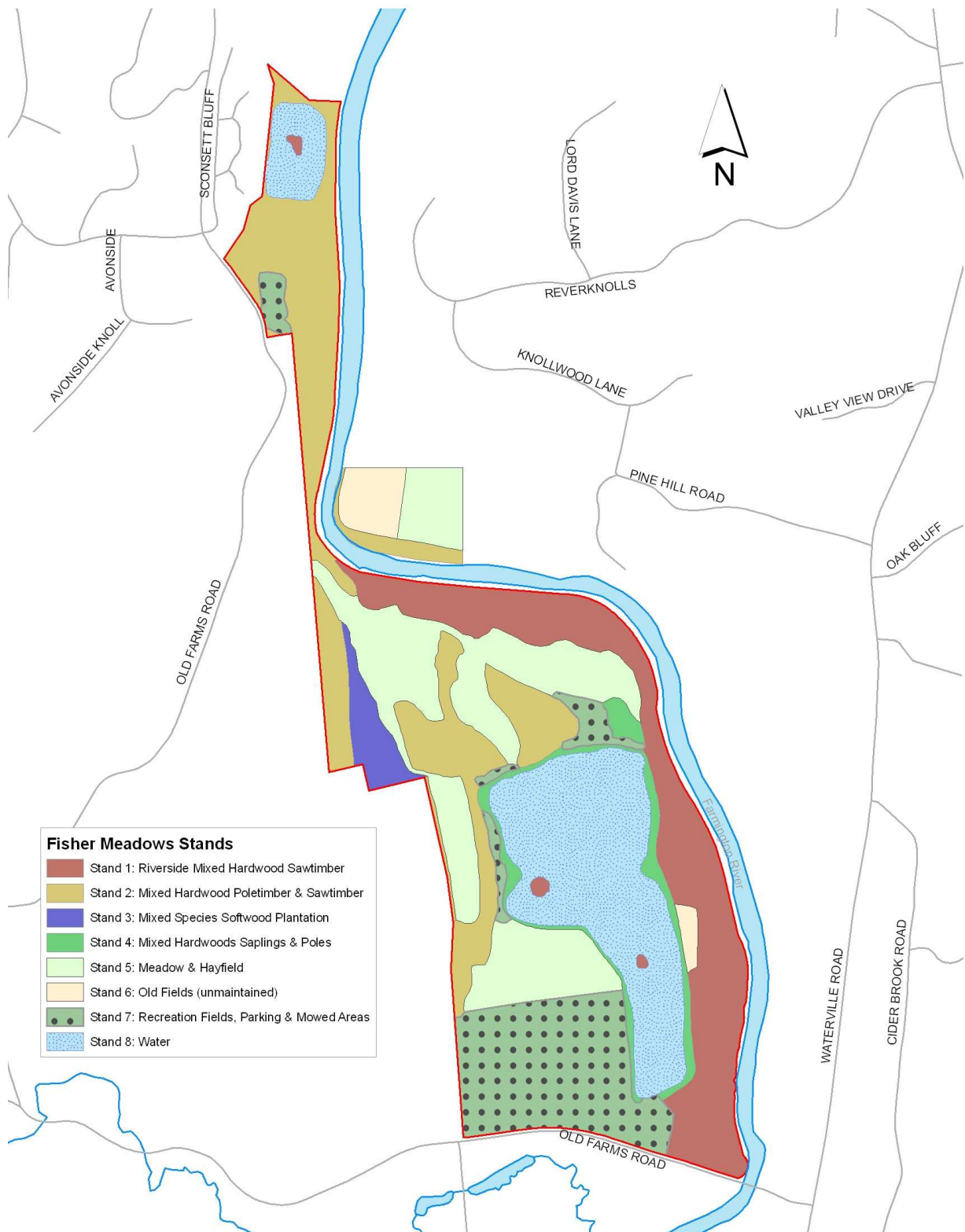


Figure 2.2.10. Stands of Fisher Meadows.

Stand Descriptions and Management Recommendations

Stands are separate natural communities that are distinct from each other. Dividing a property into stands makes it easier to correctly describe the property and to make appropriate recommendations. Once identified, each stand is treated separately based on its unique characteristics. Non-forested areas are also broken out as “stands” for descriptive purposes.

Fisher Meadows Stands

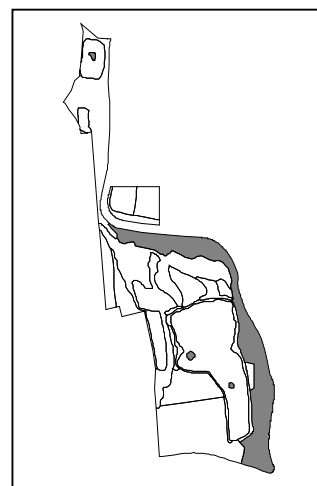
Stand	Acres	Description	Recommendations
1	43.2	Riverside Mixed Hardwood Sawtimber	Control Invasives & TSI
2	51.9	Mixed Hardwood Poletimber & Sawtimber	Control Invasives & TSI
3	5.3	Mixed Species Softwood Plantation	Hardwood Thinning
4	8.4	Mixed Hardwoods Saplings & Poles	TSI
5	48.0	Meadow & Hayfield	Mowing
6	6.2	Old Fields (unmaintained)	No activity
7	35.5	Recreational Fields, Parking & Mowed Areas	n/a
8	47.0	Water	n/a
Total	245.5 acres		

Stand 1: Riverside Mixed Hardwood Sawtimber (43.2 Acres)

This 43-acre stand runs from the intersection of Old Farms Road and the Farmington River to the junction of the canal connecting Spring Lake to the river. (Three small islands within the property’s 2 waterbodies are also included in this stand.) Old Farms Road, the gravel road around the lake, and many hiking trails provide excellent access to this stand. The terrain is extremely flat with very few rocks.

This stand is comprised of mostly mixed hardwood trees along with some scattered white pine. The trees most commonly seen are hickory and red oak, but black and scarlet oak, white ash, red, sugar and silver maple, basswood, elm and white pine are also present. Many of the trees are classified as having good to excellent health; some are in very poor health, mostly because they are being covered with either poison ivy, bittersweet or grape vines. Poison ivy, in particular, has a strong hold in many portions of the stand. Trees in this stand range in diameter from 4 to 32+ inches, with a large majority having a dbh of 16 to 22 inches. Many of the stand’s older, larger diameter trees are found along the river, while the smaller diameter trees are concentrated along fields edges.

The understory is fairly open in most places because of a dense canopy that lets very little light reach the ground. In places where trees have died or blown over the number and variety of species is much greater. On average there are approximately 211 seedlings or saplings per acre. The most commonly seen tree species are sugar and red maple and hickory, but oak, birch and ash also occur in smaller numbers. The ground layer is a dense mix of poison ivy, barberry, some fern and other shrub species. Barberry is particularly dense in the northern portion of the stand.



Soils:

Soils within Stand 1 include Suncook loamy sand, with 0 to 3 percent slopes (StA), Occum fine sandy loam, Saco silt loam, and a Fluvaquents-Udifuluents complex.

Suncook loamy sand, with 0 to 3 percent slopes (StA) makes up the majority of this stand. This soil generally occurs on flood plains and is excessively drained and coarse textured. The site index for mixed oaks averages 54 and for white pine it averages 59. Plant competition is moderate for oaks and white pine. Windthrow is only a slight hazard.

The Occum fine sandy loam is a very deep, well-drained loamy soil formed in alluvial sediments, and subject to common flooding. It is commonly found within flood plains and along rivers. It is found in the northern portion of the stand.

Saco silt loam consists of very deep, very poorly drained soils in silty alluvial deposits. Within this stand, this soil type is associated with the former canal between Spring Lake and the Farmington River.

The Fluvaquents-Udifuluents complex contains a combination of frequently flooded hydric (wet) and non-hydric soils.

Management Recommendations:

This stand should continue to be maintained in a natural state except for vine cutting and control of barberry and other invasive species control. The best use of this stand is for wildlife habitat, recreation and education.

Some areas of the stand contain dense grape and bittersweet vines. These vines provide valuable wildlife habitat and should be maintained in portions of the stand, but should not be allowed to dominate the stand. Trees within 50 to 60 feet of the hiking trail should be released from the vines, but in other areas grape vines should be encouraged in order to create grape arbors, that will be maintained for the wildlife. Bittersweet vines should generally be removed where possible.

Dense barberry that currently exists in the northern portion of the stand should be controlled/removed. This area is essentially devoid of native tree saplings and seedlings and shrub species due to the barberry. Alternative barberry removal techniques are recommended for this area, due to its proximity to the Farmington River and its proximity to the Fisher Farms wellhead facility (see Section 1.6.1 for additional removal recommendations).

Future Management:

This stand should continue to be maintained in a natural state. Management activities should be limited to maintaining accessibility into the stand, controlling vines and invasive species, and the overall health and diversity of the dominant vegetation.

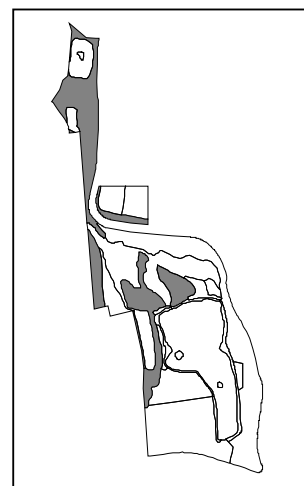
Stand 2: Mixed Hardwood Poletimber & Sawtimber (51.9 Acres)

This 52-acre stand is located in several areas throughout the property. Access to this stand is via the gravel road surrounding the lake, the gravel road leading from the trailhead parking lot to

the wellhead pumping station, and several hiking trails. The terrain is extremely flat with some rocks throughout.

Stand Description:

This stand is comprised of mostly mixed hardwood trees. The tree species most commonly seen is red maple, but red, black and white oak, white ash, hickory, apple, elm, black birch, silver maple, cottonwood, black gum, catalpa, hophornbeam, sycamore, basswood, eastern red cedar, aspen and white pine are also present. As mentioned in previous management plans for this property, this diversity of species is about as rich any found in southern New England. Such an area of species diversity is often found adjacent to active or recent farmland. Trees within the stand vary in their health and quality. Many are healthy, but several are also poorly formed. Trees within the stand range in diameter from 4 to 28 inches, with a large majority having a dbh of 12 to 16 inches. The majority of the stand's older, larger diameter trees can be found along the Farmington River (in the northern portion of the stand) and near the centers of the "islands" of this stand, while the smaller diameter trees are concentrated along field edges.



The understory vegetation is generally as rich and diverse as the overstory, but is somewhat open in places. In places where trees have died or blown over the number and variety of species is the greatest. The ground layer is a dense mix of poison ivy, barberry, some fern and other shrub species. Some localized patches of invasive species are becoming established, and should be addressed before they spread further. For example, a dense patch of euonymus exists along the trailhead-wellhouse gravel road.

Soils:

There are several types of alluvial/floodplain soil found in this stand. The majority of the stand contains Saco silt loam with 0 to 3 percent slopes (SbA), and a Fluvaquents-Udifuvents complex. Other soils present include Hadley silt loam with 0 to 3 percent slopes (HaA), Rippowam fine sandy loam, Winooski silt loam, Occum fine sandy loam, and a Udorthents-Pits complex.

The Saco silt loam is a very poorly drained soil that is subject to frequent flooding. White pine and oaks are not abundant on these soils, but where they do occur they grow slowly. Red maple and other moisture tolerant species invade rapidly so plant competition is severe for white pine and oak. The windthrow hazard is severe because of the shallow root systems and saturated soil. Within this stand, this soil type is associated with the former canal between Spring Lake and the Farmington River.

The Fluvaquents-Udifuvents complex contains a combination of frequently flooded hydric (wet) and non-hydric soils. In Stand 2, this complex is found along the Farmington River.

The other, lesser soils within the stand, are alluvial soils, are generally highly variable, and have a wide range of textures and drainage. They tend to occur along rivers and other streams and

are subject to flooding. Windthrow can be a severe hazard because of the saturated soils and shallow root systems.

Management Recommendations:

Similar to Stand 1, the trees in this stand should generally be left in a natural state. Recommended work includes wildlife habitat maintenance and improvement, and invasive species control. This stand should be maintained as a wildlife management, demonstration and viewing area, and as an environmental education area. Limited invasive species control activities, especially for bittersweet, barberry, and euonymus should also be done.

Future Management:

This stand should continue to be maintained in a natural state. Management activities should be limited to maintaining the accessibility into the stand and the overall health and diversity of the dominant vegetation.

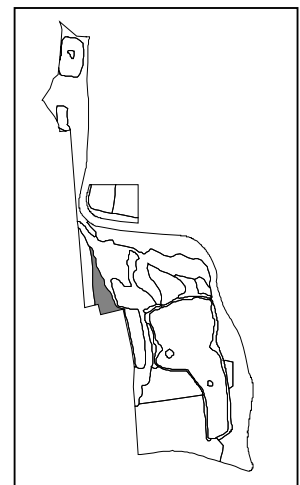
Stand 3: Mixed Species Softwood Plantation (5.3 Acres)

This 5-acre stand is located along the western edge of the property just to the north of the Avon Old Farms athletic fields. Access is from the gravel road surrounding the lake. The terrain is very flat with some rocks scattered throughout. A hiking trail that once ran through this stand is overgrown and is largely abandoned.

This stand consists of a mixture of planted white pine, larch and white spruce.

Pitch pine, red cedar, black birch, white ash, hickory and red maple have naturally seeded into the stand. The planted conifers are approximately 45 years old and generally in good health. Several hardwood trees that have naturally seeded in are younger, but are overtopping and out-competing some of the planted conifers. The understory vegetation is not very dense in most places except for some hardwood seedling and saplings and various shrub and fern species. In some areas larger trees have fallen over or died and the understory vegetation is much denser.

There is a small opening within this stand that has in the past been planted with various fruiting and flowering trees and shrubs. This area has become somewhat overgrown and unmanageable. In the future this area should be cleaned out and the planted trees should be released and perhaps fertilized to improve their health and growth.



Soils:

Stand 3 is underlain by Hadley silt loam, a moderately permeable soil with a high moisture holding capacity. In early spring and late fall there is a hazard associated with flooding.



Figure 2.2.11. Conifers within Stand 3.

Management Recommendations:

It is recommended that this stand be maintained as mixed conifer stand. Because several of the conifers are becoming suppressed and others have died due to the intense competition, a light thinning is recommended to remove invading hardwood trees in order to assure adequate growing space to maintain tree growth and vigor. Pruning is also recommended, especially along the former trail, to improve the appearance and enhance the utility of the stand. The small opening should be regularly maintained and bird boxes could be placed along the edges to try to attract a nesting bird population.

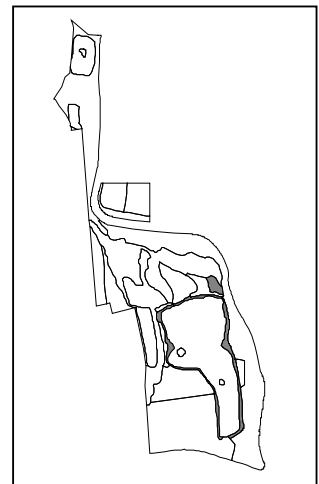
Future Management:

This stand should be maintained as mixed conifer stand. Periodic light thinnings will likely be necessary to maintain the health and vigor of the dominant conifer trees and the overall appearance of the stand.

Stand 4: Mixed Hardwood Saplings and Poles (8.4 Acres)

This stand is located to the northeast of Spring Lake, where a portion of the stand has been cleared for the Fisher Farms wellhouse since this property's previous management plan. Also included in this stand are thin strips of saplings, poletimber, and shrub species that ring most of Spring Lake, forming a dense shrub-scrub buffer. The stand is easily accessed via the road that loops around Spring Lake, and via the trailhead-wellhouse gravel road. The stand is free of rocks and is flat, other than the short drop along the shoreline of Spring Lake.

The trees in this stand are 2 to 10 inches in diameter and are very dense. Red maple, black birch, quaking aspen, apple, white pine, red cedar and oak are some of the species observed. The trees are crowded but generally in good health.

**Soils:**

This stand is mostly underlain by Rippowam fine sandy loam and Winooski silt loam. These are both alluvial/floodplain soils. These tend to occur along rivers and other streams and are sub-

ject to flooding. Windthrow can be a severe hazard because of the saturated soils and shallow root systems.

Management Recommendations:

Based on its size, orientation, and location, this stand is not recommended for active management at this time. The trees are just beginning to reach the stage in their development where nature will weed out the inferior trees, allowing the dominant individuals to capture the most growing space. It is recommended that no action be taken in this stand at this point, other than to possibly release (through TSI), selected cedar and apple trees in the northeastern portion of the stand.

Future Management:

This stand should be allowed to develop naturally, except for continuing to release the selected cedar and apple trees. The northern portion could be used as an educational tool to demonstrate the stages a stand of trees goes through as it develops from a field to a mature forest.

Stand 5: Agricultural Fields & Meadows (48.0 Acres)

This stand contains 48 acres of fields located in several areas throughout the property. Most of the fields are easily accessed via the gravel road around Spring Lake. One field area lies on the eastern side of the Farmington River and must be accessed via Pine Hill Road. All the field areas are extremely flat with no rocks.

The stand's fields have previously been planted to corn on a rotating basis, but are currently lying fallow or are being used for haying. These agricultural fields provide a very different habitat type than that of the closed forest that dominates the rest of the property.

The "edge" along the field forest interface is also an extremely diverse area that is frequented by many species of wildlife and as less and less of the fields are maintained, this "edge" will continue to increase.

The Town's 2008 Recreational Master Plan calls for a portion of these agricultural fields to be converted to athletic fields.

Management Recommendations:

These areas are important for wildlife habitat, wildlife viewing and hiking. The Town should continue to allow a portion of the property's fields to be hayed, in order to maintain them in a field-like state. Crops could also be considered for the fields; a portion could possibly be used as a community

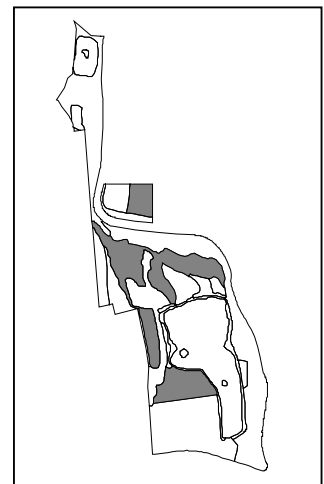


Figure 2.2.12. Agricultural field of Stand 5.

garden similar to at Alsop Meadows. The habitat along the "edge" could be improved by lightly thinning the trees to release fruiting and flowering trees and other species important for wild-life food and shelter and to stimulate more low, brushy vegetation within 10 feet of the ground.

Stand 6: Old Fields - Unmaintained (6.2 Acres)

This stand is a 6.2-acre unmaintained field on the eastern side of the Farmington River. It is essentially the same as Stand 5, but due to lack of maintenance, seedlings and saplings are beginning to invade.

Management Recommendations:

The Town should continue to allow this stand to continue a natural conversion into a forested state. This will provide forest and habitat diversity for the area as the stand progresses through various stages of forest development.

Stand 7: Recreational Fields, Parking & Mowed Areas (35.2 Acres)

This stand contains 35.2 acres, consisting of recreational/athletic fields, parking areas, and mowed/maintained areas.

Stand 8: Water (47.0 Acres)

This stand contains 47 acres of open water, consisting of Spring Lake and a pond in the northern end of the property, to the east of Wills Walk.

2.2.9 Recommendations

Previous management plans have called for boundary marking and trail construction activities, and only very limited forest management within Fisher Meadows. A continuation of these activities is generally recommended for this plan, along with some additions.

1. Due to the location, size, and orientation of the forested areas within Fisher Meadows, thinning and other timber management activities are generally not recommended at this time, except in specific areas detailed below.
2. Invasive species are a current problem on this property. Continued efforts should be made to control the spread of these species.
3. A wide variety of recreational activities should continue to be encouraged on this property, and expanded where possible.
4. A portion of the boundaries have been blazed and posted with Town Forest signs – these should be periodically inspected and maintained to keep the paint visible and the signs in place.
5. Only minor erosion and sedimentation was noted at the fishing access points around Spring Lake and along the Farmington River, but given the property's extensive water frontage, this should be regularly monitored to ensure continued bank stability.

6. Ten-year management plans should be used to guide future forest management activities on this parcel.

Recreation Improvement Recommendations

Fisher Meadows is a very active recreational area with an array of activities available. It is generally recommended that this wide mix of activities be continued, and enhanced through the following recommendations.

1. Minor erosion control measures are recommended at the property's canoe launch and fishing areas around Spring Lake and along the Farmington River. While currently minor, erosion issues can quickly grow, and should be regularly monitored.
2. Better signage is highly recommended at the far northern end of the property. Under current conditions, it is very easy for trail users to wander off of Town property.
3. Printed guides/maps of the trails in Fisher Meadows should be made available either at the property or on the Town's website, or both. While the property is well used, there are likely members of the community who are not familiar with the property.
4. The new trail that runs from the main Fisher Meadows parking area towards Fisher Farms is quickly becoming overgrown. This trail should be maintained, and possibly better signed on a temporary basis to encourage new use.
5. Trail bridges north of the trailhead parking area are in need of repair and maintenance. Two of these currently require some brush cutting and some minor repair work, one of these bridges has been dislocated and should be rebuilt.
6. Old information boards around the property should be replaced. This would be an excellent Scout project.
7. Many of the existing trail blazes are becoming faded and should be refreshed.
8. As recommended in the previous Plan, in areas where trails cross agricultural fields it may be helpful to install posts that can be marked with the appropriate marker to help hikers follow the trail.
9. All trail blazes along abandoned trails should be removed. These could be confusing to walkers/hikers, especially those not familiar with the property.
10. Regular maintenance of all trails is recommended to remove trash and debris such as fallen branches/trees and check for erosion.
11. A formal canoe launch is recommended along the Farmington River, either close to the trailhead parking area in the northern end of the property, or in the southern end of the property near to Old Farms Road.
12. The property should continue to be made available to schools and other groups for research or education programs. With good access, easy terrain and a mixture of land uses, Fisher Meadows is an excellent spot to bring groups for field trips dealing with a variety of natural resource issues.

2.3 FOUND LAND CONSERVATION AREA

2.3.1 Property Description

Found Land Conservation Area consists of 121 acres in the northwestern portion of Avon, just south of Windsor Court, Scarborough Drive, and Queens Peak. The eastern portion of the property abuts the Canton town line to the north. The property is surrounded on three sides by existing residential areas. New residential development is underway directly south of the property. Northington Drive is currently being extended through the western portion of the property to connect to Lofgren Road.

Found Land is fully forested, consisting primarily of an oak/hickory forest type. It is mostly dry, with one area of less well-drained soils in the eastern portion of the property. The main entrance is at the end of St. Michael's Court where there is a small parking area and information kiosk. A trail loops within the property and has several spur trails that provide good pedestrian access to the property for residents.



2.3.2 Property History

The Town of Avon acquired the Found Land property in a rather interesting way. When the Town did the first revaluation with mapping in the 1950s, it was found that this property had no owner. The property was then granted to the Town through a Special Act by the State Legislature.

Prior to that, not much is known about the property. Because of the poor soils, it is unlikely that the land was used for agriculture, though the presence of two stone walls located in the southeastern corner of the property suggests grazing of animals took place, probably in the late nineteenth century.

2.3.3 Access

Good access exists for people interested in hiking on the property. A parking area and trailhead are present at the end of St. Michaels Court (though somewhat dilapidated; see below). Additional trails extend from the end of Foundland Way and from along Windsor Court. A new access point is being installed along the southern boundary that will service the new residential area currently under construction via Linden Lane (Figure 2.3.1).

No trails facilitating unauthorized access by motorized vehicles were identified. However,



Figure 2.3.1. A new access point originating on Linden Lane provides pedestrian access to Found

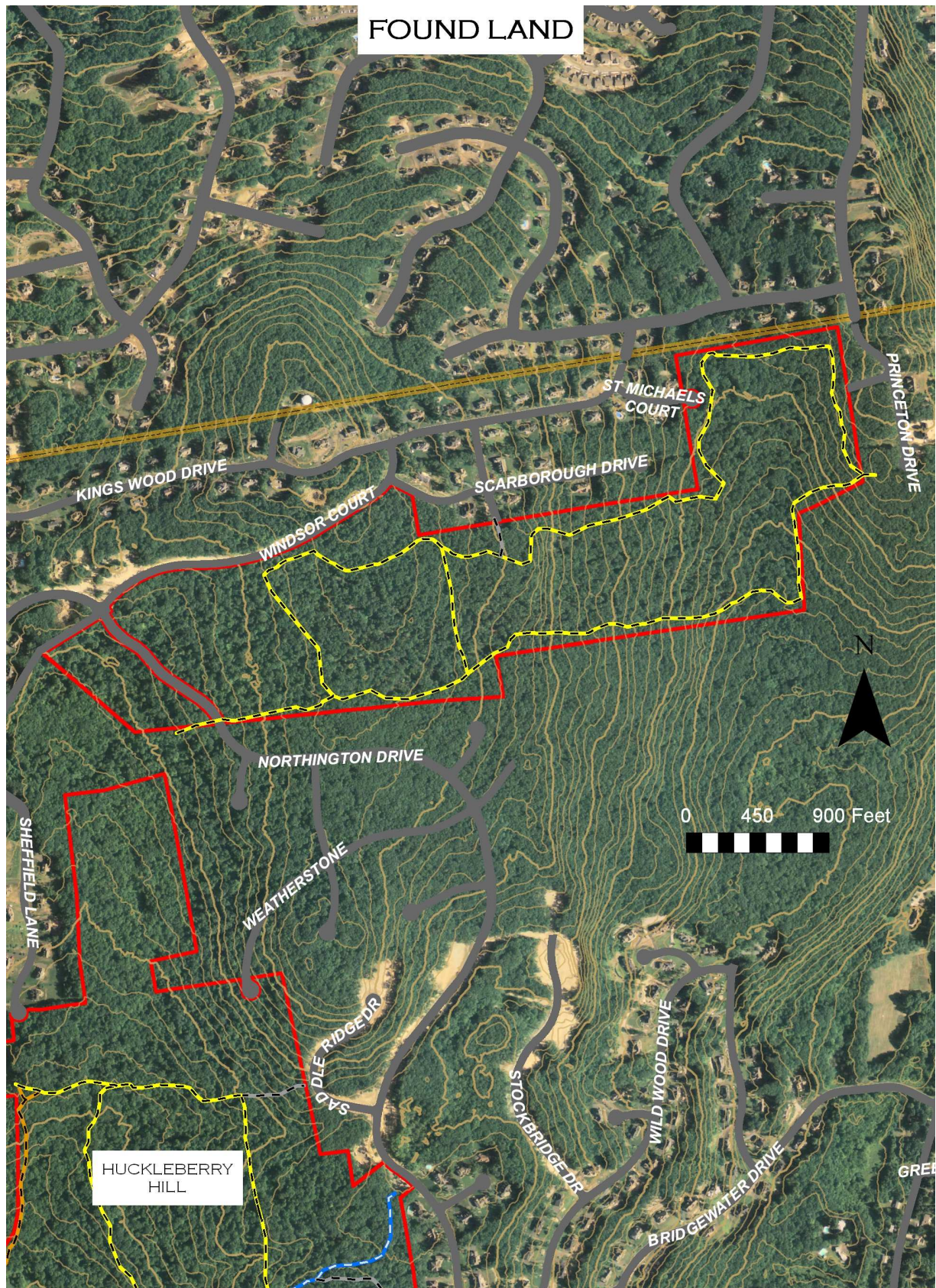


Figure 2.3.2. Found Land situated just north of Huckleberry Hill.

one abandoned vehicle was found in the south-eastern corner of the property (Figure 2.3.3). It is not clear how the vehicle arrived at its present location, but removal of the vehicle should be considered.

Access for forest management activities was previously available from the end of Lofgren Road and along Windsor Court. With new homes being built at these locations it is not clear whether skid roads and landings will continue to be possible here. Access will continue to be available via the main parking area at the end of St. Michaels's Court and possibly at the end of Foundland Way (though complaints by neighbors at this location made access here somewhat more challenging last time). New access may be available along Northington Drive where it intersects the property boundaries.



Figure 2.3.3. An abandoned vehicle along the hiking trail should be removed if at all possible.

2.3.4 Wetland and Watercourses

Most of the Found Land property consists of dry upland. In the eastern portion of the property, between St Michaels Court and Princeton Drive, there is an area that is somewhat wet, though not considered a true wetland according to State soils maps. This area drains to the south, creating an ephemeral stream that connects to a true wetland located south of the property.

2.3.5 Rare, Endangered or Species of Special Concern

According to the State's Natural Diversity Database (June 2009 update), no rare or endangered species have been reported on or about the Found Land property.

2.3.6 Invasive Species

Very few invasive species were noted on the Found Land property. Only minor occurrences of Japanese barberry were observed close to Lofgren Road. While this is good news, Japanese barberry is quite aggressive and capable of very methodically spreading from the initial point of establishment. The best time to take action is now. Due to the limited number of plants present, it would be fairly easy to eliminate them before they become fully established. Japanese barberry leafs out early in the spring and can be easily identified.

2.3.7 Recreation

Parking

Other than street parking along the adjacent town roads or in cul-de-sacs, the only parking area is located at the end of St. Michaels Court. This is the main access point for visitors to Found Land and includes signage, a picnic table, a trashcan and an information kiosk. However, each of these amenities is in a state of disrepair. The parking area is somewhat overgrown with



Figure 2.3.4. The parking area at the end of St. Michaels' court is rather wet and overgrown with weeds.



Figure 2.3.5. The picnic area adjacent to the parking lot has fallen into disrepair.

weeds, and during parts of the year it is quite wet and muddy making parking by vehicles without all-wheel drive difficult or impossible (Figure 2.3.4). Furthermore, the Found Land sign itself, located on the St. Michaels Court cul-de-sac is obscured by vegetation (Figure 2.3.6). Upgrading and maintaining this area is recommended.

Picnic Areas

A small picnic area is located adjacent to the parking area at the end of St. Michael's Court. However, the one picnic table located there is on its last legs, and the overflowing garbage can does not appear to have been emptied in quite some time. Furthermore, weeds and other vegetation have made the area appear to be no longer maintained (Figure 2.3.5). These amenities should be either repaired and maintained or eliminated.

Trails

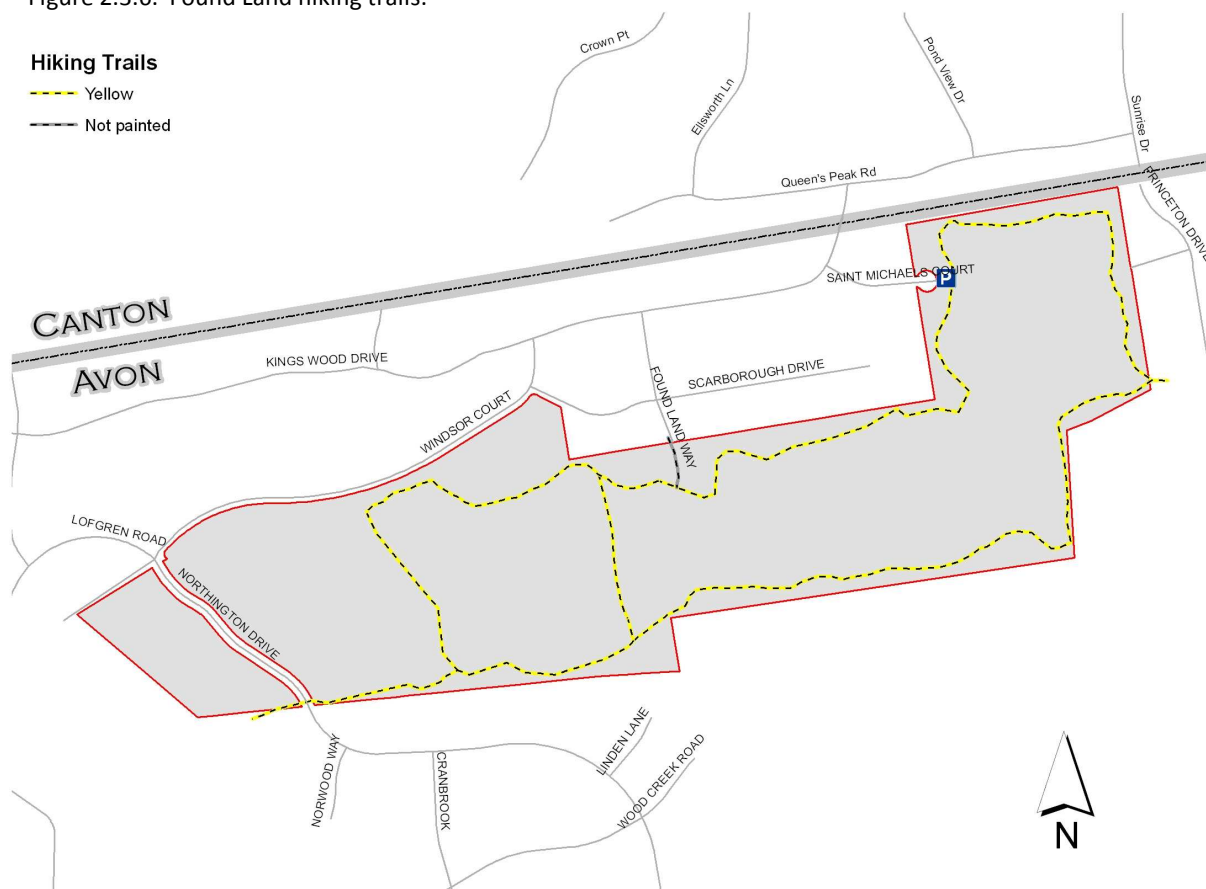
A yellow-blazed hiking trail currently loops through the property (Figure 2.3.6) and includes several access points from the surrounding neighborhoods. The trails are rather flat and dry, and with one exception no signs of erosion are present. In a few locations, fallen trees have blocked the trails, but these can be cleared with minimal effort. In general, the trails appear to receive a good amount of use.

The one area of concern is located just southeast from the end of Scarborough Drive. Runoff from the residential area there has created some very significant erosion along the trail. At this point in time, the erosion is significant enough that rehabilitation of the trail would be difficult. We recommend that the trail in this area be rerouted instead, taking into account the current flow of water to avoid the possibility of new erosion occurring in the future.

Environmental Education

The trails in Found Land host a series of numbered posts designating stations of an interpretive loop, but the accompanying brochures have not been replenished at the information kiosk lo-

Figure 2.3.6. Found Land hiking trails.



cated in the parking area off St Michael's Court. Perhaps it makes more sense to have the brochure available online with directions posted at the kiosk for how to download it.

2.3.8 Forest Management

The current open space and forest management program should be continued in order to maintain the health, aesthetic appeal, diversity and stability of this valuable forested property.

Stand Descriptions and Management Recommendations

Stands are separate natural communities that are distinct from each other. Dividing a property into stands makes it easier to correctly describe the property and to make appropriate recommendations. Once identified, each stand is treated separately based on its unique characteristics. The forest on Found Land consists of two stands.

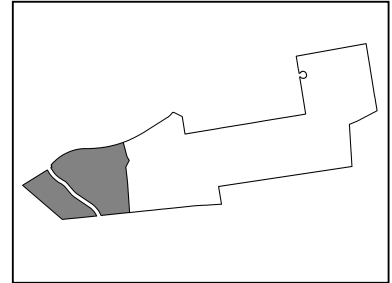
Found Land Stands

Stand	Acres	Description	Recommendations
1	26.1	Oak Sawtimber	Crown thinning
2	95.4	Oak Poletimber / Small Oak Sawtimber	Crown thinning

Stand 1: Oak and Mixed Hardwood Sawtimber (26.1 Acres)

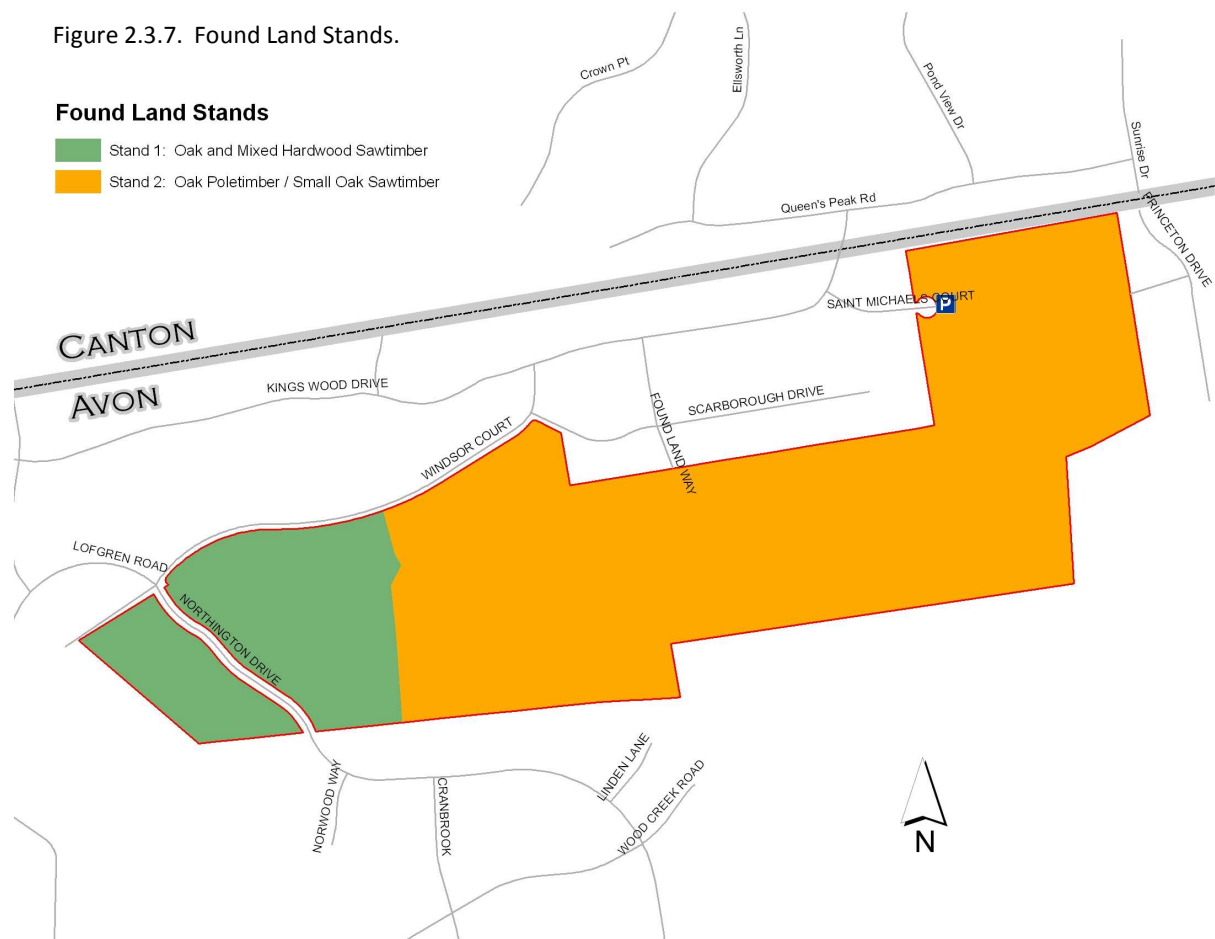
Description:

This 26-acre stand is located south of Windsor Court and has been recently bisected by a new portion of Northington Drive. It occupies a slight western facing slope along Huckleberry Hill. There are very few rocks and it is relatively easy to move through the stand. It can be characterized as a healthy and productive 85 to 95 year old oak and mixed hardwood stand. Most of the sawtimber trees are very tall with large, well-formed crowns. The stand is well stocked; the current basal area is 96 is 96 square feet per acre, with high quality, preferred species. This stocking level is slightly above the stands optimum level but this is not adversely affecting the trees.



The stand received a sawtimber thinning approximately 15 years ago and was followed by a light TSI operation to remove some of the unmerchantable stems. As a result of this work there are now many well-released crop trees and some gaps in the canopy that increased the amount of light reaching the ground. This process stimulated the growth of the existing regeneration and promoted the establishment of some new regeneration.

Figure 2.3.7. Found Land Stands.



The understory has a large variety of poletimber species present. White, black, and scarlet oak, hickory, red maple, black birch and hemlock are some of the species that were observed. The ground layer is a dense mix of blueberry, viburnum, mountain laurel, witchhazel, and a variety of ferns, as well as oak, maple, birch, white pine, hemlock, and tulip poplar seedlings and saplings.

Soils:

The soils of this stand are classified almost entirely as Woodbridge fine sandy loam with 2 to 8 percent slopes and very stony. This soil is moderately well drained and formed in subglacial till. It is well suited to grow high quality trees because of a moderate to high moisture holding capacity.

Management Recommendations:

This stand should receive a crown thinning in conjunction with Stand 2 (see below). The next harvest should focus on removing trees that were damaged in the first harvest, creating some patchcuts to diversify the habitat, releasing small patches of regeneration that have become established and single tree selection/crop tree release to maintain trees that will be held over to the next rotation. This will help to establish different age classes within the stand and simulate the late successional oak/hemlock forest that this stand would eventually reach on its own.

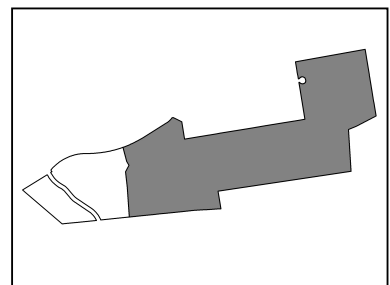
Future Management:

This stand should be thinned every 10 to 15 years in order to maintain favorable conditions for tree growth, salvage dead and dying trees and to stimulate the growth of the understory.

Stand 2: Oak Poletimber/Small Oak Sawtimber

Location, Access and Terrain:

This 95-acre stand is located along the relatively flat hilltop and the moderately sloping east facing hillside in the center of the property, and along the gently sloping west facing slope at the extreme east end of the property. It is located just south of Windsor Court and Scarborough Drive and extends north between St. Michaels Court and Princeton Drive. There are a few scattered rock outcrops along the hilltop, but otherwise it is very easy to move through.



Stand Description:

The dry, gravelly soil conditions make this stand one of the least productive sites the town owns. The trees in this stand are the same age as the trees in Stand 1, but the quality and size of the wood cannot compare to that of Stand 1. The dominant tree species present are scarlet, black and red oak ranging from 8 to 20 inches, with most of the volume in the 12 to 14 inch diameter classes. The current basal area for the stand is 86 square feet per acre, with half of that being pre-merchantable poletimber and saplings.

This stand received a crown thinning three years ago. The harvest removed a lot of the low quality scarlet, black and red oak in favor of the medium to good quality red oak stems. The result is a well-thinned stand with a higher percentage of fair to good quality red oak and a smaller percentage of low quality black and scarlet oak.

The understory and ground layer is a mixture of blueberry, mountain laurel, witch hazel, fern, and viburnum, as well as birch, maple, chestnut, sassafras, hickory, and oak seedlings.

The valley bottom at the eastern end of the property has a similar species composition as the rest of the stand, but the site quality is somewhat better because the soil is deeper and more fertile. Red oak is the most commonly observed tree, but white, black and scarlet oaks are also present. This area was harvested at the same time as the rest of the stand and should continue to be managed the same in the future.

Soils:

There are basically three areas with different soils in the stand that can be generally characterized as the hilltop, the hillside, and the valley bottom. While these areas blend together, the soils can be classified in the following manner:

The soils of the hilltop in the center of the property are classified as Canton and Charlton soils with 3 to 15 percent slopes (very stony). These are well-drained soils formed in a fine sandy loam mantle underlain by sandy glacial till. The soil ranges from extremely acid to moderately acid.

As the ground slopes down to the east with moderate to very steep slopes, two predominate soil types are present: Hollis-Chatfield-Rock outcrop complex with 15 to 45 percent slopes and the Charlton-Chatfield complex with 3 to 45 percent slopes (very rocky). The Charlton-Chatfield complex is again present on the western-facing hillside on the opposite side of the valley, next to the eastern boundary of the property. These are shallow, very well drained and sometimes excessively drained soils ranging from very strongly acid to moderately acid and often possessing rock outcrops.

In the valley, we see Woodbridge fine sandy loam with 2 to 8 percent slopes (very stony) and Sutton fine sandy loam with 2 to 15 percent slopes (extremely stony). These are moderately well drained soils with slow to medium surface runoff.

Based on our measurements the site index in this stand was calculated to be approximately 55, which is at the low end of the possible range that is generally associated with these soil types.

Management Recommendations:

We recommend another crown thinning with scattered patchcuts for this stand in conjunction with a thinning in Stand 1. This next thinning should take place towards the end of the management cycle and will remove a relatively small volume of wood. The thinning will target diseased or otherwise unhealthy trees in order to maintain the overall health of the forest. In areas where there is sufficient advanced regeneration, a patchcut removing all the trees on a relatively small area should be considered. The patchcuts will create a diversity of habitat as well as begin the process of regenerating the stand.

Future Management:

Continued thinnings with patchcuts are probably the best option for both stands in Found Land. Typically, a shelterwood would be necessary to capture the timber value before the trees begin to become overmature and to regenerate the stand and encourage future growth of oaks. However, because a shelterwood requires such intensive harvesting, it may be an unpopular option for town-owned land that is so often visited by residents. Thinnings can serve to maintain the health of the forest by removing those trees that are less healthy and may pose a risk to visitors. Patchcuts of various sizes can be incorporated into the harvest to encourage habitat diversity and to regenerate portions of the stand without becoming too objectionable.

2.3.9 Recommendations

We make the following recommendations for Found Land so that it may continue to be a healthy, valuable resource for the residents of Avon:

- 1 Locate and paint new boundaries; repaint existing boundaries. Boundaries have been blazed and posted with Town Forest signs – these should be periodically inspected and maintained to keep the paint visible and the signs in place. Portions of the boundary have changed due to new residential development. Adjustments to the boundary should be located, posted with boundary signs, and painted.
- 2 Maintain the landscaping around the sign at the main entrance in the cul-de-sac at the end of St. Michael's Court. The sign is currently overgrown with weeds.
- 3 Improve the parking area off St. Michael's Court. The current parking area is quite wet and overgrown with weeds. Consider spreading gravel or other material to make the parking area more accessible.
- 4 Consider what to do about the picnic area by the main entrance. The picnic table should be replaced or removed. The trashcan should be regularly emptied or removed. The area should be maintained and mowed.
- 5 Reroute the trail near the end of Scarborough Drive where it has been severely eroded. In planning a new route for the trail, be sure to consider the flow of water in order to avoid more erosion occurring in the future.
- 6 Regular maintenance of all trails is recommended to clear fallen trees and remove debris.
- 7 Update the kiosk with a new trail map. Post instructions on how to download the interpretive trail brochure from the web (fwforesters.com would be pleased to host this service on behalf of the town).
- 8 Begin control of invasive species, especially Japanese barberry.



Figure 2.3.8. The Found Land sign at the main entrance is obscured by unmaintained vegetation.

- 9 Continue to actively manage the forest on the property to maintain forest health. Ten-year management plans should be used to guide forest management activities on this parcel into the future.
- 10 Remove the abandoned vehicle located along the hiking trail in the southeastern corner of the property.

2.4 HAZEN PARK

2.4.1 Property Description

Hazen Park consists of two parcels totaling 53.7 acres in the northeast section of Avon. The park is bounded to the west by Nod Road, to the north by residences on Hazen Drive, Pembroke Drive, and Ridgebury Road, to the south by residences on Woodford Hills Drive and Avon Land Trust property, and to the east by Talcott Mountain State Park. Hazen Drive runs between the two parcels that make up the park.

A small powerline ROW runs through the easternmost portion of the property. The easternmost part of Hazen Park lies within a Ridgeline Overlay Zone as shown on the town Zoning Map.

The most distinctive element of this property is its long, narrow shape combined with a nearly 700-foot change in elevation as the property climbs from the Farmington River valley floor to almost the top of Avon Mountain.

2.4.2 Property History

The original portion of Hazen Park was donated to the Town in 1963 by Mrs. Maynard Hazen, who donated the property to the town in memory of her late husband; the park was officially dedicated in June 1964 (Hartford Courant, June 15, 1964). Mrs. Hazen stipulated that the land be used as open space and for recreation purposes. An additional 5.5 acres were added to the park in 1998 as part of the approval process for the Penbrook Crossing subdivision. At that time, a small parking area (deed restricted to 10 vehicles) was graded at the Nod Road end of the property, replacing an informal parking area within a temporary cul-de-sac on Hazen Drive. This cul-de-sac is now removed, with Hazen Drive now effectively cutting Hazen Park into eastern and western portions.

1935 DEP airphotos show that a large portion of the property has been forested since at least that time. Cultural features on the property include two springhouses - one, near Nod Road, is active and maintained. A second, historic spring structure is located in the far eastern portion of the property. No stonewalls and only scattered wire fence remains are found on the property.



Figure 2.4.1. Wellhouse at Nod Road end of Hazen Park.



Figure 2.4.2. General Map of Hazen Park

2.4.3 Access

The western portion of the park is accessible via an old woods road that runs from Hazen Road to Nod Road, a large portion of which has been blazed as a yellow hiking trail. A short dirt/gravel road from Nod Road provides access to the field in the northwest portion of the property. Light vehicle access via these roads is possible if necessary.

The eastern portion of the property is accessed via a yellow-blazed hiking trail and an old woods road, both of which originate on the east side of Hazen Road (in several places, these overlay). The easternmost portion of the property can be accessed via both yellow-blazed and blue/yellow dot-blazed trails on adjacent Avon Land Trust property. Remains of a woods road that lead to the spring structure remains form a portion of the park's hiking trail in this area. Light vehicle access is possible towards Hazen Road, but is severely limited in the steeper eastern end of the property.



Figure 2.4.3. Signage along Hazen Drive.



Figure 2.4.4. Hazen Park lies both east (downhill) and west (uphill) of Hazen Drive.

2.4.4 Water Resources

No perennial watercourses are present within Hazen Park, but several small intermittent watercourses exist. These are largely fed through a combination of runoff from the ridge and from adjacent residential/developed areas. Somewhat minor erosion and sedimentation was noted in places. The western portion of the property contains no obvious wetland areas, but the maintained field appears to be performing a stormwater collection and conveyance function, and may, over time, develop some wet meadow characteristics.

The eastern portion contains two small wetland corridors that run north-south through the park. The larger (eastern) of these is currently crossed by a 90-foot long pedestrian boardwalk that is in good condition. The smaller corridor narrows to only a small intermittent channel at the center of the property, and flares out to the north and south. The northern portion is in an open/shrub wetland condition.

DEP GIS data (July 2009 update) shows the eastern half of Hazen Park falling within the Level B Nod Road Aquifer Protection Area.

2.4.5 Rare, Endangered or Species of Special Concern

According to the State's Natural Diversity Database (June 2009 update), there is a possibility that rare or endangered species are present in the eastern portion of Hazen Park, and in the northwest corner of the park.

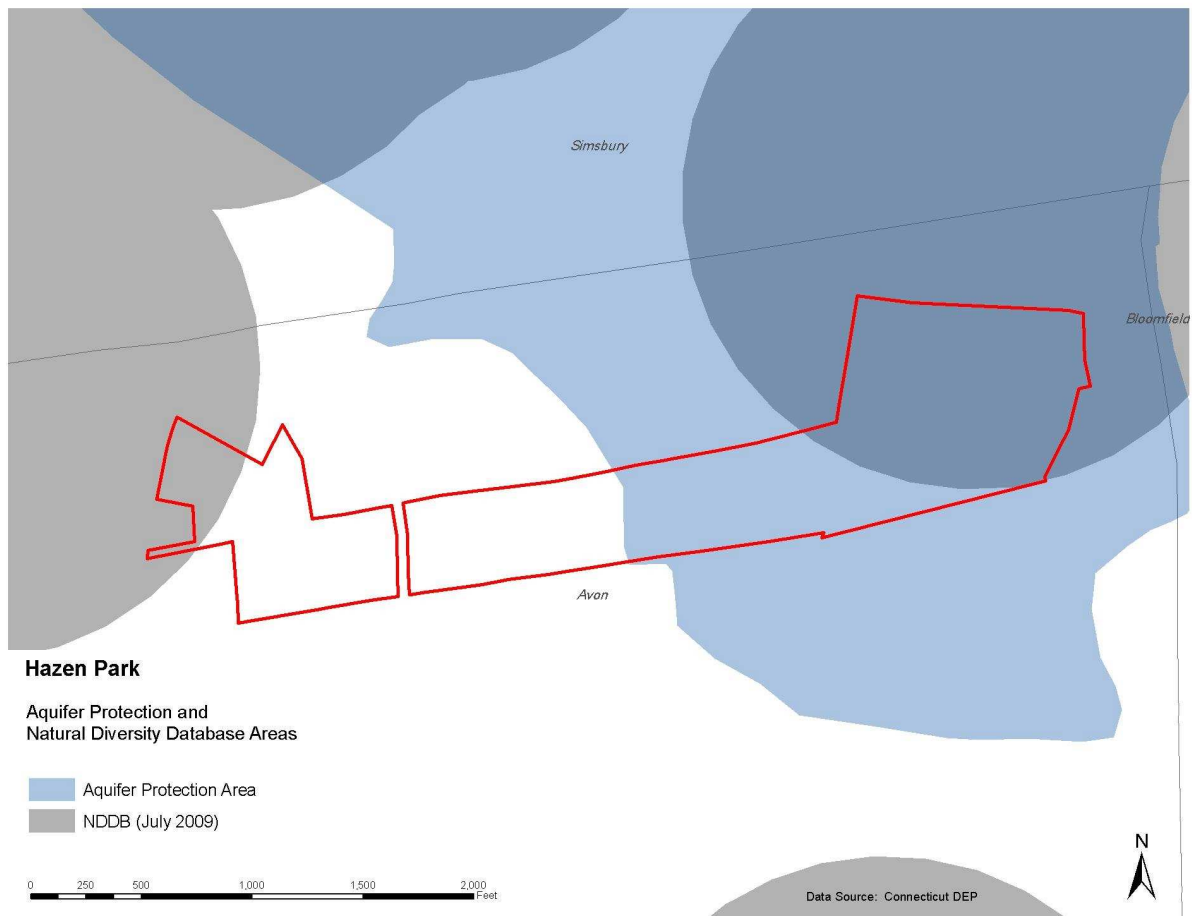


Figure 2.4.5. Aquifer Protection and NDDB Areas

2.4.6 Invasive Species

The most prevalent invasive species found within Hazen Park is **Japanese barberry**, which is found scattered throughout the property. At this time the population is not very extensive, but this species has proven to be quite aggressive and capable of establishing itself and then very methodically spreading from the initial point of establishment. The highest concentrations were seen in the northeastern portion of the park.

The best chance of eliminating Japanese barberry is before it has gained a strong foothold and become well established. Pulling plants out and then spraying after they resprout, or cutting

the stems and then applying herbicide with a paintbrush. are the best ways to kill this plant. This work will likely take 2 to 5 years to completely eliminate all the plants. If the plant is present on adjoining properties, educating the neighbors and working with them to eliminate the plants on their properties will increase the chances of success. Studies by Dr. Jeffery Ward at the Connecticut Agricultural Experiment Station have found that use of propane torches to burn root collars can be extremely effective at barberry removal. The lack of chemicals required for this removal method make it recommended for consideration on watershed lands, within aquifer areas, and in areas adjacent to sensitive water resources.

2.4.7 Recreation

Trails

A yellow-blazed hiking trail currently runs through much of the Hazen Park property, largely on an old farm/woods road. This trail is best accessed from Hazen Drive, where roadside parking is possible. The trail extends west (downhill) to a small field just east of Nod Road; the endpoint of the trail is unclear, and not easily detectable from Nod Road. The trail extends east (uphill) to the easternmost part of the property, where it intersects with both a yellow train and a blue/yellow dot trail on adjoining Avon Land Trust property. The trail is generally clear, and only small areas of erosion were noted. An approximate 90-foot long boardwalk crosses a wetland in the eastern portion of the property.

In 2006, a proposal was brought before the Avon Town Council to connect Hazen Park's hiking

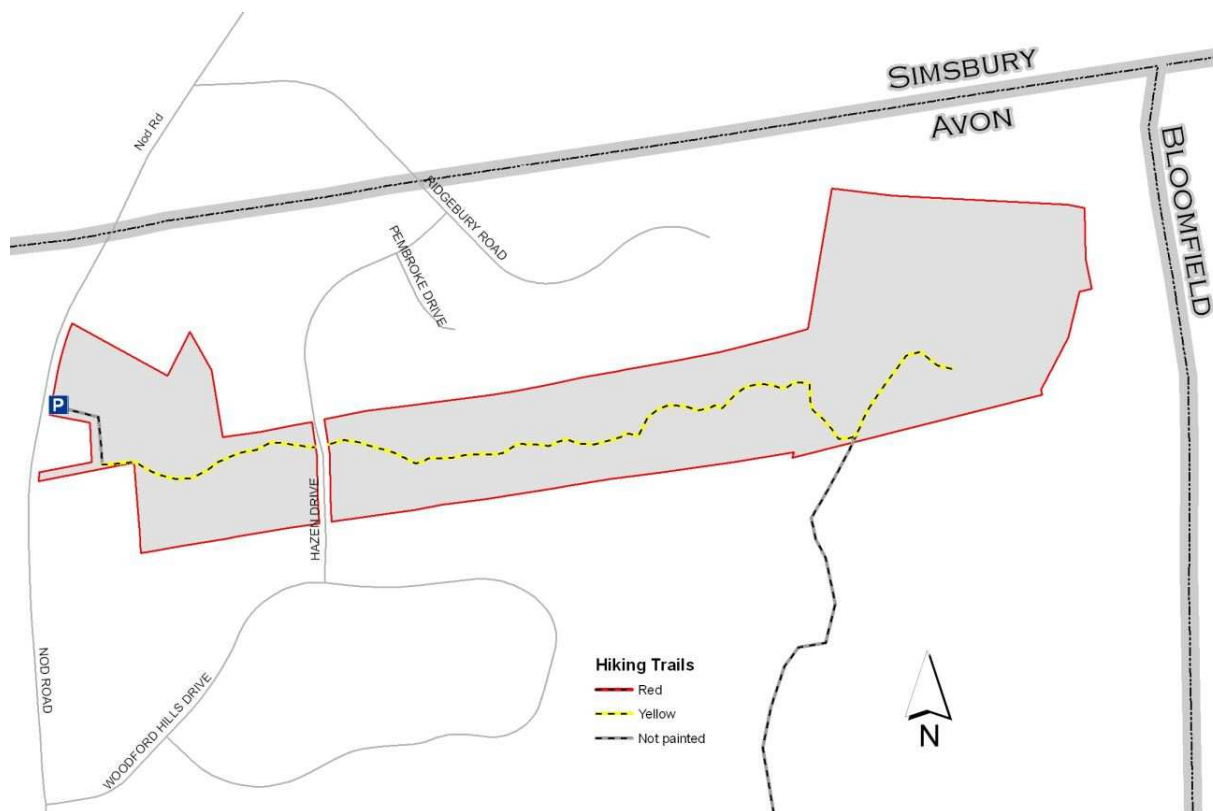


Figure 2.4.6. Trail map of Hazen Park.

trail to the Blue-blazed trail system. This was not approved due to parking and other concerns.

Camping

Both historical documents and the Town's website make references to camping in Hazen Park. No formal camping area was noted during the fieldwork for this Plan.



Figure 2.4.7. Boardwalk within Hazen Park, in Stand 2.

2.4.8 Forest Management

The current open space and forest management program should be continued in order to maintain the health, aesthetic appeal, diversity and stability of this valuable forested property.

NOTE: Given the size, orientation, and location of the forested stands within Hazen Park, only limited or minor forest management activities are recommended in some stands at this time. Those activities recommended (such as invasive species control or TSI) are generally not for timber production purposes, but rather to encourage healthy, diverse forest conditions. In this sense, some portions of Hazen Park can be considered “reserves”. While only limited forest management activities are recommended at this time, the process of regularly collecting forest inventory data can provide valuable insights into changes that are occurring over time on the property in species compositions, tree growth rates, etc.

Stand Descriptions and Management Recommendations

Stands are separate natural communities that are distinct from each other. Dividing a property into stands makes it easier to correctly describe the property and to make appropriate recommendations. Once identified, each stand is treated separately based on its unique characteristics.

Hazen Park Stand Table

<u>Stand</u>	<u>Acres</u>	<u>Description</u>	<u>Recommendations</u>
1	22.1	Oak/Mixed Hardwood Poles & Sawtimber	TSI
2	4.1	Poletimber/Wetland	No Activity
3	18.5	Mixed Hardwood & Pine Sawtimber	TSI
4	3.3	Mixed Hardwood & Hemlock Sawtimber	TSI
5	5.7	Meadow & Hayfield	Mowing
TOTAL	53.7 acres		

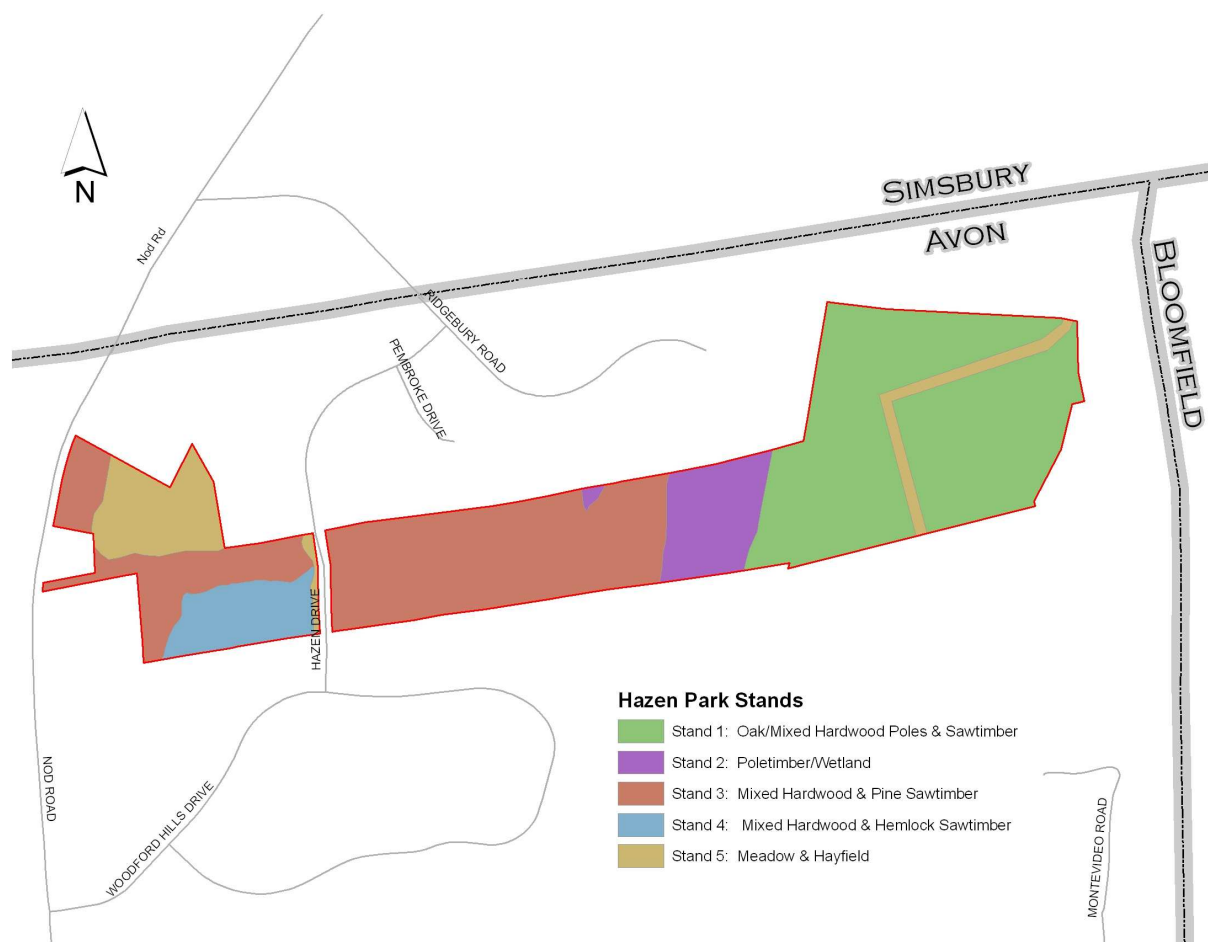


Figure 2.4.8. Hazen Park Stand Map

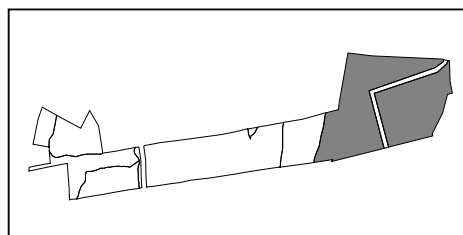
Stand 1: Oak/Mixed Hardwood Poletimber & Sawtimber (22.1 Acres)

Description:

Stand 1 is a 22-acre stand is located near the top of the hill at the eastern end of the property. Access to this stand is difficult, as the terrain is steep and very rocky in places.

This 85 to 95 year old stand occupies a very productive site and is growing many large, high quality oak, ash and sugar maple trees. The overstory trees range from 12 to 22 inches in diameter and are predominately red oak. White oak, hickory, white ash, sugar maple, black birch and some eastern hemlock are also common. The understory is fairly open and consists mostly of black birch seedlings. There are also some red maple, sugar maple and oak seedlings but they are scattered and tend to occur in areas where there is more sunlight reaching the ground

At this time the stand contains over 8,000 board feet of merchantable sawtimber and has 73 square feet per acre of basal area. Despite some overcrowding, due to the lack of regular thin-



nings, most of the trees appear quite healthy. Christmas and hayscented fern are found throughout the stand.

Soils:

Most of this stand is underlain by only one soil type. It is classified as a Wethersfield loam with 15 to 35 percent slope (WmD). However, a small area of the stand may contain a soil very similar to the above. This soil is classified as a Wethersfield very stony loam with 15 to 35 percent slope (WnD). As their names indicate, both these soils occur on steep, rocky ground. Because of this these soils are commonly associated with forest land and not agricultural or pasture land. Both soils are considered to be well drained and moderately permeable, have a high moisture holding capacity and have a fragipan at about 24 inches that can restrict internal drainage. The extreme eastern end of the stand contains a rock outcrop-Holyoke complex (HZE), with 3 to 45 percent slopes, largely associated with the ridgeline.



Figure 2.4.9. Mature trees and steep slope in Stand 1.

Recommendations:

The trees in this stand have received little or no management for most of their lives. The result is a stand that is somewhat overcrowded, with a small number of trees that are beginning to decline in health and vigor. The current basal area of the stand is 73 square feet per acre for sawtimber. A sawtimber thinning to remove some of the low quality, low value trees would be a recommended treatment if there were not several restricting factors. The shape of the property, surrounding land uses, difficult terrain, and poor access all combine to make a harvest in this stand very difficult to accomplish. While a harvest could be accomplished, and the quality and value of the trees left after the harvest would certainly increase dramatically, it is recommended that at this time a sawtimber harvest not be done because other objectives, specifically recreational pursuits, are more compatible with the current conditions.

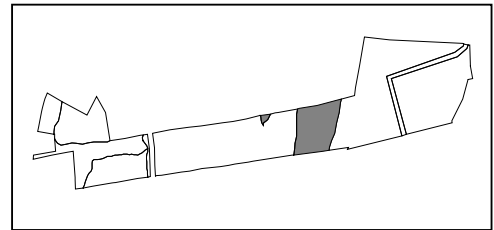
One option that might allow the forest to be lightly thinned with little impact is TSI. A light TSI operation to kill a small number of low quality trees and climbing vines could be done to give remaining trees additional growing space. A thinning of this nature would probably be classified as thinning from below since most of the trees girdled would be suppressed individuals that have little or no impact on the crowns of the dominant and co-dominant trees. The result of the TSI would be slightly more room in the main canopy and an increase in the amount of light that reaches the ground.

Future Management:

Ideally, this type of stand should be thinned every 10 to 12 years to remove undesirable, poorly formed or diseased trees to allow the healthiest trees more space to expand their crowns and produce large amounts of seed. However, due to access issues, this may not be feasible.

Stand 2: Poletimber / Wetland (4.1 Acres)**Description:**

This stand consists of a flat, seasonally wet area in the eastern portion of the property, and a very small open wetland along the property's northern boundary. The property's main hiking trail crosses a portion of this stand via a wooden boardwalk. Access to the stand is provided by the former farm road that now forms the trail.



The stand contains mostly of sapling and poletimber black birch and red maple, with sugar maple and red oak also present. The southwest portion of the stand also contains a patch of black birch and white pine sawtimber. Groundcover includes areas of barberry and multiflora rose.

Soils:

This stand is shown by the soil survey as being underlain by a Wethersfield stony loam with 15 to 25 percent slope (WmD). This soil is considered to be well drained and moderately permeable, has a high moisture holding capacity, and has a fragipan at about 24 inches that can restrict internal drainage. Based on the stand's current conditions, it is possible that more hydric conditions have developed since the soil survey was performed, and the soils within the stand may be taking on more wetland-like characteristics.



Figure 2.4.10. Poletimber in portion of Stand 2.

Recommendations:

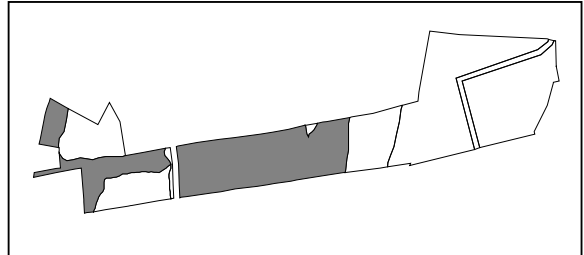
Most of this stand consists of small trees that will naturally thin over time. No activity in this stand is recommended at this time, other than possible invasive species control.

Future Management:

This stand should be allowed to continue a natural self-thinning process, and be reassessed when this plan is next revised.

Stand 3: Mixed Hardwood & Pine Sawtimber (18.5 Acres)**Description:**

This stand occupies 18.5 acres on the mid and lower slope of the property (central and western portions). An old farm road in fair condition provides good access to the whole stand. The terrain has a gentle east-west slope with very few rocks or wet areas.



This stand has many very large, 100 to 110 year old trees. The predominant species are white pine and black oak, but black birch, hemlock, red oak, red pine and red maple were also observed. Beech is beginning to have a presence in the stand. Trees range in diameter from 4 to 30 inches, with most occurring in the 12 to 22 inch category. Many of the trees are in moderate to poor health because they are extremely overcrowded, have been or are being attacked by insects and disease and have a lot of wind and ice damage. Most of the white pines have small live crown ratios because of the dense stocking, all the red pine are dead or dying as they are attacked by the red pine scale insect and the black oak have dying and broken crowns because of declining vigor due to past gypsy moth attacks and wind and ice storm damage.

The understory is largely open due to very little sunlight reaching the ground in most of the stand. Many openings that have been created after a tree died or blew over are generally occupied by barberry, poison ivy, or hayscented fern and contain few desirable tree seedlings or saplings. Barberry is present, in various amounts, through much of this stand's eastern portion.

At this time the stand contains over 17,000 board feet of merchantable sawtimber and has 124 square feet of basal area per acre. Approximately two thirds of the board feet is white pine.

Soils:

The main soils found within this stand are a Wethersfield stony loam with 15 to 35 percent slope (WmD) in the eastern portion, and a Manchester gravelly sandy loam with 3 to 15 percent slope (MgC) in the western portion. Very small amounts of Ludlow silt loam, Occum fine sandy loam, and Holyoke rock outcrop complex are also present.

The Wethersfield stony loam is found on the steeper, rockier ground at the east end of the stand. It is considered to be well drained and moderately permeable, and to have a high moisture holding capacity and a fragipan at about 24 inches that can restrict internal drainage.

The Manchester gravelly sandy loam is an excessively drained, shallow and droughty soil underlain by coarse sand and gravel. It is rapidly permeable and has a low to moderate moisture holding capacity. Unprotected slopes may be subject to erosion.

Recommendations:

The trees in this stand have received little or no management for most of their lives. The result is a stand that is somewhat overcrowded and a moderate number of individual trees that are beginning to decline in health and vigor. The current basal area of the stand is 124 square feet per acre, while the optimum basal area is approximately 75 square feet per acre. Due to the dense stocking, more trees will continue to decline in health and eventually die.

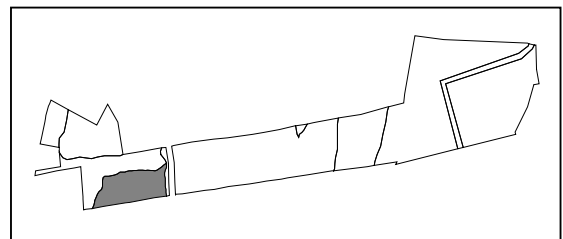
The goals and objectives for this stand are the same as Stand 1, therefore the management recommendations are also the same (see above).

Future Management:

Ideally, this type of stand should be thinned every 10 to 12 years to remove undesirable, poorly formed or diseased trees to allow the healthiest trees more space to expand their crowns and produce large amounts of seed. A sawtimber thinning should be considered when this plan is next revised.

Stand 4: Mixed Hemlock & Hardwood Sawtimber (3.3 Acres)**Description:**

This is a 3.3-acre stand in the southwest portion of the property that was previously included in Stand 3. An old farm road in fair condition provides good access to the stand. The terrain generally slopes gently from east to west and steeply from south to north. Few rocks and no wet areas were observed within the stand.



This stand is similar to Stand 3, but with less white pine and more hemlock. The stand has many very large 100 to 110 year old trees. The predominant species are red oak and eastern hemlock, with red maple, white birch, and some white pine also present. The eastern portion of the stand is more densely stocked. Trees range in diameter from 12 to 26 inches, with most occurring in the 14 to 22 inch category.



Figure 2.4.11. Hemlock-Hardwood mix in Stand 4.

Many of the trees are in moderate to poor health because they are extremely overcrowded, have been or are being attacked by insects and disease and have a lot of wind and ice damage. Many oaks in the stand have dying and broken crowns because of declining vigor due to past gypsy moth attacks and wind and ice storm damage.

The understory is very open due to very little sunlight reaching the ground in most of the stand. Openings that have been created

after a tree died or blew over are generally occupied by hayscented fern and contain few desirable tree seedlings or saplings.

At this time the stand contains over 10,000 board feet of merchantable sawtimber and has 90 square feet of basal area per acre.

Soils:

Stand 4 is underlain by Manchester gravelly sandy loam with 3 to 15 percent slope (MgC). This is an excessively drained, shallow and droughty soil underlain by coarse sand and gravel. It is rapidly permeable and has a low to moderate moisture holding capacity. Unprotected slopes may be subject to erosion.

Recommendations:

The trees in this stand have received little or no management for most of their lives. The result is a stand that is somewhat overcrowded and a moderate number of individual trees that are beginning to decline in health and vigor. The current basal area of the stand is 90 square feet per acre, while the optimum basal area is approximately 75 square feet per acre. Due to the dense stocking, more trees will continue to decline in health and eventually die.

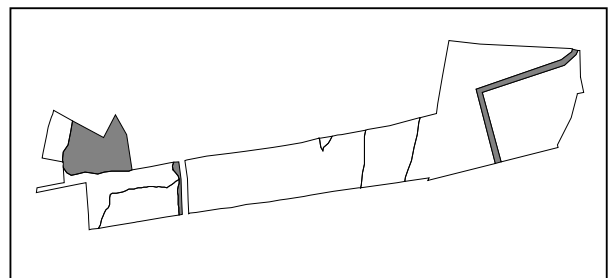
The goals and objectives for this stand are the same as Stand 1, therefore the management recommendations are also the same (see above).

Future Management:

Ideally, this type of stand should be thinned every 10 to 12 years to remove undesirable, poorly formed or diseased trees to allow the healthiest trees more space to expand their crowns and produce large amounts of seed. A sawtimber thinning should be considered when this plan is next revised.

Stand 5: Meadow & Hayfield (5.7 Acres)

This stand includes a field area in the north-west portion of the property, a small powerline R.O.W. in the far eastern end of the property, and a small mowed area along Hazen Drive, including grassed areas that were once a temporary cul-de-sac. Approximately half of the field area appears to be regularly mowed for hay, the remainder is in a shrub-scrub state.



The powerline ROW is also in scrub-shrub; this area likely receives some periodic maintenance, but this has not occurred recently. The area along Hazen Drive appears to receive regular maintenance.



Figure 2.4.12. Maintained and reverting field areas, Nod Road end of Hazen Park

Recommendations:

These areas should continue to be managed largely as they are. They provide valuable wildlife habitat, provide aesthetic backdrops from surrounding areas and land uses, and generally enhance the diversity of Hazen Park as a whole.

Future Management:

Continued mowing and cutting should be done in the field area to maintain field or meadow conditions for habitat diversity. It is expected that periodic maintenance will be performed within the powerline right-of-way.

2.4.7 Recommendations

Previous management plans have called for boundary marking and trail construction activities, and only very limited forest management within Hazen Park. A continuation of these activities is generally recommended for this plan.

1. A portion of the boundaries have been blazed and posted with Town Forest signs – these should be periodically inspected and maintained to keep the paint visible and the signs in place.
2. Several small instances of encroachment exist throughout the property, involving dumping of yard or other debris from adjacent properties. An outreach effort should be considered by the Town to discourage this activity.
3. Ten-year management plans should be used to guide future forest management activities on this parcel.

Recreation Recommendations

As stated in previous recommendations for the property, a looped hiking trail system is not practical for this property because of its long, narrow shape. Other than the trail's inherent value, additional value comes from the connection to Land Trust trails. Improvements to the existing trail are possible and are recommended.

1. Better signage is highly recommended at Hazen Drive, Nod Road, and at the Hazen Park/Avon Land Trust boundary. The entrance from Nod Road is currently unmarked, neither trailhead (east or west) at Hazen Drive is apparent, and the boundary with the Avon Land Trust is vague.

2. Parking along Hazen Drive and off of Nod Road should be better defined, especially off Nod Road. Delineation of the parking area and a potentially lockable gate would make this parking area both more useable and securable, if need be.
3. Existing trail blazes are becoming faded and should be refreshed.
4. A small vista could be created at or near the top of the property, allowing views to the west. This could be accomplished with a narrow slit cut that would not be visible from surrounding residential properties.
5. On steeper portions of the trail, additional treadways, stepping-stones, or the like could assist hikers and help prevent small erosion problems.
6. Vegetation on and around small glacial erratics along the trail could be cleared. This would provide small sitting areas and feature the stones.
7. Regular maintenance of the trails is recommended to remove debris.
8. Several possible errors for Hazen Park were noted on the Town's website. These should be corrected.

2.5 HUCKLEBERRY HILL CONSERVATION AREA

2.5.1 Property Description

Huckleberry Hill Recreation Area consists of 282.4 acres in western Avon. The property is almost completely surrounded by moderate-density residential development. The Found Land Recreation Area is only a few hundred feet to the north, but is separated by private land. Countryside Park and Buckingham Road Recreation Area are across Huckleberry Hill Road near the southwest portion of the property.

This property contains a mix of several forest stands and wetland areas. The wetland areas are mostly connected to Hawley Brook, which runs from north to south throughout the western portion of the property.

2.5.2 Property History

By examining the aerial photography from 1934, almost all of this property was forested. The surrounding area to the north, east and south was all forested as well with some agricultural and residential development along Huckleberry Hill Road.



Figure 2.5.1. Huckleberry Hill sign at the end of Northgate.

2.5.3 Access

Access for logging equipment to this property is poor. There is an existing road entering the property from Huckleberry Hill Road that drops off pretty quickly making egress onto Huckleberry Hill Road difficult. Lines of sight are not great and large vehicles cannot stop at the top of the hill. There needs to be a flagger to stop traffic to allow any large trucks to enter onto Huckleberry Hill Road. This access point also requires crossing Hawley Brook to access most of the property. There is a permanent bridge across the brook, but the road can be wet on both sides of the bridge.

Better access would be from Northgate, which has a cul-de-sac on the property in a flat area and reduces many of the smaller wetland crossings. Also, Hawley Brook would be less crossed because the area west of the brook is much smaller than the area to the east. There is some concern increasing truck traffic through the neighborhood, but it would be sporadic and the same thing must be done to access the Found Land property. The maximum grade on Northgate is a steep, but manageable 12.2%.

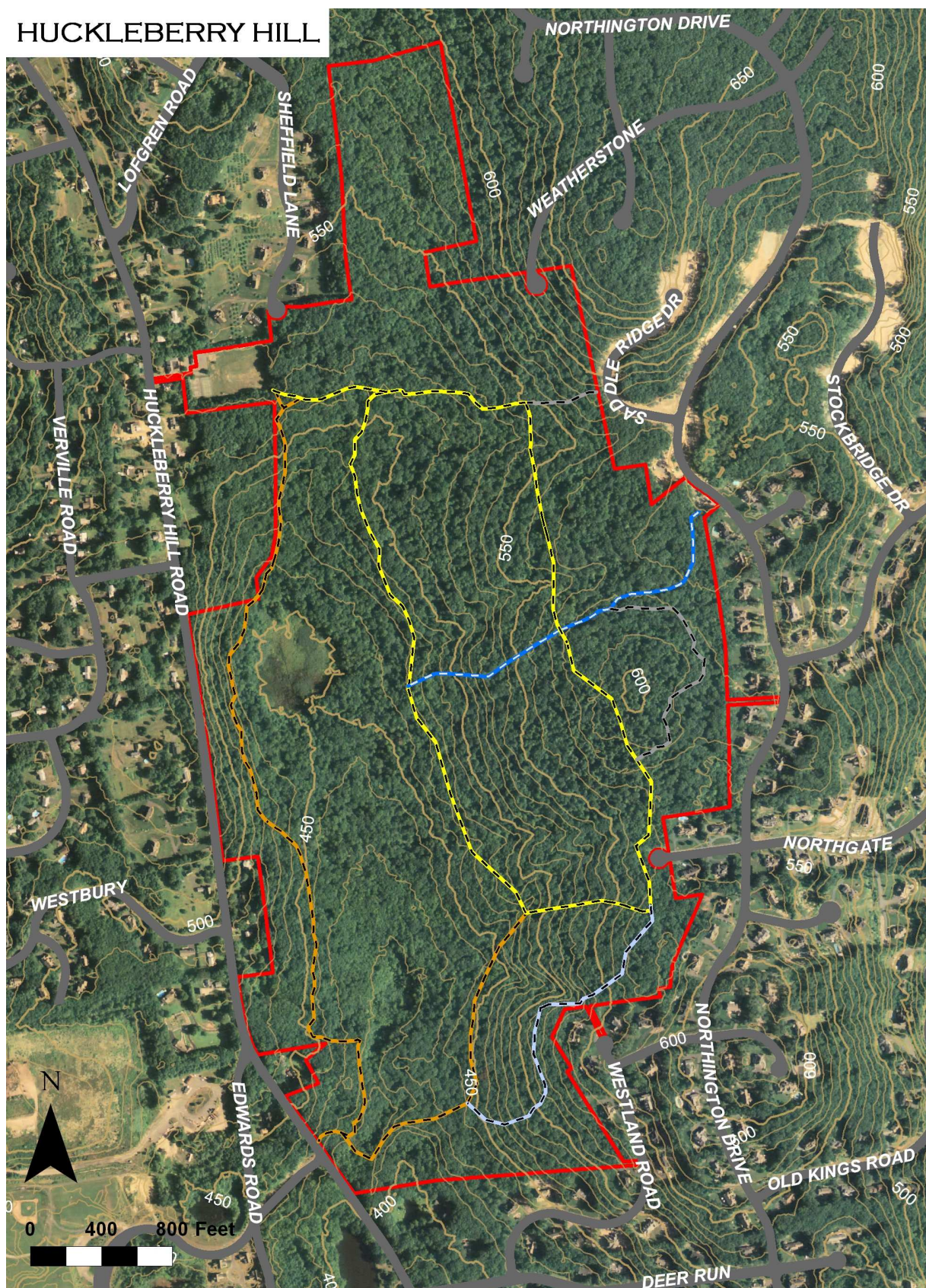


Figure 2.5.2. Map of Huckleberry Hill Recreation Area.

2.1.4 Water Resources

Hawley Brook and its associated wetlands are the most significant water resources on the property. Hawley Brook is a perennial stream that flows from north to south through the entire property. There are several wetland types associated with Hawley Brook found on the property. One is a 5.5 acre wet meadow that is mostly grasses, sedges, rushes, cattails and phragmites. There is also a shrub swamp that is a little less than three acres and is comprised of phragmites, alder, spicebush, grasses, sedges, rushes and red maple, gray birch and yellow poplar seedlings and saplings. There is also a significant amount of forested wetland straddling most of the rest of Hawley Brook. Approximately eight intermittent streams drain down the hill to the east into Hawley Brook. There are also a couple of drainages from the roads to the west that periodically flow into the Hawley Brook wetland system, including one that comes from Huckleberry Hill Road near the intersection with Edwards Road (Figure 2.5.3). There is one main bridge crossing Hawley Brook that can be used for vehicle access to the eastern portion of the property (Figure 2.5.3).



Figure 2.5.3. Outflow from a drainage from Huckleberry Hill Road.



Figure 2.5.4. Main bridge crossing Hawley Brook.

2.5.5 Rare, Endangered or Species of Special Concern

Rare, Endangered or Species of Special Concern

According to the State's Natural Diversity Database (June 2009 update), there are no rare or endangered species present in or around the property.

2.5.6 Invasive Species

Invasive species were found in moderate to high concentrations in several areas of the property. Between Huckleberry Hill Road and Hawley Brook there is a significant population of several invasive species including Japanese barberry, Asiatic bittersweet, multi-flora rose and winged euonymus. Phragmites populations occur in the wet meadow and shrub swamp areas of the Hawley Brook wetland system, while Japanese barberry, multi-flora rose and some Asiatic bittersweet can be found along the edges of the wetland system. In the northern portion of the property, Japanese barberry is found in much of the area in varying concentrations with some scattered multi-flora rose and Asiatic bittersweet as well (Figure 2.5.5).

Throughout the rest of the property there was very little if any invasive species encountered. Very scattered multi-flora rose and Japanese barberry plants were seen in a few places. This is the area that should be focused on for invasive species control. The area between Huckleberry Hill Road and Hawley Brook and the northern portion of the property already have well-established populations of invasive species, which would be expensive and difficult to remediate. The remaining area should be monitored closely because it is much easier and less expensive to control invasive species before they become well established.

2.5.7 Recreation

Parking

Access for hiking can be found at several points around the property. There is parking available along Huckleberry Hill Road at the south end of the property, at the old Huckleberry Hill Elementary School, at the end of Northgate and along Northington Drive between Hawks Ridge and Saddle Ridge Drive. Hikers and bikers have also established a few short connector trails from yards or roads where there is no parking or official trail head. There are kiosks in various states of disrepair at the Huckleberry Hill Road parking

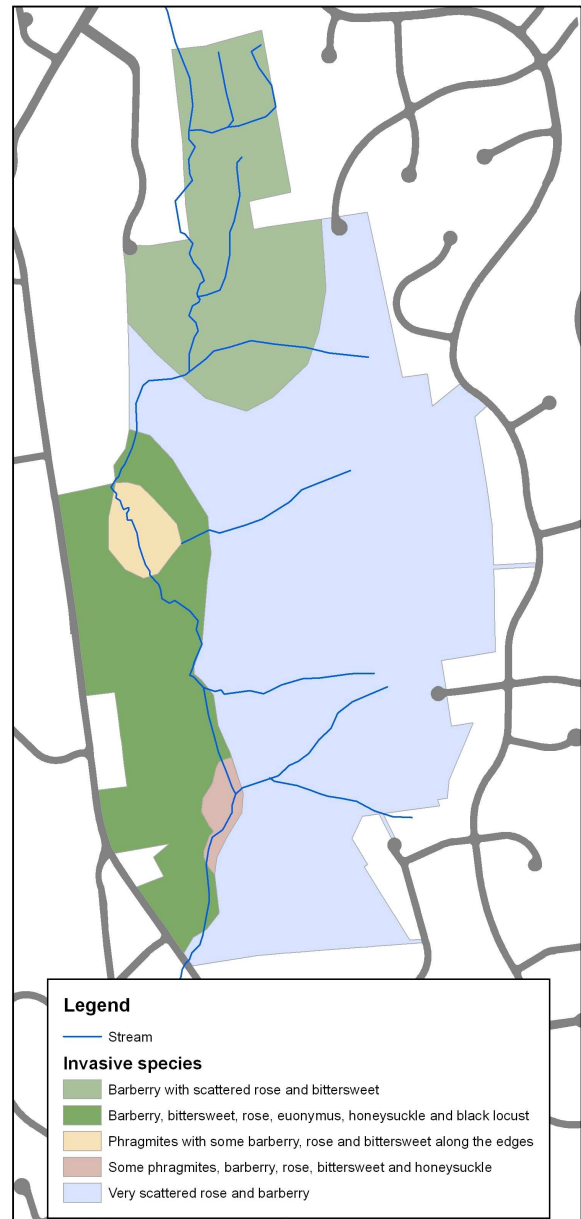


Figure 2.5.5. Presence of invasive species within Huckleberry Hill.

area, the Northgate parking area and the school parking area. Trail maps and information in these kiosks should be updated and they should be repaired if needed.

Picnic Areas

There is one picnic table in a small clearing in the woods next to a small fire pit in the northern portion of the property along the yellow trail east of the recreation field (Figure 2.5.6). The table is not in bad shape but the fire pit should be removed and the area should be cleaned up.

Trails

A yellow-blazed hiking trail currently loops through the property with access from the recreation field and the Northgate parking area. An orange-blazed hiking trail runs north-south through the western portion of the property between trail heads at the recreation field and the Huckleberry Hill Road parking area and also crosses Hawley Brook and connects to the southwest corner of the yellow-blazed loop trail. A blue-blazed trail runs from the Northington parking area and cuts across the middle of the yellow-blazed loop trail.



Figure 2.5.6. Picnic area near the recreation field.



Figure 2.5.7. Footbridge crossing Hawley Brook.



Figure 2.5.8. Footbridge through a wet spot on the trail.

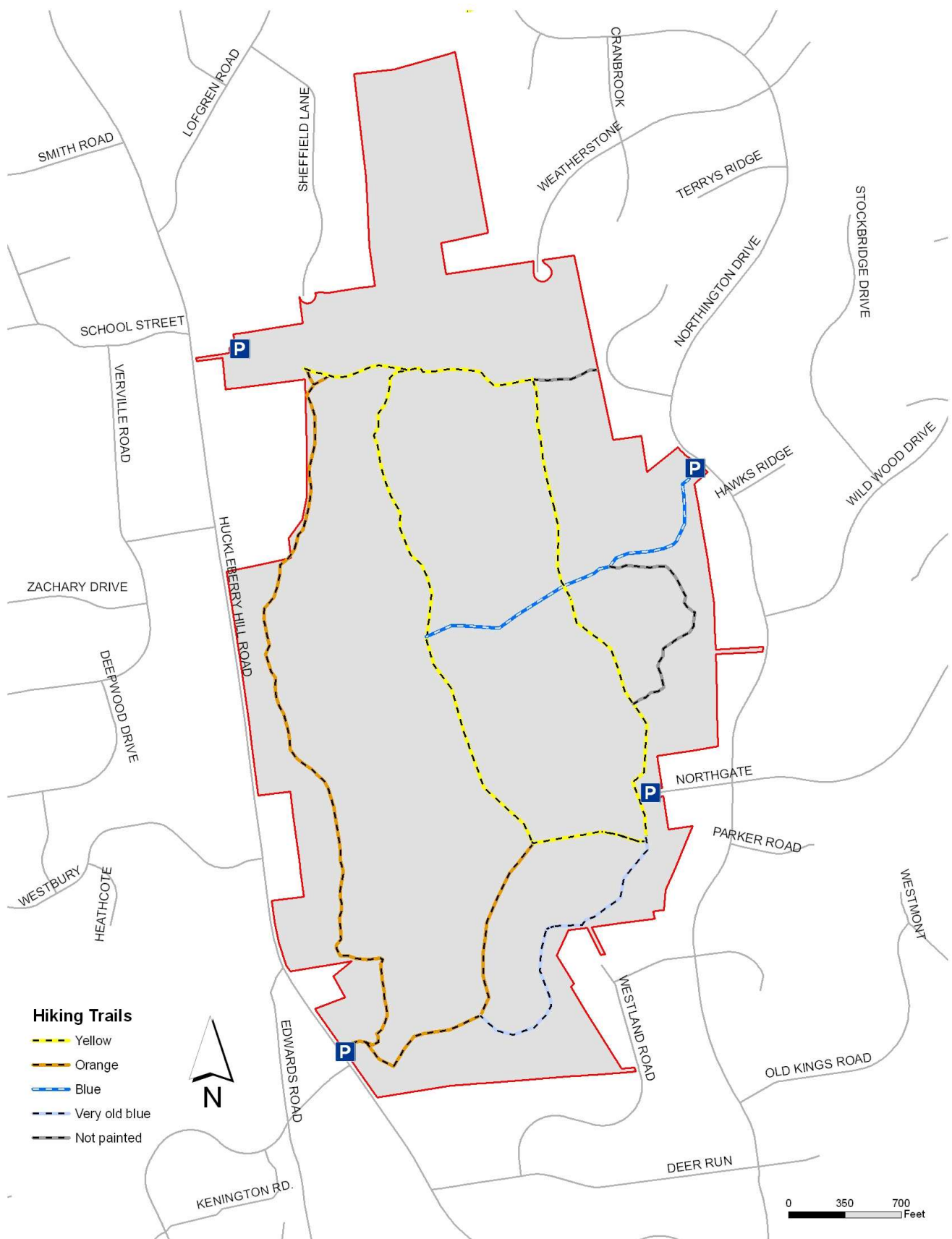


Figure 2.5.9. Hiking Trail map of Huckleberry Hill Recreation Area.

In the southeast portion of the property there is a trail with old, faded blue paint. It connects the orange-blazed trail with the yellow-blazed trail roughly following the property boundary. This trail was not painted but gets significant use and should be added to the official trails. There are several unofficial trails that are not painted that get varying degrees of use. The short connector from Saddle Ridge Drive gets a moderate amount of use and a trail in the eastern portion of the property between the blue-blazed trail and the yellow-blazed trail gets some use. This trail should be ignored and not become part of the official trail system. The trail from Saddle Ridge Drive could be blazed yellow like the yellow-blazed spur to the recreation field. Other unofficial trails should be ignored or blocked.

The trails range from flat to somewhat steep, with some areas that can get wet. The two sections of the orange-blazed trail that run along Hawley Brook can get wet at times. The two crossings of Hawley Brook have bridges (Figure 2.5.7) and there is some corduroy and little bridges throughout the wet areas. Much of the work in the wet areas seems to have been done by people using the trails and is working pretty well (Figure 2.5.8). Some additional work could be done in these areas to bolster what has already been done.

Environmental Education

Currently there are no interpretive or educational resources available along these trails. There was previously a viewing area looking into the wet meadow, but it is overgrown and dilapidated. Something could be set up again with a trail leading to it. Other opportunities could also be explored.

2.5.8 Forest Management

The current open space and forest management program should be continued in order to maintain the health, aesthetic appeal, diversity and stability of this valuable forested property.

Stand Descriptions and Management Recommendations

Stands are separate natural communities that are distinct from each other. Dividing a property into stands makes it easier to correctly describe the property and to make appropriate recommendations. Once identified, each stand is treated separately based on its unique characteristics. The forest on Huckleberry Hill consists of eight stands.

Huckleberry Hill Recreation Area Stands

<u>Stand</u>	<u>Acres</u>	<u>Description</u>	<u>Recommendations</u>
1	98.9	Oak and Mixed Hardwood Sawtimber with Regeneration	Crown thinning/shelterwood
2	27.3	Oak and White Pine Sawtimber	Crown thinning/shelterwood
3	27.9	White Pine, Oak and Mixed Hardwood Sawtimber	Cut marked thinning
4	25.0	Oak Sawtimber	Cut marked thinning
5	29.0	Maple, Oak and Ash Sawtimber and Poletimber	Crown thinning/shelterwood
6	13.4	Oak and Mixed Hardwood Sawtimber and Poletimber	Leave as a natural reserve
7	8.7	Mixed Hardwood Sawtimber	Leave as a natural reserve
8	39.6	Forested Wetland	Leave as a natural reserve
9	2.9	Shrub Swamp	Leave as a natural reserve
10	0.4	Potential Vernal Pools	Leave as a natural reserve
11	5.5	Wet Meadow	Leave as a natural reserve
12	3.8	Recreation Field	Maintain as active recreation
Total	282.4 acres		

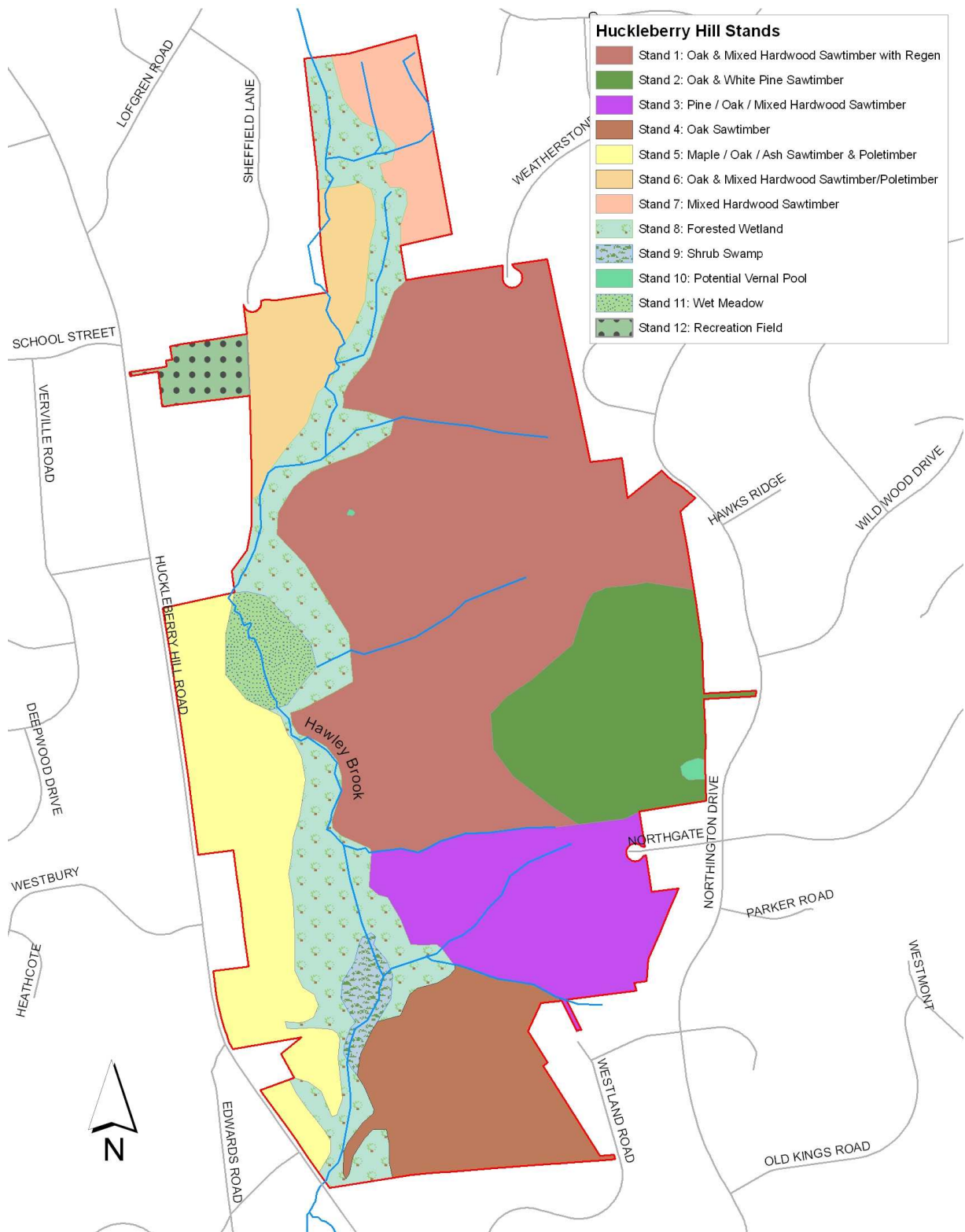


Figure 2.5.10. Stand map of the Huckleberry Hill Recreation Area.

Stand 1: Oak and Mixed Hardwood Sawtimber with Regeneration (98.9 Acres)

Description:

This is the largest stand in this property covering about 99 acres east of Hawley Brook. It is located on a moderate, west-facing slope with two intermittent streams within the stand and one forming the southern boundary. The western boundary is the forested wetland associated with Hawley Brook. The site is easily operable with equipment access from the existing woods road that crosses Hawley Brook and skid trails throughout the stand. Much of the yellow-blazed loop trail is in this stand as well as the entire blue-blazed trail.

This stand contains mostly 14"-24" red oak sawtimber with a mix of red maple, black oak, hickory, tulip poplar and black birch sawtimber. There is also a sizable contingent of black birch, red maple and hemlock poletimber growing underneath the sawtimber. This stand contains quite a few openings created during previous forest management activities that have filled in with abundant regeneration dominated by black birch, but also including red maple, tulip poplar, hickory, red oak, black cherry, white ash and white pine.

The current basal area is 96 square feet per acre, which is above the optimum stocking level. Many of the stand's trees are in fair to good health and are benefiting from the increased space and light created by previous harvests. This stand has a good mix of very large trees, smaller sawtimber, poletimber and pockets of seedlings and saplings that give it structural diversity and different age classes.

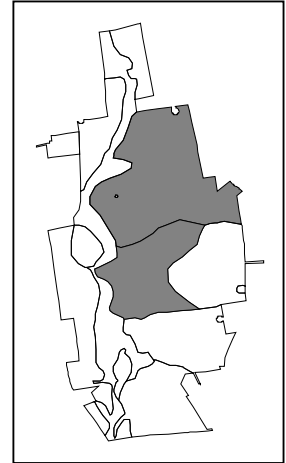
There are moderate amounts of understory shrubs throughout the stand. These include viburnums, chestnut, spicebush, blueberry, witch-hazel, hornbeam and hop hornbeam. Spicebush and hornbeam are found closer to Hawley Brook. There are also some areas covered with ferns.

Soils:

Soils in this stand consist of Canton and Charlton soils, Charlton-Chatfield complex, Sutton and Ridgebury, Leicester and Whitman soils. All of these soils are very stony or rocky glacial till soils that are moderately well drained to very well drained, except Ridgebury, Leicester and Whitman soils which are poorly drained wetland soils associated with Hawley Brook. These soils are mostly associated with forestland and are not important farmland soils. The Sutton soils are closer to the Ridgebury, Leicester and Whitman wetland soils at the bottom of the hill, while the others are mixed amongst each other throughout the remainder of the stand.

Recommendations:

The goals for the management of this stand are to continue maintaining a mixed species forest with a high degree of diversity, continue to improve wildlife habitat, and maintain aesthetics along the trails. To accomplish these goals, the selection system approach to harvesting should be continued. With this system, individual trees or small groups of trees are selected for har-



vesting. All sizes of trees should be removed to maintain structural diversity. Large, mature trees are harvested for wood products and to create openings for new growth; smaller trees are cut in order to remove diseased and/or poorly formed trees or undesirable species to reduce crowding and stimulate growth on remaining trees. This stand also has patches of regeneration that should be encouraged and expanded during future management to create greater age and structural diversity. New patches of varying sizes can also be added.

This stand is split into two harvests. The northern portion, north of the middle intermittent stream, should be harvested around 2011. It should remove between 1500 and 2000 board feet per acre using group selection to thin out larger trees, remove unhealthy and poorly formed trees, and to increase and release regeneration patches. The highest quality trees will be left behind to continue growing and to provide a seed source for the future. High quality red oak, white pine, tulip poplar and black oak will be favored.

The southern portion should be harvested around 2014 at the same time as Stand 2. The same prescription should be used for this part of the stand as described above.

Future Management:

This stand should be thinned every 10 to 15 years in order to maintain favorable conditions for tree growth, to remove dying and unhealthy trees and to stimulate or release desirable regeneration.

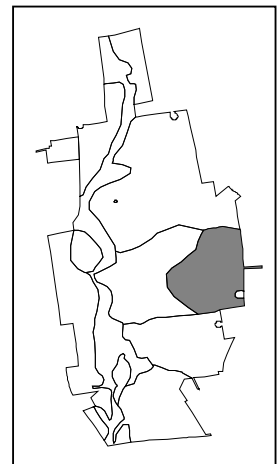
Stand 2: Oak and White Pine Sawtimber (27.3 Acres)

Description:

This stand consists of approximately 27 acres of mostly oak and white pine sawtimber on top of the hill in the eastern portion of the property. This stand is relatively flat with some southwest- and west-facing slopes in the western portion of the stand. The site is easily operable with equipment access from the existing woods road that crosses Hawley Brook and skid trails throughout the stand. Some of the yellow-blazed loop trail is in this stand as well as an unmarked trail. There are no streams in this stand, which is quite dry except for a possible vernal pool in the southeast corner.

This stand contains mostly 12"-22" red oak and white pine sawtimber with a mix of red maple, black birch, hickory, hemlock and white pine poletimber. There is quite a bit of regeneration in this stand that is mostly black birch, white pine and red maple.

The current basal area is 117 square feet per acre, which is above the optimum stocking level. Many of the stand's trees are in fair to good health and are benefiting from the increased space and light created by previous harvests. This stand has a good mix of very large trees, smaller sawtimber, poletimber and pockets of seedlings and saplings that give it structural diversity and different age classes. The deciduous/conifer mix also provides good browse and shelter habitat for wildlife.



There are low amounts of understory shrubs throughout the stand. These include blueberry, viburnums and hop hornbeam. There are also some areas covered with ferns.

Soils:

Soils in this stand consist of Canton and Charlton soils, Charlton-Chatfield complex and Sutton soils of varying slope percentages. All of these soils are very stony or rocky glacial till soils that are moderately well drained to very well drained. These soils are mostly associated with forestland and are not important farm or wetland soils. The Sutton soils in this stand surround the potential vernal pool, while the western part of the stand is Charlton-Chatfield complex and the eastern part of the stand is Canton and Charlton soils.

Recommendations:

The goals for the management of this stand continue to be similar to those for Stand 1, therefore a group selection approach to harvesting is recommended for Stand 2. When using this technique, individual trees or small groups of trees (5 or less) are removed during harvesting in order to maximize all of the stated goals. White pine regeneration, as well as the scattered oak regeneration, should be favored and encouraged where it exists. Black birch regeneration is the dominate seedling/sapling species and can be encouraged where it is established, but it is not the most desirable species in this stand.

The next harvest should occur in about 2014, at the same time as the southern part of Stand 1 is harvested, and should remove 2000 to 2500 board feet per acre of mostly low quality red oak and white pine sawtimber. The highest quality trees will be left behind to continue growing and to provide a seed source for the future focusing on red oak and white pine.

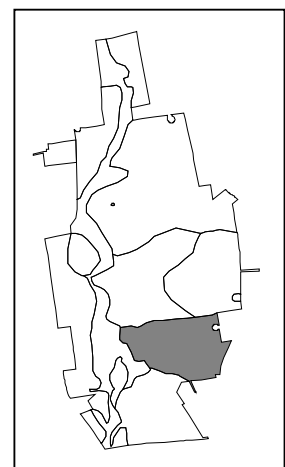
Future Management:

This stand should be thinned every 10 to 15 years in order to maintain favorable conditions for tree growth, to remove dying and unhealthy trees and to stimulate or release desirable regeneration.

Stand 3: White Pine, Oak and Mixed Hardwood Sawtimber (27.9 Acres)

Description:

This stand consists of approximately 28 acres of mostly white pine and sawtimber with some maple, birch, tulip poplar and hickory sawtimber. This stand is completely on a west-facing slope in the southwestern portion of the property. The site is operable with equipment access from the existing woods road that crosses Hawley Brook and skid trails throughout the stand. There are intermittent streams on both the north and south boundaries of the stand and one intermittent stream through the middle of the stand that present some challenge to operability. The western boundary of the stand is the forested wetland associated with Hawley Brook. The streams have been crossed during previous management. The orange-blazed trail and the old blue-blazed trail meet up



with the yellow-blazed loop trail in this stand.

This stand contains mostly large white pine sawtimber (18"+) and 12"-14" hardwood sawtimber with some larger red oak, yellow birch and red maple sawtimber. There is also a fair amount of red maple, yellow birch, hickory and black birch poletimber. There is some white pine, red maple and white oak regeneration in spots.

The current basal area is 137 square feet per acre, which is above the optimum stocking level. Many of the stand's trees are in fair to good health and are benefiting from the increased space and light created by previous harvests. This stand has a good mix of very large trees, smaller sawtimber, poletimber and pockets of seedlings and saplings that give it structural diversity and different age classes. The deciduous/conifer mix also provides good browse and shelter habitat for wildlife.

There are low amounts of understory shrubs throughout the stand. These include hop hornbeam, viburnums, chestnut and spicebush. There are also some areas with ferns.

Soils:

Soils in this stand consist of Charlton-Chatfield complex, Sutton and Ridgebury, Leicester and Whitman soils of varying slope percentages. These soils are very stony or rocky glacial till soils that are moderately well drained to very well drained, except Ridgebury, Leicester and Whitman soils which are poorly drained wetland soils associated with Hawley Brook. These soils are mostly associated with forestland and are not important farmland soils. The Sutton soils are closer to the Ridgebury, Leicester and Whitman wetland soils at the bottom of the hill while the majority of the stand is Charlton-Chatfield complex.

Recommendations:

This stand was marked in 2007 and as of the writing of this plan had not been cut yet. This is mostly due to weather conditions. It should be cut within a year. Because of this, no harvesting will be scheduled for this management cycle. This stand should receive another treatment at the beginning of the next management cycle around 2020.

Future Management:

This stand should be thinned every 10 to 15 years in order to maintain favorable conditions for tree growth, to remove dying and unhealthy trees and to stimulate or release desirable regeneration.

Stand 4: Oak Sawtimber (25.0 Acres)

Description:

This stand contains about 25 acres in the southern-most portion of the property. The eastern portion of this stand is one of the steepest parts of the property with the slopes facing west. The western portion of this stand flattens out a bit near Hawley Brook. The northern boundary of this stand is an intermittent stream, while the western boundary is either shrub swamp or forested wetland associated with Hawley Brook. Equipment accesses this stand where the orange-blazed trail crosses the intermittent stream. The steepness is not much of a factor and the entire stand is operable. The orange-blazed trail and the old blue-blazed trail traverse this stand.

This stand contains mostly 12"-20" red oak sawtimber with some scarlet oak, black oak, white oak and cottonwood sawtimber. There is also some sugar maple, yellow birch and black birch poletimber growing underneath the sawtimber. There is some scattered regeneration including red maple, black oak, hickory and birch.

The current basal area is 103 square feet per acre, which is above the optimum stocking level. Many of the stand's trees are in fair to good health but there is some dieback of ash and black locust. This stand has a good mix of very large trees, smaller sawtimber, poletimber and pockets of seedlings and saplings that give it structural diversity and different age classes.

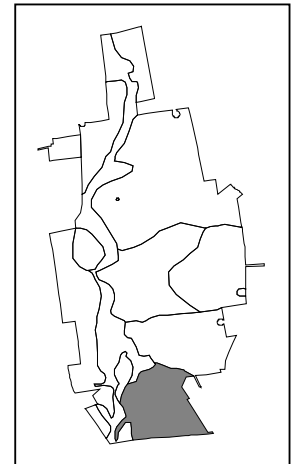
There are moderate to high amounts of understory shrubs throughout the stand. Most of the exotic invasive species on this property are in this stand. The rich soil and proximity to the road provide ample opportunity for these species to flourish. There are areas within this stand that are covered with winged euonymus, Asiatic bittersweet, Japanese barberry and multi-flora rose. There are also some spicebush, poison ivy, Virginia creeper and viburnums mixed throughout.

Soils:

Soils in this stand consist of Paxton and Montauk, Woodbridge, Sutton and Gloucester soils of varying slope percentages. These soils are very stony or rocky glacial till soils that are moderately well drained to very well drained. These soils are mostly associated with forestland and are not important farm or wetland soils. The Sutton and Gloucester soils in this stand are found toward the bottom of the slope near Hawley Brook, while the majority of the stand is Charlton-Chatfield complex.

Recommendations:

This stand was marked in 2007 and as of the writing of this plan had not been cut yet. This is mostly due to weather conditions. It should be cut within a year. Because of this, no harvesting will be scheduled for this management cycle.



Future Management:

This stand should be thinned every 10 to 15 years in order to maintain favorable conditions for tree growth, to remove dying and unhealthy trees and to stimulate or release desirable regeneration.

Stand 5: Maple, Oak and Ash Sawtimber and Poletimber (29.0 Acres)**Description:**

This stand contains about 29 acres in the western portion of the property. This stand is relatively flat with east-facing slopes down to the wetlands associated with Hawley Brook. The exception is right along Huckleberry Hill Road where it is moderately steep in parts. Equipment access comes from Huckleberry Hill Road on the existing road just north of the northern inholding. Equipment access to the southernmost section of this stand is cut off by a wetland that is not worth crossing. The orange-blazed trail runs north-south through the entire stand.

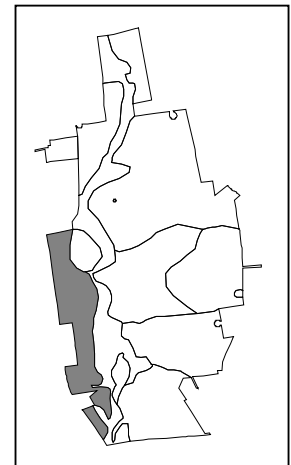
This stand contains a mix of small, medium and large sugar maple and red oak sawtimber with some ash, red maple, black oak and scarlet oak sawtimber. There is also a fair amount of sugar maple poletimber, saplings and seedlings growing in the understory throughout the stand. In the northern portion of the stand there is also some black locust sawtimber.

The current basal area is 136 square feet per acre, which is above the optimum stocking level. Many of the stand's trees are in fair to good health and will be benefiting from the increased space and light created by the scheduled harvest. This stand has a good mix of very large trees, smaller sawtimber, poletimber and pockets of seedlings and saplings that give it structural diversity and different age classes.

There are low amounts of understory shrubs throughout the stand. These include viburnums, hop hornbeam, spicebush, blueberry and hornbeam. Spicebush and ferns are found closer to Hawley Brook.

Soils:

Soils in this stand consist of Woodbridge, Gloucester, Sutton, Paxton and Montauk and Ridgebury, Leicester and Whitman soils of varying slope percentages. These soils are very stony or rocky glacial till soils that are moderately well drained to very well drained, except for Ridgebury, Leicester and Whitman soils which are poorly drained wetland soils associated with Hawley Brook. These soils are mostly associated with forestland and are not important farmland soils. The Paxton and Montauk soils are found at the top of the hill along Huckleberry Hill Road in the northern section of the stand. Woodbridge soils are found between the Paxton and Montauk soils and the Ridgebury, Leicester and Whitman soils on the flatter parts of the northern section of the stand. Sutton and Gloucester soils are found in the southern portion of the stand.



Recommendations:

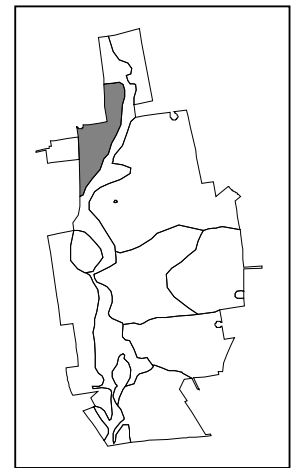
Most of this area was harvested in 2003 with the southern portion of Stand 1 and Stand 2. It should receive a combination of a crown thinning and group shelterwood cuts in 2015 with the southern portion of Stand 1 and Stand 2.

Future Management:

This stand should be thinned every 10 to 15 years in order to maintain favorable conditions for tree growth, to remove dying and unhealthy trees and to stimulate or release desirable regeneration.

Stand 6: Oak and Mixed Hardwood Sawtimber and Poletimber (13.4 Acres)**Description:**

This stand contains more than 13 acres in the northwest portion of the property, nearest to the recreation field. This stand is one of the flatter areas of the property with a slight slope down to Hawley Brook, which bisects the stand. Most of this stand is bordered by forested wetland associated with Hawley Brook with a portion of the western boundary bordered by the recreation field. Equipment access to this stand is difficult with either a sizeable wetland crossing or crossing the recreation field. The orange-blazed trail and the yellow-blazed trail meet at their beginnings in this stand at the edge of the recreation field.



This stand contains mostly small to medium sized mixed hardwood sawtimber including red maple, scarlet oak, white oak, black oak, yellow birch, black birch and cottonwood sawtimber. There is also some hemlock sawtimber. Poletimber is a significant component of this stand and includes black birch, hemlock, hickory, ash, red maple, white pine and sugar maple. There are some scattered oak and white pine seedlings.

The current basal area is 160 square feet per acre, which is above the optimum stocking level. This stand has a good mix of very large trees, smaller sawtimber, poletimber and pockets of seedlings and saplings that give it structural diversity and different age classes. The mix of deciduous and conifer species also provides habitat and browse diversity.

There are low to moderate amounts of understory shrubs throughout the stand. Spicebush is the most abundant shrub species with varying amounts of Japanese barberry, blueberry and witch-hazel. There are also areas with ferns.

Soils:

This stand mostly consists of Sutton soils with some Ridgebury, Leicester and Whitman soils and a very small area of Canton and Charlton soils. These soils are very stony or rocky glacial till soils that are moderately well drained to very well drained, except Ridgebury, Leicester and

Whitman soils which are poorly drained wetland soils associated with Hawley Brook. These soils are mostly associated with forestland and are not important farmland soils.

Management Recommendations:

Because access is difficult, the area is small and isolated from the other manageable stands; this area should be left as a natural reserve as part of the Hawley Brook corridor.

Future Management:

This area should be left as a natural reserve.

Stand 7: Mixed Hardwood Sawtimber (8.7 Acres)

Description:

This stand contains almost 9 acres in the northernmost portion of the property. This stand is relatively with a slight slope down to Hawley Brook. The western boundary of this stand is bordered by forested wetland associated with Hawley Brook. There is no easy equipment access to this stand because of wetland crossings. There are two intermittent streams in this stand, which flow into Hawley Brook. There are no trails in this stand.

This stand contains mostly small to medium sized mixed hardwood sawtimber including red oak, red maple, tulip poplar and hickory sawtimber. There is also some hickory, red maple and yellow birch poletimber and some scattered mixed hardwood seedlings.

The current basal area is 130 square feet per acre, which is above the optimum stocking level. This stand is mostly small sawtimber with some large trees that create some structural diversity.

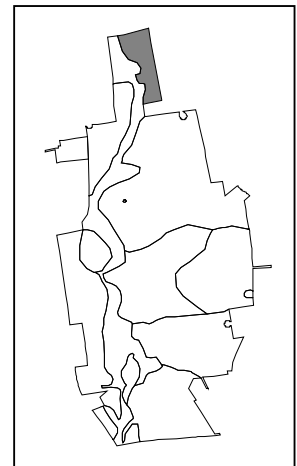
There are moderate amounts of understory shrubs throughout the stand. Spicebush, hornbeam, Japanese barberry, multi-flora rose and ferns are found throughout the stand.

Soils:

This stand consists of pockets of Woodbridge soils separate by Ridgebury, Leicester and Whitman soils and a very small area of Charlton-Chatfield complex soils at the southern end of the stand. These soils are very stony or rocky glacial till soils that are moderately well drained to very well drained, except Ridgebury, Leicester and Whitman soils which are poorly drained wetland soils associated with Hawley Brook and the intermittent streams. These soils are mostly associated with forestland and are not important farmland soils.

Management Recommendations:

Because access is difficult, the area is small and isolated from the other manageable stands; this area should be left as a natural reserve as part of the Hawley Brook corridor.



Future Management (Stand 7):

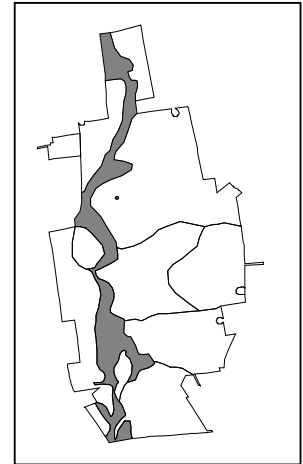
This area should be left as a natural reserve.

Stand 8: Forested Wetland (39.6 Acres)***Description:***

This stand contains almost 40 acres running north-south throughout the property, mostly along Hawley Brook. This stand is flat, forested wetland that borders almost every stand and is a dominant feature of this property. Equipment can cross this stand at a permanent bridge just south of Stand 11. The yellow-blazed trail crosses through the stand in the northern part of the property and the orange-blazed trail crosses in the southern part of the property.

This stand contains mostly red maple sawtimber and poletimber with some scattered mixed hardwood sawtimber and poletimber. The current basal area is 144 square feet per acre, which is above the optimum stocking level.

There are moderate to high amounts of understory shrubs throughout the stand. Spicebush and Japanese barberry are the most abundant shrub species with varying amounts of hornbeam, hop hornbeam, witch-hazel, blueberry and azalea. Skunk cabbage, trillium, jewelweed and ferns are also found throughout the stand.

***Soils:***

This stand mostly consists of Ridgebury, Leicester and Whitman soils and a couple small areas of Sutton and Gloucester soils. Ridgebury, Leicester and Whitman soils are extremely stony, poorly drained wetland soils associated with Hawley Brook. These soils are mostly associated with forestland and are not important farmland soils.

Management Recommendations:

This area provides valuable wildlife habitat, provides aesthetic backdrops from surrounding areas and land uses, and generally enhances the diversity of Huckleberry Hill as a whole. Some trees could be removed from the edges when harvesting in adjacent stands to create more diversity within the stand and allow some sunlight to reach the forest floor in this area. Most of this area will remain unmanaged as a natural reserve.

Future Management:

This area will be kept as a natural reserve.

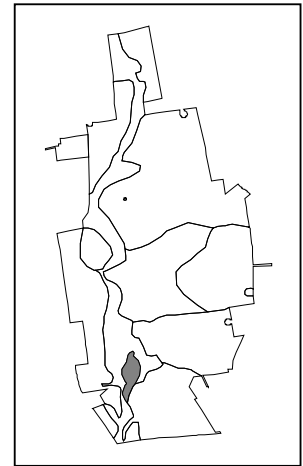
Stand 9: Shrub Swamp (2.9 Acres)

Description:

This stand contains almost 3 acres in the southern portion of the property. This stand is flat and wet and is associated with Hawley Brook. It consists of phragmites, alder, spicebush, grasses, sedges, rushes, forbs and red maple, gray birch and tulip poplar seedlings and saplings (Figure 2.5.11).

Soils:

This stand consists of Ridgebury, Leicester and Whitman soils and Woodbridge soils. Ridgebury, Leicester and Whitman soils are extremely stony, poorly drained wetland soils associated with Hawley Brook. Woodbridge soils are very stony or rocky glacial till soils that are moderately well drained to very well drained. These soils are mostly associated with forestland and are not important farmland soils.



Management Recommendations:

This area provides valuable wildlife habitat, provides aesthetic backdrops from surrounding areas and land uses, and generally enhances the diversity of Huckleberry Hill as a whole. This area will remain unmanaged as a natural reserve.

Future Management:

This area will be kept as a natural reserve.



Figure 2.5.11. Shrub swamp.

Stand 10: Potential Vernal Pools (0.4 Acres)

Description:

This stand is comprised of two potential vernal pools, one in the eastern portion of the property (Figure 2.5.12) and the other in the central portion of the property. They characteristically have no vegetation in them, and are quite wet certain times of the year. Large swamp white oak trees surround the area in the eastern portion of the property.

Soils:

These areas are both within Sutton soil types, which are very stony, fine sandy loams that are derived from glacial till and are moderately well drained.

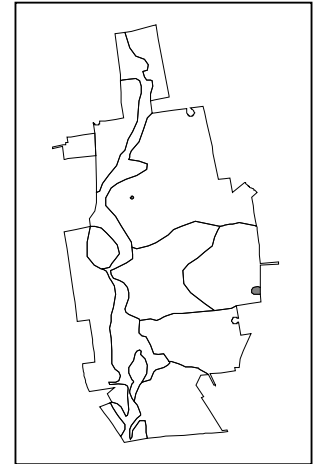


Figure 2.5.12. Potential vernal pool.

Management Recommendations:

This area provides valuable wildlife habitat, provides aesthetic backdrops from surrounding areas and land uses, and generally enhances the diversity of Huckleberry Hill as a whole. This area will remain unmanaged as a natural reserve.

The eastern portion of this stand is near significant residential development and needs to be monitored to make sure it stays relatively unharmed. There was evidence of some littering in the possible pool area and this should be cleaned up.

Future Management:

This area will be kept as a natural reserve. Monitoring of dumping or trespassing in the eastern portion will be needed from time to time.

Stand 11: Wet Meadow (5.5 Acres)

Description:

This stand is 5.5 acres of open wetland (Figure 2.5.13). Phragmites and cattails dominate most of the stand with many grasses, sedges, rushes and forbs. This is important habitat that needs to be protected.

Soils:

The soils in this stand are Catden and Freetown soils. They are very deep, very poorly drained soils in very flat areas. They are usually associated with marshes.

Management Recommendations:

This area provides valuable wildlife habitat, provides aesthetic backdrops from surrounding areas and land uses, and generally enhances the diversity of Huckleberry Hill as a whole. This area will remain unmanaged as a natural reserve.

There was a viewing area that has fallen in to disrepair. Constructing another viewing area could be explored as an educational and wildlife viewing opportunity.

Future Management:

This area will be kept as a natural reserve.

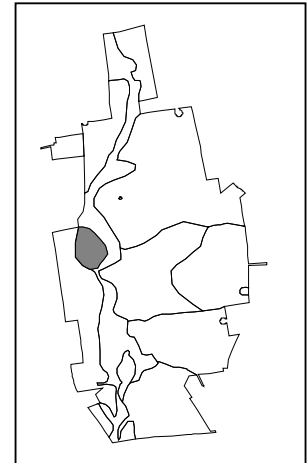


Figure 2.5.13. Wet meadow.

Stand 12: Recreation Field (3.8 Acres)

Description:

This area is mostly a soccer field (Figure 2.5.14) with a basketball court, parking lot and former tennis courts behind the old Huckleberry Hill Elementary School, which is now an apartment building. The tennis courts were removed recently. There is a fence with a gate between the parking lot and soccer field. There is a kiosk in the field with no information (Figure 2.5.15).

Soils:

The soils in this stand are mostly Udorthents, which are urban and disturbed soils.

Management Recommendations:

Continue to manage for active recreation. Fixing up the kiosk and marking the trailhead at the southeastern boundary of the stand should be priorities.

Future Management:

This area will continue to be used for active recreation and parking.

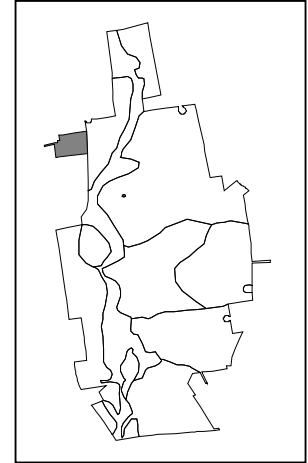


Figure 2.5.14. Soccer field.



Figure 2.5.15. Empty kiosk.

2.5.9 Recommendations

We make the following recommendations for Huckleberry Hill Recreation Area so that it may continue to be a healthy, valuable resource for the residents of Avon:

Management Recommendations:

1. Locate, paint and post new boundaries and repaint existing boundaries. Boundaries should be repainted every four to five years to prevent having to locate them anew. New residential development may have altered the property or created new evidence and this should be updated.
2. Invasive species should be periodically monitored in the area where there are few invasive species. Invasive plants should be removed from these areas when found. The areas between Huckleberry Hill Road and Hawley Brook and the northernmost portion of the property are well established with invasive species and would need a sizeable grant or volunteer effort to be of substantial value.
3. Continue to actively manage the forest to maintain forest health. There are two harvests scheduled for this management cycle as well as one that needs to be cut that was marked during the last management cycle.
 - a. Stands 3 and 4 should be harvested by the fall of 2010.
 - b. The northern portion of Stand 1 should be harvested around 2011.
 - c. The southern portion of Stand 1 and Stand 2 should be harvested around 2014.

Recreation Recommendations:

1. Update and repair the three kiosks. The kiosk in the Recreation Field stand needs repairs, as does the kiosk off of Northgate. The Huckleberry Hill Road kiosk is in good physical shape. Information should be updated or add to all three kiosks.
2. Explore adding a kiosk at the parking area along Northington Drive.
3. Mark the trailhead at the southeast corner of the Recreation Field.
4. Clean the area surrounding the picnic table and remove the fire pit to discourage fire building on the property.
5. Continue to maintain the existing trails. Regular maintenance to remove fallen trees from the trail and hazard trees from near the trail should be done. This would also include repainting the trails as needed, fixing wetland crossing structures as needed, and blocking unauthorized trails when needed.
6. Explore rebuilding the wildlife viewing area of the Wet Meadow stand and a trail leading to the viewing area.

Appendices

APPENDIX A - RECREATIONAL PLAN

A.1 GENERAL

A.1.1 Website

Websites have proven themselves as excellent outlets for providing information to the public. We strongly recommend that the Town's website be used as much as possible to promote all recreational opportunities listed below. In particular, we recommend that the Town post maps and information about these properties so that the public can pre-plan trips and learn about new areas. Additionally, it is possible to use the Town website to offer mapping data (such as KML files) that allow the public to interactively explore Town-owned properties in web-based mapping programs.

A.1.2 Hiking & Walking Trails

All of the properties covered by this Management Plan contain hiking and/or walking opportunities. Taken together, the collection of trails can be considered multi-modal, as hiking, jogging, mountain biking, dog walking, and cross-country skiing are all possible. This helps to provide a wide range of recreational opportunities for the entire community. Easy, moderate, and difficult trails are all available, and are all currently well used. Continuation of this strong trail network should be a priority.

A.1.3 Maps & Brochures

Many of the properties have had maps and brochures previously produced and made available to the public. Updating and reprinting of all of these is recommended, along with creation of a map/brochure for Hazen Park.

A.1.4 Picnic Areas

Most of the properties covered by this Plan contain picnic areas of varying quality and level of upkeep. Picnic areas are generally a good complement to parking areas and walking/hiking trails. Regular or semi-regular maintenance of these areas ensure that they will remain safe for public use, and will encourage additional use.

A.1.5 Geocaches & Letterboxes

Geocaching and letterboxing are activities that have grown in popularity over the past ten years. These activities are essentially "scavenger hunts" where participants use either descriptive clues or GPS coordinates to find small boxes hidden in the woods. The boxes typically contain notebooks where visitors can record their visit, creating a history of everyone who has located the letterbox/cache. On-line logs are also popular.

Both letterboxing and geocaching provide excellent opportunities to expand passive recreation on the Town of Avon's properties for all age levels. The activities are low impact, require little investment of time or materials, and can potentially help develop problem-solving and navigational skills.

All of the properties covered by this plan currently have letterboxes, and all properties except for Hazen Park have geocaches. Information about these is available on the Internet at www.letterboxing.org (letterboxes) and www.geocaching.com (geocaches).

Geocaches:

Alsop Meadows

Huckleberry Hill

Found Land

Fisher Meadows

Letterboxes:

All properties

A Town-sponsored program for letterboxes and/or geocaches is recommended for all of the properties covered by this plan, similar to the letterboxing program run by the Connecticut DEP in 30 state forests (information at www.ct.gov/dep). Through this example program, the public is able to earn patches or a walking stick for visiting several (or all) of the State-operated letterboxes. Similarly, the Town of Avon could easily develop a series of letterboxes and/or geocaches, publicize them through the Town website and through the schools or library, and possibly offer patches or some other form of reward. DEP recreational trails grants could possibly be applied for to help fund such a program.



A.1.6 Nature Center

Previous plans have recommended use of the barn at Alsop Meadows as a nature center. While efforts to begin this appear to have occurred in the past and then stalled, this is still a viable goal. If the Town were to pursue this as a project, it would be extremely important to secure a long-term commitment for funding to accomplish both renovation work and subsequent operational costs. One possibility to offset costs could be to establish an agreement with another organization, such as a local civic group, to operate the facility.

In the even that the Alsop Meadows barn is deemed unsuitable for this use, securing an alternative location for such a facility is a recommended goal.

A.2 PROPERTY-SPECIFIC RECOMMENDATIONS

A.2.1 Alsop Meadows

Alsop Meadows is a somewhat active recreational area, due in part to the array of activities available. During the course of site visitations for this plan, observed activities included hiking (several people and dogs), lunchtime walking from nearby offices, canoe launching, informal swimming, gardening, and lacrosse practice. In addition to continuing these activities, it is generally recommended that efforts be restarted to develop and use Alsop Meadows as an environmental education/demonstration park.

1. Some form of signage at the property's entrance from Nassau Way is needed. Currently, no signage exists.
2. Better signage is highly recommended at the southern end of the property. Under current conditions, it is very easy for trail users to wander off of Town property.
3. Two new trails are recommended for the eastern portion of the property. One would utilize the existing woods road in the northeastern portion of the property and then loop back to the main driveway via the edge of the hayfield along Route 44. A second trail would utilize the skid road in the southeastern portion of the property, and loop to the area of the community garden by roughly following the property line. Together, these trails would wind through different habitat types and add to the property's overall hiking opportunities.
4. Both existing and new trails could be developed into an interpretive nature trail with several stations or teaching areas that illustrate the property's natural features and demonstrate silvicultural techniques, wildlife habitat management techniques. Signage that has been used at Fisher Meadows would be an excellent model. A printed guide to the nature trail could further explain the features at each station, and be made available on-site or placed on the Town's website.
5. Erosion control measures are recommended at the property's canoe launch site. This area appears to be heavily used, and while not seriously eroding, it is in need of some stabilization measures to help ensure that more severe erosion does not occur. This item is also recommended in the Town's 2008 Recreational Master Plan. Establishing more vegetation on the slope and/or creating a more formalized launch to limit traffic to one area are possibilities to assist with this goal.
6. Efforts to revitalize the previously established arboretum area are recommended. This would entail maintenance of both the planted trees and surrounding vegetation. A printed guide could be made available on-site or placed on the Town's website.
7. As suggested in previous management plans, the barn at Alsop Meadows could be used as a nature center if renovated. While efforts to begin this appear to have occurred in the past and then stalled, this is still a viable goal. If the Town were to pursue this as a project, it would be extremely important to secure a long-term commitment for funding

to accomplish both renovation work and subsequent operational costs. One possibility to offset costs could be to establish an agreement with another organization, such as a local civic group, to operate the facility. A parking area to accommodate several cars would have to be developed as well. It is noted that the Town's 2008 Recreational Master Plan recommends removal of this barn.

8. Existing trail blazes are becoming faded and should be refreshed.
9. Regular maintenance of all trails is recommended to remove trash and debris such as fallen branches/trees and check for erosion.

A.2.2 Fisher Meadows

Fisher Meadows is a very active recreational area with an array of activities available. It is generally recommended that this wide mix of activities be continued, and enhanced through the following recommendations.

1. Minor erosion control measures are recommended at the property's canoe launch and fishing areas around Spring Lake and along the Farmington River. While currently minor, erosion issues can quickly grow, and should be regularly monitored.
2. Better signage is highly recommended at the far northern end of the property. Under current conditions, it is very easy for trail users to wander off of Town property.
3. Printed guides/maps of the trails in Fisher Meadows should be made available either at the property or on the Town's website, or both. While the property is well used, there are likely members of the community who are not familiar with the property.
4. The new trail that runs from the main Fisher Meadows parking area towards Fisher Farms is quickly becoming overgrown. This trail should be maintained, and possibly better signed on a temporary basis to encourage new use.
5. Trail bridges north of the trailhead parking area are in need of repair and maintenance. Two of these currently require some brush cutting and some minor repair work, one of these bridges has been dislocated and should be rebuilt.
6. Old information boards around the property should be replaced. This would be an excellent Scout project.
7. Many of the existing trail blazes are becoming faded and should be refreshed.
8. As recommended in the previous Plan, in areas where trails cross agricultural fields it may be helpful to install posts that can be marked with the appropriate marker to help hikers follow the trail.
9. All trail blazes along abandoned trails should be removed. These could be confusing to walkers/hikers, especially those not familiar with the property.
10. Regular maintenance of all trails is recommended to remove trash and debris such as fallen branches/trees and check for erosion.
11. A formal canoe launch is recommended along the Farmington River, either close to the trailhead parking area in the northern end of the property, or in the southern end of the property near to Old Farms Road.
12. The property should continue to be made available to schools and other groups for research or education programs. With good access, easy terrain and a mixture of land uses, Fisher Meadows is an excellent spot to bring groups for field trips dealing with a variety of natural resource issues.

A.2.3 Found Land

The following items are recommended for Found Land so that it may continue to be a healthy, valuable resource for the residents of Avon:

1. Maintain the landscaping around the sign at the main entrance in the cul-de-sac at the end of St. Michael's Court. The sign is currently overgrown with weeds.
2. Improve the parking area off St. Michael's Court. The current parking area is quite wet and overgrown with weeds. Consider spreading gravel or other material to make the parking area more accessible.
3. Consider what to do about the picnic area by the main entrance. The picnic table should be replaced or removed. The trashcan should be regularly emptied or removed. The area should be maintained and mowed.
4. Reroute the trail near the end of Scarborough Drive where it has been severely eroded. In planning a new route for the trail, be sure to consider the flow of water in order to avoid more erosion occurring in the future.
5. Regular maintenance of all trails is recommended to clear fallen trees and remove debris.
6. Update the kiosk with a new trail map. Post instructions on how to download the interpretive trail brochure from the web (fwforesters.com would be pleased to host this service on behalf of the town).

A.2.4 Hazen Park

Hazen Park's existing trail suitably covers the property and meets with Avon Land Trust Trails at the east end of the property. The following improvements to Hazen Park's existing trail are recommended:

1. Better signage is highly recommended at Hazen Drive, Nod Road, and at the Hazen Park/Avon Land Trust boundary. The entrance from Nod Road is currently unmarked, neither trailhead (east or west) at Hazen Drive is apparent, and the boundary with the Avon Land Trust is vague.
2. Parking along Hazen Drive and off of Nod Road should be better defined, especially off Nod Road. Delineation of the parking area and a potentially lockable gate would make this parking area both more useable and securable, if need be.
3. Existing trail blazes are becoming faded and should be refreshed.
4. A small vista could be created at or near the top of the property, allowing views to the west. This could be accomplished with a narrow slit cut that would not be visible from surrounding residential properties.
5. On steeper portions of the trail, additional treadways, stepping-stones, or the like could assist hikers and help prevent small erosion problems.
6. Vegetation on and around small glacial erratics along the trail could be cleared. This would provide small sitting areas and feature the stones.
7. Regular maintenance of the trail is recommended to remove debris.
8. Several possible errors for Hazen Park were noted on the Town's website. These should be corrected.

A.2.5 Huckleberry Hill

Huckleberry Hill Recreation Area contains an extensive hiking trail system that is heavily used as well as a soccer field and a basketball court. The following recommendations could improve the amenities offered at this property.

1. Update and repair the three kiosks. The kiosk in the Recreation Field stand needs repairs, as does the kiosk off of Northgate. The Huckleberry Hill Road kiosk is in good physical shape. Information should be updated or add to all three kiosks.
2. Explore adding a kiosk at the parking area along Northington Drive.
3. Mark the trailhead at the southeast corner of the Recreation Field.
4. Clean the area surrounding the picnic table and remove the fire pit to discourage fire building on the property.
5. Continue to maintain the existing trails. Regular maintenance to remove fallen trees from the trail and hazard trees from near the trail should be done. This would also include repainting the trails as needed, fixing wetland crossing structures as needed, and blocking unauthorized trails when needed.
6. Explore rebuilding the wildlife viewing area of the Wet Meadow stand and a trail leading to the viewing area.

APPENDIX B - 10-YEAR IMPLEMENTATION PLAN

The following is a recommended schedule for implementing the recommendations found within this Management Plan. Dates of specific activities, including timber harvests, should be considered somewhat flexible due to potential seasonal conditions, market fluctuations, or budget constraints. All Invasives Control work should be moved as far forward in the proposed schedule as budgets permit.

2009 - 2010

Boundary Work	Refresh paint and signage at Found Land
Timber Harvest	Huckleberry Hill (Stands 3 & 4)
Other	Update public trail maps - all properties

2010 - 2011

Boundary Work	Refresh paint and signage at Alsop Meadows & Hazen Park
Invasives Control	Alsop Meadows (especially Stand 4) & Found Land
Other	Re-route trail near Scarborough Drive - Found Land Develop and install letterboxes/geocaches

2011 - 2012

Boundary Work	Refresh paint and signage at Huckleberry Hill
Timber Harvest	Huckleberry Hill (Stand 1 - northern portion)

2012 - 2013

Boundary Work	Refresh paint and signage at Fisher Meadows
Invasives Control	Fisher Meadows

2013 - 2014

Timber Harvest	Huckleberry Hill (southern portion of Stand 1, Stand 2)
Invasives Control	Huckleberry Hill

2014 - 2015

Trails	Refresh paint on all trail - all properties Construct new trail at Alsop Meadows
Invasives Control	Hazen Park

2015- 2016

Timber Harvest	Fisher Meadows (Stand 3)
TSI	Fisher Meadows (Stands 1, 2, 4)

2016- 2017

Timber Harvest	Found Land (Stands 1 & 2)
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2017- 2018

Timber Harvest	Alsop Meadows (Stands 1&2)
TSI	Alsop Meadows (Stand 3)

2018- 2019

TSI	Hazen Park, to possibly include creation of small vista in Stand 1.
Other	Reinventory properties and update management plan.

NOTE: All Invasives Control work should be moved forward in schedule if budget permits.

APPENDIX C - FORESTRY TERMS & TREATMENTS

Basal Area: The area in square feet of the cross section of a tree or trees at DBH

Board foot: Wood used for lumber that measures 12"x 12" x 1" (MBF = 1000 board feet)

Canopy: Where the leaves and upper branches of a tree are located

Cord: Cut and stacked wood measuring 8'x 4'x 4' (includes the air in between logs)

DBH: ("Diameter at Breast Height") diameter of a tree 4.5 feet above the ground

Drainage: Ability of soil to shed excess water

Habitat: The food, water, cover, and living space wildlife needs for survival

Hardwood: Broad-leaved trees that usually shed their leaves in the fall

Intermittent Stream: A small stream that does not flow year-round

Microtopography: Changes in elevation on a small scale; dips and bumps in the land

Over mature: Trees that have reached biological old age and have begun to decline in vigor

Overstory: Upper canopy of tree tops

Pole or Poletimber: Trees having a DBH of 6 to 12 inches

Regeneration: New young trees

Sapling: Trees having a DBH of 1 to 6 inches

Sawtimber or Sawlog: Trees having a DBH greater than 12 inches

Seedling: Trees having a DBH less than 1 inch

Silviculture: The art, science, and practice of producing and tending a forest

Skid Trail or Road: Corridor through the woods that logs are dragged or skidded down

Snag: a dead standing tree

Stand: Separate and distinct natural community

Understory: Vegetation layer below the upper canopy of treetops

Water Bar: Ditches or logs place at an angle to the slope to divert water from its downhill path

APPENDIX D - RECOMMENDED READING

A Sierra Club Naturalist's Guide to Southern New England by Neil Jorgensen

This is the most comprehensive guide to the natural history of southern New England. This book teaches you how to read the landscape by introducing the natural communities of southern New England.

Audubon Field Guide to New England

An excellent reference for identifying most natural features in New England. This includes rocks, mammals, reptiles, amphibians, birds, trees, plants, and much more.

Connecticut Woodlands by the Connecticut Forest and Park Association: cfpa.org

This is the periodical and organization for anything to do with forests in Connecticut. It is published quarterly for CFPA members.

Forest Trees of the Northeast by Lassoie, Luzadis, and Grover

This book provides complete descriptions of most of the tree species of the northeastern US. It covers identification, habitat, range, life history, insect and diseases, management, and products.

New England's Landscape by Neil Jorgensen

Concise overview of the geology and vegetation of New England.

New England Forests Through Time by Foster and O'Keefe

A wonderful coffee table book that will interest even the most citified among us. Vivid pictures and flowing prose about the history of New England's forests.

Northern Woodlands magazine: northernwoodlands.com

This quarterly has anything and everything to do with nature, conservation, forestry, and wildlife in New England. A professional magazine of the caliber of National Geographic.

Reading the Forested Landscape by Tom Wessels

A total description of how every acre of New England's forests became the way they are. Read this book before any others on this list!

Sermons in Stone by Susan Allport

The author presents a fascinating history of New England's stonewalls – who built them, when, why, and how. Almost by mistake, she presents a unique look at New England's natural history.

The Face of Connecticut by Michael Bell

The complete story of Connecticut's geology, geography, and man's interaction with both.

The Trees in My Forest by Bernd Heinrich

This is a biological look at the forest. It is excellent for understanding how trees grow, how they interact with each other, and how they interact with the land.

Working with Your Woodland by Beattie, Thompson, and Levine

Anyone interested in taking an active role in forest management should read this book. It summarizes four years of forestry school into an easy to read book.

APPENDIX E - DOCUMENTS CONSULTED OR CITED

The Farmington Valley Biodiversity Project: A Model for Intermunicipal Biodiversity Planning in Connecticut. 2006. Gruner, H. J., M. W. Klemens, and A. Persons. MCA Technical Paper No. 11, Metropolitan Conservation Alliance, Wildlife Conservation Society, Bronx, New York. Available online at: www.wcs.org/mca.

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