Connecticut
Department of Energy &
Environmental Protection

Field Visit to the Town of Ridgefield's Florida Refuge property at Florida Hill Rd
Post Visit Report

Present Parties: Town Conservation Commission (Tony Markert, Jack Kace, Pete Nichols, Roberta Barbieri, Erik Keller) and David Beers (Western District Service Forester) on 1/30/2024 from 10:30-2:30

Stewardship Objectives

1. Improve the public's enjoyment of town conservation properties
2. Improve forest health by controlling invasives and encouraging native vegetation

Left to Right: Tony Markert, Jack Kace, Pete Nichols, Roberta Barbieri, Erik Keller

PROPERTY OVERVIEW

The property has very limited public road frontage and parking on Florida Road and Florida Hill Road. There is a rail trail under a power transmission line along the property's southern border. The property is surrounded by residential development. No protected open space abuts the property. This is a mostly developed landscape, with a few small blocks of forest and farmland.

This forest is part of a small core forest block having less than 250 acres of contiguous forest. Core forests are large tracts of unbroken forest that provide a much more stable home for plant and animal species, thereby protecting biodiversity. They are forested areas surrounded by more forested areas.

The CT DEEP Natural Diversity Database (NDDB) does **not** have occurrences of threatened or endangered species on or near this property. Maps showing wetland soils is attached to this report. There are no farmland soils. This property is in the Norwalk River watershed.

In the attached 1934 air photo, the property was a mix of young forest, clear fields and partially treed fields. Areas that were young forest in 1934 were likely pastured about 100 years ago. The town acquired the property in the early 1970s from Locust Farm.

The 62 acres of forest is described below. There is an extensive and well-maintained hiking trail system throughout the property.

Please see the attached appendix for more information about the history of your forest, the future of your forest and some general recommendations. An appendix of Latin names for the tree and shrub species is also attached.

Pile of small stones on edge of younger forest – Likely tilled land that produced small rocks with the frost heaving

Tree Cover

Most Common	Common	Uncommon
Red Oak	White Oak	Black Gum
Sugar Maple	Black Oak	Aspen
Hickory	Red Maple	Scarlet Oak
Black Birch	Yellow Birch	Cottonwood
Tulip Poplar	Black Locust	Black Cherry
	Beech	Sassafras
		Norway Maple (exotic)

This forest has a diverse mix of tree species and sizes growing on site conditions that vary with slope position, soil type and land use history. While most of the forest is mature, with full canopy closure, there are exceptions described below in the invasive paragraph under forest health. There is no canopy midstory to speak of. There are 6 acres of forested wetlands within this forest. There are some impressive very large (>20" diameter) tall tulip poplar trees scattered about – see photo.

Understory
There are a few sugar maple, hickory, beech and black birch saplings. There are also some witch hazel and musclewood shrubs.

Ground Cover
In areas with thick barberry, the leaf litter is degraded and thin. Areas free of barberry appear to have a good thick healthy leaf litter. There is a good amount of woody material throughout the forest floor.

Forest Health
Beech leaf disease has begun to infect some of the beech trees. This is a microscopic nematode from Asia that has recently begun to spread throughout the state, and it is still unclear the long-term prognosis for infected beech trees. The emerald ash borer has killed the ash trees within the past 10 years.

The lack of canopy structural diversity makes this forest less resilient to future disturbances (weather, climate, pests). On the other hand, the high tree species diversity makes it more resilient. The large deer herd in this part of Connecticut makes growing certain preferred browse of deer, like oak, sugar maple and hickory seedlings, difficult.

Regarding invasive exotic vegetation, throughout the forest are scattered patches of barberry shrubs, multi-flora rose shrubs, burning bush and bittersweet vines – particularly in lower wetter sites. There are 14 acres, in three blocks, that have dense invasive and vine growth. The 8-acre eastern block has thick barberry shrub growth with a canopy that is thinning with the loss of ash trees and declining black locust trees. With about 70% canopy cover here, the barberry can take advantage of the increased sunlight. With only 50% canopy coverage, the other two blocks have prolific vine and invasive growth. The larger of those two was a cleared field in the 1934 air photo, making it a younger forest that now has a sparse overstory of sugar maple and black locust trees with a thick understory of privet shrubs on 4 acres. Please see the appendix for more information about exotic invasives and their control.

Privet shrubs and grape vines in central 4-acre invasive block

Dense barberry in eastern 8-acre invasive block

Wildlife Habitat
The many mature oak and hickory trees in your forest are a great wildlife habitat asset, especially the acorns and nuts they produce. Having a diversity of habitat types (younger, mature, wetlands) intimately mixed, like you have, is always a good thing. Your forest is lacking in vertical structural diversity in the canopy. It is providing adequate food, water, shelter, cover and space for much of the wildlife in the area. Please see the appendix for more information about wildlife habitat.

Included within this forest is a vernal pool. Vernal pools are depressions that fill up with water in the spring that have no stream outlet. Without an outlet, there are no predacious fish, which makes them perfect for amphibian eggs. Many amphibians rely on vernal pools exclusively for their egg and larval stages.

Carbon and Climate Resilience
This mature forest is storing a large amount of carbon while actively sequestering more. Any forest products you produce will help mitigate climate change. There are some recommendations below to make forest more resilient and adaptive to climate change. There is more information about forest carbon and the forest's ecological services in the appendix.


Vernal Pool

Forest Vegetation Recommendations

The tree-hanging vines (mostly grape and invasive exotic bittersweet) reduce the vigor of the mature trees by shading and choking their upper canopy and perhaps even pulling down tree branches. I recommend cutting these vines with a handsaw or chainsaw. This cutting could be done during the growing season when the energy stores of the vines are above ground. Two cuts should be done at chest height about six inches apart to prevent vine reconnection. In shaded areas, I do not think that the cut vines will survive. To be extra sure, you can treat the freshly cut rooted end with an herbicide immediately after cutting – see photo of the buckthorn blaster in the appendix.

I see an opportunity in the central 4-acre invasive/vine area for some forest remediation work. With only 50% overstory canopy coverage, there is plenty of sunlight reaching the forest floor to stimulate young tree growth. Patches of the invasive privet could be brush cut to allow some growing space for native trees and shrubs to take hold. For this to work, the deer would need to be excluded from the area for the initial 5+ years to allow young tree growth to get above deer browsing height. This would require surrounding the area with temporary deer fencing. This fencing could be either 10' high metal mesh fencing or 6' high solar electric fencing.

Dammed pond at eastern edge

CONCLUSION

Here are some possibilities for your forest:

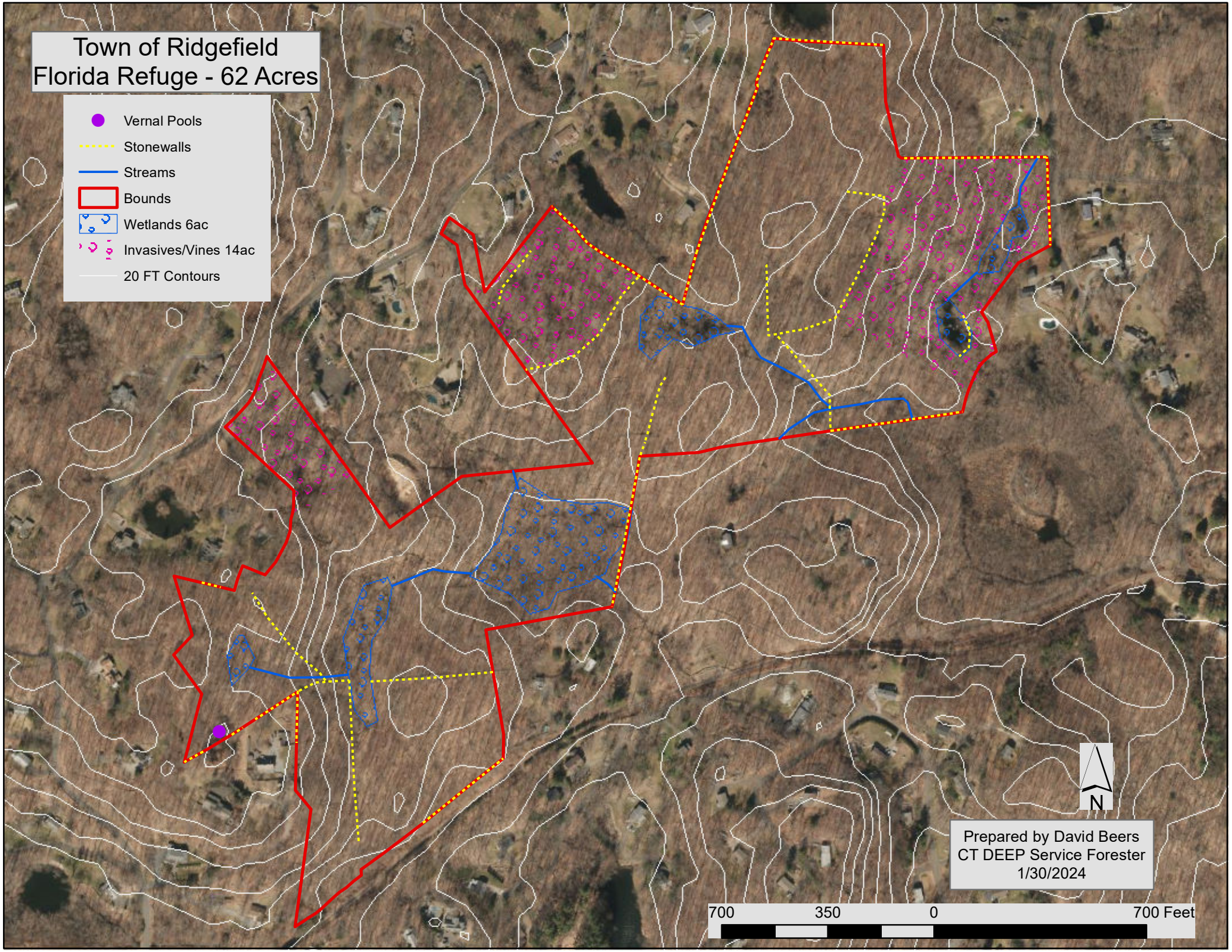
- Contact a private forester about doing a forest stewardship plan
- Consider allowing hunting to lessen the deer browsing
    - Perhaps bow hunting only for safety reasons
- An annual property inspection that includes property boundary maintenance
- Cut and treat vines (grape and bittersweet)
- Potential 4-acre deer exclusion area with privet cutting and temporary deer fencing

Please consider hiring a forester to help you implement any of the recommendations in this report. I highly recommend you look into getting funding through the Urban and Community Forestry Planning Grant Program (ct.gov). Please feel free to share this report.

White Oak Legacy Tree

Massive Tall Tulip Poplar Tree

IN THE END, WE WILL CONSERVE ONLY WHAT WE LOVE AND WE LOVE ONLY WHAT WE UNDERSTAND -BABA DIOUM


Town of Ridgefield
Florida Refuge - 62 Acres
Vernal Pools
Stonewalls
Streams
Bounds
Wetlands 6ac
Invasives/Vines 14ac
20 FT Contours
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Prepared by David Beers
CT DEEP Service Forester
1/30/2024
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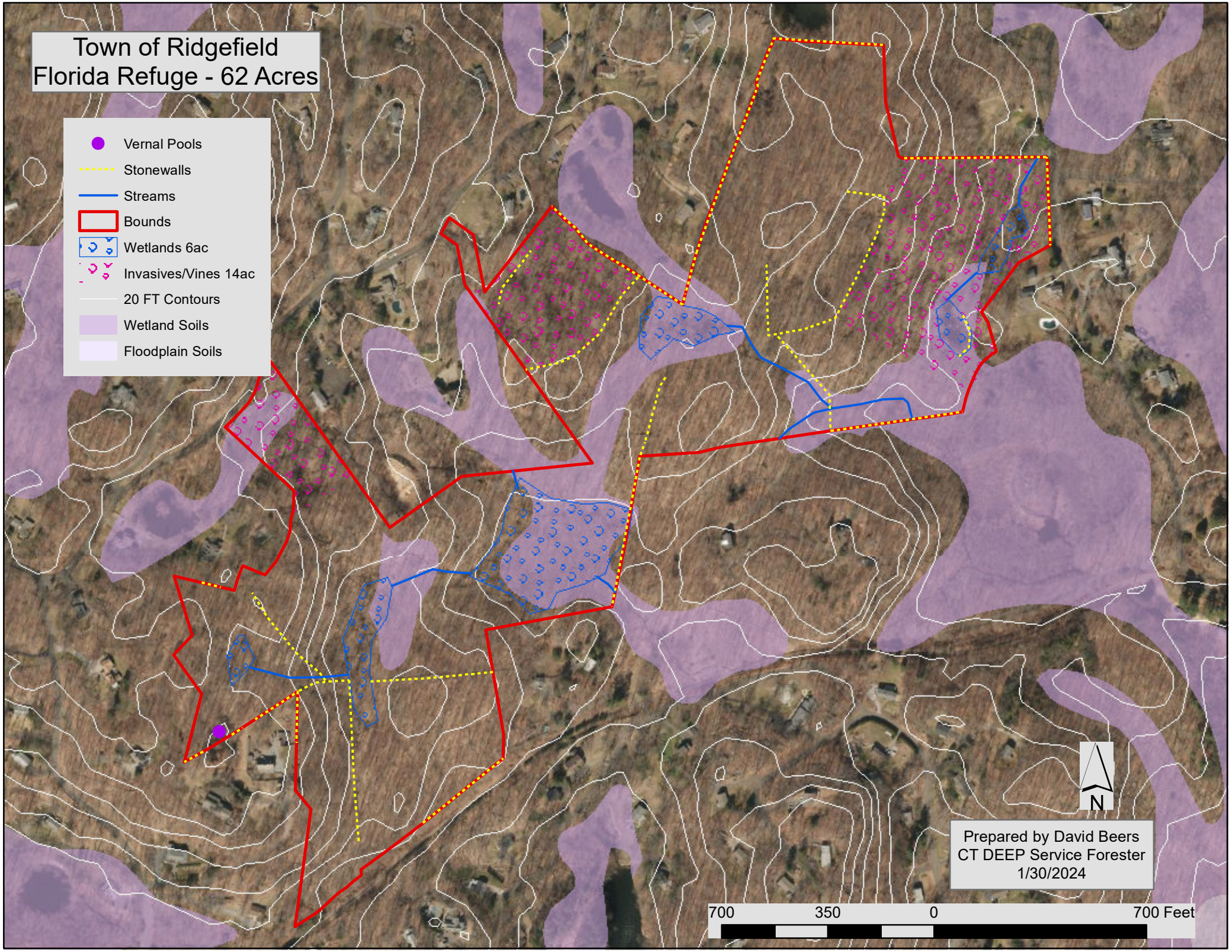
700 Feet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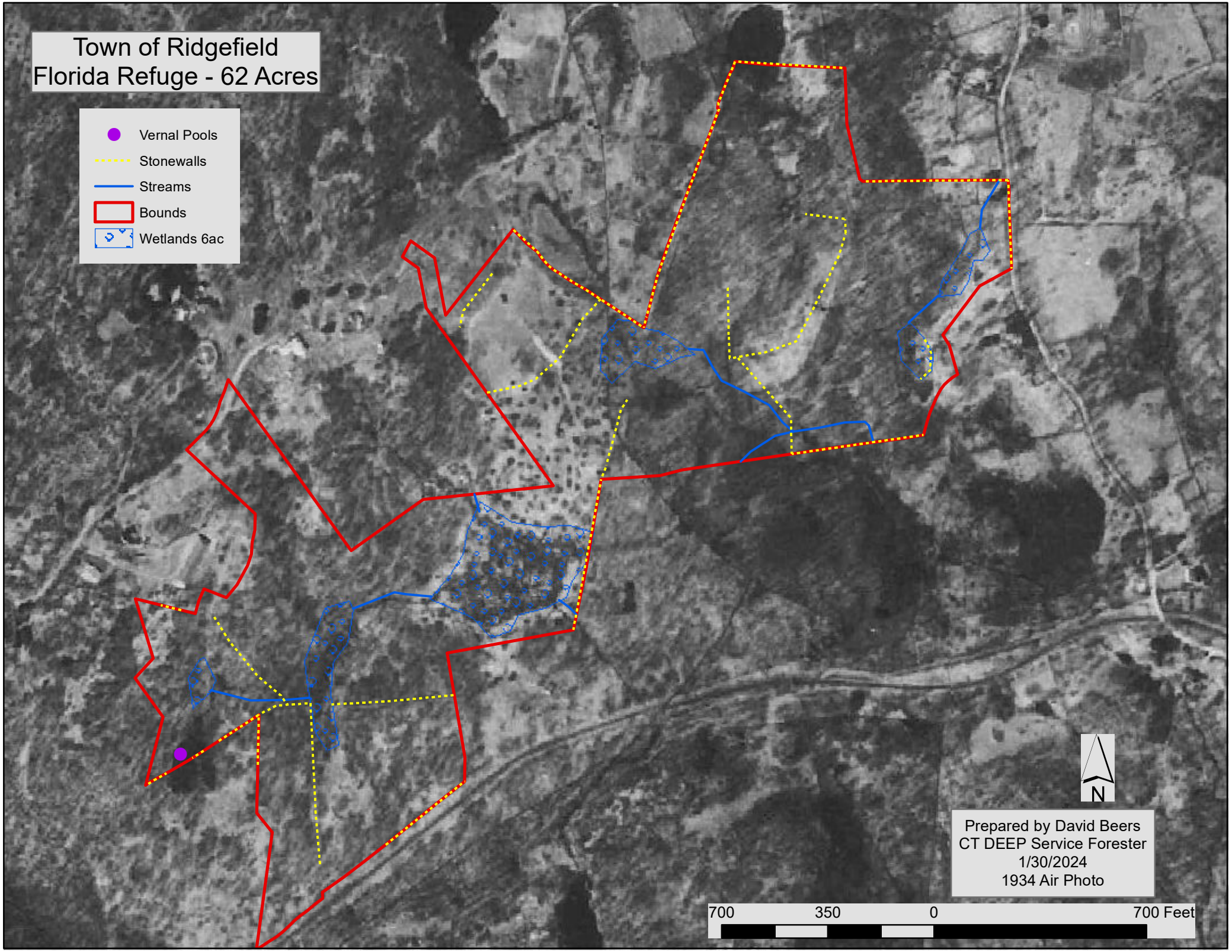
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1934 Air Photo
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APPENDIX

FOREST HISTORY

Between eighteenth century colonial settlement and the mid-nineteenth century, most of western Connecticut was cleared for farming, with only a few small patches of forest remaining by the mid-nineteenth century. Only 25% of Connecticut was forested then. Under these conditions, the biggest animal left in the woods was a muskrat. Turkeys, deer, bobcat, beaver, and bear were either rare or entirely gone. Most of the land was used for livestock pasture, with only the best soils used for hay or tilled crops. Imagine a very open agrarian landscape.

It was during this farming period that the stonewalls were built to keep livestock out of crops and the neighbor's property. Most of these walls were topped off with piled wood and stumps to make them taller. Stonewalls were also a depository for rocks removed from cultivated land. A stonewall with many fist-sized rocks means that one side of that wall had tilled crops, where the winter freeze of bare ground would push rocks to the surface. After barbed wire became widely available in 1875, many of these walls were supplemented with wire. Barbed wire was used to corral cows and goats, but not sheep (barbs did not hurt the sheep). Sheep pasture used smooth-wired rectangular page fencing.

Most of the western CT hill farms were abandoned between the mid-nineteenth century and early twentieth century. The farmers either moved west for better farming soils or headed to the cities for industrial work. Immediately after this farm abandonment, the forest began to take over again. Much of the young forestlands were then cut down to make charcoal that was used in metal blast furnaces and by blacksmiths.

For charcoal making, small young trees were cut into 4' lengths and carried by hand to make a circular pile about 30' wide and 10' high. A ditch was dug around the circumference of the pile and the soil from the ditch covered the pile to limit the amount of oxygen in the smoldering pile. Once the low-oxygen burn was completed in two weeks, the almost pure carbon charcoal was removed for transport to market. Charcoal produces the hot fire needed for metal working.

While this charcoal making process had occurred since settlement, it came to a crescendo between 1880 and 1920. At that time, much of the landscape was cut multiple times, with patches of smoke rising from active charcoal mounds across the hills. By about 1925, less expensive coal ended charcoal making and the forest once again began growing back. The repetitive cutting of young trees for charcoal encouraged the proliferation of oak trees. Of all the tree species, oak responded best to the repetitive cutting. This, along with frequent wildfires, helped give rise to the oak dominated forest we see today.

The 1934 map is attached. Please keep in mind that you need to mentally adjust the map because the map scale projection does not exactly match what we use today. To see what ancestral homeland existed on your property before settlement, please visit Native-Land.ca, and type in your address.

FOREST FUTURE

Active forest management can nudge a forest in different directions by manipulating which trees continue to grow and how much the forest floor is exposed to sunlight by creating canopy openings of different sizes and shapes. For example, we can nudge the future forest towards oak by leaving oaks to grow and produce acorns, creating canopy openings of sufficient size to bring in the sunlight young oaks need to grow, and hunting the deer that like to eat young oak trees. Without these manipulations, and without significant natural disturbances (wind, ice, pests); the forest will gradually transition to shade tolerant trees that are not eaten by deer (hemlock, beech, black birch and red maple).

GENERAL RECOMMENDATIONS

Diversity

A healthy forest has a large diversity of native plant species, particularly trees, that supports a diverse array of fungi and wildlife (animals, insects, microbes). A healthy forest also has multiple layers of native vegetation to maximize biodiversity and structural complexity. This means having trees of different ages, diameters, and heights. A healthy forest has both standing dead trees (snags) and dead downed wood as important habitat elements and to hold moisture during droughts. A healthy forest is resilient because it is better able to handle diseases, pests, and extreme weather events. Increasing species and structural diversity of this forest provides multiple pathways of recovery from disturbance.

Invasives/vines

Invasive species are typically from another part of the world and when established here they have no native enemies to hold their population in check. When left uncontrolled, they spread into natural landscapes and replace what would grow there naturally, including tree regeneration and other native understory vegetation. Native understory growth has many more native insects and arthropods that wildlife needs to forage on. Exotic invasive understory growth can provide better habitat for ticks and associated pathogens while greatly reducing biodiversity.

Control methods include mechanical and chemical methods. In a shady forest, cutting a vine is enough to kill it. Invasive shrubs are not so easy. Pulling the invasives out by the roots can be effective, but extremely difficult and labor intensive. Yearly cutting back of the aboveground stems, during the growing season, will keep the invasives under control, and perhaps kill them after a few years. The most effective control method is to apply an herbicide to the green foliage, and to cut the larger invasive shrubs and treat stumps with a herbicide to prevent resprouting.

Buckthorn Blaster herbicide applicator for vine and invasive shrub eradication

Boundaries

Boundaries need to be well marked to protect the property from trespass and encroachment. Painted blazes are typically used to mark property boundaries. A blaze is a hand-sized shallow scrape in the bark. This scrape will last for decades and does not harm the tree if done properly. When painted, this blaze is quite visible and long lasting. Trees within arm's length of the boundaries are blazed, with the blazes facing the boundary line. Use only paint marks, without blazes, on the neighbor's side of the line. The blazes should be given a new coat of paint at least every 10 years. Custom signs can also be hung about every 100 feet. Understory vegetation and debris can be cleared from boundary lines such that the lines can be easily traversed for inspection. Please consider hiring a forester to locate and mark property boundaries.

Wildlife

Your forest, and the State of Connecticut in general, is lucky to have a significant and diverse component of mature oak trees (mature trees have reached maximum height). Oak trees are considered a wildlife keystone species because of the large amount and diversity of life they support – more than any other tree. Acorns, especially white oak acorns, provide the most nutritious plant-based protein for almost 90 species of wildlife. Oaks overwhelmingly host the most species of moth and butterfly caterpillars (over 500), which in turn anchor a biodiverse food web. Oak forests have more bird abundance and diversity compared to other forest types. Oaks also produce the thickest, most ecologically beneficial, and longest lasting leaf litter; that has the most abundant and diverse soil biology. This top-of-the-line leaf litter can keep out invasive exotic stilt grass and jumping worms. It also purifies and holds the most water. For these reasons, it is important to preserve and encourage oak growth and health in your forest.

Parts of this forest have legacy trees, also known as old field trees or wolf trees. These trees were growing in open pasture, as a source of shade for livestock before the current forest started growing. They are much older than the surrounding forest. Because they used to be open grown, they have large spreading crowns and large branches low on the trunk. When the pastures were abandoned, they became a significant seed source for the present forest. These large old trees are structurally complex, with many cavities, hollows, fat branches, and thick, rough bark. They are also prolific seed producers, including acorns and nuts. This structural complexity and prolific seed production attracts an enormous number and diversity of insects, birds, and mammals. Underground, the old trees are also the hub and source of the complex fungal soil mycorrhizal growth that all trees depend on for water and nutrients. To make them healthier and more vigorous, such legacy trees could be protected and perhaps even given more sunlight by cutting some of the surrounding trees. These agrarian vestiges have become the ecological hubs in your forest. They are also great source of future large snags and large dead downed wood.

Ecological Services

Forests remove carbon dioxide from the atmosphere (called sequestration), create oxygen, and remove many pollutants from the air and water. Forests absorb heavy rains and release that water to streams and underground aquifers during droughts. Your forest contributes to these valuable services with carbon stored in the below-ground roots/soil and in the above ground vegetation, dead wood, and fallen leaves. These services are enhanced by having a diverse mix of native tree species of different sizes and varied arrangements. Sustainable, scientifically based forest management to remove forest products and promote young forests or regeneration of desired species has no long-term negative effect on your forest's ability to provide these vital ecological services. When trees are young and growing fast, they sequester carbon at high rates and once they are large (over 18" diameter, and often older) they store the most carbon. Whether you choose to actively manage your forest or not, your forest does a great service to our planet's health just by being a healthy forest.

Forests store carbon in different pools, and the amount of carbon in these pools changes over time. The pools are the live aboveground (trees, shrubs and other plants), live belowground (roots and fungi), deadwood (standing dead trees [snags] and downed logs, litter (leaves, needles and small branches) and soil organic matter. Sequestration is the process by which forests remove carbon dioxide from the atmosphere, primarily via tree photosynthesis. A younger forest (10-60 years old) stores relatively little carbon, but it is likely at or near its peak sequestration rate. An older more mature forest (60+ years old) stores more carbon, with a gradually slowing sequestration rate. A mix of sequestration and storage found in multi-aged forests create a resilient carbon profile.

Mapping

Attached to this report is a geo-referenced map that the landowner can use with mapping apps. This map shows the landowner where they are on the property. The landowner can also record tracks and waypoints on the property. These phone mapping features allows the landowner to locate/map property boundaries and trails. To get map layers and to view maps, please visit CT ECO Home (cteco.uconn.edu).

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APPENDIX OF LATIN NAMES

TREES

Red Oak	Quercus rubra	Quaking Aspen	Populus tremulodes
Tulip Poplar	Lirodendron tulipifera	Black Gum	Nyssa sylvatica
Red Maple	Acer rubrum	Yellow Birch	Betula alleghaniensis
Black Birch	Betula lenta	Black Cherry	Prunus serotina
White Oak	Quercus alba	Sassafras	Sassafras albidum
Hickory	Carya Sp.	White Ash	Fraxinaus americana
Black Oak	Quercus velutina	Black Locust	Robinia pseudoacacia
Scarlet Oak	Quercus coccinea	Cottonwood	Populus deltoides
American Beech	Fagus grandifolia	Norway Maple (exotic)	Acer platanoides
Sugar Maple	Acer saccharum		

NATIVE UNDERSTORY

Musclewood	Carpinus caroliniana	Witch Hazel	Hamamelis virginiana

EXOTIC INVASIVES

Barberry	Berberis Sp.	Burning Bush	Euonymus alatus
Multi-flora Rose	Rosa multiflora	Bittersweet	Celastrus orbiculatus
Privet	Ligustrum Sp		