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## Public Recreational Use Assessment The Preserve

Old Saybrook, Westbrook and Essex, Connecticut

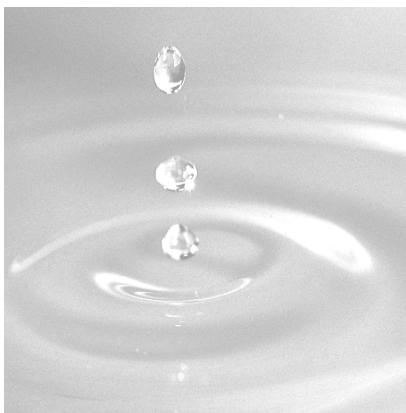
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# 1. Introduction

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## 1.1 Report Purpose

The recreational use assessment is a planning document to evaluate and develop a newly proposed trail system and to ensure that it can be implemented within The Preserve (the Site) (Figure 1). The Trust for Public Land (TTPL), with input from the Site's conservation management committee, retained GEI Consultants, Inc., (GEI) and Ferrucci & Walicki, LLC to prepare a Forest Stewardship Plan (Ferrucci & Walicki, LLC); a Natural Resource Assessment of existing data (GEI), an online recreational survey, an interim trail system review and a Recreational Use Assessment (GEI) for the Site. This assessment was prepared in coordination with the Forest Stewardship Plan and the Natural Resource Assessment for the Site.

This report includes:

1. an assessment of the interim trail system.
2. maps of existing trail locations.
3. maps and justification of trails proposed to decommission.
4. maps and justification for newly proposed trail locations, based in part on the location of historic, unique, and protected natural resources at the Site.
5. an identification of areas that require maintenance (as observed during the summer and autumn in 2018 and winter in 2019).
6. the analysis of the results of a recreational use survey provided to the public for a total of 37 days (January 24, 2019, to March 1, 2019).

## 1.2 Site History

The Site has a history dating back to prehistoric use by Native Americans, transitioning later into colonial farming areas. More recently, the Site was the subject of development proposals dating back to 1998, including plans to build more than 200 homes and an 18-hole golf course. These plans were met with strong opposition and lawsuits from conservation groups and residents (Trust for Public Land, 2014).

The proposed development resulted in several biological surveys and an archaeological survey. As part of the studies to support the development of the Site by the applicant, River Sound Development LLC, the Town of Old Saybrook has 89 exhibits on file regarding their formerly proposed development. Of interest are the wealth of data regarding wetlands, natural resources, herpetological surveys, archeological survey, and vernal pools surveys at

the Site. The data found in these documents were used to make planning decisions for trails. The natural resource assessment, prepared as part of this study, compiles each of these documents for easier analysis of the existing data set. Ground truthing of vernal pools and other habitats were conducted in 2018 as part of the natural resource assessment.

Following a decade-long battle to conserve the Site and prevent development, the Site was eventually acquired in April 2015. A Cooperative Management Committee (CMC), which consists of members from the Connecticut Department of Energy and Environmental Protection (CT DEEP) and the Town of Old Saybrook, was established to manage the Site. A Conservation and Public Recreation Easement is held by The Nature Conservancy (TNC) to ensure it will be maintained predominantly in its natural, scenic, forested, and/or open space condition, and to provide opportunities for public recreation (Gregonis, 2018).

### **1.3 Site Location/Description**

The Site is a 990-acre coastal hardwood forest located west of the Connecticut River and north of Long Island Sound in the towns of Old Saybrook, Essex and Westbrook (Figure 2). Seventy acres of the Site are owned and managed by the Essex Land Trust, and the remaining acres are jointly owned by the State of Connecticut and the town of Old Saybrook and managed as a state forest.

The Site has over 20-miles of trails (Figure 3 and 4) running through the property, sharing its southern border with Great Cedars East and West Conservation Areas in Old Saybrook. The northern 71 acres of the Site is owned and managed by the Essex Land Trust. The Site connects to over 500-acres of existing parklands in the town of Old Saybrook.

An Eversource utility right-of-way traverses the Site from the southeast through Bokum Road onto the property and then runs south to north along the eastern border. The right-of-way then proceeds west and southwest through the northern portion of the Site, towards the parking area at 1278 Essex Road before finally exiting the Site through Trout Brook. Utility access roads coincide with the utility line, two additional utility access roads connect the utility line to the two parking areas located in Essex. The utility access roads can potentially be utilized by emergency vehicles in case access was needed into the Site.

To the east of the utility-right-of-way on the eastern portion of the Site is the Connecticut Valley Railroad State Park Railway, which separates the Site from 38.17 acres of the site. This portion of The Preserve has no trails and no access directly into the site without crossing the railroad tracks. No recommendations for recreation have been made for this parcel of land.

There are four parking areas (depicted in Figure 2) that provide direct access to the Site:

1. located in Essex, off of CT-153 turn on to Ingham Hill Road, then pull off behind 98 Ingham Hill Road (west parking area).
2. located in Essex, also off of CT-153 turn on to Ingham Hill Road, then pull off to the south of 15 Ingham Hill Road (east parking area).
3. located in Westbrook, pull off of CT-153 on to a paved parking lot at the address of 1278 Essex Road.
4. located in Old Saybrook, pull off of CT-95 on to Ingham Hill Rd, then pull off next to 231 Ingham Hill Road.

The new and current parking area in Old Saybrook is a pull off across from 231 Ingham Hill Road and includes a turnaround at the terminus of Ingham Hill Road, allowing driveway access to the two residential dwellings from the turnaround. The parking lot itself consist of a 13-parking space parking area (12 standard 9'x 18' spaces and one 16'x 18' handicap accessible space), with future expansion possibilities for 14 additional spaces. The former dirt parking area across from 241 Ingham Hill Road is still in existence and utilized for emergency access. The parking area in Westbrook is a paved lot located at 1278 Essex Road, which can accommodate about 25 vehicles and allows access to the western portion of the Site. The west parking area in Essex near 98 Ingham Hill Road and the east parking area near 15 Ingham Hill Road both have parking for approximately six vehicles and allow direct access to the northeastern portion of the Site.

## **1.4 Ecological Setting**

The Site is located within Connecticut's Eastern Coastal Eco-region. The Eastern Coastal Eco-region is defined as "A seaboard region, generally lying within five to seven miles of eastern Long Island Sound, characterized by coastlands, including extensive tidal marshes, estuary areas, and sand beaches, relatively level but rolling near shore lands, and by protrusions of rugged and rocky upland extending to the coastline." The Site lies within the upland portion of this defined Ecoregion (GEI, 2015).

The Site is primarily a deciduous hardwood forest with an interconnected unit of wetlands throughout. Surface waters on the Site drain to three different watersheds: Oyster River, Mud River and Trout Brook. There are 38 vernal pools currently inventoried at the Site, 42 distinct wetland units, more than 3,100 linear feet of watercourses. A unique feature at the Site is the Atlantic White Cedar swamp located in the southeast corner of the Site.

The Site's geophysical environment is marked by four ridgelines and slopes that cut from north to south. Throughout the Site, slopes vary from very steep, such as the near vertical ridges facing the eastern ridge system abutting Pequot Swamp, to nearly flat areas resulting in the wetlands systems scattered throughout the Site (Environmental Review Team, 1999).

The range of elevations at the Site range from 28.5 to 221 feet above mean sea level. Several cave features are present along the eastern ridge system, particularly along the eastern edge of Pequot Swamp Pond (GEI, 2015).

## **1.5 Regional Significance**

The following paragraphs are an excerpt from a flyer prepared by The Trust for Public Land identifying how the site connects unfragmented habitat across multiple states to support wildlife corridors, the importance of the land as a coastal resilient area, and the ability of the site in its undeveloped state to protect drinking water.

Regionally, The Preserve is located within a relatively unfragmented forest block of more than 6,000 acres, identified in an independent analysis by Audubon Connecticut. On an even larger scale, it lies within a north-south oriented corridor of relatively unfragmented oak dominated woodlands that stretches from Long Island Sound to Northern New England. This corridor extends from Sachem's Head in Guilford, and the Salt Meadow Unit of Stewart B. McKinney National Wildlife Refuge in Westbrook, through the greater Cockaponset forest area, crossing the river in the area of Maromas in Middletown to the greater Meshomasic forest to water company lands in eastern Glastonbury and Manchester, through Bolton Notch and north to the Shenipsit State Forest and beyond.

The north-south orientation of this corridor combined with the oak-dominance of the woodlands makes this an extremely important flyway for many species of Neotropical migrant birds in spring migration. Additionally, because most species of these birds are nocturnal migrants and depend upon a clear view of the stars for navigation, many species of birds appear to be using this corridor as a flyway for fall migration as well.

An exceptional amount of wetland resources is found at the site, including 38 vernal pools. The northeast quarter of the property is in the Falls River Sub Regional Basin and drains to a large inland wetland complex associated with the Mud River, which enters the Connecticut River at North Cove in Essex. North Cove is identified as a priority for the Silvio O. Conte National Fish and Wildlife Refuge, the nation's only multi-state refuge designed to achieve watershed-wide landscape conservation goals. Protection of the site advanced the goals of the Conte Refuge and the Connecticut River Estuary, which is a globally significant wetland complex (TTPL, 2014).

## **1.6 Connecticut Wildlife Action Plan**

According to the state Wildlife Action Plan (WAP), Connecticut falls within two of The Nature Conservancy's ecoregions: Lower New England/Northern Piedmont and North Atlantic Coast. The Site located along the south-central coast of Connecticut, also falls into

both of these ecoregions as well. The Site provides several different key habitat types including upland forest, forested inland wetland, shrub inland wetland, and herbaceous inland wetland.

The Site contains upland forest which is characterized by more than 60 percent canopy cover of deciduous, coniferous, or mixed deciduous/coniferous trees. European colonists cleared nearly all of Connecticut's original deciduous, hardwood forest, converting about two-thirds of its acreage for agriculture. This occurred at the Site, which would make it a second-growth forest.

The largest habitat type in the Site is most likely the forested inland wetlands, which includes red maple and Atlantic white cedar swamps. There is a large inter-connected system of red maple swamps throughout the site and a -Atlantic white cedar swamp in the southeastern edge of the Site.

The Pequot Swamp Pond can be characterized as a shrub inland wetland, with sub-habitats including bogs and fens. The Pequot Swamp Pond is a low-quality fen according to a Natural Diversity Data Base (NDDB) Preliminary Determination Assessment in 2016. Characterized by hydric soils and more than 25 percent canopy cover of shrubs generally taller than 1.5 feet this habitat type's status is not well known.

A smaller but key habitat at the Site are herbaceous inland wetlands with sub-habitat wet meadows. In several botanical surveys there is mention of a wet meadow habitat located in the utility right-of-way, providing a unique habitat to certain state-listed plant species.

The last habitat type found on the Site, as identified in the WAP, is unique; natural or man-made features, which includes the sub-habitats surface springs and seeps, vernal pools, and public utility transmission corridors. Vernal pools are found throughout the site with some found within the red maple swamps. Surface springs and seeps including tributaries are also running across the Site. Public utility transmission corridors run along the periphery of the Site and have the potential be used by wildlife (CT DEEP 2015).

## 1.7 Statewide Comprehensive Outdoor Recreation Plan

CT DEEP has developed a Statewide Comprehensive Outdoor Recreation Plan (SCORP) [<https://portal.ct.gov/-/media/DEEP/stateparks/parks/DEEPSCORP20172022NPSFinalVersionpdf.pdf>] to better understand the recreation demands at all types of state managed lands, to better ensure their long-term protection. The document outlines the recreation goals of state managed land as:

- **Goal 1:** Protect, conserve, and manage Connecticut's natural, cultural, and historical resources as they support outdoor recreation.

- **Goal 2:** Provide clean, safe, well-maintained outdoor recreation areas and facilities.
- **Goal 3:** Ensure that all residents and visitors can locate and access all outdoor recreation areas and facilities.
- **Goal 4:** Promote healthy lifestyles through increased participation in outdoor recreation.

Our approach to recommending which trails remain open, which to decommission, and suggestions/options regarding the location of newly proposed trails are first based on the protection and management of the resources at the Site and second, balancing outdoor recreation goals for all State residents.

## 2. Natural Diversity Data Base

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The NDDB collects data on the location of species and natural communities in Connecticut. The CT DEEP uses the data to create maps that are updated about every six months, that represent the approximate locations of endangered, threatened species, as well as, species of special concern (SSC) and significant natural communities. The locations of species and natural communities are sourced from data collected over the years by CT DEEP staff, scientists, conservation groups, and landowners. In some cases, an occurrence represents a location derived from literature, museum records and specimens. The NDDB map (Figure 5) depicts areas of the Site that intersect with potential extant populations of state listed species occurring at the Site or within close proximity. The maps are intended to be a pre-screening tool to identify potential impacts to state-listed species. These data are also used by groups wishing to identify areas of potential conservation concern.

The general locations of species and communities are symbolized as shaded areas on the map. Exact locations have been masked to protect sensitive species from collection and disturbance and to protect landowner's rights whenever species occur on private property. During previous work at the Site in 2016, GEI was provided with the species list from NDDB (Appendix A).

### 3. Cultural Resources

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An archaeological survey was conducted at the Site in 1999 to determine if any cultural resources would be affected by the prior proposed development of a golf course, housing community, and associated facilities on the Site. Background research included informant interviews, land records research, review of historic maps, and a review of local historic literature. Field work consisted of a comprehensive pedestrian surface survey, 700 stratified-systematic subsurface shovel tests, and 104 judgmental subsurface tests.

Background research revealed that most of the Site was purchased from the Lyon family who had owned it for most of the 20<sup>th</sup> century, previously it was owned by the Ingham family since the mid-18<sup>th</sup> century. A fieldstone cellar hole and partial foundation of the Ingham residence from the 18<sup>th</sup> century is located within the property boundary in the southern portion on the east side of the unpaved portion of Ingham Hill Road called the “Old Place”. Traces of outbuildings to the west of the road are visible at the surface in an area partially enclosed by a stone wall.

The dam at Pequot Swamp was reportedly constructed in 1939 by the Lyon family for aesthetic purposes. The dam was built in order to create Pequot Swamp as a standing body of water, historic maps did not show it in this part of the property, although early land records refer to Pequot Swamp, which historically were most likely wetlands. Other historic features visible at the surface on the Site consist of many alignments of stone walls, which served as property boundaries and internal lot boundaries, consisting of gneiss, schist, and granite fieldstones. The property was likely used for agrarian purposes, including cleared fields for pasturing and open spaces, as well as a place for selective logging for timber exportation in the 18<sup>th</sup> and 20<sup>th</sup> century.

Systematic testing in areas near historically mapped 19<sup>th</sup> and 20<sup>th</sup> century structures revealed 19<sup>th</sup> and 20<sup>th</sup> century debris, mainly near the Westbrook access point. A 19<sup>th</sup> century trash mound; consisting of fragments of large utilitarian whiteware vessel, possibly a chamber pot; fragments from several glass vessels and more was revealed on the east side of Ingham Hill Road (northern portion). Near the “Old Place”, late 18<sup>th</sup> century and mid-19<sup>th</sup> century debris was revealed, confirming the age and use of the Site, with household ceramic wares consisting of black-glazed redware, creamware, pearlware, and a kaolin clay pipe stem fragments.

Prehistoric activity was also recorded in five principal areas, located to the very southwest and eastern section of the Site. Artifacts that were recovered were mainly chert and quartz debitage in low densities, with a partial chert biface recovered as well. The five areas, less than two acres in size, likely represent short-term hunting and gathering camps in which a limited range of functions such as lithic reduction and food resource procurement took place.

## 4. Interim Trail System

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### 4.1 Introduction

The interim paths evolved from earlier uses, such as farming, logging, and the early stages of land development. None of the trails currently located at the Site were created with forest ecology or species conservation in mind (Marteka 2016). The interim trail system was designated as a temporary trail system at the Site, so that the public could enjoy the forest during the planning process, rather than simply designating the existing trails as permanent as a matter of convenience. In addition, and over a fairly short period of time, multiple trails have been created by users at the Site, which often results in poorly chosen trail locations traversing through sensitive features, highly erodible areas, and unnecessarily fragments wildlife habitat. The length of all the trails within The Preserve are listed below:

**Table 1: Trails by the Numbers**

Trail	Linear Feet (ft)	Miles (mi)
Total Length of all Trails	109,666	20.77
Mapped Interim Trail System	42,240	8.00
Trails Proposed to Decommission	41,160	7.80
Trails Proposed to Remain Open	31,581	5.78
Proposed Trails to Construct	1,750	0.33
Proposed Trail Outlooks to Construct (four options)	1,838	0.35
Proposed Accessible <sup>1</sup> Trail to Construct (two options)	5,318	1.00

### 4.2 Criteria

GEI identified areas of the Site that may be more (or less) suitable for recreation. Our assessment took the following criteria into consideration when determining trails that should be decommissioned:

- The protection of known occurrences of threatened and endangered species, and their habitats.
- Prevention of additional habitat fragmentation.
- Effects to wildlife and their habitat.
- The protection of cultural resources at the Site.

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<sup>1</sup> Accessible may or may not include universal accessibility.

- How impacts can be avoided or minimized with the variety of recreational uses that already exist at the Site (mountain biking, hiking, cross-country skiing).
- How seamlessly a new trail could be integrated into the landscape.
- Safety.
- How to incorporate the unique sights at the Site into the trail system.
- The amount of maintenance to trails that may be required.
- Feedback from the public survey.

Existing trails were identified as either high quality (trails that are proposed to establish as part of a permanent trail system) or low quality (trails proposed to decommission).

Conditions that are considered when determining if a trail is “high quality” includes:

- Leads to an interesting feature.
- Easily integrates with the surrounding landscape.
- Avoids sensitive areas (e.g., vernal pools).
- Avoids problem areas (e.g., invasive species patch).
- Considers the topography and soils of the area (e.g., reduce erosion).

Conditions that were considered when determining if a trail is “low quality” includes:

- Highly eroded and/or disturbed areas.
- Low usage, trail is overgrown.
- Crosses over a wetland without a bridge.
- Offers little to no uniqueness.
- Passes through areas where threatened and endangered species, or critical habitats are known to occur.

The location of vernal pools and wetlands are referenced when deciding which areas to close to avoid trail inundation or the disturbance of sensitive areas (Figure 6, 6a, 6b, and 6c).

A total of 42 distinct wetland units were identified at the site in 2004, and the majority were identified as red maple swamps (Environmental Planning Services 2004). The wetlands on the site are important because they, “provide a point of shallow groundwater interchange, provide good quality habitat for wetland-associated wildlife, export biomass, store and detain floodwaters, and have a large upland buffer” (Environmental Planning Services 2004).

However, if an existing trail traverses through a wetland and cannot be closed, then recommendations include ways to minimize the impacts. The Site contains 3,100 linear feet

of watercourses and also contains the headwaters of the Oyster River, and tributaries of Mud River and Trout Brook (CT DEEP 2019).

Vernal pools are a unique microhabitat, filling with water in early spring and drying up in late summer. Due to their short hydroperiod, vernal pools contain specialized species that are adapted to thrive in these conditions (Environmental Review Team 1999). Thirty-eight vernal pools were found on the Site during a 2003 survey, many of which are embedded within the large, wooded swamp system. Twelve were considered high priority pools based on species diversity and abundance, as well as other factors (Klemens 2004). Vernal pool locations were ground-truthed in 2018 to support the trail recommendations made herein.

### 4.3 Low Quality Trails Currently Located at the Site

The ranking system below is used on low quality trails to identify how easy or difficult it is to remove specific trails. Tier 1 are trails that are easy to close and Tier 2 are trails that are difficult to close. Tier 3 are closures on the main paths that would be most difficult to decommission. Below is a table of the ranking system and the description of each tier.

**Table 2: Trail Ranking System for The Preserve**

Trail Rating	Description
Tier 1 Easy to Close	Narrow trail. Little to no recent traffic. Lower effort to close the trail.
Tier 2 Difficult to Close	Moderately sized trail. Moderate foot/bike traffic. Moderate effort to close the trail.
Tier 3 Main Trails	Large width trail. High traffic. Most difficult to close.

GEI's recommendations for trails to close (Figure 7, 7a, 7b, 7c) include redundant trails, trails subject to flooding, trails that are located within special concern areas or problem areas, or any unintentional trail created by users that is not unique. There are about 35,100 linear feet (roughly 7.4 miles) of unintentional trails that GEI recommends closing at the Site. Throughout the Site there are many trails that go through low elevation areas or trails adjacent to wetlands causing the trails to flood. GEI's goal is to focus on and improve the main trails, while closing the small trails that cause further ecological disturbance and habitat fragmentation to the Site, while balancing public needs and wishes.

**Table 3: Proposed Trails to Remove**

ID	Latitude	Longitude	Description	Reasoning	Trail Rating
A	41.31898748	-72.40924515	Trail facing south off of the beginning of the blue-white trail.	Redundant. May lead into a nearby yard.	Tier 1
B	41.32050057	-72.403718	Trail east off of proposed extension of blue trail, connects to proposed oyster creek trail in the north.	Redundant. Inundated portions. Traverse through a wetland and a stream. Invasive species found alongside the trail.	Tier 1
C	41.31894923	-72.39916240	Trail east off of proposed extension of blue trail, connects to proposed oyster creek trail in the north. East of trail B.	Redundant. Passes through wetland.	Tier 1
D	41.32041079	-72.39711323	Connects utility right-of-way to proposed extension of the blue trail.	Redundant. Unnecessary connection to the utility right of way (R.O.W.)	Tier 1
E	41.3191249	-72.39613987	Trail off of proposed extension of blue trail.	Low use. Overgrown with vegetation. Redundant.	Tier 1
F	41.31779601	-72.39639927	Extends west off of proposed trail that leads to the Great Cedars Conservation Area.	Redundant. Trail extends through a wetland and possibly a stream.	Tier 1
G	41.31627749	-72.39698411	Trail in southeast area southwest of proposed trail connection.	Redundant. Leads to a Japanese barberry stand and vernal pool.	Tier 1
H	41.31737316	-72.39480975	Trail in southeast area east of proposed trail connection to Great Cedars Conservation Area.	Inundated. Redundant. Goes through a vernal pool.	Tier 1
I	41.3191249	-72.39613987	Trail in southeast area parallel to main trail.	Redundant.	Tier 1
J	41.32131777	-72.4084933	Southern most shortcut created between the blue/white trail and blue trail.	Redundant.	Tier 1

ID	Latitude	Longitude	Description	Reasoning	Trail Rating
K	41.32233723	-72.40964107	Middle shortcut created between the blue/white trail and blue trail.	Redundant. Invasive species at beginning of trail.	Tier 1
L	41.3233187	-72.41450223	Shortcut created between the blue/white trail and blue trail.	Redundant. Passes through a vernal pool.	Tier 1
M	41.32274147	-72.40984493	Shortcut created between the blue/white trail and blue trail.	Redundant.	Tier 1
N	41.32367783	-72.41074437	Shortcut created between the blue/white trail and blue trail	Redundant. Goes through large patch of Japanese barberry.	Tier 1
O	41.32354697	-72.41506247	Northwest off of corner where green trail (north) meets blue trail.	Redundant.	Tier 1
P	41.3246024	-72.41579783	Trail north off of green trail (north).	Redundant.	Tier 1
Q	41.3244992	-72.41831657	Off of green trail (north) leads to utility R.O.W.	Redundant.	Tier 1
R	41.3235413	-72.4194887	South of utility R.O.W. in the north part of the site.	Goes through a wetland. Inundated.	Tier 1
S	41.32351035	-72.42008421	South of utility R.O.W. in the north part of the site.	Redundant. Inundated. Trail goes through a wetland.	Tier 1
T	41.32215512	-72.42118913	Trail leads back into utility R.O.W. off red trail.	Redundant. Unnecessary habitat fragmentation.	Tier 1
U	41.3203481	-72.42187307	Trail off red trail in western area of The Preserve.	Redundant. Unnecessary habitat fragmentation.	Tier 1
V	41.31957007	-72.4266488	Loop trail off utility R.O.W. in the northwest.	Redundant. Unnecessary habitat fragmentation.	Tier 1
W	41.3173495	-72.42900693	Trail south off of beginning of yellow trail.	Overgrown vegetation. Redundant.	Tier 1

ID	Latitude	Longitude	Description	Reasoning	Trail Rating
X	41.31394132	-72.42196986	Trails west of proposed loop trail off of red trail.	Redundant. Unnecessary habitat fragmentation.	Tier 1
Y	41.31743153	-72.41792208	Trail west of the green loop trail.	Inundated. Runoff from rock outcrop east of the trail. Passes through several vernal pools.	Tier 2
Z	41.31449433	-72.41711158	Trail west of proposed trail connection to Town Park and south of red trail.	Redundant. Passes through two vernal pools.	Tier 2
AA	41.316728	-72.423988	Yellow Trail	Passes through a vernal pool. Overgrown with Japanese barberry. Heavily eroded.	Tier 3
AB	41.318139	-72.421409	Red Trail (former Old Ingham Road)	Poorly located trail, heavily eroded, inundated most of the year/stream crosses path and channelizes into the path	Tier 3
AC	41.322146	-72.409205	Blue and White Trail	Inundation	Tier 3
AD	41.322735	-72.400500	Connection to utility R.O.W.	Fragmentation of habitat.	Tier 1

#### 4.4 Trail Problems and Maintenance

It is important to take time to design a trail system that works with the natural resources present in the area while also providing users with enjoyable sites to view. Problems with trails can occur if time is not taken to design properly, below are some of the trail problems that are occurring at the Site:

- Deep Trenching: Trails that are sunken or uneven.
- Widening: Trails that have widened from a single or double track to multiple parallel tracks, all trenched to different degrees.

- Short Cuts: Users create their own trails, most of which are erosive.
- Tripping Hazards: Regular use and erosion exposed tree roots and rocks.
- Impact to Natural/Cultural Resources: Erosive trails and multiple trails are unnecessarily impacting species and their habitats (CT RCCD 2004).

Each of the above problems can be tied to one or more of the following causes:

- Water: the foremost cause of trail problems. The movement of water causes erosion and deep trenches. It also exposes tripping hazards.
- Poor Initial Trail Design: can rarely be overcome, even by regular maintenance.
- Inadequate or Inappropriate Maintenance: wastes valuable crew time and can sometimes increase trail problems (CT RCCD 2004).

All trails deteriorate overtime due to constant use, which causes erosion, however, a well-designed trail will deteriorate more slowly and will be easier to maintain. The goal of the assessment was not only to propose a well-designed trail system, but to also come up with ideas on how to maintain the existing trails.

There are seven bridges observed at the Site, the majority of which need to be repaired due to either poor design or hazards they pose for people during use. In addition, there are nineteen spots where inundation was observed, but there is no bridge present. In these areas, fill material or wood structures could be used in areas of low grade where inundation occurs to raise the elevation in that area. Inundated trails cause users to create their own trails by going around the part that is inundated, thus widening the path. This problem could be fixed by improving or building a foot bridge, adding fill, maintaining the outslope, or installing water bars.

Maintaining an outslope or installing water bars are both ways to prevent erosion that is caused by water draining through the middle of a path. There are three primitive campsites with firepits at the Site, which should be removed to discourage users from building their own firepits. GEI observed twelve patches of invasive species on and along existing paths. This problem could be mitigated by treating and removing the invasive species patches.

Trails also require regular maintenance, such as pruning vegetation that has encroached into the trail space. Pruned vegetation should be left at the site where it falls, if appropriate, or it should be used to create cover, particularly for New England cottontail (*Sylvilagus transitionalis*) and other mammals. At the base of any branch there is a wide section that contains a plant's natural healing agents, so a cut in this area, called the collar, will naturally heal. When clearing branches, all cuts should be done to the collar of the branch stem for the health of the shrub.

The majority of the problem areas that occur at the Site are along the existing trails, and consist of areas that include invasive species, inundated trails, primitive campsites, and bridges in need of repair, are depicted on Figure 8. The table below further identifies the problem areas depicted on Figure 8.

**Table 4: Problem Areas and Solutions on Existing Trails**

ID No.	Latitude	Longitude	Description	Problem	Solution
1	41.31738928	-72.42790075	Bottom loop of yellow trail	Inundation. Japanese barberry.	Treat and remove the invasive species. Build a bridge or add fill.
2	41.31679314	-72.42427935	Yellow trail	Inundation	Build a bridge or add fill
3	41.31713193	-72.42211665	Yellow trail	Inundation	Build a bridge or add fill
4	41.31731592	-72.42155431	Yellow trail	Japanese barberry	Treat and remove the invasive species
5	41.31777994	-72.42109464	Where yellow and red trail meet	Inundation. Stream runs into path. Half-built bridge	Finish building the bridge and make it higher, so the water can run beneath it in times of high flow
6	41.31569663	-72.4192674	Proposed loop trail off of red trail	Bridge made out of rocks and stones	A bridge should be constructed
7	41.31477773	-72.42118987	Proposed loop trail off of red trail	Large Japanese barberry patch	Treat and remove the invasive species
8	41.3144216	-72.41737513	Trail proposed to be closed east of proposed loop trail off of red trail	Bridge made of logs	Close trail
9	41.31583233	-72.4165194	Proposed trail leading to Town Park	Large firepit in middle of trail	Remove the firepit
10	41.31574635	-72.41860923	Red trail south of Ingham house foundation	Inundated with a newly made trail going around the inundated portion	Build a bridge or add fill
11	41.31825627	-72.42147793	Red trail north of Ingham house foundation	Inundated	Build a bridge or add fill

ID No.	Latitude	Longitude	Description	Problem	Solution
12	41.31884977	-72.42123623	Red trail north of Ingham house foundation	Inundated	Build a bridge or add fill
13	41.3199514	-72.4214901	Red trail north of Ingham house foundation	Inundated	Build a bridge or add fill
14	41.31917417	-72.42676803	North of yellow trail, south of utility R.O.W.	Campfire site near prickly pear	Remove the firepit
15	41.3215615	-72.42263687	Utility R.O.W. in the west	Inundated	Close trail
16	41.32155607	-72.42228473	Utility R.O.W. in the west	Phragmites	Treat and remove if needed
17	41.32063335	-72.42123261	Stream crossing over red trail	Bridge built out of wooden planks	Improve bridge
18	41.32003253	-72.4071812	Blue-white trail (southern portion)	Inundated from stream flowing into path and pooling	Construct bridge
19	41.3214194	-72.40856323	Blue-white trail (mid-trail)	Inundated	Build a bridge or add fill
20	41.3216093	-72.40876343	Blue-white trail (mid-trail)	Inundated	Build a bridge or add fill
21	41.3222475	-72.40936153	Blue-white trail (northern portion)	Stream runs parallel along trail; part of the trail is inundated from the stream	Construct bridge
22	41.32234147	-72.4095724	West of blue-white trail (northern portion)	Japanese barberry	Treat and remove if needed
23	41.32389507	-72.41282943	Path off of blue-white trail (northern portion) proposed to close	Japanese barberry	Treat and remove if needed

ID No.	Latitude	Longitude	Description	Problem	Solution
24	41.3235413	-72.4194887	Trail (proposed to close) south off of utility R.O.W. leading to northern portion of the Pequot Swamp	Inundated	Close trail
25	41.32046903	-72.4036785	Trail (proposed to close) connecting proposed extension of blue trail to proposed oyster creek trail	Inundated	Close trail
26	41.32064773	-72.40376817	Trail (proposed to close) connecting proposed extension of blue trail to proposed oyster creek trail	Inundated	Close trail
27	41.32161943	-72.3996763	Trail connecting proposed extension of blue trail to proposed oyster creek trail	Inundated	Build a bridge or add fill
28	41.3190107	-72.39802427	Proposed extension of blue trail to the east	Inundated	Build a bridge or add fill
29	41.31737316	-72.39480975	Trail proposed to be closed in the far east	Inundated	Close trail
30	41.31625037	-72.39288912	Trail in the east	Leads to a campsite	Remove the firepit
31	41.31511684	-72.39661496	Trail (proposed to be closed) off of proposed loop trail in the southeast	Japanese barberry	Treat and remove invasive species, if needed

ID No.	Latitude	Longitude	Description	Problem	Solution
32	41.31633167	-72.41961667	Trail slightly south of Ingham house foundation	Old bridge present. Looks like the stream overflows sometimes and goes over top of the bridge	Raise the height of the bridge to allow for water to flow beneath the bridge
33	41.31647667	-72.41380333	South of Pequot Swamp Pond	Phragmites	Treat and remove invasive species, if needed
34	41.32455868	-72.42233793	Mud River crosses path in the northern part of Essex	Bridge made of rope and large rocks	Nothing needs to be done
35	41.32431761	-72.41374338	Northern part of blue-white trail	Japanese barberry	Treat and remove invasive species, if needed
36	41.32040419	-72.40284523	Trail (proposed to close) connecting proposed extension of blue trail to proposed oyster creek trail	Japanese barberry	Treat and remove invasive species, if needed
37	41.31726167	-72.39405333	Proposed trail leading towards Great Cedars Conservation Area	Phragmites in wetland area	Treat and remove invasive species, if needed
38	41.31564282	-72.39234208	Proposed trail leading towards Great Cedars Conservation Area	Poorly made bridge	Build a new bridge/repair the old one
39	41.3167928	-72.39061511	Atlantic White Cedar Swamp	Phragmites	Treat and remove invasive species, if needed

## 5. Proposed Trail System

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### 5.1 High Quality Trails Currently Located at the Site

There are about 31,581 linear feet of unmapped trails that GEI recommends including as part of the proposed trail system. “High quality trails” protect habitat, add value and provide greater access to the Site, particularly the eastern portion and the abutting town parks to the south. The trails that GEI recommends establishing as a part of the proposed trail system and the reasoning are listed below. These trails are also depicted on Figure 9, 9a, 9b, and 9c.

- **Trail No. 1:** Off of the red trail, slightly south of the Ingham House Foundation, there is an existing loop trail, which should remain. This trail should be kept because it is an enjoyable, easy trail and appears to be well-traveled by users.
- **Trails No. 2 & 6:** Two trails connect the Site to two town open space areas that border the southern portion of the site. These two trails in the southeast and the southwest connect the Site to Great Cedars Conservation Area and Town Park, respectively. These trails should be kept, in order to allow more access points into the Site.
- **Trail No. 3:** This trail is a well-developed existing trail that connects the red trail to the blue trail.
- **Trail No. 4:** A path off of the blue trail leads to a lookout area over the east side of Pequot Swamp Pond that loops around a group of cairns. The outlook point offers a different viewpoint of the Swamp, and the cairns are an interesting feature.
- **Trail No. 5:** This trail extends off of the blue/white trail south of Pequot Swamp Pond and extends east towards the Atlantic White Cedar Swamp in the southeast corner. This trail should remain open to allow greater access to the eastern portion of the Site. The trail turns into the utility right-of-way, which goes to the edge of the Atlantic White Cedar Swamp, an uncommon wetland type in Connecticut.
- **Trail No. 7:** This trail connects trails 5 and 8 on the east side of the site. Trail Nos. 12, 13, and 14 are connections into the utility right of way (R.O.W.).
- **Trail No. 8:** This trail is part of the large systematic loop of trail Nos. 5, 7, and 11 on the east side of the site.
- **Trail No. 9:** A new trail is proposed to lead to a rock outcrop over Oyster creek in the eastern portion of the Site. This allows access to a nice outlook over the forest area and connects back to the proposed Oyster Creek trail.
- **Trail No. 10:** This trail connects the utility right-of-way in the northeast corner to the proposed Oyster creek trail and should be kept open as it provides a connection point

between the utility right-of-way and the trail network. It is a short, but enjoyable trail that winds through a fern-covered forest.

- **Trail No. 11:** This trail runs along Oyster creek in the eastern portion and loops back into the blue/white trail in the north of the Site and should remain open. This trail offers new views in the eastern portion of the Site and connects other existing trails. The trail passes by interesting features such as wetlands and rock outcrops that reveal outstanding views of the forest.
- **Trail Nos. 12, 13, and 14:** These trails are connections into the utility R.O.W.

Below are the locations and descriptions of the trails that GEI proposes to designate as permanent trails. The trail numbers in the table below are depicted on Figure 9, 9a, 9b, and 9c.

**Table 5: Recommended Permanent Trail System**

Trail No.	Latitude	Longitude	Description	Reasoning
1	41.315697	-72.419267	Proposed loop trail off of the red trail.	Easy, enjoyable trail. Well-traveled.
2	41.315832	-72.416519	Trail connects red trail to Town Park to the south of site.	Allows more access points into The Preserve.
3	41.317306	-72.413105	Trail connects red trail to beginning of blue trail.	Well-traveled.
4	41.319897	-72.413235	Loop trail outlook over the middle of Pequot Swamp Pond.	Scenic viewpoint and passes by cairns.
5	41.319060	-72.406720	Trail connects blue/white trail to eastern portion of the site.	Allows greater access to the eastern portion of the site.
6	41.319435	-72.397236	Trail leads into Great Cedars Conservation Area and the Atlantic White Cedar Swamp.	Leads to a unique feature. Allows more access points into The Preserve.
7	41.319972	-72.397059	Connects proposed trail 6 and proposed trail 8.	Allows for trail continuity.
8	41.322465	-72.401226	Trail connects to the blue/white trail in the north.	Enjoyable area, it goes by an interesting feature; the oyster creek.
9	41.325126	-72.409371	Proposed loop trail off of proposed trail 8 that looks over the forest.	Lookout over the forest floor.
10	41.325892	-72.407969	Connects proposed trail 8 to the utility R.O.W.	Allows for more access points.
11	41.327904	-72.412523	Connects blue trail to proposed trail 8.	Enjoyable, easy hike.
12	41.325111	-72.4177	Connects green trail (north) to red trail.	Enjoyable hike.
13	41.319027	-72.424982	Connects utility R.O.W. to yellow trail.	More access points. Well-traveled.
14	41.317477	-72.428675	Connects utility R.O.W. to yellow trail.	More access points. Well-traveled.

## **5.2 Data Gaps**

Data gaps exist in the survey data we are relying on to propose a new trail system; therefore, it should be noted that revisions to the planned trail locations may be required if additional surveys are conducted. Mammals, including various species of bat and New England cottontail, have not been surveyed for their presence/absence, abundance, or suitable habitat since 1999 and 2002. Incidental observations of birds have been reported, but a survey has not been conducted since approximately 2004. Herpetological data was collected in 2004 by Klemens. Given the fact that the last survey was conducted 15 years ago, it is appropriate to update the data at this time. However, preliminary trail planning can still largely be accomplished if the process is focused on the location of sensitive habitats with a buffer (or in the case of vernal pools, a vegetated upland or vernal pool envelope) surrounding each feature. A site-wide botanical survey was conducted over two growing seasons at the site in 2017 and 2018, which have been submitted and reviewed by NDDB.

## **5.3 Proposed Outlooks and Trails**

We recommended several options for outlooks over Pequot Swamp Pond and one over a wetland system off of the Oyster Creek Trail. While not all of the outlooks should be established as part of the permanent trail system, several are proposed for final consideration. Accordingly, a plant and reptile species inventory of the specific trail location is recommended to assess if this outlook, or any other newly proposed trails contains habitat for, or is being used by rare, threatened and/or endangered species. It should be noted that while a site-wide botanical survey occurred two growing seasons, the botanist recommends surveying specific routes for occurrences of rare plants within a proposed route.

A proposed trail off of the green trail (south) leads to an overlook point at the southwest side of Pequot Swamp Pond. This outlook allows for a different viewpoint of this unique habitat and has a great view of the southern end of the bog.

Two outlook points are proposed off of the blue trail on the northeast end of Pequot Swamp Pond. The outlook points are out and back trails that could easily be implemented into the trail system. They offer outstanding views of the bog from the cliff side, however, there are caves in this area which may be a sensitive habitat.

A trail is proposed to lead off of the red trail, in the southwest portion of the Site, that leads to a large rock outcrop. Facing southeast the rock outcrop overlooks a large wetland system that winds through the forest, and facing northwest overlooks the forest with a stream that flows under the red trail.

Although it is not listed as a critical habitat in the NDDB or WAP, rock outcrops are known to be habitat for threatened and endangered plant and reptile species in Connecticut. Outcroppings, ledges, cliffs, and rocky, open summits, with pockets of mineral-rich soil are

defined as critical habitats in the CT ECO key, regardless of bedrock type. The Site has rock outcrops throughout the site, some of these rock outcrops already have noted metapopulations of state species of concern, like eastern prickly pear (*Opuntia humifusa*).

Approximately 1,795 linear feet east of the Westbrook entrance, along the yellow trail, is an area of trail inundation. The trail traverses a wetland complex in this area which includes a vernal pool. This section of the trail, approximately 0.34 mi, should be re-routed to avoid these sensitive features.

## 5.4 Proposed Accessible Trails and Parking

Option for an accessible trail from the newly constructed parking area directly across from 231 Ingham Hill Road has been proposed by Ben Collins from The Trail Building Company and is currently being evaluated. Design plans include five options for connectivity from the new parking area to the trail system. The first two utilize Ingham Hill Road completely or as a hybrid approach to connect to the existing preserve entrance. The third option crosses the delineated vernal pool to the immediate east of Ingham Hill Road via a foot bridge. The final two options navigate around the vernal pool back to the existing entrance or to the intersection of an existing trail network.

An option for an accessible trail is also proposed beginning at the Westbrook entrance and leading towards the Ingham Home Foundation, with a re-route and modifications proposed to a portion of the yellow trail along this route. While the Westbrook entrance seems to be the most suitable place to establish an accessible trail because there is a parking lot with plenty of space, the trail leading out of the parking area is a steep slope. The Universal Trail Assessment Process (UTAP) lists five access characteristics that make an accessible trail: grade, cross slope, width, surface, and trail length. If an accessible trail was to be created at this location, a boardwalk or similar hardscape would be needed for the surface to be accessible to all. The grade would need to be more level, which could be done by building a boardwalk or adding fill. Considering both options presented, this option is much less desirable.

## 5.5 Zone of Influence

Figure 10 illustrates how impactful a trail network can be when taking into consideration potential buffers to minimize potential disruption to amphibians, birds, and mammals. The zone of influence is the area to either side of a trail where various taxa can be negatively affected. For example, studies have demonstrated that any activity, including hiking, can cause a songbird to flee, and negatively affect reptiles and amphibians at a distance of just 60 feet from either side of the trail. Birds can be alerted to activities at just 150 feet from either trail side; while mammals can be alerted at distances of 400 feet (Oehler 2017). Distance from vernal pools, wetlands, and watercourses are consistent with a 100-foot buffer on each feature. Using this mapping technique, the zone of influence becomes large and a higher-

than-expected percentage of the Site appears to be impacting wildlife by everyday use. While the buffers associated with the proposed trails currently do not avoid each sensitive area at the Site, many are avoided by using this tool. As proposed, the total trail miles at the Site are reduce from approximately 20 miles to 14 miles.

## **6. Outdoor Recreational Activities**

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### **6.1 Hunting**

CT DEEP conducted an assessment at the Site in November 2015 to evaluate if hunting could be conducted in accordance with CT DEEP's procedures and guidelines. The Site evaluation identified that residential locations surrounding the property were mainly to the south with some in the northeast and northwest corners, making 130 acres of the Site subject to the 500-foot firearms restriction regulation. The Site is located in Deer Management Zone 12, a zone where deer-human conflicts are common. Hunting regulations are designed to reduce conflicts in this zone. Deer populations at a site this size should be managed to prevent deer from impacting the habitat. The hunting assessment report concluded that regulated hunting that follow the recommendations is safe to occur at The Site. CT DEEP recommends that the Site should be open to all forms of deer hunting, small game hunting, with an exception for waterfowl, and wild turkey hunting. CT DEEP also recommended posting signs to inform people that hunting may be occurring on the land and to post maps of the Site boundaries, parking areas and 500-foot firearms restriction areas. A copy of the April 2018 Hunting Assessment Report is provided in Appendix B.

### **6.2 Equestrian**

Horseback riding is permitted within the Site. Concerns regarding horseback riding include the increase in trail erosion and potential dangers to follow users. Those who favor horseback riding, raised concerns about bikers and off-leash dogs scaring their horses and causing them to react in a potentially dangerous way. Comments from the online survey regarding horse-use at the Site are listed below:

- "I'm not opposed to equestrian use, but equestrians should be encouraged to use the trails when they are dry, frozen, or firm. This is a best practice for cyclists, and it ensures the trails stay in good shape."
- "Definitely horse only trail. The bikers and hikers with their dogs have no respect for horses and are downright dangerous. One day I had a biker race right past my horse and in the other direction was an off-leash dog that the owner could not control. At the end of the day, they will get more hurt than me and my 1,300 lb. animal, but I will of course get the blame even though my horse is more than safe."
- "All trails should be multi-use, Horses should be on their own away from people and anything else, they destroy everything and poop everywhere"

### 6.3 Hiking and Mountain Biking

There are currently more than 20 miles of trails at the Site that are suitable for hiking. Hiking is the least erosive activity that takes place at the Site and 481 of people surveyed believe that there should be designated “hiking only” trails. Mountain bike users similarly were very passionate in their responses and recognize the need for trail maintenance. Comments from the online survey regarding hiking and trail designations are listed below:

- “A wonderful nature area to hike with the most delightful trail system. Thank you!”
- “All trails should be multi-use, I know there is a need for mountain biking trails in the region, but I have mixed feelings about that. Committing a trail to mountain biking is committing that area to being torn up....”
- “Please consider getting FREE trail building support & stewardship from the New England Mountain Biking Association. They work closely with CT DEEP throughout CT and New England on similar land parcels.”

## 7. Public Participation

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Public participation is an integral part of any planning process to develop alternatives and assist with decision making. GEI created an unbiased online recreational use survey to gather the opinion of the public and distributed the survey electronically in English on January 24, 2019, and was closed on March 1, 2019. Over 1,400 participants responded to the survey and 253 provided additional comments. Survey results are below.

Survey participants were first asked demographic information. The majority of those surveyed were males (60.9%), in the age range of 31 to 65 years old (73.4%), living in towns near the Site (58.5%) and visiting the site a few times a year (45.8%). The majority of those surveyed (923 votes) currently use the Site for hiking, while 332 of those surveyed currently use the Site for mountain biking. A question asked, “in addition to current use, how would you like to use [The Preserve]” 493 of those surveyed want to see guided nature walks become implemented at the Site; this vote was closely followed by people believing the Site was great the way it was (477 votes) and people in favor of hunting (467 votes). A question asked if the public would like to see trails designated for single use. The majority of respondents (769 votes) voted that all trails should be multi-use.

The majority (47.3%) favored exploring if a trail at the Site could become part of the Connecticut blue-blazed hiking trails. Majority (72.4%) would like to see additional trails connecting the Site to the town parks that border the south of the site. Majority (57.6%) of those surveyed are in favor of a revised marking system that designates trails as either easy, moderate, or difficult. Majority (35.5%) of people were strongly in favor of revising the trail system at the Site in order to protect the cultural and natural resources of the site.

Hunting appears to be a controversial topic regarding whether or not it should be permitted at the Site. The results showed that slightly more people were strongly against (44.1%) allowing hunting at the Site, while the other half were strongly for allowing hunting (34.2%). Comments that were against hunting raised concerns about safety while walking at the Site. The survey asked, “If hunting was deemed beneficial and safe by DEEP, hunting should be allowed within The Preserve.” 652 people were strongly against this idea, while 505 were strongly for allowing hunting. Some of the comments in favor of allowing hunting include:

- “Hunting should be permitted for ecological management & recreational usage of the resource.”
- “Controlled hunting seasons/limited dates & tags for responsible conservation”

Some comments of those opposed to hunting include:

- “No hunting please! It would make the people who use The Preserve not feel safe. Not to mention all the landowners surrounding the Preserve.”
- “I disagree with any hunting because use of firearms in the area is hazardous to non-hunters.”
- “Hunting absolutely should NOT be allowed under any circumstance in the preserve. Can you imagine the trauma of a family on a hiking walk finding a wounded deer or other species? Impossible to fathom. Please no.”
- “NO HUNTING PLEASE. They spoil it for the overwhelming majority of citizens who want safe space to enjoy wildlife and being out of doors. Hunters represent fewer than one-quarter of all Connecticut residents who are outdoor enthusiasts. We need to be attentive to offering opportunities for the majority of CT residents.”

Mountain biking is growing in popularity in New England, about 330 people surveyed said that mountain biking was how they currently use the Site. The New England Mountain Bike Association (NEMBA) has offered free trail maintenance support for the Site. Some of the comments regarding mountain biking are listed below:

- “Please consider getting FREE trail building support & stewardship from the New England Mountain Biking Association. They work closely with CT DEEP throughout CT and New England on similar land parcels.”
- “As a mountain biker I love marked trails that are cared for. I'd like to see easy trails that older people with bikes could try, or little kids like 4 to 6 years old could try that are really easy.”

One question in the survey asked if the public would like there to be a camping area at the Site. The majority (25.9%) were neither for nor against the idea of a primitive camping area. Potentially negative factors of allowing camping at the site, could be increase in trash/litter and illegal activity, however, it would be a source of revenue for the town and an additional recreational use aspect of the Site.

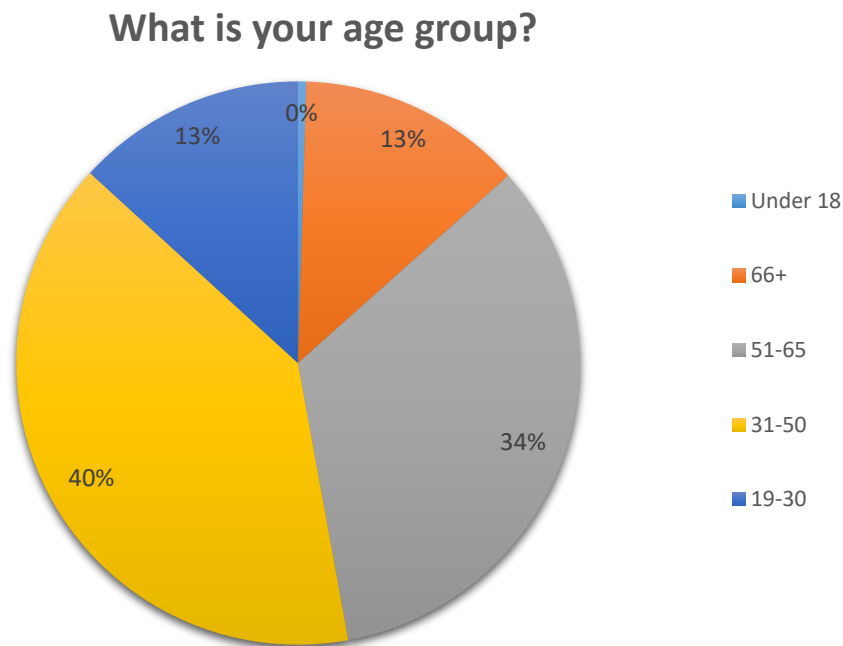
A question asked if geocaching should be permitted at the Site, majority (34.2%) of users would like to see geocaching implemented. Geocaching is currently an active recreation for some user groups at the Site; boy scouts appear to use it for their navigational skills.

The public was asked if they would attend a BioBlitz if one was held at the Site, majority (35.3%) were neither strongly for nor against attending such an event. A BioBlitz would be an opportunity to educate the public about the environment, as well as promoting healthy competition.

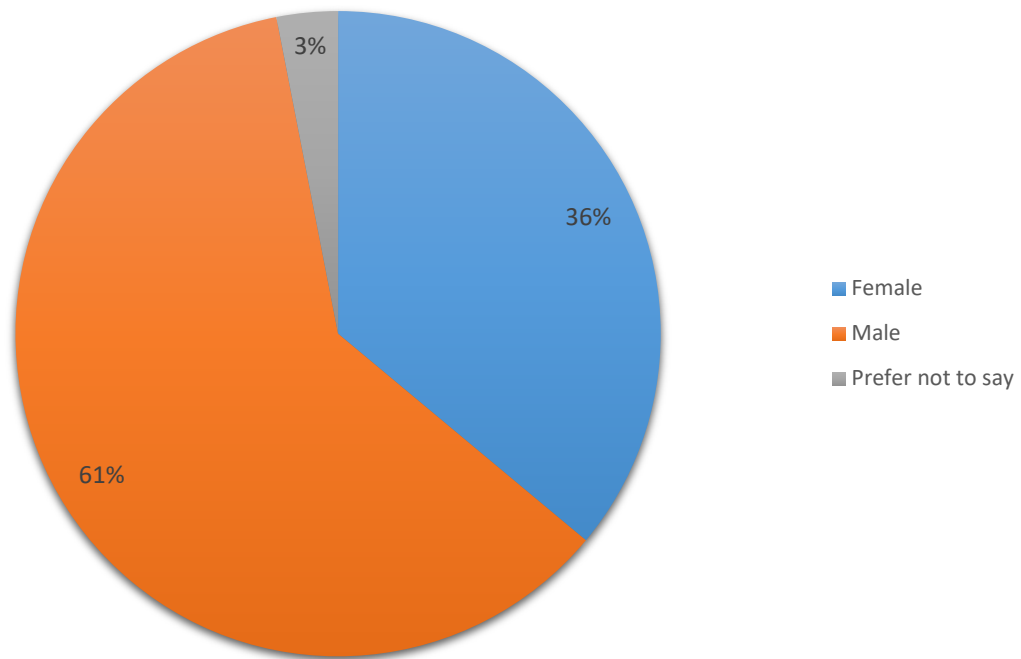
The survey asked if the public would like to see a dedicated position be established to provide stewardship and public outreach at the Site and adjoining town-owned open space in Old Saybrook. Majority (45.8%) of users were in favor of seeing a dedicated position for stewardship and public outreach at the Site and surrounding town opened spaces.

The survey asked if the public would like to see an all-accessible trail at the Site. Majority (55.8%) of people were in favor of seeing a handicap accessible trail created at the site.

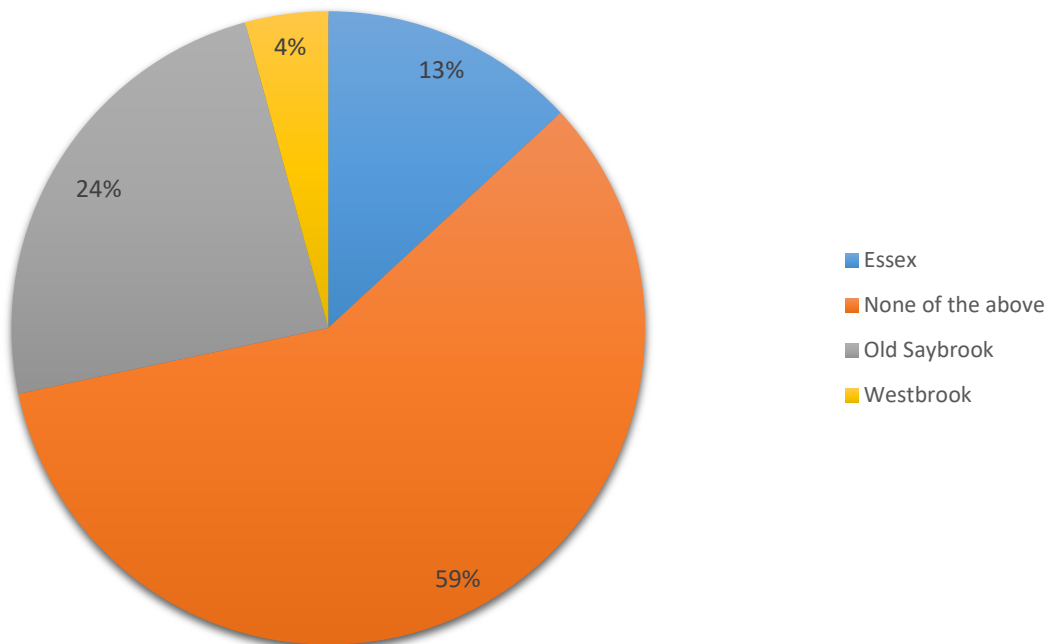
The following are the results of the 17-question online survey:



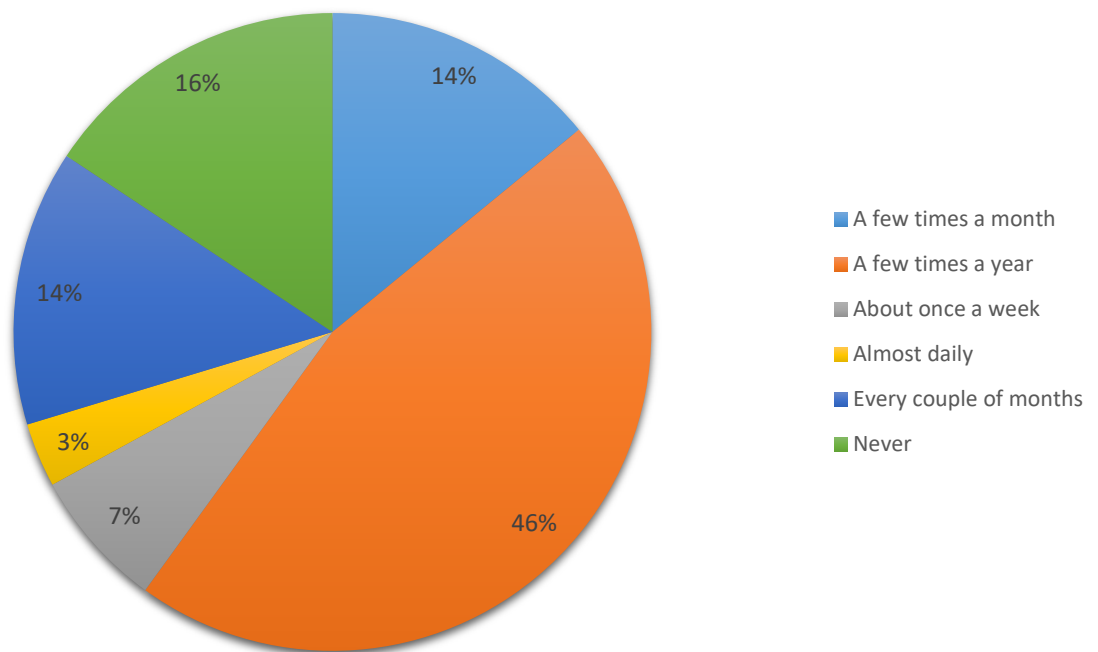
### What is your gender?



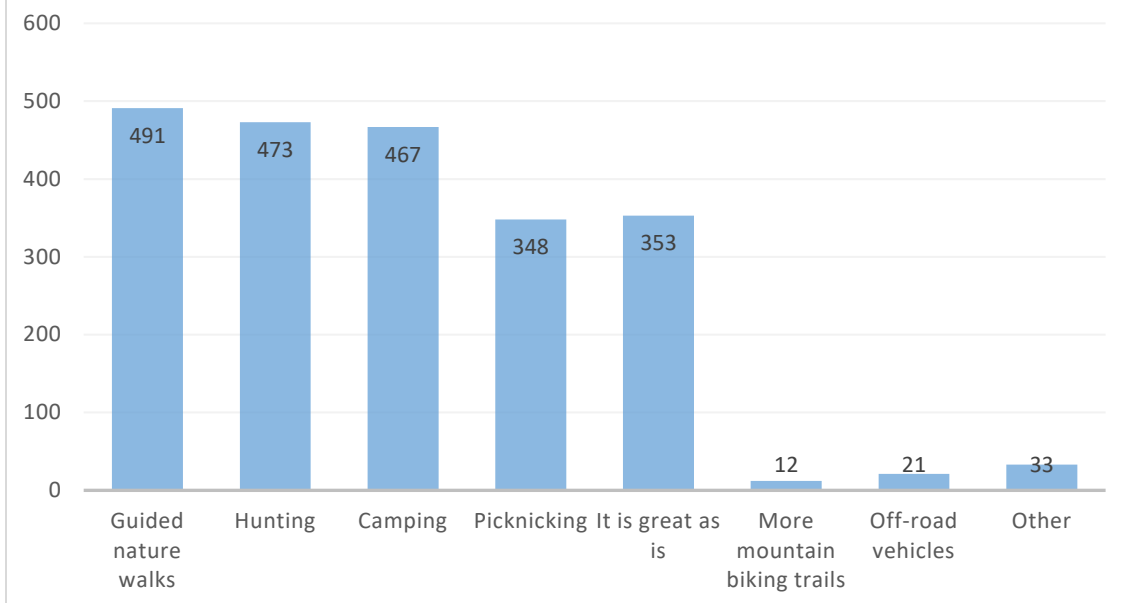
### What town do you live in?

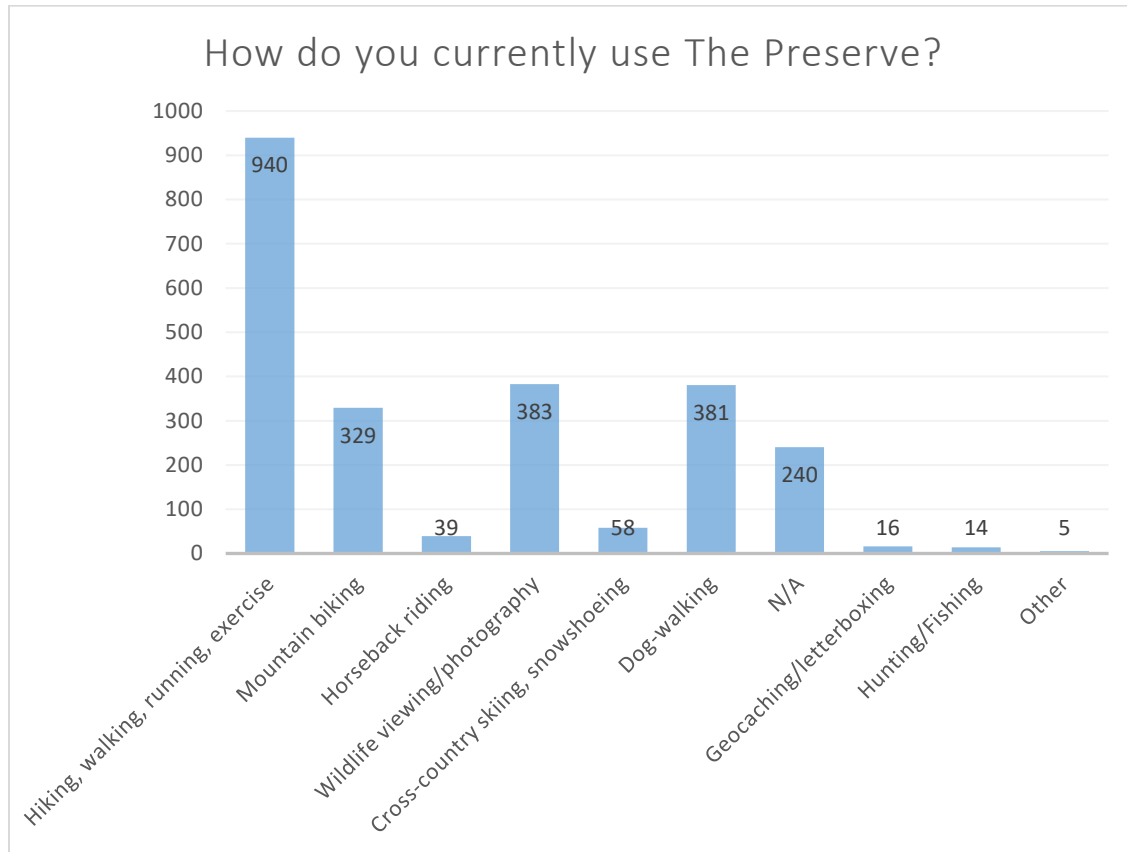


## How often do you visit The Preserve

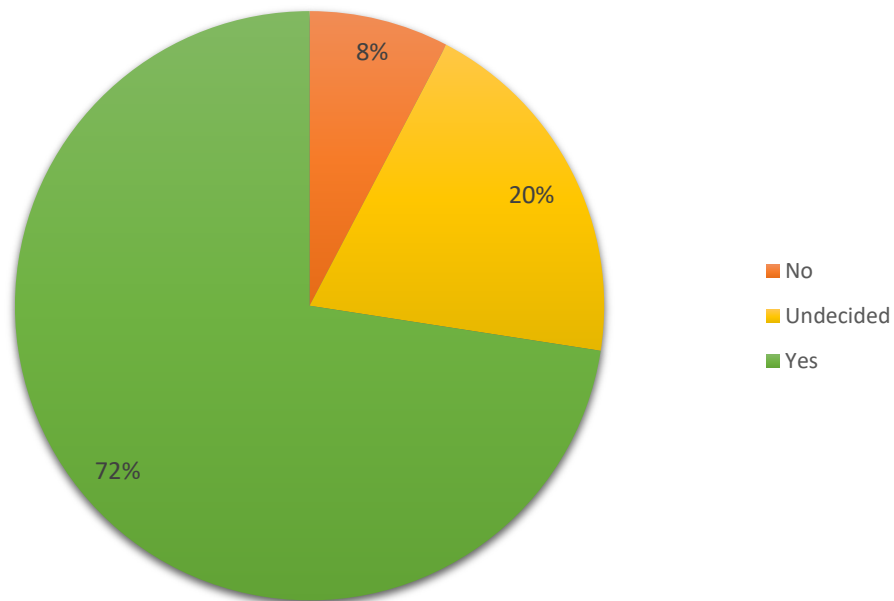


## In addition to current use, how would you like to use it?

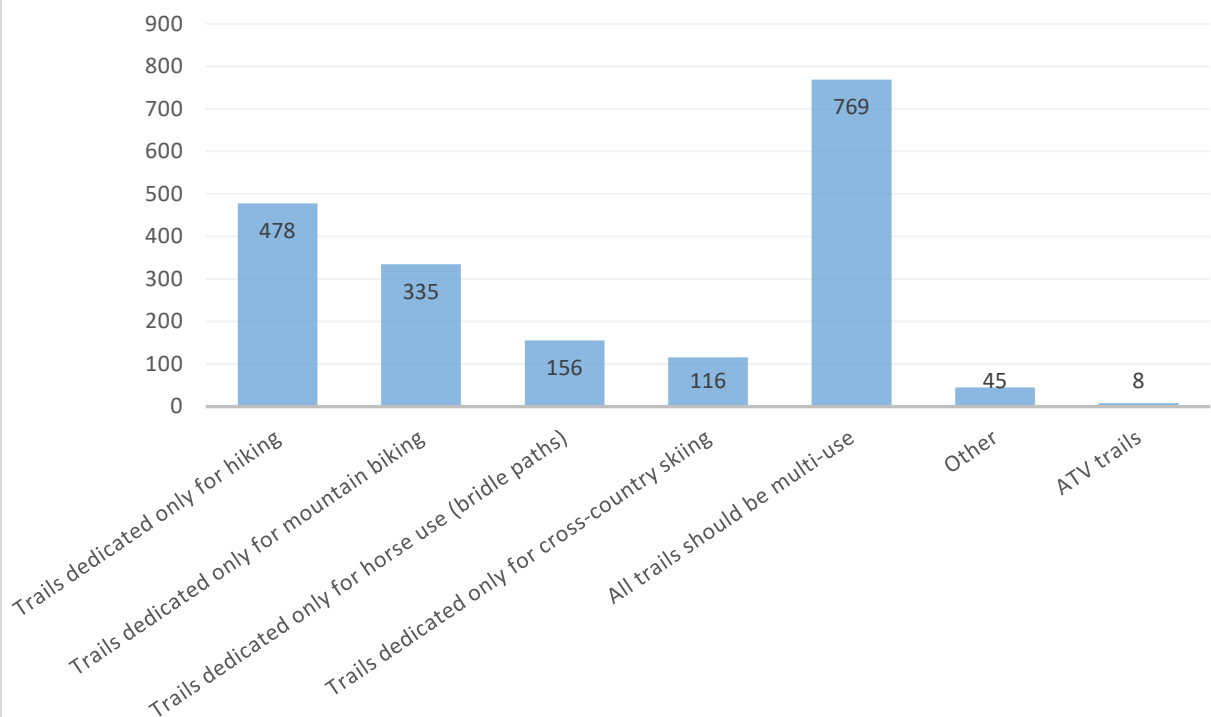




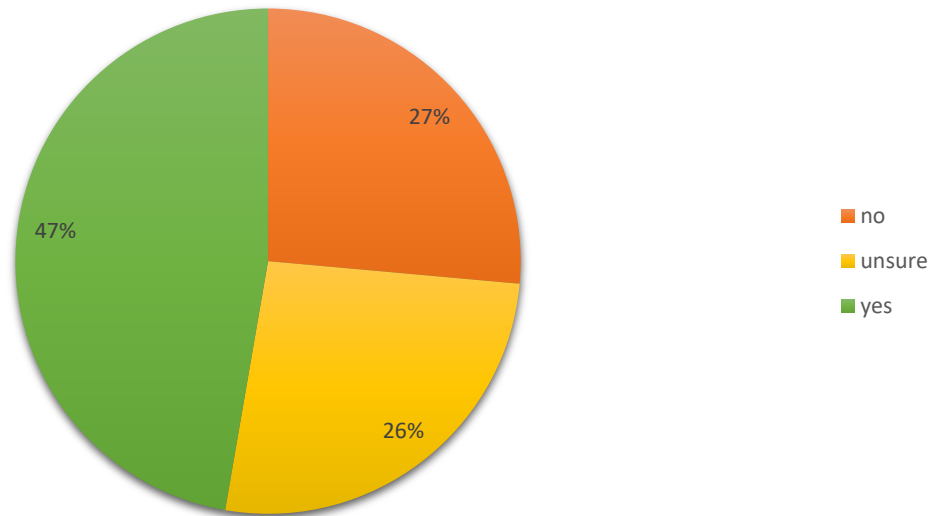
Would you like to see additional trails created to connect to Old Saybrook's Great Cedars East and West Conservation Areas?



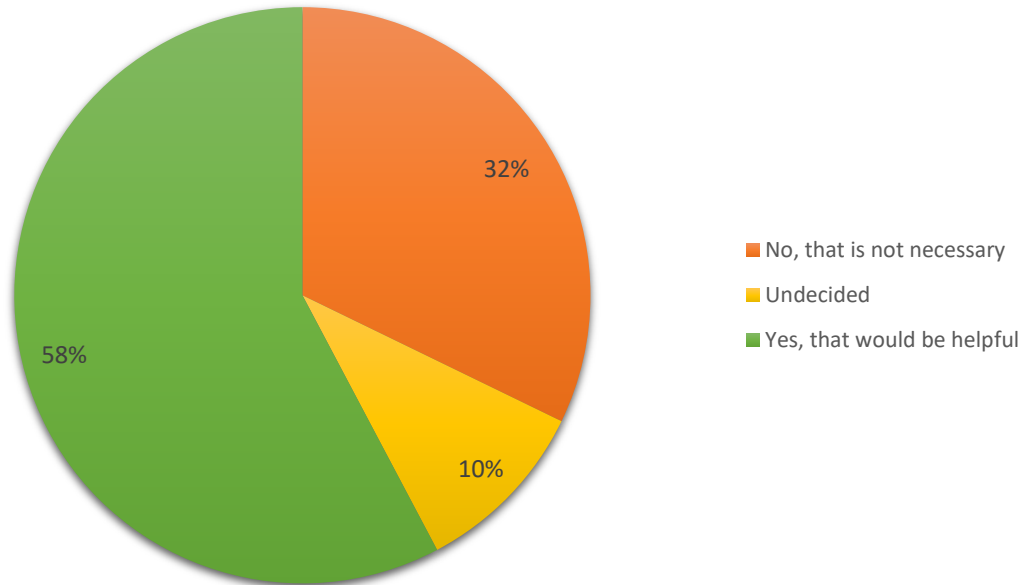
Would you like to see trails designated for single use?

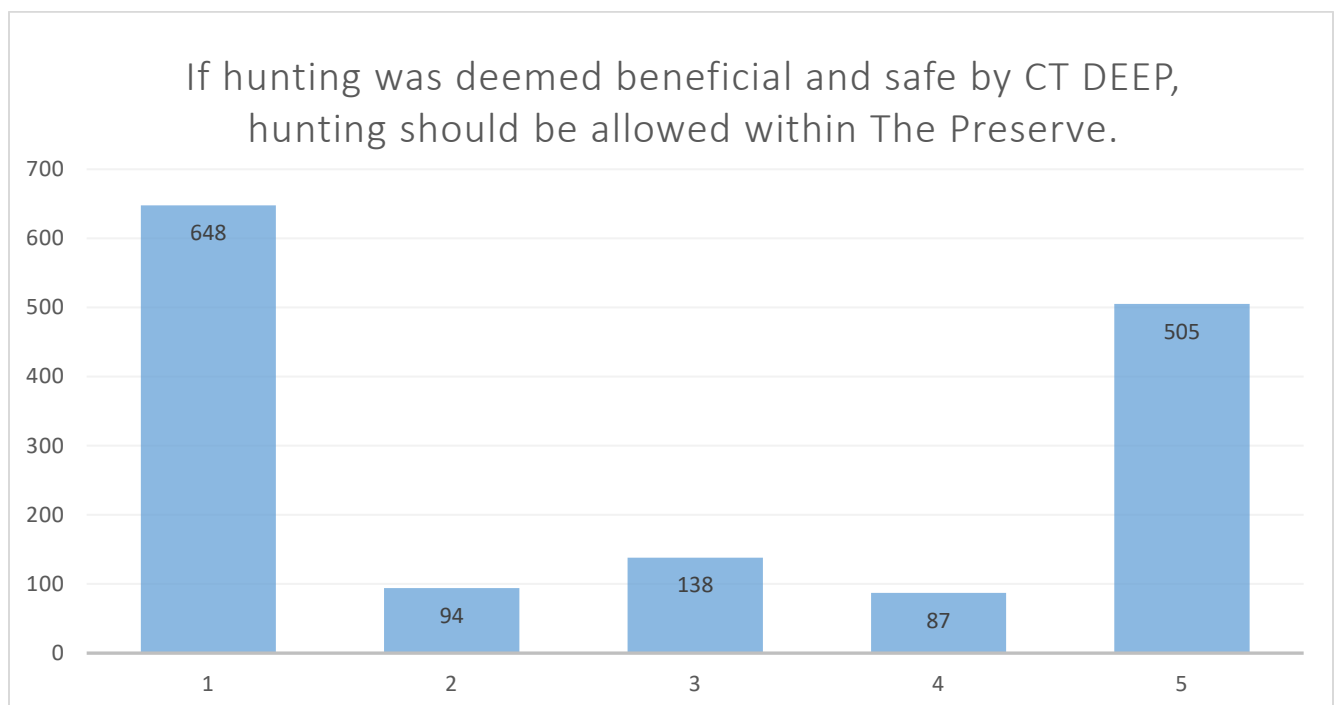
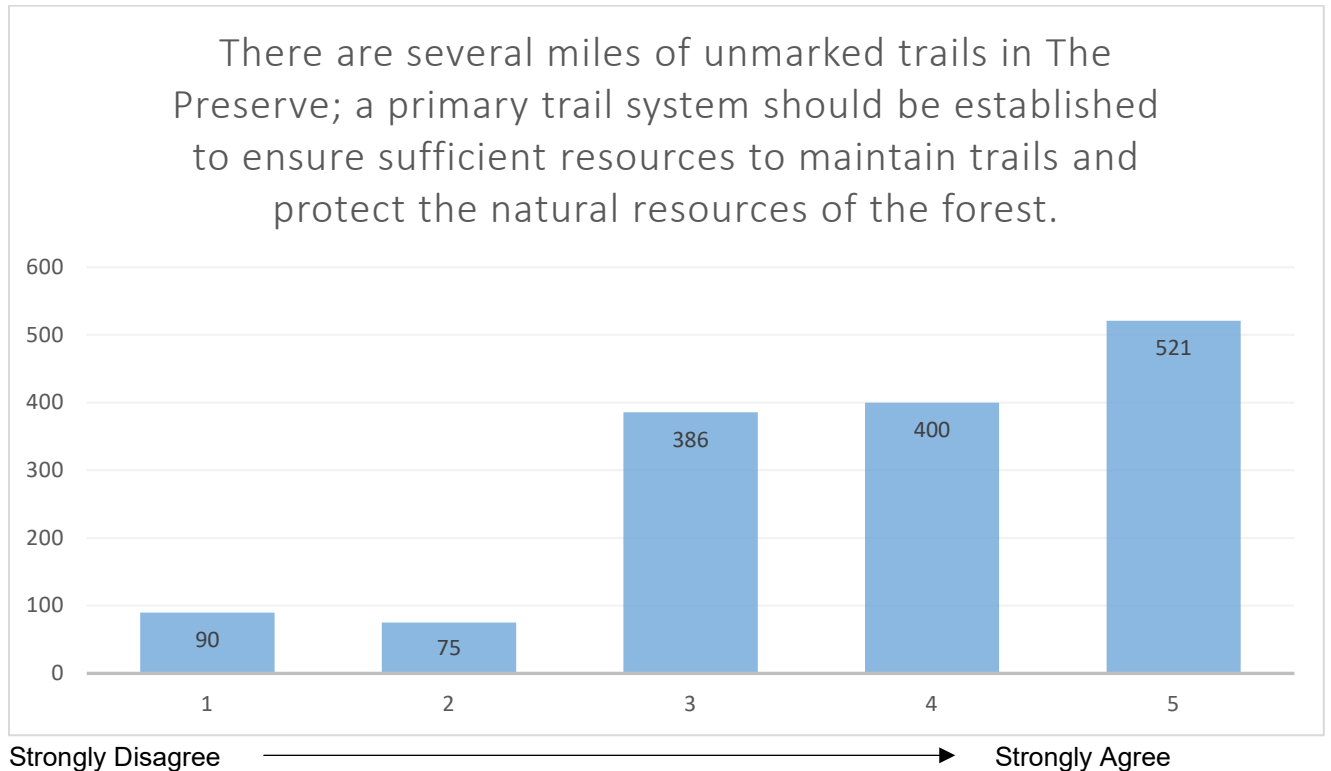


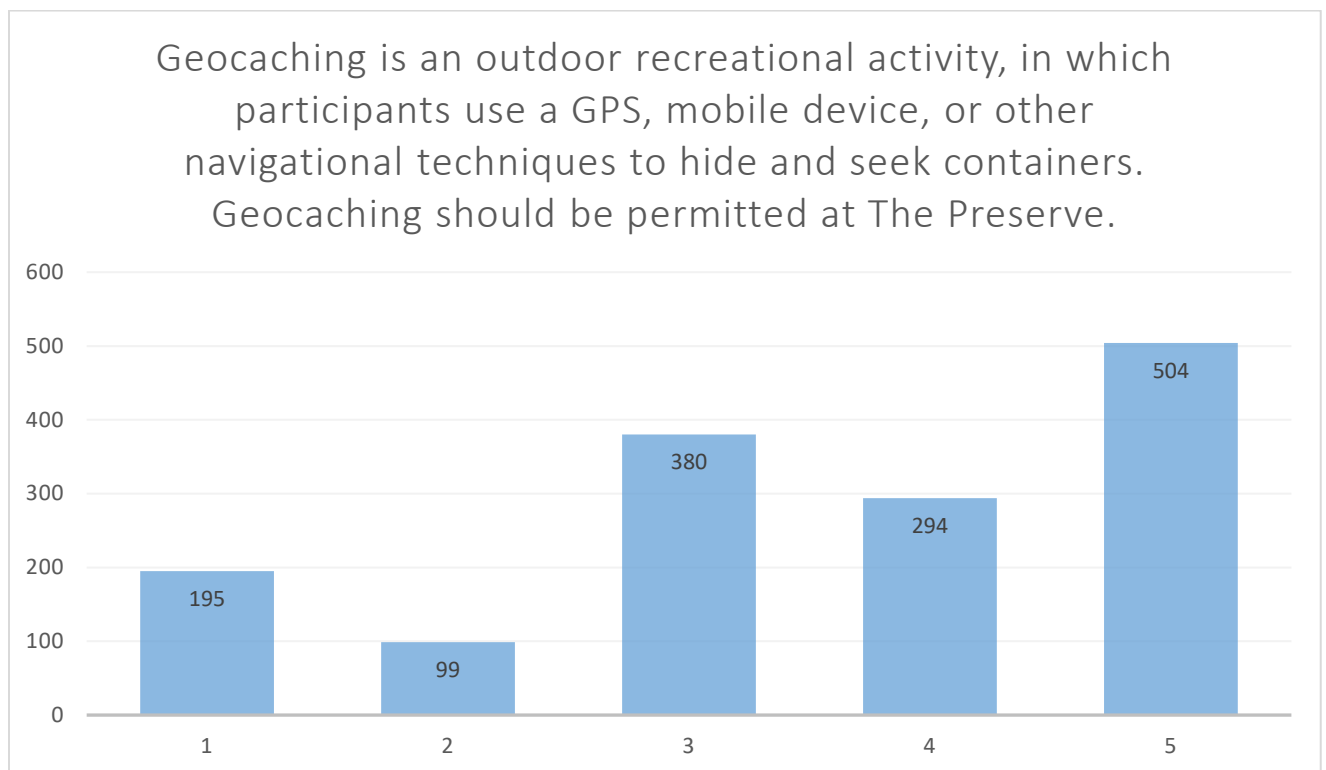
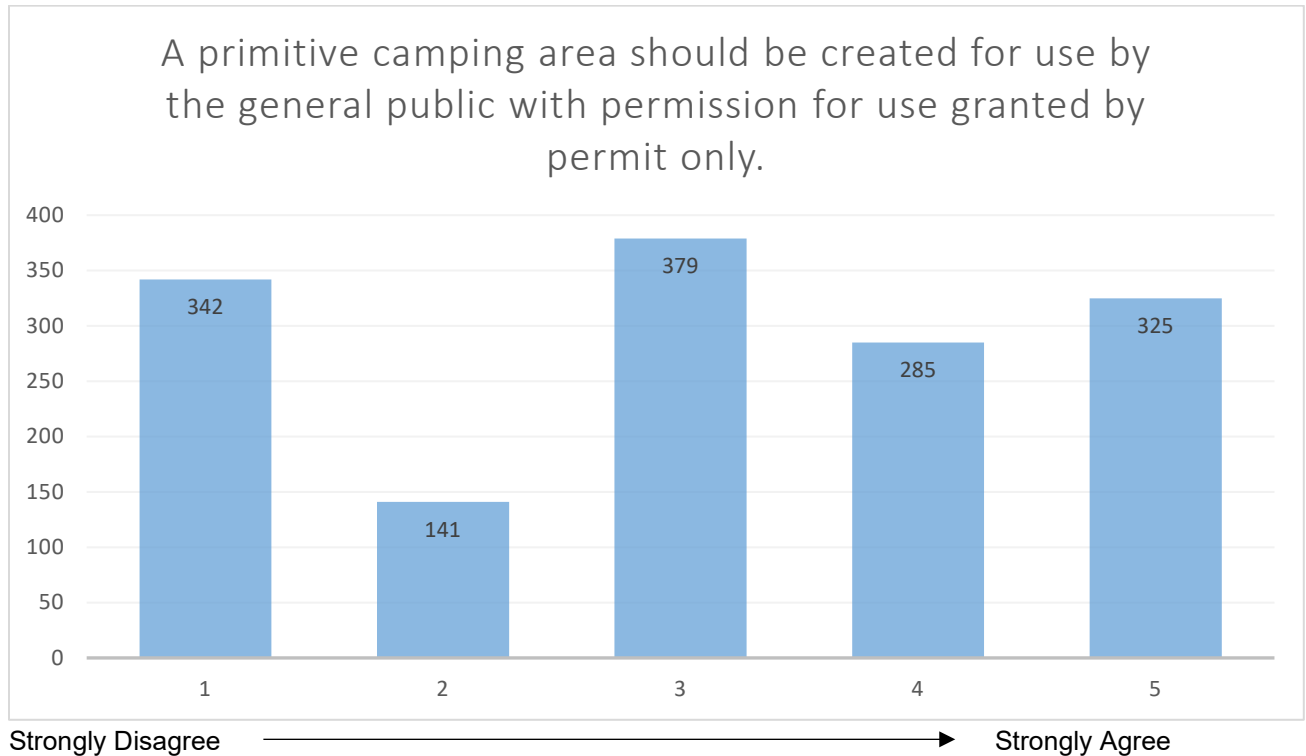
Would you like to see a permanent trail in The Preserve become a part of Connecticut's blueblazed hiking trails? (Blueblazed hiking trails are published in the Connecticut Walk Book and the Connecticut Forest and Park Association (CFPA) maintains these

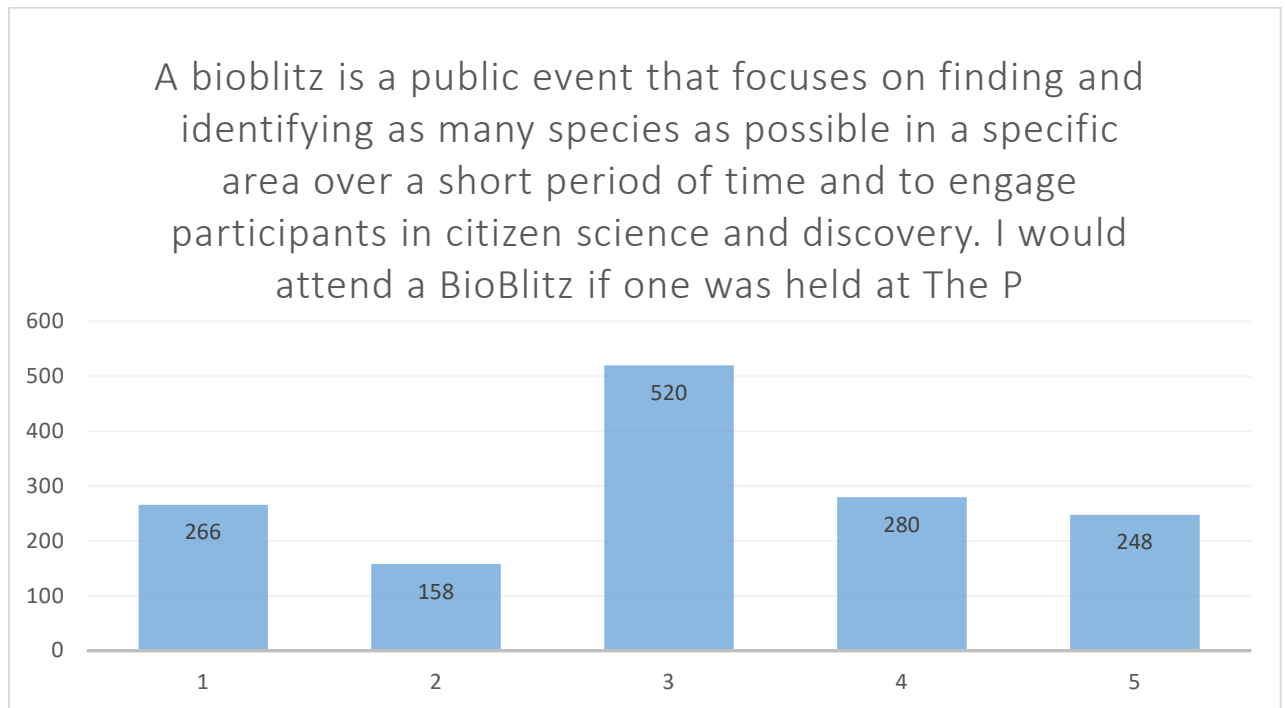


Would you like to see a revised trail marking system in the Preserve  
to designate easy, moderate and difficult hiking/mountain biking  
trails?

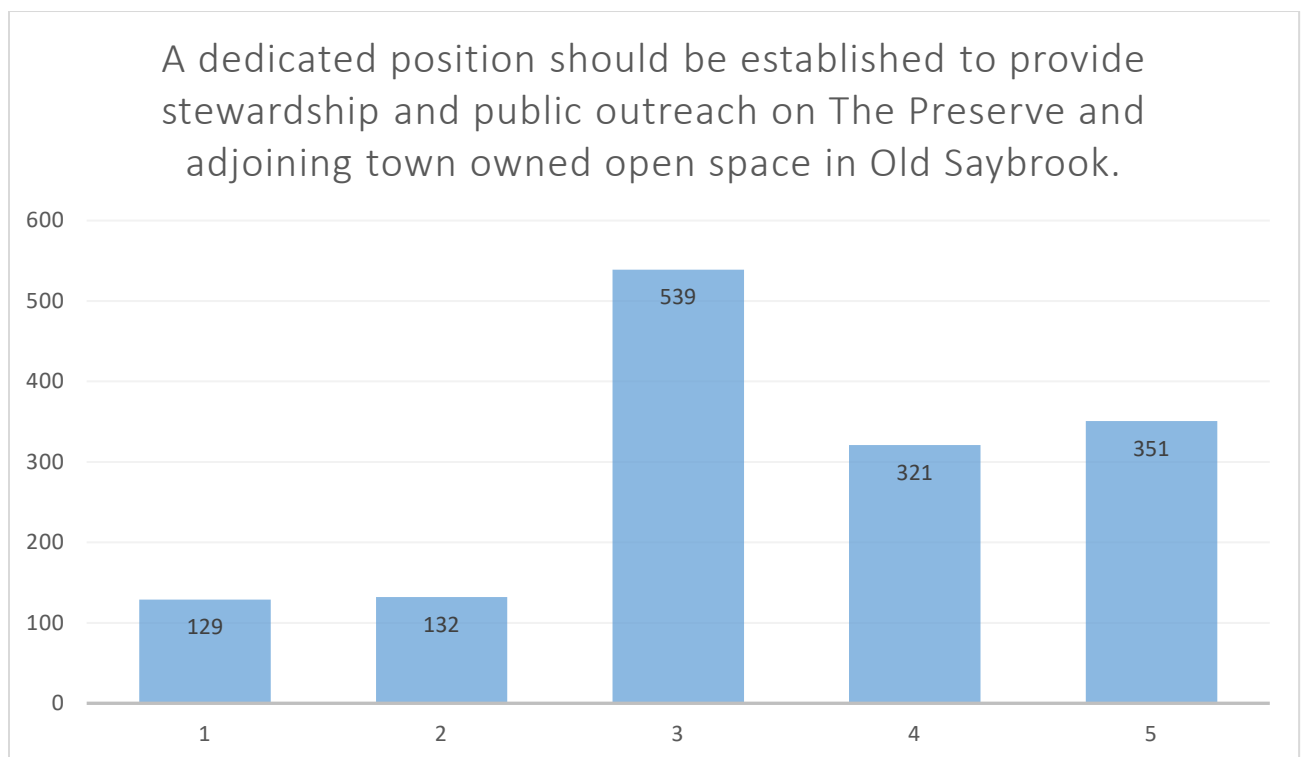




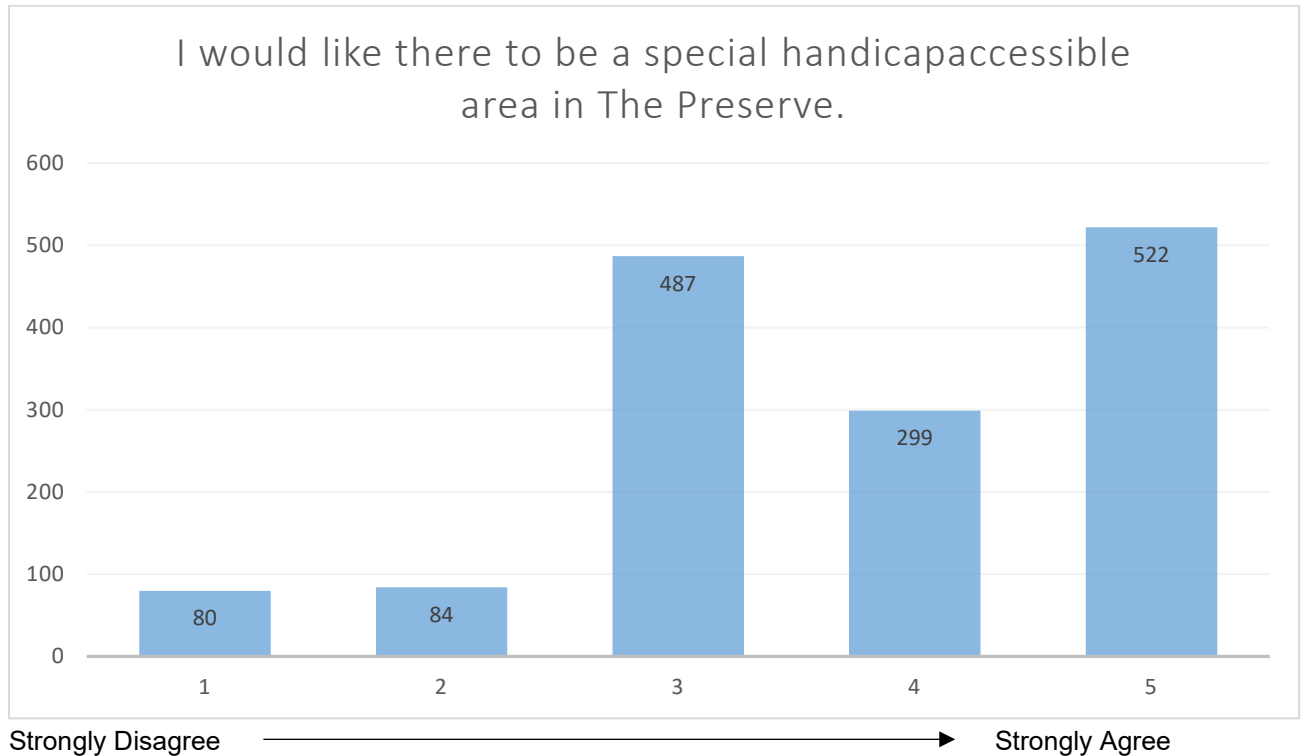




Strongly Disagree → Strongly Agree



Strongly Disagree → Strongly Agree



The survey also included a field where user comments could be provided. The following 253 comments below were provided.

Comment Number	Recreational Use Survey: Optional Comment
1	There should be a question identifying whether the respondent is from one of the host towns of Old Saybrook, Essex, or Westbrook. Their opinions may be very different from others, particularly on the question of hunting.
2	None
3	Preserve not paved. It should be raw, natural and open to use. Nature is for exploring not for road maps, signage and city park features.
4	A wonderful nature area to hike with the most delightful trail system. Thank you!
5	We are lucky to have such an amazing place!! Thanks
6	I hope Old Saybrook didn't spend a lot of money on this rudimentary, and maybe unnecessary survey.

Comment Number	Recreational Use Survey: Optional Comment
7	Keep it simple. Educational use is good. Minimal “rules” where needed to ensure any reasonable person’s enjoyment. Some trail restrictions are needed to avoid damage to soils, water, and vegetation and conflict where uses are incompatible (horses vs. bikes for example?). If being part of the blue trail requires following restrictions set by others, I would not be in favor. You need to remain flexible in order to make the best use of the entire property. Permanent structures should be kept to a minimum in my view and restricted to areas near parking. I think the goal should be a casual, friendly place that preserves the environment while allowing lots of people to get outside and enjoy themselves while appreciating “nature “. Anyone can bring a sandwich along and enjoy it at a pretty spot. Picnic areas, aside from a small bench or table here and there, would change the use of the place. Even primitive camping and infrastructure, fire, and trash concerns and is really unnecessary given the size and accessibility of the property. If volunteer management isn’t adequate, then I support a paid position, if possible. In short, less is more:-). It’s a beautiful spot. Thanks for seeking input.
8	Please limit motor bikes and other vehicles from accessing the preserve (snowmobiles, etc.)
9	I would love to see a mountain bike race hosted here that consists of something like 3 trails and the best total time wins!
10	I think mountain biking has a small interest group. Passive bike riding would take more time and money to prepare the trails but would be hugely popular if done right. If we prepared the trails similar to the one-mile stretch, they installed at Hammonasset. Start by leveling out the Ingram hill road trail all the way through and then make some smaller loops off of that.
11	Controlled hunting seasons/limited dates & tags for responsible conservation
12	Share the space - it's lovely and is multipurpose. KISS you have many who love and would support the space as volunteers.
13	Handicap accessibility should be at the forefront of any project. I am an avid hunter and fisherman and would love to see handicap accessible as well.
14	Hunting absolutely should NOT be allowed under any circumstance in the preserve. Can you imagine the trauma of a family on a hiking walk finding a wounded deer or other species? Impossible to fathom. Please no.
15	Please mark the trails better! We have gotten lost off the trail a few times.
16	More for mountain biking
17	Live in Clinton, considering purchasing house in Old Saybrook
18	Deer hunting is required for forest health
19	It would be awesome to have ALL the trails marked.

Comment Number	Recreational Use Survey: Optional Comment
20	<p>It should be open to all BUT marked primarily for mountain bike. There have been many times that "hiking trails" around CT and across the nation have been set with traps for bikers because of people who disagree with our presence. We love to share, and we maintain trails but being designated for bikes saves some serious dangers of health and injury to riders.</p> <p>For example, we have found wire run across trails at Oswegatchie Woods in East Lyme and a woman was caught in the act and confronted for running the wires but not reported.</p> <p>Thus, designated as bike trails with multi use may be a safer idea.</p>
21	The Preserve works best when it is inclusive to as many user groups as possible, not exclusive.
22	<p>There should be an area for dogs, and the rest should be dog free. Most dog owners now are allowing their dog to be off leash, this is not an acceptable behavior.</p> <p>Also, there should be "park rangers" working the preserve.</p>
23	An organized team to maintain the trails in Old Saybrook would be beneficial. The Essex portions of the trails are maintained quite well.
24	Need better maps, and signs at intersections.... showing direction to and how many miles ... loops etc... I have been using the preserve long before it was the preserve and it's difficult to navigate due to newer trails ....
25	Leave the land unmarked. If people want to enjoy the forest, they can by walking through it.
26	Should allow certain rugged areas for off road vehicles
27	Hunting and conservation would be incredibly helpful for everyone involved
28	I feel it is only fair to allow hunting and fishing on any property acquired through the use of tax dollars. This property should be accessible to all Connecticut residents.
29	This would be a great choice for daily permit hunting
30	More parking at Ingham Hill entrance
31	You might ask why I stated all trails should be multi use and then say a dedicated trail should be established. This would take some of the people off the multi-use trails.
32	I personally like to mountain bike single track trails but also understand the need to have them multi use trails for everyone to enjoy. Hikers and bikers need to bike common ground and respect each other's outdoor activities. Having specific trails for certain things doesn't mean people aren't going to use other trails it just means there's going to be a fight/altercation about who's not supposed to be on that trail when different users encounter each other.
33	This is a nice area to ride a mt bike, I sure do hope that access is never lost.

Comment Number	Recreational Use Survey: Optional Comment
34	The Blue Blazed system furthers the old ideas. It is terrible to even consider. CT is decades behind the rest of the country when it comes to modern outdoor recreation. Systems like the Blue Blazed are why. As the state ages and groups continue to utilize outdated and defunct ideas such as poor trail development without modern professional expertise, we will continue to serve environmental and social impacts from trails.
35	Motorized vehicles need to be eliminated. I know it is not a permitted use, but there is misuse that is not dealt with.
36	I would update the final question to read "a fully accessible area in the preserve"
37	thanks for asking!
38	PLEASE create a wheelchair friendly trail. Thank you.
39	No hunting please! It would make the people who use The Preserve not feel safe. Not to mention all the landowners surrounding the Preserve.
40	Do Not Allow Ebikes!! I suggest adding signage.
41	I think the Preserve should be a "no frills" protected space. It doesn't need to be like a state park. Keep it simple.
42	Hunting should be strongly considered as a longtime resident of Old Saybrook, it was very hard to find a place to hunt on public land near town, many places are simply too far away, the number of hunters around town is very low so I'm sure there would only be a few in the preserve at one time and pose little threat to other users. Hunting accidents are very rare among legal hunters and between hunters and non-hunters, but it is always a good idea to wear orange in the woods during hunting season.
43	Hunting should be permitted for ecological management & recreational usage of the resource.
44	Hunting would be a great expansion of the recreational activities. Even if only bowhunting was allowed.
45	Does the Preserve have an endowment and a separate nonprofit organization dedicated to its conservation and improvement?
46	I don't think dogs should be allowed. In my experience, when dogs are allowed in a preserve/park many owners will let them run off leash - whether this is permitted or not. As there is no way of enforcing this rule - and thus it has no consequences for the dog-owner - it is safer to not allow any dogs at all.
47	Please allow hunting in these areas
48	Hunting would be okay if there was a designated area and enough signs so that hikers stay out of there during the season.
49	Camping and picnic areas bring garbage and the dangers of fire to the preserve. Wildlife and people should be the main priority of any decisions regarding the preserve.
50	I wish the trails were better marked.

Comment Number	Recreational Use Survey: Optional Comment
51	Pay attention to all-natural areas not just big areas.
52	Several questions can be interpreted in opposing ways which hurts the intent of the questionnaire. Would like more questions on how to keep The Preserve clean and well managed. Hunting would make it dangerous for hikers during specific times of the year.
53	I have mixed feelings about hunting. I think it would be beneficial if it were only on a designated weekend or short time period (less than a month) so that hikers could stay away. I have no issues with hunting per se, just with safety.
54	No hunting or ATV vehicles. That goes against how the land was pitched to the town. I believe nonprofit groups would benefit if there was some sort of educational competent offered with a picnic area and possibly camping. But the camping should be restricted and all trash in goes out.
55	Live in Old Lyme. Too much mt. biking for this to be a Blue Trail. Wish we had snow for xc-skiing!
56	Thanks for asking!
57	Handicapped geocaching trails
58	Keep these trails open to multi-use
59	I love this place. Glad to see it being used
60	As a mountain biker I love marked trails that are cared for. I'd like to see easy trails that older people with e bikes could try, or little kids like 4 to 6 years old could try that are really easy.
61	I am on the Rockland Preserve Board in Madison, and we have had great success in improving experiences for all by dedicating trails to mountain bikers. The system of marking and trail map notation has helped all users understand appropriate places for recreation and enjoyment. Our use is up exponentially, and our problems have changed... trash, partying, misuse is down. Primary new problem is parking access. I'd be glad to speak more about our experiences jason.engelhardt@gmail.com
62	Just as the smaller area Barn Island WMA in Pawcatuck has trails for many uses (hiking, biking, birdwatching, etc.), hunting is a primary use of the area (it was procured with hunting equipment excise tax money). Hunters and other familiar uses share the resource, and each group appreciates the other.
63	In the days before Tim Taylor I hunted, logged, rode horses, motorcycles and camped in the preserve area. I still live walking distance from the area, walk with my dog out there, and occasionally ride a bike out there. Those woods were my playground when I was a kid, it was a lot nicer out there before the right to hikers took over. The state of CT needs to have more places where active use is practiced.

Comment Number	Recreational Use Survey: Optional Comment
64	Consider using forest management to manage the Preserve for healthy forests and abundant wildlife. Wildlife habitat enhancement projects undertaken through forestry would bolster the habitat diversity on site, providing additional niches for a wider variety of wildlife species. Consider some large, even-aged management blocks (patch clear-cuts) for young forest habitat to draw in Shrubland-dependent wildlife species. This will likely be met with opposition from many Preserve users and neighbors but will provide an opportunity to educate others of the positive impacts proper forest management can have the landscape. With that, and growing the next generation of forest trees, deer numbers likely would benefit from a reduction, otherwise there will be no new tree regeneration and invasive plant species will be further spread by the deer and decreasing habitat and species diversity on site. I would also consider opening the Preserve to potential small game and waterfowl hunting, to allow more outdoor enthusiasts use of the property. Hunters pay license fees, purchase gear and equipment, purchase federal and state duck stamps, all of which taxes go into the Pittman-Robertson fund for wildlife conservation. When I go hiking, I don't pay a dime for wildlife, and unfortunately most recreational users tend to litter. Just my humble opinions :)
65	I think the Preserve should be shared by all. The only reason to have dedicated trails for different purposes would be for safety reason.
66	As a responsible, avid, outdoorsman, it is not fair to exclude hunting on this land. There is no reason we shouldn't be allow on this land. As a hunter we pay more than our fair share in monetary dues to keep the lands in CT public. Please let us use this land as well. Thank you.
67	It does not have to be rifle hunting, but it should be open to archery
68	trail markings can be confusing. other than that, I think it's great
69	Thank you for asking and maintaining an awesome resource!
70	We keep our boat in Chester and enjoy the park with our dogs. We would NOT want to see hunting of any kind. Thank you
71	For camping and geocaching, it depends on the requirements of materials. For example, it would be a shame if someone hides a plastic bin for geocaching and it cracks and leaves debris.
72	First, the idea of walking The Preserve on the same trails as mountain bike riders and horseback riders doesn't interest me at all. Please keep those areas to a minimum if we have to have them at all. I am not in favor of campers at all. Second, we had a difficult time navigating the trails on the Rt. 153 side of The Preserve. They aren't marked well at all. Last, the parking lot on 153 is lovely - great job!
73	As a hiker I was so excited to see that the Preserve land was saved for open space. I rarely go there as it seems to me that a lot of the trails have been leaf blown! Such bad trail maintenance. I thought people who knew the woods and trails knew that leaf blowing trails is bad for the trails and causes erosion. I'm not sure why anyone would ever want to do that. It's so city like. Very sad. I suggest putting up a sign at the entrance to all trails--"No leaf blowing on trails, this practice causes trail erosion" I have seen signs like this in other areas that are close to development.

Comment Number	Recreational Use Survey: Optional Comment
74	the more NATURAL an area the better.... long standing traditional activities should be maintained and encourage and "new" special interest activities should be carefully scrutinized to see if they "fit" a preserve environment
75	Connecticut needs to safeguard its precious natural resources in its natural state. No hunting in such a dense portion of the country.
76	PLEASE, no hunting.
77	Hunting in that area is a danger to those who wish to use it for recreation. I do not see the benefit to open it to hunting.
78	This is a nature preserve. Animals and nature loving people enjoy this special place. Allowing hunters in will destroy the beauty of nature.
79	Please NO HUNTING!
80	I believe bow hunting only would be a great conservation attribute along with being a fantastic recreational benefit.
81	Any trails should be established with the goal of preserving native plants and wildlife.
82	Multi use trails to include horseback riders is important. If a trail is too sensitive or steep for horses or other user groups a sign to designate it closed to those groups would be useful. Work together to share the forest.
83	No hunting please !!
84	Single use should never be an option. These lands should be open to all people. With the exception of motorized vehicles.
85	I strongly agree the trails be multi use. I am an elderly horsewoman who has spent many years trying to protect open space and make multi-use trails. Educating people on how to share the trail and help be stewards of the land is of great importance for future generations to understand.
86	Trails should be marked better. More confidence markers are needed.
87	You list geocaching but not letterboxing. The two are not the same. In the same way that baseball and golf are very different from each other even though both involve balls.
88	I would appreciate a nudist colony.
89	No ATV and No dirt bikes allowed
90	Leave it as wild as possible. It is a Preserve, not a park.
91	Management of human trash is always a high concern...fishing line...string...balloons...plastics are high contributors to wildlife injury. There should be posted signs and fines if people do not take out what they bring in.
92	A preserve should not allow hunting
93	No
94	I would like a few No Pet areas where a person afraid of dogs, or just tired of having dogs, even leashed, coming up could enjoy the area.

Comment Number	Recreational Use Survey: Optional Comment
95	no hunting
96	Allow hunting!!!!
97	DEEP employs biologists and specialists who have more experience in this field than the general public. My opinions and those of other individuals should be secondary to those of professionals in DEEP. DEEP needs to take a stance based on science and stand behind it instead of bending to the whim of every single moaner. This is why we have an organization whose purpose is to steward the environment.
98	Thank you for requesting input.
99	Hunting limited to archery, and by permit if deemed appropriate to the area by DEEP
100	Again, I hope that a natural world education curriculum is incorporated into future planning, along with easy non-ambulatory-access. I miss the trails so very much.
101	Limited hunting and trapping should be allowed to maintain the health of the forest
102	Safe parking area with camera. Sign with area map and trail maps at each entrance. Involve clubs with trail development and maintenance. Recognize volunteers who manage litter. Thanks for making the opportunity.
103	None
104	Manage Whitetail deer population through bow hunting only.
105	Hunting would be great #1, and #2 a picnic area with signs that hunting occurs in the area would be good. We need to initiate and keep the love of the outdoors in people young and old.
106	Have a bow area/ shotgun area for hunting. Or just bow area
107	The Preserve should open to the general public for any and all activities that could be participated in, excluding the use of motorized vehicles including electric and gas-powered watercraft. Further, I strongly support hunting should the DEEP deem it a reasonable activity.
108	Thanks for asking for our opinions.
109	Bow hunting only. No gun hunting
110	Allow the legitimate off-road motor sports groups a voice in how the trails are used- they will also be a great resource for volunteers and funding.
111	Thanks for caring.
112	I am grateful for the opportunity to give feedback 🌈
113	Let us hunt
114	hunting and fishing are greatly beneficial to our ecosystem when managed correctly.

Comment Number	Recreational Use Survey: Optional Comment
115	It is wonderful that Lyme open space, which allows deer and turkey hunting, still has weekends hunter free so that people can enjoy the land in fall, the most lovely time of the year. Additionally, hunters leave notice at the trail heads that they are hunting. Trapping must not be allowed, ever, because of dog and other deaths.
116	Bowhunting
117	Definitely horse only trail. The bikers and hikers with their dogs have no respect for horses and are downright dangerous. One day I had a biker race right past my horse and in the other direction was an off-leash dog that the owner could not control. At the end of the day, they will get more hurt than me and my 1300 lb. animal, but I will of course get the blame even though my horse is more than safe.
118	Please consider getting FREE trail building support & stewardship from the New England Mountain Biking Association. They work closely with DEEP throughout CT and New England on similar land parcels.
119	Mountain biking should NOT Be limited in the Preserve.
120	Enhance trail marking signs Plywood boards currently lying in lowland mud/water crossings are extremely dangerous. Multiple individuals have twisted ankles and fallen. Safer to remove the boards entirely than to keep as is.
121	Great mountain biking area, one of the best I've seen. I travel from MA to ride here. It's a classic so my answers are careful as to not disrupt its current use.  Amazing park and well thought out
122	Open it to hunting
123	Please take hunting into consideration. The rate is taking more away from us every year
124	All for handicap accessible parking...but it seems like parking is already adequate for that. Handicap accessible trails, no. Fine as they are. Multi use trails are fine in there. Everyone can be courteous. Mountain biking does not ruin the trails.it is a common misperception. It is probably not correct.
125	your question "Would you like to see additional trails created to connect to Old Saybrook's Great Cedars East and West Conservation Areas?" is mute because there are already trails connecting these areas.
126	Hunting would greatly increase the use people get out of the park because during the hunting season people would hunt it and in the off-season people who previously hunt it would hike it to better no the train and potentially help to maintain the trails they use for hunting.
127	It's a wonderful place to enjoy the outdoors I personally be playing in these trails for over 35 yrs. know the area like the back of my hand! Mt bike out there daily!!
128	My answers are mostly undecided because I have not heard opinions or facts on the topics of use of the land since I initially helped with the campaign. I am all for getting folks out to go hiking. I think the trails should be well marked and maintained, however that takes manpower. I think campfires even with a permit are risky business in this 1000 acres.
129	Comprehensive map including GT Cedars East & West.

Comment Number	Recreational Use Survey: Optional Comment
130	Permit as much use as possible, no additional restrictions. Under no circumstances waste money on an employee(s).
131	Don't waste taxpayer money on another useless employee. Open the place to everybody, too many rules already. It was great when we were kids, there are more animals now than 50 years ago. Don't care if you have a BioBlitz, just not for me because I already know what's there.
132	Do not let hunting happen at this preserve!!! It's called a PRESERVE for a reason
133	Hunting is not compatible with the preserve.
134	Stop leaf blowing the trails which creates further erosion of the trails
135	SECT NEMBA is interested in support trail stewardship efforts. Look into potential collaborations
136	This needs to be more clearly defined/worded: "a primary trail system should be established to ensure sufficient resources to maintain trails and protect the natural resources of the forest."
137	All types of recreation should be encouraged at the preserve. Except hunting.
138	It would be nice to have a trail go East.
139	Blue trails may be designated to only hiking, but in Guilford, I have told the Land Trust I'm riding and maintaining them since before they were blue trails. They said they have no problem with me riding them that, it's a larger organization that wants to limit them to hiking. So, it appears to me a town can override that designation. Trails should not be designated for specifics, but naturally some trails will be better for horses/bikes/hikers. Hunting should be permitted in a well-marked safe zone. I don't like hunters but again, united we're stronger in preservation.
140	I think that trails should be multi use. The only concern I would have would be steep and fast (downhill) biking trails that would be designated as biking only. If there is strong support for a blue blazed hiking trail, I would support it, but as both a hiker and biker, I find it unnecessary.
141	The Region is a great bike area. Having a route from Essex to Old Saybrook would be a start for the systems that the region should have.
142	Keep up the good work! And Thank you!
143	Mountain biking would drive a ton of spending and trail support in the area. Check out what is happening with the Rockland preserve
144	A town (volunteer) committee should be established for those who wish to help steward the Preserve, i.e., maintain trails, help w mapping, identify and assist in solving issues that may arise, and public/tourism outreach
145	thank you to all of the volunteers who have worked so hard so far! much appreciated!

Comment Number	Recreational Use Survey: Optional Comment
146	<p>As far as trail-connections to other areas, yes, but only if the other areas are open to bicycles.</p> <p>On hunting: some of the "Preserve" advocates seem to be anti-hunting. Remember, hunters pay fees and taxes that went into the bulk of the property purchase cost.</p> <p>Multi-use trails: people just need to be considerate.  Bad examples:  a. the mountain biker flying down a slope and expecting others to get out of their way rather than slowing (or dismounting.)  b. the walkers trying to walk next to each other (even on extremely narrow sections) and making no effort to allow another to pass.  c. the birdwatchers who posted their tripods right in the middle of a trail and were dismissive as a walker tried to get past.</p> <p>The best multi-use behavior I've seen is at Cockaponset State Forest, including hunting.</p> <p>As it is now, outside of the "organized" activities that bring too many people together at the same time and place and despite the briefings are disruptive to others' use, the low-use posture of the area relates to low environmental impact.</p> <p>I've seen geocaching in state parks result in a "swarm" behavior, disruptive and vociferous ("organized" activity). I think camping will unnecessarily upset the nighttime balance that wildlife presently enjoys and introduce a fire hazard.</p>
147	<p>you have used and are using every one's money to fund that site so there should be a section that is portioned off to motorized vehicles. ten acres out of a thousand would be nice. not everyone has the same interest's but pay the same. thank you</p>
148	<p>I'm not opposed to equestrian use, but equestrians should be encouraged to use the trails when they are dry, frozen, or firm. This is a best practice for cyclists, and it ensures the trails stay in good shape.</p>
149	<p>NO HUNTING PLEASE. They spoil it for the overwhelming majority of citizens who want safe space to enjoy wildlife and being out of doors. Hunters represent fewer than one-quarter of all Connecticut residents who are outdoor enthusiasts. We need to be attentive to offering opportunities for the majority of CT residents.</p>
150	<p>I just can't see hunting as viable on such a vibrant multi-use property. If bullets were smart and could avoid children on bikes or horses maybe. But even Dick Cheney got shot by a friend in his own hunting party. I would like to feel always safe in the park. It's so hard to feel safe in the world now. It would be nice to know that there will not be hunters like Dick Cheney's friend to worry about too. There should not be hunting allowed in the park.</p>

Comment Number	Recreational Use Survey: Optional Comment
151	Allowing for hunting would be catastrophic for the Preserve. I certainly would never go again and would encourage everyone I know to avoid it at all costs. CT DEEP's statistics are not scientifically driven nor are they reliable -- such a decision should not be considered without an objective, independent agency weighing in. But such a decision should not be considered at all anyway. For the safety of everyone, including children, we should all be protected from a natural area where hunting of any kind takes place, and for the remains one might discover as a result. It's remarkably disrespectful to the natural beauty and peace of this wonderful Preserve. Absolutely no hunting, please.
152	Mountain biking is growing significantly in CT and US. These bikes are not cheap and the people who buy them have disposable income. Build a great mountain bike trail system and it will boost local economy food, gas etc... Look at what it has done to areas around the US ex kingdom trails, Bentonville Arkansas etc. Also, mountain bikes are non-motorized and are no threat to wildlife.
153	Considering my uncanny ability to get twisted up in the woods, a signage system would be helpful to me, however, what is presently in place is satisfactory. I am in favor of an inclusive approach to the use of this resource. Keep the "wild" in wilderness and don't overregulate or over groom it.
154	I cannot understand why you phrase about how I currently use the preserve... why you would put the biggest and most discussed degrader of preserve landscape - of road biking - as the first option. It suggests that you tacitly approve of such activities.
155	Love hiking there in the summer when I visit family in Saybrook!
156	The forest needs to have a nasal reduction selective clear cut/thin cut. Regeneration pockets would allow for a more diverse ecosystem/generate funds to maintain our trail system.  Not many animals utilize old growth with no variation within a stand. Please bring back some early successional patches (it would benefit birds and various plant/animal species)
157	Don't let the commie tree huggers dictate everything that happens to open space in our state as I'm sure they are conspiring to do with the preserve
158	This open land should be for hunting as there is limited hunting areas and many hiking trails and bike paths across the state. Limit access to this area during hunting season to just hunters.
159	Absolutely no hunting!!!!
160	I think that a designated area to be utilized for bow hunting for deer, even if by permit only would be very beneficial to overall health of the forest to prevent over foraging and allow the plant life to recover and flourish
161	Please consider allowing hunting, even a limited draw system managed by the town could generate revenue for the maintenance and acquisition of open space.
162	Handicap hunting access
163	I disagree with any hunting because use of firearms in the area is hazardous to non-hunters.

Comment Number	Recreational Use Survey: Optional Comment
164	Protect nature
165	I have not experienced the preserve yet am anxious to do so in the Spring therefore I am hopeful there are maps, etc., at the head of trails for ease of exploring them.
166	I have not been to the preserve because of a back issue but would love to walk it if I recover.
167	I don't live in the area, but have friends that do, so I'm very interested in upholding sound protection for this Preserve.
168	I don't live in the area, but have friends that do, so I'm very interested in upholding sound protection for this Preserve.
169	I'd like to see letterboxing too!
170	Should stock it with pheasant in hunting season.
171	Additional hunting grounds are always nice opportunities to spend time with family and friends.
172	There is no place to ride atv and dirt bikes in this state. You charge people to ride, and they would be happy to give you any amount of money you want to ride there.
173	Hunting is necessary for conservation
174	Hunting is Conservation
175	Multi use trails are dangerous to hikers. Horse droppings are slippery, and cyclists don't watch for pedestrians. I hate walking on linear canal greenway trails for the above reasons. Hunting lands need to be separated and clearly marked.
176	Archery only no restrictions like Guilford's preserve
177	Let us hunt
178	Please reach out to local NEMBA chapter for help with trail work/maintenance or planning
179	are there any waterfalls within the boundaries that could be highlighted?
180	COREC
181	I live in Chester and would likely use trails
182	The state needs more land for hunting. I'm tired of hunting state land and having people come by with their dogs and bikes and ruining my hunts.
183	Hunting should be allowed on all state lands regardless of what laws cities and towns come up with or have already. For example, the ignorant town of Westport.
184	Use this land for the proposed state police gun range.
185	Unsure what is meant by a special handicap-accessible area.
186	Please no hunting or camping.... too many risks and potential for mess.

Comment Number	Recreational Use Survey: Optional Comment
187	I support Bow hunting only.
188	Hunting is safe and seasonal. Please allow this. Camping is a great idea also; any permit fees should not be too expensive. I was unaware of the Preserve, thanks for the information and opportunity to voice opinions.
189	I strongly feel that hunting should not be allowed in the preserve
190	I would feel uncomfortable with hunting being allowed in the Preserve.
191	We are all lucky to have this property!
192	enjoyed the walks hosted and coordinated by OS OAK -- other towns should have something similar if not already; sometimes it's hard to "know" what's in your own back yard unless someone tells you about it and guides you through it ;)
193	The cedars hiking trail off Merritt Lane, unfortunately, has become a hot spot for ATVs and dirt bikes. I'd like to see a bit more enforcement/ postings prohibiting such use (I assume off-roading here is not allowed). Connecting the preserve to the cedars would be a mistake until the off-roading issue is addressed.
194	The Preserve is a wonderful area and resource just as it is
195	The west trailhead off of Ingham has become a drug scene in mid- late afternoon — drug usage and transactions. These same people leave trash/litter in parking area. This has to be stopped!
196	I would like a few more maps set up inside the preserve.
197	I am a soil scientist, ecologist, hiker, mountain biker, fisherman and hunter. I feel that as State Forest, the Preserve must be multi-use. I have lead nature walks in the Preserve and would be happy to do more. I would be happy to assist in shaping science-based policy as well. Please contact me. Bob Russo 49 Lynn Rd Ivoryton 860 227 4895
198	Dogs should be on leashes.
199	I like the idea of some hiking only trails because I find that the mountain bikers tend to sneak up on me and it's hard to stay out of their way on narrow trails.
200	It is most important to me that the preserve remains a pet (dog) friendly area.
201	As noted above, I would like to see hunting (even if a limited draw and fee applies) and overnight camping allowed
202	Not happy about the cars I see going into the Preserve after dusk.
203	A wonderful place. Let's not love it to death.
204	First of all, I thank all who made and continue to make it such a great place! Unfortunately, some cyclists are abusing the hiking only trails. There seems to be no concern for signage. It's a tough problem with such little regard for rules. There is an epidemic of ad-hoc Cairns seemingly popping up everywhere.
205	I like it as it is, although some of the trails are in need of maintenance...
206	Pleased that you are putting this out to the public for input.

Comment Number	Recreational Use Survey: Optional Comment
207	Yes camping. Yes, camping WITH alcohol permitted for campers over 21
208	And maybe a trail for handicapped people and people who can't walk on rough terrain
209	Remind people to please clean up after their dogs.
210	Some people allow their dogs to roam free This should not be allowed.
211	Keep all powered, vehicles out of The Preserve. Keep mountain bikers off of hiking trails.
212	Do NOT support hunting at all!
213	Please, definitely no hunting.
214	trails marked suitable for runners/orienteering might be worth considering
215	Picnic areas would be wonderful as long as people clean up after themselves!
216	This area should be accessible to everybody whether they are on a motorized vehicle, horseback or on foot. everyone should be able to use this land.
217	Better parking area in Old Saybrook
218	Reside @ Essex Meadows. Use the trail system a couple times a week and often lead group hikes for Essex Meadows residents into The Preserve. It is a jewel. The unmarked trails in the Old Saybrook portion s/b marked and added to the map ASAP.
219	these options cannot be reversed if there is conflict.
220	If hunting were allowed, I would not use the preserve during hunting season. Camping would generate trash in and disturbances of natural areas and thus would be a headache to monitor. Because mountain bikers erode trails and intimidate walkers, they should be confirmed to specific trails with a view to minimizing trail damage and danger to walkers.
221	It is a beautiful spot and I am so glad that it is being preserved and available for the public to enjoy.
222	No motorized ATV or trail bike should be allowed on the trails. Keep the preserve quiet!
223	The Preserve is a wonderful community resource; I'm very glad it had been protected. I'd like to see it maintained in as natural a state as possible, while balancing access and sustainable public use. I greatly support hunting as a sustainable use, in designated safe and appropriate areas. I would support archery hunting, in a controlled manner for screened and qualified individuals, and use a permit system to ensure control. Finally, I would prefer not to have a new position created; instead favoring currently available oversight (i.e., expanding currently roles if needed) including law enforcement resources. We are over-taxed in CT, and we cannot afford more spending and taxation. Thank you for soliciting and considering my views.

Comment Number	Recreational Use Survey: Optional Comment
224	There should be greater parking available at the Old Saybrook entrance. Many times, there is none available
225	Make this space as mountain bike friendly as possible. It's a growing recreational sport and the surrounding areas would only benefit by an influx of people coming to ride the trails.
226	Cannot understand why you would even ask about hunting. I want to see wildlife! Hunting and trapping are just wrong in most cases. Worried about having any camping as once established it may be abused. Thank you for the preserve!
227	It's a beautiful area in town that you see many people frequently taking walks with their pets which is great! Please keep it that way, it's a great way to meet new people who enjoy the outdoors and their pets.
228	Less is better than more as far as "improvements," incorporate "the Preserve" into the Old Saybrook Trail System following the Town of Essex's model of signing and trail mapping.
229	It is important to help Preserve and tend to our public lands. The benefits for nature and humans alike are substantial. Yet, the state then also needs to help educate, aim to resolve issues regarding, and develop accessible thorough diagnosing and treatment programs of all tick-borne illnesses for ALL state residents. Perhaps making thorough testing an option part of every annual physical will allow for more affordable treatment options and will encourage more education from those that enjoy our great outdoors.
230	if you don't have separate trails for cross country skiing then people walk on the trail and then the footprints freeze leaving the trails uneven and very dangerous especially for children.
231	I've hiked most Essex trails and found them confusing to follow though I admire the effort. Also confusing trying to walk from Essex parking to Old Saybrook parking. One can get there by taken one of two blue trail options, a green and a red. More signage so you can tell if you are headed in a north or south direction.
232	Please consider the handicapped!
233	Keep up the good work

Comment Number	Recreational Use Survey: Optional Comment
234	<p>What exactly is this statement referring to?:</p> <p>"There are several miles of unmarked trails in The Preserve; a primary trail system should be established to ensure sufficient resources to maintain trails and protect the natural resources of the forest."</p> <p>Are you asking if all existing trails (including unmarked) should be permanently marked to form the primary system? Or if all existing marked trails should remain to form the primary system and have all the unmarked trails eliminated?</p> <p>As written, I do not believe you should draw conclusions from this survey question. Respondents may disagree but enter similar answers.</p> <p>My opinion: I Strongly Agree that existing marked trails should remain as the only primary trail system and all unmarked trails should be eliminated to help preserve natural resources; and no new trails should be created. Also, the managers here should actively prevent users (mostly mountain bikers) from creating new trails and installing wooden ramps and obstacles. All serving multiple-use properties become ecological wastelands- protect the Preserve in accordance with the deeded language, do not succumb to special interest groups looking for recreational opportunities.</p>
235	<p>Dogs—either leashed or not leashed—should not be allowed in the Preserve. They disrupt the natural environment. The Connecticut Audubon Society and the Nature Conservancy have a policy disallowing dogs on their sanctuaries. See their website for their policies: <a href="https://www.ctaudubon.org/sanctuaries-new/">https://www.ctaudubon.org/sanctuaries-new/</a> and <a href="https://blog.nature.org/science/2014/10/09/bark-parks-dogs-nature-wildlife-management-ecology/">https://blog.nature.org/science/2014/10/09/bark-parks-dogs-nature-wildlife-management-ecology/</a>. Even worse, there are always owners who unleash their dogs either out of ignorance of the Connecticut state law stipulating leash use on all public lands or out of some desire to let their dog “run wild.”</p>
236	<p>Dedicated trails are a must for this site. The Old Saybrook Boy Scout Troop has been blocked from building beneficial Eagle Scout Projects. The thought process was who would maintain the projects. Has anyone seen the current condition of our state parks?! That ban needs to be lifted. Bow hunting is a critical part of maintaining the infrastructure of the wildlife of the preserve and in surrounding areas. Not sure why CT DEEP would not deem the site safe for bow hunting.</p>
237	<p>Atv and snowmobiles should be allowed as well as mountain bikes</p>
238	<p>Be careful of what activities are let in.</p>
239	<p>Thank you for your effort to preserve what little open space there is left for all to enjoy...</p>
240	<p>Better parking Ingham Hill</p>
241	<p>Dogs must be on leash at all times (this is a CT state law); this should be enforced with citizen photo-documentation and fines for perpetrators. Dogs off-leash can be aggressive and are harmful to wildlife, thus undermining one of the primary goals of the preserve.</p>
242	<p>Since the Preserve was paid for in part by Robinson Pittman funds, hunting should be allowed if the science permits it, and not by the whim popular opinion.</p>

Comment Number	Recreational Use Survey: Optional Comment
243	I really hope that there will continue to be no hunting allowed. There have been several times while walking in the preserves where we have heard gun shots off in the distance and my dog gets so scared and confused, she drags me through the woods trying to get away. Just yesterday we tried to go to Ingham hill in Essex (first parking lot) Eversource was there doing construction and we got 1/4 of the way into our walk and she heard the loud banging from the equipment and that was it, she turned around and ran back to the car. I absolutely love walking through there and would be so upset if we couldn't walk in any areas because of hunting. I used to love turtle creek until you made it practically impossible to go with the limited number of parking spaces and certainly not being dog friendly anymore. That place was my #1 place to visit but I don't bother anymore because it isn't worth driving there to not be able to park.
244	I would hope the property is being managed for early growth forest?
245	I roamed these woods for over 30+ years there are copperhead snakes so be careful what you do to this land.
246	One of my concerns as an avid hiker and conservationist is the intrusion of unleashed dogs on hiking trails. They disrupt the natural habitat and are an annoyance to hikers. Although owners of unleashed dogs think their dogs are "under control," they will roam off the trail and I have even encountered aggressive and growling unleashed dogs while hiking. I wish dog owners would follow leashing regulations while on the trail, but, sad to say, they rarely do. Thus, I recommend that no dogs be allowed in the Preserve.
247	I would like the Preserve to be maintained in its original state as much as possible, and, because some people think rules are there to be broken, I am strongly against allowing ATV, hunting and camping in the Preserve since these activities will be difficult to control if initially allowed. Also, there is a considerable population of large animal wildlife in the Preserve (not to mention migratory birds) that need to be protected and not displaced (I know this because I live on the edge of the Preserve and frequently see and hear fox, coyotes, owls, and deer in the area). Therefore, I recommend that trails be limited and only activities that do not disturb the quiet environment and the natural habitats be allowed. This is of course "The Preserve"!
248	The Preserve is a beautiful piece of property that should be used by all but carefully preserved and cared for and respected by all. Judy Kells.
249	Encourage volunteer stewardship. Create a history of the Preserve with places of special interest to visit.
250	I'm an advocate of the blue trail system but am also a mountain biker and I don't agree with the blue trail system not allowing mountain bikes. All trails should be multi-use for non-motorized vehicles.

Comment Number	Recreational Use Survey: Optional Comment
251	<p>I'm all for everyone being able to use common public spaces as long as we can maintain sustainably, safely and consciously. Mountain biking and other vehicles have already ruined some walking trails and made them all muddy. I think mountain biking is great in the areas that can handle it. I like to be in the preserve to connect and be in nature, not be around loud gas engined vehicles that pollute with sound and smell. I think people that want to use motorized vehicles can have those spaces designated near other loud and smelly areas that also allow for the preserve to be preserved. There could be more education to the public about how bikes and vehicles can damage the trails and environment when they ride on undesignated areas. Also, more education on picking up their dog poop off trails, not for nothing.</p>
252	<p>The Preserve was publicized as and supported by the public as the rare, animal corridor (in CT). It is already heavily criss crossed with trails, many of which are used for impactful recreation such as horseback riding and mtn biking. I believe that there should be less trails, the most delicate and environmentally valuable, open only to hiking and/or cross-country skiing. A single mtn bike on a wet day leaves a bigger footprint than an entire season of hiking. The durable surface trails are good for bikes. There are many options to ride horses and hunt in this state and those are both very impactful activities on both the public and the environment so should not be allowed. Freelancing trails is an activity that should be monitored and prevented where possible.</p>
253	<p>Before the Preserve was purchased and established as is, it was presented to the public as a valuable and rare piece of uninterrupted natural area that bridges the gap between upland woodland and the coast. This ecosystem is worthy of preservation - as the name implies. Special use populations understandably want full access to all areas possible and, in most cases, the trails in this state, accommodate multi use recreation. In this particular case, it is worth of stronger protection. I don't think horseback riding is appropriate for the delicate, wet, trail system. Hunting has a big effect on the fauna and other users and, again, there is many areas open to hiking. Bikes are a bit less impactful and could work well on certain, more durable trails. Hiking and skiing are the least impactful and suited to much of the terrain. In general, there should be less trails and more of a consideration of allowing a natural setting for flora and fauna to exist in a minimally disturbed and intact ecosystem.</p>

## 8. Summary

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This Public Recreational Use Assessment Report combined with its companion Forest Stewardship Plan (FSP) prepared by Ferrucci & Walicki, LLC is intended to provide a baseline understanding of the existing natural resources within the Site and provide recommendations on how to best manage the use of the Site given multiple competing interests. This report specifically identifies sensitive areas and habitats based on identified species, wetlands, and vernal pool habitats and provides recommendations for modification and maintenance of the existing trail network to minimize potential impact on sensitive habitats. Additionally, the report provides the stakeholders in the Site with valuable feedback in the form of results from a public participation survey. The feedback provides demographics of the users of the Site, frequency of use, and current and desired types of recreational uses of the property based on the survey responses.

It should be noted; however, that any recommendations made do not exist in a vacuum, as there may be additional factors not inclusive of this study that could influence the management decisions (i.e., indigenous/cultural resources, discovery of additional sensitive species, etc.). Ultimately, the final decisions on trail locations, closing of existing trails, and uses of the property including hiking, biking, hunting, and equestrian use need to be balanced with the conservation interests, habitat protection, and forest management recommendations (see the FSP) to be considered by all stakeholders in the Site including Old Saybrook, Essex, Westbrook, Connecticut DEEP, the general public, and recreational users of the Site.

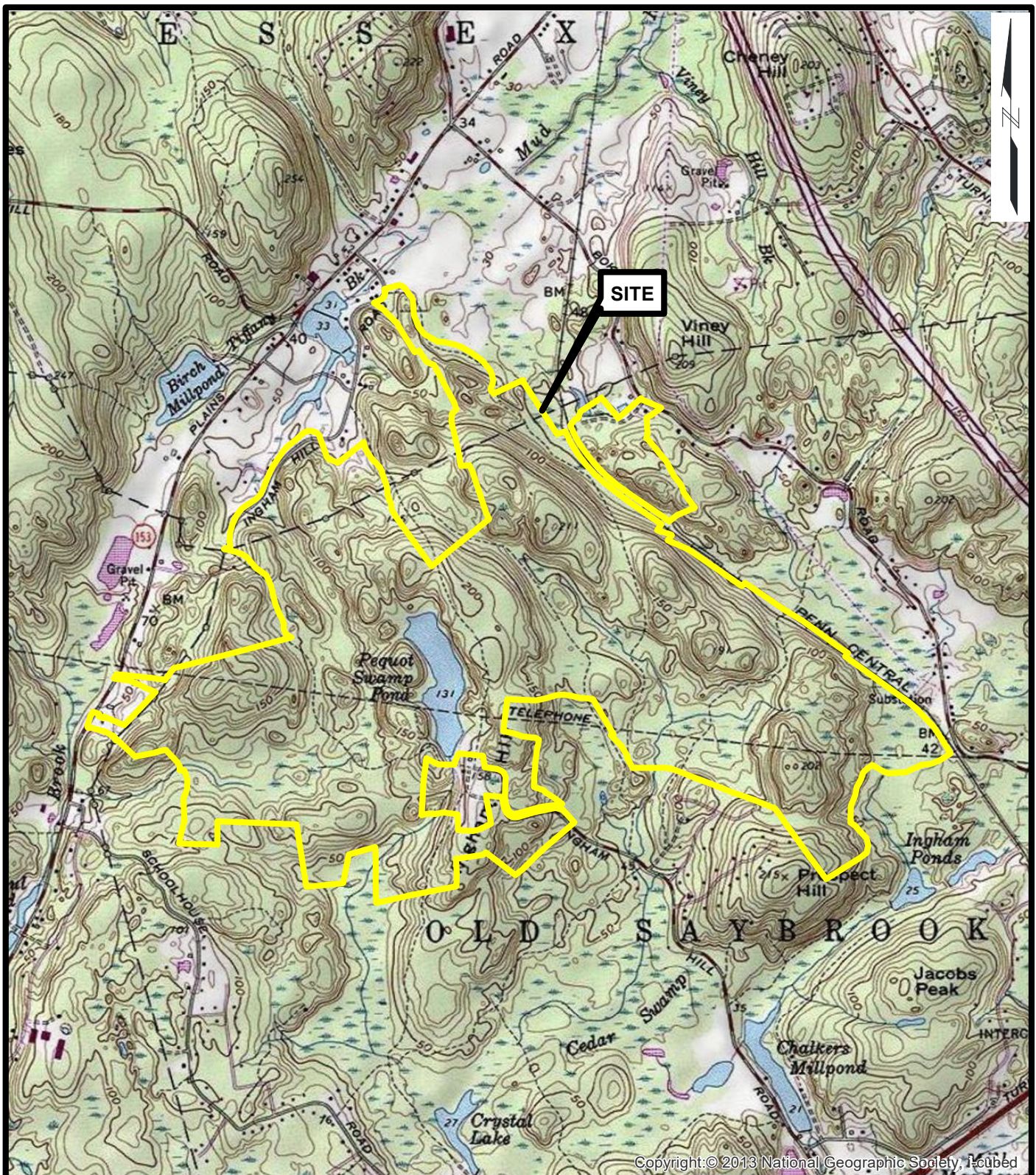
## 9. References

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- Beneficial Designs. 2019. UTAP Overview. Online:  
<http://www.beneficialdesigns.com/services/trails-shared-use-path-assessments/the-universal-trail-assessment-process-utap>
- Calhoun, A. J. K. and P. deMaynadier. 2004. Forestry habitat management guidelines for vernal pool wildlife. MCA Technical Paper No. 6, Metropolitan Conservation Alliance, Wildlife Conservation Society, Bronx, New York.
- Connecticut Department of Energy and Environmental Protection. 2011. Connecticut National Recreational Trails Program, Recreational Trails Plan.
- Connecticut Department of Energy and Environmental Protection. 2017. Connecticut Statewide Comprehensive Outdoor Recreation Plan 2017 - 2022.
- Connecticut Department of Energy and Environmental Protection. The Preserve. February 2019. Online: <https://www.ct.gov/deep/cwp/view.asp?A=2716&Q=570164>
- Connecticut Department of Energy and Environmental Protection, Bureau of Natural Resources. 2015. Connecticut Wildlife Action Plan.
- Connecticut River Coastal Conservation District. 2004. Vernal Pool Management Plan for the Chapman Mill Pond Open Space Property, Westbrook, CT.
- Eastern Connecticut Environmental Review Team of the Eastern Connecticut Resource Conservation and Development Area, Inc. 1999. The Preserve: Essex, Old Saybrook, and Westbrook, Connecticut: Environmental Review Team Report.
- Environmental Planning Services. 2004. Biological Survey, The Preserve, Old Saybrook, Westbrook and Essex, CT.
- Ferrucci & Walicki, LLC. 2019. Management Plan for The Preserve Old Saybrook, Westbrook & Essex: Connecticut Management Plan 2019-2029.
- Gregonis, M. 2018. The Preserve: Hunting Review Team Report
- Hochholzer, H. 2015. Connecticut's Forest Action Plan 2010.
- Klemens, M. W. 2004. Herpetological Survey and Vernal Pool Analysis with Conservation Planning Recommendations and Strategies, "The Preserve", Old Saybrook, Westbrook, and Essex, Connecticut.
- Marteka, P. 2016. The Preserve is Officially Open for Passive Recreation. *Hartford Courant*.
- Oehler et al. November 2017. Trails for People and Wildlife.
- The Trust for Public Land (TTPL). 2014. The Preserve, Old Saybrook, Essex and Westbrook, CT, Natural Resources.
- Walwer, G. and D. Walwer. January 1999. Phase I Archaeological Reconnaissance Survey Report of The Preserve Golf Course and Housing Community in the Towns of Old Saybrook, Essex, and Westbrook, Connecticut.

## Figures

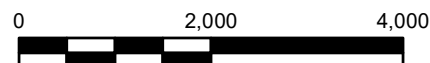
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**SOURCE:**

1. USGS TOPOGRAPHIC MAP ESSEX  
QUADRANGLE ACCESSED VIA ARCGIS ONLINE  
SERVICES.



SCALE: 1" = 2000'

Public Recreational Assessment  
The Preserve  
Old Saybrook, Westbrook, Essex, Connecticut

Trust for Public Land  
New Haven, Connecticut

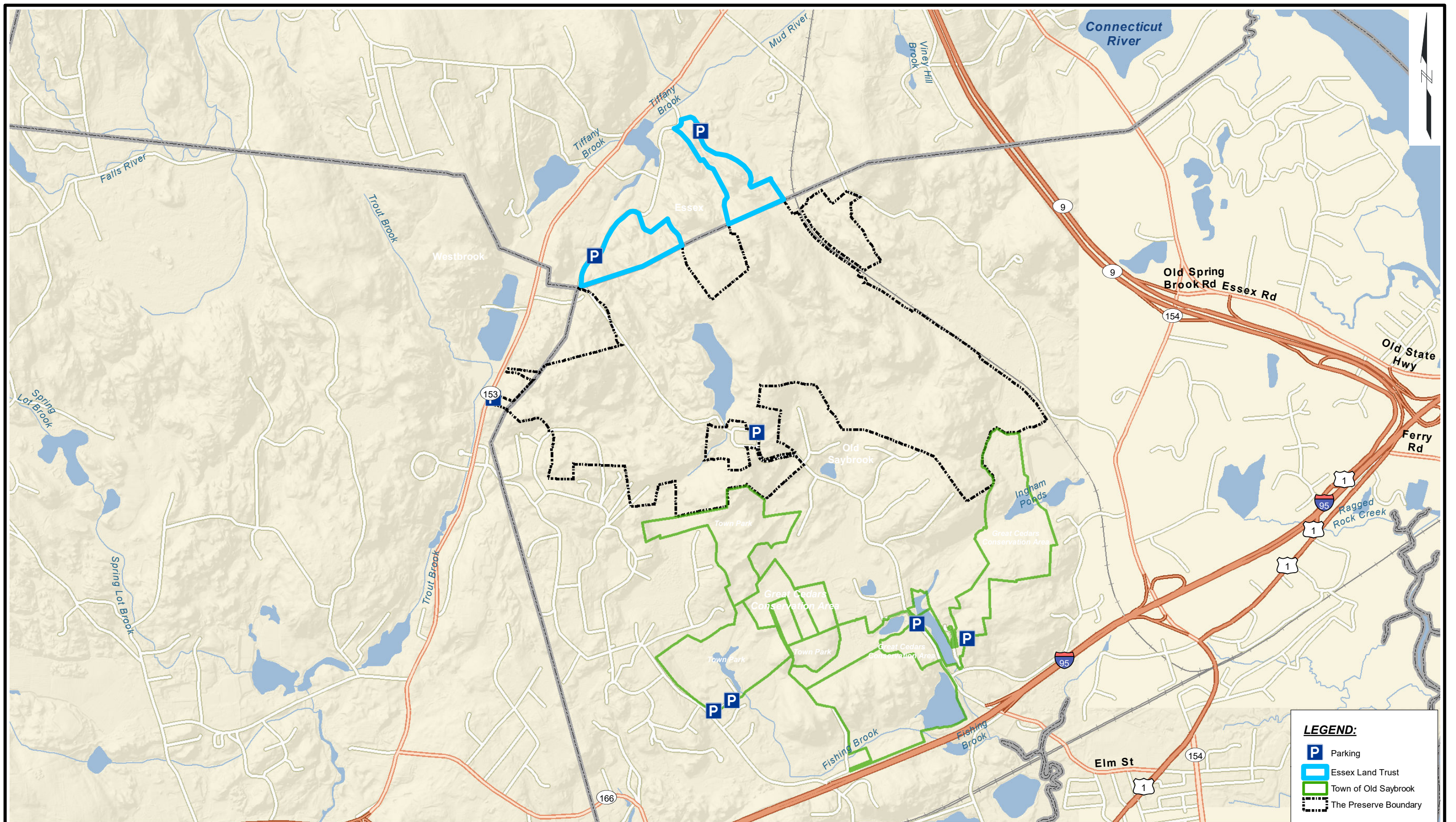


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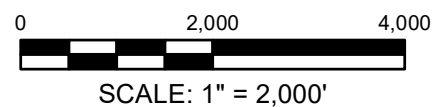
USGS TOPOGRAPHIC MAP

April 2019

Fig. 1



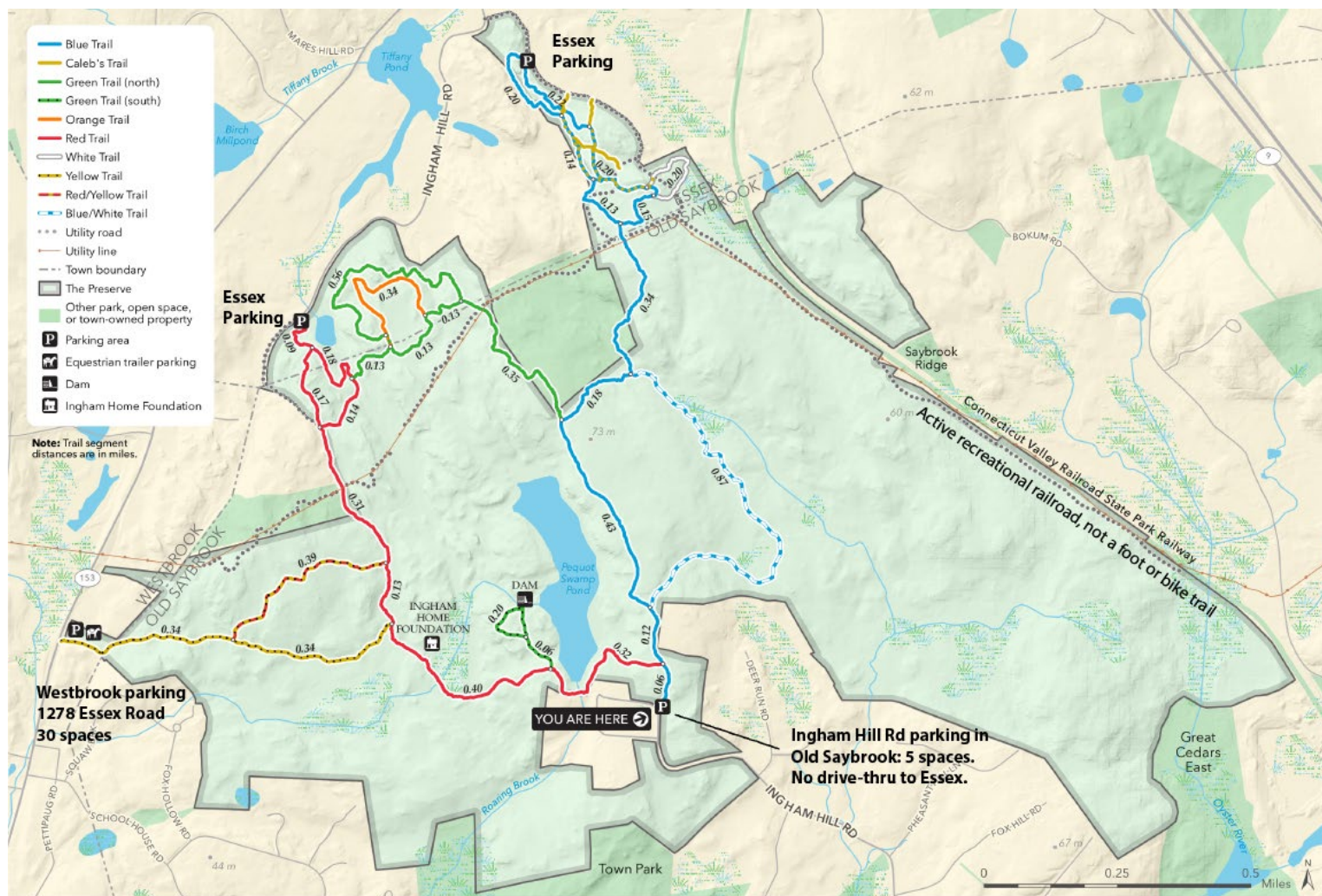
**SOURCE:**  
 1. BASEMAP- 2016 LIDAR ELEVATION/HILLSHADE CT ECO.  
 2. SITE BOUNDARY- TRUST FOR PUBLIC LAND  
 3. CT DEEP GIS DATA



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**REGIONAL VIEW**  
 April 2019  
 Fig. 2



## The Preserve

ESSEX, OLD SAYBROOK, & WESTBROOK, CONNECTICUT

November 2018 Interim trails. Please: Pack out trash. Stay on marked trails. No unauthorized motor vehicles. Dogs on leash. No camping or fires. Cyclists note: Use marked trails only. Pedestrians have right of way. Map download: <https://www.oldsaybrookct.gov/parks-recreation/pages/town-trail-maps>



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SOURCE: TOWN OF OLD SAYBROOK

Public Recreational Assessment  
The Preserve  
Old Saybrook, Westport, Essex, Connecticut

Trust For Public Land  
New Haven, Connecticut

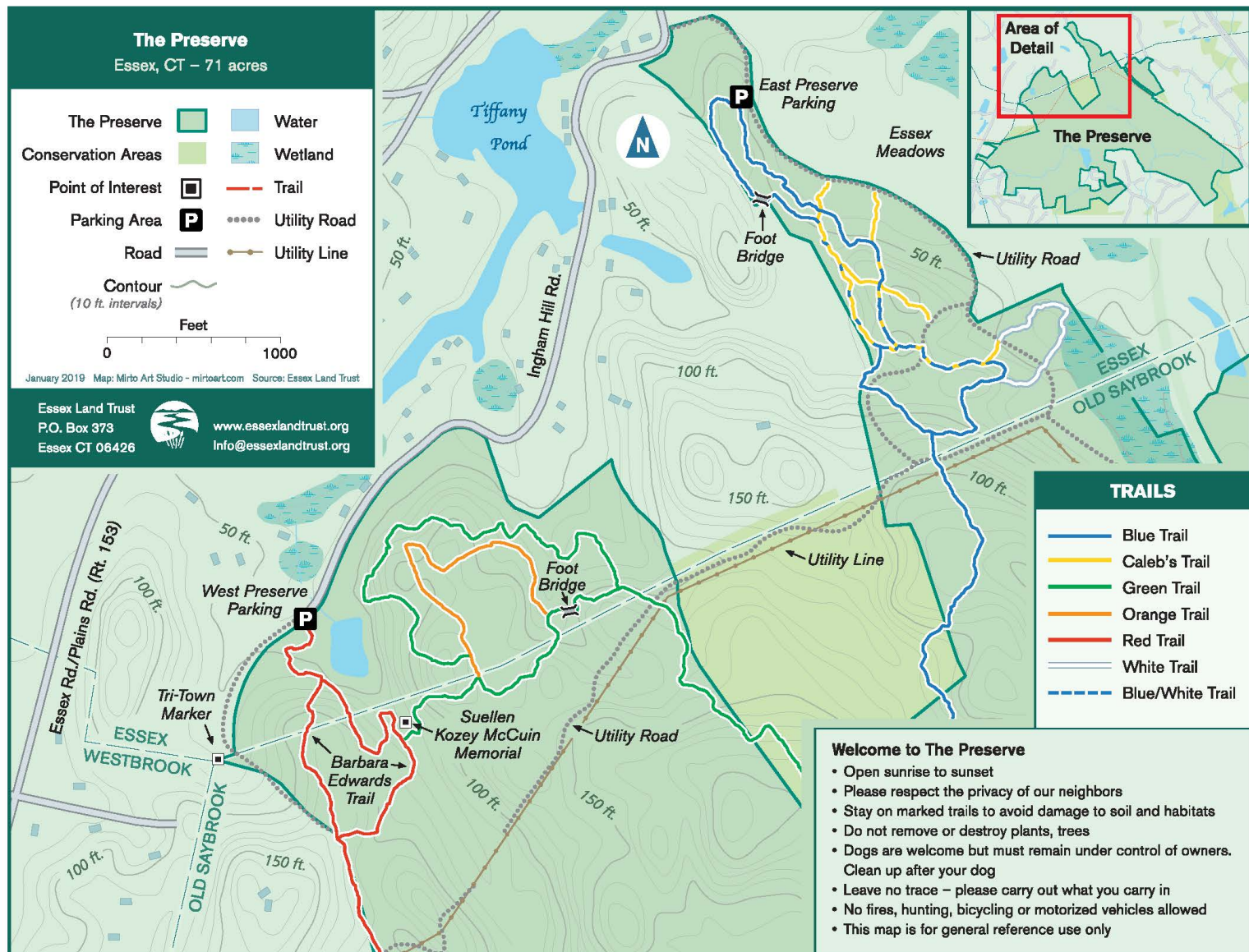


Project 1802904

INTERIM TRAIL SYSTEM MAP,  
DECEMBER 2018

April 2019

Fig. 3



SOURCE: ESSEX LAND TRUST

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New Haven, Connecticut



Project 1802904

THE PRESERVE



April 2019

Fig. 4

# Natural Diversity Data Base Areas

OLD SAYBROOK, CT

December 2018

-  State and Federal Listed Species & Significant Natural Communities
-  Town Boundary

NOTE: This map shows general locations of State and Federal Listed Species and Significant Natural Communities. Information on listed species is collected and compiled by the Natural Diversity Data Base (NDDB) from a number of data sources. Exact locations of species have been buffered to produce the general locations. Exact locations of species and communities occur somewhere in the shaded areas, not necessarily in the center. A new mapping format is being employed that more accurately models important riparian and aquatic areas and eliminates the need for the upstream/downstream searches required in previous versions.

This map is intended for use as a preliminary screening tool for conducting a Natural Diversity Data Base Review Request. To use the map, locate the project boundaries and any additional affected areas. If the project is within a shaded area there may be a potential conflict with a listed species. For more information, complete a Request for Natural Diversity Data Base State Listed Species Review form (DEP-APP-007), and submit it to the NDDB along with the required maps and information. More detailed instructions are provided with the request form on our website.

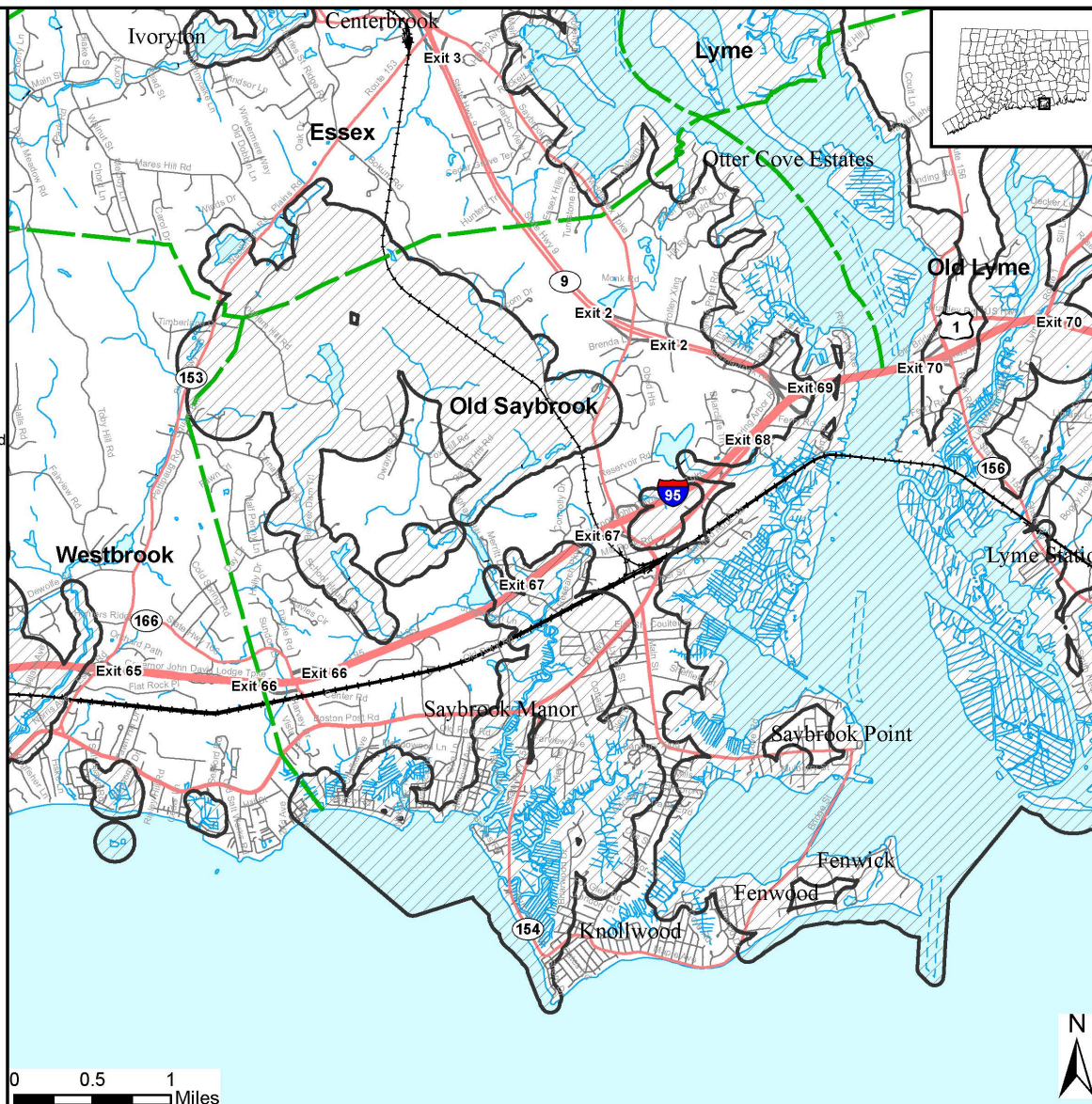
[www.ct.gov/deep/nddbrequest](http://www.ct.gov/deep/nddbrequest)

Use the CTECO Interactive Map Viewers at [www.cteco.uconn.edu](http://www.cteco.uconn.edu) to more precisely search for and locate a site and to view aerial imagery with NDDB Areas.

QUESTIONS: Department of Energy and Environmental Protection (DEEP)  
79 Elm St., Hartford CT 06106  
Phone (860) 424-3011



Connecticut Department of  
Energy & Environmental Protection  
Bureau of Natural Resources  
Wildlife Division



SOURCE: CT ENVIRONMENTAL CONDITIONS  
ONLINE (CT ECO)

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New Haven, Connecticut

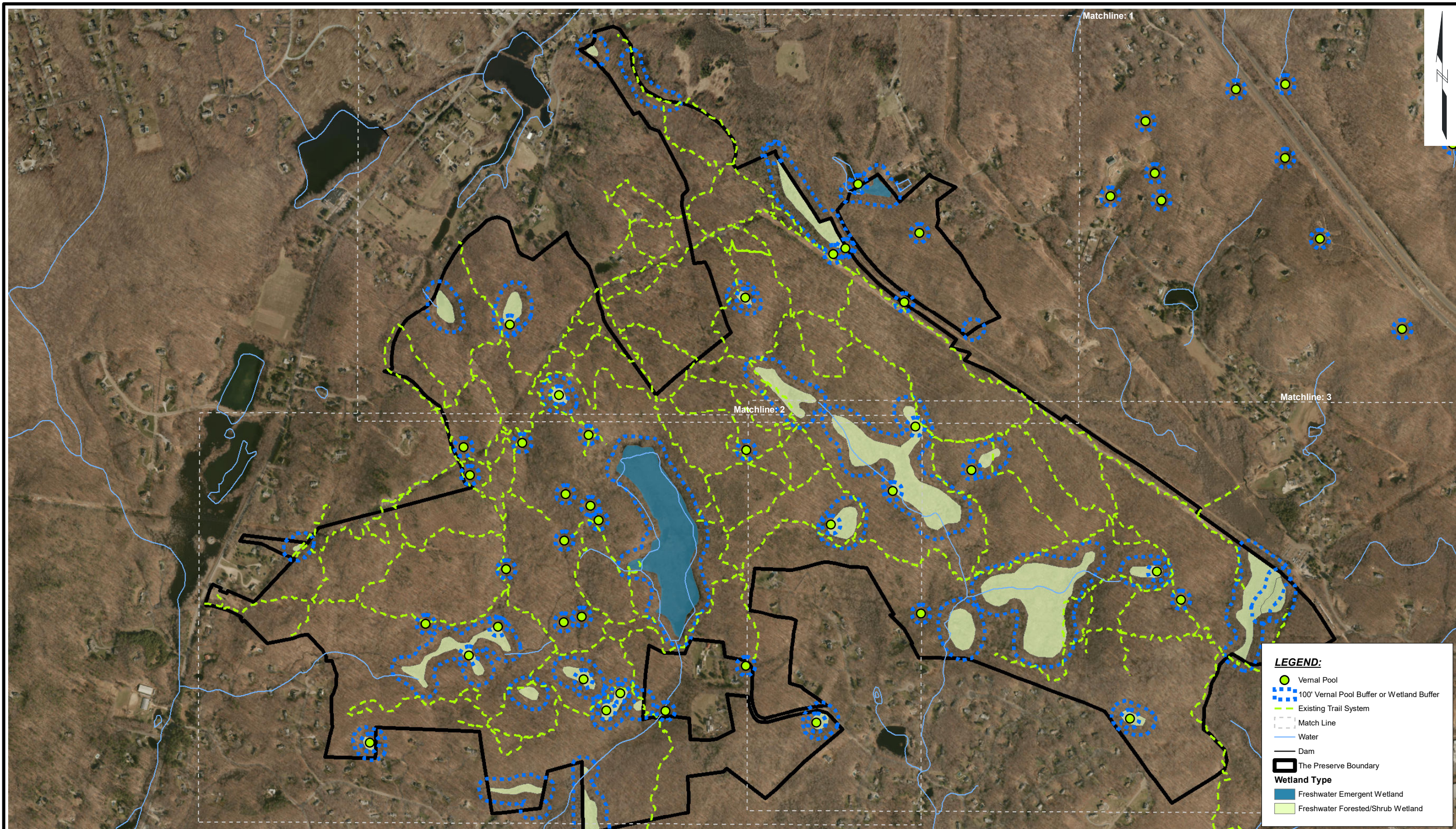


Project 1802904

NATURAL DIVERSITY  
DATABASE

April 2019

Fig. 5



**SOURCE:**

1. 2016 ESRI WORLD IMAGERY.
2. SITE BOUNDARY- TRUST FOR PUBLIC LAND
3. CT DEEP GIS DATA AND CT ENVIRONMENTAL CONDITIONS ONLINE (CTECO)
4. US FISH AND WILDLIFE (USFWS) NATIONAL WETLANDS INVENTORY (NWI)

WWW.FWS.GOV/WETLANDS

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New Haven, Connecticut

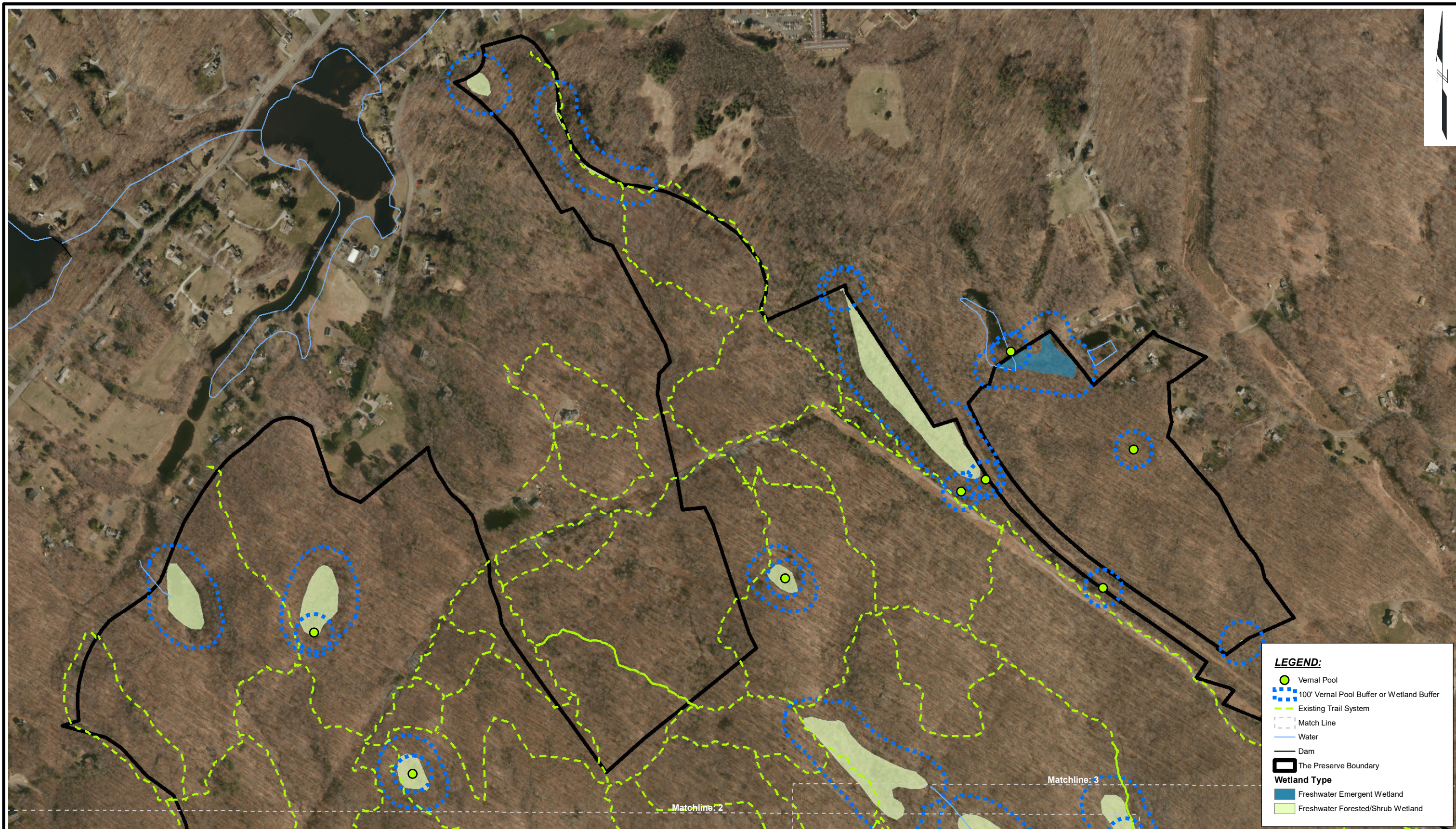


Project 1802904

WETLANDS,  
WATERCOURSES AND  
VERNAL POOLS

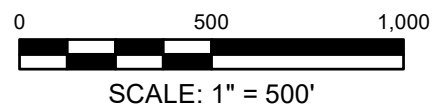
April 2019

Fig. 6



**SOURCE:**

1. 2016 ESRI WORLD IMAGERY.
2. SITE BOUNDARY- TRUST FOR PUBLIC LAND
3. CT DEEP GIS DATA AND CT ENVIRONMENTAL CONDITIONS ONLINE (CTECO)
4. US FISH AND WILDLIFE (USFWS) NATIONAL WETLANDS INVENTORY (NWI)  
WWW.FWS.GOV/WETLANDS



Public Use Assessment  
The Preserve  
Old Saybrook, Westbrook, Essex, Connecticut

Trust for Public Land  
New Haven, Connecticut

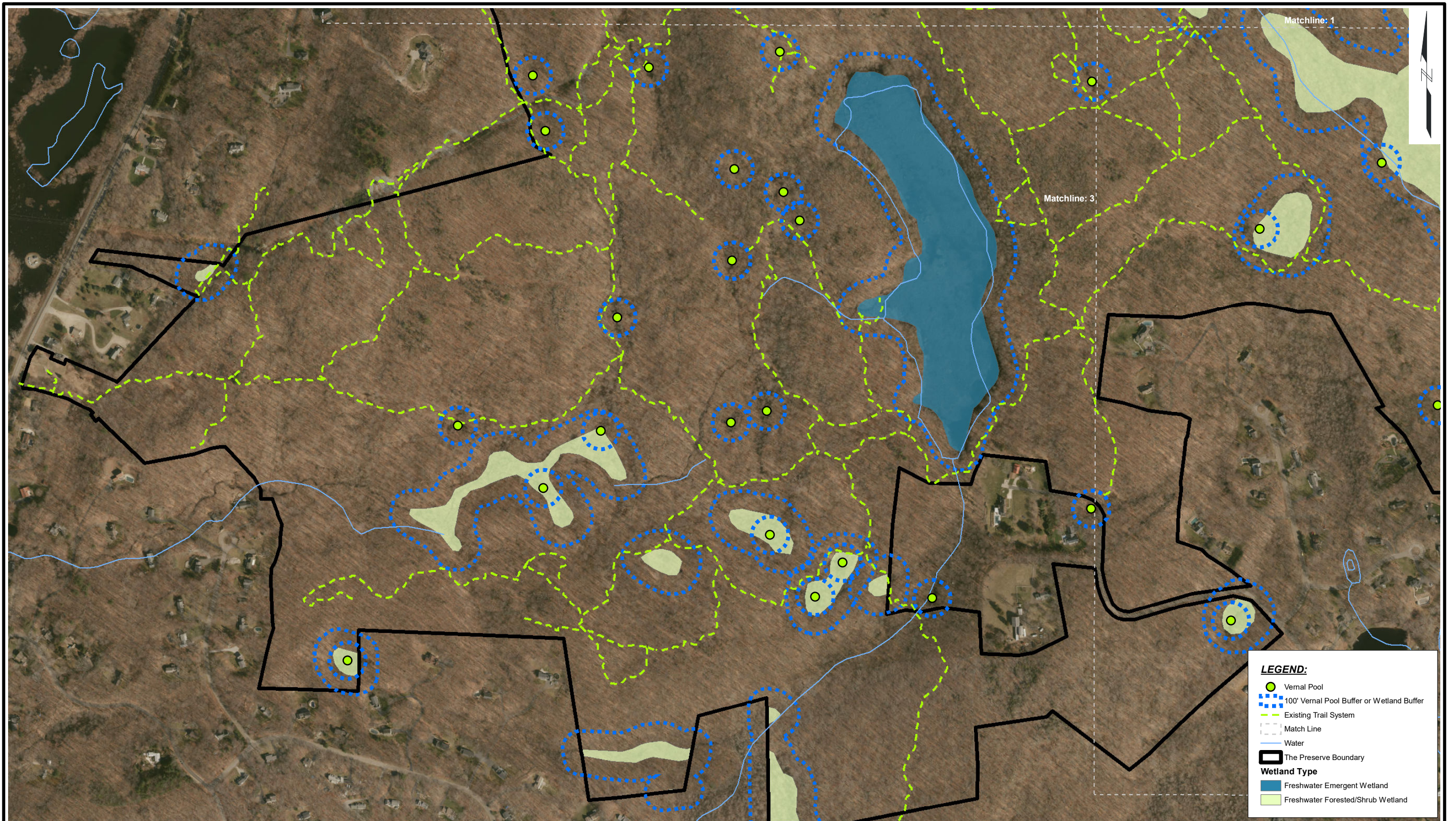


Project 1802904

WETLANDS,  
WATERCOURSES AND  
VERNAL POOLS NORTH

April 2019

Fig. 6A



**SOURCE:**  
 1. 2016 ESRI WORLD IMAGERY.  
 2. SITE BOUNDARY- TRUST FOR PUBLIC LAND  
 3. CT DEEP GIS DATA AND CT ENVIRONMENTAL CONDITIONS ONLINE (CTECO)  
 4. US FISH AND WILDLIFE (USFWS) NATIONAL WETLANDS INVENTORY (NWI)  
[WWW.FWS.GOV/WETLANDS](http://WWW.FWS.GOV/WETLANDS)

0 500 1,000  
 SCALE: 1" = 500'

Public Use Assessment  
 The Preserve  
 Old Saybrook, Westbrook, Essex, Connecticut  
 Trust for Public Land  
 New Haven, Connecticut

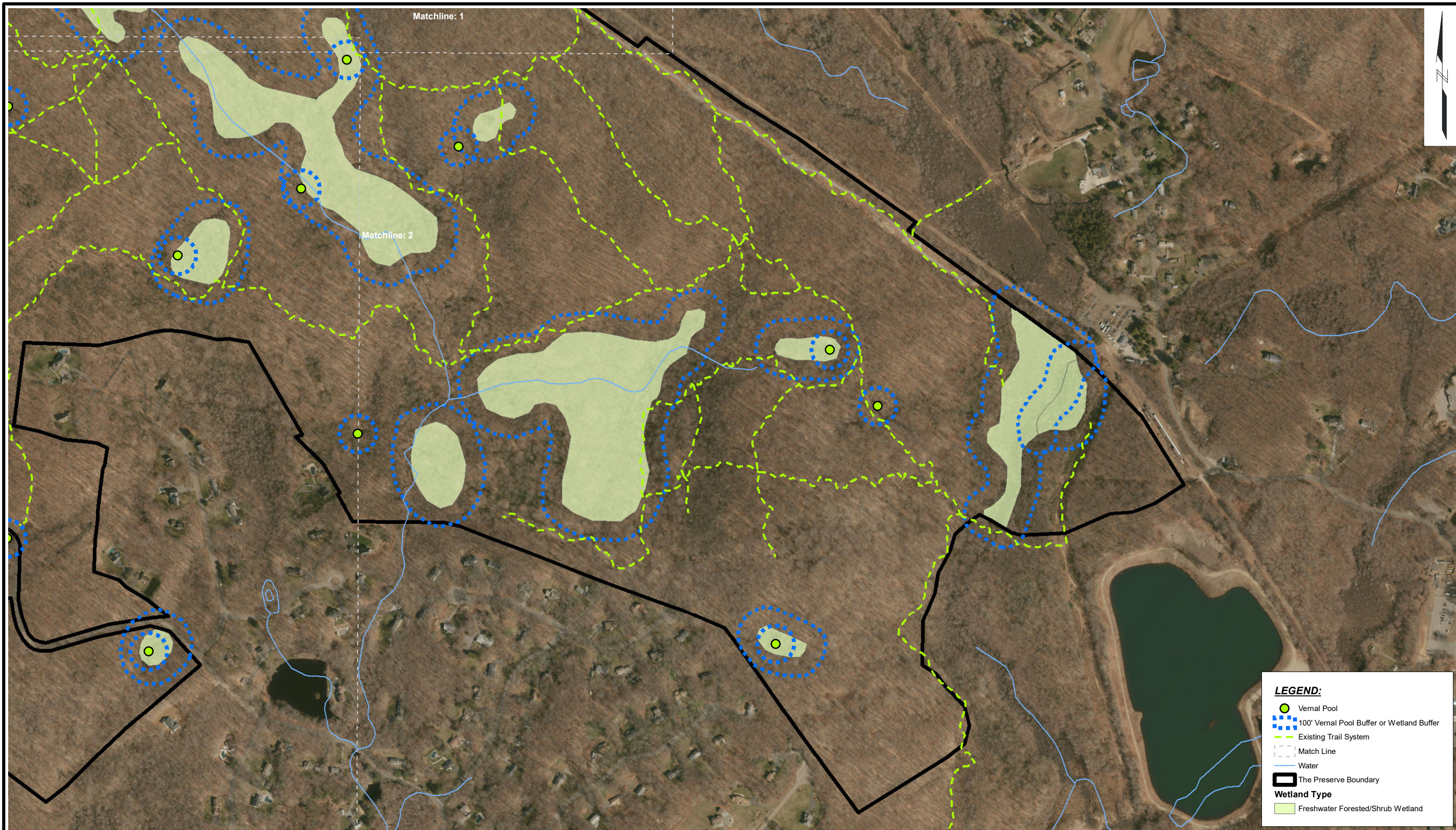


Project 1802904

WETLANDS,  
 WATERCOURSES AND  
 VERNAL POOLS WEST

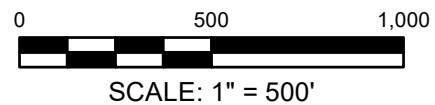
April 2019

Fig. 6B



**SOURCE:**

1. 2016 ESRI WORLD IMAGERY.
2. SITE BOUNDARY- TRUST FOR PUBLIC LAND
3. CT DEEP GIS DATA AND CT ENVIRONMENTAL CONDITIONS ONLINE (CTECO)
4. US FISH AND WILDLIFE (USFWS) NATIONAL WETLANDS INVENTORY (NWI)  
[WWW.FWS.GOV/WETLANDS](http://WWW.FWS.GOV/WETLANDS)



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The Preserve  
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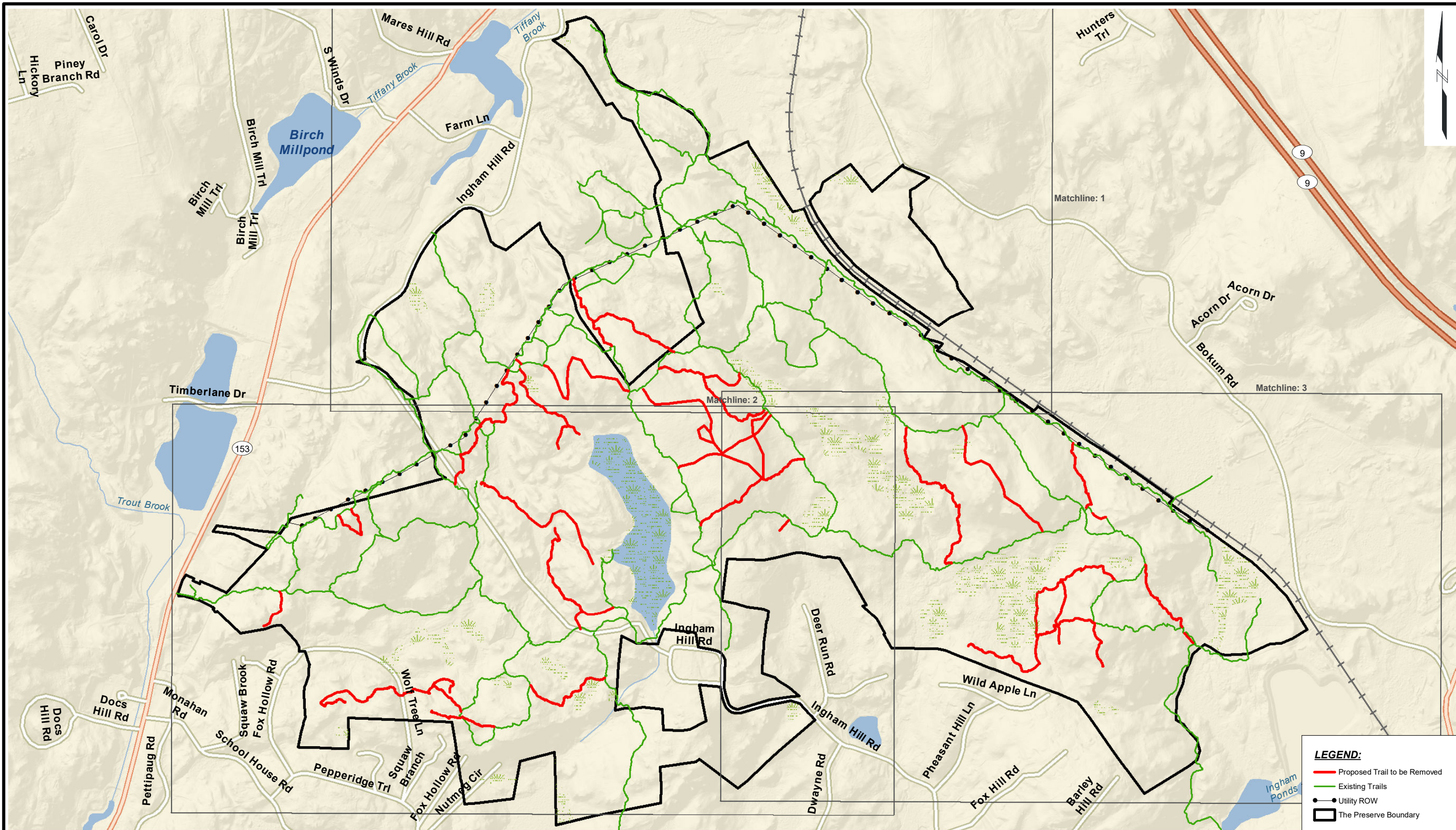


Project 1802904

WETLANDS,  
WATERCOURSES AND  
VERNAL POOLS EAST

April 2019

Fig. 6C



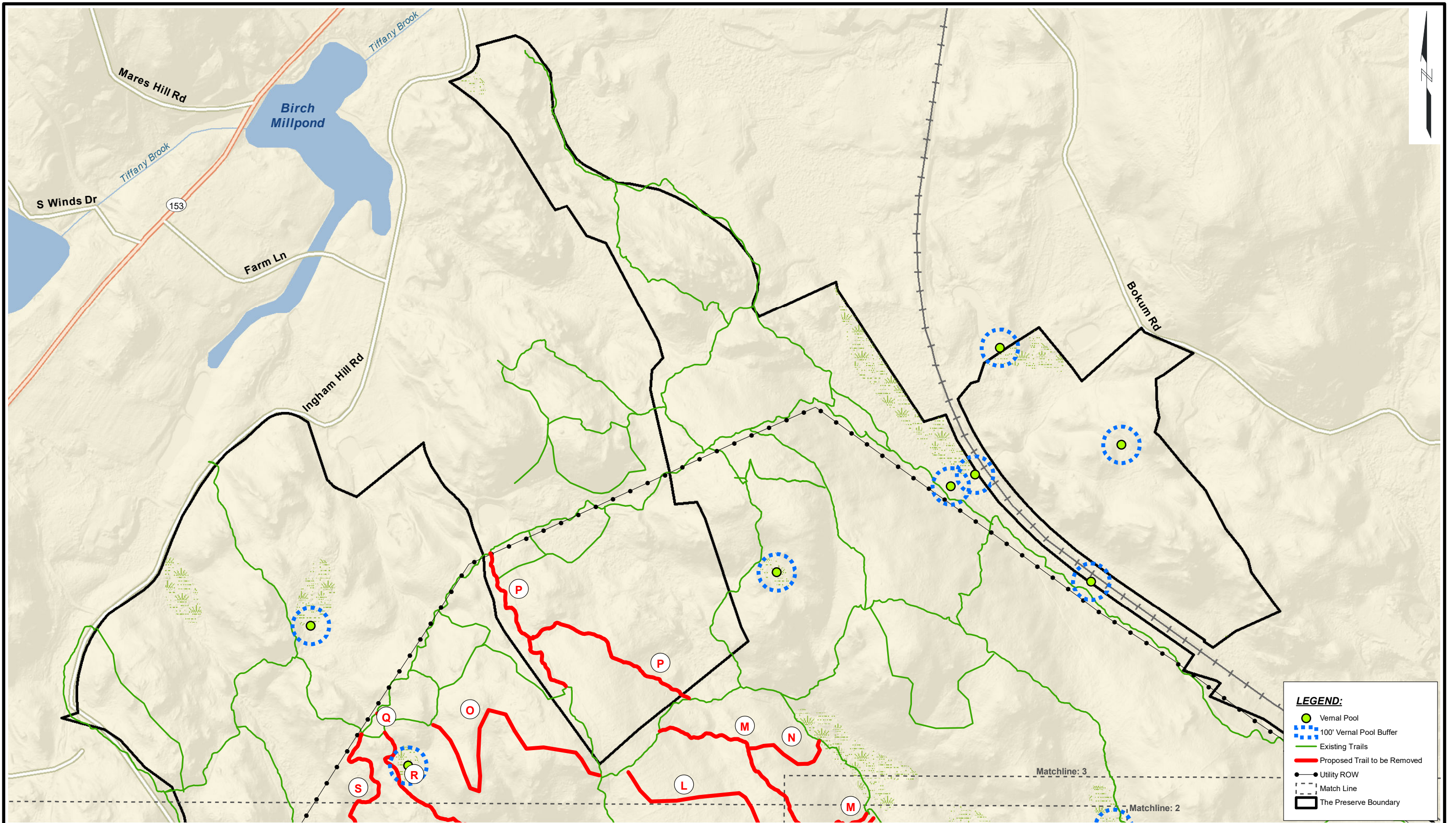
**SOURCE:**  
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 2. SITE BOUNDARY- TRUST FOR PUBLIC LAND

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 SCALE: 1" = 1,000'

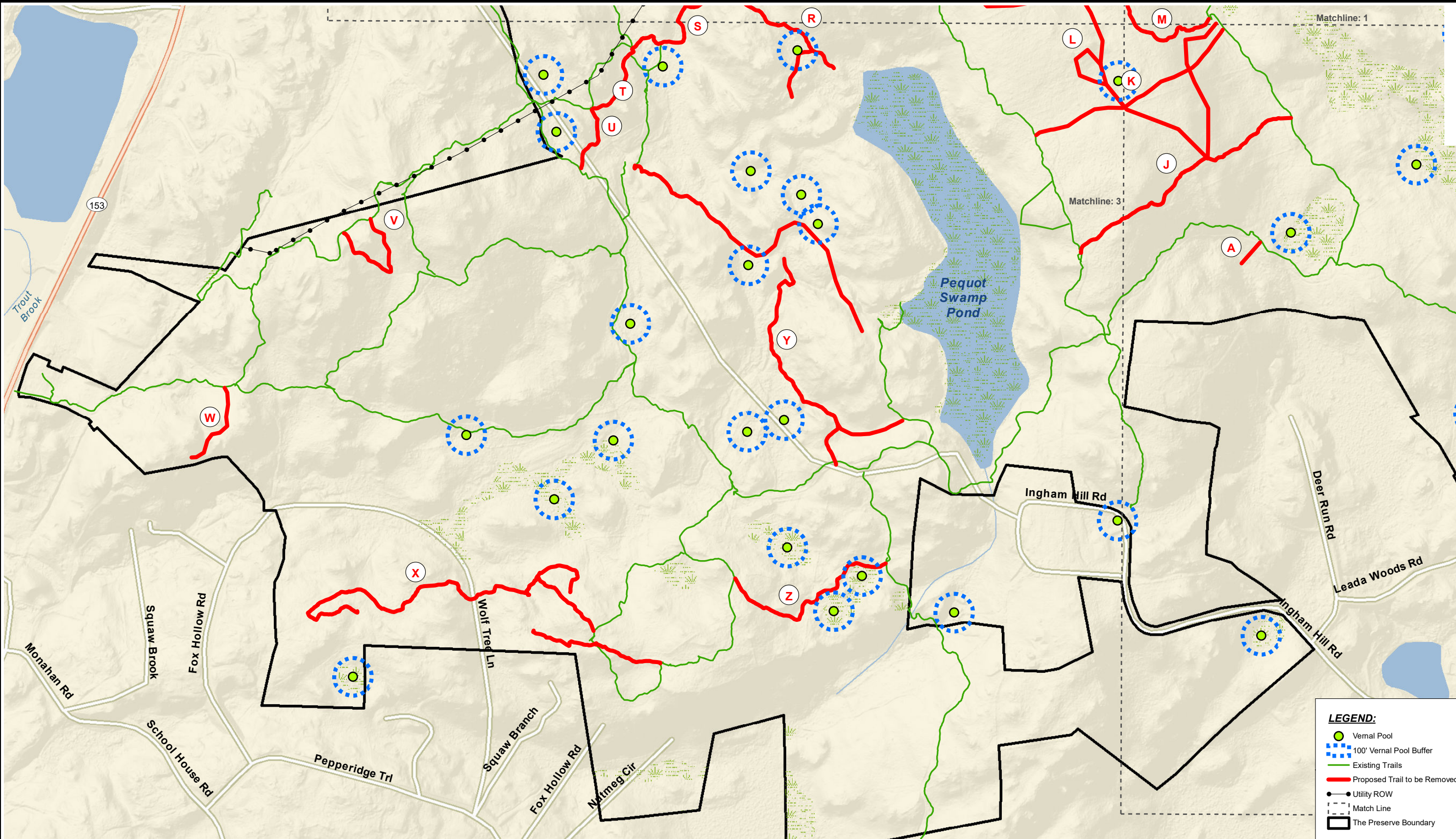
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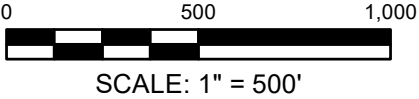
**EXISTING TRAILS  
 RECOMMENDED FOR  
 CLOSURE**  
 April 2019 Fig. 7



<p><b>SOURCE:</b></p> <ol style="list-style-type: none"> <li>2016 ESRI WORLD IMAGERY.</li> <li>SITE BOUNDARY- TRUST FOR PUBLIC LAND</li> </ol>	<p>0 500 1,000</p> <p>SCALE: 1" = 500'</p>	<p>Public Recreational Assessment The Preserve Old Saybrook, Westbrook, Essex, Connecticut</p> <p>Trust for Public Land New Haven, Connecticut</p>	<p><b>GEI</b> Consultants</p> <p>Project 1802904</p>	<p><b>EXISTING TRAILS RECOMMENDED FOR CLOSURE</b></p> <p>April 2019</p> <p>Fig. 7A</p>
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**SOURCE:**  
1. 2016 ESRI WORLD IMAGERY.  
2. SITE BOUNDARY- TRUST FOR PUBLIC LAND



Public Recreational Assessment  
The Preserve  
Old Saybrook, Westbrook, Essex, Connecticut

Trust for Public Land  
New Haven, Connecticut

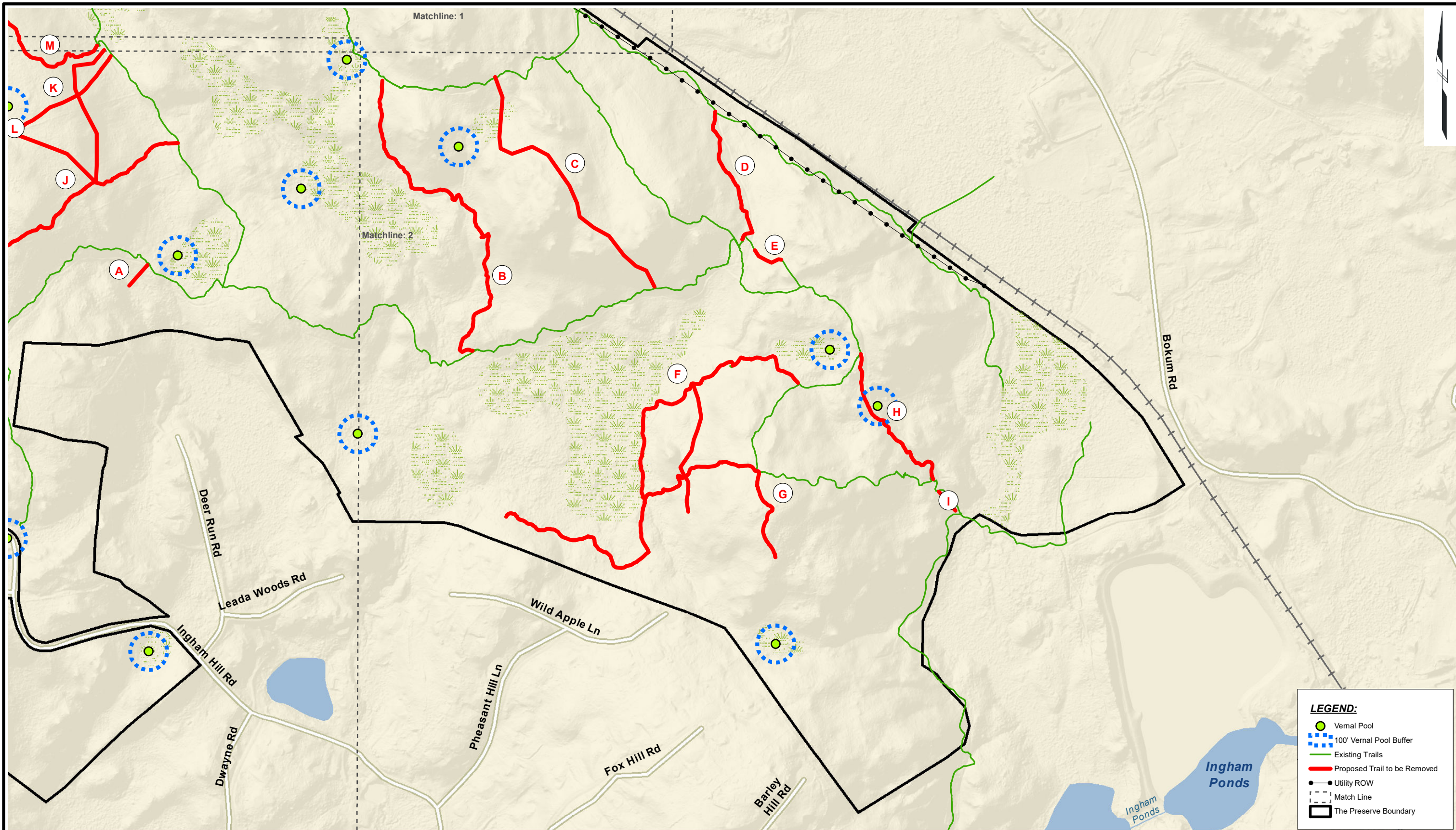


Project 1802904

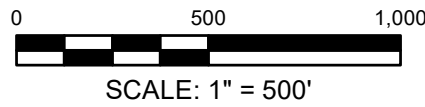
EXISTING TRAILS  
RECOMMENDED FOR  
CLOSURE

April 2019

Fig. 7B



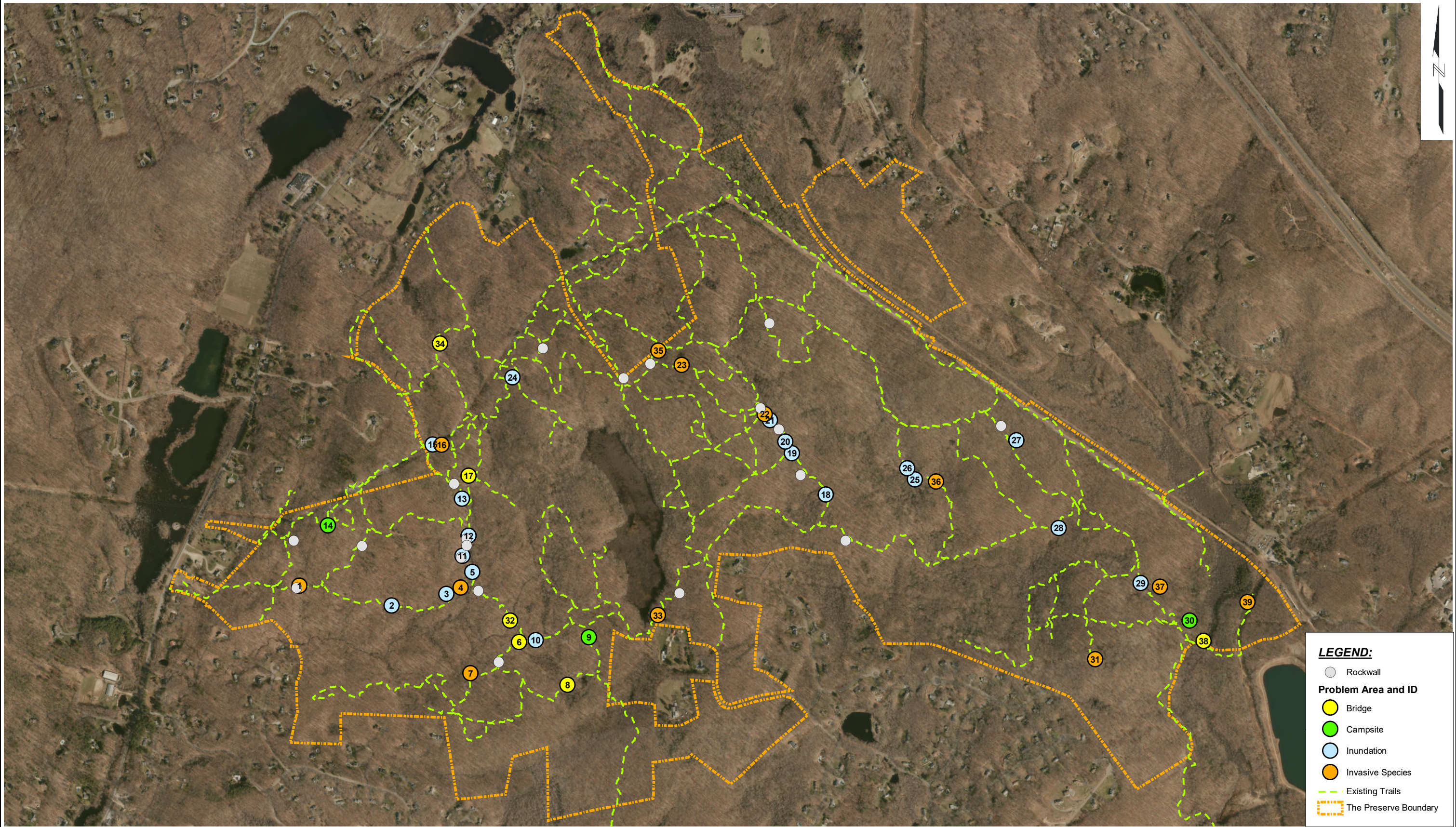
**SOURCE:**  
 1. 2016 ESRI WORLD IMAGERY.  
 2. SITE BOUNDARY- TRUST FOR PUBLIC LAND



Public Recreational Assessment  
 The Preserve  
 Old Saybrook, Westbrook, Essex, Connecticut  
 Trust for Public Land  
 New Haven, Connecticut

**GEI** Consultants  
 Project 1802904

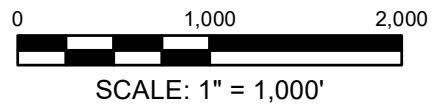
EXISTING TRAILS  
 RECOMMENDED FOR  
 CLOSURE  
 April 2019  
 Fig. 7C




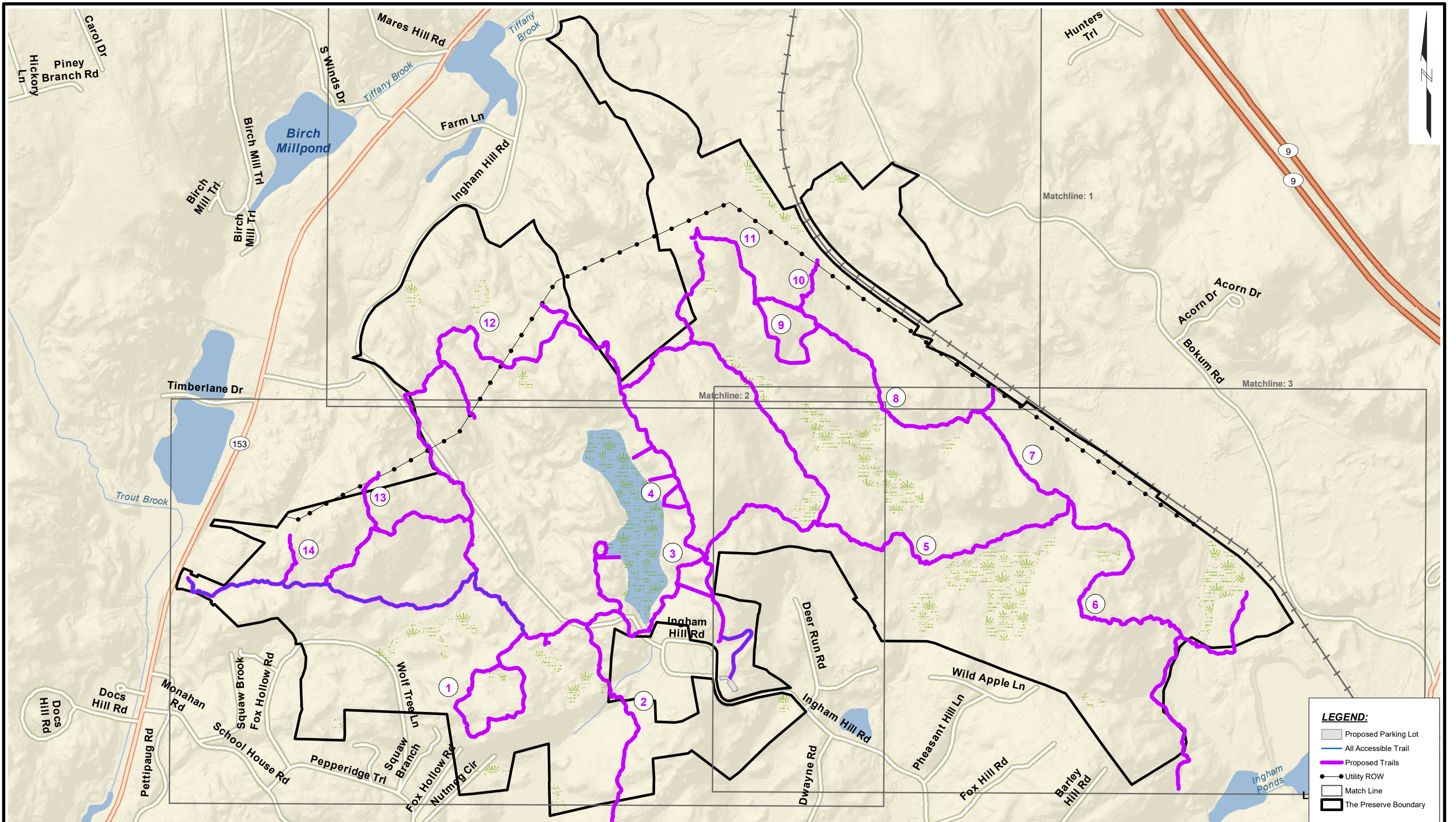
**LEGEND:**

- Rockwall
- Problem Area and ID**
- Bridge
- Campsite
- Inundation
- Invasive Species
- Existing Trails
- The Preserve Boundary

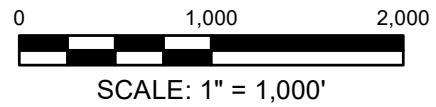
**SOURCE:**  
1. 2016 ESRI WORLD IMAGERY.  
2. SITE BOUNDARY- TRUST FOR PUBLIC LAND



Public Recreational Assessment The Preserve Old Saybrook, Westbrook, Essex, Connecticut		PROBLEM AREAS AND EXISTING TRAILS	Project 1802904	April 2019	Fig. 8



**SOURCE:**  
 1. 2016 ESRI WORLD IMAGERY.  
 2. SITE BOUNDARY- TRUST FOR PUBLIC LAND




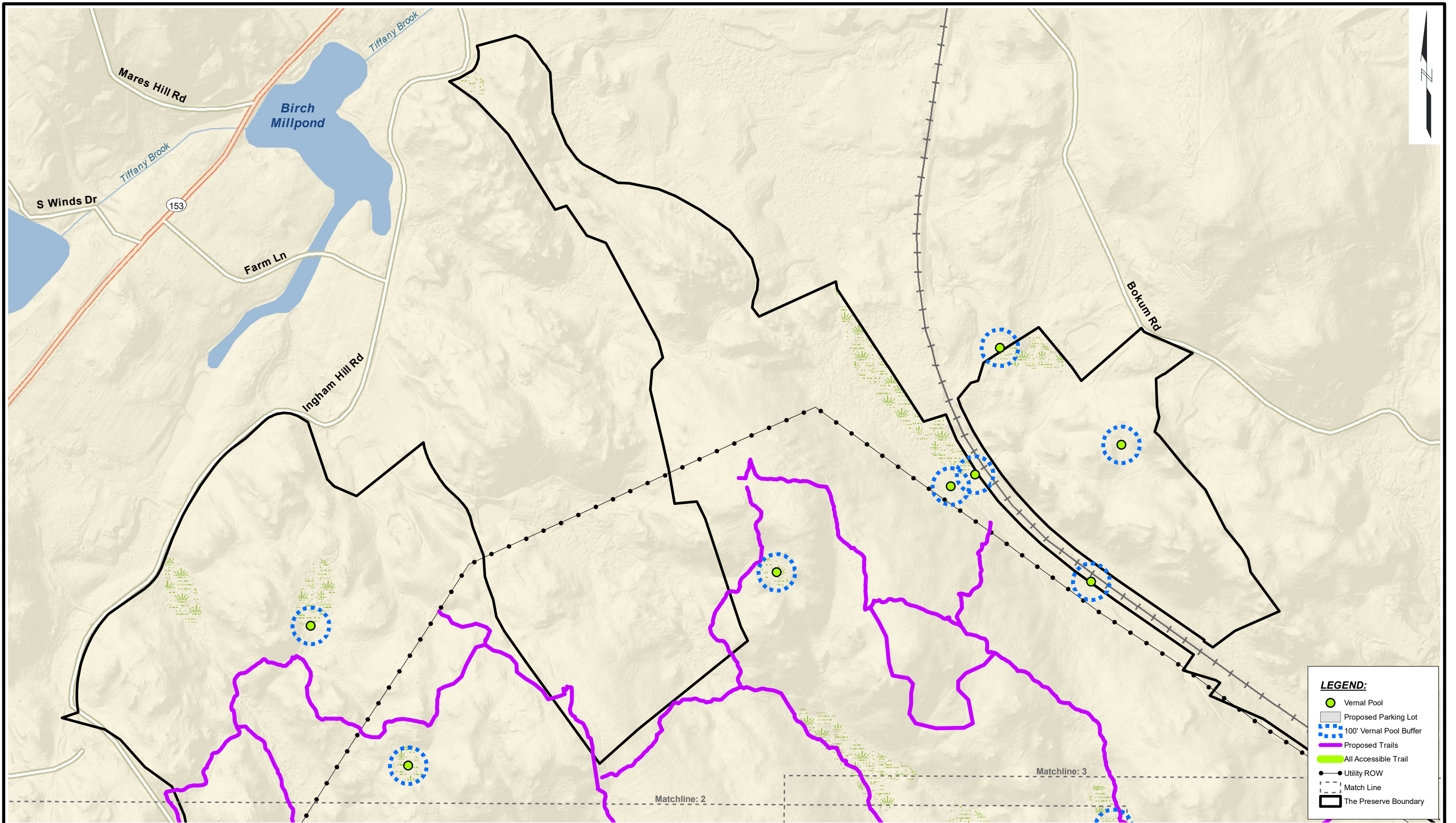
Public Recreational Assessment The Preserve Old Saybrook, Westbrook, Essex, Connecticut		 <b>GEI</b> Consultants	PROPOSED TRAIL SYSTEM	
Trust for Public Land New Haven, Connecticut			Project 1802904	April 2019

Fig. 9



**SOURCE:**  
1. BASEMAP: 2016 LIDAR ELEVATION/HILLSHADE CT ECO.  
2. SITE BOUNDARY- TRUST FOR PUBLIC LAND

0 500 1,000  
SCALE: 1" = 500'

Public Recreational Assessment  
The Preserve  
Old Saybrook, Westbrook, Essex, Connecticut

Trust for Public Land  
New Haven, Connecticut

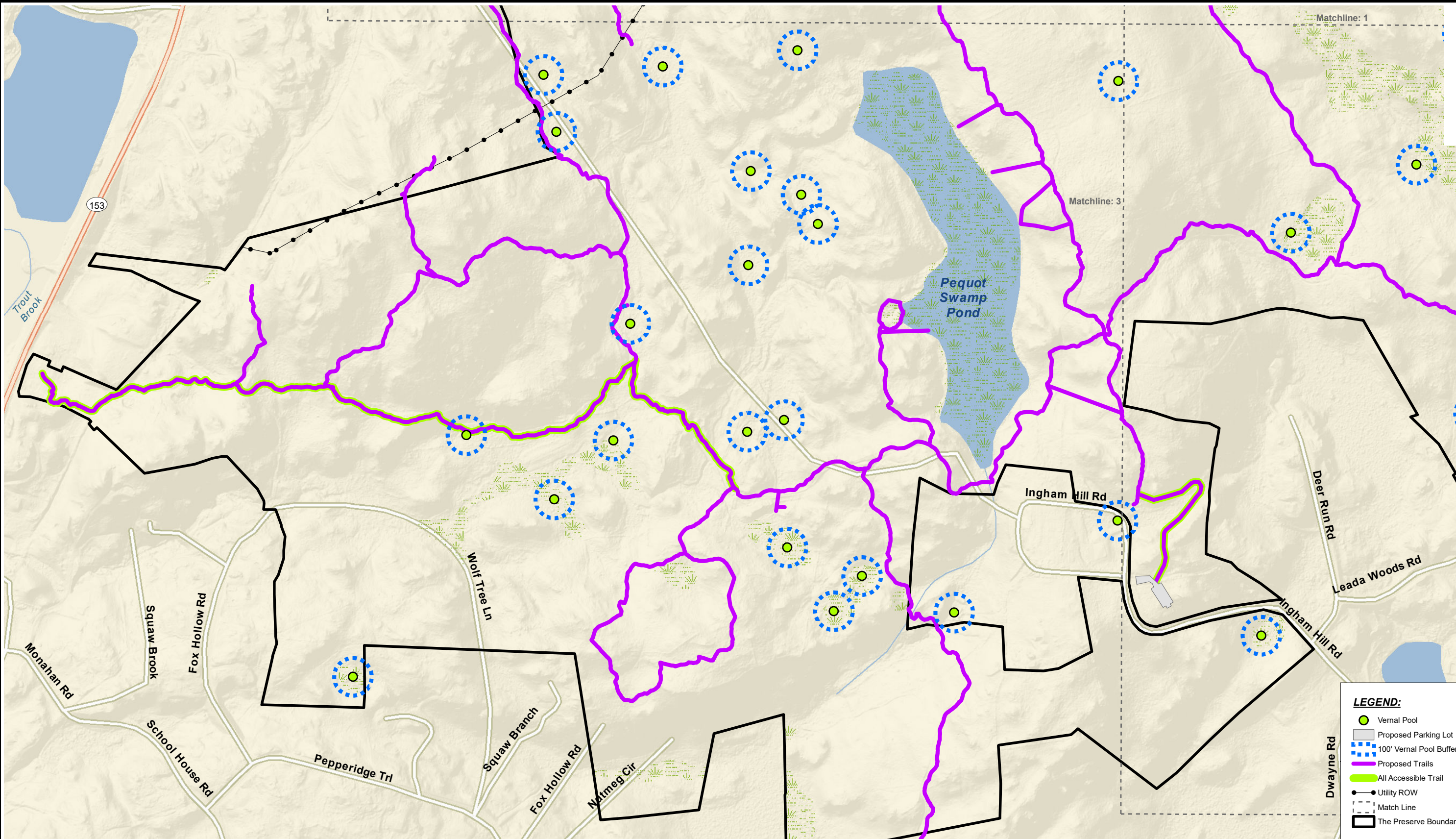


Project 1802904

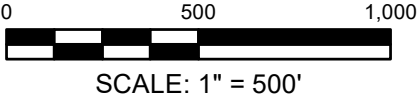
PROPOSED TRAIL SYSTEM

April 2019

Fig. 9A



**SOURCE:**  
1. BASEMAP: 2016 LIDAR ELEVATION/HILLSHADE CT ECO.  
2. SITE BOUNDARY- TRUST FOR PUBLIC LAND

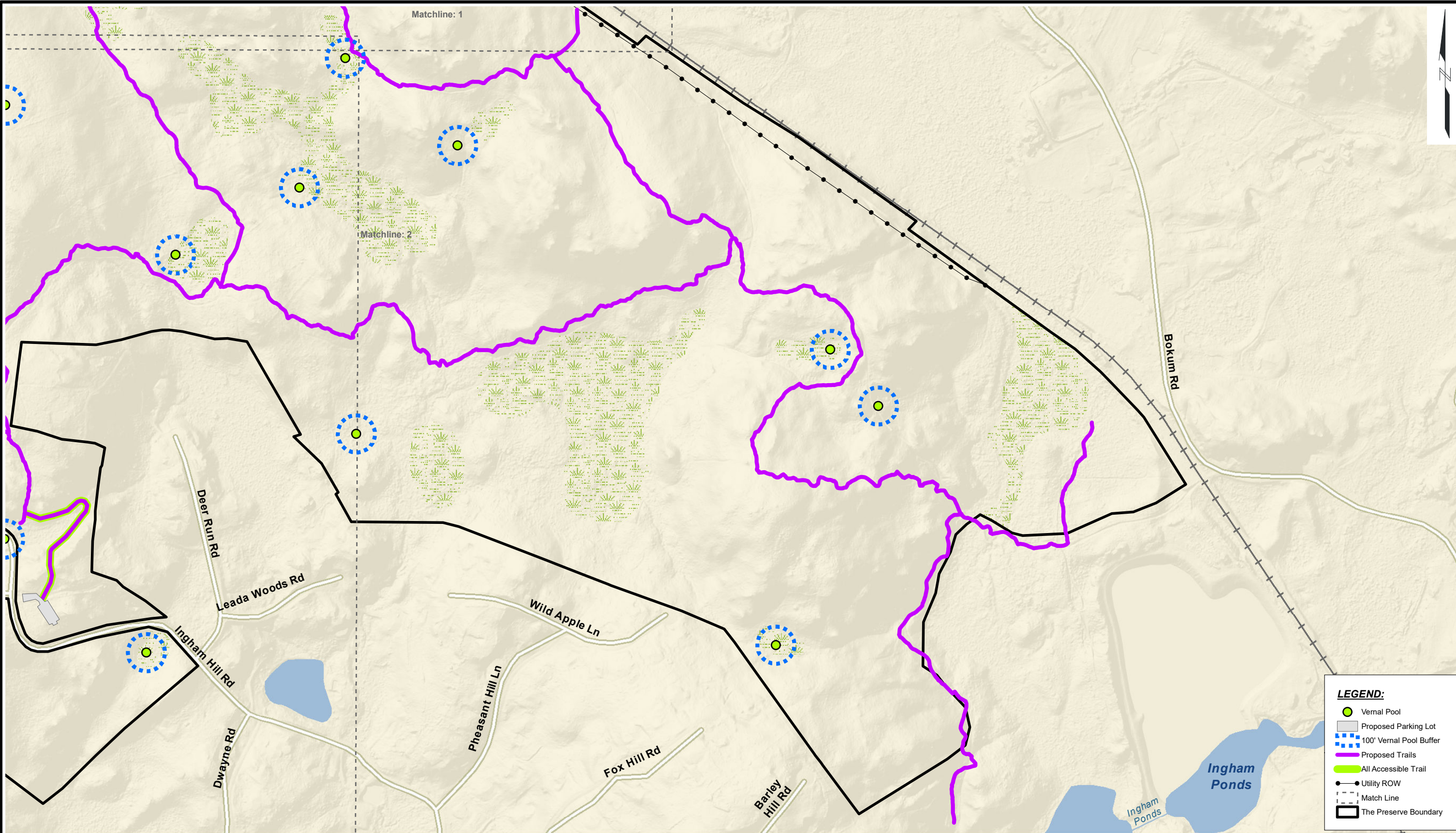


Public Recreational Assessment  
The Preserve  
Old Saybrook, Westbrook, Essex, Connecticut  
  
Trust for Public Land  
New Haven, Connecticut

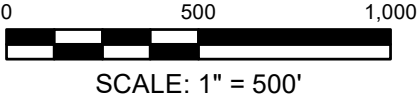
**GEI** Consultants  
Project 1802904

**PROPOSED TRAIL SYSTEM**  
April 2019

Fig. 9B



**SOURCE:**  
1. BASEMAP: 2016 LIDAR ELEVATION/HILLSHADE CT ECO.  
2. SITE BOUNDARY- TRUST FOR PUBLIC LAND



Public Recreational Assessment  
The Preserve  
Old Saybrook, Westbrook, Essex, Connecticut

Trust for Public Land  
New Haven, Connecticut

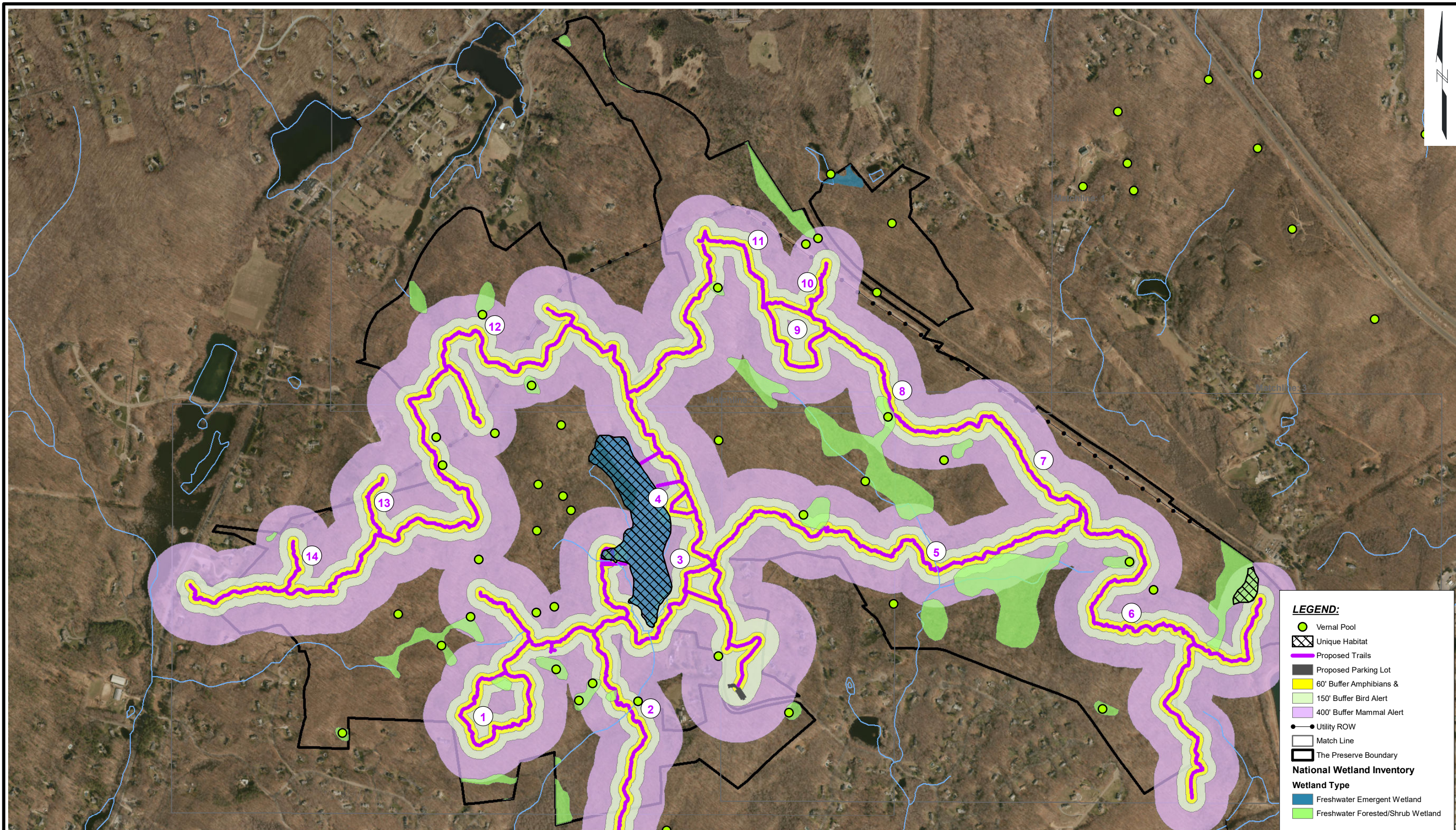


Project 1802904

**PROPOSED TRAIL SYSTEM**

April 2019

Fig. 9C



**SOURCE:**  
 1. 2016 ESRI WORLD IMAGERY.  
 2. SITE BOUNDARY- TRUST FOR PUBLIC LAND

0 1,000 2,000  
 SCALE: 1" = 1,000'

Public Recreational Assessment  
 The Preserve  
 Old Saybrook, Westbrook, Essex, Connecticut  
 Trust for Public Land  
 New Haven, Connecticut

**GEI** Consultants  
 Project 1802904

**ZONE OF INFLUENCE**  
 April 2019  
 Fig. 10

## **Appendix A**

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### **2016, 2019 & 2021 NDDB Correspondence**



Connecticut Department of  
**ENERGY &  
ENVIRONMENTAL  
PROTECTION**

October 1, 2016

Ms. Christine Nelson  
Town of Old Saybrook  
302 Main Street  
Old Saybrook, CT 06475  
[cnelson@oldsaybrookct.gov](mailto:cnelson@oldsaybrookct.gov)

Project: Preliminary Site Assessment for a Forest Stewardship Plan of “The Preserve” in Old Saybrook, Connecticut  
NDDDB Preliminary Assessment No.: 201610766

Dear Christine,

I have reviewed Natural Diversity Data Base maps and files regarding the area delineated on the map provided for the Preliminary Site Assessment for a Forest Stewardship Plan of “The Preserve” in Old Saybrook, Connecticut.

According to our records there are known extant populations of State Listed Species known that occur within or close to the boundaries of this property. I have attached a list of these species to this letter. Please be advised that this is a preliminary review and not a final determination. A more detailed review will be necessary to move forward with any subsequent environmental permit applications submitted to DEEP for the proposed project. **This preliminary assessment letter cannot be used or submitted with your permit applications at DEEP.** This letter is valid for one year.

To prevent impacts to State-listed species, field surveys of the site should be performed by a qualified biologist when these target species are identifiable. A report summarizing the results of such surveys should include:

1. Survey date(s) and duration
2. Site descriptions and photographs
3. List of component vascular plant and animal species within the survey area (including scientific binomials)
4. Data regarding population numbers and/or area occupied by State-listed species

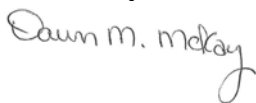
5. Detailed maps of the area surveyed including the survey route and locations of State-listed species
6. Statement/résumé indicating the biologist's qualifications

The site surveys report should be sent to our CT DEEP-NDDDB Program ([deep.nddbrequest@ct.gov](mailto:deep.nddbrequest@ct.gov)) for further review by our program biologists along with an updated request for another NDDDB review. Incomplete reports may not be accepted.

If you do not intend to do site surveys to determine the presence or absence of state-listed species, please let us know how you will protect the state-listed species from being impacted by this project. You may submit these best management practices or protection plans with your new request for an NDDDB review.

Natural Diversity Data Base information includes all information regarding critical biological resources available to us at the time of the request. This information is a compilation of data collected over the years by the Department of Energy and Environmental Protection's Natural History Survey and cooperating units of DEEP, private conservation groups and the scientific community. This information is not necessarily the result of comprehensive or site-specific field investigations. Consultations with the Data Base should not be substitutes for on-site surveys required for environmental assessments. Current research projects and new contributors continue to identify additional populations of species and locations of habitats of concern, as well as, enhance existing data. Such new information is incorporated into the Data Base as it becomes available. The result of this review does not preclude the possibility that listed species may be encountered on site and that additional action may be necessary to remain in compliance with certain state permits.

Please contact me if you have further questions at (860) 424-3592, or [dawn.mckay@ct.gov](mailto:dawn.mckay@ct.gov) . Thank you for consulting the Natural Diversity Data Base.  
Sincerely,



Dawn M. McKay  
Environmental Analyst 3

# Species List for NDDB Request

Scientific Name	Common Name	State Status
<b>Freshwater Community - Other Classification</b>		
Acidic atlantic white cedar basin swamp		
Medium fen		
Poor fen		
<b>Vascular Plant</b>		
Carex exilis	Meager sedge	E
Hottonia inflata	Featherfoil	SC
Liparis liliifolia	Lily-leaved twayblade	E
Opuntia humifusa	Eastern prickly pear	SC
Opuntia humifusa	Eastern prickly pear	SC
Platanthera ciliaris	Yellow-fringed orchid	E
Polygala cruciata	Field milkwort	E
Rubus cuneifolius	Sand blackberry	SC
Scleria pauciflora var. caroliniana	Few-flowered nutrush	E
Scleria triglomerata	Whip nutrush	E
<b>Vertebrate Animal</b>		
Clemmys guttata	Spotted turtle	SC
Lasiurus borealis	Red bat	SC
Myotis lucifugus	Little brown bat	E
Myotis septentrionalis	Northern long-eared bat	Federal and State Endangered
Terrapene carolina carolina	Eastern box turtle	SC
Thamnophis sauritus	Eastern ribbon snake	SC

E = Endangered, T = Threatened, SC = Special Concern, \* Extirpated



Connecticut Department of  
**ENERGY &  
ENVIRONMENTAL  
PROTECTION**

August 20, 2021

Mr. David B. Terry  
GEI Consultants, Inc.  
455 Winding Brook Drive, Suite 201  
Glastonbury, CT 06033-4315  
dterry@geiconsultants.com

Project: Forest Stewardship Plan, Recreational Use Assessment and Natural Resource Assessment for The Preserve, Old Saybrook, Essex, Westbrook, Connecticut  
NDDB Determination No.: 201900871

Dear David Terry,

I have reviewed Natural Diversity Data Base maps and files regarding the area delineated on the map you provided for the proposed Forest Stewardship Plan, Recreational Use Assessment and Natural Resource Assessment for The Preserve located in Old Saybrook, Essex and Westbrook, Connecticut.

According to our information, there are many State-listed plants, animals, Critical Habitats, and Other Significant Natural Communities that occur within the boundaries of this property. The species and habitats are listed below.

***State-listed Plants***

Endangered

*Platanthera ciliaris* (Yellow-fringed orchid)  
*Polygala cruciata* (Drum-heads milkwort)  
*Liparis liliifolia* (Lily-leaved Twayblade)

State Special Concern

*Acalypha virginica* (Virginia copperleaf)  
*Aristida longespica* var. *geniculata* (Needlegrass)  
*Desmodium glabellum* (Smooth tick-trefoil)  
*Endodeca serpentaria* (Virginia Snakeroot)  
*Hottonia inflata* (American featherfoil)  
*Lycopus amplexans* (Clasping-leaved water-horehound)  
*Opuntia humifusa* (Eastern prickly pear)  
*Oxalis violacea* (Violet wood sorrel)  
*Rubus cuneifolius* (Sand blackberry)

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Affirmative Action/Equal Opportunity Employer

Proposed for State Special Concern Plant Listing (2021/2022)

*Carex striatula* (Lined sedge)

*Carex styloflexa* (a sedge)

*Ranunculus micranthus* (Small-flowered crowfoot)

All of the above, except for *Liparis liliifolia*, were documented to be extant at The Preserve as of 2019 or 2020. All of the above, except for some populations of *Oxalis violacea*, occur in one or more of the below-listed Critical Habitats and Other Significant Natural Communities (see Table 2).

**State-listed Animals**

*Myotis septentrionalis* (Northern long-eared bat)-Federal and State Endangered

*Myotis lucifugus* (Little brown bat)-State Endangered

*Lasiurus borealis* (Red bat)-State Special Concern

*Thamnophis sauritus* (Eastern ribbon snake)-State Special Concern

*Terrapene carolina carolina* (Eastern box turtle)-State Special Concern

**Table 2. Critical Habitats and Other Significant Natural Communities identified by Moorhead at The Preserve, 2017-2019.**

Community Type	Community Sub-Type	In ROW	Out-side ROW	Cumulative Area (acres)	Comment
Acidic Atlantic White Cedar Swamp	Cedar/Hardwood		X	1.51	
Acidic Rocky Summit Outcrop	Grassy Glade/Bald	X	X	1.31	
Acidic Rocky Summit Outcrop	Other/Unique	X		0.82	The same as Grassy Glade/Bald sub-type but called Other/Unique because it occurs in the Eversource ROW. Part of a 1.59-ac meta-occurrence in the ROW on both Preserve and adj. Old Saybrook Land Trust property
Acidic, Sandy, Wet Meadow	Other/Unique	X		0.61	
Acidic Seepage Forest				1.10	
Dry Acidic Forest	Oak Woodland		X	2.5	
Dry Subacidic Forest	Ash/Hickory Glade		X	23.9	
Dry Warm Season Grassland	Other/Unique	X		1.10	
Headwater Seepage Swamp			X	≥ 37	Only the largest occurrences mapped; perhaps 5-10 acres more exist as smaller occurrences at The Preserve

Table 2. Critical Habitats and Other Significant Natural Communities identified by Moorhead at The Preserve, 2017-2019.					
Community Type	Community Sub-Type	In ROW	Out-side ROW	Cumulative Area (acres)	Comment
Medium Fen	Decodon		X	0.18	
Medium Fen	Other/Unique (1)	X		0.004	Bog-like community on wet sand in Eversource ROW
Medium Fen	Other/Unique (2)		X	4.8	<i>Clethra</i> -subshrub-dominated peatland community
Medium Fen	Sedge Fen		X	1.6	Several Sub-sub-types, some of which might turn out, with closer study, to actually be Poor Fens
Medium Fen	Shrub Thicket		X	9.6	Shrub Thicket Sub-type was largely unexplored - I suspect that Species H likely occurs there in some measure
Medium Fen	<i>Phragmites</i>		X	0.7	Shrub Thicket Sub-type was largely unexplored - I suspect that Species H likely occurs there in some measure
Moderately Well-drained acidic sandy Grass-/heath-land	Other/Unique	X		0.47	In Eversource ROW
Telephone ROW thru sandy acidic seasonally wet forest	Other/Unique		X	0.15	
Sand Barren	Other/Unique	X		0.95	In Eversource ROW
Subacidic Rocky Summit Outcrop	Cedar Woodland		X	1.09	
Subacidic Rocky Summit Outcrop	Other/Unique	X		5.27	Large meta-occurrence in Eversource ROW
Vernal Pool (includes several Potential Vernal Pools)			X	13	
Cold and/or Cool Headwater Streams			X	1-3	At least 3.5 miles of headwater streams
Acidic Seepage Wet Meadow on Till	Other/Unique	X		0.4	Two occurrences in Eversource ROW

A description and discussion of each Critical Habitat and Other Significant Natural Community is found in the attachment to this letter.



Connecticut Department of

## ENERGY & ENVIRONMENTAL PROTECTION

### **Federal and State Listed Bat Species Protection**

Bats are found throughout Connecticut between April- October in a variety of forested habitats. Some roost out in the foliage of deciduous and coniferous trees, camouflaged as dead leaves or cones. Some bats roost in groups while other roost in solitary trees. They can be found roosting and feeding around forest edges and clearings. Typically, larger diameter trees (12-inch DBH and larger) are more valuable to these bats. Additionally, trees with loose, rough bark such as maples, hickories, and oaks are more desirable than other tree species due to the increased cover that the loose bark provides. Large trees with cavities are also utilized by this species. Forested areas of Connecticut's coastal towns may also serve as important migratory habitat for bats. Numbers of bats utilizing these areas can increase dramatically as bats from other northeast locations pass through Connecticut during spring and autumn migration.

The following conservation actions are required to protect bats:

- Do not remove trees or conduct forestry harvests between April 1<sup>st</sup> and November 1<sup>st</sup>
- Preserve natural roosting resources (safety permitting) including snags, trees with cavities, cracks or crevices, trees with exfoliating bark (e.g. shagbark hickory), coniferous trees (e.g. tamarack, hemlock, white pine) as well as preserving talus slopes
- Identify and protect summer roosts in man-made structures, such as barns
- Provide artificial roost structures (i.e., bat houses) and promote their use in the surrounding community
- Minimize erosion and maintaining clean and open water resources free of siltation
- Protect native vegetation which promotes insect availability and diversity
- Avoid the use of pesticides that will affect their invertebrate food source
- Preserve open, edge of forest habitat corridors to allow bats to freely move among roosting, watering and foraging areas

The presence of northern long-eared bat (*Myotis septentrionalis*), a federally threatened and state endangered species, may require consultation with the US Fish and Wildlife Service Ecological Field Office in order to be in compliance with the Federal Endangered Species Act if the proposed project requires federal permits or uses federal funds. For more information on federal requirements visit: [http://www.fws.gov/midwest/endangered/mammals/nleb/Forest Management Considerations](http://www.fws.gov/midwest/endangered/mammals/nleb/Forest%20Management%20Considerations)

### **Protection and Management of State Listed Plant Species, Critical Habitats, and Other Significant Natural Communities**

A professional certified forester should be hired to work closely with the NDDDB Program botanist/ecologist to develop some specific forest management plans to enhance this property for State listed plant species, Critical Habitats and Other Significant Natural Communities. The majority of the above State listed plants occur in the above-listed Critical Habitats and Other significant Natural Communities, and protection and management of the State listed plants requires protection and management of their host habitats.

This plan may include some of the following elements:

1. A survey of breeding forest specialist birds and their productivity should be conducted prior to moving on recommendation #2 (see below- opening up the forest canopy in certain sections). The object of this survey would be to determine the significance of The Preserve, in its current condition, as a resource for forest specialist birds. This information is needed to determine the potential impacts of creating forest openings on breeding forest specialist bird productivity and strike a reasonable balance between the conservation of the forest specialist birds and light-demanding State listed plants.

2. Several of the State listed plant populations at The Preserve are evidently in decline due to succession and canopy closure by trees and/or shrubs. These sites are found both within the Eversource ROW (where succession to shrub thicket is the threat) and outside of the Eversource ROW (where succession to closed-canopy forest is the threat). Three State listed plant populations are in imminent peril due to succession, and the habitats should be prioritized for management. Some of the dry knoll and ridge summits and upper slopes may be opened up, through tree cutting and/or girdling and/or prescribed burn and/or herbicide use to restore eastern red cedar woodlands and bald/glade habitat that existed in more abundance in The Preserve in the past. Those occurrences of these habitats that have rare plant populations that are declining due to canopy closure should be prioritized for management.
3. As part of any forest management program, there must be a comprehensive plan developed to control and, if possible, eradicate terrestrial invasive plant species. The most significant occurrences of Dry Subacidic Forest and Subacidic Rocky Summit Outcrop, which host multiple State listed plant species, are threatened by a rapidly increasing invasive shrub thicket. Sites with rare plants require specialized invasive control techniques, employed by personnel with specialized experience, in order to avoid damage to the rare plants. This is also true of steep-sloping Critical Habitats with thin-to-bedrock soils. These plants and sensitive habitats co-occur with invasives at some locations in The Preserve.
4. All forest harvests and/or new recreational projects should be submitted to the NDDDB Program for review. New information on state listed species, Critical Habitats, and Other Significant Natural Communities are continually being added to the NDDDB and this will ensure that no adverse impacts will occur to the populations or habitats.
5. Never deposit invasive cuttings anywhere in piles thick and deep enough to mulch out the herb layer below, but rather spread the cuttings diffusely on the ground, so that they will not mulch/suppress the herb layer, and will rot and disappear in a 1-2 years. Thick piles of Japanese Barberry, for example, can take more than 10 years to rot and stop suppressing the herb layer.
6. The Preserve is rich in Seepage Swamps and Vernal Pools, which are important habitat for amphibians and reptiles as well as several State listed plants. These should be protected from sedimentation and nutrient impacts by strictly adhering to water quality standards.
7. Control of trail proliferation. The Preserve is very rich in trails, some of which are “sanctioned” and blazed, and many of which have been created without landowner permission, by mountain bikers and ATV users. To the knowledge of the NDDDB Botanist/Ecologist, there is only one existing conflict of a trail with a known State listed plant occurrence, as of 2020. This is a former wood or farm road that transects a State listed plant population, and it is heavily used and widening, and thus encroaching on the State listed plant population. This trail section should be relocated. The Forest managers should coordinate with the NDDDB to determine the best resolution of this conflict. There is also one known “near-miss” of an apparent un-sanctioned bike trail with a Critical Habitat and multiple State listed plant occurrences. This situation should at least be monitored, since the trail is narrow has little or no impact as of 2020. Based on the experience of the NDDDB biologists, the impact of trails on State listed plant species occurrences may be either negative or positive, depending on the individual plant species and its ecology, the habitat that the trail transects, and the specific nature of the trail. Thus, the NDDDB should be consulted before and about any change in the trail system in The Preserve.

## **State Listed Reptile Species Protection and Considerations**

According to our information there are state special concern *Terrapene carolina carolina* (eastern box turtle) and *Thamnophis s. sauritus* (eastern ribbon snake) within The Preserve. Best management practices to protect turtles and snakes should be implemented throughout the entire Preserve. No wood chips or slash can be placed in any eastern box turtle or spotted turtle upland habitat. Instead, wood chips or tree slash should be removed and used elsewhere (off site).

**Eastern Ribbon Snake:** The state special concern eastern ribbon snake inhabits areas with shallow water, grassy or shrubby areas bordering streams and wooded swamps. They also prefer sunny areas with low dense vegetation near shallow water areas. Their diet consists of insects, fish, frogs, salamanders and toads. They are most often encountered in high quality wetlands and riparian areas. They are quite sensitive to habitat degradation.

**Protection for Eastern Ribbon Snake:**

- Conservation practices to protect this snake include the protection of high-quality wetlands by leaving 300 - foot no-cut buffers around wet meadows or wetlands;
- And working when they are less active during the fall and winter months.

If you must work when these snakes may be more active (April 1 through October 15<sup>th</sup>) then implement the following best management practices:

- A contractor awareness program should be implemented to ensure that contractors working in the area have been instructed on the proper response in the event that an eastern ribbon snake is observed in the work area.
- If any snakes are observed, construction personnel will safely relocate them to an area immediately outside of the work area.
- Any silt fence utilized will be removed after clearing is complete and soils are stabilized.
- Any confirmed eastern ribbon snake sightings must be reported to the NDDB.

**Eastern Box Turtle (*Terrapene c. carolina*):** Eastern box turtles inhabit old fields and deciduous forests, which can include power lines and logged woodlands. They are often found near small streams and ponds. The adults are completely terrestrial but the young may be semiaquatic, and hibernate on land by digging down in the soil from October to April. They have an extremely small home range and can usually be found in the same area year after year. Eastern box turtles have been negatively impacted by the loss of suitable habitat. Some turtles may be killed directly by construction activities, but many more are lost when important habitat areas for shelter, feeding, hibernation, or nesting are destroyed. As remaining habitat is fragmented into smaller pieces, turtle populations can become small and isolated. Reducing the frequency that motorized vehicles enter box turtle habitat would be beneficial in minimizing direct mortality of adults.

Maintaining forested habitat is essential for the conservation of Eastern Box Turtles. The impacts of timber harvesting are recognized as having significantly fewer lasting effects as compared to other permanent changes in land use, such as residential and commercial development. However, certain precautions should be taken during timber harvesting in order to maintain the long-term viability of Eastern Box Turtle populations within forested areas. The primary concern about forestry practices within Eastern Box Turtle habitat is the direct mortality of adults due to crushing by motorized vehicles during harvesting and scarification. This could occur at any time during the Eastern Box Turtle activity season since they are primarily terrestrial and it could even occur during the winter since the turtles overwinter in upland forests, usually within a few inches of the soil surface. Habitat alterations that are of concern include suppression of plant growth from wood chips since these turtles forage on the forest floor. Disturbance of fallen trees and removal of snags that serve as future sources of large woody debris are also concerns, because these turtles will overwinter beneath fallen trees, often in the pit created by the root mound. Also, fallen trees are used for cover during the active season. Any confirmed sightings of box, wood or spotted turtles should be reported and documented with the NDDB ([nddbrequestdep@ct.gov](mailto:nddbrequestdep@ct.gov)) on the appropriate special animal form found at ([http://www.ct.gov/deep/cwp/view.asp?a=2702&q=323460&depNav\\_GID=1641](http://www.ct.gov/deep/cwp/view.asp?a=2702&q=323460&depNav_GID=1641))

**If you conduct forest harvest work during the species dormant period (Nov 1- April 1):**

- Use Best Management Practices to avoid soil compaction
- Limit total area impacted by motorized vehicles to less than 25%

**If you conduct harvests when the species is active (April 1-Nov 1)**

- The logging crew be made aware of the species description and possible presence
- The immediate area to be harvested each day should be searched for turtles before starting work
- Any turtles found during the harvest should be moved out of the way, just outside of the work area. This animal is protected by law and should never be taken off site.

- Work conducted during the early morning and evening hours should occur with special care not to harm basking or foraging individuals

General recommendations for forest management that benefit Eastern Box Turtle include:

- Avoid disturbing pits from tipped root mounds which can serve as overwintering locations.
- Discontinue logging roads after operation are complete so they do not provide new access points to sensitive stream habitat or provide increased vehicle or recreational traffic in general area.
- On sites where options exist, favor site preparation techniques that minimize soil disturbance and compaction.
- Seek to minimize impacts to the forest floor.
- Give special consideration to unique habitat features within the forest such as ephemeral wetlands, springs, seepages, and rock outcrops.
- Maintain a patchwork of harvest practices in this area to meet the different life stages of this species. Including both mature forest and forest openings. If the only available sun-exposed ground is along roadsides, road mortality may occur as females seek nesting grounds and individuals bask.
- If wood is chipped, chips shall be removed from the site or left in piles in an area disturbed by other harvest activities, preferably at the landing.

Herbicides and Invasive Species Work:

- Avoid *vehicle* broadcast of pesticides during most active times (May15-Sept 15), to avoid crushing females traveling to nesting spots.

Regarding Recreation:

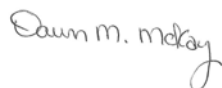
Recreational activities can increase incidental collection and contribute to local turtle population decline. Most often turtles collected are adult females traveling to and from nesting. These turtles of reproductive age are the most valuable individuals in the population to maintain population persistence. Even infrequent collection poses a long-term conservation problem.

- To avoid collection by the public, do not post signs alerting the public to the presence of this species.
- Litter from recreation can pose a choking hazard. Ensure there is a plan for how garbage will be managed.
- Control all terrain vehicles on the parcel to avoid adverse impacts along trails.

This determination is good for two years. Please re-submit an NDDB Request for Review if the scope of work changes or if work has not begun on this project by August 20, 2023.

Please contact me if you have further questions at (860) 424-3592, or [dawn.mckay@ct.gov](mailto:dawn.mckay@ct.gov) . Thank you for consulting the Natural Diversity Data Base. A more detailed review may be conducted as part of any subsequent environmental permit applications submitted to DEEP for the proposed site.

Sincerely,



Dawn M. McKay  
Environmental Analyst 3

Attachment: excerpt from Moorhead, W.H. 2021. Baseline Inventory of the Vascular Flora and Natural Communities of The Preserve, Old Saybrook, Essex, and Westbrook, Connecticut. Pp. 44-67.

Maps of the Critical Habitats and Other Significant Natural Communities of The Preserve are presented in Appendix E.

### **Discussions of Critical Habitat and Other Significant Natural Community Units.**

In the following sections I provide descriptions of Critical Habitat and Other Significant Natural Community and Vegetation Type Units I have identified and mapped at The Preserve. I have provided discussions, where necessary, of a unit's significance and differences in the significance between individual occurrences of that unit. For those units for which identification and classification are debatable, I have provided an explanation of the factors and data on which I based my classification decision.

Regarding taxonomy conventions I have used to name habitat and natural communities, I have, as much as possible, followed the conventions used in the attribute data table of 2009 CTDEEP Critical Habitats GIS coverage. That classification has two hierarchical levels, Community Type ("COMMTYPE" field in the attribute data), and beneath that one or more Community Sub-types ("COMMSUBTYP" field in the attribute data). For Critical Habitat types and sub-types that are essentially equivalent to type and sub-type habitat concepts used in the 2009 Critical Habitats coverage, I have used those names without modification (though in some cases with qualification, which is found in my "Subsubtype" field and/or my "Class\_cmnt" (for "Classification Comment") field. In some cases, I have identified a Critical Habitat type at The Preserve, but for which there is no match at the Sub-type level in the 2009 Critical Habitat coverage, for these I have "coined" a provisional new Sub-type.

For a number of the ecological entities that I have mapped as Critical Habitats and/or Other Significant Communities, there are no equivalent entities found in the 2009 Critical Habitat coverage, but they are recognized in 2005 CWCS and 2015 WAP as "sub-habitats [of Key Habitats] that are most important to wildlife". Some of these "sub-habitats" listed in those documents (e.g., "oak forests") are very common and abundant in Connecticut, and I have not included every occurrence of these "sub-habitats" at The Preserve as Critical Habitats and/or Other Significant Communities. Other entities, such as Vernal Pools, occupy only a tiny percentage of most landscapes in Connecticut, and are of biodiversity maintenance function far out of proportion to their area occupied. These entities I have included in my coverage of The Preserve's Critical Habitats and/or Other Significant Communities.

Finally, I have included in this coverage Other Significant Natural Communities, which are entities that are not a recognized Critical Habitat, but which I judge to have actual or potential special biodiversity significance, based my knowledge and experience of Connecticut and the Northeast. Natural communities I have mapped in this class include: communities that have unusual floristic composition and/or are actual or potential habitat for uncommon and rare/imperiled plants; a community that itself is known or suspected

to be rare or uncommon in a state, regional, or global context; a community that is rare or uncommon in a certain condition (e.g., a common forest type in old growth condition); a community that is disjunct from the region where it is may be common or abundant (e.g., an occurrence of a well-developed northern hardwoods community); a community that I know or reasonably suspect to be, or potentially important habitat for GCN animals. In this last category are some entities that could potentially be restored by management, such as bald habitats that have shrunk due to succession to forest.

### **Acidic Rocky Summit Outcrop (Grassy Glade/Bald Sub-type).**

This is among the Critical Habitat types that were included in the 2009 CTDEEP Critical Habitats GIS coverage. These are a type of so-called “open-canopy” habitat (i.e., little or no cover of trees) that occurs primarily on convex summits and upper slopes of knolls and ridges where bedrock is exposed and/or very close to the soil surface and the pH of the substrate is very low. These are among the areas referred to as “balds” in the 2004 and 2005 Klemens reports on his herpetological surveys. The vegetation is an admixture of grasses, forbs, subshrubs, mosses, and lichens that are tolerant of xeric, low nutrient, low pH conditions. Except where there are larger expanses of bare rock, open-canopy conditions are the result of past human disturbance and/or on-going management (i.e., preventing the areas from growing up into forest). The largest single occurrence in The Preserve (1.22 acre) is in the Eversource power transmission ROW, and this occurrence is part of a 1.6-acre meta-occurrence that extends in the ROW onto the adjacent Old Saybrook Land Trust parcel. In The Preserve outside of the ROW, I have identified 5 other smaller occurrences ranging from 0.04 to 0.50 acre.

Characteristic plants of the Acidic Rocky Summit Outcrop type are:

<i>Juniperus virginiana</i> *	<i>Silene antirrhina</i>
<i>Aristida dichotoma</i> var. <i>dichotoma</i>	<i>Trichostema dichotomum</i>
<i>Dichanthelium sphaerocarpon</i>	<i>Smilax glauca</i>
<i>Ionactis linariifolia</i> *	<i>Andropogon virginicus</i> var. <i>virginicus</i> *
<i>Lechea pulchella</i>	<i>Baptisia tinctoria</i> *
<i>Schizachyrium scoparium</i> var. <i>scoparium</i>	<i>Dichanthelium meridionale</i>
<i>Viola pedata</i>	<i>Hypericum gentianoides</i>
<i>Vaccinium pallidum</i>	<i>Nuttallanthus canadensis</i> *
<i>Krigia virginica</i>	<i>Comptonia peregrine</i>
<i>Danthonia spicata</i>	<i>Viola sagittata</i> var. <i>ovata</i>
<i>Crocianthemum canadense</i>	<i>Symphyotrichum pilosum</i> var. <i>pilosum</i>
<i>Cladonia</i> sp. (reindeer lichen)	<i>Rubus flagellaris</i>
<i>Polytrichum commune</i> (a haircap moss)	<i>Rubus hispidus</i>
<i>Polytrichum piliferum</i>	

The asterisked species above are listed in the 2015 WAP as GCN plants, because they are host plants for GCN invertebrates.

This habitat is similar in the open-canopy structure, landscape position, and a portion of its floristic composition to Subacidic Rocky Summit Outcrop. The two habitats differ in



*Figure 14. Acidic Rocky Summit Outcrop (Grassy Glade/Bald Sub-type) in Eversource ROW.*



*Figure 15. Acidic Rocky Summit Outcrop (Grassy Glade/Bald Sub-type) on a ridge summit outside the ROW.*



*Figure 16. Example of Acidic Rocky Summit Outcrop (Grassy Glade/Bald Sub-type) in ROW with less bare rock and more soil and herbaceous cover.*



*Figure 17. Small Acidic Rocky Summit Outcrop (Grassy Glade/Bald Sub-type) on a ridge summit outside the ROW.*

soil pH, which appears most likely to be due to differences in bedrock chemistry. The soil pH in the Acidic Rocky Summit Outcrop is strongly acidic, while that of the Subacidic Rocky Summit Outcrop. This difference is reflected in significant differences in floristic composition, with the Subacidic Rocky Summit Outcrop supporting many plants with an affinity for higher pH, and the absence or lower abundance of the more acidophilic plants. The best marked occurrences of the two habitats occur at the ends of a

soil pH gradient, and, as one might expect, there are some occurrences that are floristically intermediate between the two, where I infer that the soil pH is intermediate between the extremes. In some cases, I have mapped these as a separate unit (e.g., Dry Warm Season Grassland), and in other cases, I have classified the unit as Acidic Rocky Summit Outcrop or Subacidic Rocky Summit Outcrop, depending on which unit the site leans more toward floristically, but explain in the attribute data that the unit is intermediate between the two entities.

Based both on indicators in the field (i.e., mature *Juniper virginiana* shrubs and trees and hardwood wolf trees) and my analysis of historic aerial photos of The Preserve, it is evident that, except for within the ROW, occurrences of this habitat were once more abundant and more extensive in The Preserve. In the absence of periodic disturbance, forest succession gradually closes in over the openings except where there are large enough expanses of bare rock. However, these bare rock expanses do not have the same ecological function as the areas of shallow-to-bedrock soils, which support a well-developed herbaceous community of drought-tolerant plants support many of the They were almost certainly originally created and maintained by humans using fire and/or cutting of forest, and grazing by livestock likely also helped to maintain the open-canopy conditions.

### **Cold and/or Cool Headwater Streams.**

This Critical Habitat is not among those mapped for the 2009 CT-DEP “Critical Habitats” GIS coverage, but Cold Water Streams were identified in the 2005 CWCS and 2015 WAP as a “sub-habitat” determined to be important to [GCN] wildlife. I mapped approximately 3.5 of the headwater streams in The Preserve as Cold and/or Cool Water streams, based on their being nearly 100 percent under closed canopy forest, the evident abundant input of spring seepage maintaining the stream flows, some late summer stream



*Figure 18. Headwater stream downstream of extensive Seepage Swamp complex, in late March 2020. This stream still had surface water, as intermittent pools, during the late summer drought.*

temperature measurements, and the large number of detections of Dusky Salamander by herpetologist Michael Klemens during his surveys in the early 2000s. My late summer stream temperature measurements (54° to 64° F) were consistent with my inference that the streams are Cold Water Streams, but I did not collect enough temperature data to

conclusively prove this, hence the “Cold and/or Cool” in this unit’s name. I also did not collect enough rigorous flow monitoring data to characterize how persistent flow is in all the streams I mapped, but subjectively noted that I never observed a number of these streams without surface water.

### **Dry Subacidic Forest (Ash/Hickory Glade Subtype).**

This is among the Critical Habitat types that were included in the 2009 CT-DEP “Critical Habitats” GIS coverage. Occupying a cumulative 21.5 acres, it is the Critical Habitat type that occupies the largest cumulative area in The Preserve; I have mapped 29 separate occurrences. It occurs on dry knoll summits and convex upper slopes with aspects mostly in the two southern quadrants, and on shallow-to-bedrock soils that are weakly to moderately acid (in some cases the soil pH may be circumneutral), most likely due to the chemistry of the bedrock. The trees are stunted due to dry conditions and hickories are prominent in the canopy layer. Oaks are usually co-dominant trees, and White ash is usually present, though seldom as more than the occasional tree or shrub. Hop-hornbeam (*Ostrya virginiana*) is characteristically the most abundant shrub in the likewise characteristically very open woody understory. In contrast with acidic dry oak forests, low heaths (i.e., lowbush blueberries [*Vaccinium* spp.] and black huckleberry [*Gaylussacia baccata*]) are absent or not prominent, and the herb layer is well-developed, often species-rich, with the sedge *Carex pensylvanica* often a dominant species (at least on the occurrences on summits). Eastern Redcedar (*Juniperus virginiana*) occurs in the majority of occurrences at The Preserve as live and/or dead trees and tall shrubs that have been overtopped by the deciduous trees. This, together with scattered wolf trees and 1934 aerial photography of The Preserve, tell us that a number of these sites once supported Subacidic Rocky Summit Outcrop, Cedar Woodland sub-type habitat, and these sites have succeeded to the present forest over the last 85 years. In several Dry Subacidic Forest occurrences there are small (< 12 m in diameter) openings in the hardwood canopy that actually still support Subacidic Rocky Summit Outcrop, Cedar Woodland, but I have not mapped these inclusions as separate from the Dry Subacidic Forest. Thus, for the purposes of this classification, the map unit Dry Subacidic Forest, Ash/Hickory Glade can be considered a complex, with a small amount of the total area occupied by Subacidic Rocky Summit Outcrop, CW.

I recorded 160 vascular plant taxa (144 native) in this habitat -- the second highest for any single habitat type at The Preserve. Characteristic species in the herb layer of the Dry Subacidic Forest include the following (not all are found in every occurrence):

*Anemone quinquefolia*  
*Antennaria plantaginifolia*  
*Aquilegia canadensis*  
*Asclepias quadrifolia*  
*Asplenium platyneuron*  
*Boechera canadensis*  
*Aureolaria virginica*  
*Bromus pubescens*  
*Cardamine parviflora*  
*Carex digitalis*  
*Carex retroflexa*  
*Cinna arundinacea*  
*Desmodium rotundifolium*  
*Dichanthelium boscii*  
*Dichanthelium latifolium*  
*Eupatorium sessilifolium*  
*Festuca subverticillata*  
*Geranium carolinianum*  
*Hedeoma pulegioides*  
*Lespedeza frutescens*  
*Lespedeza procumbens*  
*Muhlenbergia tenuiflora*  
*Paronychia canadensis*  
*Ranunculus abortivus*  
*Scrophularia lanceolata*  
*Silene antirrhina*  
*Solidago ulmifolia*  
*Sphenopholis intermedia*  
*Sphenopholis nitida*  
*Symphyotrichum undulatum*  
*Teucrium canadense*  
*Thalictrum revolutum*  
*Trichophorum planifolium*  
*Triodanis perfoliata*  
*Triosteum aurantiacum*  
*Viola palmata*  
*Viola subsinuata*



Figure 19. Summit expression of Dry Subacidic Forest type, Ash/Hickory Glade sub-type



Figure 20. Steep South-facing Rocky Slope expression of Dry Subacidic Forest type,

In addition to the above-listed species, there are at least 4 PCC plants, possibly as many as 7, that are associated with this habitat type.

There are two expressions of this habitat at The Preserve: one which occurs on the summits and upper slopes of knolls and ridge, and an expression that occurs on steep,

rocky south-facing slopes. The latter expression is much rarer in The Preserve than the former. The two expressions have a substantial number of plant species in common (42% of total species for the summit expression, 64% of the total for the steep rocky slope expression) including many dominants and the less common species, so I have “lumped” them together as the same type and sub-type in this classification. However, given the also substantial number of species that they do not have in common, and the rarity of the steep rocky slope expression in The Preserve compared with the summit expression, I have distinguished them at the “Sub-sub-type” level in my attribute data table.

The occurrences of this community have strong correlation with the mapped extent of the Hebron Formation (also called the Hebron Gneiss) and with mapped patches of amphibolite. Those occurrences with the highest biodiversity significance (i.e., higher species richness and greater representation of rare and uncommon plants) are almost certainly those with the highest soil pH, and probably also those that have most recently had more open-canopy conditions. Dry Acidic Forests on Glacial Till, which is a very much more common community in CT, occurs on similarly dry sites with strongly and very strongly acid soils (i.e., very low pH). This natural community occupies some summits in The Preserve, and on some summits there are forests that are floristically intermediate between Dry Acidic Forest and Dry Subacidic Forest, which probably reflects soil pH intermediate between strongly acid and weakly to moderately acid. I have mapped these as Dry Subacidic Forest when there have been at least several of the indicator species, including Hop-hornbeam, and lowbush blueberries and/or Black Huckleberry and/or Mountain Laurel (*Kalmia latifolia*) have not been too abundant.

I have classified one occurrence of Dry Subacidic Forest on a smaller summit as Other/Unique sub-type, because it supports a good complement of the herb layer indicator species, but the species in the shrub and tree layers (Mountain Laurel and Black Birch [*Betula lenta*] are dominant).

### **Subacidic Rocky Summit Outcrop (Cedar Woodland sub-type and Other/Unique sub-type).**

This is among the Critical Habitat types that were included in the 2009 CT-DEP “Critical Habitats” GIS coverage. It is a community with no tree canopy or scattered trees that do not form a continuous canopy. It occurs on dry convex summits and steep rocky slopes with aspects in the 2 southern quadrants. Usually there is much exposed bedrock and/or very shallow-to-bedrock soils, where the underlying bedrock evidently contributes to moderately to weakly acid soils. Eastern Redcedar (*Juniperus virginiana*) is the dominant or co-dominant tall shrub and low tree, there typically are a number of light- and nutrient-demanding species in the herb layer that are tolerant of dry conditions and very little soil, such as Red Columbine (*Aquilegia canadensis*). In terms of floristic composition, it is very similar to that of the Dry Subacidic Forest, but with greater representation of the more light-demanding species, and supports many of the same rare

and uncommon plants. This Critical Habitat, together with Acidic Rocky Summit Outcrop, GG/B is another type of what are called “balds” in the Klemens 2003 and 2005 herpetological survey reports.



*Figure 21. Subacidic Rocky Summit/Outcrop type, Cedar Woodland sub-type, on a steep rocky south facing slope.*



*Figure 22. Subacidic Rocky Summit/Outcrop type, Cedar Woodland sub-type, on a convex summit.*

At The Preserve, I have mapped as Subacidic Rocky Summit Outcrop - Cedar Woodland only those occurrences associated with hardwood tree canopy gaps of at least 12-15 m in diameter and larger. As explained in the previous section, this habitat also occurs as inclusions in Dry Subacidic Forest occurrences in canopy openings smaller than 12-15 m in diameter, at sites such as the rocky south-facing brow of a summit occupied by Dry Subacidic Forest. I have not mapped these smaller occurrences as separate from the Dry Acidic Forest. I have identified at The Preserve only 4 occurrences of Subacidic Rocky Summit Outcrop, CW that were large enough to map based on the above-mentioned size criteria, and those for cumulatively occupy only ~1.1 acre. As noted elsewhere in this report it is evident from historic aerial photos, the distribution of overtopped live and dead Eastern Redcedar and older wolf trees in Dry Subacidic Forest occurrences that the Subacidic Rocky Summit Outcrop, CW sub-type was once much more extensive at The Preserve.

Some characteristic indicator plants of the Subacidic Rocky Summit Outcrop-Cedar Woodland that do not occur in the Dry Subacidic Forest, or occur only in or near canopy openings that are essentially small Subacidic Rocky Summit Outcrop-Cedar Woodland

inclusions, are *Myosotis verna*, *Micranthes virginiensis*, *Woodsia obtusa*, *Cardamine parviflora*, *Paronychia canadensis*, *Piptochaetium avenaceum*, *Hedeoma pulegioides*, *Capnoides sempervirens*, *Trichostema dichotomum*, and the moss *Hedwigia* sp.

Much more extensive than the Cedar woodland Sub-type of Subacidic Rocky Summit Outcrop at The Preserve is what I have designated as the Other/Unique sub-type of Subacidic Rocky Summit Outcrop, because it occurs entirely within the Eversource power transmission ROW, which is a special ecological space with unique management<sup>42</sup>. The Subacidic Rocky Summit Outcrop habitat in the ROW has many occurrences,



Figure 23. Subacidic Rocky Summit/Outcrop, Other/Unique sub-type, in the power transmission ROW. This expression occurs higher on the north-facing slope, where there is more shading by adjacent forest, and Haircap moss is a dominant ground cover.



Figure 24. Subacidic Rocky Summit/Outcrop, Other/Unique sub-type, in the power transmission ROW. This expression occurs low on the north-facing slope, where there is relatively more sun exposure, and Haircap moss is not important as a ground cover.

occurring frequently at interval along 1.8 mile of the ROW, cumulatively occupying 5.27 acres. Some of these occurrences are on landscape positions similar to those where Subacidic Rocky Summit Outcrop occurs outside of the ROW, i.e., rocky convex summits of knolls and ridges, south-facing brows and upper slopes. Based on my examination of 1934 aerial photography, it appears these sites may have supported Subacidic Rocky Summit Outcrop Cedar Woodland communities<sup>43</sup>. In any case, the

<sup>42</sup> “Other/ Unique Sub-type” classification is adapted from the 2005 CWCS and 2015 WAP classification, which designates Public Utility Transmission Corridors as a sub-habitat of Unique; Natural or Man-made Key Habitats [most important to GCN species]

<sup>43</sup> Based on their appearance in the 1934 aerial photos, these sites almost certainly supported grassland or meadow vegetation with scattered Eastern Redcedar, thus either a cedar woodland or shrubland. However, in southern CT, the prominence of Eastern Redcedar as an early successional invader of open herbaceous

clearing of the ROW in the 1970s or 1980s re-established open-canopy conditions in these areas, and they now support a number of uncommon/habitat-restricted/indicator and light-demanding plants, including several PCC plants, which compels me to classify them as Subacidic Rocky Summit Outcrop. About 0.6 cumulative acre of this type of Subacidic Rocky Summit Outcrop - Other/Unique in the ROW is on these kinds of sites.

The greatest part of the Subacidic Rocky Summit Outcrop - Other/Unique in the ROW (4.7 acres) occurs low on the north slope of The Preserve, a landscape position at which Subacidic Rocky Summit Outcrop habitat is not typically found, and based on analysis of historic aerial photography, there appears to have been deciduous and mixed evergreen-deciduous forest in these areas before the ROW was installed. Except for some sites, soils appear to be deeper than is typical for the dry to xeric sites where Subacidic Rocky Summit Outcrop usually occurs, and the forests that occur on both sides of the ROW are mesic.



*Figure 25. Subacidic Rocky Summit/Outcrop, Other/Unique sub-type, in the power transmission ROW. This expression occurs on a broadly convex ridge summit.*

Thus, it is something of a mystery that so many plants characteristic of Subacidic Rocky Summit Outcrop and Dry Subacidic Forest have become established in this section of the ROW. Open-canopy conditions created and maintained by the utility companies, together with the often steep slopes that are in places convex, combined with some disturbance/modification of the soils by the utility companies<sup>44</sup>, and with the evident native higher pH of the substrate, have created conditions that favor plants that prefer dry but rich soils, in spite of the northern aspect, low slope position, and partial shade by the mature forest immediately up-slope and south of the ROW. This 4.7-acre portion of the Subacidic Rocky Summit Outcrop-Other/Unique in the ROW is entirely over the Hebron Gneiss Formation.

The Subacidic Rocky Summit Outcrop-Other/Unique habitat in the ROW has many species in common with Subacidic Rocky Summit Outcrop and Dry Subacidic Forest habitat outside of the ROW, but also a large number of species that I did not find in

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habitat (such as dry pasture) occurs on strongly acid sites as well as higher pH sites, one cannot presume subacidic (or higher pH) conditions from the presence of an open-canopy cedar woodland or shrubland on an aerial photo. But soil pH, especially if underlying bedrock chemistry is influencing it, would not be expected to change over time, so I think it likely that these areas were Subacidic Rocky Summit Outcrop 85 years ago.

<sup>44</sup> Cut and fill is obvious in some areas. There may have been also compaction and/or removal of topsoil in other area.

Subacidic Rocky Summit Outcrop or Dry Subacidic Forest habitat outside of the ROW, including the following:

*Actaea pachypoda*  
*Agalinis tenuifolia* (in vast abundance)  
*Andropogon gerardii*  
*Andropogon virginicus*  
*Anemone americana*  
*Anemone virginiana*  
*Asclepias syriaca*  
*Aureolaria pedicularia*  
*Botrychium dissectum*  
*Collinsonia canadensis*  
*Comptonia peregrina*  
*Corylus americana*  
*Crocanthemum bicknellii*  
*Desmodium paniculatum*  
*Eupatorium pilosum*  
*Galium pilosum*  
*Linum striatum* (in vast abundance)  
*Polygala sanguinea*  
*Polygala verticillata*  
*Pycnanthemum muticum*  
*Schizachyrium scoparium*  
*Tridens flavus*  
*Viola primulifolia*  
*Viola pubescens* var. *pubescens*  
*Viola sagittata* var. *ovata*

The Subacidic Rocky Summit Outcrop is the Critical Habitat with the highest vascular plant diversity in The Preserve, with 238 taxa (174 native) recorded in both sub-types, Cedar Woodland and Other/Unique, together. I recorded many more taxa (171 total, 146 native) in the Other/Unique than in the Cedar Woodland (107 total, 98 native). This is partly due to the Other/Unique subtype simply covering so more area than the Cedar woodland, but also due to more extensive open-canopy habitat and greater variety of micro-habitat diversity across 1.8 mile by 75 feet of ROW, and likely also due to the connectivity of ROW habitat (as opposed the Cedar Woodland occurring as small islands in a sea of forest. Another notable feature of the sub-set of Subacidic Rocky Summit Outcrop- Other/Unique in the ROW on the north slope of The Preserve is the abundance of forbs (i.e., broad-leaved herbaceous plants) versus graminoids (i.e., grasses and grass-like plants). Graminoids are wind-pollinated and produce pollen but no nectar, while many if not most forbs are insect-pollinated and produce nectar and pollen. Of the plants I recorded in the Subacidic Rocky Summit Outcrop-Other/Unique in the transmission ROW, 24 taxa were not recorded anywhere else in The Preserve.

It is evident from a review of aerial photography that the transmission ROW was created sometime between spring 1970 and spring 1986. It is clear that much of what is now Subacidic Rocky Summit Outcrop-Other/Unique was forest prior to the construction of the ROW, and open-canopy conditions have since been maintained by ROW vegetation management. However, it is also evident from historic aerial photographs that some of what is now Subacidic Rocky Summit Outcrop-Other/Unique was once “natural” Subacidic Rocky Summit Outcrop Cedar Woodlands on dry ridge or knoll summits, though the Eastern Redcedar has largely been eliminated<sup>45</sup>. Several PCC plants and a large number of the uncommon/restricted indicator species occur in the ROW in both situations.

### **Vernal Pools.**

Vernal Pools are depressions that are seasonally full of water from late fall through spring, and in which the water gradually draws down until surface water disappears by mid- to late summer. Vernal pools lack permanently flowing inlet and outlet streams and this together with their seasonal draw down causes them to be fishless habitats, and in turn they are critical breeding habitat for a number of animals that are intolerant of fish predation. Vernal pools were originally classified in the 2005 CWCS as a subhabitat of the Key Habitat “Sparsely vegetated Inland Wetland” that has been “determined to be important to [GCN] wildlife”. In the 2015 WAP, Vernal Pools were put under the Key Habitat “Unique; Natural or Man-made”. Vernal Pools are recognized in both documents as essential habitat for a large number of GCN animals, and thus it is reasonable to include them in my Critical Habitat coverage of The Preserve. As I explain in the Methodology section, I relied for the bulk of this Vernal Pool coverage on the reports of herpetologist Michael Klemens’ herpetological surveys in 2003, 2004, and 2005, which included mapping produced by BL Companies. Klemens drew also on the survey work of Ed Pawley in 2002 and Ron Gautreau in 1999. Klemens confirmed<sup>46</sup> 38 Vernal Pools at The Preserve. I visited most of these in the field and remapped all of them that I was able to relocate (which was not all). In addition, I discovered a number of new “potential” vernal pools. In these pools, I observed evidence of breeding by one or more obligate vernal pool amphibian, but did not confirm completion of their breeding cycle. My final coverage of Vernal Pools at The Preserve includes between 39 and 43 confirmed VPs, and 6 additional potential VPs. The reasons for the uncertainty about the number of Vernal Pools are explained in the Methodology, but if all potential VPs are confirmed the total number of VPs at The Preserve will be between 45 and 49, occupying about 12.5 acres, cumulatively.

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<sup>45</sup> Eversource, unlike their predecessor Northeast Utilities, treats Eastern Redcedar as an “incompatible” woody species and has been removing all of any size from their ROWs

<sup>46</sup> A Vernal Pool is “confirmed” by the presence of one or more obligate vernal pool species completing their life cycle in the pool (Klemens 2004)

Klemens considered the majority of vernal pools at The Preserve to be “cryptic”, which means the vernal pool is a part of a larger wetland system<sup>47</sup>, and a minority of them to be “classic” vernal pools, which are seasonally flooding depressions that are isolated from other wetlands. Klemens collected data on vernal pool obligate amphibian productivity, hydroperiod, water chemistry, May and late June water depths, and dimensions of vernal pools ca. mid-May. Klemens then ranked the biodiversity significance of each vernal pool, and I have carried over those rankings to my Preserve Critical Habitat attribute data. Klemens classified as “High Priority” vernal pools that had all 3 obligate vernal pool amphibians (wood frog, spotted salamander, and marbled salamander), had high obligate species productivity (i.e., large numbers of adults, egg masses, and larvae), had vernal



*Figure 26. A "classic" Vernal Pool, Klemens' #20, ranked a "High Priority" pool, in early September, 2019.*



*Figure 27. A "cryptic" Vernal Pool, Klemens' #10, a "High Priority" pool, in late March, 2019.*

pool facultative species such as spotted turtles and four-toed salamanders and/or State-listed Special Concern species such as ribbon snake, box turtle, and spotted turtle. Using these criteria, Klemens classified at least 13 of The Preserve's vernal pools as High Priority in his 2004 report, and 1-4 more in his 2005 report. Klemens found no State-listed amphibians at The Preserve. However, he considered the abundance of the marbled salamander, the less common of the 2 obligate vernal pool salamanders that are not State-

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<sup>47</sup>Klemens 2004

listed, at The Preserve to be “quite unique to the site” and the uniformity of its abundance across the entire Preserve to be “remarkable”. Klemens attributed this to the abundance at The Preserve of cryptic vernal pools imbedded in and connected by larger headwater wetlands, which supported longer hydroperiods in these vernal pools<sup>48</sup> than is typical for classic vernal pools.

Another important characteristic of The Preserve’s vernal pools is that a very high percentage of the 750-ft radius to the vernal pools is forested, which is the most suitable habitat for mole salamanders during the period of the adults’ life cycle when they are away from the vernal pool.

With respect to plant biodiversity, the vernal pools at The Preserve support a variety of common native wetland plants, and 2 PCC plants. One (Species G) is currently listed as Special Concern and has a robust occurrence in one of Klemens “High Priority” vernal pools that has a gap in the tree canopy above the pool. One Watch List (Species O) occurs in 5 different pools, with the most robust occurrence in the same pool with the canopy gap overhead. This species appears to gradually decline under a closed canopy, but all the while building up a seed bank in the bottom sediments and shoreline of the pool. Then, a disturbance such as a wind-throw opens up a gap in the tree canopy, and there is a flush of germination and new plants. The vernal pools, especially the cryptic pools, are the stronghold at The Preserve for large specimen Pin Oaks (*Quercus palustris*) and Swamp White Oaks (*Quercus bicolor*).

### **Acidic Atlantic White Cedar Swamp**

Acidic Atlantic White Cedar Swamp (a.k.a. AWC swamp) is the only Critical Habitat Type previously mapped at The Preserve as part of the CTDEEP 2009 GIS coverage. There is about 1.5 acres of it on the glaciofluvial sand sediments in the northeast part of the Preserve. It is classified in the CTDEEP 2009 GIS coverage as the Cedar Swamp subtype, but I have classified it as Cedar/Hardwood, based on the relative co-prominence of Red Maple and Black Gum. It appears to be one of 2 small fragments that remain in the area of a ~20-acre Acidic Atlantic White Cedar Swamp that existed as late as the 1934 aerial photo flight. Atlantic White Cedar (*Chamaecyparis thyoides*) is an uncommon and habitat-restricted species in the northeast that is also a GCN species and host plant for the State-Endangered butterfly, Hessel’s Hairstreak (*Callophrys hesseli*) and the State-Special Concern (Historic) moth, Lemmer’s Noctuid Moth (*Lithophane lemmeri*). Also, AWC Swamps are among the habitats in which the State-Endangered dragonfly Ringed Boghaunter (*Williamsonia lintneri*) occurs. Besides the AWC itself, another uncommon and habitat-restricted plant that occurs in this habitat at The Preserve is *Utricularia intermedia* (Flat-leaved Bladderwort).

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<sup>48</sup> Longer hydroperiod vernal pools have surface water for a longer portion of the year

Several mature AWC trees occur in a small group just east of the Eversource ROW, which appears to have cut through part of the original ~20-acre stand. This small stand was not, in my opinion, large and floristically distinct enough to map as an AWC Swamp.



Figure 28. Atlantic White Cedar Swamp, in glaciofluvial outwash soils portion of The Preserve.

## Medium Fen

Medium Fen is among the Critical Habitat types included in the CTDEEP 2009 GIS coverage, and included in the 2015 WAP as the Bogs and Fens subhabitat of Shrub Inland Wetland Key Habitat. Medium Fen is a type of bog, in the old and/or colloquial and/or broad sense. It often occurs on deep organic peaty and/or mucky deposits, but it also occurs also on wet acidic sand or very shallow organic deposits over wet acidic sand. Often when the substrate is deep organic deposits, it can be a floating/quaking mat of dead peat moss (*Sphagnum* spp.) and sometimes other mosses and liverworts. MFs are distinguished from the similar Poor Fen by the relatively higher nutrient regime of the Medium Fen, due to the greater influence of minerotrophic surface water and ground water on the Medium Fen. There is a consequent absence from the MF of a suite of bog plants tolerant of or preferring the more acidic, lower nutrient conditions found in the Poor Fen (e.g., *Eriophorum vaginatum* ssp. *spissum*, *Kalmia polifolia*) and likewise certain plants that occur in the MF (e.g., the sedges *Cladium mariscoides* and *Carex lasiocarpa*) which are absent from, or much less abundant than in, Poor Fens. In parallel with the relationship of ASRO and Subacidic Rocky Summit Outcrop, there are some occurrences of that are floristically transitional between MF and PF and if is difficult to assign to one or the other type.

There is a large occurrence of Medium Fen (~17 acres) at The Preserve that occupies most of the area of Pequot Swamp Pond. It occurs as 4 subtypes: Other/Unique (~4.8 ac), Sedge Fen (~1.6 ac), Decodon (~0.2 ac), Shrub thicket (~9.6 ac), and Phragmites (~0.7 ac). Of these subtypes, the Other/Unique and Sedge Fen subtypes (~6.4 ac, collectively) are the most bog-like and have the highest known biodiversity significance (i.e., the rare and uncommon plants occur only in these subtypes or only in large numbers in these subtypes). There is an extensive occurrence of one

PCC plant (Species H) that occurs in these two subtypes, and it is unique at The Preserve to the Pequot Swamp Pond fens. The Sedge Fen is the most bog-like in appearance, being a continuous



Figure 29. Large Cranberry in flower in late June.



Figure 30. Medium Fen, Other/Unique sub-type with Sweet Pepperbush a dominant sub-shrub. This part of the fen is also buoyant but with well-developed hummock-and-hollow microtopography.



Figure 31. Medium Fen, Sedge Fen sub-type, in interior of Pequot Swamp Pond. Quaking Sphagnum mat is relatively level and very buoyant.

floating quaking mat of Sphagnum moss with a saturated moisture regime, and lacking a well-developed woody subshrub or shrub strata (therefore called “bog meadow” in some literature). The Other/Unique subtype also occurs on a floating quaking substrate, but has well-developed hummock-and-hollow microtopography, with the hummocks and hollows supporting different micro-communities. I have called it Other/Unique because it has a well-developed subshrub layer (i.e., shrubs well under 1 m in height) dominated by Sweet Pepperbush (*Clethra alnifolia*). This is a type of fen that has not been previously described in Connecticut and I have been advised to

classify it as the Other/Unique subtype<sup>49</sup>. I have called this Other/Unique subtype the Sub-shrub-height *Clethra* - *Vaccinium macrocarpon* - *Rhynchospora alba* fen.

The Shrub Thicket subtype occurs on less buoyant substrate, is dominated by low shrubs (i.e., 1-2 m in height) and has well-developed hummock and hollow microtopography. The hollows support marsh-like vegetation and the mossy hummocks support several of the below-listed fen indicator species in much less abundance than the Sedge Fen and Other/Unique subtypes, but there are occasional small inclusions in the Shrub Thicket subtype that lean toward the Other/Unique subtype. Over the 2017-2019 period of this survey, the water level at Pequot Swamp Pond has been raised by beaver activity, and at least some portions of the Shrub Thicket subtype have not floated up, and hummock microhabitat has been submerged. Stress and die-back of the shrubs have occurred, and these areas are in transition to open water habitat, rather than fen. The other more buoyant subtypes appear to be rising with the water level and maintaining their fen character, at least for the most part.

The following characteristic uncommon/habitat-restricted plants occur in these subtypes. Single-asterisked species are unique at The Preserve to the Pequot Swamp Pond fen complex. Double asterisked species also occur in the Medium Fen - Other/Unique - “Sand Bog” in the ROW in the northeast corner of The Preserve (see discussion of this habitat in final paragraph).

*Vaccinium macrocarpon* (Large Cranberry)\*  
*Pogonia ophioglossoides* (Rose Pogonia)\*\*  
*Rhynchospora alba* (White Beaksedge)\*  
*Lycopodiella appressa* (Southern Bog-clubmoss)\*\*  
*Rhynchospora fusca* (a beak-rush)\*  
*Cladium mariscoides* (Twig-rush)\*  
*Drosera intermedia* (Spatulate-leaved Sundew)\*\*  
*Drosera rotundifolia* (Round-leaved Sundew)\*\*  
*Eleocharis tuberculosa* (a spike-rush)\*\*  
*Rhexia virginica* (Virginia Meadow-beauty)  
*Spiranthes* sp.\* (unidentified ladies'-tresses)  
*Xyris difformis* (a yellow-eyed grass)\*\*

The Medium Fen complex at Pequot Swamp Pond was very difficult to survey by conventional on-foot methods during the growing season. In many places, my weight would submerge the entire substrate, and often I would break through the peat mat and struggle to escape. Thus, I did not thoroughly explore the entire complex. The occurrence of the PCC plant is very likely more extensive than I was able to document, and the chances are reasonably good that there are additional rare plants in the fen complex. See recommendations for additional botanical survey in “Biological Inventory” section.

There is also a tiny occurrence of Medium Fen over glaciofluvial sand deposits in the Eversource ROW in the northeast corner of The Preserve. This entity I have classified as the Other/Unique subtype and called a “Sand Bog” sub-subtype. It is similar to many working and former working cranberry bogs in that it occurs not on deep organic peat deposits but rather on wet sand with very little accumulation of organic material in the upper horizon. This occurrence at The Preserve lacks the cranberry, however, but hosts a PCC plant.

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<sup>49</sup> Ken Metzler, personal communication



Figure 32. *Rose Pogonia* in Medium Fen "Sand Bog" occurrence on glaciofluvial sandy soil in Eversource ROW. This is a northern-affinity, circumboreal.



Figure 33. *Southern Bog-clubmoss* in Medium Fen "Sand Bog" occurrence on glaciofluvial sandy soil in Eversource ROW, growing next to *Rose Pogonia*.

### **Sand Barren (Other/Unique).**

Sand Barren is among the Critical Habitat types included in the CTDEEP 2009 Critical Habitats GIS coverage, and included in the 2015 WAP as the "Sand Barrens and Sparsely Vegetated Sand and Gravel" subhabitat of Upland Herbaceous Key Habitat. In the 2009 Critical Habitats classification, 2 subtypes are recognized: Sparsely Vegetated Sand, Sandplain grassland, Pitch Pine Scrub. I have classified the subtype of occurrence at The Preserve as Other/Unique, because it is in the Eversource ROW and is subject to both the disturbance of ROW maintenance and ATV use. This ~1 a-acre occurrence is in part sparsely vegetated sand maintained mainly by recreational ATV and traffic, and in part, dry warm season-grass- and low-heath-dominated habitat, and occurs on sandy substrate that appears to be excessively drained. This habitat supports 2 PCC plants, one of which is unique at The Preserve to this habitat. It also supports Wild Indigo (*Baptisia tinctoria*), a host plant for State-Threatened butterfly Frosted elfin (*Callophrys irus*), and several other GCN host plants for State-listed invertebrates. I recorded a total of at least 46 vascular plant taxa in this habitat, 45 of which are native. Much of the herbaceous plant diversity occurs in the ecotone between the heavily trafficked middle of the service road (in which there is little vegetation and ATV track and the grass- and low-heath- co-



*Figure 34. Sand Barren, Other/Unique sub-type in power transmission ROW.*

dominated zones on either side, which illustrates the importance of a certain amount of disturbance to maintaining the plant diversity.

### **Other Significant Natural Communities and Vegetation Types.**

I have mapped the following entities as significant because they are, in my opinion, based on my experience and the best existing information available, distinguished in one or more ways and are important elements of the biodiversity captured and protected of The Preserve. In some cases, I have assigned these entities so-called “place-holder” names that do not exactly coincide with the name of habitats or communities or vegetation types found in the classification sources given at the beginning of this section. This is intentional and due to my provisional assessment that they warrant recognition as separate ecological entities from anything in the existing classifications, and/or their relation to named entities in the existing classifications it is not clear.

#### **Headwater Seepage Swamp**

This habitat occupies in excess of 37 acres cumulatively at the Preserve, and is thus the largest single community to which I have assigned higher biodiversity significance. In the 2015 WAP, it is included in a larger entity, the Red Maple Swamps sub-habitat of the Key Habitat Forested Inland Wetland. The NAHSS is a clearly an ecological subset of the Acidic Seepage Swamp natural community in Metzler & Barrett 2006, but I have called it out as a separate entity based on floristic characteristics that appear, based on my experience, to be distinguished conceptually with the modifier “Headwater” because the large acreage of Seepage Swamps at The Preserve are the origins of multiple 1<sup>st</sup> order, cool and/or cold headwater streams. They also, according to Klemens<sup>50</sup>, contribute to the maintenance of longer hydroperiod cryptic vernal pools, which are support the exceptionally large populations of marbled salamander at The Preserve. Seepage swamps

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<sup>50</sup> Klemens 2004

are distinguished from basin swamps by occupying slopes that are kept wet by groundwater spring seepage, and because of this there is little build of organic sediments.



*Figure 35. Headwater Seepage Swamp, June aspect.*

Groundwater seepage can be a source of minerals leached from bedrock and the overlying soils, or in some cases, the groundwater may be relatively oligotrophic and leach away of nutrients from the root zone. This results in a variety of plant assemblages that is often more diverse than that of acidic basin swamps, and which may include uncommon and rare species. With respect to rare species, the large network of AHSS's at The Preserve supports multiple populations (i.e., a

“meta-occurrence”) of a PCC plant (Species M) that is otherwise only known historically from Connecticut, and is otherwise in New England known from Rhode Island (where it is in the rarest category), and is Endangered in New York State (with less than 5 occurrences). This species is in a relatively cryptic group (sedges), and so it may have been overlooked by modern botanizers, but for the time being, The Preserve hosts the only known occurrences of this regionally quite rare plant in Connecticut. The majority of the population at The Preserve is in this habitat, but some plants occur also in the Acidic Seepage Forest.

With respect to floristic richness, I recorded 98 vascular plant taxa (95 native) in the AHSS, 8 of which appear to occur only in this community. Three uncommon/habitat-restricted plants occur in this unit, though none are unique to it.

### **Acidic Seepage Forest**

Acidic Seepage Forests occur on low slopes where seasonal and periodic seepage discharge brings nutrients leached from bedrock and upland soils into the root zone, and plants with higher nutrient demands are prominent. The name of this community (from Metzler & Barrett 2006) is somewhat misleading: the soil pH is most likely in the subacidic range, and soils are moderately well drained to somewhat poorly drained, not hydric, because the seepage does not persist for long enough in the growing season to produce hydric soil characteristics (as is true for Seepage Swamps). This community is classified in the 2015 WAP as a subset of the Mixed Hardwood Forests sub-habitat of the Key Habitat Upland forest. It is not included in the CTDEEP 2009 Critical Habitats GIS coverage, probably because it is a common habitat type. This habitat is fairly common at The Preserve, occurring low on ridge and valley side-slopes, at heads of valleys and in hollows, and other places where concave slope shape concentrates seepage and nutrients, often just upslope of wetlands and streams. Generally, in most of Connecticut, Sugar

Maple and often White Ash are dominant canopy trees in this community, but at The Preserve, Tuliptree (*Liriodendron tulipifera*) is most frequently the dominant canopy tree, and Sugar Maple and White Ash are local as dominant trees. I have some reason to



Figure 36. Acidic Seepage Forest, in late May.

hypothesize that the prevalence of Tuliptree in this community and the relative unimportance of Sugar Maple and White Ash may be an expression of consistent floristic differences between near-coastal forests and inland occurrences of this community.

I have mapped one occurrence of this community as significant in a Connecticut and regional context. This occurrence supports occurrences of 2 PCC plants, both of which are also of regional conservation concern. For one of these PCC plants, this occurrence is exceptional in a Connecticut context, in terms of number of individuals and number of flowering/fruiting plants (a number of the known occurrences of this plant have few to no flowering/fruiting individuals). The 2<sup>nd</sup> PCC plant of regional conservation concern is the same species that occurs in The Preserve more extensively in the Near-coastal Acidic Headwater Seepage Swamp community. Two uncommon and/or habitat-restricted occur at this site, and this site is the only place I observed one of these plants.

I mapped one other occurrence of Acidic Seepage Forest as potentially significant in a regional context. It may host a plant that is considered regionally rare in New England and whose status in Connecticut is currently unknown. This is the only site in The Preserve at which I observed this species. Unfortunately, my identification was tentative because the plants were not mature, and I neglected to return to the site later to confirm, hence the “potentially significant” above. In the context of The Preserve, this site is one of the most intense concentrations of helophytic rich woods plants.

#### **Acidic, Sandy, Wet Meadow (Other/Unique)**

This community is in the portion of the Eversource power transmission ROW that traverses glaciofluvial sand deposits. Wet meadows are a 2015 WAP sub-habitat of the Key Habitat Herbaceous Inland Wetland, but this occurrence is in a Public Utility Transmission Corridor, which is a 2015 WAP sub-habitat of the Key Habitat Unique; Natural or Man-made. I have mapped this as a significant community occurrence because it hosts one PCC plant and several uncommon and habitat-restricted plants. It occupies an area that was originally Atlantic White Cedar Swamp, as evidenced by the

1934 aerial photographs, and young plants of AWC are frequent in the community today. This community is maintained as a wet meadow by ROW vegetation management. The invasive Common Reed (*Phragmites australis*) has become established in a portion of this community, but has not yet completely displaced the native plants in this area and not yet become a monotypic stand. The above-described very small occurrence of Medium Fen - Other/Unique - “Sand Bog” is an inclusion in this community.

### **Moderately Well-drained Acidic Sandy Grass-/heath-land (Other/Unique).**

This community also occurs in the in the portion of the Eversource power transmission ROW that traverses glaciofluvial sand deposits, at a slightly higher elevation than the above-described Wet Meadow community. The soil hydrologic regime in this community is moderately well drained or somewhat poorly drained, with a seasonally high water table. This community is maintained by ROW vegetation management. It is not clear



Figure 37 Moderately Well-drained Acidic Sandy Grass-/heath-land (Other/Unique), in July 2018. Shrubs barely 3 ft high.



Figure 38. Same habitat in July 2020, growing up into shrubland.

where this community fits into the 2015 WAP classification. It could be put in the Key Habitat Upland Herbaceous or into Unique; Natural or Man-made. I have mapped this community as significant because it hosts 3 PCC plants and several uncommon habitat-restricted plants. In this community, the rare and uncommon species are concentrated in the ROW service road, while the less frequently disturbed areas outside the service road have become dominated by low heaths and Sweet Pepperbush (*Clethra alnifolia*), and there is a deeper surficial layer of organic material (i.e., duff) than in the service road habitat. At present, it appears that the woody shrubs are gradually invading the service

road habitat, to the detriment of the rare and uncommon herbaceous plants. It is clear that some more specialized management than what has taken place in the recent past is needed here to maintain the occurrences of the rare and uncommon plants.

**Telephone ROW/ dirt road thru sandy acidic seasonally wet forest.**

This herbaceous community occurs on glaciofluvial sand deposits in the lower, wetter parts of an old dirt road running through a forested area. I have mapped it as a significant community because it supports (or did support as recently as 2017) one PCC plant. The hydrologic regime is probably moderately well drained and/or somewhat poorly drained and/or possibly poorly drained in places. The plant assemblage is fairly diverse and, together with the presence of the PCC plant, suggests that there may have been other rare plants in the past, and may still exist as viable seed in the seed bank. This community was once more open and the closing in of the maturing forest canopy has probably caused the loss of plant species and the gradual diminishment of the numbers of the PCC plant that was still hanging on in very small numbers in 2017. Management, in the form of opening up the tree canopy over the road, will likely rejuvenate this community and possibly restore the numbers of the one known PCC plant and perhaps others that are in the seed bank.

**Dry Acidic Forest, Oak Woodland Sub-type.**

In the 2015 WAP, this community is classified under the Oak Forests sub-habitat of the Key Habitat Upland Forest. In the 2006 Metzler & Barrett natural community classification, these are Dry Acidic Forests on Glacial Till, and the two vegetation subassociations Black oak - Chestnut oak / Black huckleberry (*Quercus velutina* - *Quercus prinus* / *Gaylussacia baccata*) community and Black oak / Blue Ridge blueberry (*Quercus velutina* / *Vaccinium pallidum*) community. These subassociations are very common in Connecticut and at The Preserve, and generally do not have PCC and



Figure 39. Dry Acidic Forest, Oak Woodland Sub-type.

uncommon/habitat-restricted plants associated with them. However, I have mapped two

occurrences at The Preserve as at least potentially significant, because they are large semi-open woodlands<sup>51</sup>, as opposed to closed canopy forests. These woodlands, which occur on rocky hilltops, were probably Acidic Rocky Summit Outcrop habitat (or “balds”) not many years ago, and still may be important habitat for reptiles that use openings in upland forest for basking.

#### **Acidic Seepage Wet Meadow on Till (Other/Unique).**

I have mapped this open-canopy herb-dominated community as significant at two locations in the power transmission ROW, because one hosts a PCC plant (Species M) currently, and the other formerly hosted the rarest class of PCC plant (Species B). I was unable to find the PCC plant in the latter Wet Meadow occurrence during my survey, but this plant is an annual and may be viable in the seed bank. Both occurrences also host a diverse assemblage of other native plants, and invasives are absent or relatively unimportant. An increase in nearby non-native *Phragmites australis* potentially threatens both occurrences in the long term. One of these occurrences is shown in Figure 12 (page 37).

#### **Dry Warm Season Grassland.**

This community now occurs in The Preserve only in the power transmission ROW, and I have designated it as a significant natural community because one occurrence hosts a robust population of one of the PCC plants (Species K), and the other is potential habitat for the same species. These communities are dominated by the native warm season grasses Little Bluestem (*Schizachyrium scoparium*) and Virginia Bluestem (*Andropogon virginicus*). And they are very similar to, and perhaps could be considered a form of, Acid Rocky Summit Outcrop- Grassy Glade/Bald, but I have made it a separate entity because it is relatively less dry and more densely vegetated than that community, and lacking in many of the more xerophytic species that occur in the more diverse expressions of that community.



Figure 40. Dry Warm Season Grassland in Eversource ROW, late fall aspect.

#### **Floristic Inventory.**

During field survey from April 2017 through September 2020, I observed at The Preserve approximately 617 vascular plant taxa<sup>52</sup> that are not known or suspected to have been

<sup>51</sup> “woodland” as used in this report, means a treed habitat with gaps between the trees, or openings in the tree canopy frequent. Areal cover of tree canopies, when leafed out, is from 25% to 60%.

<sup>52</sup> The generic terms “taxon” and its plural “taxa” are used in this report, rather than “species”, because in

## **Appendix B**

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### **Hunting Assessment Report**



STATE OF CONNECTICUT  
DEPARTMENT OF ENERGY AND ENVIRONMENTAL PROTECTION  
BUREAU OF NATURAL RESOURCES  
WILDLIFE DIVISION

**THE PRESERVE**

**HUNTING REVIEW TEAM REPORT**

**Prepared by: Michael Gregonis, Wildlife Biologist II**

**April 2018**

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**Purpose of Review**

The Department of Energy and Environmental Protection (DEEP) has established procedures and guidelines to determine whether or not land managed by the Department shall be utilized for hunting. These guidelines pertain to: 1) initial consideration of newly acquired parcels, 2) reviews of existing DEEP lands previously closed to hunting, 3) DEEP lands currently open to hunting where the Department has received a public safety related complaint or request for closure, and 4) in-house review of current hunting policy on a parcel of DEEP land.

The Hunting Review Team (HRT) is comprised of representatives from DEEP's Divisions of Wildlife, Forestry, Environmental Conservation Police, and Parks. Members of the team conduct a thorough field inspection, evaluate aerial photography and topographical maps to identify important features including residences, nature of the terrain, roadways, trails and review historical law enforcement information to determine whether or not hunting activities may present an unreasonable risk to public safety. This hunting review was undertaken to answer the question: "Can hunting take place in a safe and prudent manner consistent with other outdoor recreation?"

**Site Description**

The Preserve property is jointly owned by DEEP and the Town of Old Saybrook. The 890± acre parcel was acquired in April 2015 and is managed by a Cooperative Management Committee with a representative from DEEP and a representative from the Town under the terms of a Cooperative Management Agreement. The Nature Conservancy also holds a Conservation and Public Recreation Easement on the property to ensure it will be maintained predominantly in its natural, scenic, forested, and/or open space condition, and to provide opportunities for public recreation. The overall goal is to manage the property as a multi-use forest to support public recreation and education, to maintain important natural communities and habitats, to protect threatened plant and animal populations, and to increase forest and habitat diversity.

The Preserve property may be categorized as principally an upland mixed hardwood/conifer forest with a variety of wetlands and watercourses, including vernal pools, intermittently scattered across the site. The understory is composed of mountain laurel and blueberry with spicebush in the more mesic areas. Several special concern plants and wildlife species have been identified on the property. The property is one contiguous wooded parcel with few bisecting roads and a limited number of residences, existing primarily on the south side of the property.

## **Site Evaluation**

On November 4, 2015, a hunting evaluation was conducted on-site by the following DEEP personnel: Michael Gregonis, Wild Turkey/Deer/Small Game Biologist; Paul Rothbart, Supervising Wildlife Biologist; Ann Kilpatrick, District Wildlife Biologist; Thomas Donlon, Conservation Education/Firearms Safety Program Coordinator; Laurie Fortin, Wildlife Biologist; Matthew Stone, Environmental Conservation Police Officer; William Hochholzer, Supervising Forester; and Alexander Sokolow, Parks and Recreation Unit Supervisor.

## **Key Findings**

Based upon the evaluation process, which included a review of aerial photographs, topographic maps and the on-site inspection, the HRT found:

- Nearly the entire property is wooded with the exception of Pequot Swamp (approx. 17 acres) and smaller wetland complexes.
- The majority of residences occur on the south side of the property with a small number on the northwest and northeast corners. Approximately 130 acres of the property is subject to the 500-foot firearms restriction regulation (Attachment A).
- An abundance of hiking trails (interim) are available throughout the property and on the adjoining property owned by the Essex land Trust (Attachment B).
- An increase in the use of The Preserve by the public has been observed by DEEP Environmental Conservation Police in recent years, including the use of un-blazed hiking/mountain biking trails that seem to be growing in numbers. A recent Eagle Scout project has clearly marked the trailheads and major trails, however, it appears that mountain bikers are creating additional unauthorized trails off of the existing trails.
- The Preserve is located in Deer Management Zone 12, one of two zones in the state where deer-human conflicts are common. Hunting regulations are designed to reduce conflicts in this zone. Further, deer populations on properties of this size must be managed in order to prevent deer from impacting habitat.

## **Conclusion**

Regulated hunting as described in the following recommendations can be conducted safely and compatibly with other planned outdoor uses of the property.

## **Recommendations**

- The area should be open to all forms of deer hunting including archery, shotgun, and muzzleloader, which follow the regulations established for state-managed lands.
- The area should be open for all types of small game hunting, excluding waterfowl. The one wetland area suitable for waterfowl hunting is in close proximity to a housing development, reducing its viability as a suitable hunt area.
- The area should be administered for spring, fall firearms, and fall archery wild turkey hunting under the existing state land regulations.
- Signs (similar to those shown on Attachment C) should be posted at each trailhead and along the property boundary to inform the public that hunting may be occurring on the property.
- A map similar to Attachment A showing The Preserve boundaries, parking areas, and 500-foot firearms restriction areas, should be posted at each trailhead and made available on the Town's and DEEP's websites.



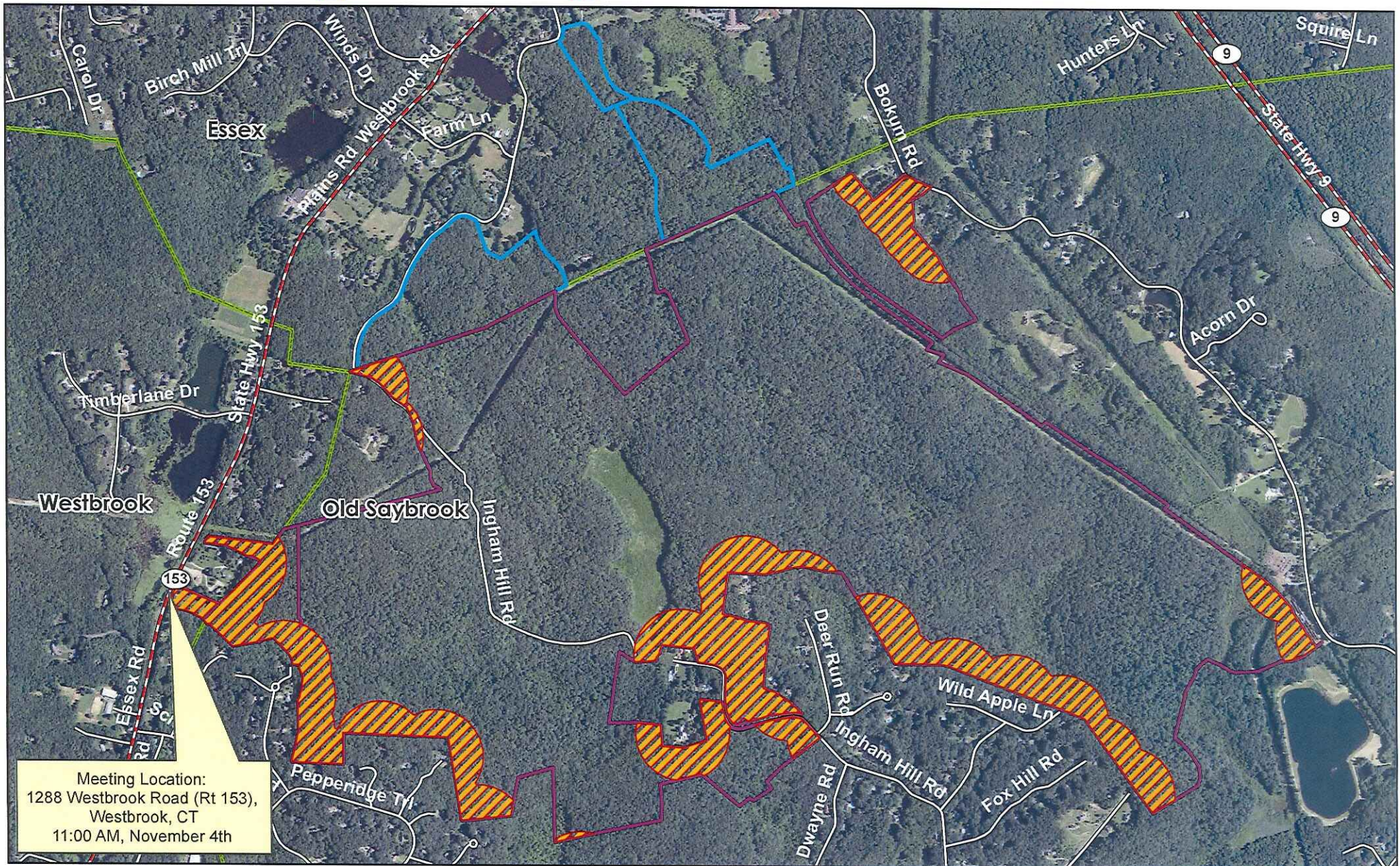
# The Preserve Property

Westbrook/Old Saybrook, CT

Hunting Review Team Report  
Attachment A



Symbols: Preserve Boundary Essex Land Trust parcels 500 Ft. Firearms Restriction



Map Date: 11/2/15; Ortho 2012 NAIP

State of Connecticut - Department of Energy & Environmental Protection - 79 Elm St. - Hartford, CT 06106 - [www.ct.gov/deep](http://www.ct.gov/deep)

# Hunting Review Team Report Attachment B

- The Preserve property
- Interim Trails**
- Blue Trail
- Caleb's Trail
- Green Trail (north)
- Green Trail (south)
- Red Trail
- Orange Trail
- Yellow Trail
- Utility line
- Service road
- Town boundary
- River or stream
- Parks and open space
- Waterbody
- Point of interest
- Existing Parking Lot
- Future Parking Lot

Essex parking located on Ingham Hill Road, which intersects with Route 153, Westbrook Road.

Interim trails, April 2016. Best parking at this time is on Ingham Hill Road at north ends of red or blue trails in Essex. See sign at intersection of Route 153 and Ingham Hill Road in Essex. Old Saybrook parking is across from #241 Ingham Hill Road on south end of blue trail. (Ingham Hill is not a thru road).

Old Saybrook Parking (Interim, five spaces)



0 0.1 0.2 Miles

February 25, 2016

# The Preserve

INTERIM TRAILS

Please: Pack out all trash. Stay on trails. No unauthorized motorized vehicles.  
No camping. No fires. Take only pictures, leave only footprints.  
[http://www.oldsaybrookct.org/Pages/OldSaybrookCT\\_CC/CC\\_trail\\_maps](http://www.oldsaybrookct.org/Pages/OldSaybrookCT_CC/CC_trail_maps)



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## Attachment C

### Hunting Review Team Report – The Preserve, Old Saybrook

Example - Sign for posting at trailhead kiosk



Example - Sign for posting along property boundary



## Appendix C

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### Photo Documentation



**SITE PHOTOGRAPHIC LOG**  
**Client: The Trust for Public Land**  
**Project: The Preserve Recreational Use Assessment**

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**Photographer: J. Lord**  
**Date: 1/4/2019**  
**Photo No.: 1**

**Comments:** Representative photo of a “No Unauthorized Motor Vehicles Allowed” sign at The Preserve.



**Photographer: J. Lord**  
**Date: 1/16/2019**  
**Photo No.: 2**

**Comments:** Representative photo of a rock wall.



**SITE PHOTOGRAPHIC LOG**  
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**Photographer: J. Lord**  
**Date: 1/16/2019**  
**Photo No.: 3**

**Comments:** Representative photo of *Opuntia humifusa* (Eastern prickly pear) in the utility right-of-way.



**Photographer: K. Stackpole**  
**Date: 8/09/2018**  
**Photo No.: 4**

**Comments:** Opening in canopy on northern portion of yellow trail.



**SITE PHOTOGRAPHIC LOG**  
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**Photographer: J. Lord**  
**Date: 1/4/2019**  
**Photo No.: 5**

**Comments:** Representative photo of an inundated trail located on the southern portion of the yellow trail.



**Photographer: J. Lord**  
**Date: 1/16/2019**  
**Photo No.: 6**

**Comments:** Representative photo of an abandoned trail off the red trail.



**SITE PHOTOGRAPHIC LOG**  
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**Photographer:** E. Perko  
**Date:** 11/5/2021  
**Photo No.:** 7

**Comments:** Bridge over stream crossing, along the red trail.



**Photographer:** J. Lord  
**Date:** 1/16/2019  
**Photo No.:** 8

**Comments:** Representative photo of a bridge in need of repair, located along the red trail.



**SITE PHOTOGRAPHIC LOG**  
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**Photographer:** Unknown  
**Date:** 1/14/2015  
**Photo No.:** 9

**Comments:** Ebenezer  
Ingham house foundation off  
of red trail.



**Photographer:** Unknown  
**Date:** 1/14/2015  
**Photo No.:** 10

**Comments:** Ingham well off  
of red trail.



**SITE PHOTOGRAPHIC LOG**  
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**Photographer: Unknown**  
**Date: 1/14/2015**  
**Photo No.: 11**

**Comments:** Representative photo of a red maple swamp.



**Photographer: J. Lord**  
**Date: 1/4/2019**  
**Photo No.: 12**

**Comments:** Proposed outlook located on a rock outcrop off the red trail overlooking a wetland.



**SITE PHOTOGRAPHIC LOG**  
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**Photographer: J. Lord**  
**Date: 1/4/2019**  
**Photo No.: 13**

**Comments:** Inundated trail parallel to a newly created trail.



**Photographer: J. Lord**  
**Date: 1/4/2019**  
**Photo No.: 14**

**Comments:** Bridge made from logs and rocks.



**SITE PHOTOGRAPHIC LOG**  
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**Photographer: Unknown**  
**Date: 12/12/2014**  
**Photo No.: 15**

**Comments:** Rocky community habitat with mountain laurel, red cedar and blueberry off the green trail.



**Photographer: Unknown**  
**Date: 1/7/2015**  
**Photo No.: 16**

**Comments:** Dam associated with the 1930's Hunting Club adjacent to Pequot Swamp Pond.



**SITE PHOTOGRAPHIC LOG**  
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**Project: The Preserve Recreational Use Assessment**

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**Photographer: Unknown**

**Date: 1/14/15**

**Photo No.: 17**

**Comments:** Representative photo of a vernal pool at The Preserve.



**Photographer: J. Lord**

**Date: 1/4/2019**

**Photo No.: 18**

**Comments:** Representative photo of the utility right-of-way.



**SITE PHOTOGRAPHIC LOG**  
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**Photographer: J. Lord**  
**Date: 1/4/2019**  
**Photo No.: 19**

**Comments:** Representative photo of a “biking rules” sign at the site.



**Photographer: J. Lord**  
**Date: 1/14/15**  
**Photo No.: 20**

**Comments:** Representative photo of an area overgrown with a *Berberis thunbergii* (Japanese barberry) stand.



**SITE PHOTOGRAPHIC LOG**  
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**Photographer: J. Lord**  
**Date: 12/7/2018**  
**Photo No.: 21**

**Comments:** Representative photo of the rock garden at the overlook area on the east side of the Pequot Swamp Pond.



**Photographer: K. Stackpole**  
**Date: 8/9/2018**  
**Photo No.: 22**

**Comments:** Representative photo of a formerly closed trail reopened by bikers.



**SITE PHOTOGRAPHIC LOG**  
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**Photographer: J. Lord**  
**Date: 1/4/2019**  
**Photo No.: 23**

**Comments:** Headwaters of Oyster River in the southeast portion of The Preserve.



**Photographer: J. Lord**  
**Date: 1/14/2019**  
**Photo No.: 24**

**Comments:** Atlantic white cedar stand in the southeastern portion of the site.



**SITE PHOTOGRAPHIC LOG**  
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**Photographer: Unknown**  
**Date: 1/14/2015**  
**Photo No.: 25**

**Comments:** Evidence of motorbike, four-wheeler use on the utility right-of-way at The Preserve.



**Photographer: K. Stackpole**  
**Date: 4/15/2019**  
**Photo No.: 26**

**Comments:** Representative photo of former parking area in Old Saybrook.



**SITE PHOTOGRAPHIC LOG**  
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**Photographer:** K. Stackpole  
**Date:** 4/15/2019  
**Photo No.:** 27

**Comments:** Representative photo of parking area in Westbrook.



**Photographer:** K. Stackpole  
**Date:** 4/15/2019  
**Photo No.:** 28

**Comments:** Two handicap accessible designated parking spots at Westbrook entrance.



**SITE PHOTOGRAPHIC LOG**  
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**Project: The Preserve Recreational Use Assessment**

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**Photographer: K. Stackpole**  
**Date: 4/15/2019**  
**Photo No.: 29**

**Comments:** Representative photo of parking area in Essex east.



**Photographer: K. Stackpole**  
**Date: 4/15/2019**  
**Photo No.: 30**

**Comments:** Representative photo of parking area in Essex west.

