Property Management Plan

The Granby Land Trust
The Western Barndoor Hill Preserve
256 Simsbury Road, West Granby, CT

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TABLE OF CONTENTS

INTRODUCTION

The purpose of this plan is to guide the future management and use of Granby Land Trust's Western Barndoor Hill Preserve located on Simsbury Road in Granby, Connecticut. This plan describes the current conditions and natural resources of the property and recommends an effective management strategy to protect natural habitats for plants and wildlife while expanding the property's public recreational uses. This is intended to be a "living document" that is revised or amended over time as new information becomes available and/or as site conditions change. This plan will help the Granby Land Trust (GLT) achieve its mission and stewardship objectives by: (1) identifying the site's conservation values; (2) identifying potential threats to those conservation values; and (3) proposing a stewardship strategy which is commensurate with the Trust's capacity to implement the plan. Site visits to collect field data for this report were conducted in May, 2013.

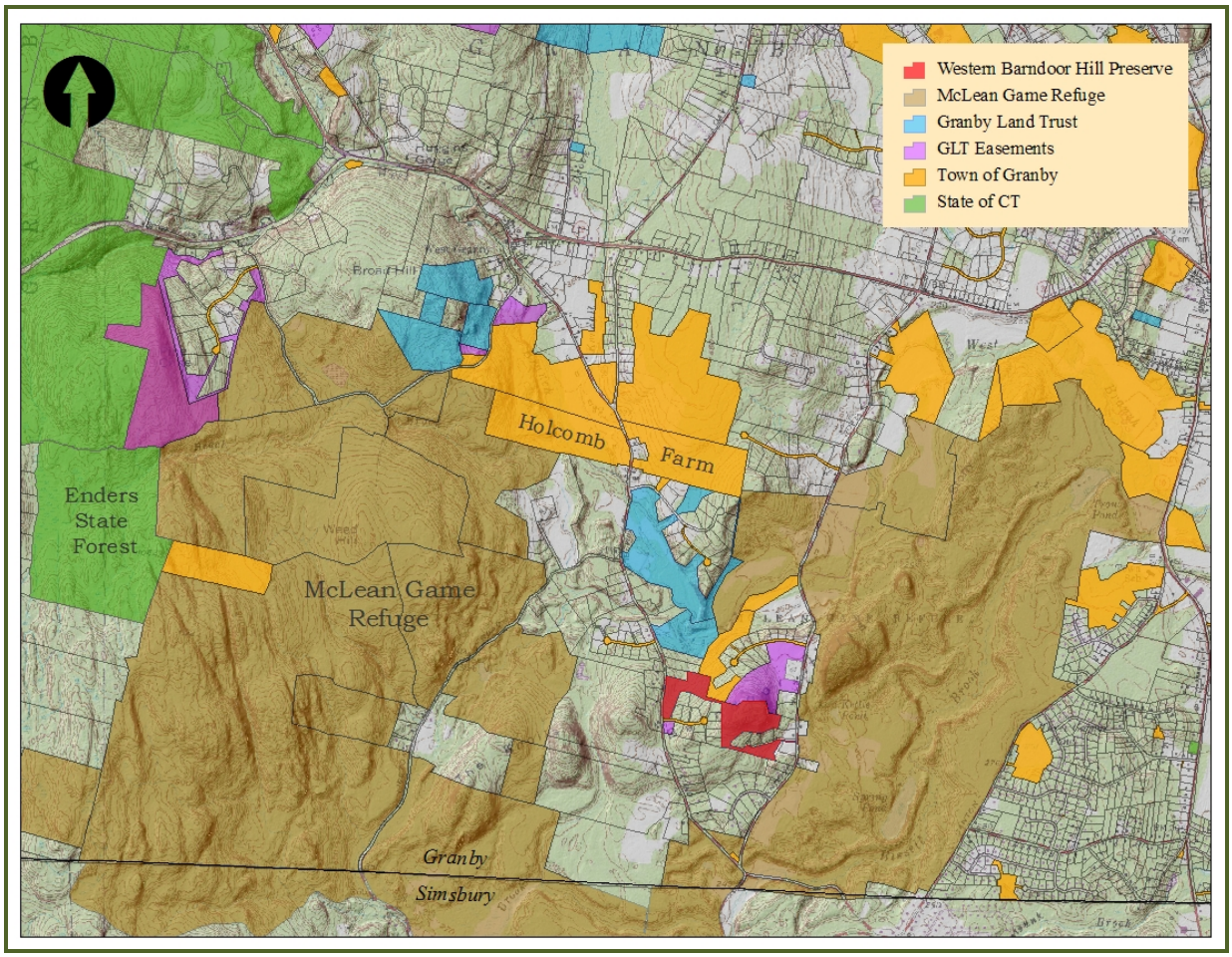


Fig. 1. Protected Open Space within the vicinity of the Western Barndoor Hill Preserve

The 32.7± acre Western Barndoor Hill Preserve in southern Granby was deeded to Granby Land Trust, Inc. (GLT) by Barndoor Hills Development LLC Development (BHD) on November 12, 1999 (Vol. 236, p. 798). The Preserve is located within an expansive greenway of undeveloped forest and farmland in southern Granby which includes GLT preserves and conservation easements, Town of Granby open space and the 4300± acre McLean Game Refuge (See Fig. 1). To the north is GLT's Cunningham Easement (Valkyrie Equestrian Center), Nuckols Preserve and 60-acre Holcomb Hill Preserve. To the east and west is the McLean Game Refuge. This section of Granby, which contains three distinct trap rock ridges, has been identified as a "Primary Conservation

Area" in the Farmington Valley Biodiversity Project prepared by Gruner et al. in 2006 (See Fig. 2)). That report states that: "Six of the primary habitat areas are associated with the intrusive traprock ridge ecoregion that extends along the western edge of the Farmington River valley. "The Knolls," "Barndoor Hills West," and "Barndoor Hills East" are three clustered traprock knolls located in the southern section of town. Large sections of these areas are owned and managed by the McLean Game Refuge. All three of these sites are extensively forested and a high percentage of the breeding bird community associated with these sites is composed of forest-interior dependent species. A number of raptor species including the northern goshawk (*Accipiter gentilis*) reside within these sites. All three sites also feature a diversity of significant natural communities associated with traprock ridges including talus slopes, rocky outcrops and summits, and cliffs. These, in turn, host an array of rare plants. These sites along with other intrusive traprock ridge sites extending to the south in Simsbury and Canton support the only known Connecticut occurrences of the long-leaved bluet (*Houstonia longifolia*)."

The Connecticut Department of Energy & Environmental Protection's (DEEP) Natural Diversity Database (NDDB) program catalogs all current documented records of federally listed species, state-listed endangered, threatened or special concern species and significant natural communities. The most recent NDDB mapping of the preserve (NDDB digital layer, June 2012) dated December, 2012 indicates numerous NDDB records overlap the site in addition to the two significant natural communities discussed in the *Wildlife & Critical Habitats Section* of this report. A NDDB application was submitted to the DEEP on May 15, 2013 for more information regarding these records. Their response letters are in Appendix G.

A. Site Description

Located between Simsbury Road and Barndoor Hills Road near the Granby/Simsbury town line, the 32.7± acre preserve encompasses Western Barndoor Hill, one of several traprock ridges in the area. Bordering the preserve to the east and west are two residential subdivisions: Kettle Pond Lane and Black Oak Drive. There is an established hiking trail leading from Kettle Pond Lane to an overlook on the east face of Western Barndoor Hill. The top of the hill offers 360 degree views of the area described by the Hartford Courant (2/13/2009) as "Some of the most incredible views in…the state."

The preserve falls within the West Branch Salmon Brook sub-regional watershed of the Connecticut River major basin. The preserve is underlain primarily by rock-outcrop complex but also contains over 4.5 acres of wetlands and 2.5± acres of *Farmland of Statewide Importance*. The site contains two vegetation communities, *Dry Subacidic Forest* and *Subacidic Rocky Summit Outcrop*, which are identified as "Critical Habitats" by the CT DEEP. A variety of rare plants have been identified within these critical habitats on Western Barndoor Hill. At the base of the hill bordering Kettle Pond Lane is a potential vernal pool.

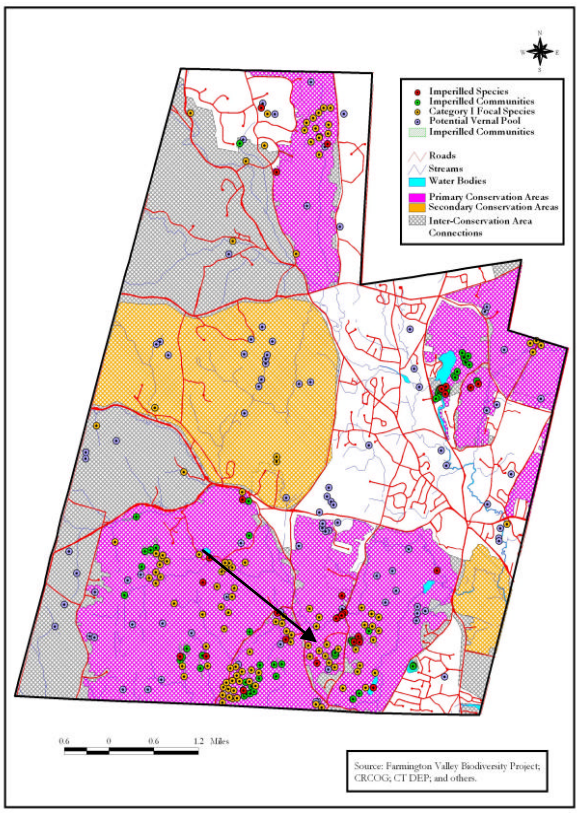


Fig. 2. Granby Biodiversity Map showing Western Barndoor Hill in a "Primary Conservation Area"

B. Acquisition History

256 Simsbury Road: 11/12/99, 32.669 acres, Barndoor Hills Development to GLT

C. Abutters

Identify as needed

D. Restrictions and Conditions

1. Any and all provisions of any ordinance, municipal regulation or public or private law and to building lines and restrictive covenants, all as of record more fully appear.

2. An easement for purposes of ingress and egress granted in a deed dated November 4, 1998 and recorded in Volume 227 at Page 400 of the Granby Land Records.

3. A drainage easement in favor of land designated as "N/F Petra + David Payton" as shown on said subdivision map.

4. An unrestricted right to drain in favor of the Town of Granby over Lot 1 and onto the premises as shown on said subdivision map.

The Grantor herein reserves the right to cross and re-cross the open space in order to provide access for ingress and egress to and from Lot 19 as shown on said subdivision map.

The Grantor further reserves the right to place a sign on said property in the areas where said property abuts Barn Door Hills Road and Simsbury Road displaying the name of the Development and the Street Name.

The Grantor further reserves the right to slope and remove vegetation on the premises within that area which consists of a strip of land twenty (20') feet wide adjacent to Kettle Pond Drive until such time as said private road is completed.

The Grantor further reserves the right to grant a scenic easement over said property to Lots 1 – 20, inclusive, as shown on said subdivision map as each lot is conveyed by the Grantor, which scenic easement shall provide that the said property shall not be developed or altered in any way inconsistent with the provisions of the Conservation Easement from Grantor to Grantee dated the date hereof.

E. Conservation Values

The Western Barndoor Hill Preserve has significant conservation value due to the following:

- The preserve encompasses a traprock ridge, which are known to support rare plants and animals
- Over 4.5 acres of wetlands including a potential vernal pool
- Over 2.5 acres of *Farmland of Statewide Importance*
- Two Connecticut "critical habitats" and numerous State-listed species in and around the preserve
- Proximity to other large tracts of protected open space
- A public recreational trail that provides stunning views of Eastern Barndoor Hill and McLean Game Refuge

STEWARDSHIP GOALS FOR THE PRESERVE

A primary goal for the future management and use of all Granby Land Trust's preserves is to fulfill the organization's mission: ***"The Granby Land Trust works to preserve Granby's Natural Heritage through the conservation of its scenic vistas, open space corridors, wildlife habitat, ecologically sensitive areas, and agricultural lands."***

The primary stewardship goal identified for the Western Barndoor Hill Preserve is to protect sensitive wildlife and plants while maintaining passive recreational uses of the property.

Permitted and prohibited activities within the property are listed in Table 1.

Table 1. Permitted and Prohibited activities in the Western Barndoor Hill Preserve

Activity	PERMITTED	PROHIBITED
Hiking	X	
Birdwatching/nature study	X	
X/C Skiing		X
Picnicking	X	
Camping / Fires		X
Fishing (catch-and-release)		X
Hunting		X
Mechanized Vehicles		X
Horseback Riding		X
Mountain Biking		X

SITE CHARACTERISTICS

A. Natural Resources

1. Topography

The preserve encompasses the crest of Western Barndoor Hill and a portion of its steep eastern and western slopes. The Barndoor Hills are part of a line of small traprock ridges in Granby running parallel to the Metacomet Ridge that extends from Branford, Connecticut to central Massachusetts. The property ranges from an elevation of roughly 650' Above Sea Level (ASL) on the crest of the hill to 350' ASL along Simsbury and Barndoor Hill roads.

2. Geology & Soils

The Preserve is on the contact between two bedrock formations: Buttress Dolerite, which is dark-gray, brown- to gray-weathering dolerite (traprock); and New Haven Arkose. The surficial material is glacial till throughout the majority of the site and talus on the very steep eastern face of the hill. According to the 2007 USDA Soil Survey Geographic (SSURGO) database for Hartford County, the site contains seven soil types including three wetland soils and three soils which are *Farmland of Statewide Importance* (See Table 2). Although the coarse SSURGO database has mapped 7+ acres of wetland within the Preserve, on-site wetland mapping by a soil scientist (shown on survey map by Ed Lally) indicates there are 4.5± acres of wetlands (0.65± in eastern wetland and 3.9± in western wetland). Soil types consist of upland (non-wetland) soils of the Hinckley, Holyoke and Wethersfield soil series. Wetland soils consist of the Wilbraham and Menlo complex, the Scitico, Shaker and Maybid complex and Raypol soil series.

Upland Soils (28± acres)

The Hinckley series consists of very deep, excessively drained soils formed in water-sorted material (outwash). They are nearly level to very steep soils on terraces, outwash plains, deltas, kames, and eskers. The soils in this series are shallow to sand and gravel (12 to 30 inches).

The Holyoke series consists of shallow, well drained and somewhat excessively drained soils formed in a thin mantle of till derived mainly from basalt and red sandstone, conglomerate, and shale. They are nearly level to very steep soils on bedrock controlled ridges and hills. Rock outcrops range from few to many. Hard bedrock is typically present within the upper 20 feet.

The Wethersfield series consists of very deep, well drained loamy soils formed in dense glacial till on uplands. The soils are moderately deep to dense basal till. They are nearly level to steep soils on till plains, low ridges, and drumlins. Permeability is moderately rapid or moderate in the solum and slow or very slow in the dense substratum. Slope ranges from 0 to 35 percent.

Wetland Soils (4.5± acres)

The Raypol series consists of very deep, poorly drained soils formed in loamy over sandy and gravelly glacial outwash. They are nearly level to gently sloping soils in shallow drainageways and low-lying positions on terraces and plains. The soils have a water table at or near the surface much of the year.

The Scitico series consists of very deep, poorly drained soils formed in silty and clayey sediments. They are nearly level to very gently sloping soils in low-lying positions of glaciolacustrine and marine terraces. Scitico soils have a water table at or near the surface much of the year.

The Shaker series consists of very deep, poorly drained soils formed in loamy over clayey sediments. They are nearly level to gently sloping soils in low-lying positions on glaciolacustrine and marine terraces. Shaker soils have a water table at or near the surface much of the year. Typically, these soils are in low-lying broad, flat, or slightly concave areas.

The Maybid series consists of very deep, very poorly drained soils. They are nearly level or level soils on lowlands. Slope ranges from 0 to 3 percent. The soils formed in water deposited material of marine or lacustrine origin. Internal drainage is very slow. Permeability is slow or very slow. The soil is intermittently ponded or has very slow runoff.

Table 2. Soils within the Western Barndoor Hill Preserve (SSURGO database)

Soil Name	Wetland Soils	Farmland Soils	Acreage
Hinckley gravelly sandy loam, 3 to 15 percent slopes		Farmland of Statewide Importance	0.39
Holyoke-Rock outcrop complex, 3 to 15 percent slopes			0.94
Holyoke-Rock outcrop complex, 15 to 45 percent slopes			8.25
Raypol silt loam	X	Farmland of Statewide Importance	1.05
Rock outcrop-Holyoke complex, 3 to 45 percent slopes			10.94
Scitico, Shaker, and Maybid soils	X	Farmland of Statewide Importance	0.96
Wethersfield loam, 3 to 15 percent slopes, extremely stony			0.77
Wethersfield loam, 15 to 35 percent slopes, extremely stony			3.62
Wilbraham and Menlo soils, extremely stony	X		5.69

* Wetland soils are in red

The Wilbraham series consists of poorly drained loamy soils formed in subglacial till. The soils are very deep to bedrock and moderately deep to a densic contact. They are nearly level to gently sloping soils in drainageways and low-lying positions of till hills. Wilbraham soils have a water table at or near the surface much of the year. They have an aquic moisture regime.

The Menlo series consists of very poorly drained loamy soils formed in subglacial till. They are very deep to bedrock and moderately deep to a densic contact (hardpan). They are nearly level soils in depressions and drainageways of till covered plains and hills. Depth to bedrock is commonly more than 6 feet. Menlo soils have a water table at or above the surface most of the year (i.e., the soil may be ponded).

Of these soils, 2.5± acres are classified as *Farmland of Statewide Importance* (See Soils Map, Appendix C). *Farmland of Statewide Importance* are soils that fail to meet one or more of the requirements of prime farmland, but are important for the production of food, feed, fiber, or forage crops. They include those soils that are nearly prime farmland and that economically produce high yields of crops when treated and managed according to acceptable farming methods.

3. Hydrology

The preserve falls within the West Branch Salmon Brook (Basin #4319) sub-regional watershed of the Connecticut River major basin. There are two distinct wetlands on the property bordering Simsbury Road to the west and Barndoor Hills Road to the east. There are no mapped streams on the property, but there is an intermittent watercourse.

4. Upland Plant Communities

The low and mid-slope forest community consists of mesic, mixed hardwood forest. The higher elevations of the preserve, at an approximate elevation above ± 464 feet ASL (Above Sea Level), consists of two regionally rare ridgetop plant communities: (1) dry sub-acidic forest, subtype Ash/Hickory glade; and (2) sub-acidic rocky summit outcrop, sub-type cedar woodland.

These rare habitat types have been identified and mapped as "Critical Habitats" by the CT DEEP. Connecticut's Critical Habitats mapping depicts the classification and distribution of 25 rare and specialized wildlife habitats in the state. It represents a compilation of ecological information collected over many years by state agencies, conservation organizations and individuals. These Critical Habitats represent a subset of important wildlife habitats identified in the Connecticut Comprehensive Wildlife Conservation Strategy (CWCS).

Mixed Mesic Forest

The mesic, mixed hardwood plant community consists of mature second-growth forest, with scattered large sawtimber (>14 d.b.h.) present. Tree species include black oak (*Quercus velutina*), white oak (*Quercus alba*), tulip (*Liriodendron tulipifera*), sugar maple (*Acer saccharum*), black birch (*Betula lenta*) and hickory (*Carya spp.*). There are small inclusions of conifer trees consisting of white pine (*Pinus strobus*) and eastern hemlock (*Tsuga canadensis*). The understory vegetation includes lowbush blueberry (*Vaccinium angustifolium*), christmas fern (*Polystichum acrostichoides*) and hay-scented fern (*Dennstaedtia punctilobula*).

Dry sub-acidic forest, sub-type Ash/Hickory Glade

This plant community type consists of slow-growing forest located primarily on or near the summit of basalt or other mafic rock ridges and is often dominated by white ash (*Fraxinus americana*), hickories (*Carya glabra, C. ovalis, C.ovata*), hophornbeam (*Ostrya virginiana*) and sugar maple (*Acer saccharum*), with few

shrubs and an open grassy ground cover. Soils are either acidic or circumneutral (Metlzer and Barrett, 2006). Tree height is low in stature and the sporadic shrub layer, combined with an herbaceous layer often dominated by grasses and sedges (*Carex pennsylvanica* often dominant) gives this habitat a park-like appearance (Metlzer and Barrett, 2006). This habitat supports a variety of uncommon to rare herbs, wildflowers and spring ephemerals including tick trefoils (*Desmodium spp.*), whorled milkweed (*Asclepias verticillata*), rock-cress (*Arabis spp.*) as well as a variety of ferns including ebony spleenwort (*Asplenium platyneuron*) and woodsia (*Woodsia obtusa*). Spring ephemerals include early saxifrage (*Saxifraga virginiensis*), Virginia spring beauty (*Claytonia virginica*), common blue violet (*Viola sororia*) and dogtooth violet (*Erythronium americanum*) (Metlzer and Barrett, 2006).

This habitat type was identified and mapped at the preserve in 2002 during the FVBP. The FVBP documented the area as being in excellent condition and indicated that this was the only Connecticut occurrences of the long-leaved bluet.

Sub-acidic rocky summit outcrop, sub-type cedar woodland

This plant community type consists of dry to xeric exposed summits, ledges, and other outcrops (primarily basalt and other mafic rocks) with a vegetation of low shrubs, grasses and herbs. Eastern red cedar (*Juniperus virginiana*) with white ash and hickories are the dominant tree species. Rare species noted include long-leaved bluet, balsam groundsel (*Senecio pauperculus*), fuzzy wuzzy sedge (*Carex hirsutella*), green rockcress (*Arabis missouriensis*), cankerweed (*Prenanthes cf. serpentaria*), Bicknell's sedge (*Carex bicknelli*) and blue sedge (*Carex glaucodea*).

Mapping of this habitat type during the FVBP indicated that this habitat type had very recently grown from a cedar glade and is transitional to an ash-hickory glade. The FVBP also indicated that the habitat was in generally excellent condition.

5. Wetland Plant Communities

Two wetlands occur on the preserve, one at the eastern end south of Kettle Pond Lane and the second at the western end bordering Simsbury Road. Both wetlands are classified as "palustrine forested wetlands", or "wooded swamps".

The western wetland is classified hydrologically as a "groundwater slope wetland". Groundwater slope wetlands are wetlands that develop on hillsides or slopes where groundwater discharges to the surface as springs or seeps.

The eastern wetland is classified hydrologically as a "groundwater depression wetland". Groundwater depression wetlands occur in depressions that are topographically low enough to intercept the local groundwater table; these wetlands also receive overland flow from the surrounding uplands. This wetland receives flow directly from an intermittent watercourse flowing from the hillside northwest of the wetland. This watercourse flows across the main trail that leads to the summit.

The eastern wetland also has hydrologic characteristics indicating it may function as a vernal pool (e.g., sparsely-vegetated concave depression). When observed during our field survey on May 17, 2013, the pool was completely dry, demonstrating a hydrologic regime which would not allow for the full development and metamorphosis of vernal pool obligate species (e.g., spotted salamander, wood frog) to occur. This may indicate that the pool has a marginally suitable hydrology with respect to amphibian productivity. However, given the lack of rainfall present this spring, it is difficult to draw conclusions on the suitability of this wetland for vernal pool species based on the limited field work conducted in conjunction with this report.

Wetland vegetation in both wetlands is similar in nature and is typical of wooded swamp wetlands in the region. The tree canopy is dominated by red maple (*Acer rubrum*) with green ash (*Fraxinus pennsylvanica*) also occurring. The shrub layer includes multiflora rose[°] (*Rosa multiflora*), spicebush (*Lindera benzoin*), Japanese barberry[°] (*Berberis thunbergii*), escaped/naturalized Japanese maple (*Acer palmatum*, western wetland only) and winterberry (*Ilex verticillata*). The herb layer includes cinnamon fern (*Osmunda cinnamomea*), sensitive fern (*Onoclea sensibilis*), marsh fern (*Thelypteris palustris*), royal fern (*Osmunda regalis*), brambles (*Rubus sp.*), tussock sedge (*Carex stricta*), marsh bedstraw (*Galium palustre*), jack-in-the-pulpit (*Arisaema triphyllum*), poison ivy (*Toxicodendron radicans*) and jewelweed (*Impatiens capensis*).

6. Wildlife & Critical Habitats

The Western Barndoor Hills Preserve is located within the Western Highlands ecoregion of the Farmington River Valley and was designated as a "Primary Conservation Area" in the Farmington Valley Biodiversity Project (FVBP hereafter, Gruner, et. al., 2006). The FVBP provides the following description of Granby's traprock ridge ecosystem in which the Preserve is located:

The traprock ridge ecoregion extends up through the (Farmington) river valley and includes the Metacomet ridge system that runs along the eastern edge of the river valley and the intrusive ridge system that runs along the western edge of the valley. These unique geological features composed of erosion resistant basalt from ancient lava flows harbor a wide range of important natural communities such as talus slopes and cliffs, bald rocky summits, perched vernal pools and large tracts of contiguous forest. These habitats contribute significantly towards the region's biodiversity. Wildlife species such as the five-lined skink (*Eumeces fasciatus*), Connecticut's only lizard, and the northern copperhead (*Agkistrodon contortrix mokasen*), are restricted to traprock ridge habitats in this region. These ridge systems also function as natural corridors and refugia for migratory birds and large mammals such as the bobcat (*Lynx rufus*) and black bear (*Ursus americanus*). Many rare plants are located within traprock ridge communities. For example, the only Connecticut occurrences of the long-leaved bluet (*Houstonia longifolia*) are found here.

The potential vernal pool (from the Latin *vernalis*, meaning spring) bordering Kettle Pond Lane is also a critical habitat that may support sensitive amphibian and reptile species. Vernal pools are ephemeral wetlands which by definition are typically only saturated during the spring of the year, lack any defined outlet, are devoid of fish and contain one or more obligate breeding species such as wood frogs *(Rana sylvatica)* or spotted salamander *(Ambystoma maculatum)*. Many of the species associated with vernal pools are threatened in the Northeastern United States because these pools are difficult to identify and their conservation requires protection of large tracts of surrounding forest. Guidelines for the conservation of vernal pools recommend maintaining 100-750 ft. (from spring high water) of "critical terrestrial habitat" around all vernal pools. According to *Conserving Pool-Breeding Amphibians in Residential and Commercial Developments in the Northern United States* (Metropolitan Conservation Alliance) "this area provides habitat for amphibians during the non-breeding season for foraging, dispersing, and hibernating. During the breeding season, adults migrate to pools through this zone."

When viewed at a landscape scale, the region in which the preserve is located is heavily forested and capable of providing breeding habitat for a variety of avian species including forest-interior bird species. The site itself, however, may represent suboptimal habitat for forest-dwelling birds due to its small size and proximity to non-forested habitats including residential development, farmland and roads. However, as part of a ridgeline ecosystem, the site likely functions as a migratory corridor offering stopover habitat for birds traveling through Connecticut's Central Valley. During the peak spring migration period in May 2013, we

[°] Denotes invasive, non-native plant species

observed several neo-tropical migrants including the yellow-throated vireo (*Vireo flavifrons*), American redstart (*Setophaga ruticilla*), eastern wood pewee (*Contopus virens*) and pine warbler (*Setophaga pinus*).

B. Cultural & Historical Resources

Unknown – needs to be researched

C. Current Use and Management

There is an existing trail on the property that leads from Kettle Pond Lane to the top of Western Barndoor Hill. GLT has a contractor mow the accessway that runs along the south side of Kettle Pond Lane to the trailhead.

MANAGEMENT ISSUES

During field surveys several primary management issues were identified for the Western Barndoor Hill Preserve. The primary management goal is to protect the site's "critical habitats" and rare plants while preserving the existing passive recreational uses of the site. There is a hiking trail on the preserve which is in good shape but will require periodic maintenance.

A. Boundary Posting & Signage

To avoid illegal tresspass and encroachments, it is essential to locate and clearly post the boundaries of all land trust properties. The preserve boundaries are shown on a Class A2 survey map entitled "Subdivision Plans, Barn Door Hills," prepared for David Payton by Ed Lally and Associates, Inc., May 7, 1999 (See Schedule A) on following page. There are no survey pins set along the property boundaries and none of the boundaries are posted with GLT signs. There is at least one unmarked hiking trail leading into the preserve from an abutting property on Black Oak Drive.

Schedule A from Western Barndoor Hill Warranty Deed

A certain piece or parcel of land situated between Barn Door Hills Road and Simsbury Road in the Town of Granby and shown as "Open Space To Be Deeded To Granby Land Trust, Inc.", on a map entitled "Barn Door Hills Prepared For David Payton Barn Door Hills Road + Simsbury Road Granby, Connecticut Scale 1" = 150' May 7, 1999 Ed Lally and Associates, Inc., Revised 6/18/99 Per Town Staff, 7/8/99 Per Client, 9/27/99 Per Approval" which map is recorded in the Granby Town Clerk's Office.

B. Access and Parking

There is currently very limited parking available at the preserve. There is a small pull-off along on Barndoor Hills Road with room for 3-4 vehicles on McLean Game Refuge property. Visitors must walk from the parking area across Barndoor Hills Road to the trailhead several hundred yards up Kettle Pond Lane. GLT currently has no written agreement with McLean Game Refuge to park on their property. Property owners on Kettle Pond Lane are strongly opposed to having visitors park along the road.

C. Trail Maintenance / Improvements

There is an existing trail on the Preserve that provides access to the crest of Western Barndoor Hill from Kettle Pond Lane. The trail winds between the residences on Kettle Pond Lane and Black Oak Drive, through the two critical habitats on the crest, and ends at the very steep talus slope on the east face of the hill. A trail map is availabe in a small wooden kiosk at the trail head. The trail is in relatively good condition with the

exception of one rocky, eroded section at the base of the slope (See Fig. 3). The eroded section of trail is close to, and up slope from, the potential vernal pool. The trail is marked with faded blue blazes and what appear to be GLT property boundary signs. There is a stone fire pit just off the trail at the crest of the hill that has been used in the past that should be removed (See photo #12).

D. Critical Habitats

The protection of the site's "critical habitats" needs to be carefully balanced with the desire to manage this preserve as a public recreational resource. The two crest habitats contain several rare plants that should be protected, especially any plants that occur near the trail. These rare plants are small herbaceous species and are therefore highly susceptible to damage from foot traffic. The possible vernal pool should also be buffered from human disturbance particularly during the spring months.

MANAGEMENT RECOMMENDATIONS

A. Boundary Posting & Signage

The first priority should be to identify and post the preserve boundaries. This will help discourage future trespasses such as ATV use and illegal hunting. Enforcement of boundary disputes is difficult if the boundaries are not clearly blazed. A surveyor may be required to locate the property boundaries and flag the steeper areas of the preserve. Once the boundaries are flagged GLT should post the entire preserve with GLT boundary signs.

Fig. 3. Rocky, eroded trail section near potential vernal pool and trail markings

B. Access and Parking

According to GLT public use of the preserve is moderate, and therefore the existing small parking area is adequate. It is highly recommended that GLT seek a written agreement with McLean Game Refuge regarding the use of the existing parking area.

C. Trail Maintenance / Improvements

The eroded area at the base of the slope should be repaired to minimize hiking hazards and to protect the abutting wetland/vernal pool. A series of waterbars may be required, and the rocky area could likely be stabilized using gravel or stone dust. Volunteers working with a trail building professional could complete the repairs in a morning. Volunteers should also monitor the trail several times per year to check for storm damage, trash, etc. GLT should also disassemble the fire pit and post signs in the kiosk that state prohibited uses including "No Fires and No Camping."

D. Critical Habitats

- In order to protect the site's critical habitats, a botanical survey of the property is highly recommended. All rare or State-listed plants should be recorded with GPS coordinates and plotted on a map.

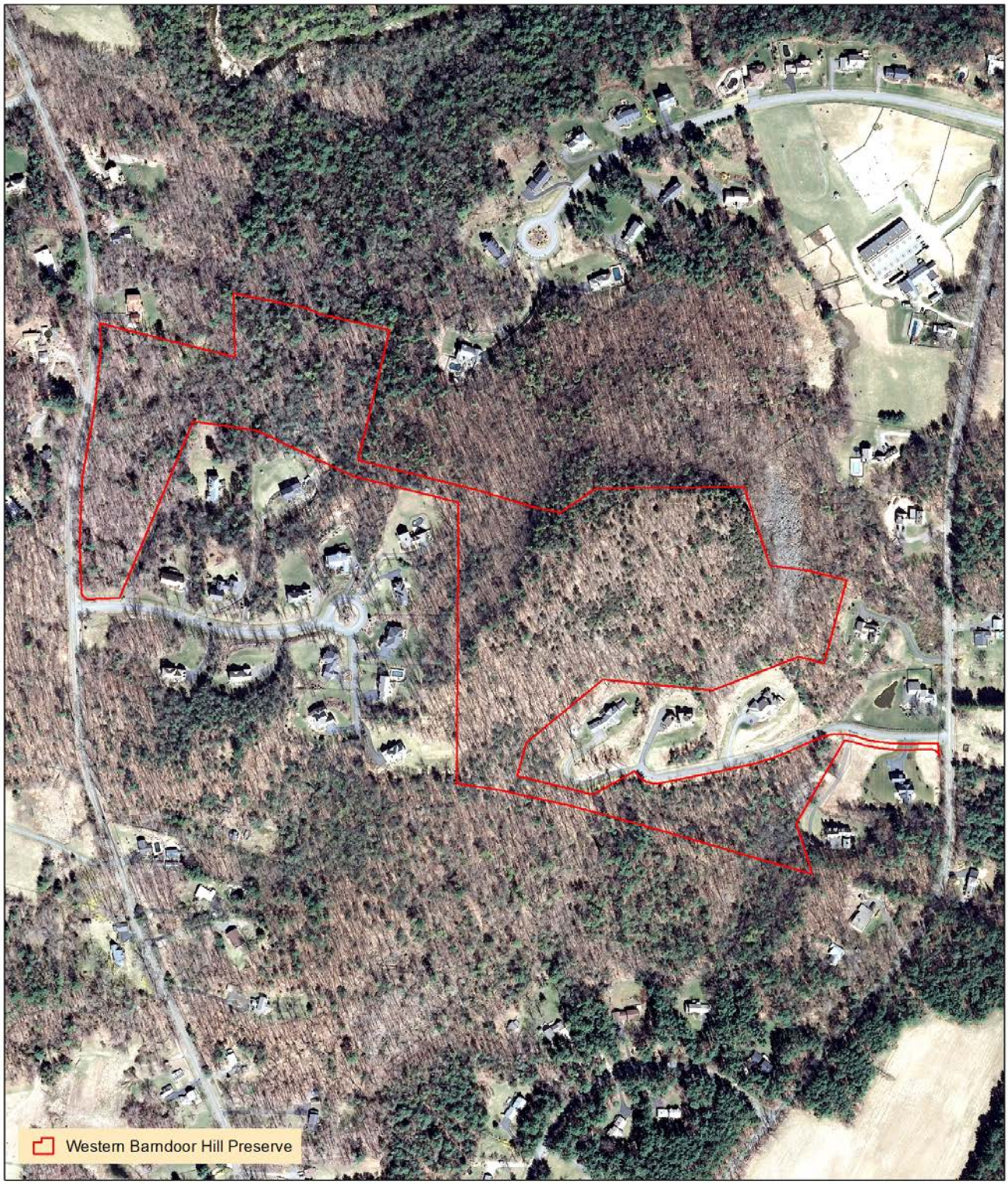
- Invasive species monitoring – The adjacent residential development increases the threat from invasive species infestation, as wooded areas are often a dumping ground for yard waste which can carry invasive species seeds or propagules. Given that rare plant community types which are in excellent condition are present on the site, regular monitoring of invasive species should be conducted. Regular monitoring should identify and map areas of infestation and recommend treatment measures to exclude such species.

- Vernal pool management – the easterly wetland near Kettle Pond Lane may be a vernal pool. Additional biological surveys would be necessary to confirm the presence of vernal pool obligate species. A wildlife biologist such as Eric Davison can be contracted to identify the species breeding within the pool during the spring of the year. Should this wetland be confirmed as a vernal pool, any activities in the vicinity of the wetland should comply with the recommendations in Calhoun and Klemens (2002), in order to protect vernal pool biota.

IMPLEMENTATION

Action	Priority	Who	When	Resources
Surveyor flag boundary	High	Ed Lally?	ASAP	---
Boundary marking	High	Steward/Volunteers	Fall 2013	Signs & Hammer
Parking area agreement	Medium	GLT staff	Summer 2013	
Vernal pool survey	Medium	Wildlife Biologist	Spring 2014	Grants?
Botanical survey	High	Consulting Botanist	Spring – Fall 2014	Grants?
Trail maintenance/repair	Low	Stewards & Volunteers	Year round	Saws, clippers, shovels, gloves

APPENDIX A – AERIAL PHOTOGRAPH



0 375 750 1,500 Feet

This map includes no authoritative data
and is intended for planning purposes only

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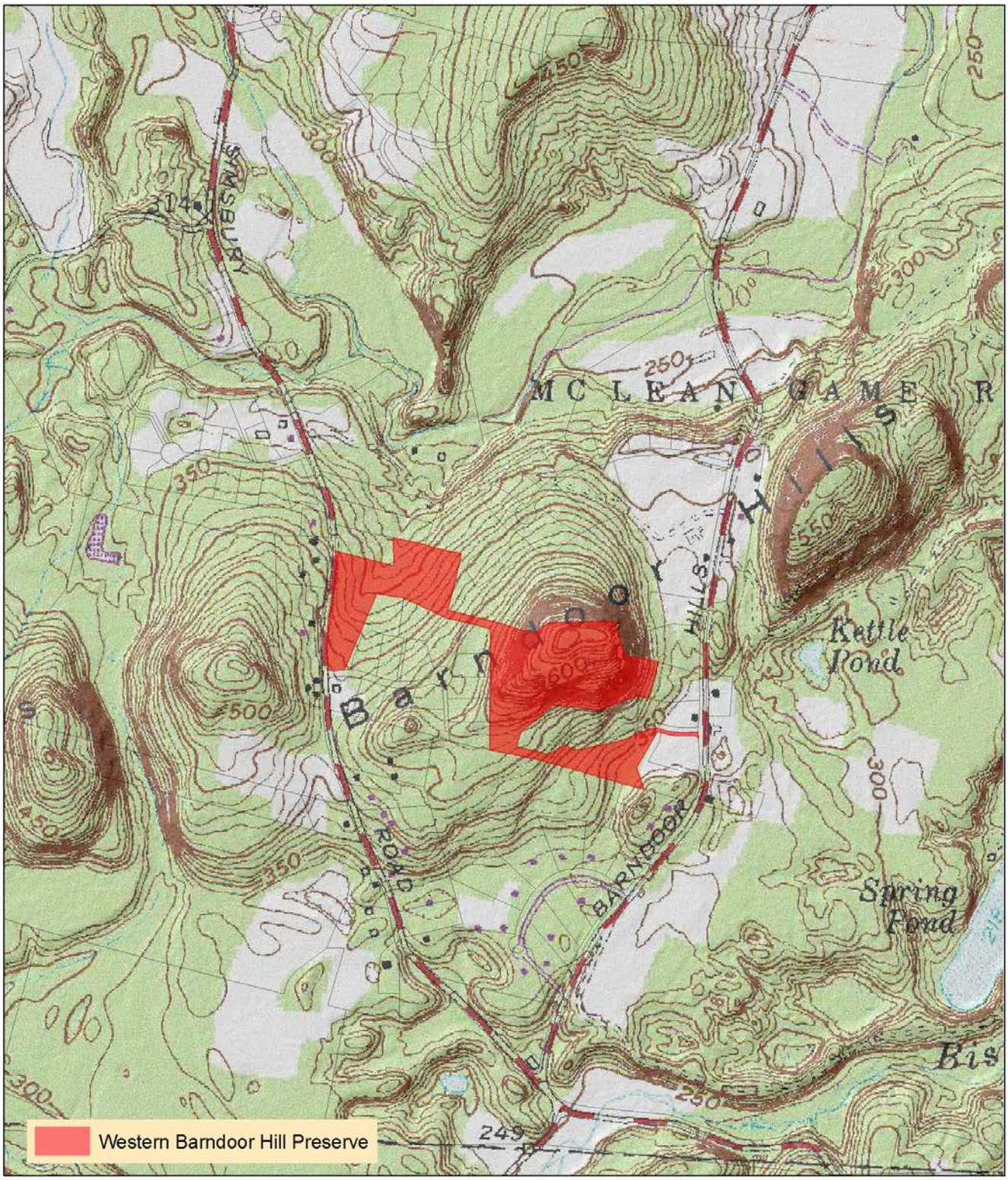
APPENDIX B – TOPOGRAPHIC MAP



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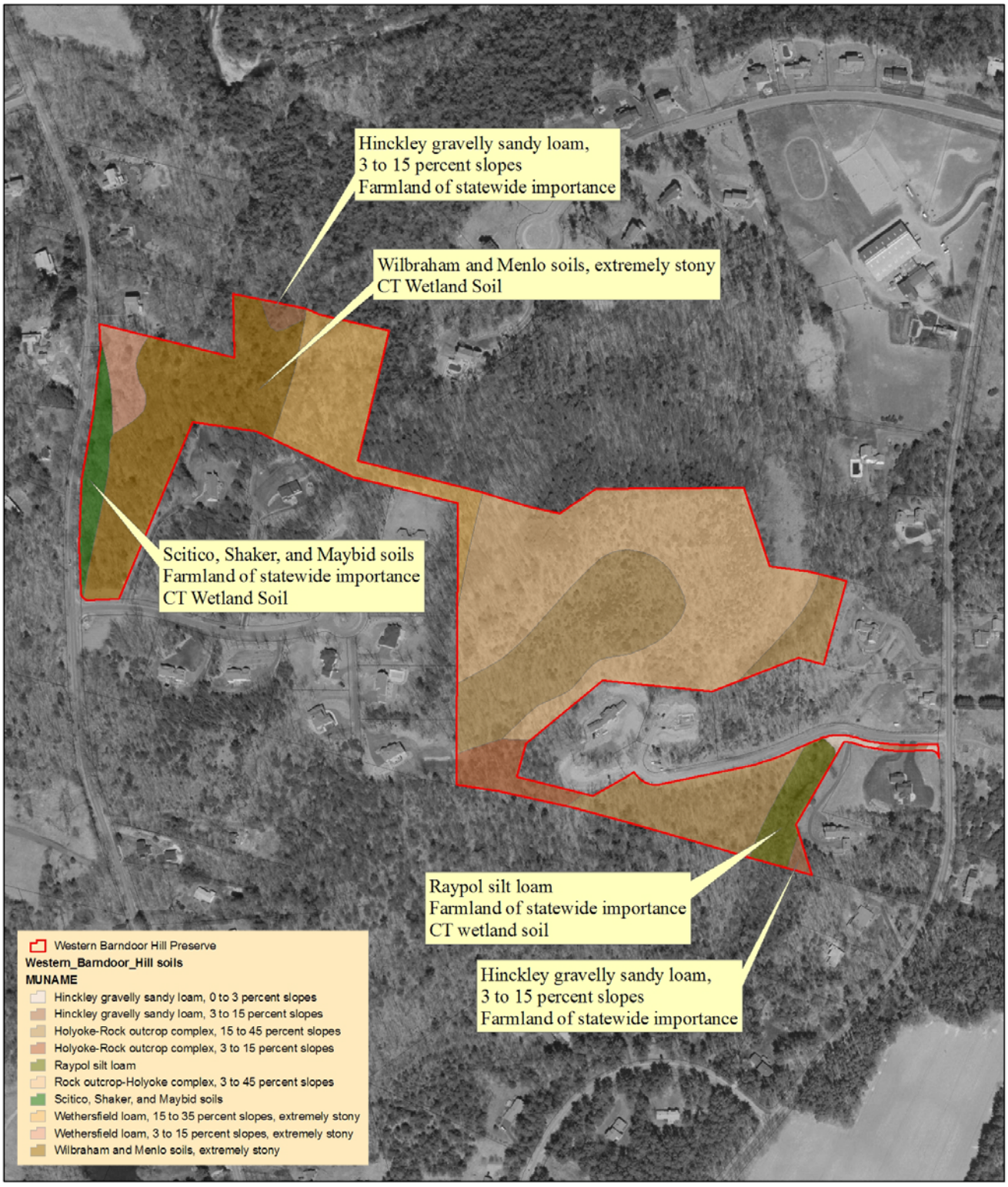
This map includes no authoritative data
and is intended for planning purposes only

APPENDIX C – SOILS MAP

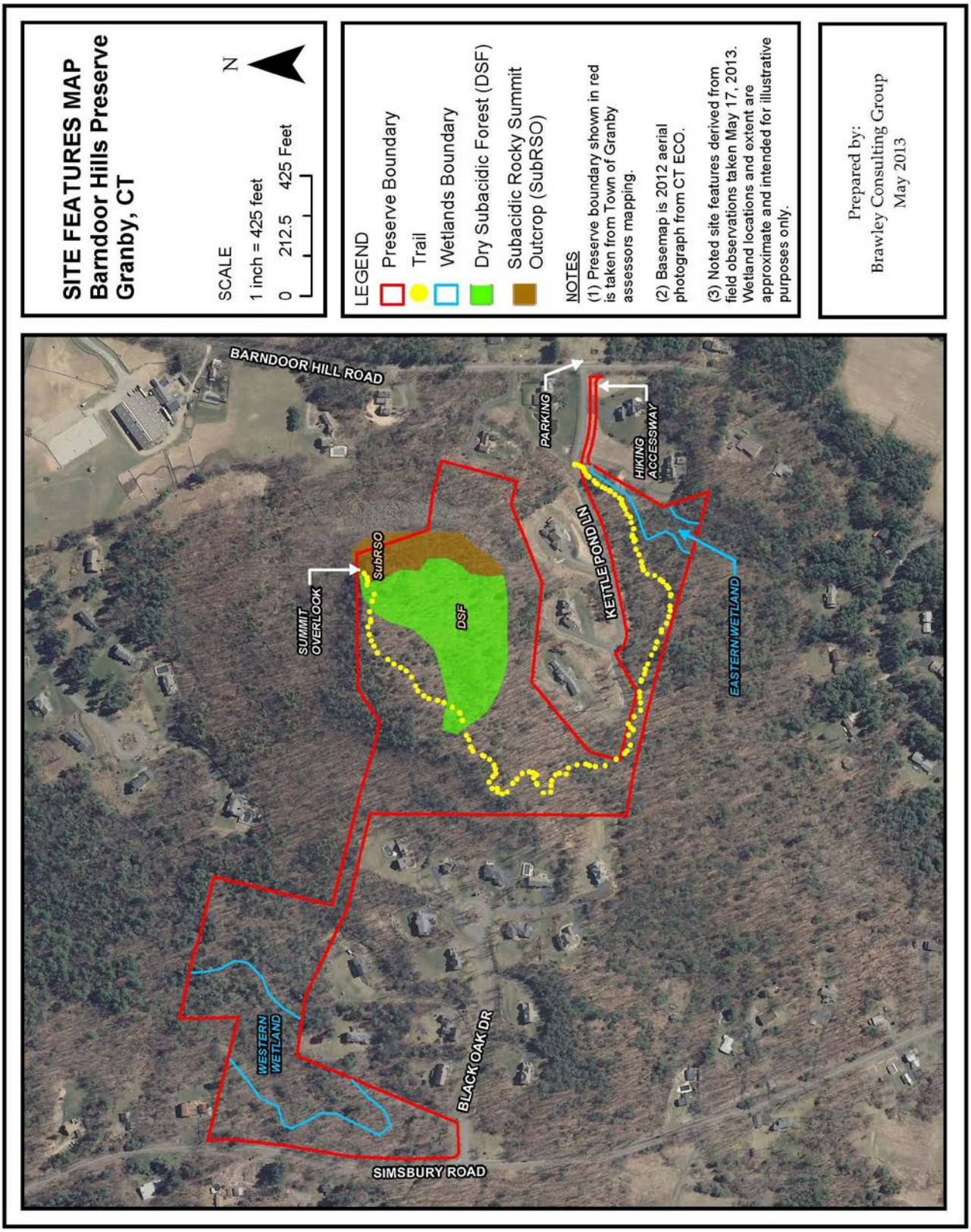


0 375 750 1,500 Feet

This map includes no authoritative data
and is intended for planning purposes only

N W E S

APPENDIX D – SITE FEATURES MAP



APPENDIX E – ROAD MAP

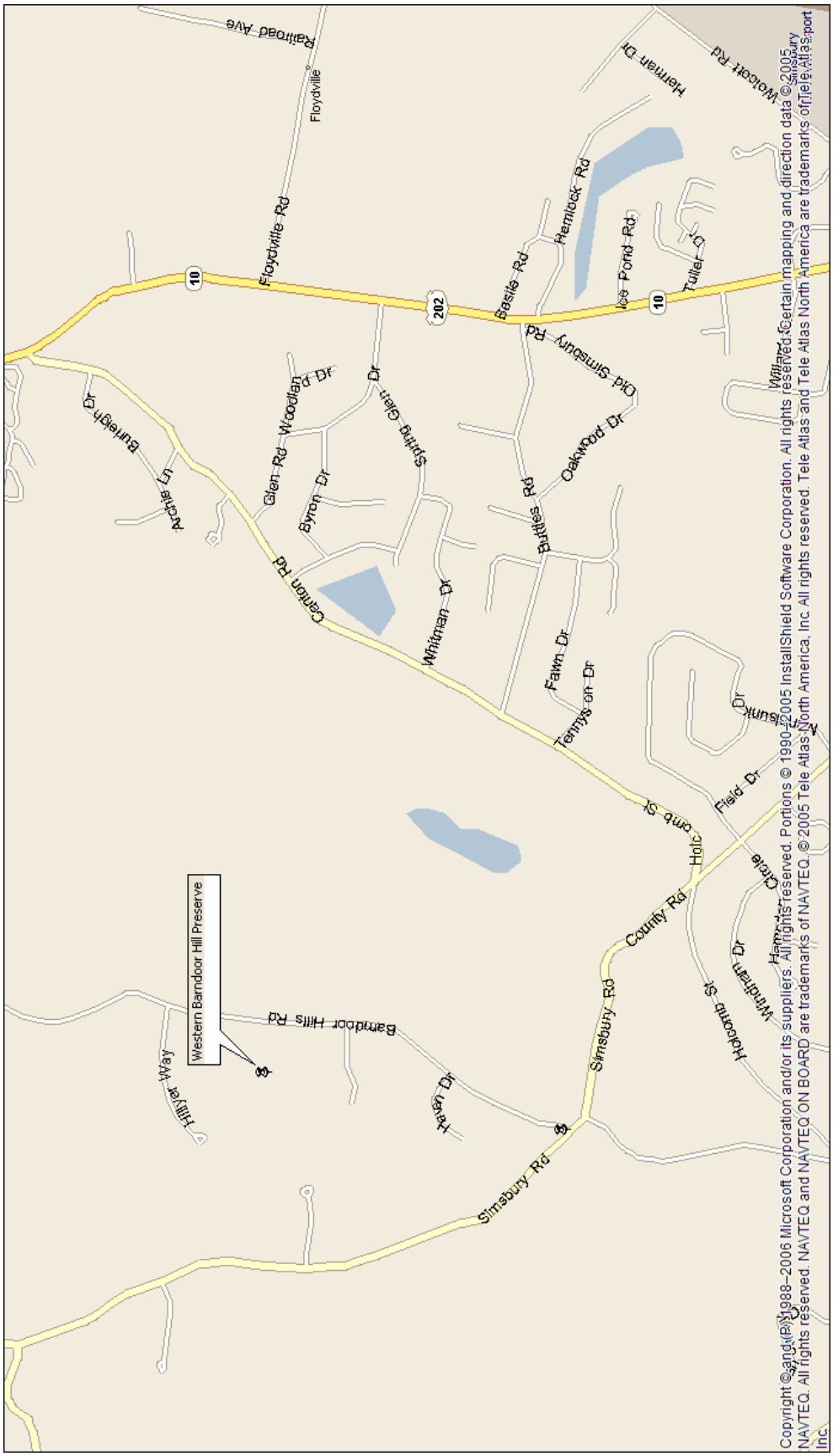


Photo #1 – Wooded wetland at intersection of Simsbury Road and Black Oak Drive

Photo #2 – Preserve frontage on Simsbury Road

Photo #3 – Preserve frontage on Black Oak Drive

Photo #4 – Forested wetland bordering Simsbury Road

Photo #5 – Designated parking area on McLean Game Refuge Property bordering Barndoor Hills Road

Photo #6 – Entrance to trail off of Kettle Pond Lane

Photo #7– Wooden kiosk with trail map at base of trail

Photo #8 – Wetland/potential vernal pool at base of trail

Photo #9– Trail leading up steep slope to overlook

Photo #10 – Stone wall through woodlands bordering trail leading to summit

Photo #11 – Trail at top of ridge leading through *Dry Subacidic Forest* habitat

Photo #12 – Fire pit near trail at summit of Western Barndoor Hill

Photo #13 – View to Eastern Barndoor Hill from overlook

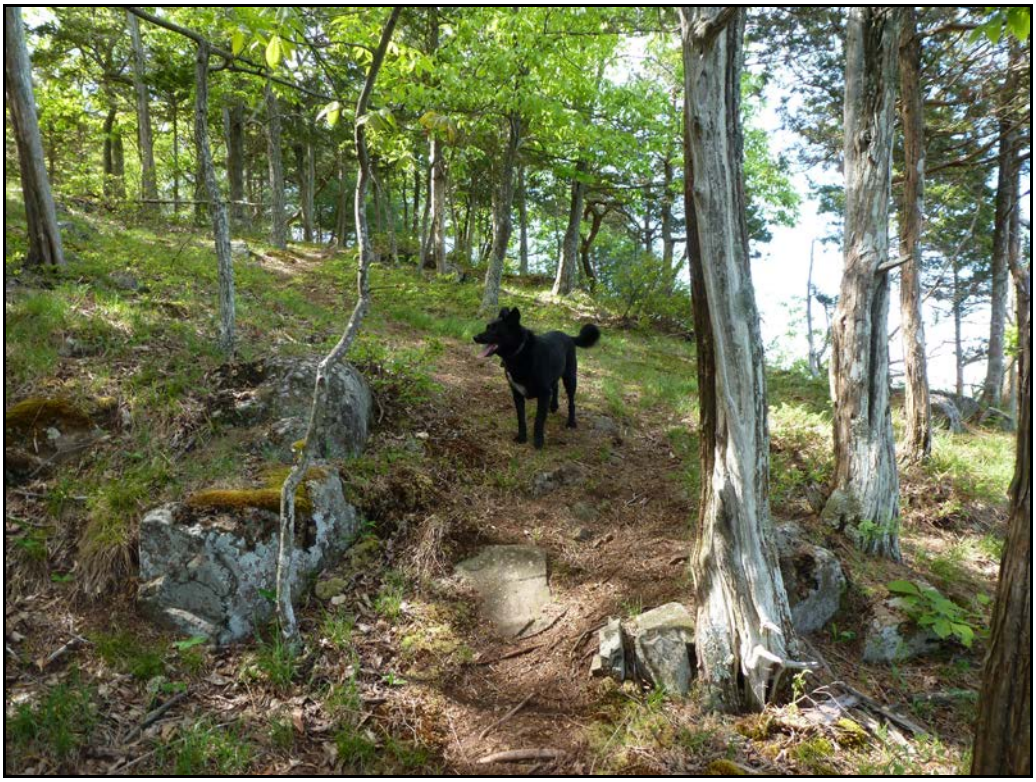


Photo #14 – Dead cedar trees near overlook in *Subacidic Rock Summit Outcrop* habitat

APPENDIX G - PREPARER'S QUALIFICATIONS

A. Hunter Brawley
Brawley Consulting Group
PO Box 873, Kent, CT 06757
860-927-5229
brawleyconsulting@gmail.com

PROFESSIONAL EXPERIENCE

Owner/Manager, Brawley Consulting Group LLC, Kent, CT
(January 2008 to present).
Provides land conservation and management services to local land trusts and conservation organizations, including designing and implementing habitat restoration projects, grant writing, trail design and construction, crafting and monitoring conservation Easement, boundary posting, baseline documentation reports and developing property management plans.

Land Manager, Kent Land Trust, Kent, CT
(September 2008 to present)
Manage all land trust properties and help acquire, monitor and enforce conservation Easements. Responsibilities also include securing funding for habitat restoration projects and preparing baseline documentation reports (BDRs) and property management plans. Addressed backlog of stewardship items required for Kent Land Trust to become the second land trust in Connecticut accredited by the Land Trust Accreditation Commission.

Land Manager, Naromi Land Trust, Sherman, CT
(March 2004 to present)
Manage all land trust properties and help acquire, monitor and enforce conservation Easements. Responsibilities also include designing and building trails, securing funding for habitat restoration projects, and assisting with organizational and administrative tasks. Work cooperatively with the town and other conservation organizations to identify and prioritize lands for future acquisition. www.naromi.org

Project Manager, Northeast Instream Habitat Program, Amherst MA.
(January 2004 to March 2005)
Coordinated all facets of two fisheries habitat assessment projects working with researcher at the University of Massachusetts, including project planning, data collection, hiring and overseeing seasonal staff, data analysis and report preparation. http://www.neihp.org/index.htm

Executive Director, Pomperaug River Watershed Coalition, Southbury, CT
(July 2001 to May 2003).
Managed all activities of non-profit watershed management organization dedicated to conserving regional water resources, including research, outreach, budgets, grant writing, website development, fundraising, and volunteer relations. www.pomperaug.org

Senior Project Manager, LabLite LLC, New Milford, CT
(January 2000 to June 2001)
Product development, testing, sales, and customer service for a software company that provides Laboratory Information Management Software (LIMS) to environmental and other laboratories. www.lablite.com

Research Coordinator, The National Audubon Society, Southbury, CT
(March 1998 to January 2000)
Designed and implemented all research on birds and other wildlife at the 625-acre wildlife sanctuary. Conducted natural resources inventory, created checklists of wildlife and plants, established environmental education programs, and coordinated cooperative research projects with state agencies and regional conservation organizations.
http://ct.audubon.org/IBA_BOR.html

Environmental Analyst, Land-Tech Consultants, Inc., Southbury, CT
(November 1996 to February1998)
As Project Manager conducted environmental impact statements, wetland assessments, and wildlife surveys; prepared federal, state and local permit applications; designed pond and tidal wetland restoration projects; and conducted lake diagnostic studies. Worked with state agencies and local land use agencies to mitigate impacts of residential and commercial development projects. www.landtechconsult.com

Wetland Ecologist, The Deep River Land Trust, Deep River, CT.
(July to October 1995)
Worked in association with The Nature Conservancy Connecticut Chapter on a conservation project at two freshwater tidal marshes in the lower Connecticut River. Position entailed mapping dominant vegetation communities, identifying potential environmental impacts, researching information on appropriate buffer zones and recommending methods for long-term monitoring of the system.

Research Assistant, The Nature Conservancy CT Chapter, Weston, CT.
(May to July 1995)
Assisted with research on the productivity and survivorship of Worm-eating Warblers at the 1700-acre Devil's Den Preserve in Weston, CT. Responsibilities included mist-netting, bird banding, and locating and monitoring approximately 25 nest sites throughout the breeding season.
http://www.nature.org/wherewework/northamerica/states/connecticut/

Master's Thesis Research, Connecticut College, New London, CT.
(September 1993 to May 1995)
Conducted two-year study investigating relationships between bird populations and environmental conditions in tidal wetlands of Connecticut. Quantified bird use, vegetation, and selected environmental parameters in eight tidal marsh systems on the Long Island Sound to assess the use of birds as indicators of environmental quality.
http://www.conncoll.edu/departments/botany/index.htm

Research Associate, Connecticut College Arboretum, New London, CT.
(Sept. 1992 to January 1994)
Conducted a natural resources inventory of The Harriet C. Moore Foundation property in Westerly, RI., including producing lists of all plants and animals (flora and fauna), conducting a breeding bird census, and identifying and tagging over 100 ornamental trees. Developed a five-year plan for the management and use of this 35-acre public land preserve.
http://arboretum.conncoll.edu/

Principal Investigator, The Nature Conservancy CT Chapter, Middletown, CT
(summer 1994)
Studied five marshes in the tidelands of the lower Connecticut River to assess the impacts of the spread of common reed (*Phragmites australis*) on bird populations. Designed project that included the systematic collection of data on bird use, vegetation sampling and an analysis of physical site characteristics.
http://www.nature.org/wherewework/northamerica/states/connecticut/

EDUCATION

Connecticut College, New London, CT. Master of Arts in Botany, 1995.

Connecticut College, New London, CT. Bachelor of Arts in American History, 1982.

The Loomis Chaffee School, Windsor, CT. Graduated 1978.

PUBLICATIONS

Brawley, A. H., Zitter, R. and L. Marsicano, Editors. 2005. Candlewood Lake Buffer Guidelines. Candlewood Lake **News** Special Edition, Vol 1:21.

Warren, R.S., P. E. Fell, R. Rozsa, A. H. Brawley, A. C. Orsted, E. T. Olson, V. Swamy and W. A. Niering. 2002. Salt Marsh Restoration in Connecticut: 20 years of Science and Management. Restoration Ecology 10 (3) 497-513.

Markow, J. and H. Brawley. 2001. Herpetofaunal and Avifaunal Surveys of Vaughn's Neck Peninsula, Candlewood Lake, Connecticut. Report to the Town of New Fairfield, CT. 32 p.

Brawley, A. H. 1998. A Vegetation Survey and Conservation Analysis of Vaughn's Neck Peninsula. Report to The Candlewood Lake Authority. The National Audubon Society. 11 p.

Brawley, A. H., R. S. Warren and R. A. Askins. 1998. Bird Use of Restoration and Reference Marshes Within the Barn Island Wildlife Management Area, Stonington, Connecticut, USA. *Environmental Management* 22(4): 625-633.

Marsicano, L. J. and A. H. Brawley. 1997. Land Use, Watersheds, and Aquatic Resources. *Connecticut Woodlands* 62(3): p. 21.

Niering, W. A., and A. H. Brawley. 1996. Functions and Values Assessment of Area A Downstream Wetlands and Watercourses. Naval Submarine Base New London, Groton, CT. Report to Brown & Root Environmental, The Environmental Protection Agency, and The United States Navy. 36 p.

Brawley, A.H. 1995. Pratt and Post Coves: A Vegetation Survey and Conservation Analysis. Report to the Deep River Land Trust, Deep River, CT. 62 p.

Brawley, A.H. 1995. Birds of Connecticut's Tidal Wetlands: Relating Patterns of Use to Environmental Conditions. Master's Thesis, Connecticut College, New London, CT. 87 p.

Brawley, A.H. 1994. Birds of the Connecticut River Estuary: Relating Patterns of Use to Environmental Conditions. Report to the Nature Conservancy Connecticut Chapter Conservation Biology Research Program, Middletown, CT. 23 p.

Brawley, A.H., G.D. Dreyer. 1994. Master Plan for the Future Management and Use of Moore Woods. Connecticut College Arboretum Publication. New London, CT. 65 p.

Brawley, A.H., G.D. Dreyer and W.A. Niering. 1993. Connecticut College Arboretum Phase One Report to the Harriet Chappell Moore Foundation. Connecticut College Arboretum Publication. New London, CT. 100 p.

ACTIVITIES

Steering Committee, Connecticut Land Conservation Council (CLCC)

Coverts Project Cooperator, UConn Cooperative Extension System

Eric R. Davison, CSS, CPWS

10 Maple Street, Chester, CT 06412
860-803-0938
ericrdavison@gmail.com

EDUCATION

2000 **University of Massachusetts** **Amherst, MA**
New England Regional Soil Science Certificate Program

1998 **University of Massachusetts** **Amherst, MA**
Bachelor of Science, Wildlife Conservation & Management

WORK EXPERIENCE

1998-present **Davison Environmental Consulting, Chester, CT**
Wetland Scientist, Wildlife Biologist & Soil Scientist

Provided the following consulting services to clients:

- Land management planning
- Wetland functions and values assessments
- Herpetological surveys including vernal pools
- Wildlife inventory and habitat assessment
- Breeding bird surveys
- GIS based environmental assessments
- Wetland delineation and soil mapping
- Local, state and federal wetland permitting assistance
- Wetland impact assessments
- Wetland restoration and mitigation plans

2009-2011 **Cary Institute of Ecosystem Studies, Millbrook, NY**
***Biodiversity Specialist* (term position)**

- Three year term grant-funded position
- Conduct biodiversity studies throughout Connecticut and New York
- Characterize and map upland and wetland habitats, soils, geology and other natural resource features
- Catalogue breeding bird species via visual identification and song
- Inventory amphibians and reptile species using field techniques including cover searching, minnow trapping, pitfall trapping and hoop-net trapping
- Collect field data using GPS equipment and compile data collected using GIS software (*ArcMap 10.0*); create GIS maps and files of all field data collected

2000-2002 **Northwest Park and Nature Center, Windsor, CT**
Naturalist -Land Manager

- Responsible for habitat management and wildlife monitoring on 473 acre town owned park, with a focus on early-successional habitat management and monitoring of rare and state-listed grassland and shrubland bird species
- Responsible for hiring and supervising interns
- Conducted public programs and special events
- Conducted conservation related public outreach
- Staff liaison for the Town of Windsor Conservation Commission

1998-2000 **Connecticut Department of Environmental Protection, Stafford, CT**

Park Maintainer

- Maintained all state park and forest areas within Shenipsit State Forest Unit
- Responsible for all facility and grounds maintenance
- Regular equipment operation included chainsaws, tractor with backhoe, loader, dumptruck, snowplow, skid-steer, mowers & woodworking

1995 **Smithsonian Institution, Quantico Marine Base, Quantico, VA**
Field Technician

- Mist netting and banding of neotropical migrant songbirds
- Radio telemetry of the Wood Thrush (*Hylocichla mustelina*)
- Vegetation surveys around wood thrush nesting sites

Certifications & Computer Skills

- Certified Soil Scientist (Society of Soil Scientists of Southern New England)
- Certified Professional Wetland Scientist (Society of Wetland Scientists)
- Proficient in GIS (ESRI ArcMap 10.0), Microsoft Word, Excel & Access

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Relevant Publications & Projects

- Co-author, Town of Ridgefield Natural Resource Inventory, 2012
- Author and field biologist, conservation easement baseline documentation plans (four parcels), New Hartford Land Trust, 2012
- Author and field biologist, open space management plans (six parcels), Northern Connecticut Land Trust, 2012
- Author, Audubon Important Bird Area Conservation Plan, Bent of the River Sanctuary, Southbury, CT, 2011
- Field biologist, point-count breeding bird surveys for CT Audubon, 2010 – 2011
- Author and field biologist, Lighthouse Point Meadow Restoration Plan, Lighthouse Point Park, New Haven, CT, 2011
- Field biologist and co-author, Haines Pond Management Plan, Brewster, NY, 2010
- Field biologist and co-author, Eastern Westchester Biotic Corridor: Northern Terminus Addendum, North Salem and Southeast, NY, 2010
- Field biologist and co-author, Haines Pond Biodiversity Study, Brewster, NY, 2009
- Field biologist and co-author, Eastern Westchester Biotic Corridor: Titicus Reservoir, North Salem, NY, 2009
- Author, Audubon Important Bird Area Conservation Plan, Northwest Park, Windsor, CT, 2007
- Field biologist and co-author, Town of Windsor Natural Resource Inventory, 2005
- Field biologist, warm-season grassland restoration, Northwest Park, Windsor, CT, 2002