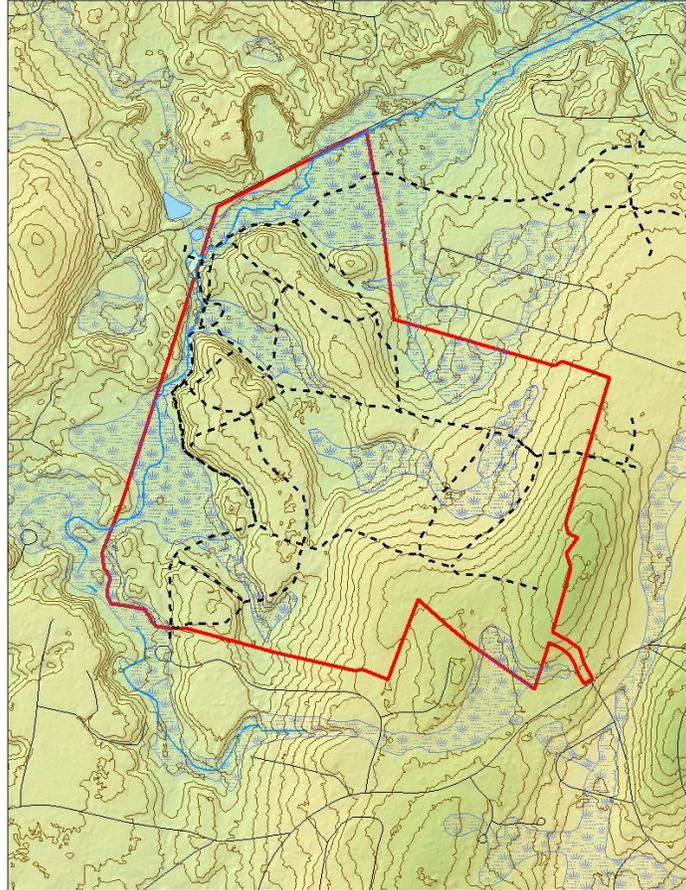


**Management Plan for
Ethel Walker Open Space Property
Town of Simsbury
375 acres; 2014-2023
Simsbury, CT – Hartford County**



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Executive Summary

This Management Plan is intended to guide the management of the Ethel Walker Open Space Property, which was recently purchased and is now owned by the Town of Simsbury located in Simsbury, Connecticut for the period of 2014-2023. This property is to be managed to maintain and enhance forest health, wildlife habitat for a variety of species, improve timber quality, help maintain balanced and properly functioning ecosystems, improve recreational experiences, and maintain aesthetic qualities, all while keeping the protection of water quality and soil integrity paramount.

This property is approximately 375 acres and was researched and field-investigated by Ferrucci & Walicki, LLC during summer 2014. The results, along with multiple-use management recommendations for the next

ten years, are included in this management plan.

Overall, the investigation revealed that the property contains generally two-aged forested and occasional uneven-aged, healthy upland, wetland, and riparian ecosystems. This property possesses varying levels of both existing and potential opportunities for future recreation, forest and wildlife management. The property also contains existing road and trail systems that provide excellent access throughout.

This property is well-suited for a multiple-use land management program. All recommendations have been carefully considered and balanced within the general overall objectives of the Town's forestland management goals and other interests.

Goals for the Ethel Walker Open Space Property Multiple-Use Management Program

1. Engage in sound, sustainable land stewardship
2. Provide suitable recreational opportunities
3. Conserve soil & water resources
4. Maintain sensitive or special areas as reserves
5. Protect cultural resources
6. Maintain & improve forest and ecosystem health
7. Protect & enhance diverse wildlife habitat
8. Generate periodic income from the sale of forest products to help fund land management projects on the property



Summary of Major Recommendations

Further details on these major recommendations are contained within the body of this plan.

Natural Resources

1. A forest management program, including periodic timber harvests and wildlife habitat work, should be continued on this property. Efforts to maintain and enhance wildlife habitat, improve forest health, personal safety, and maintain water quality and soil stability, should be the focus of management activities.
2. Continue the history of sound forest management that has been practiced here by engaging in a series of timber harvests to continue to improve forest health and species, age class and size class diversity.
3. Invasive plant species, where found, should be controlled/removed where possible to encourage regeneration of native vegetation.

Recreation

1. Continue the maintenance of the road and trail system providing safe access throughout the property.
2. Consider developing educational signage to explain management activities undertaken and/or exceptional or interesting natural features to recreational users of the property.
3. Ensure the preservation of historical features on the property (i.e. stone walls).

Other

1. Continue to work with adjacent landowners and other stakeholders to ensure traditional uses of the property can continue seamlessly as the Town assumes responsibility for management of the property.

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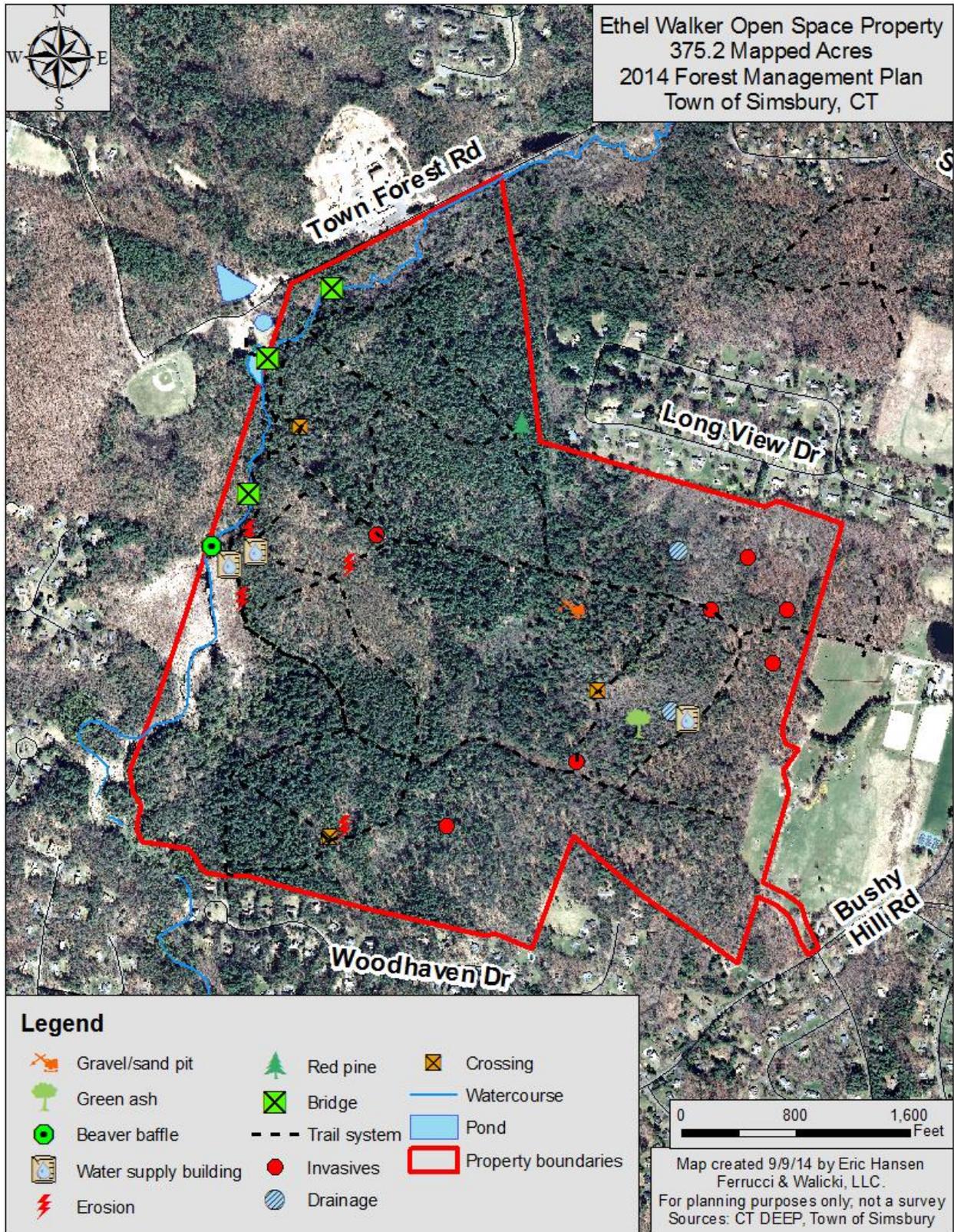
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PROPERTY DESCRIPTION

General Property Description and Inventory Methods

The Ethel Walker Open Space property is a 375-acre property owned by the Town of Simsbury. The property is cared for and maintained by the Town, volunteers, and other users of the property including people associated with the Ethel Walker School, which recently sold the property to the Town. A history of land uses including forest management and recent timber harvests, agricultural uses as evidenced by stone walls have helped shape the property that is visible today.

Right: This stump in Stand 1 has decomposed enough so that seedlings have begun to germinate in it.



Another land use that was more recently abandoned occurred in the northeastern portion of the property. Until fairly recently this area of the property was operated as a golf course. In general the trees in this area of the property are significantly younger than most of the rest of the forestland here. There is evidence on the property (i.e. large, man-made depressions) that some areas were used as quarries for sand or gravel. Use of this property for drinking water still occurs today. Current vegetation and other physical attributes including old roads and drainage patterns may all be at least in part a product of past land use history.



Above: The kiosk near the parking area at Town Forest Park.

The property is located southwest of the geographic center of Simsbury. Currently, the best access to the property is from a parking area along Town Forest Road, which is located on another parcel of Town-owned land called Town Forest Park. This is a sizable parking area that is used to access other recreational features the Town offers including a basketball court, baseball field, and pavilions. There is a kiosk in the parking area with a detailed map of the property that shows the color-coded trail system.

The majority of the use of the property appears to be for hiking and dog walking, though some horseback riding and mountain biking also occurs. Current trail conditions indicate that the use is dispersed throughout the property with the southern trails apparently getting less use. Erosion on some trails with slopes indicate that without some management, soil loss will likely continue.

Right: The light colored sediment near the center of the picture is due to erosion further up the trail. The sediment is being deposited near the drainage that runs perpendicular to the trail in the southwest portion of Stand 1.



This property contains a mix of forest types and tree species. Most of the area is well-drained upland forestland, but there are also significant wetlands and riparian areas throughout the property. An inventory of the forest resources on the property was completed in summer of 2014. A series of inventory points were laid out throughout the property. At each point a 20 Basal Area Factor (BAF) angle gauge was used to determine basal areas¹ and a Biltmore stick and/or diameter tape were used to determine diameters and merchantable heights of trees. Additionally, a qualitative visual inspection of invasive plant species, as well as individual tree and stand health, and understory prevalence and species composition was conducted at each point.

The dominant tree species in the overstory on the property are white pine, hemlock, and a few species of oak. Common associates include black birch, red maple, and some beech, hickory, and an occasional pitch pine. Additionally, there is a red pine plantation in the northwestern portion of the property.

Tree size varies throughout the property, but trees in the overstory (i.e. main canopy) are generally in the medium-sized (14-18 inches) to large sawtimber size classes (20 inches + in diameter at breast height (dbh, which is measured at 4.5 feet above the ground)), with poletimber (5-11 inches dbh). Recent thinnings (within the last 10-15 years) have enabled the residual trees to remain relatively vigorous. In places, the trees are overstocked and competition for sunlight from adjacent trees is the limiting factor for tree growth and vigor. Trees are tall in most places on the property – with the exception of the dry ridgetop forests on the west end of the property – which is an indication that the site conditions are good for growing trees.

The understory consists a mix of woody and herbaceous species. There is magnificent tree regeneration throughout the property. The most prevalent tree species found in the understory are white pine, black birch, and eastern hemlock. White pine and black birch seedlings and saplings are particularly dense where natural disturbance and/or harvesting of trees has recently occurred. In places, American beech, red maple, and some oak seedlings and saplings can be found. These last three species are less prevalent than black birch, white pine, or hemlock and are mostly found in areas with limited overstory competition.



Above: The regeneration of white pine and black birch in Stand 1 is typical in areas in which active forest management has occurred.

In some locations where regeneration has become established, growth rates are now being limited because overstory canopies have closed in from previous harvests. In order to maintain vigorous sapling growth, it is important to provide enough sunlight through thinnings or regeneration harvests where portions of the overstory are removed. White pine, for instance, which makes up the majority of the regeneration on the property, can experience terminal leader² growth of multiple feet each year. The vast majority of the white pine regeneration on the property, though well-established, is exhibiting

¹ Basal area is a relative measure of density of trees in a given area. Usually described on an average per acre basis it is the cross-sectional surface area (in square feet) of wood that would be found in all trees at breast height which is 4.5 feet above the ground on any given acre.

² The terminal leader is the top, vertical extension of growth on a tree or other vegetation.

considerably slower growth than that. In order to avoid damage from the white pine weevil³ (*Pissodes strobi*), some shade is encouraged to remain over this species, until it gets above 15-20 feet in height.



Additionally, deer pressure in this area may be another reason why maples and oaks are not more prevalent in the understory as they are a preferred browse species for deer. In places, heavy browse has limited the success of regeneration on the property. This is particularly alarming in areas where beech has been browsed heavily because it is a very low priority for deer. This means that there is not enough regeneration of other, more palatable species or there are too many deer in this area.

Left: The multiple sprouts of these beech seedlings in the northeast portion of Stand 1 exhibit typical signs of deer browse. Beech is a low value food for deer so the fact that they are browsing on beech indicates that there may be excessive amounts of deer in the area.

Lowbush blueberry and huckleberry occupy many parts of the understory in the driest upland portions of the property. A variety of wildlife eat the berries these species produce. They tend to produce significantly larger crops of fruit when they have additional sunlight created by a gap in the canopy. Ferns and maple-leaf viburnum are also found in places throughout the property. Mountain laurel dominates the understory in small pockets. The presence of mountain laurel makes seedling germination in and human travel through these pockets difficult, but their dense vegetation is beneficial for some species of wildlife including songbirds such as the black throated blue warbler. Throughout the property, tree regeneration, understory and midstory species (0-15 feet from the forest floor) are present in varying densities. Again, the densest regeneration is occurring in areas with a limited overstory canopy due to recent harvesting or other disturbances.

The topography is flat to gently undulating throughout the property. Soils are generally sandy and well-drained throughout the property, but there are areas adjacent to wetlands that have very poorly drained soils some with standing water during certain times of year. Much of the western part of the property exhibits the sandy characteristics of Hinckley gravelly, sandy loam soils which form the foundation of most of the soils here.

Elevation ranges from approximately 260 feet above sea level near the middle of the property in the wetland to about 430 feet toward the eastern of the property.

As stated above, some of the cultural features found on the property include stone walls and old barbed wire fence. The boundary lines are generally not well-marked.

Right: The old style of barbed wire was noted in a few locations on the property indicating previous agricultural uses of the land.



³ The white pine weevil is an insect that attacks and frequently kills the terminal leaders of white pine grown in full sun. This creates a situation where the horizontal branches then compete for dominance, which significantly alters the form of the tree and degrades potential future timber values.

Location and Access

This property is located in the west-central portion of Simsbury. There is only one practical entrance for access to the property currently which is off of Town Forest Road where the parking lot is located.

There are many kinds and sizes of trails throughout the property. Some of the trails appear to be roads while some are not more than about 18 inches of cleared path through dense understory vegetation. Most of the trails on the property are well-maintained. The condition of the paint indicating trail color varies, but it is mostly good and appears to be better maintained in the heart of the property where most of the traffic seems to be.



Left and right: Relative qualities of various trail markings on the property. Many of the trails are well-marked and obvious (i.e. the orange and green trail markers to the right), but some need freshening as in the yellow trail marker on the left.



There are some stream crossings within the property. Most of the streams the trail system crosses are intermittent and were completely dry during field visits in August 2014. Access from Town Forest Park can be gained by one of two main bridges, both of which appear to be in good condition. There is a third bridge accessible from an unmarked trail that leads west from Town Forest Road northeast of the parking area. This bridge is made of logs, which are rotting and could present a potential safety hazard.



Above left: Bridge in the northwest portion of the property east of the wetland.



Above center: Main bridge near small pond adjacent to Town Forest Park parking lot.



Above right: Log bridge along the unmarked trail near Town Forest Road.

The property has some road frontage (approximately 1,700 feet) along Town Forest Road north and east of the parking area.

The Town of Simsbury owns and manages several properties within the Town. There are several adjacent conserved properties – of which Simsbury’s Ethel Walker Open Space property and Onion Mountain Park are a significant part – that form a corridor that covers approximately 1,200 acres. This includes land owned by the Canton Land Conservation Trust, the State, the Simsbury Coon Club, and other town-owned land. In an increasingly developed and fragmented landscape, these large blocks of undeveloped land continue to increase in importance. See the map of conserved properties on page 44.

Water Features

Stratton Brook is a perennial stream that runs through the western side of the property. Town Forest Pond is just northwest of the property across from the parking area on Town Forest Road on land owned by the Town, where the public is welcome, and swimming is allowed, but diving is not. There are several intermittent drainages that were completely dry during the time when the inventory for this property was completed (August 2014). These small drainages likely carry water during part of the year, or at least when significant precipitation events occur.

Right: The red trail crosses this drainage which was dry in the summer of 2014, but likely carries water during certain times of heavy precipitation.



Besides Stratton Brook which only touches narrow band along the western side of the property, the major water features are wetlands. The wetlands are found throughout the property and are mostly forested. There is a large wetland complex in the southwestern corner, however, that is largely open with some open water as well. Phragmites, a non-native invasive plant has densely colonized a portion of the northern shore of the wetland along the blue/yellow trail. This area of phragmites is now almost a monoculture. There is a beaver baffle⁴ located at the northwestern corner of this large wetland complex that appears to be working.



Above: Beaver baffle installed in the east end of the wetland in the northwest corner of the property.

⁴ A beaver baffle is a water flow control device that regulates water levels at beaver dams. This reduces human/beaver conflicts by reducing the amount of flooding as well as some damage to vegetation that beaver dams without baffles frequently incur.

Vegetation types vary within the wetlands on the property. Near the beaver baffle there is a dense area of alder and cattail. Both of these species are native and beneficial to wildlife. As mentioned earlier, many of the wetlands are forested wetlands with larger trees. In general, wetlands are important for wildlife as they frequently provide unique shrubby habitats and structure. Additionally, wetlands function as filters for sediment and pollutants upstream and upslope, helping to maintain water quality. There were several small depressions noted during the inventory in various locations throughout the property that may act as vernal pools, but none had any water in them.

No fish species were noted in the property's water features during the forest inventory, but they do exist in the nearby pond and in Stratton Brook.

There are a series of buildings associated with drinking water infrastructure on the property. Continue to work with Ethel Walker School to ensure functional and proper operation.

Right: This building is one of several on the property that are associated with the infrastructure for drinking water.



Insect, Disease and Other Forest Health Issues

In general, forest health throughout this property is good. The major issues are:

- a lack of structural diversity in places;
- some small and relatively isolated populations of invasive plant species;
- a lack (in places) of diverse species of tree regeneration;
- erosion;
- hemlock woolly adelgid and hemlock scale;
- windthrow;
- nectria on black birch; and
- a potential near-term future infestation and subsequent defoliation by the gypsy moth.

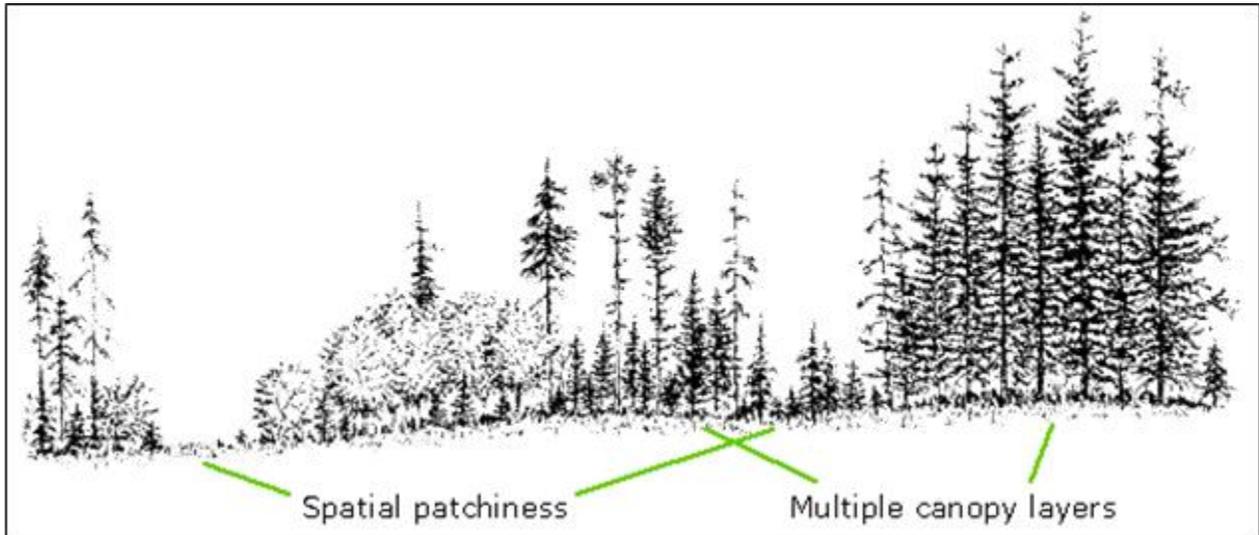
Each of these issues will be addressed briefly below. Forest structure and structural diversity is described in both vertical and horizontal contexts. Vertical diversity is the presence of vegetation of various heights (also called strata) in a relatively small observable area. Horizontal diversity is a description of how vegetation heights vary over a larger landscape level. In some places on the property tree regeneration is completely or nearly completely absent from the 0-5 foot size class. Though it may be aesthetically pleasing and may help to facilitate some kinds of recreation, this lack



Right: Hillside in the northwest corner of Stand 1 missing a functional understory.

of vegetation can negatively affect the ability of the area to serve as habitat for many species of wildlife that use this stage of vegetative development for cover and feeding.

Increasing vertical and horizontal structural diversity improves habitat for deer, ruffed grouse, woodcock, rabbits, turkeys, songbirds and other species that use a combination of habitat types for their life requirements. That said, there are many areas throughout the property that have good structure and dense regeneration of desirable species, so the areas where regeneration is non-existent is less of a concern.



The figure above shows the multiple canopy layers in one spot representing vertical structure and the spatial patchiness of horizontal structure over a wider area. This diagram is courtesy of the British Columbian Ministry of Forests.



Above: The picture above from the northeast portion of Stand 1 shows the vertical diversity of multiple canopy layers. Desirable tree regeneration (especially white pine and black birch) like that shown above is relatively common in places on this property.

One additional element of diversity that will be discussed later is tree species diversity. In particular, there is a good mix of softwood species (a.k.a. conifers or evergreens) that compliment and frequently dominate the hardwoods in the overstory in many parts of the property. Currently, the overstory contains a greater diversity of tree species than does the understory. Over time, without a concerted effort to regenerate some species that are prevalent in the overstory, but underrepresented in the understory (i.e. oaks), those underrepresented species may begin to decline on this property over the long term.

There are some pockets of non-native invasive plants found on the property. Japanese barberry is the primary invasive plant here, though phragmites, autumn olive, and bitterweet are also present. There are two large winged euonymus plants in the Town Forest Park parking area that may act as a potential seed source for invasion into the woods. If possible, ideally, those plants would be removed and replaced with native species that are similar in growth habit and form that also can produce food for wildlife (i.e. winterberry or other such shrubs).

Populations of invasives are dispersed fairly widely throughout the property, but greater concentrations can be found in and near the northeast corner in the part of the property that used to be a golf course. For a spatial representation of some of the invasive plant locations, see the Items of Interest Map on Page 5.

Not all non-native species are considered invasive. In fact, some non-native plants such as apple and some clovers have become naturalized in our region and are considered beneficial for a variety of reasons, including their values for wildlife and aesthetics. Invasive plant species on the other hand have qualities that make them detrimental to the overall ecological health of the area. These features can give invasive plants a competitive advantage over native species and can lead to the development of monocultures of invasives, reducing species diversity. Such features include:

- vigorous sprouting when above ground portions of the plant are cut;
- prolific seed production;
- rapid growth rates;
- ability to colonize disturbed areas;
- long periods of seed bank viability;
- extended growing seasons due to early leaf out and ability to photosynthesize later in the season;
- and
- a lack of wildlife species that browse on buds (except for burning bush).

The reduction in species diversity described above is important because a diverse ecosystem helps to provide diverse habitat for wildlife and insect populations including pollinators. Wildlife and insect species have adapted to be able to utilize the pollen, seeds etc. produced by native species in an area. Because significant populations of invasive plant species can have a negative effect on ecosystem health, it is best to treat known infestations while they are small and manageable. For more information on how to identify and control invasive plant species in Connecticut visit:

http://www.hort.uconn.edu/cipwg/art_pubs/GUIDE/guideframe.htm.

There is some erosion that was noted during the inventory process. In places the erosion is occurring on the trail system. This type of erosion is discussed in greater detail on page 20. Other portions of the property on which the trail system is not located are also experiencing a loss of the duff/leaf litter layer,

which may also lead to future erosion. The areas where this phenomenon was noted are primarily side hills with a dense hemlock overstory and minimal regeneration. The lack of fine rooting structure from understory vegetation combined with a thin and rapidly decomposing litter layer has led to some patches exposed soil.

Right: Exposed soil on a hillside in Stand 1 with little to no leaf litter and no regeneration.



There were some insect and disease issues observed during field visits to the property that are currently affecting individual tree and forest health.

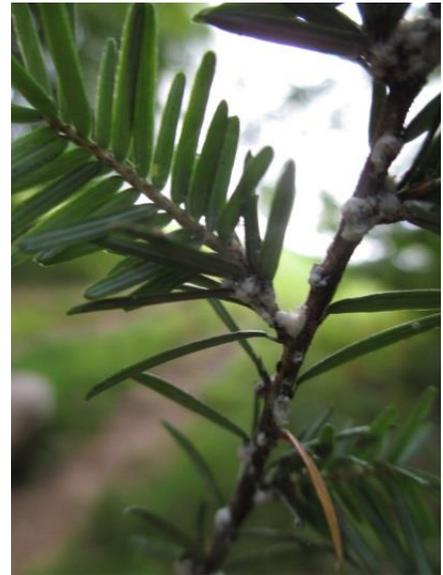
Primary among these are the invasive insects found on hemlock trees in this area including the hemlock woolly adelgid and the hemlock scale. Both of these insects are non-native and can lead to mortality of the trees that they infest. Many of the hemlock trees on the property are in relatively good health. Others appear to be significantly affected by the scale, the adelgid, or both, and showed a typical lack of vigor. In a forest setting, there is no effective or efficient method of treatment. Hemlock occupies an important role in Connecticut's forests for a variety of reasons from water quality to wildlife habitat to aesthetics to forest products and more. Periodic thinning to maintain individual tree vigor is the most effective treatment strategy for retaining hemlock in a forest setting.



Left and right: These photos from the property show infestations of two non-native invasive insects. Since their introduction to CT, many trees have been killed by one or both of the insects which can both infest the same tree.

Left: Hemlock scale on hemlock in Stand 3.

Right: Hemlock woolly adelgid (white cottony masses) on a hemlock sapling in the north central portion of Stand 1.



Over the last several years, severe storm events have affected many trees in Connecticut. Hurricane Irene, Superstorm Sandy and the October 2011 snowstorm have all had significant impacts in different ways in different areas of the state. On this property, there are some instances in which tree tops, and in some cases, entire trees have recently been lost. Where tops have been lost, they are likely attributable to one or more of these events.

Nectria – a fungal infection – is common in black birch on the property. This fungus creates visible cankers, frequently referred to as “target” cankers, which tend to expand over time. The cankers in turn create points of entry for other diseases and insects as well as reducing the structural integrity of the wood.

Right: The top of this black oak was broken during recent storm events; likely the 2011 October snowstorm.

Another non-native insect that was found during the inventory in August of 2014 is the gypsy moth. The gypsy moth is an early- to mid-season defoliator of different species of trees, but it focuses primarily on oak and aspen, both of which are found on this property. There were a significant number of egg masses noted during the inventory, which may indicate a building of population for future years and may lead to some defoliation. One method of helping to curb the effect the gypsy moth has on forests is to keep individual trees healthy through periodic thinning, and to maintain species diversity, including managing for tree species that it finds less palatable. For information about this insect and its potential control see this website: http://www.na.fs.fed.us/fhp/gm/online_info/gm/gmhb.htm



Far left: A gypsy moth egg mass noted during inventory conducted in summer 2014.

Left: Close up view of the egg mass. Each of the egg masses contains hundreds of gypsy moth eggs which can hatch in early spring (April). Once they hatch, they become caterpillars which, in large enough numbers, can defoliate and sometimes kill their host trees.

Although it is important to attempt to ensure tree health and vigor through active management, not all trees that appear to be poorer quality should be removed. Having some trees (some standing and some on the ground) that show signs of rot etc. helps provide an element of ecological diversity that is important for a variety of species of insects, fungi, bacteria and wildlife.

There are snags (standing dead trees or live trees with portions of dead tops) that are well-scattered throughout the property, but populations of cavity trees (larger diameter standing trees with cavities) are limited. Coarse and fine woody material is found in places. Coarse woody material is woody material on the ground that is greater than 4 inches in diameter, fine woody material is less than 4 inches in

diameter. Both coarse and fine woody material play a role in providing different kinds of habitat for a variety of vertebrate and invertebrate wildlife species.

Snags and cavity trees are also important ecologically for a variety of fungi, bacteria, insect and wildlife species as well as for nutrient cycling, and, in some cases, tree seedling germination. The recruitment of these features may be appropriate in certain areas on the property, where and if personal safety and infrastructure integrity would not be compromised by doing so. Coarse and fine woody material play an integral role in nutrient cycling as well as providing potential nesting, cover and foraging habitat for a variety of wildlife through their various stages of decomposition. As larger woody material and stumps decompose they become excellent substrates for germination of new seedlings.



Left: A potential cavity tree in Stand 4.

Right: Coarse woody material from the last timber harvest surrounded by dense black birch saplings.



Below left: Fine woody material (i.e. tree tops on the ground in the center of the picture) in Stand 3. Fine twigs and branches on the ground can act as potential cover, nesting and foraging areas for many species of wildlife.



Wildfire risk on the property is relatively low due to typical climate conditions, a lack of significant ladder fuels and fine woody material, as well as wetlands and otherwise soggy soils in places.

Property History

This property was recently acquired by the Town through the hard work of many individuals, both associated with the Town and private, interested citizens. Without this acquisition, the property would likely have been developed as evidenced by the multitude of soil test pits scattered throughout the property. The size and location of this open space area make it an important piece of conserved land in this part of Simsbury.

Due to forest structure and physical evidence including the stone walls and barbed wire that are found on the property, it appears as though many parts of this area were once used for agriculture (or golf courses or both) and subsequently abandoned, perhaps at the turn of the last century. The most recently abandoned area is in the northeast corner, which used to be a golf course. Trees here appear to be

around 50-60 years old. Along the main southern portion of the blue trail are many cement forms that are regularly spaced along the road. Some of these forms have been dug up and are still near the trail. The forms may have at one time held poles for wires of some kind (communication, power etc.).

Over the past few decades, timber harvests have been undertaken to increase forest health, to encourage the development of regeneration on the property, and to produce forest products. Evidence of prior logging (i.e. stumps, old log piles, and prolific regeneration in places) and what appear to have been skid roads exist throughout the property as well. The last harvest on this property took place in the early 2000s and occurred throughout the property. The varying stages of decay of stumps and other coarse woody material indicate that there was another harvest that occurred perhaps 15 to 20 years prior to that.

“Wolf trees” can be found scattered throughout the property. Wolf trees are those that have grown in a relatively open condition, with little competition from adjacent trees. They can give us clues to past land use history because they likely were remnants from old fields, probably pasture. Wolf trees can be identified by the many large, low branches they possess, which is frequently different from the less limby structure visible in nearby trees. Competition from adjacent trees shades lower branches, which frequently leads to mortality and subsequent shedding of those branches. This creates relatively straight, branch free lower trunks, which is in stark contrast to the large, low limbs on wolf trees.

One potential explanation for the name of the wolf tree comes from the amount of space that their large crowns occupy. Early foresters would say that those trees were like wolves that were chewing up all the growing space that could be available for younger trees that may have had more value for timber.⁵ Similar to wolf trees, “legacy trees” is a term for large trees that may or may not have that typical wolf tree form that are scattered throughout the property.

Right: White oak wolf tree in Stand 2. Because of its large size and large low branches, it is likely that this tree was open grown at one time indicating that it’s likely older than much of the adjacent forest.



Wildlife

Providing quality habitat for a variety of wildlife species is a goal for the management of this property. Some focus species to manage for include deer, turkey, songbirds, birds of prey, small mammals, reptiles, and amphibians.

Some wildlife (primarily deer, songbirds, and birds of prey) was observed during field visits to the property, and there is good potential for a variety of species to exist here due to the variety of habitats present. Throughout the property there are hard mast producing species of trees in the overstory. Black,

⁵ Gaige, Michael. “A Place for Wolf Trees.” *Northern Woodlands Magazine*. 25 February, 2011. 28-32. Print.

red, chestnut, scarlet and white oaks, American beech and hickory play a significant role in upland hardwood stands which can be found in varying densities throughout the non-wetland portions of the property.

Some recently dropped acorns were observed during summer 2014 field visits. This is especially true in the southern block of Stand 1. Having a variety of different kinds of mast producing species is beneficial because oftentimes different species will have good mast years (i.e. produce significant amounts of seeds, nuts or acorns) in different years. Staggered production of seed sources can aid in the dispersal of mast over time and help wildlife prepare for winter. The hard mast produced by the tree species mentioned above is used as food for a variety of wildlife.

Additional tree species found on the property that are beneficial to wildlife include eastern hophornbeam (a.k.a. ironwood or hardhack). This species produces seeds which stay on the trees until later in the fall and into early winter. The seeds from these trees as well as the catkins which can be found on the trees in winter, can be an important food source for turkey and grouse.

Soft mast in the form of black cherry trees as well as blueberry and huckleberry in the understory is also found in places on the property, but is not as well distributed as the hard mast producing species described above. Frequently where the overstory canopy is not closed and white pine and black birch seedlings and saplings do not fully occupy the understory and midstory, blueberry and huckleberry have colonized the area. It is beneficial for many species of wildlife to have a combination of hard and soft mast in their diet as each mast source provides different dietary elements. Hard mast often has more protein and fats, whereas soft mast tends to be higher in sugars.

As mentioned earlier, softwood trees dominate the overstory in many places on the property. Hemlock in particular, but also white pine to a certain extent – if dense enough – can act as a sheltering area for wildlife in winter. In heavy snows, dense softwood cover can limit snow depths allowing for easier travel for deer and other large animals. Additionally, wild turkeys frequently roost in white pine. Many other species including non-game species of wildlife such as songbirds utilize the dense cover of softwood foliage. Softwood inclusions within a hardwood stand will attract migratory songbirds including the black throated green warbler.



Above: The hemlock and white pine in this portion of Stand 6 provide an aesthetic backdrop for recreation as well as significant wildlife benefits.

Snags and cavity trees are two elements of a forest that are frequently overlooked. As described earlier snags are standing dead trees. As these trees decompose, they provide a variety of habitat for many species including insects, fungi, bacteria, birds, and mammals. Cavity trees are standing trees with holes in them that may provide habitat. Where feasible, attempt to retain and recruit snags and cavity trees. At any given time, the presence of at least six (6) snags and/or cavity trees per acre of various sizes is ideal. If possible, attempt to retain one (1)

tree/acre that is greater than 18 inches in diameter at breast height (dbh)⁶ and three (3) trees that are greater than 12 inches dbh.⁷

Providing quality fish habitat is another potential goal for this property. Management activities can affect water quality and associated aquatic habitats. Making sure BMPs are followed during timber harvesting and limiting the amount of sunlight that is allowed on perennial streams to help keep them cool are ways in which the management of this property can help maintain quality fish habitat.

A check of Connecticut's Natural Diversity Database (NDDDB) indicates that there is an area in the southwestern corner of the property adjacent to the wetland complex that may contain rare or threatened species or species of special concern. A request for more information from Connecticut's NDDDB would be helpful to determine which species may exist there and how they may be protected when managing the property. (See NDDDB Map on page 43.)

Recreation

This property is an important part of the recreational portfolio for the Town of Simsbury. There is a significant amount of recreational infrastructure on the property including a parking area, kiosk, gates, bridges, a color-coded trail system, and a map of the area (available on-line). Many of the trails connect to each other as well as to other properties owned by the Town and private landowners. The majority of the recreational use appears to be hiking and dog walking, though some horseback riding, and mountain biking also occurs. Trail size ranges from a road that can accommodate vehicles to narrow trails with vegetation close on both sides.



Left and right: Various trail widths on marked official trails throughout the property.

Left: This wide trail is found in the south central portion of Stand 1.

Right: A portion of the red trail is narrow but well-maintained.



⁶ Diameter at breast height (dbh) is diameter outside bark as measured at 4.5 feet above the ground on the high side of the slope (if there is slope).

⁷Hagenbuch, Steve, Katherine Manaras, Jim Shallow, Kristen Sharpless, and Michael Snyder. *Silviculture with Birds in Mind*. Huntington & Waterbury, VT: Audubon Vermont & VT FPR, 2011. Printed guide.

Erosion on trails is an issue in certain parts of the property. Where the trails are located on ground that is not totally flat, there appears to be a tendency over time – perhaps due to the frequent recreational use this area gets – to begin to erode. In at least one case, sedimentation has begun to occur. In this case near the southern end of the property, material that has been washed downhill from a road has made its way to a brook. Solutions to the erosion and sedimentation occurring on the property may include the installation of waterbars or other water diversion devices along slopes to restrict the amount of water running along the road surface.

A waterbar is an earthen mound usually built with native, on-site material that is created along the surface of a road to reduce the potential for erosion. The height of the waterbar will vary depending on the frequency and kind of use a road or trail gets. They are usually installed at about a 35-45 degree angle to the direction of the road or trail to ensure water is directed off the road and into an adjacent area with an intact leaf litter layer where the water can be dispersed. Most waterbar designs require some periodic maintenance to ensure their continued effectiveness. Roads or trails that have an inverted profile (i.e. are dugways where the surface of the road or trail is lower than the height of the sides) require different, and potentially more involved solutions.



Left and far left: Various conditions of eroded trails on the property.

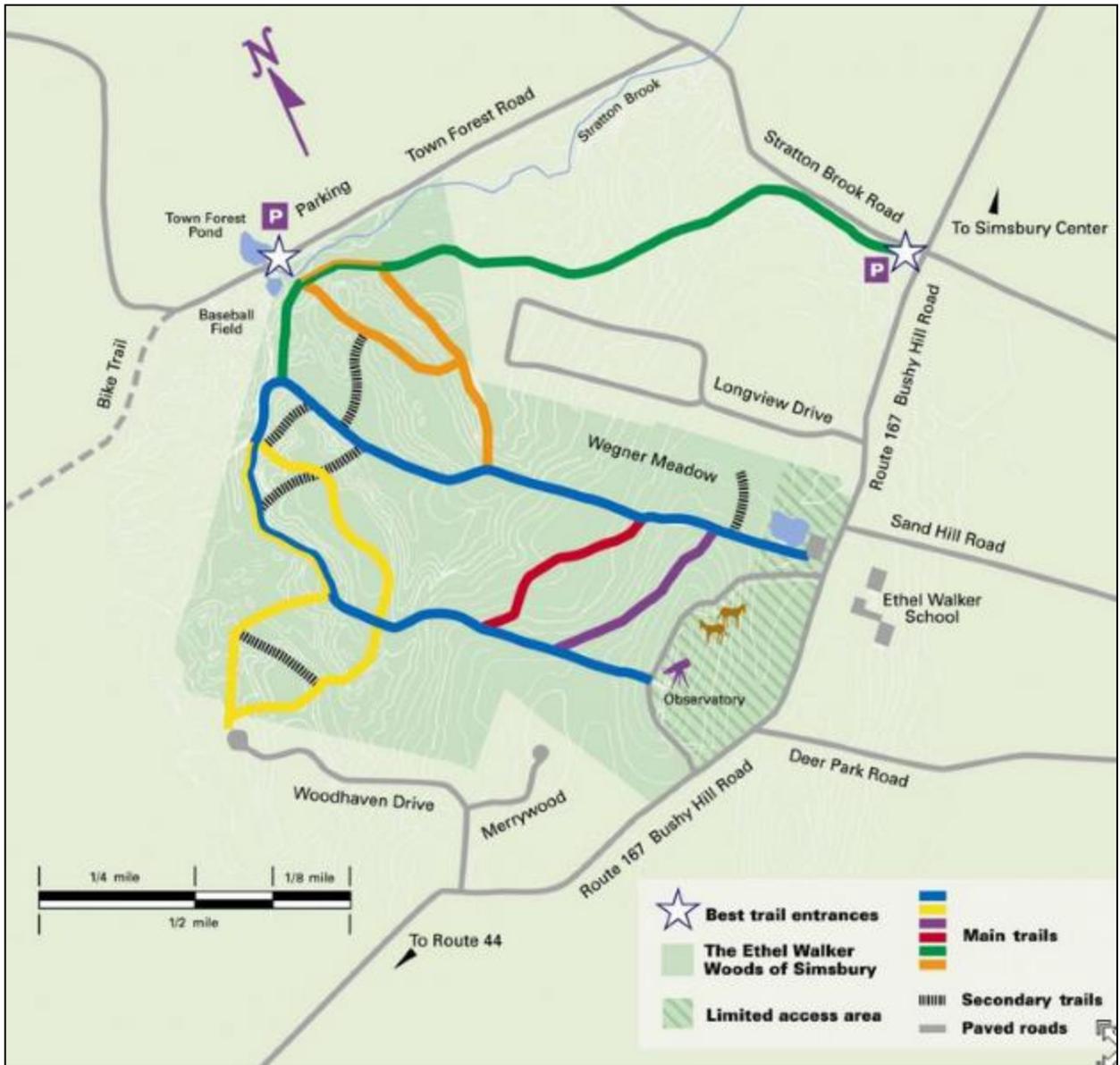
Currently, there is no hunting allowed on the property. Given the amount of other recreation that occurs here and the amount of ground within the property that the trails cover, it may not make sense to incorporate hunting into the recreational pursuits encouraged on this property. If, over time, deer

populations prove to be excessively limiting regeneration of certain species of plants (i.e. oak), initiating a small, permit-only bow hunt may be a part of a solution to control populations.

Fishing is permitted on Stratton Brook, however, as with anywhere in Connecticut, a state issued license is required.

Education

As this park is part of the public land offerings the Town of Simsbury provides, there is an opportunity to use it to further people’s understanding of the natural world and the roles the Ethel Walker Open Space property can play. There is some education material posted on the kiosk at the parking area in Town Forest Park. In addition, when future management activities are to take place, signage and guided tours before, during, and after the activities would help keep people informed about what is happening and why.



Above: The trail map that is posted on the kiosk at Town Forest Park for the trails at the Ethel Walker Open Space Property.

Summary of Recommendations

- Continue the active forest management that has been done on the property with periodic timber sales to maintain and enhance tree vigor and diversity (Stand specific recommendations are in next the section and at end of the plan)
- Retain and recruit snags, cavity trees, and coarse and fine woody material
- Continue to work with local volunteer groups and adjacent landowners to help with the maintenance of the trail system
- Develop additional educational material to be installed at the kiosk and potentially in the forest along trails
- When management activities are to occur, consider incorporating activities that may make sense on other adjacent Town-owned land. Also, consider entering into discussions regarding cross boundary forest management with adjacent landowners
- Continue to work with operators of water supply infrastructure to ensure proper functionality of systems
- Attempt to control invasive plant species where they exist in pockets
- Monitor hillsides with minimal understory vegetative cover for potential erosion
- Monitor health of hemlock trees and consider salvage if adelgid and/or scale damage appears to be leading to mortality
- Attempt to harvest trees during times of the year when migratory songbirds are not breeding (i.e. avoid logging during May-late July).
- Locate and mark boundaries with appropriate paint and/or signage to reduce likelihood of trespass and to ensure boundary locations remain known
- If any illegal dumping is found, work with adjacent landowners to discourage illegal dumping of yard debris etc. on Town property.
- Install waterbars or other water diversion devices where erosion is becoming an issue. Work with user groups to determine what kinds of devices will work best with the kinds of recreation encouraged and allowed on the property.

Landowner Goals

The Town is interested in continuing a sustainable forest management program that will strive to maintain and enhance diverse wildlife habitat, recreational access and opportunities, improve forest health and diversity, and maintain water quality and soil integrity. Additional goals include preserving historical features such as stone walls and ensuring that the property remain aesthetically pleasing to the general public. Generating revenue through the periodic sale of forest products to help fund continued forest, wildlife, education, and recreation management efforts is also important.

OVERVIEW

This property is a mix of upland and riparian forests, forested wetlands, and open, shrubby wetlands. Stonewalls are found in places on the property. The forested portions of the property contain a mix of species including white pine, hemlock, and oaks (black, red, white, scarlet and chestnut) that dominate the overstory in many places. They frequently associate with other hardwoods including black birch, hickory, red maple, and American beech. There are also small populations of pitch pine in some areas as well as a red pine plantation in the northwest portion of the property.

Regeneration is mostly white pine and black birch with some hemlock. There is also some oak and beech that is regenerating in areas, though these populations are much less prevalent than the three species mentioned above. Previous forest management activities including timber sales have helped created two-aged and uneven-aged stands⁸ which are on the property today. Recent storm damage has also increased the diversity of regeneration and structural characteristics of the property.

This plan addresses all 375 acres of the Town of Simsbury's Ethel Walker Open Space property. There are five (5) different forested stand types, a forested wetland, an open wetland, and an open grassy area described in this plan.

Stand Descriptions

For the purposes of this management plan, the property has been divided into 8 management units called stands or areas. Stands or areas as classified in this plan are sections of the property uniform enough in species composition, age class, size class, vegetative density etc. to be able to be grouped together as relatively homogenous. Other elements that are examined to help classify stands include location on the property, accessibility, and size of area. That is not to say, however, that stands are completely uniform. There will almost always be some variability due to the fact that we are attempting to quantify and qualify natural systems, which inherently trend towards entropy.

There is a set of recommended actions provided for each stand. Significant activities are provided with a date to help guide the management of the property over the next 10 years. Some of the dates may be interchangeable and should remain flexible to be able to respond to changing conditions (i.e. storm, insect or disease damage/infestation, changing goals on the part of the Town, etc.). Additionally, there may be opportunities to work with adjacent landowners such as the Simsbury Coon Club or Connecticut Department of Energy and Environmental Protection (DEEP) to conduct simultaneous operations, which

⁸ Uneven-aged stands are those that contain at least three different age classes. In New England, age classes are generally considered to be separated into germination periods at least 15 years apart.

may increase economic feasibility and/or increase the effectiveness of a treatment across boundaries. As wildlife likely use many of the adjacent properties in addition to the land the Town owns and manages, conducting operations in tandem with adjacent landowners may have the capacity to have a greater impact than managing for one property.

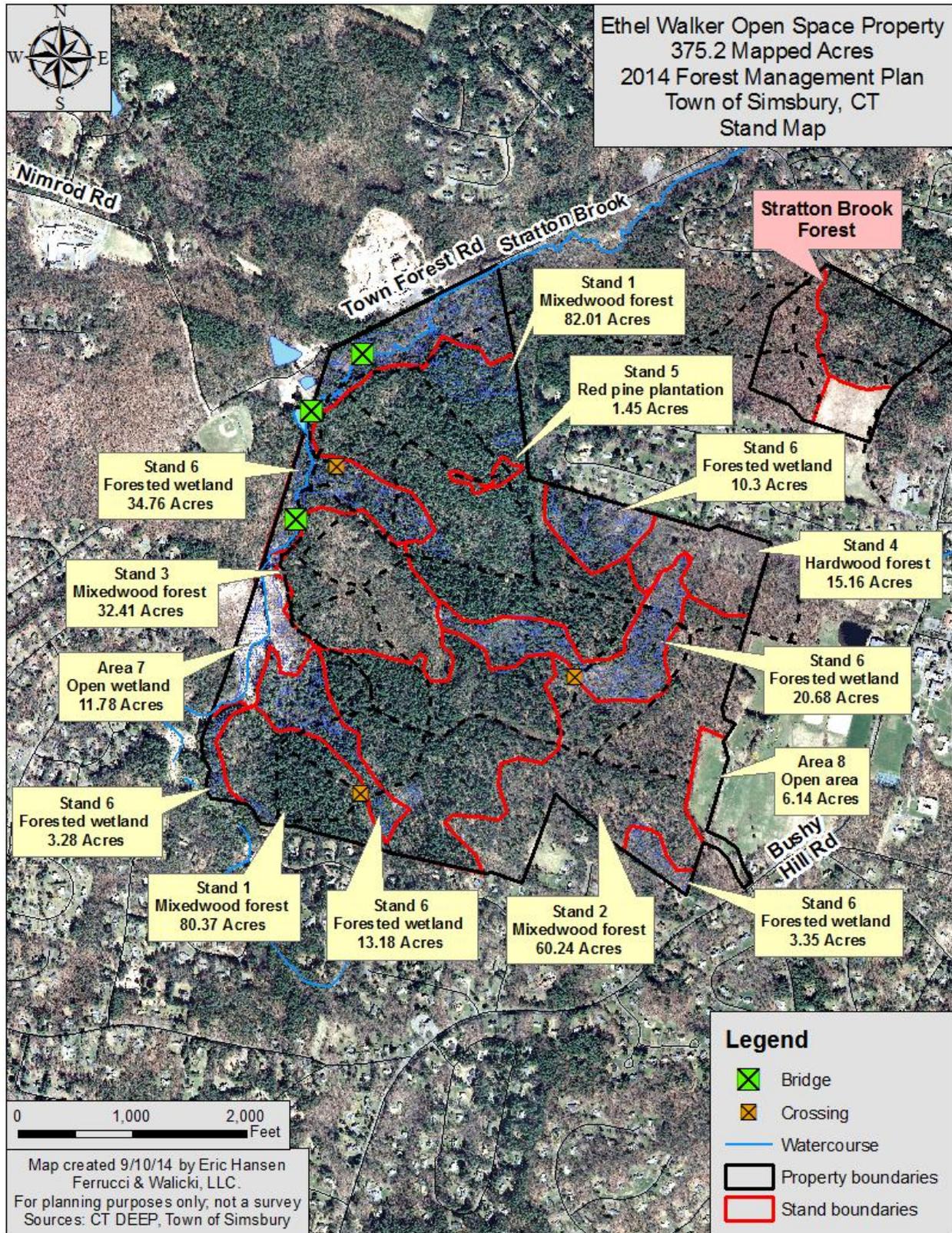
When treatments are to occur on this property ensure personal safety by temporarily keeping hikers out of the area(s) being harvested while harvesting is occurring. Also, it will be very important to keep an open line of communication between adjacent landowners and homeowners when activities are occurring as some activities may be in close proximity to houses. Before and during forest management activities, post educational materials explaining what is being done and why. Consider incorporating a guided tour for interested individuals before, during, and/or following the completion of the activity.

Ethel Walker Open Space Property Stand Information

ETHEL WALKER OPEN SPACE PROPERTY STAND INFORMATION

Stand	Stand Type	Acreage
1	Mixedwood, white pine sawtimber and poletimber	162.84
2	Mixedwood, hardwoods sawtimber and poletimber	60.24
3	Mixedwood, oak poletimber and sawtimber	32.41
4	Hardwood poletimber	15.16
5	Red pine plantation	1.45
6	Forested wetland	85.55
7	Open wetland	11.78
8	Open area	6.14
	TOTAL ACREAGE	375.6

Ethel Walker Open Space Property Stand Map



Stand 1: Mixedwood, white pine sawtimber and poletimber (162.84 Acres)

Description:

This is the largest stand on the property and is located two blocks: one in the northwestern corner and one in the southwestern corner of the property. The two blocks are separated by a forested wetland which splits the two blocks roughly in half. The topography is flat to gently rolling with some short steeper sections. Soils in this stand are mostly well-drained. There are sections of this stand, particularly areas adjacent to wetlands that have slightly higher water tables and may have moist soils during certain parts of the year.

Frequently occurring overstory species include white pine and hemlock which combined make up about 2/3 of the stocking in the stand. Common associates are scarlet oak, black oak, white oak, and red oak. Other less common associates include ash, pitch pine, hickory and red maple. There are a range of size classes and age classes throughout the stand from seedling to very large sawtimber. Sawtimber is the predominant size class making up approximately 70% of the stocking of the stand. Large diameter sawtimber (≥ 20 inches dbh) comprises approximately 1/3 of the total basal area.

The stand ranges from strongly even aged in areas with little to no regeneration to two-aged and uneven-aged. Previous forest management activities that have created canopy gaps have enabled regeneration to successfully germinate and become established. There are approximately 4,815 live trees/acre of which seedlings comprise approximately 4,620. The majority of the seedlings and saplings are white pine followed by black birch and hemlock. There are approximately 122 trees/acre in the poletimber size class and 61 trees/acre are in the sawtimber size class. Lastly, snags contribute an additional 63 trees/acre.



Left and right: Various growth rates of terminal leaders of white pine in Stand 1. The sapling on the left grew about 8 inches last year and the sapling on the right grew nearly 18 inches. Access to sunlight is generally the main limiting factor in terms of vigor and elongation.



Total basal area of live trees in this stand is approximately 151 square ft/acre. This number is perhaps higher than optimal for a managed mixedwood stand such as this. There is approximately 13,800 board feet and 8.5 cords of wood per acre. Many of the hardwood trees in this stand are hard mast producers (i.e. oaks). Stocking levels are generally higher in the northern block of this stand.

In places this stand lacks a significant presence of desirable tree regeneration in the understory. As mentioned above, white pine and black birch are the trees most frequently found in the understory along with hemlock. White pine is more common in the northern block and black birch is more common in the southern block of this stand. Beech and oak seedlings are also found in the understory in this stand but are much less common. Lowbush blueberry, huckleberry, witch hazel, fern, and maple-leaf viburnum are also found throughout this stand in the understory as well as witch hazel. Tree health



Above: Understory is all but missing in this portion of Stand 1 due to a lack of sunlight reaching the forest floor.

Left: The dense foliage of the nearly completely closed canopy in this area prevents most sunlight from penetrating to the forest floor.

appears to be generally good aside from limited growth rates in places. There is recent storm damage to many of the oak tops in the northern portion of this stand. The hemlock in this stand is infested with both the woolly adelgid and the elongate scale. There is some noticeable decline in some trees, but overall hemlock health does not appear to be in dramatic decline as of now.

One of the more desirable species currently found in the overstory (i.e. main canopy) of this stand and indeed throughout the property is a variety of oak trees. In general oak regeneration is lacking on this property and in this stand. Oak is mid-tolerant to shade intolerant which means that in order for it to regenerate successfully, it needs significant amounts of sunlight.

Adjacent to the southern leg of the “blue trail” there is a narrow band of very young forest (appears to be less than 40 years old) that is different from most of the rest of the stand. This area of the stand is dominated by pole-timber-sized black birch with lesser associates of red maple and an occasional black oak. There do not appear to be many invasive plants, but grapevine is present in this part of the stand.

Both sides of this narrow band of young forest are bounded by large diameter, mature white pine sawtimber.



Above: Young forest surrounded by more mature forest adjacent to the blue trail in the southern portion of this stand.

Non-native invasive plants were noted in this stand. Japanese barberry and Asiatic bittersweet in particular were found in several locations in the southern block. The majority of the vegetation in this stand is native.

Access is good throughout this stand due to the well-drained soils, flat topography, and infrastructure from previous forest management activities.

Stump evidence of previous harvests was observed during data collection.

Recommendations:

Some of the Town's primary goals for this property are to continue to promote forest and ecosystem health, to provide diverse wildlife habitat and to offer safe, quality recreational experiences on this property.

Current basal area levels and a slowing of leader growth of regeneration in places indicate that the stand may benefit from a treatment that increases sunlight to residual stems and to established regeneration on the forest floor.

Where patches of barberry are found, treat them prior to cutting trees in the overstory. Also, when managing near wetlands, extra care must be taken with placement of roads and cutting patterns so that management does not create adverse effects.

Annually – Maintain roads and trails

2016 – Thin overstocked areas of this stand. Remove some mature and poorly formed individuals, as well as those exhibiting rot or other defects. Remove hemlock that appears to be declining and oak that was affected by recent storms. Retain good quality stems of a variety of species from all size classes. Reduce basal areas to around 110. Also release crop trees. Crop trees should be healthy, vigorous individuals of desirable species, particularly oak and pine. Red and white oaks should be retained where possible if they are not mature, damaged or otherwise poor quality. Some damaged oaks should be retained as sources of seed, shade and as future potential cavity trees and snags.

Where pockets of poor quality or mature trees exist consider removing them in groups from 1/10 – ½ acre. Retain snags and cavity trees (6 per acre) where possible and where doing so will not be a safety concern. Retain some mature individuals for a seed source, structural diversity and for aesthetics. Where possible and desirable, retain and release “wolf trees” from competition. Maintain a component of hemlock where healthy individuals are found. Release pockets of quality, desirable, established regeneration where it exists. Use group selection and when the overstory is mostly poor quality or moderate thinning where there are better quality trees to work around. Entries for commercial timber sales should be done every 15-20 years.

Opportunities may exist to create openings using small clearcuts or other regeneration techniques. Where these opportunities exist, attempt to make the openings large enough so that shade intolerant species may be able to take advantage of the opening and regenerate there. Attempt to create imperfect geometric shapes to increase edge effect. If openings are more linear, attempt to orient them north-south to increase the amount of sunlight they may receive.

Stand 2: Mixedwood, hardwood sawtimber and poletimber (60.24 Acres)

Description:

This stand is located in the southeastern corner of the property. This stand is bounded on the south by a residential neighborhoods on portions of Woodhaven and Merrywood Drive and on the east by Ethel Walker School. The topography is generally flat and the soils are generally well-drained though some of the western part of the stand is has a slightly high water table.



Right: Moist soil conditions and the large crowns of these trees combined to enable the tree to blow over.

This stand contains approximately 900 trees/acre, approximately 700 of which are seedlings and saplings. The remainder of the trees are poletimber (approximately 125 trees/acre) and sawtimber (65 trees/acre). Additionally, there are approximately 13 snags/acre. Sawtimber (trees \geq 12 inches dbh) constitute over 75% of the basal area in the stand. This sawtimber stocking is relatively equally split between small, medium and large sawtimber size classes.

Total basal area in the live midstory and overstory is approximately 133 square feet per acre, which is slightly higher than optimal for maximizing productivity for this forest type. There is approximately 9,860 board feet of sawtimber volume per acre, the majority of which is hemlock, black oak and red oak. The oak is good quality in this stand and was generally less affected by recent storms than stands 1 or 3. There are approximately 6.9 cords/acre which are also mostly red maple and hemlock. Hardwoods constitute approximately 75% of the stocking in this stand. There are small amounts of hickory, white oak, black birch, red maple, and ash sawtimber and poletimber in this stand.

Tree regeneration is patchy throughout the stand, though it is very dense in pockets. It consists of black birch, white pine, red maple, hemlock, and occasional black oak, white ash, American hornbeam, and hickory seedlings and saplings. Fern is very dense in places throughout this stand and in fact may be growing thickly enough to be inhibiting tree regeneration. Some invasive species including Japanese barberry and Asiatic bittersweet were noted in this stand. This is particularly true adjacent to the wetland in the western and northwestern portions of this stand.

Tree health appears to be generally good, aside from areas that appear to be overstocked. Some areas of damage to oak tops from recent storms, windthrow, (see picture on previous page) and pitch pine that are declining – some of which have died – appear to be the most significant health issues. There is evidence of previous harvests (stumps) visible throughout this stand. One interesting item to note is that there appeared to be at least one green ash on the boundary of this stand and the forested wetland. Green ash is uncommon in this state.



Above: This pitch pine tree is one of many that have died in this stand. Others remain but appear to be declining in health.

Recommendations:

Allow this stand to develop. When treating nearby stands, if the harvest area is adjacent to this stand, consider a light thinning from all diameter classes in Stand 2. If a treatment in this stand is to occur, remove overstocked, poorly formed, and less desirable species. If any mature red or black oak appear to be in decline or have been affected by storm damage, consider removing some of these. Retain a basal area of at least 100. Release pockets of quality, desirable, established regeneration where it exists. Retain snags and cavity trees (6 per acre) where possible and where doing so will not be a safety concern. Retain some mature individuals for a seed source, structural diversity and for aesthetics. Where possible and desirable, retain and release “wolf trees” from competition. Entries for commercial timber sales should be done every 15-20 years if conditions warrant.

Prior to any treatment, attempt to treat the invasive species in and near the areas in which overstory trees are to be cut.

Stand 3: Mixedwood poletimber and sawtimber (32.41 Acres)

Description:

This stand can be found west-central portion of the property. The topography in this stand is undulating and can be almost moderately steep at times. Generally the soils are well-drained to excessively well-drained. Site quality in this stand is relatively poor compared to the rest of the property based on shorter tree heights and comparatively slow relative growth rates. Using an increment borer, it was determined that growth rates for some of the codominant, healthy trees with some growing space around the crown was around 20 rings to the inch. This means that over the last 20 years the tree has grown only two inches, which is very slow for an oak tree in the main canopy with available growing space.



Above: General structural characteristics of Stand 3 include some coarse and fine woody material, plenty of leaf litter, some snags and pockets of vertical diversity in the form of white pine and black birch regeneration.

Old skid roads or other service roads have been converted into trails in areas of this stand. This stand has approximately 810 live trees/acre, 560 of which are seedlings and saplings. Regeneration in this stand is primarily white pine with associates of hemlock, red maple, black oak and some black birch. In addition to the tree species mentioned there is also significant populations of blueberry and huckleberry in the understory. Because of relatively dense shading, these shrubs are probably producing fairly light crops. Creating gaps in the overstory that these shrubs could take advantage of would likely increase fruit production.

There are approximately 44 sawtimber-sized trees/acre and about 207 poletimber-sized trees/acre. Total basal area of live trees in the midstory and overstory is approximately 120 square feet, almost 2/3 of which is poletimber. The stand contains approximately 3,500 board feet of sawtimber and only about 11.6 cords/acre. All of the sawtimber in the stand is 16 inches dbh or smaller.

The numerical data in this stand indicate that the area is slightly overstocked for a stand dominated by hardwood (2/3 of the stocking in this stand is hardwoods). Black oak, scarlet oak, white pine, and white oak are the primary species found in the overstory of this stand with associates of red maple and hemlock. There were 122 snags/acre detected statistically during the inventory process. Though this is a relatively high number of snags/acre, they are mostly small in diameter and therefore neither serve a very functional purpose for wildlife nor do they negatively affect the available growing space or health of the residual stand.



Above: Fine woody material from recently broken oak tops.

In addition to snags, there was significant damage to the oak trees in the overstory in this stand from recent storm events, which has created some pockets of fine woody material on the ground. This fine woody material is useful for wildlife for potential nesting and cover if it is dense enough, and can also act as perches for songbirds including various flycatchers. This habitat feature is

generally available for a short period of time because it decomposes relatively rapidly.

The majority of the trees in this stand are poletimber-sized. The stand is generally two aged.

No invasive plant species were noted in this stand during the inventory.

Recommendations:

Attempt to continue to diversify the structure and species mix in this stand. Continue to maintain trails. Monitor for introduction of invasive plant species.

2016 – Treat this stand in conjunction with treatments in adjacent stands to ensure its commercial viability. Using a combination of silvicultural methods including salvage for storm-damaged oak trees, light thinning (in areas that do not appear ready for regeneration), crop tree release, seed tree and shelterwood, maintain residual tree vigor and regenerate portions of this stand. Where thinning is to occur, reduce basal areas to approximately 95 square feet/acre. Retain quality individuals of a variety of species, focusing on retaining good quality oak, pine, and hemlock. Crop trees should be healthy, vigorous individuals of desirable species. Black and white oaks and white pine should be favored where possible if they are not poor quality. Retain some more mature individuals for a seed source, structural diversity, and for aesthetics.

Where advance regeneration exists use small group selection to release these areas from overstory competition. Group selection should be used in particular in areas where the overstory quality is relatively poor. Small group selection can also be used to release established pockets of lowbush blueberry and huckleberry.

Ideally, regeneration cuts should be done during the time of year when soil scarification⁹ is possible during a good seed year (i.e. acorn crop or pine cone crop). Frequently this would mean the late summer or fall into winter without snow cover. This is possible only as long as ground conditions will allow. In addition to preparing a seedbed for acorns, which could help facilitate the regeneration of oak which is severely lacking on this property, harvesting during this time of year would generally not negatively affect populations of forest breeding birds, as they will have already fledged.

Prior to treating the overstory, attempt to any invasive plant species populations that may be found in this stand.

Stand 4: Hardwood poletimber (15.16 Acres)

Description:

This stand is located in the northeastern corner of the property and occupies the part of the property that was most recently abandoned from a previous use. In this case, the use was as a golf course. There is still an area near the center of the stand that has not yet been converted entirely back to trees, and appears to have been periodically mowed in the past to keep it open. A stone wall found in the eastern portion of this stand indicates that the area was once also used for agricultural purposes as well. Topography is generally flat and soils drainage is variable from generally well-drained to somewhat poorly-drained in the western portion of the stand. There is a finger of forested wetland that reaches up into the west-central part of the stand, nearly bisecting it.

⁹ Soil scarification means exposing mineral soil by disturbing the duff layer. Acorns, hickory and other nuts have more successful germination rates when they do not have to grow through duff to reach bare soil. Scarification is most likely during dry summer and early fall months.



Above: A grassy area in Stand 4 that appears to be periodically mowed to remain open.

This is a young poletimber-sized forest. In different parts of the stand, black birch or red maple dominate the overstory, with associates of hickory, black oak, and white pine. This stand contains approximately 1,320 trees/acre, 960 of which are seedlings and saplings. The seedlings and saplings in this stand are primarily black birch, white pine, red maple, white ash, sugar maple, and black cherry. There are pockets of white pine saplings that have successfully become established in small openings and now occupy much of the midstory where this has occurred. There were no sawtimber-sized trees tallied in the inventory though there are some larger trees in the stand, some of which appear to have been relatively open grown.



Above: Generally simple structure of the young forest in Stand 4. Mostly poletimber with little to no regeneration, some small snags and minimal downed woody material. As this area matures, especially if some canopy gaps are created through active forest management, these features will improve.

Basal areas average just around 100 square feet/acre, which is perhaps slightly higher than optimal for maximizing tree growth and productivity in this forest type. There are approximately 15.4 cords/acre.

There are areas in this stand where invasive plant species have significant populations (see Items of Interest map on page 5). Invasive species found here include multiflora rose, Asiatic bittersweet, Japanese barberry, burning bush, and autumn olive.

Recommendations:

2015 – Attempt to treat areas heavily infested by invasive plants. Follow up treatments in subsequent years may be necessary.

Consider maintaining the grassy area as an opening in the stand. Consult with adjacent landowners and/or user groups to determine if this is a priority for them based on their uses. Work with these groups to develop a schedule and method of treatment to keep the area open.

Otherwise allow this stand to develop. If invasive plants are able to be controlled, consider performing a limited crop and/or mast tree release. Crop trees should be well-spaced and should be healthy, vigorous individuals of a variety of species. Where possible, focus on releasing mast producing species including hickory, black cherry and other mast producers that may be found. Where possible release the crop/mast trees on at least three sides (preferably the east, south and west). If this is to be done, attempt to release 15-20 stems/acre.

If a crop tree release is done, concurrently attempt to release desirable advance white pine regeneration using group selection and overstory removal methods of poor quality red maple. Felling and leaving the maple or creating brush piles for wildlife can be considered.

Stand 5: Red pine plantation (1.45 Acres)

Description:



This is a small, narrow, east-west oriented stand located within the northern block of Stand 1. Topography is generally flat with well-drained soils. There is access to this and through this stand via the existing trail system.

This stand is dominated by red pine with an occasional white pine or pitch pine also found in the overstory. White pine seedlings and saplings are growing prolifically in the understory and midstory of this stand. There are approximately 2,160 trees/acre 2,000 of which are seedlings (primarily red maple, black birch, and white pine). Sawtimber sized trees make up about 40% of the total trees in the featured stand (approximately 76 trees/acre), they account for 50% of the basal area (60 square feet). There are approximately 105 trees/acre in the poletimber size class.

Left: Tall, thin, small-crowned planted red pine overtop white pine regeneration along the trail.

Total basal area is approximately 120 square feet/acre, which is understocked for a red pine stand. There is approximately 4,600 board feet of timber and 10.2 cords of wood/acre. Live crown ratios (the ratio of the length of the part of the tree with live foliage compared to total tree height) are low as is terminal leader expansion in the white pine saplings. The red pine may be affected by red pine scale, which is an insect that weakens and can kill red pine trees.

Right: Small live crowns in the red pine in this stand generally lead to reduced vigor of individual trees.



Recommendations:

Allow to develop. This stand is unique on this property. The white pine regeneration could be released and as a result would grow more rapidly with increased sunlight. However, as the red pine continues to decline – which it appears as they likely will – the sunlight penetrating to the midstory white pine saplings will likely increase naturally over time. Monitor white pine sapling growth. If terminal leader expansion consistently becomes less than 4-5 inches/year, consider a light, non-commercial thinning of the red pine to reinvigorate the white pine regeneration.

Monitor for introduction of invasive plant species and eliminate populations of invasives if found prior to becoming established.

Stand 6: Forested wetland (85.55 Acres)

Description:

This stand is found in many blocks of different sizes throughout the property. This stand encompasses both forested wetlands and riparian areas. The majority of the riparian areas are in the western part of the property adjacent to Stratton Brook and the open wetland through which it drains in the southwestern part of the property. The terrain generally flat is all blocks of this stand. Species composition is primarily softwood with hemlock and pine dominating the overstory. Frequently, where hemlock dominates the overstory, there is minimal understory growth. In places dominated more by white pine, there tends to be better regeneration which is also dominated by white pine, particularly in the northern blocks of this stand. Soils are generally not operable for forest management purposes.



Above: Stratton Brook as it flows through the northwestern part of this area.



There are some areas of this stand that contain higher populations of non-native invasive plant species than the surrounding stands. Windthrow is a common occurrence in these areas. The upturned stumps of windthrown trees can act as habitat for wildlife. This is particularly useful for a nesting substrate for species of birds such as Louisiana waterthrush when the tipped trees are located adjacent to moving water.

Left: Windthrow is common in this area as water tables are generally high and root systems are fairly shallow. This area near the parking area at Town Forest Park is adjacent to a trail.

Forested wetlands are important for many other species as well, including amphibians, reptiles and mammals of all sizes. Frequently they contain unique flora and fauna that are not found in other forest types or habitats.

Recommendations:

2015 – Attempt to treat areas heavily infested by invasive plants. Follow up treatments in subsequent years may be necessary.

Otherwise, allow these areas to develop. Ensure that activities on portions of the property adjacent to these areas do not negatively affect the quality of the area. Follow Connecticut’s Field Guide for Best Management Practices for Water Quality while Harvesting Forest Products during any forest management operations. Where appropriate, set buffers when conducting forest management operations near water features.

Area 7: Open wetland (38.65 Acres)

Description:

This area is located in the southwestern portion of the property. It contains most of the wettest soils on the property and there is a large portion of this area that is open water. Stratton Brook flows through this area on its way north through the rest of the property. Vegetation here includes thick stands of alder in places along the edge, stands of cattail, rushes, sedges, snags, many species of herbaceous plants. Woody plants along the edge include red maple, white pine and hemlock. There are occasional red maples that are found in the interior of this area as well as some snags. Along the northern edge east of the beaver baffle described below is an area dominated by the non-native invasive plant phragmites (a.k.a. common reed). This area has become largely a monoculture of that species.



Above: Dense areas of native shrubs such as the alder shown above in the northwestern portion of this stand provide quality habitat for a variety of wildlife.



Above: Open water near the eastern end of the large wetland complex. Note the grey circular item in the water near the right side of the picture. This is a part of the beaver baffle designed to allow beaver to live in an area without doing an untenable amount of damage.

Many species of wildlife use this area. Some are year round residents and others may use it during parts of the year or as a stopover area during migration. As described earlier in this document, there is an apparently successful beaver baffle installed near the northwestern corner of this stand. This is at a pinch point where Stratton Brook reconstitutes and becomes a defined watercourse.

Recommendations:

Consider the installation of a wood duck box either on a post in the open water or on a tree adjacent to the water. Work with a wildlife or bird biologist to ensure proper installation and location.

Continue to monitor the beaver baffle and make adjustments as necessary.

Monitor the advance of phragmites. If it appears to be taking over larger portions of the wetland, consider a treatment to reduce its population and plant desirable native alternatives including cattail and alder (depending on water depth).

Consider the installation of a duck or bird blind to enhance the recreational opportunity in this area. Work with a wildlife or bird biologist to ensure proper installation and location.

Ensure that activities on portions of the property adjacent to these areas do not negatively affect the quality of the area. Follow Connecticut's Field Guide for Best Management Practices for Water Quality while Harvesting Forest Products during any forest management operations. Where appropriate, set buffers when conducting forest management operations near water features.

Area 8: Open area (6.14 Acres)

Description:

This is a grassy area on the eastern side of the property. It is adjacent to Ethel Walker School and is used by the school as an area to work with horses.

Recommendations:

Continue to allow the school to maintain this area as necessary for their training needs.

GENERAL PROPERTY RECOMMENDATIONS

- With any activity undertaken on the property, attempt to:
 1. Improve forest health and species diversity
 2. Improve vertical and horizontal structural diversity, including retaining and recruiting snags and cavity trees where doing so is not counter-productive to the goal of the activity
 3. Ensure water quality and soil stability
 4. Maintain accessibility
 5. Limit spread of invasive plant species. Treat populations of invasives prior to forest management activities.
 6. Ensure the public and neighbors are aware of and understand the activities being completed.
- Attempt to limit populations of invasive plant and insect species. Keep abreast of information regarding invasive insects, especially the hemlock woolly adelgid, hemlock scale, emerald ash borer and Asian long-horned beetle (all non-native invasive insect pests). Amend plan to salvage imminently infested stems if necessary.
- Attempt to treat most areas on a +/- 20 year cutting cycle.
- If aspen trees are encountered during treatments, attempt to regenerate those areas to encourage dense sprouting.
- Attempt to maintain and enhance populations of softwood tree species on the property. Retain healthy hemlock where it exists.
- Attempt to recruit some large trees scattered throughout the property, even if these trees are not “wolf trees” to increase structural diversity. These large trees could become “legacy trees” and be allowed to mature and die naturally.
- Locate and maintain boundary lines.
- Continue to maintain all roads, trails, and other infrastructure to ensure continued and improved access throughout the property. This includes the installation of waterbars or other water diversion devices where necessary.
- Where and when appropriate consider working with adjacent landowners (i.e. private landowners, State of Connecticut, etc.) to “manage across boundaries”.
- Follow Connecticut’s Field Guide for Best Management Practices for Water Quality while Harvesting Forest Products during any forest management operations.

STAND SPECIFIC PROPERTY RECOMMENDATIONS

1. 2015 – All Stands: Treat invasive species where located. Follow up treatments in subsequent years may be necessary. If this does not occur in 2015, treat invasives in stands where activities are scheduled to take place prior to harvesting. Annually monitor all stands for new introductions of populations of invasive plants and insects. Treat new populations when detected before they can become established and spread further. Modify plan to include salvaging of insect damaged trees if necessary.
2. 2016 – Stand 1: Thin overstocked areas of this stand. Remove some mature and poorly formed individuals, as well as those exhibiting rot or other defects. Remove hemlock that appears to be declining and oak that was affected by recent storms. Retain good quality stems of a variety of species from all size classes. Reduce basal areas to around 110. Also release crop trees. Crop trees should be healthy, vigorous individuals of desirable species, particularly oak and pine. Red and white oaks should be retained where possible if they are not mature, damaged or otherwise poor quality. Some damaged oaks should be retained as sources of seed, shade and as future potential cavity trees and snags. Where appropriate, use group selection and/or patch cuts from 1/10- ½ acre to regenerate portions of the stand.
3. 2016 – Stand 3: Treat this stand in conjunction with treatments in adjacent stands to ensure its commercial viability. Using a combination of silvicultural methods including salvage for storm-damaged oak trees, light thinning (in areas that do not appear ready for regeneration), crop tree release, seed tree and shelterwood, maintain residual tree vigor and regenerate portions of this stand. Where thinning is to occur, reduce basal areas to approximately 95 square feet/acre. Retain quality individuals of a variety of species, focusing on retaining good quality oak, pine, and hemlock. Crop trees should be healthy, vigorous individuals of desirable species. Black and white oaks and white pine should be favored where possible if they are not poor quality. Retain some more mature individuals for a seed source, structural diversity, and for aesthetics. Release pockets of regeneration where they exist and where appropriate based on overstory condition using group selection or small patch cuts.
4. Stand 2: Allow this stand to develop. When treating nearby stands, if the harvest area is adjacent to this stand, consider a light thinning from all diameter classes in Stand 2.
5. Stand 4: Consider maintaining the grassy area as an opening in the stand. Consult with adjacent landowners and/or user groups to determine if this is a priority for them based on their uses. Work with these groups to develop a schedule and method of treatment to keep the area open.

Otherwise allow this stand to develop. If invasive plants are able to be controlled, consider performing a limited non-commercial crop and/or mast tree release. Crop trees should be well-spaced and should be healthy, vigorous individuals of a variety of species. Where possible, focus on releasing mast producing species including hickory, black cherry and other mast producers that may be found. Where possible release the crop/mast trees on at least three sides (preferably the east, south and west). If this is to be done, attempt to release 15-20 stems/acre.

If a crop tree release is done, concurrently attempt to release desirable advance white pine regeneration using group selection and overstory removal methods of poor quality red maple. Felling and leaving the maple or creating brush piles for wildlife can be considered.

6. Stand 5: Allow to develop. Monitor white pine sapling growth. If terminal leader expansion consistently becomes less than 4-5 inches/year, consider a light, non-commercial thinning of the red pine to reinvigorate the white pine regeneration.
7. Stand 6: Allow to develop. Ensure that activities on portions of the property adjacent to these areas do not negatively affect the quality of the area. Follow Connecticut's Field Guide for Best Management Practices for Water Quality while Harvesting Forest Products during any forest management operations. Where appropriate, set buffers when conducting forest management operations near water features.
8. Area 7: Consider the installation of a wood duck box either on a post in the open water or on a tree adjacent to the water. Work with a wildlife or bird biologist to ensure proper installation and location.

Continue to monitor the beaver baffle and make adjustments as necessary.

Monitor the advance of phragmites. If it appears to be taking over larger portions of the wetland, consider a treatment to reduce its population and plant desirable native alternatives including cattail and alder (depending on water depth).

Consider the installation of a duck or bird blind to enhance the recreational opportunity in this area. Work with a wildlife or bird biologist to ensure proper installation and location.

Ensure that activities on portions of the property adjacent to these areas do not negatively affect the quality of the area. Follow Connecticut's Field Guide for Best Management Practices for Water Quality while Harvesting Forest Products during any forest management operations. Where appropriate, set buffers when conducting forest management operations near water features.

9. Area 8: Continue to allow the school to maintain this area as necessary for their training needs.
10. 2023 – Re-inventory property and develop management plan for next 10-year plan period.
11. Annually – Maintain property boundaries
12. Annually – Maintain parking lot, gates, kiosk, roads and trails

SUMMARY OF SCHEDULED ACTIVITIES 2014-2023

Town of Simsbury - Ethel Walker Open Space Property		
Summary of Scheduled Activities		
2014-2023		
Year	Stand	Treatment
2015	All	Treat invasive plant species where they exist
2016	1	Single tree/small group selection with crop/mast tree release
2016	3	Thinning with some regeneration treatments
	2	Allow to develop. Consider light thinning if forest management activities are occurring in stands directly adjacent to Stand 2.
	4	Consider maintaining grassy area as permanent opening. Consult with and work with user groups and applicable adjacent landowners to determine if this is desirable and how to maintain it.
	4	Consider non-commercial crop/mast tree release with small group selection/patch cuts to release white pine regeneration.
	5	Allow to develop. Monitor white pine sapling terminal leader expansion. If becomes consistently limited, consider a light non-commercial thinning of overstory red pine.
	6	Allow to develop.
	7	Consider installations of wood duck box and bird blind. Monitor beaver baffle. Monitor phragmites and treat if begins to expand.
	8	Continue to allow the school to maintain this area as necessary for their training needs
2023	All	Re-inventory and develop new 10 year management plan
Annually	All	Monitor for introductions of invasive plants or insects. Treat new infestations before they become established. Salvage insect infested trees if necessary.
Annually	All	Maintain boundaries, roads and trails
Annually	All	Treat invasive plant species where located if resources are available to do so
Annually	All	Maintain parking lot, gates, kiosk, roads and trails

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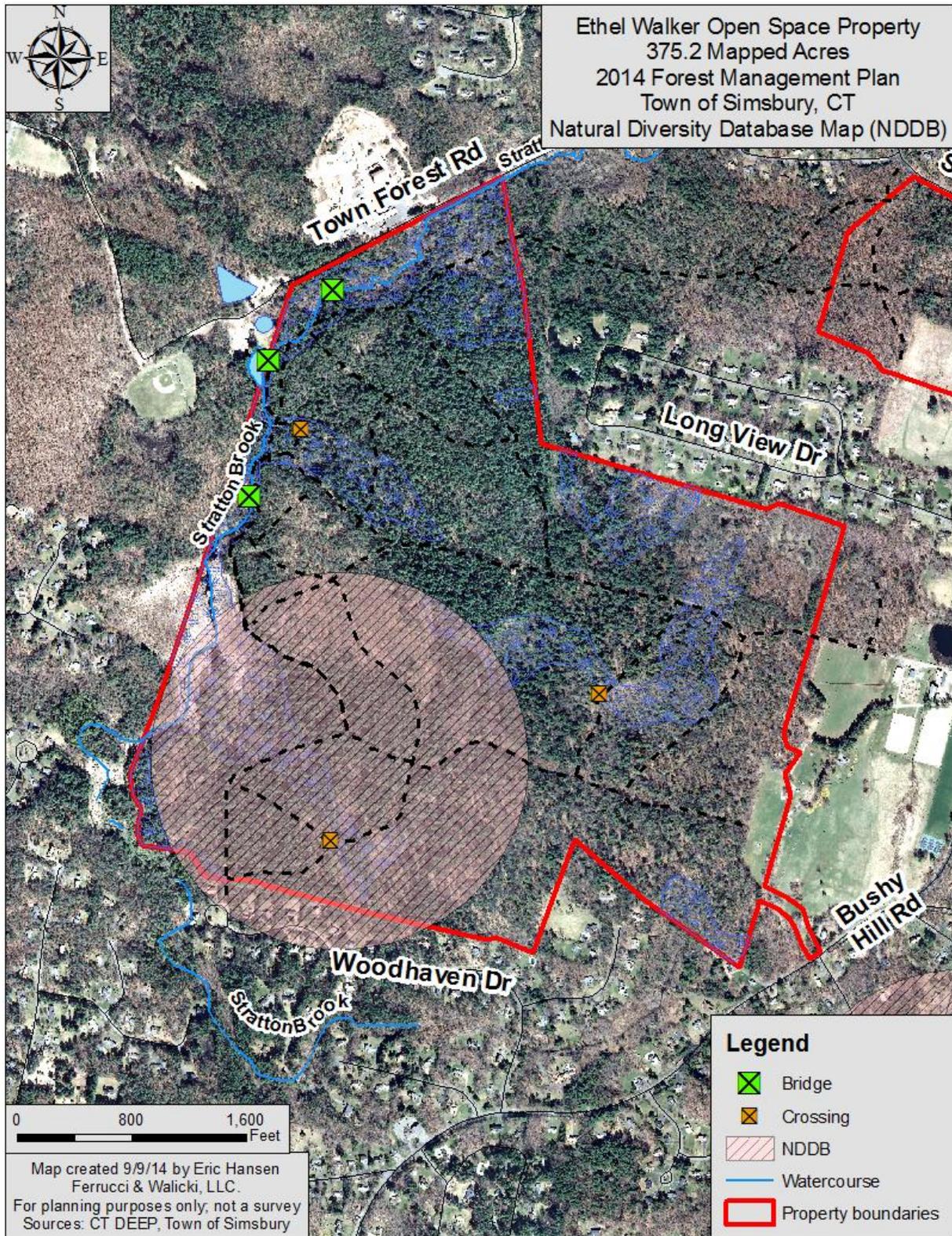
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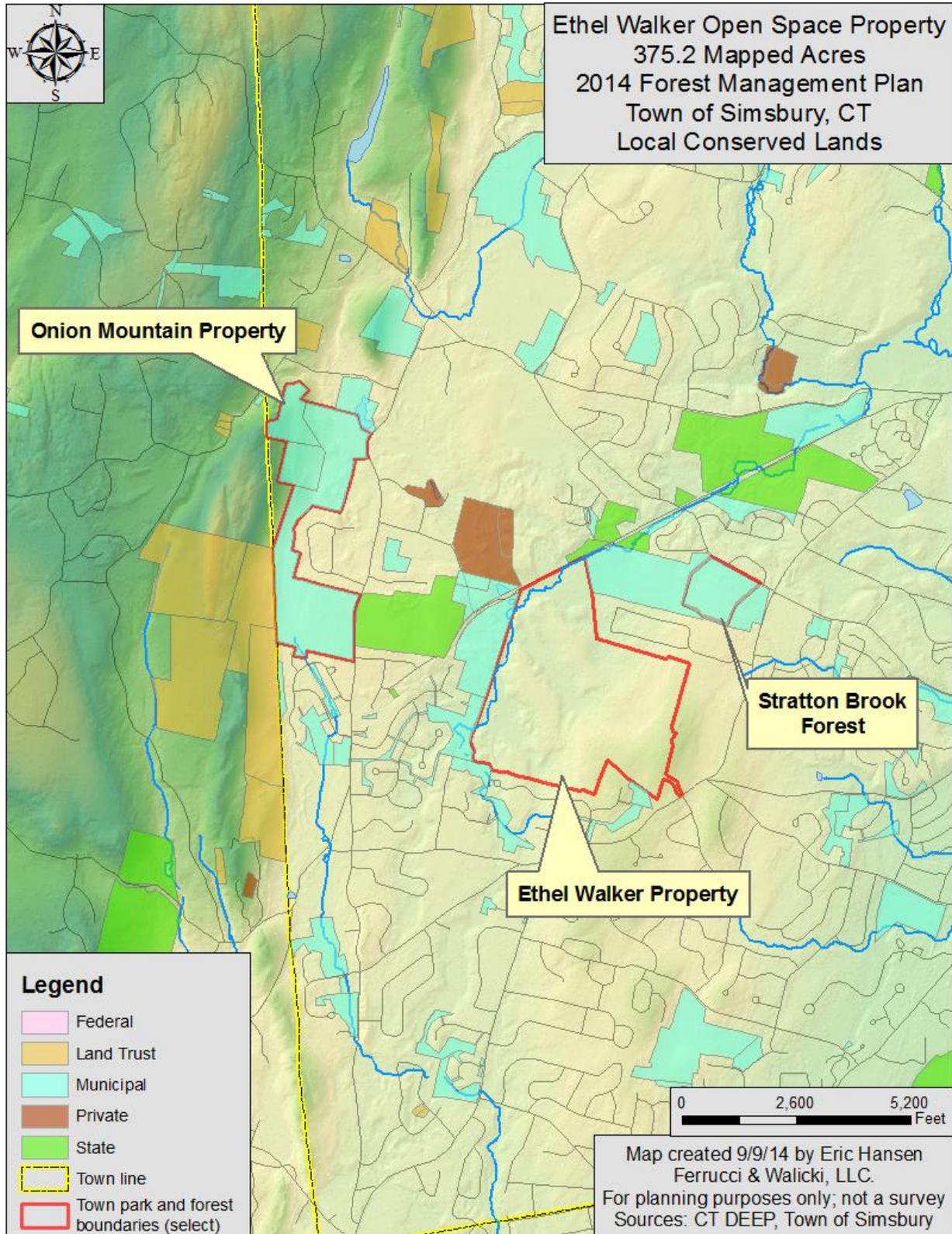
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MAPS

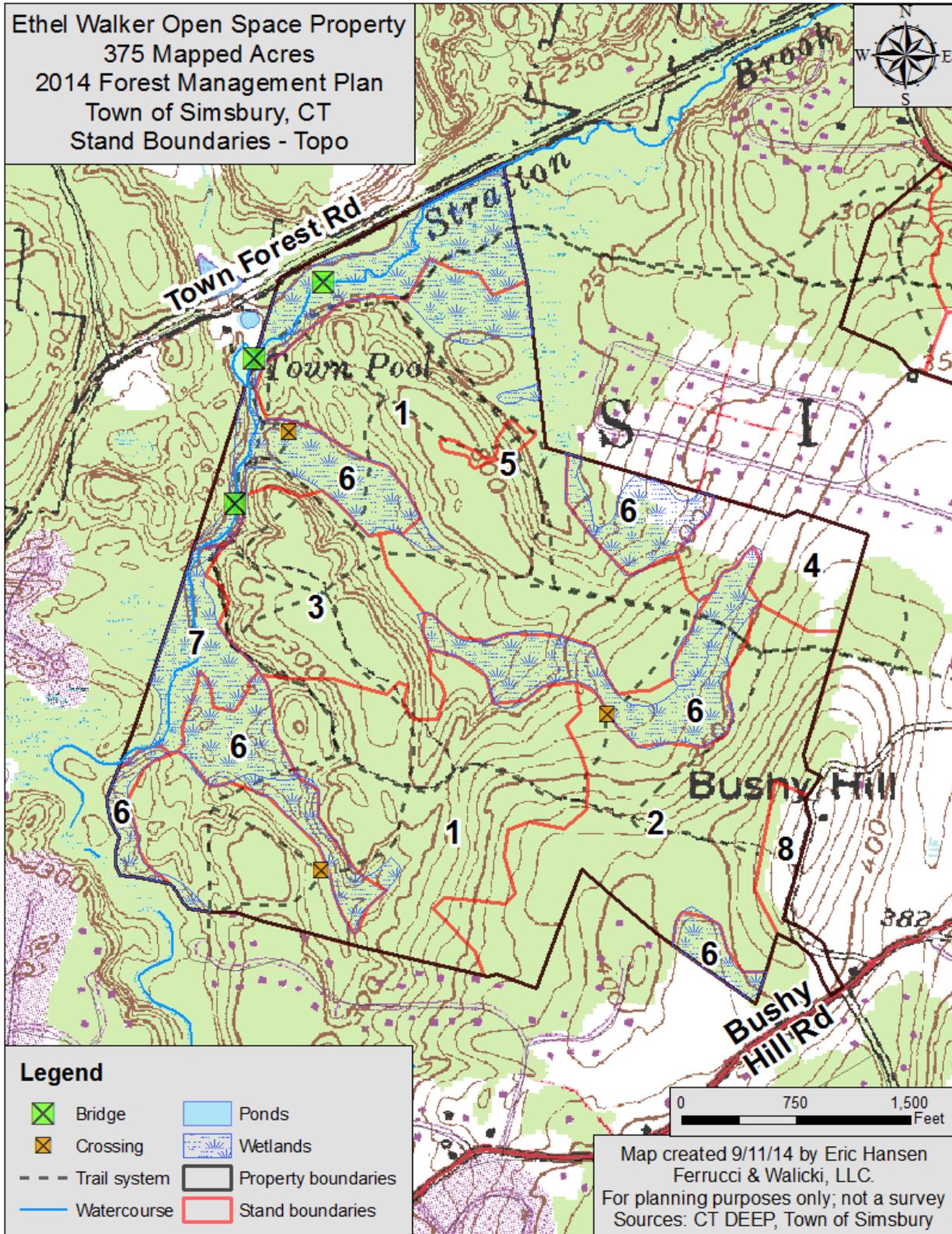
Simsbury – Ethel Walker Open Space Property NDDDB Map



Conserved Properties Surrounding E.W. Open Space Property



Ethel Walker Open Space Property Topo Map



GLOSSARY

aspect

The general direction in which land slopes

basal area

A commonly used measure of forest density or stocking. It is measured as the cross sectional area of a tree in square feet at 4.5 feet above ground.

B-level

The stocking level considered optimal for sawtimber growth.

board foot

A measurement unit for lumber volume. One board foot is a piece of wood 1 foot long by 1 foot wide by 1 inch thick (Abbreviated b.f.)

breast height

Measurement at which diameter is generally measured for inventory and timber tally purposes. Breast height is measured at 4.5 feet above the ground. Where there is any slope, breast height is always measured from the highest part of the slope where the ground intersects the tree.

clearcut

An even-age silvicultural technique in which all the trees in an area are severed and – typically – removed. Silvicultural clearcuts generally remove all trees above 2 inches dbh. Commercial clearcuts or “high-grades” remove all the trees of value leaving poorer quality trees of a variety of diameters.

clearcut with reserves

A modified clearcut in which the majority of the trees in an area are cut, but some minimal trees are left standing. Typically reserve trees will allow to mature and will not be cut. This differs from a shelterwood or seed tree harvest in that residual trees following the initial regeneration cut are intended for removal.

clear log

A length of tree stem or cut log that has no horizontal (i.e. side) branches.

coppice

A sprout from roots or stumps. Or a practice of cutting a tree or group of trees to cause them to resprout from the stump or roots.

cord

A measurement unit for firewood. One cord of stacked wood measures 4 feet by 4 feet by 8 feet. 1 cord contains 85 cubic feet of solid wood. (Abbreviated cd)

crown

The top of the tree, including the live branches and the leaves.

cruise

An inventory of standing trees during which information about species, size and other characteristics is gathered.

cull

A tree of such poor quality that it is not suitable for sawtimber. Culls are sometimes sold for firewood.

dbh

Diameter of a tree outside the bark measured at breast height

den tree

A tree with a hollow or cavity large enough to potentially be used by wildlife (a.k.a. cavity tree)

even-age management

Managing trees in such a way that it creates a single or two age classes in a stand.

girdle

To attempt to kill a tree by cutting through the outer bark and cambium around its entire circumference.

hardwood

A deciduous, broadleaf tree. Angiosperm.

high-grade

A logging practice in which only the best trees are removed leaving poorer quality and/or damaged trees.

International Rule

A type of log (measuring) rule. The International Rule is the legal standard for measuring sawtimber in Connecticut.

live crown ratio

The ratio of live crown length to total tree height.

mast

Seeds and nuts produced by trees and shrubs. Mast is often discussed in terms of hard and soft and is crucial to providing food for wildlife.

mbf

One thousand board feet (of sawtimber) or "a thousand".

overstory

The portion of trees in a stand which form the upper canopy.

overstory removal

An even age silvicultural treatment type in which most or all of the overstory trees are removed in order to release established regeneration.

poletimber

Trees from 5 to 11 inches diameter at breast height (4.5 feet above ground). Also pole or pole tree.

regeneration

New trees, generally seedlings, saplings and sprouts. Regenerating a forest involves replacing existing trees with new ones.

release

To free a desirable tree from competition by cutting or otherwise killing one or more adjacent competing trees or shrubs.

sapling

A tree from 1 to 5 inches diameter.

sawlog

A log that is straight, large and sound enough to be sawn into boards. Sawlogs are usually at least 8 feet long and ten inches or larger in diameter.

sawtimber tree

A tree large enough to contain at least one sawlog. (Saw)timber trees are usually twelve inches or larger in diameter outside the bark at breast height.

seedling

A tree from newly germinated up to 1 inch diameter.

Selection System

A silvicultural system involving the removal of individual trees or groups of trees at regular intervals. This system tends to promote the development of uneven aged forests.

Shelterwood System

A silvicultural system whereby new trees are regenerated under the partial shelter of other trees. This system is one of the options available to regenerate a stand or part of a stand to create an even aged or two-aged forest. (The latter occurs when the overstory trees are not removed following the successful regeneration of trees in the understory).

silvicultural system

A planned program of silvicultural treatments during the entire life of a stand. The main focus is on the methods used to obtain desirable regeneration.

silviculture

The science and the art of growing and tending trees for a variety of purposes.

slash

The debris left after logging, pruning or thinning. Slash can include tree tops and unused or unusable portions of the main stems of trees.

stand type

A group or community of trees sufficiently uniform with respect to size, species composition, spatial arrangement, age or condition to be distinguished from other groups of trees.

stocking

An indication of the amount or density of trees in a stand.

stumpage

Standing trees, usually associated with volume information and intended for sale.

thinning

A cutting done in immature stands in order to maintain tree health and vigor, stimulate the growth of the trees that remain and increase the total yield of useful material from the stand.

tolerance

The relative ability of a tree species to survive and/or grow in shade.

timber stand improvement

Improving a stand of trees, usually by pruning, cull-tree removal or pre-commercial thinning. (Abbreviated TSI)

uneven-age management

Managing trees in such a way that it creates three or more age classes in a stand. The selection system is most often used to develop uneven-age stands.

- Following any treatments, annually monitor treated areas for presence of invasive plant species. If invasive species are detected, spot treat invasives to prohibit their establishment.
- Following treatments in which there is harvesting in the overstory, consider the installation of a deer enclosure. If this is done, include the construction of a spur trail to the enclosure (if it is not already adjacent to an existing part of the trail network) along with educational signage.
- If an appropriate area can be found, create a large opening in the canopy to encourage the development of early successional habitat conditions. A patch cut of 2-5 acres or larger would be necessary to create an area that can provide these habitat conditions. The larger the area, the more effective the habitat condition will be for a variety of plant and animal species for longer.
 - Conditions to look for that may be appropriate for such a harvest pattern, will include an area with relatively dispersed recreational uses, an area that is relatively flat and well-drained, and an area that has a high percentage of mature, poor-quality, diseased, damaged or otherwise undesirable standing trees, among other characteristics.
 - Any water features will need to be buffered and treated differently than the patch cut adjacent to them.
 - If a trail is adjacent to or within an area to be patch cut, the trail should remain clear following the harvest to allow property users access through the cut to be able to view how the area changes over time.
 - Following the harvest, (and potentially before and during as well) install educational signage indicating what was done, why and when.