EVANS PROPERTY

BLOOMFIELD, CT

Connecticut Resource Conservation & Development Area, Inc.

Connecticut Environmental Review Team Report

Evans Property

Bloomfield, Connecticut





Environmental Review Team Report

Prepared by

The Connecticut Environmental Review Team

Of the

Connecticut Resource Conservation & Development Area, Inc.

For the

Wintonbury Land Trust

Bloomfield, Connecticut

December 2014

Report #1000

Acknowledgements

This report is an outgrowth of a request from the Wintonbury Land Trust to the Connecticut Environmental Review Team for their consideration and approval. The request was approved and the measure reviewed by the Connecticut Environmental Review Team (ERT).

The Connecticut Environmental Review Team Coordinator, Elaine Sych, would like to thank and gratefully acknowledge the following Team members whose professionalism and expertise were invaluable to the completion of this report.

The field reviews took place on Thursday, August 28 and Thursday, September 4, 2014.

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(860) 871-4066

I would also like to thank Vikki Reski and Dale Bertoldi of the Wintonbury Land Trust, for their cooperation and assistance during this environmental review.

Prior to the review days, each Team member received a summary of the proposed project with various maps. During the field review and after Team members received additional information. Some Team members made separate or additional field visits to the sites. Following the reviews, reports from each Team member were submitted to the ERT coordinator for compilation and editing into this final report.

This report represents the Team's findings. It is not meant to compete with private consultants by providing site plans or detailed solutions to development problems. The Team does not recommend what final action should be taken on a proposed project - all final decisions rest with the land trust. This report identifies the existing resource base and evaluates its significance to the proposed use, and also suggests considerations that should be of concern to the land trust. The results of this Team action are oriented toward the development of better environmental quality and the long term economics of land use.

The Connecticut RC&D Council hopes you will find this report of value and assistance in providing information for plans to acquire and preserve the land for possible public access trails, linkage to other preserved land and agricultural use.

If you require additional information please contact:

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Table of Contents

Introduction

The Wintonbury Land Trust has requested an environmental review and natural resource inventory of the Evans Property. The +/-23 acre parcels are located on Tunxis Avenue (a.k.a. Route 189) about one half mile from the center of Bloomfield. The property is made up of two parcels (8.73 acres and 14.13 acres) and both contain access strips to Tunxis Avenue between residential homes. Wash Brook runs through the center of the property and it is estimated that 80% of the parcels are wetland. The Central New England Railroad operates a freight line that abuts the rear of the parcels. There are approximately 4 acres of meadow with the potential to clear an additional three acres for pasture or nursery use.

Objectives

The Wintonbury Land Trust is requesting an environmental review/natural resource inventory to assist them is determining the open space, trail/greenway connection and agricultural value of the property which will support them in their efforts to acquire the parcels.

The land trust is interested in the Evans Property because of its former agricultural use, the potential for trail connections, especially an East Coast Greenway segment, and its stormwater management importance.

The ERT Process

Through the efforts of members of the Wintonbury Land Trust this environmental review and report was prepared for the land trust.

This report provides a natural resource inventory and a series of recommendations and guidelines which cover the topics requested by the land trust. Team members were able to review maps, plans and supporting documentation provided by the land trust.

The review process consisted of four phases:

1. Inventory of the site's natural resources;
2. Assessment of these resources;
3. Identification of resource areas and review of plans; and
4. Presentation of education, management and land use guidelines.

The data collection phase involved both literature and field research. The field reviews were conducted on August 28 and September 4, 2014. Some Team

members made separate and additional field visits on their own. The field review allowed Team members to verify information and to identify other resources.

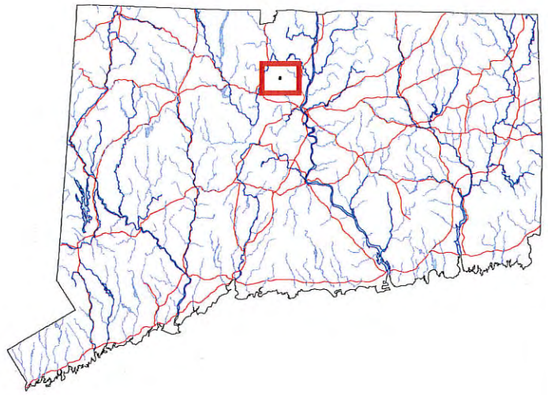
Once Team members had assimilated an adequate data base, they were able to analyze and interpret their findings. Individual Team members then prepared and submitted their reports to the ERT coordinator for compilation into this final ERT report.

Location Map: Evans

7

1:36000

0 5,000 10,000 Feet



41.850426, -72.741869

Map Layers:
NGS USA Topo Maps

N
W E
S

Property Acres: 24.9

Boundary information is approximate.
For general reference only.

Printed: 9/23/2014

University of Connecticut
College of Agriculture and Natural Resources

USDA NRCS
Natural Resources Conservation Service

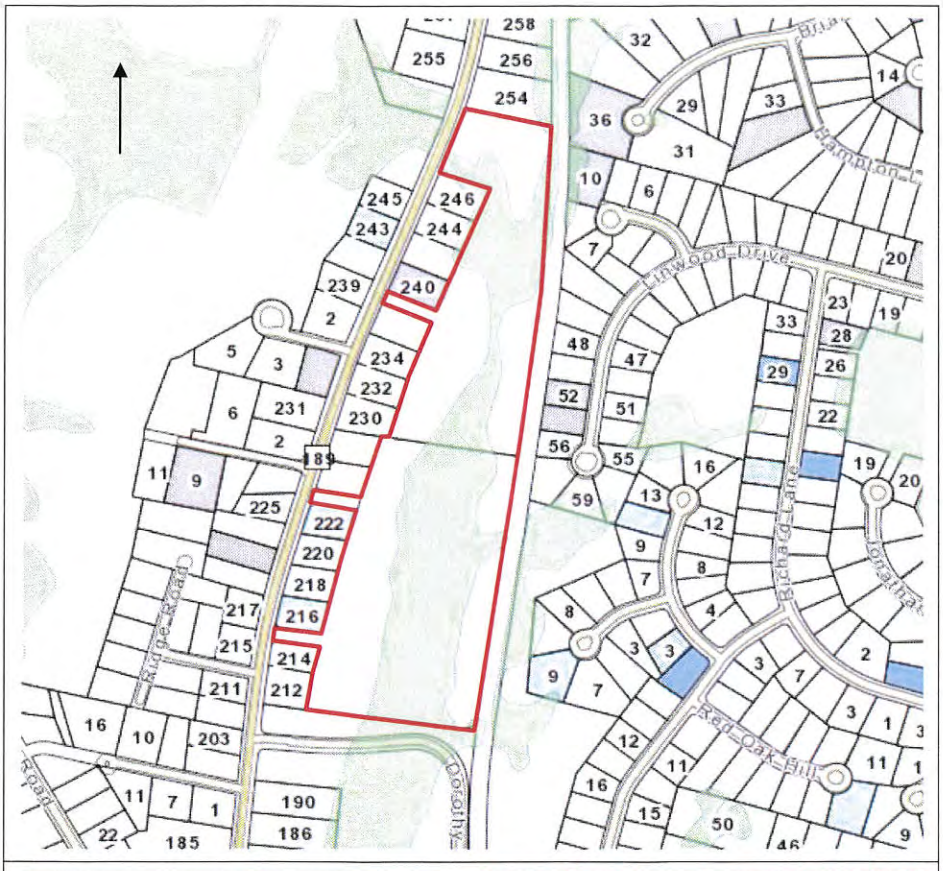
NORTHEASTERN AREA

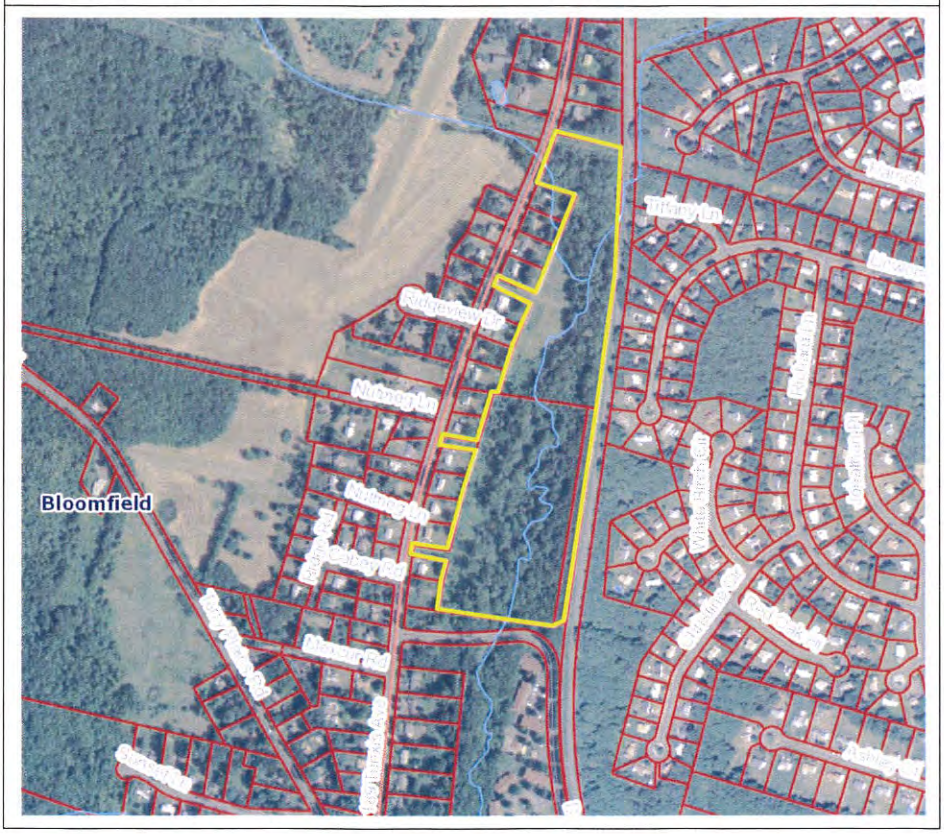
This document was produced by the University of Connecticut Cooperative Extension System with funding support from the USDA Natural Resources Conservation Service and cooperation of the Connecticut DEP Forestry Division.

Sources: ESRI, NRCS, CT DEP, UConn Extension
Projection: CT State Plane (Feet) NAD83
Project Design: Joel Stocker, Thomas Worthley

Script: v1.17 Template: v1.06

WETLANDS & AERIAL MAPS





Soils

The soils on the Evans property can be divided into 3 zones, depicted in the map below.

Zone 1 is the flood plain / wetland area that runs down the center of the property below the elevation of 110. It is made up of poorly and very poorly drained, primarily alluvial soils. They are underlain by clayey Glaciolacustrine sediments, mostly below a depth of at least 3 feet. Much of the area experiences frequent flooding. It is appropriate for wetland wildlife habitat and education.

Zone 2, between the wetland and the railroad tracks to the east, has well drained sandy glaciofluvial deposits. Most are Agawam soils, and consist of a fine sandy loam cap over sand. No clayey layer was found within 5 feet of the surface in this area. It is an excellent soil for woodland, its current use. It is also suitable for walking trails, picnic, areas, etc. The soil itself is a good agricultural soil, although the unit is very narrow and abuts the railroad tracks. Because of the sandy substratum, contaminants can leach into groundwater below. This should be a consideration if any land use change is considered.

Zone 3 is the area along the western boundary which includes open and abandoned fields. The soils include Rainbow, a moderately well drained, silty dense till, interspersed with poorly drained inclusions. The soils in the open fields in the northern half of this zone appear to have been stripped or leveled at one time. The profile is lacking a subsoil (B horizon) in many areas. The southern part of the zone is overgrown with herbs, shrubs, and small trees. This zone has variety

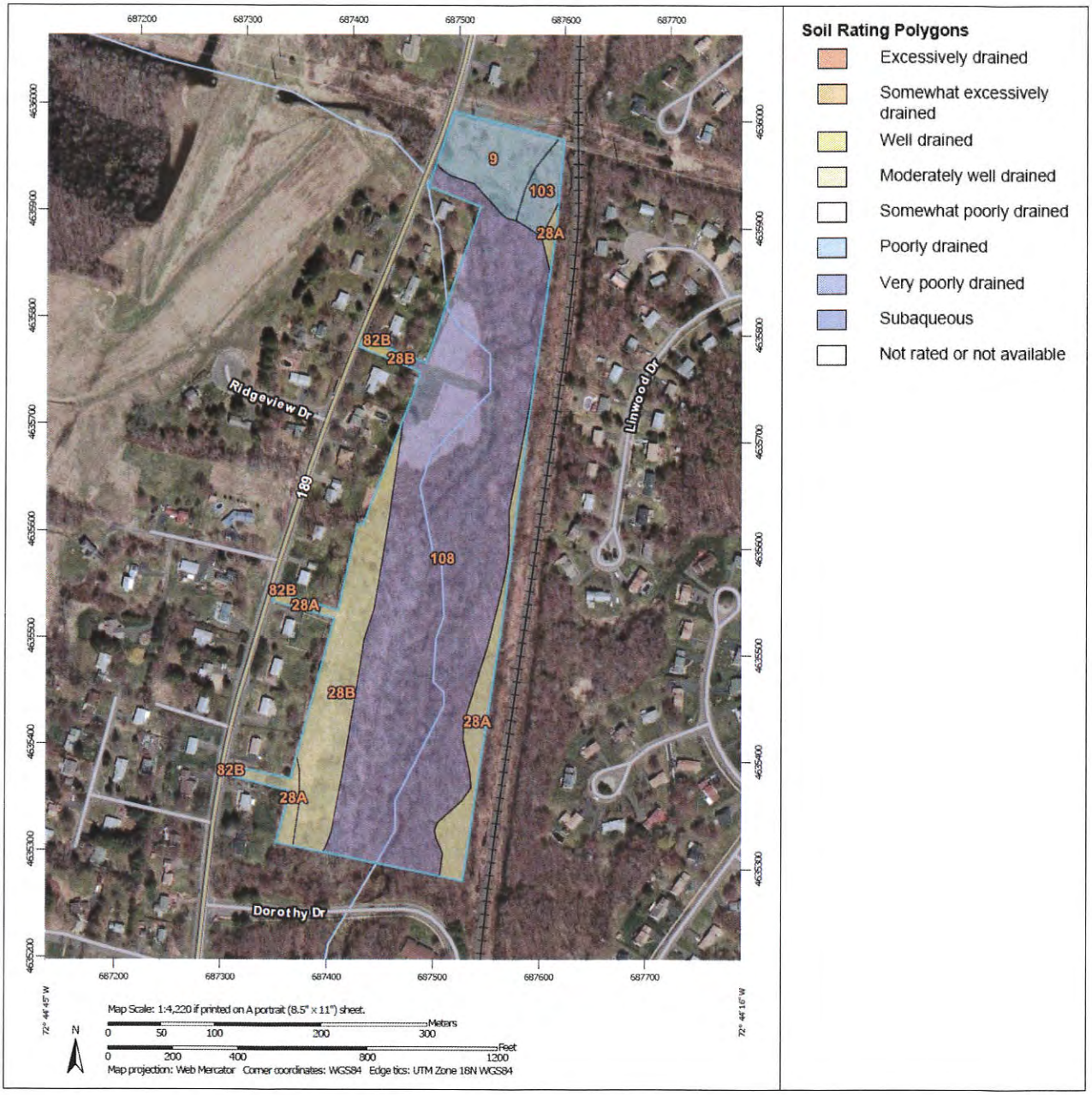
of drainage conditions within it. Mowing will make it possible to map out the micro topography for a detailed land use plan. This should be done before any stumping or other alteration is done in the area to account for any wetland concerns that may arise. Zone 3 as a whole is moderately suited for vegetable production. The primary limitation is seasonal wetness. The area could be used for pot grown nursery stock and display gardens. The display garden would make good use of changes in topography and drainage to educate gardeners about selecting plants for their own growing conditions.

It was difficult to make any detailed comments about the overgrown southwest part of the property. When the land trust is ready to make specific decisions and can get this part mowed, the Team resource soil scientist be glad to visit again and look at soil variability, etc.

Overgrown field in the southwest corner.

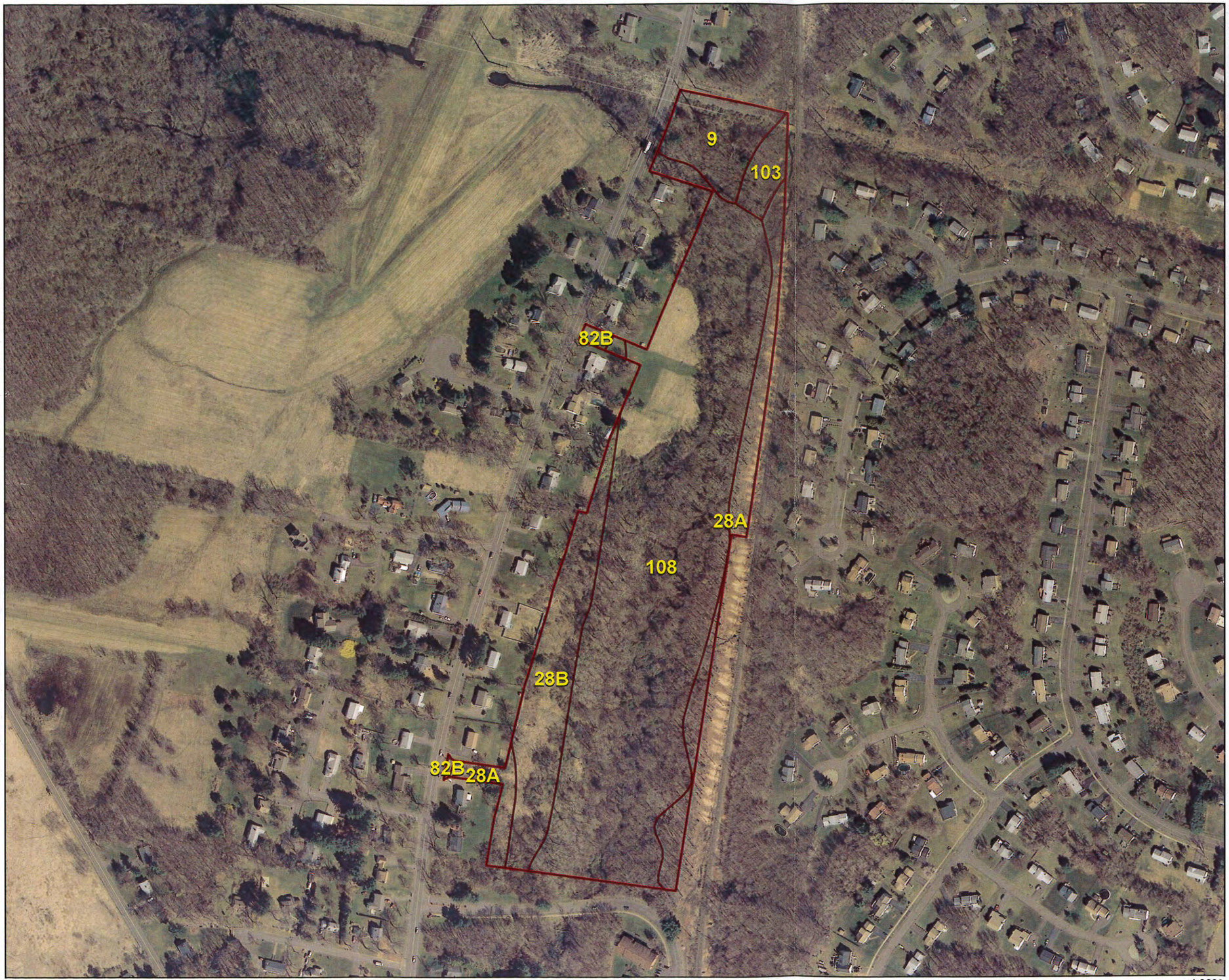
Soil resource specialist and state archaeologist looking at the soils.

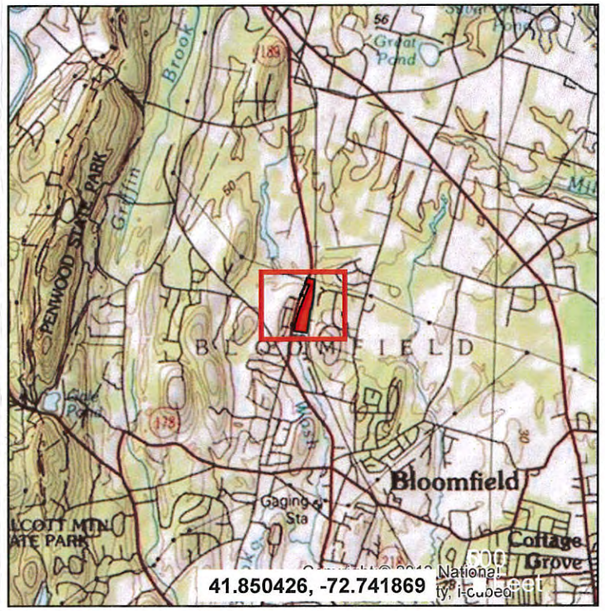
SOILS MAP



Drainage Class— Summary by Map Unit — State of Connecticut (CT600)				
Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
9	Scitico, Shaker, and Maybid soils	Poorly drained	1.5	6.5%
28A	Elmridge fine sandy loam, 0 to 3 percent slopes	Moderately well drained	1.8	7.6%
28B	Elmridge fine sandy loam, 3 to 8 percent slopes	Moderately well drained	3.1	13.1%
82B	Broadbrook silt loam, 3 to 8 percent slopes	Well drained	0.1	0.6%
103	Rippowam fine sandy loam	Poorly drained	0.6	2.4%
108	Saco silt loam	Very poorly drained	16.4	69.9%

Soils Data: Evans





Map Layers:
USDA Soils Data (NRCS/CT DEEP)
Aerial - CT DEEP Spring 2012

Property Acres: 24.9

Boundary information is approximate.
For general reference only.

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Landscape Ecology

Character of the Property

Although the property was described as "near virgin," this clearly is not the case. There is a long history of change in forest cover attributable to human activities. Nonetheless, the width of the forest cover on the east side of Wash Brook and the presence of the berm of the infrequently travelled railroad line (which cuts off views to the houses east of the tracks) is enough to provide a sense of being away from the hustle/bustle of development. Coyote scat and fox scat were noted.

The tract is in a position to be connected to existing and planned trails/open space although it should be recognized that the railroad tracks are not part of the open space. The wildlife habitat quality would be lessened with increased human use of the area.

Historical Changes in Land Cover and the Stream Channel Pathway

As is the case with most places in Connecticut, the Evans Property has undergone many land use changes. This may be seen in the online aerial photography of *Neighborhood Change in Connecticut, 1934 to Present* which depicts several years of aerial photo coverage that may be viewed in side-by-side pairs (http://magic.lib.uconn.edu/mash_up/1934.html). Also, some historical topographic maps may be viewed at *Historic USGS Maps of New England & NY* at http://docs.unh.edu/nhtopos/nhtopos.htm .

For the Evans property and surroundings, in 1934, the area between the railroad tracks and Tunxis Avenue (State Route 189) was non-forested and not developed, with a very twisty Wash Brook clearly evident in the aerial photo. The USGS Hartford North 7.5 minute topographic map of 1964 (photo-revised in 1992) indicates a row of houses bordering the Evans property along Tunxis Avenue. Assuming that the photo-revision (which shows new buildings and roads in purple) did not address changes in the extent of tree cover, then by 1964, in addition to the Tunxis Avenue houses, there was tree cover on both sides of Wash Brook. In the 1990 photography, forest cover extends from the brook east nearly to the railroad track with a margin of trees west of the brook as well. On the west side, between the trees and the house lots, a strip of open land ran the length of the Evans property.

Upstream, across Tunxis Avenue from the northern end of the Evans property, the brook has been straightened and re-routed between Tunxis Avenue and Bloomfield Reservoir 3A (a flood control dam) to the northwest. The reservoir is present on the 1990 photography. The reservoir and the re-routed section of stream that extends downstream to Tunxis Avenue are shown in *purple* on the 1992 photo-revised topographic map (indicating that the change took place after the field data were collected for the 1964 version of the map). The re-routed section of stream is visible in the 1990 aerial photography. In addition (as viewed through the tree cover on the 1990 photography), the portion of the watercourse that runs through the Evans property appears to have been straightened prior to the 1990 photography. (The straightened stream course is more easily seen in the 2009 photography. See attached Figure.) During the visit to the Evans property on August 28, 2014, it was noted the banks of Wash Brook have disturbed soils and the stream bottom is now very deeply cut.

By 2004, the tree cover on the west side of Wash Brook was expanding, both narrowing the width of the open area and filling a section in the middle thus creating a pair of smaller open areas. In August 2014, the northern open area was being maintained as a mowed grassland, while the southern open area was not mowed and included young trees, shrubs, and perennial herbaceous, grass, and grass-like plants.

In August 2014, a narrow strip of land on the east side of the brook immediately adjacent to the rail road tracks was also filled with young vegetation. (this reviewer did not take note of the extent of the railroad's legal right-of-way, but it seems likely that this is being maintained open to prevent trees from growing so close as to overhang the railroad tracks.)

In the larger landscape, in 1889 (as shown on the 1892 Hartford 15 minute topographic quadrangle), Bloomfield had a concentration of houses in the area bounded by Tunxis Avenue, Wintonbury Avenue, Jerome Avenue and Park Avenue with an outlying area of houses in the higher elevations of Brown Street. Since 1889, development has spread out in all directions from Bloomfield, although the entire landscape is by no means totally built out. However, much land that was open in the 1950s (as depicted on the 1952 North Hartford 7.5 minute topographic quadrangle) is now forested or developed. Housing and

other development has extended up to Dorothy Drive on both sides of Wash Brook between the railroad tracks and State Route 189 for many years (as seen on 1990 aerial photography).

A narrow strip of woods along the brook remains from Dorothy Drive south to the strip mall located between Mills Lane and Wintonbury Avenue. However, it is not until north of Dorothy Drive in the Evans property that there is a strip of undeveloped land that extends from Wash Brook east to the railroad track.

Low Potential for Rare Species

The Natural Diversity Data Base maintained by the Connecticut Department of Energy and Environmental Protection has records of several species within the vicinity of the Evans property (though, as of the map of June 2014, the mapped "blobs" within which the actual species sites are located do not occur on the Evans property itself). In addition, the species of birds, plants, and reptiles reported for the vicinity are species that have become increasingly rare because of land use change from open grasslands, hayfields, and meadows to forest or shrubby habitat (or developed) habitat. Thus, the probability that a rare species is present on the Evans property is judged to be low, but not impossible.

Observed Plant Species

In general, the vegetation was dominated by native species. This reviewer did not walk the full length of the property on either side of Wash Brook. On the west side, she went no further north than the mowed grassland. She did not make extensive or systematic notes on plant species present. All species whose names were recorded are listed in the attached Table.

On the west side of Wash Brook, many invasive plants were observed on the boundaries of the grassland including Black Locust, Norway Maple, Oriental Bittersweet, Multiflora Rose, non-native, hollow-stemmed shrubby Honeysuckle, Autumn-olive, and Purple Loosestrife. The Purple Loosestrife was seen in the southwestern corner of the grass area which is higher in elevation than the rest of the open area. The presence of both Purple Loosestrife and the native Sensitive Fern indicates wet soil in that area. Perhaps there is a naturally-occurring restrictive layer in the soil that keeps water near the surface or perhaps the soil was tightly packed by previously-occurring human activities.

Between the northern grassland and what remains of the open area to the south, the presence of a shrubby thicket that included native Dogwood along with a mix of other shrubby species including Multiflora Rose restricted foot

travel. Scattered Multiflora Rose also was present where the thicket gave way to the area of mixed herbaceous, shrub and tree cover to the south.

On the east side of Wash Brook, several species of invasive plants were present, including Purple Loosestrife (in the open sun), Oriental Bittersweet, Burning Bush, non-native, hollow-stemmed shrubby Honeysuckle, Japanese Barberry, and Privet. In general, their growth was somewhat curtailed by the shade from the forest overstory. In addition, about three quarters of the way to the northern property boundary a patch of Japanese Knotweed some 20 feet in diameter was reported.

Adjacent to the railroad tracks, the terrain is flat. It is wet in places in the open area near the railroad tracks with plants such as Joe Pye Weed, Boneset, Blue Vervain, New York Ironweed and Jewelweed observed.

The railroad shown on the 1892 map (Central New England and Western) dates back to a charter date of 1868 for the Connecticut Western Railroad with tracks toward New York completed in 1871. Currently there are pipes that drain water from the subdivision to the east under the berm.

In the forest between the railroad tracks and Wash Brook the lower lying area near the brook supports species such as Red Maple, Highbush Blueberry, Spicebush, and Grape vines. Herbaceous plants include Cardinal Flower, Meadow-rue, Jack-in-the-pulpit, Canada Mayflower, Cinnamon Fern, Sensitive Fern, and Royal Fern. Upslope on a slightly higher terrace, drier soils are indicated by the presence of White Oak, Shagbark Hickory, and White Pine (among other trees). One White Oak tree was of a "wolf tree" form, its wide spreading branches indicating that it was formerly growing in the open. Leaf

damage suggestive of Viburnum Leaf Beetle was seen on Arrowwood. Spotted Wintergreen and Poison Ivy also were observed.

Activity for the Future

In the low-lying land adjacent to the east side of Wash Brook, there are places where temporary ponds form. An adult Wood Frog was observed on the east side of the brook on August 28, 2014. For breeding, Wood Frogs require vernal pools (temporary ponds that hold water long enough for eggs laid in the pool to develop through the larval (tadpole) stage into the adult form). Not every temporary pond holds water long enough to function as breeding habitat for vernal pool indicator species such as Wood Frogs. Note that the presence of an adult Wood Frog near a temporary pond site is not confirmation that the pool is functioning as breeding habitat because Wood Frogs may live 1000 feet (or more) away from their breeding pool.

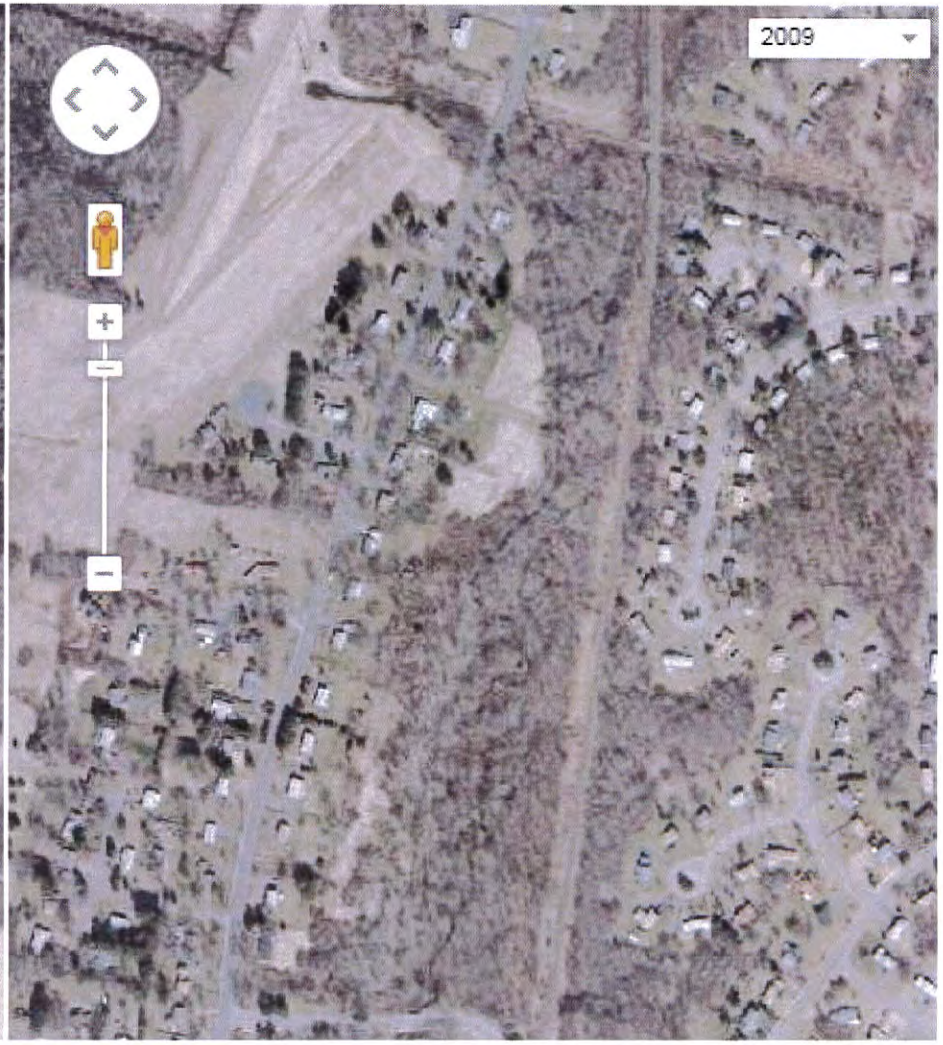
It is suggested that the area be visited in the Spring when egg masses of vernal pool species such as Wood Frogs and Spotted Salamanders or small larval Marbled Salamanders would be evident. Note that for a temporary pond to be considered to be functioning as a vernal pool it must not only have eggs and larvae, it must be supporting them long enough for them to transform into adults.

Air photos from http://magic.lib.uconn.edu/mash_up/1934.html

The Evans property is centered on Wash Brook and is between the north/south lines of Tunxis Avenue to the west and a railroad track to the east.

In 1934 the Evans property had few trees and was not developed. Note the very twisted shape of the Wash Brook.

In 2009 the brook is within an area of forest cover, but its straightened shape is evident through the trees. Between the brook and the row of houses that front on Tunxis Avenue to the west, the mowed grassland patch is very light colored as is the remaining open area to the south.



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A VERY PRELIMINARY LIST OF PLANT SPECIES OBSERVED ON THE EVANS PROPERTY 8/28/2014			
Category Codes **E**=**E**xotic (not native), **I**=**I**nvasive (as well as not-native), **N**=**N**ative to Connecticut			
Scientific Name	**Common Name**	**Code**	
Acer platanoides	Norway Maple	I	
Acer rubrum	Red Maple	N	
Arisaema triphyllum	Jack-in-the-Pulpit	N	
Berberis thunbergii	Japanese Barberry	I	
Betula populifolia	Gray Birch	N	
Carya ovata	Shagbark Hickory	N	
Celastrus orbiculatus	Oriental Bittersweet	I	
Chimaphila maculata	Spotted Wintergreen	N	
Circaea sp.	Enchanter's Nightshade	N	
Cornus sp.	Dogwood	N	
Crataegus sp.	Hawthorn		
Dryopteris sp.	Wood Fern species	N	
Elaeagnus umbellata	Autumn-Olive	I	
Euonymus alatus	Burning Bush	I	
Eupatorium perfoliatum	Boneset	N	
Eutrochium sp.	Joe Pye Weed	N	
Fraxinus sp.	Ash	N	
Impatiens sp.	Jewelweed	N	
Ligustrum sp.	Privet	I	
Lindera benzoin	Spicebush	N	
Lobelia cardinalis	Cardinal Flower	N	
Lonicera sp.	hollow-stemmed shrubby species of Honeysuckle	I	
Lythrum salicaria	Purple Loosestrife	I	
Maianthemum canadense	Canada Mayflower	N	
Onoclea sensibilis	Sensitive Fern	N	
Osmunda regalis var. *spectabilis*	Royal Fern	N	
Osmundnastrum cinnamomeum	Cinnamon Fern	N	
Parthenocissus quinquefolia	Virginia Creeper	N	
Persicaria sp.	Tear-thumb	N	
Pinus strobus	White Pine	N	
Polygonum cuspidatum	Japanese Knotweed	I	
Quercus alba	White Oak	N	
Quercus palustris	Pin Oak	N	
Robinia pseudoacacia	Black Locust	I	
Rosa multiflora	Multiflora Rose	I	
Rubus hispidus	Swamp Dewberry	N	
Salix sp.	Willow tree		
Thalictrum sp.	Meadow-rue	N	
Toxicodendron sp.	Poison Ivy	N	
Ulmus sp.	Elm		
Urtica dioica ssp.	Stinging Nettle		
Vaccinium corymbosum	Highbush Blueberry	N	
Verbena hastata	Blue Vervain	N	
Vernonia noveboracensis	Iron Weed	N	
Viburnum dentatum	Arrowwood	N	
Viburnum opulus ssp. *opulus*	Guelder-rose	E	
Vitis sp.	Grape		

Wetlands

A site visit was performed on September 4, 2014 and portions of the parcels were walked; however, a comprehensive wetland investigation and assessment was not performed. Various mapping sources were reviewed and examined prior to the field visit and also during preparation of the wetland report section. Review of the 1990 wetland mapping (obtained from the town wetland agent) indicates similar wetland limits comparable to current field conditions; however, an updated and current mapping was not available for evaluation.

A cursory review of federal mapping (USFWS- National Wetland Inventory) indicates that the subject property contains approximately 50% or 11.6 acres of freshwater wetlands classified as palustrine forested, broad-leaved deciduous with a water regime classified as seasonally flooded/saturated (PFO1E) (source: http://www.fws.gov/wetlands/Data/Mapper.html). Wash Brook tributary traverses north to south, parallel to both Tunxis Avenue and Central New England Railroad, bisecting the parcel. Wash Brook subwatershed lies within the North Branch Park River Watershed and is characterized by a mix of land uses comprising commercial, residential development, and forested open space lands. Adjacent land uses to the east and west include single and multi-family residential developments, linear transportation corridors (Tunxis Avenue and Central New England Railroad) with the Wash Brook floodplain/wetland complex extending to the south and north.

Wash Brook tributary is at approximate elevation 120 feet with adjoining landforms to the east and west at higher topography (elevations). Stream flow is north to south; water levels were fairly shallow in this perennial stream averaging approximately 8 inches during the early September visit. The wetland complex associated with Wash Brook displayed hydrologic indicators and drainage patterns typical of a groundwater wetland system. Given the relatively dry summer with lower than average rainfall, much of the ephemeral vegetation was present but surface saturation was not persistent. The mapped soil types in this location are mostly alluvial and floodplain comprising excessively drained soils to very poorly drained soil types (Saco Silt Loam is the dominant mapped soil unit) (http://cteco.uconn.edu/map_catalog/maps/town/SoilWet/SoilWet_Bloomfield.pdf). Besides overland flow and stormwater runoff received from adjoining lands and outfalls, surface water flow is also received from the MDC flood control reservoir located northwest of the parcels.

The dominant vegetation complex associated with the Wash Brook floodplain and wetland area is red maple (*Acer rubrum)* with spicebush (*Lindera benzoin*) as dominant shrub species within a moderately closed canopy and varying understory vegetation, ranging from moderate herbaceous cover to dense thickets of Multi-flora rose. Other tree species present within the wetland areas and in transitional upland review area or wetland buffer include pin oak (*Quercus palustris)*, swamp white oak (*Quercus bicolor*) and silver maple (*Acer saccharinum*).

Vegetation composition within the palustrine emergent wetland (within the fallow fields) include the following dominant annual and perennials present: smartweeds, jewelweed (*Impatiens capensis*), reed canary grass *(Phalaris arundinacea),* arrow leaved tearthumb (*Polygonum sagittatum) and* various non-identified sedges, bulrush (*Scirpus sp*.) and grasses. Additionally, cinnamon fern (*Osmundastrum cinnamomeum*), sensitive fern, joe-pye-weed (*Eutrochium sp.)* mint species, goldenrods with cottonwood and chokecherry (*Prunus virginiana*) as early woody invaders, are present.

The upland forest is an oak/hickory community. Dominant oak species include white oak (Qurecus alba), red oak (Quercus rubra), Eastern white pine (*Pinus strobus*), pignut hickory (Carya glabra), shagbark hickory, The understory was moderately dense with smaller trees, shrubs and vines, i.e. Virginia Creeper (*Parthenocissus quinquefolia),* poison ivy and honeysuckle.

Both the forested upland and wetland floodplain complexes are suitable habitat for foraging, breeding and nesting and cover for local/resident song birds and raptors including migratory/seasonal species. It is anticipated that coyote, white-tail deer, raccoon, striped skunk and red fox utilize both eco-habitats. Vernal pools are also present but were not mapped or studied. The vernal pools and their adjacent areas are regulated wetland areas which likely support wetland facultative species such as wood frogs and spotted salamanders. The adjacent successional, upland fields and wetland emergent systems provide important foraging, shelter and breeding/nesting habitat for various wildlife including smaller rodents, herptiles and various bird species.

The CTDEEP Natural Diversity Database Species list identified Swamp Lousewort *(Pedicularis lanceolata*- state threatened) as a known extant species in the vicinity of the project location. No specialized studies were performed to determine if suitable habitat is present for this species. If the Land Trust acquires the parcels it is recommended that an on-site survey be performed prior to

commencement of any land disturbance. (See Massachusetts Fact sheet in the Appendix.)

The proposal for acquisition of the parcels for open space, conservation, passive recreation and community farming would provide ecological benefits along with educational opportunities. For any parcel, a purpose and needs statement should be developed which outlines a vision and lists short and long term goals along with a management plan outlining guidelines and best management practices. The following recommendations are provided as key components for management of the property:

- Updated wetland delineation and stream channel location
- Perform a Functions and Values Assessment
- Compile an Invasive Species Management and Control Plan
- Provide flood control and water quality initiatives (i.e.
- Preservation of native riparian, vegetation buffers
- Plant species diversity
- Passive recreation
- Research and Education Emphasis
- Enhancement and protection of surface water quality
- Wildlife management and protection of habitat; identify potential habitat of state listed species of concern
- Maintain and promote the cultural history of the area

Evans South Parcel
East of Tunxis Avenue and North of Dorothy Drive

2009 Aerial Photo
Scale 1" = 100'
March 2012

Evans North Parcel
East of Tunxis Avenue and Opposite Ridgeview Drive

2009 Aerial Photo
Scale 1" = 100'
March 2012

Forestry Review

Although a complete forest inventory was not conducted (it was beyond the scope of this site assessment) the majority of the trees found on site can be classified as a mixed, un-even aged stand of central hardwoods. The tree sizes observed ranged from small pole (4-8 inches in diameter at breast height or dbh) to standard (12-24 inches dbh) to veteran (over 24 inches dbh). Many of the larger trees had cavities, which could act as wildlife dens. The larger trees also provide hard mast (acorns and other nuts) as a food source for migrating birds and year-round residents.

Forest on the east side of Wash Brook.

A mixed-age class indicates good forest health and supports a greater diversity of wildlife. The majority of species found on site were red maple, sugar maple, red oak, hickory and ash. Minor species included pin oak, American elm, bigtooth aspen, speckled alder, arrowwood viburnum, and yellow twig dogwood. Since oak communities are in decline throughout the state, an oak management strategy should be developed for areas with larger populations of seedlings and saplings to protect them from over-crowding by less desirable species, such as the red maple. Girdling the undesirable overstory hardwoods around the understory oak component may be an option.

The invasive plant species present were winged euonymous, multiflora rose, and honeysuckle. Invasive plants are a major threat to the survival of native species because they are so competitive and spread quickly. Mapping the areas of infestation would help as a first step. Subsequent steps should focus on an eradication management plan. Considering the water component throughout

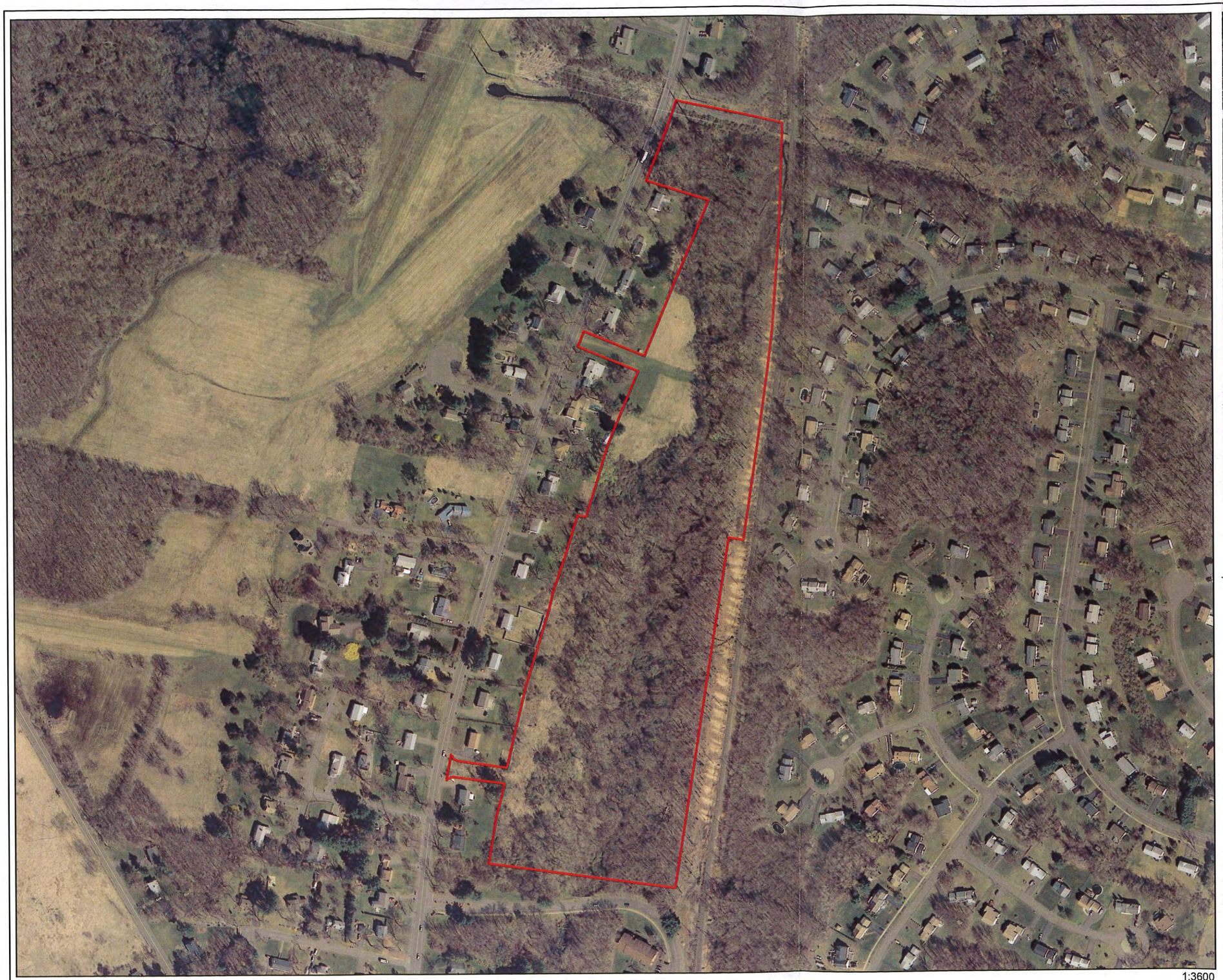
the property, the use of herbicides is strongly discouraged. Mechanical means, although slow and somewhat tedious, will accomplish the same goal over time.

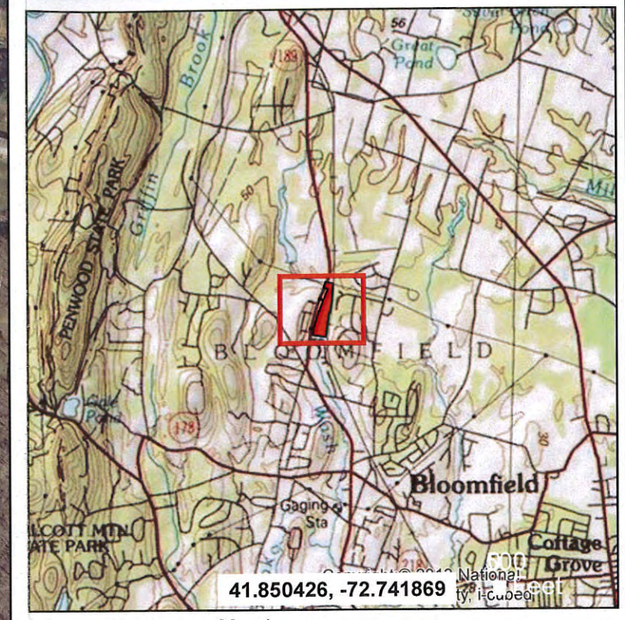
One section of special concern contained a probable vernal pool. Vernal pools are temporary, with no inlet or outlet, on impermeable ground layers that provide unique and rich habitats for wildlife, especially amphibians. A buffer of fifty feet should be established around this pool as a protective zone. The tree species noted were white ash, American elm, and red maple.

The forest bordering Wash Brook on the Evans Property provides several benefits to the surrounding community. Forests with streams and other riparian zones, along with vernal pools, contribute to the local economy by acting as water filters absorbing excess nutrients from surrounding runoff. They also act as buffers during storms, moderating the storm energy and storing the floodwaters.

Removing this protective barrier would be counterproductive and would likely lead to not only the degradation of the surrounding region but contribute to the increase of local flooding in the future.

Color Aerial: Evans





Map Layers:
Aerial - CT DEEP Spring 2012

N
W E
S

Property Acres: 24.9

Boundary information is approximate.
For general reference only.

Printed: 9/23/2014

University of Connecticut
College of Agriculture and Natural Resources

USDA NRCS
Natural Resources Conservation Service

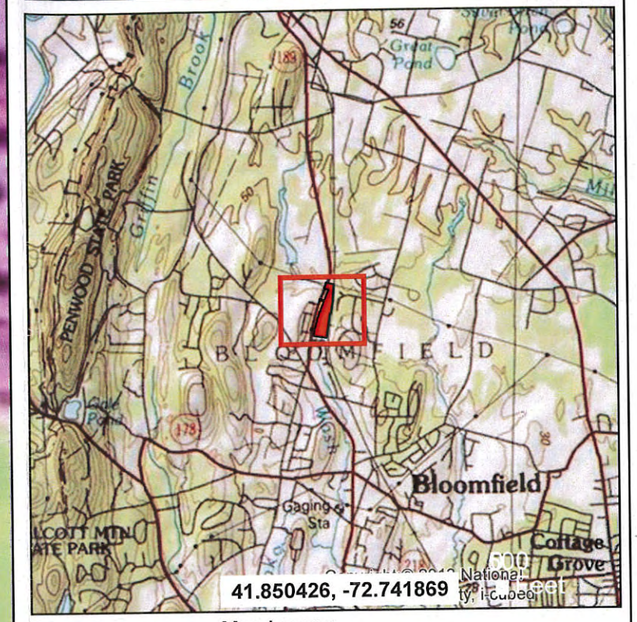
NORTHEASTERN AREA

This document was produced by the University of Connecticut Cooperative Extension System with funding support from the USDA Natural Resources Conservation Service and cooperation of the Connecticut DEP Forestry Division.

Sources: ESRI, NRCS, CT DEP, UConn Extension
Projection: CT State Plane (Feet) NAD83
Project Design: Joel Stocker, Thomas Worthley

Script: v1.17 Template: v1.06

Topographic Features: Evans



Map Layers:
NGS USA Topo Maps

N
W E
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Property Acres: 24.9

Boundary information is approximate.
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Script: v1.17 Template: v1.06

Natural Diversity Data Base

The Natural Diversity Data Base (NDDB) maps and files regarding the project site have been reviewed for a preliminary assessment. According to NDDB records there are known extant species that occur wither within or in close proximity to this property. A list of species is provided. 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 cannot be used or submitted with a permit application at DEEP and this preliminary assessment is good for one year.

Natural Diversity Data Base information includes all information regarding critical biological resources available to DEEP 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.

Further questions may be directed to Dawn McKay at (860) 424-3592, or dawn.mckay@ct.gov.

Species List

Scientific Name	Common Name	State Status
Vascular Plant		
Pedicularis lanceolata	Swamp lousewort*	Threatened
Vertebrate Animal		
Dolichonyx oryzivorus	Bobolink	Special Concern
Falco sparverius	American kestral	Threatened
Sturnella magna	Eastern meadowlark	Special Concern
Terrapene Carolina Carolina	Eastern box turtle	Special Concern
Thamnophis sauritus	Eastern ribbon snake	Special Concern
Toxostoma rufum	Brown Thrasher	Special Concern

"Threatened Species" means any native species documented by biological research and inventory to be likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range within the state and to have no more than nine occurrences in the state, and any species determined to be a "threatened species" pursuant to the federal Endangered Species Act, except for such species determined to be endangered by the Commissioner in accordance with section 4 of this act.

"Species of Special Concern" means any native plant species or any native non-harvested wildlife species documented by scientific research and inventory to have a naturally restricted range or habitat in the state, to be at a low population level, to be in such high demand by man that its unregulated taking would be detrimental to the conservation of its population or has been extirpated from the state.

*In the Appendix there is Information from the Massachusetts's Natural Heritage Endangered Species Program and the CTDEEP Fact Sheets.

Trails and Greenways

Site Visit and Observations:

The Wintonbury Land Trust (WLT) is interested in acquiring the property and has asked for assistance in determining the value of the parcel as protected open space, future East Coast Greenway segment and potential for agricultural use.

Bloomfield's "Parks Connectivity Plan" indicates a proposed bike lane on Route 189 and a proposed footpath utilizing the RR corridor on the eastern boundary of the subject property.

The Farmington Canal Heritage Trail (a CT Designated Greenway) and East Coast Greenway (a nationally important recreational trail) trail head currently exists about 6 miles north of the subject property on Route 189 in Simsbury. The Town has a plan (Figure 1 below) to create a trail that will connect to the East Coast Greenway bringing it through the subject parcel and into the center of Town. This plan would be advantageous to both the Town and ECG users. The Town and its residents would gain economic, health related and alternative transportation benefits. ECG users would be taken off of long stretches of busy state road providing additional safety for both trail users and motorists.

Members of the Connecticut Greenways Council and the CT Committee of the East Coast Greenway Alliance expressed support of the Wintonbury Land Trust purchase of the Evans Property. The Capitol Connection (between Simsbury and Union Station-Hartford) is very high on their list to link major routes and like-minded property owners make the design job easier. Also, the preservation of wetlands is of importance to suburban communities in the Greater Hartford area. Hiking to and through the Evans parcel would be enjoyable and purposeful including the woodland, field and wetlands habitats.

Many homes but no sidewalks were observed along the Route 189 corridor. Being a state road, pedestrians and cyclists are mixing with vehicles traveling at a minimum of 40mph. I observed "moderate to heavy" traffic and about a dozen cyclists and many pedestrians using the variable width/present road right-of way during my site visit which occurred outside of "peak" travel times. Creating a trail through the subject property that is connected to other areas of the Town (as shown in many of the Town plans provided) would increase safety for pedestrians and cyclists, encouraging non-motorized transportation. Should the property be acquired, there may be an opportunity to utilize CT DOT's Safe Routes to Schools program. The program can assist in many ways including technical support and funding for residential areas to create off-road routes

connecting communities to schools; this property and the surrounding neighborhood seems an ideal candidate.

The subject property, if kept in its current natural state, would enhance an existing east-west greenway of open space shown below in Figure 2. Corridors of open land are important for wildlife and habitat diversity and especially in the case of this subject parcel, water resource protection. Figure 2 clearly shows that the parcel buffers Wash Brook and functions similar to the neighboring flood control properties.

The location for a trail as shown on the town's plan (east side) may be the best location for now since there are currently no rail with trail examples in Connecticut. The CT Greenways Council is considering putting forth some legislation that would indemnify railroads of liability for trail users. This currently does not exist and has come up as a reason that railroad owners will not allow rail-with-trail.

Looking at Figure 2, you can also imagine connections to other municipal open space (shown in cross-hatch pattern), Penwood State Park and the Metacomet Trail which is part of a CT Designated Greenway and The New England National Scenic Trail.

The Recreational Trails & Greenways Program is available upon request to assist the WLT. FYI, there will be another Recreational Trails grant round in the winter of 2015. Details can be found at:
www.ct.gov/deep/rectrails.

Figure 1

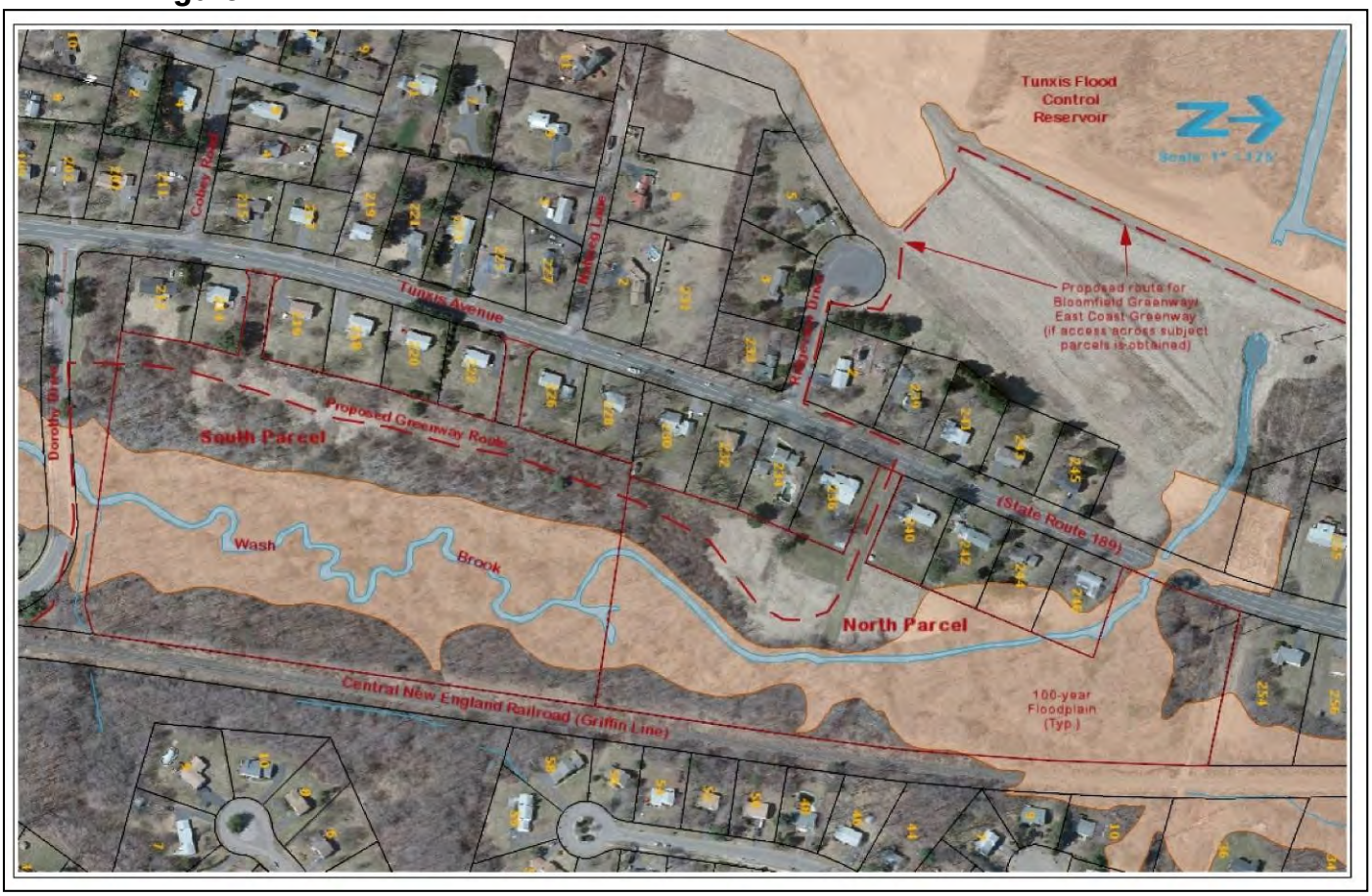
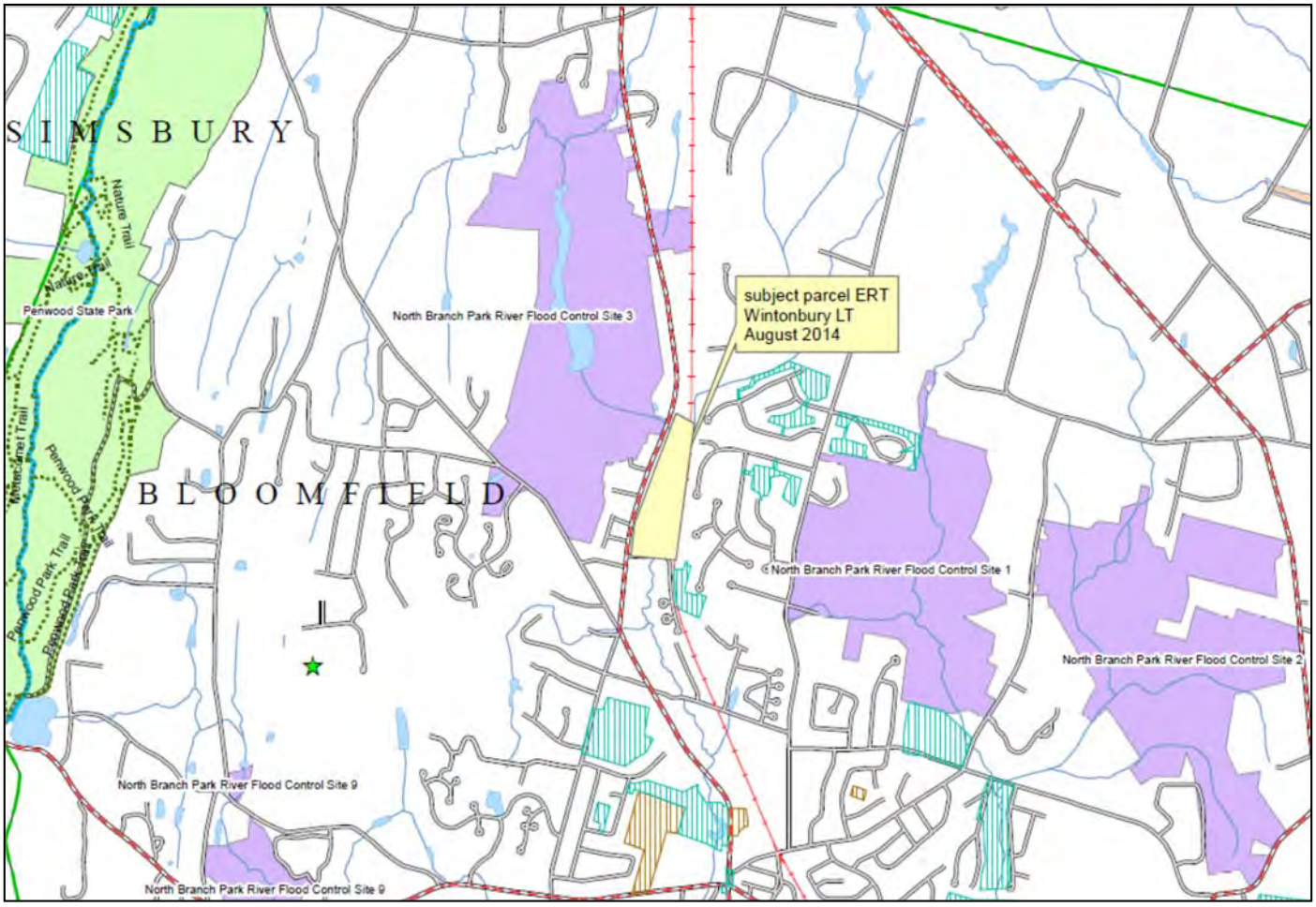
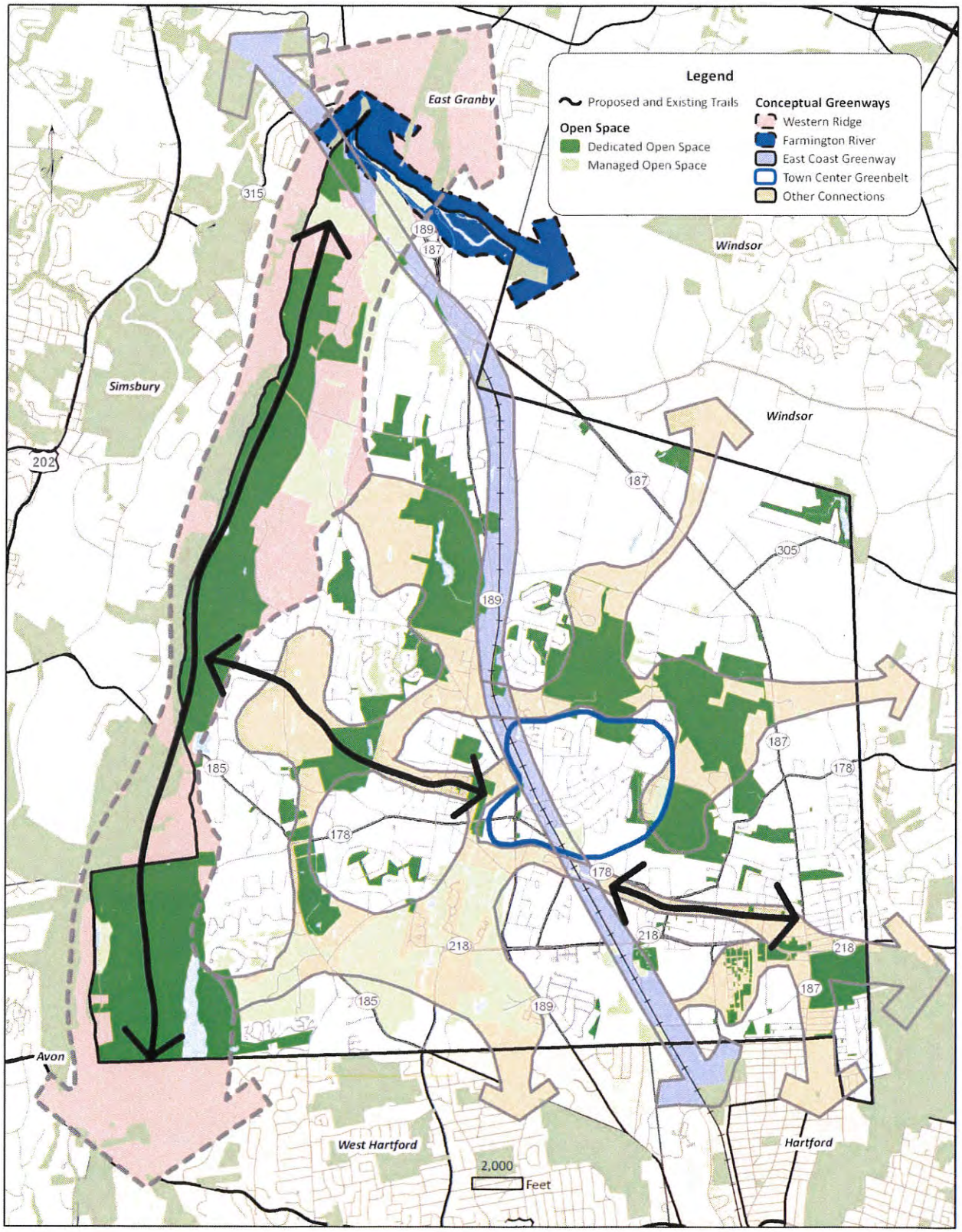

Tunxis Flood
Control
Reservoir
Proposed route for
Bloomfield Greenway/
East Coast Greenway
(if access across subject
parcels is obtained)
Tunxis Avenue
Proposed Greenway Route
South Parcel
Wash
Brook
(State Route 189)
North Parcel
Central New England Railroad (Griffin Line)
100-year
Floodplain
(Typ.)

Figure 2


S I M S B U R Y
Nature Trail
Nature Trail
Penwood State Park
North Branch Park River Flood Control Site 3
subject parcel ERT
Wintonbury LT
August 2014
Whitetail Trail
Penwood Park Trail
Penwood Park Trail
Penwood Park Trail
B L O O M F I E L D
North Branch Park River Flood Control Site 1
North Branch Park River Flood Control Site 2
North Branch Park River Flood Control Site 9
North Branch Park River Flood Control Site 9

Open Space and Greenway Vision

Bloomfield, CT



Historical and Archaeological Resources

The Office of State Archaeology was pleased to review the above-named project consisting of two abutting properties comprising ca. 23 acres located along Tunxis Avenue in Bloomfield (Figure 1). The goal of this walkover was to assess the properties values as protected open space, future East Coast Greenway segment and potential agricultural use. This office's evaluation of the property is based on the value of preserving its potential historical and archaeological resources.

The area is currently largely wooded, with a small open pasture remaining in the northwestern portion of the project area. The two parcels that make up the project area are dominated by poorly drained alluvial sediments associated with the meandering Wash Brook. These active sediments are not considered to have archaeological sensitivity. A thin wedge of Elmridge fine sandy loam lies between the alluvial wetlands and the bed of the Central New England Railroad in the eastern portion of the project area. These well-drained, well-developed sandy sediments were more closely examined in the field with the NRCS soil specialist using a hand probe sampler. These sediments are considered to have moderate to high archaeological sensitivity for ancient Native American sites. A large oak observed in the southeastern portion of the project area in the area of these sandy sediments may represent a "witness tree" marking an old property boundary. According to soils mapping, the area west of the Wash Brook alluvial wetland consists of similar Elmridge sandy loams, but field probes suggest the sediments are more likely till-derived. They were observed to be stony, silty and dense and are considered to have low archaeological sensitivity. Some of the observed sediments may reflect 20th-century soil redeposition and disturbance in this area.

Nineteenth century maps do not indicate the presence of any structures on the property (Figure 2), and no structural remains were observed during the walkover. The archaeological site files do, however, indicate the presence of a pottery kiln on the west side of Tunxis Avenue in the vicinity of the project area (Figure 1). The 1855 Hartford County Woodford map also indicates that a school was located on the west side of the road near the property. The 1934 Fairchild aerial map indicates that the land remained in agricultural use through the mid-20th century (Figure 3). An unidentified structure, possibly a barn, can be observed at this time in the project's north end. This area has since been significantly altered by the construction of the power line and modifications to the Wash Brook drainage so it is unlikely that evidence of this structure still exists. The western portion of the project area was still being used for hay or pasture land as late as the 1990 aerial photograph (Figure 4).

To summarize, the Evans property is not associated with any known archaeological sites, although a pottery kiln and school were located across Tunxis Avenue, and it is possible that material associated with these sites could be found in the southwestern portion of the property. Historic maps do not indicate residential use of the property in the 19th century, and it seems unlikely that earlier homes may have existed here. The well-drained sandy sediments between the Wash Brook alluvial wetland and the Central New England Railroad line are considered to have moderate to high archaeological sensitivity for ancient Native American sites. The Office of State Archaeology therefore supports the preservation of the Evans property as open space to help preserve any undocumented archaeological sites that may exist there. The Office recommends that if this portion of the property is ever developed for recreational purposes, such as the creation of hiking trails, the eastern portion of the property should undergo a Phase IB archaeological reconnaissance survey prior to any ground disturbance to insure that no significant cultural/historical resources are impacted.

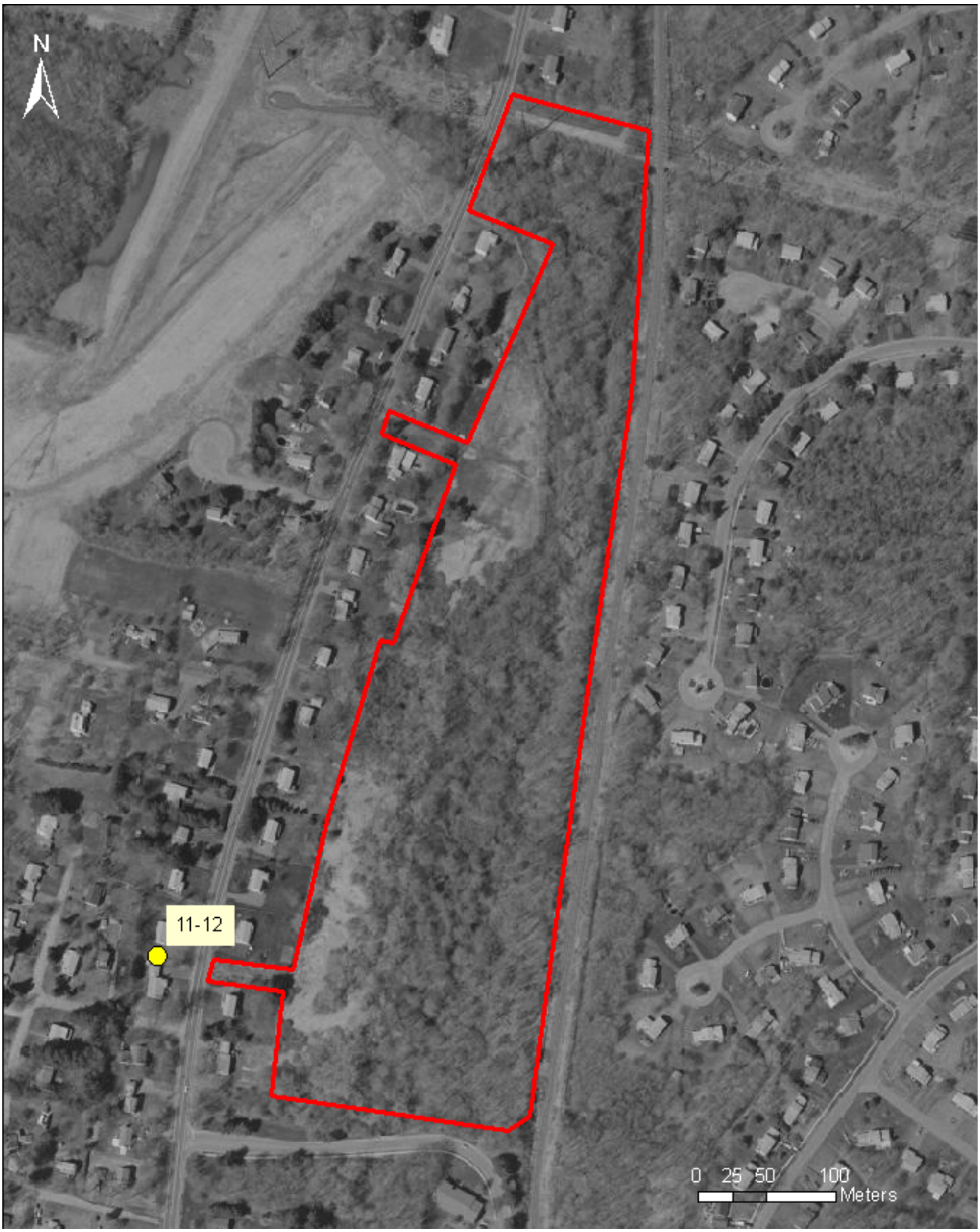


Figure 1: Approximate bounds of the Evans Property on a recent aerial photograph showing the location of archaeological site 11-12 (the Pelton Kiln Site).

Figure 2: Approximate location of the Evans Property project area on the 1855 Hartford County Woodford map. Nineteenth-century homes, including a school house, are located outside of the property along the west side of Tunxis Avenue. Wash Brook leaves the property east of its current course, but this is probably an issue of mapping accuracy, rather than reality.

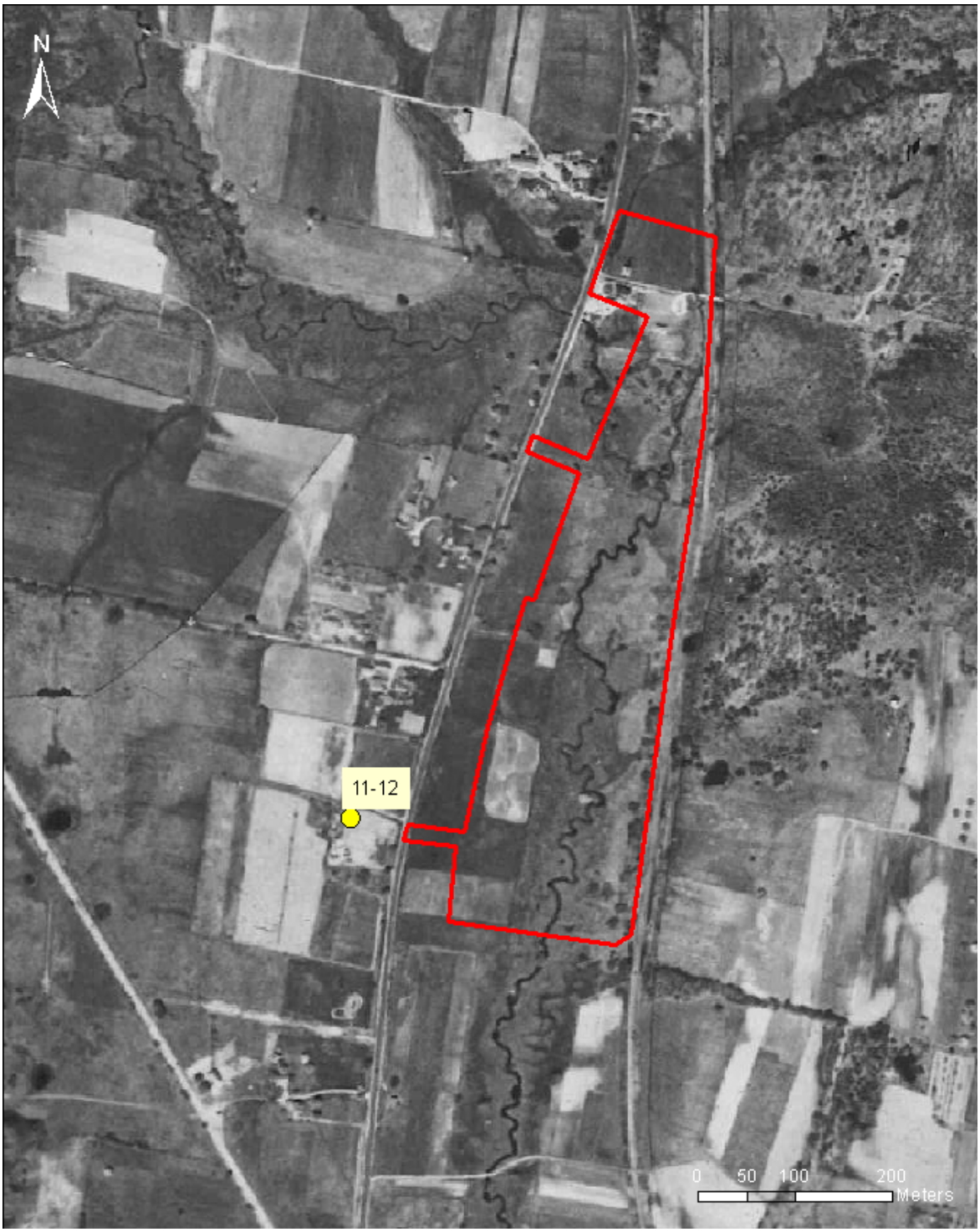


Figure 3: Approximate location of the Evans Property project area on the 1934 Fairchild Aerial Survey image. Residences remain on the west side of Tunxis Avenue at this time, and the property is being used agriculturally. A single structure, possibly a small barn, appears in the northernmost portion of the project area in the approximate location of the modern power line ROW.

Appendix

Natural Heritage
& Endangered Species
Program
Massachusetts Division of Fisheries & Wildlife
1 Rabbit Hill Road, Westborough, MA 01581
tel: (508) 389-6360, fax: (508) 389-7891
www.nhesp.org

Swamp Lousewort

Pedicularis lanceolata Michx.

State Status: Endangered
Federal Status: None

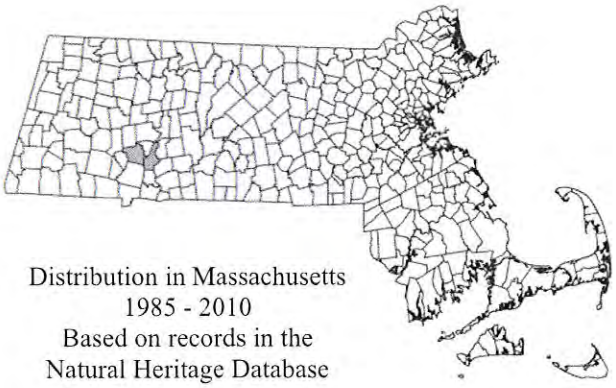
Swamp Lousewort, flowering and winter views. Photos: Noah Charney.

Similar species: There are two other species of *Pedicularis* that occur in New England: Wood Betony (*P. canadensis*) and Furbish's Lousewort (*P. furbishiae*). Swamp Lousewort has opposite leaves and an entire galea while Wood Betony and Furbish's Lousewort have alternate leaves and toothed galeas. Differences in habitat, phenology, and geography also distinguish these three species. Swamp Lousewort grows in wet soils and flowers late summer, whereas Wood Betony grows in dry woods or thickets and flowers in late May or June. Furbish's Lousewort only grows along the St. Johns River in Maine.

Habitat: Swamp Lousewort grows in open areas that are periodically flooded such as wet meadows, marsh edges, and stream banks. It occurs primarily in calcareous soils, but has also been found growing in a non-calcareous wetland in Connecticut. Associated species in Massachusetts include: Arrow-leaved Tearthumb (*Persicaria sagittata*), False Nettle (*Boehmeria cylindrica*), Glossy Buckthorn (*Frangula alnus*), Hog-peanut (*Amphicarpaea bracteata*), Jewelweed (*Impatiens capensis*), Reed Canary Grass (*Phalaris arundinacea*), Rough-stemmed Goldenrod (*Solidago rugosa*), and Smooth Brome (*Bromus inermis*).

Threats: Swamp Lousewort thrives in open sunny habitat, so competition from woody vegetation or invasive species are a threat. In addition, activities that alter hydrologic regimes (i.e. beaver dams) are a threat because Swamp Lousewort requires periodic, but not constant, flooding. Damage from off-road vehicles and trampling by hikers pose a threat for Swamp Lousewort growing along trails.

Range: The documented range of Swamp Lousewort spans from Massachusetts to Georgia on the east coast of the United States west to Missouri and Manitoba, Canada. Swamp Lousewort is rare along the eastern coast of the United States, but is relatively common in the Midwest. It is historically known from Delaware and Kentucky.



Distribution in Massachusetts
1985 - 2010
Based on records in the
Natural Heritage Database

Flowering time in Massachusetts

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

Population in Massachusetts: Swamp Lousewort is listed under the Massachusetts Endangered Species Act as Endangered. All listed species are legally protected from killing, collection, possession, or sale, and from activities that would destroy habitat and thus directly or indirectly cause mortality or disrupt critical behaviors. Swamp Lousewort is currently known from Hampden and Hampshire Counties; it is historically known from Franklin, Suffolk, and Worcester Counties.
Management recommendations: Sites containing Swamp Lousewort should be monitored for over-shading caused by the succession of woody vegetation and/or invasive species. Efforts to remove competitive associated species should strive to not inadvertently eliminate host plants. Some documented host plants of Swamp Lousewort include: Common Rush (*Juncus effusus*), Reed Canary Grass (*Phalaris. arundinacea*), Smooth Brome (*Bromus inermis*), and Wool-grass (*Scirpus cyperinus*). Note that some invasive species (i.e. Reed Canary Grass) are also hosts of Swamp Lousewort, making the management of heavily invaded areas complicatedSites should also be monitored for changes in hydrologic regime because Swamp Lousewort requires occasional, but not persistent, flooding. In Massachusetts, beaver activity may cause local declines in Swamp Lousewort if beavers flood areas where the plant grows at the time of flowering or seed set.

All active management of rare plant populations (including invasive species removal) is subject to review under the Massachusetts Endangered Species Act, and should be planned in close consultation with the Massachusetts Natural Heritage & Endangered Species Program.

Updated June 2009

Connecticut Department of Energy & Environmental Protection

AMERICAN KESTREL

Falco sparverius

State Threatened Species

Background
The American kestrel is a small, slender falcon that is about the size of a robin. It is found in open habitats that have plenty of nesting cavities and hunting perches.

Kestrels can be seen in the state throughout the year. They are considered uncommon residents in winter and somewhat common migrants in fall and spring. Migrant populations increased during the early 1900s but breeding populations were comparatively low. Kestrels were more numerous when agriculture was at its peak in Connecticut. Currently, with the disappearance of agriculture, along with the regrowth of forests and an increase in suburban development, open, grassy areas are in short supply. This change in Connecticut's landscape has caused many wildlife species that rely on open areas, including the kestrel, to experience long-term declines. Kestrels also were negatively affected by the use of organochlorine pesticides, such as DDT. DDT was banned from use nationwide in 1972.

The American kestrel was listed as threatened on Connecticut's Endangered, Threatened, and Special Concern Species List in 2004, primarily due to a lack of information, coupled with a perceived decline in nesting and migrating numbers and diminishing habitat.

Range
American kestrels are found throughout most of North and South America. Most of the kestrels that breed in North America overwinter in the United States and Mexico, although a small proportion migrate as far south as northern South America.

Description
The American kestrel is the smallest falcon found in North America. Like most falcons, kestrels have long, pointed wings and long tails. The birds are easily recognized by two vertical black lines on the cheeks and a rufous-colored back and tail. The female has rufous-colored wings while the male has black-banded, bluish-gray wings. This species is the only falcon in which the male and female show such a marked difference in plumage. The kestrel ranges in size from 9 to 12 inches long with females being larger than males.

Habitat and Diet
Kestrels prefer open grassy or shrubby areas with short vegetation in which to hunt for their prey. In Connecticut, kestrels are usually seen around agricultural areas (hay fields, orchards, pastures),

airports, large parks, and power line right-of-ways. Meadows, grassy fields, and old fields also may be inhabited. It is not unusual to find kestrels using urban and suburban areas and even buildings (barns, silos, cornices) for nest sites. Kestrels require natural tree cavities or nest boxes for nesting, along with perches in the form of trees, shrubs, or telephone poles.

The kestrel's diet varies seasonally and consists mainly of insects, including grasshoppers, crickets, beetles, dragonflies, butterflies, moths, and cicadas. Mice, voles, shrews, small snakes, frogs, and small birds also are eaten. Kestrels typically hunt from a conspicuous perch, although they occasionally hover over an open area when perches are lacking.

Life History

Connecticut's nesting kestrels begin courtship in late March to early April. An average of 4 to 5 brown-spotted eggs are laid by the end of April in a natural tree cavity or man-made nest box on little or no nesting material. They are incubated, primarily by the female, for 29 to 31 days. Males catch most of the food for the brooding female and, later, for the developing young. Usually 3 to 5 chicks are hatched and will grow quickly. The chicks are ready to fledge (reach flying stage) about a month after hatching. After fledging, the young stay with the adult birds for several weeks. In Connecticut, American kestrels will usually have 1 brood per season and will renest if the first nest fails.

Interesting Facts

Another name for the kestrel is the sparrow hawk, although birds are not a main prey item.

Kestrels have a habit of pumping their tail feathers up and down when perched, especially after landing. They are known for their rapid flight and have been recorded to fly between 22 and 39 m.p.h.

Kestrels are quite vocal. Their call is a loud, repeated "killy, killy killy" when they are excited or alarmed.

American kestrels do not need to drink free-standing water. They get all the water they need from the moisture of their prey.

Some of the predators that hunt kestrels are great-horned owls and red-tailed hawks. Other predators that have been known to attack raptors include coyotes, bobcats, skunks, raccoons, crows, and ravens.

Populations of the larger Cooper's hawk increased throughout northeastern North America from 1976-2003, and studies at Hawk Mountain Sanctuary, in Pennsylvania, and elsewhere have suggested this species preys on kestrels.
Kestrels are protected by the federal Migratory Bird Treaty Act of 1918 and Connecticut General Statutes Sec. 26-92 and Sec. 26-311 (threatened and endangered species legislation).

Conservation Concerns

According to Hawk Mountain Sanctuary, data from raptor migration counts, Breeding Bird Surveys, and Christmas Bird Counts indicate that American kestrel populations have declined in much of northeastern North America (including Connecticut) since 1974. Loss of habitat is the most likely cause of the kestrel decline in Connecticut. The number of farms in the state has been decreasing, many old agricultural fields are returning to forest, and suburban development has replaced suitable habitat. A lack of available nest cavities also can limit the number of kestrel breeding pairs.

What You Can Do

Because kestrels do not excavate their own nesting cavities, they seek out ready-made homes, such as abandoned woodpecker holes or nest boxes provided by people. Specially-made nest boxes have helped kestrels throughout the country in areas where there are few natural cavities. Nest box programs for kestrels enable populations to increase in locations where nest sites are limiting. If you live near suitable habitat, you should consider providing and maintaining nest boxes for kestrels. Box plans are available by sending an E-mail to the Wildlife Division at dep.wildlife@ct.gov. To be successful, nest boxes should be placed in open field habitat. Preferred habitats are grasslands, pastures, orchards, and hay fields with cover at about 10 inches high. Nest boxes require continuous maintenance and should be monitored to prevent non-native starlings from using them. A program to promote natural nest sites (cavities in snags) should occur along with a nest box program.

The production of this Endangered and Threatened Species Fact Sheet Series is made possible by donations to the Endangered Species-Wildlife Income Tax Checkoff Fund.
(rev. 12/10)

Connecticut Department of Energy & Environmental Protection

COMMON RIBBONSNAKE

Thamnophis sauritus

State Species of Special Concern

Background and Range: The slimmest and thinnest member of the *Thamnophis* genus (gartersnake group), the common ribbonsnake is less common than its relative, the common gartersnake. It is a species of special concern in Connecticut due to declining numbers and the loss and degradation of its wetland habitats.

Range: The common ribbonsnake occurs in southern New England down the Atlantic Coast to mid-Georgia, west to Mississippi, and a short range up the river valley into lower Indiana. The species is uncommon or localized in southern New England, where it appears to have declined or become extirpated in many areas. In Connecticut, the ribbonsnake has been documented throughout the state in wetland habitats, except in Fairfield County. Some of the largest concentrations of ribbonsnakes have been found in the Central Connecticut Lowland, in and near wetlands associated with basalt (trap rock) ridges.

Description: The small (typically 20-32 inches), slender, and striped ribbonsnake is most commonly confused with its relative, the common gartersnake. The ribbonsnake is boldly patterned with three yellow stripes on a reddish-brown to black background. A distinct dark band separates each side stripe from the belly. One stripe is centered on the body, while the other 2 stripes run down scale rows 3 and 4. The ribbonsnake also has keeled scales (a raised ridge is found along each scale) and a belly that is pale yellow to pale green. The tail generally accounts for one third or more of the ribbonsnake's total body length. The common ribbon snake also has two distinct parietal "spots" atop its head, which is unique to ribbonsnakes. The head is distinctly bicolored with the top portion black and the area below the eyes and under the chin pure white. Juvenile ribbonsnakes resemble adults.

In comparison, is the similar-looking gartersnake is more heavy-bodied; has a proportionately shorter tail (less than one fourth its total length); is less swift and agile; and has lateral stripes on scale rows 2 and 3. It also can be more variable in coloration and more blotched or patterned. Some

individuals have well-defined striping and head markings; however, the majority have poorly defined patterns when compared to ribbonsnakes. Gartersnakes are found in a wide variety of habitats, from dry to wet, whereas ribbonsnakes are usually found in and near shallow water.

Habitat and Diet: The ribbonsnake seldom ventures from shallow aquatic habitats, and favors open, grassy, or shrubby areas bordering ponds, streams, and wooded swamps. It may also be found in wet woodlands. Winter dens are underground, usually at higher in elevations and sometimes near trap rock systems.

This snake feeds on a variety of aquatic creatures, mainly amphibians such as frogs, toads, salamanders, and tadpoles. It also will consume small fish and some invertebrates. In turn, this snake is preyed upon by birds, mammals, fish, and large amphibians.

Life History: Ribbonsnakes are active from April through October, and generally mate in spring (April to May) after emerging from their winter dens. Mating also can take place in autumn. Females give birth to 10-12 live young in July or August. The young receive no parental care after birth. Sexual maturity is reached at 3 years of age.

Interesting Facts: Ribbonsnakes, like their relatives the gartersnakes, are more tolerant of cooler temperatures than other snake species. Both are Connecticut's earliest emerging snakes in spring. Ribbonsnakes tend to be most active during spring, but may become dormant in summer if their wetland habitat dries up. If habitat conditions improve, the snakes will become active again. This snake may be an indicator of high quality wetlands.

Comfortable both in and out of water, the ribbonsnake is an adept swimmer that prefers shallow water. Instead of diving to the bottom as a watersnake would, it swims rapidly along the shore and may disappear quickly into vegetation if threatened. In defense, a ribbonsnake may flatten its head, thrash about, and secrete a fowl-smelling musk to deter predators. This snake may often been seen basking on logs, hummocks, or muskrat lodges.

The common ribbonsnake is non-venomous and harmless to humans. It is an important predator in aquatic food webs.

Conservation Concerns: Populations of common ribbonsnakes are sporadic in abundance, leading to a general scarcity. Some sites may have large numbers of snakes while others have only a few individuals. Population declines appear to occur where there is reforestation of open, grassy areas. Populations also can fluctuate with the availability of prey (amphibians). The occurrence of ribbonsnakes in protected areas, such as state forests, wildlife management areas, powerline rights-of-way, and watershed properties should be taken into account when managing these sites.

What You Can Do: If you encounter a ribbonsnake, observe it from a distance and allow it to go on its way. You should not try to agitate it by getting too close or handling it. It may try to bite or will release a musky odor. All snakes will retreat from humans if given a chance. The killing of any snake is strongly discouraged. Common ribbonsnakes are protected by Connecticut's Endangered Species Act and persons who kill or collect this special concern snake could be faced with fines or legal action.

If ribbonsnakes are found in wetland habitat on your property, consider appropriate wetlands management protocols. Any additional information and/or positive identification of ribbonsnake populations can be reported to deep.wildlife@ct.gov.

Content last updated on March 25, 2013.

Connecticut Department of Energy & Environmental Protection

Eastern Box Turtle

Terrapene carolina carolina

State Species of Special Concern

Description
The eastern box turtle is probably the most familiar of the 8 species of turtles found in Connecticut's landscape. It is known for its high-domed carapace (top shell). The carapace has irregular yellow or orange blotches on a brown to black background that mimic sunlight dappling on the forest floor. The plastron (under shell) may be brown or black and may have an irregular pattern of cream or yellow. The length of the carapace usually ranges from 4.5 to 6.5 inches, but can measure up to 8 inches long. The shell is made up of a combination of scales and bones, and it includes the ribs and much of the backbone.

Each individual turtle has distinctive head markings. Males usually have red eyes and a concave plastron, while females have brown eyes and a flat plastron. Box turtles also have a horny beak, stout limbs, and feet that are webbed at the base. This turtle gets its name from its ability to completely withdraw into its shell, closing itself in with a hinged plastron. Box turtles are the only Connecticut turtle with this ability.

Range
Eastern box turtles are found throughout Connecticut, except at the highest elevations. They range from southeastern Maine to southeastern New York, west to central Illinois, and south to northern Florida.

Habitat and Diet
In Connecticut, this terrestrial turtle inhabits a variety of habitats, including woodlands, field edges, thickets, marshes, bogs, and stream banks. Typically, however, box turtles are found in well-drained forest bottomlands and open deciduous forests. They will use wetland areas at various times during the season. During the hottest part of a summer day, they will wander to find springs and seepages where they can burrow into the moist soil. Activity is restricted to mornings and evenings during summer, with little to no nighttime activity, except for egg-laying females. Box turtles have a limited home range where they spend their entire life, ranging from 0.5 to 10 acres (usually less than 2 acres).

Box turtles are omnivorous and will feed on a variety of food items, including earthworms, slugs,

snails, insects, frogs, toads, small snakes, carrion, leaves, grass, berries, fruits, and fungi.

Life History
From October to April, box turtles hibernate by burrowing into loose soil, decaying vegetation, and mud. They tend to hibernate in woodlands, on the edge of woodlands, and sometimes near closed canopy wetlands in the forest. Box turtles may return to the same place to hibernate year after year. As soon as they come out of hibernation, box turtles begin feeding and searching for mates.

The breeding season begins in April and may continue through fall. Box turtles usually do not breed until they are about 10 years old. This late maturity is a result of their long lifespan, which can range up to 50 to even over 100 years of age. The females do not have to mate every year to lay eggs as they can store sperm for up to 4 years. In mid-May to late June, the females will travel from a few feet to more than a mile within their home range to find a location to dig a nest and lay their eggs. The 3 to 8 eggs are covered with dirt and left to be warmed by the sun. During this vulnerable time, skunks, foxes, snakes, crows, and raccoons often raid nests. Sometimes, entire nests are destroyed. If the eggs survive, they will hatch in late summer to early fall (about 2 months after being laid). If they hatch in the fall, the young turtles may spend the winter in the nest and come out the following spring.

As soon as the young turtles hatch, they are on their own and receive no care from the adults. This is a dangerous time for young box turtles because they do not develop the hinge for closing into their shell until they are about 4 to 5 years old. Until then, they cannot entirely retreat into their shells. Raccoons, skunks, foxes, dogs, and some birds will prey on young turtles.

Conservation Concerns
The eastern box turtle was once common throughout the state, mostly in the central Connecticut lowlands. However, its distribution is now spotty, although where found, turtles may be locally abundant. Because of the population decline in Connecticut, the box turtle was added to the state's List of Endangered, Threatened, and Special Concern Species when it was revised in 1998. It is currently listed as a species of special concern. The box turtle also is protected from international trade by the 1994 CITES treaty. It is of conservation concern in all the states where it occurs at its northeastern range limit, which includes southern New England and southeastern New York.

Many states have laws that protect box turtles and prohibit their collection. In Connecticut, eastern box turtles cannot be collected from the wild (DEP regulations 26-66-14A). Another regulation (DEP regulations 26-55-3D) "grandfathers" those who have a box turtle collected before 1998. This regulation limits possession to a single turtle collected before 1998. These regulations provide some protection for the turtles, but not enough to combat some of the even bigger threats these animals face. The main threats in Connecticut (and other states) are loss and fragmentation of habitat due to deforestation and spreading suburban development; vehicle strikes on the busy roads that bisect the landscape; and indiscriminate (and now illegal) collection of individuals for pets.

Loss of habitat is probably the greatest threat to turtles. 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.

Adult box turtles are relatively free from predators due to their unique shells. The shell of a box turtle is extremely hard. However, the shell is not hard enough to survive being run over by a vehicle. Roads bisecting turtle habitat can seriously deplete the local population. Most vehicle fatalities are pregnant females searching for a nest site.

How You Can Help

- Leave turtles in the wild. They should never be kept as pets. Whether collected singly or for the pet trade, turtles that are removed from the wild are no longer able to be a reproducing member of a population. Every turtle removed reduces the ability of the population to maintain

itself.

- Never release a captive turtle into the wild. It probably would not survive, may not be native to the area, and could introduce diseases to wild populations.
- Do not disturb turtles nesting in yards or gardens.
- As you drive, watch out for turtles crossing the road. Turtles found crossing roads in June and July are often pregnant females and they should be helped on their way and not collected. Without creating a traffic hazard or compromising safety, drivers are encouraged to avoid running over turtles that are crossing roads. Also, still keeping safety precautions in mind, you may elect to pick up turtles from the road and move them onto the side they are headed. Never relocate a turtle to another area that is far from where you found it.
- Learn more about turtles and their conservation concerns. Spread the word to others on how they can help Connecticut's box turtle population.

The production of this Endangered and Threatened Species Fact Sheet Series is made possible by donations to the Endangered Species-Wildlife Income Tax Checkoff Fund.
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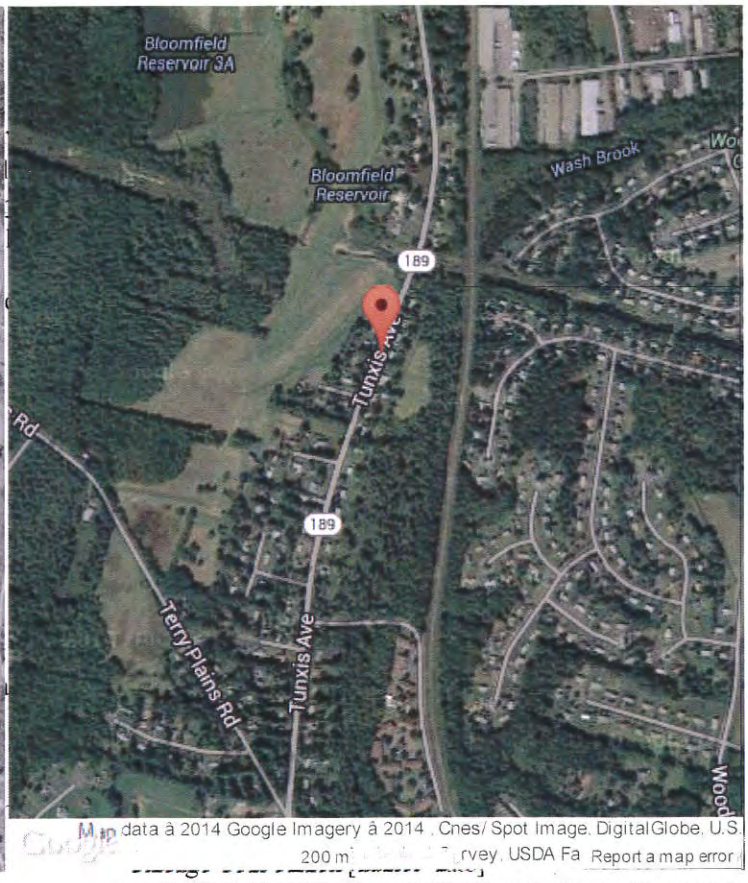

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About the Team

The Connecticut Environmental Review Team (ERT) is a group of professionals in environmental fields drawn together from a variety of federal, state, regional agencies and private consultants. Specialists on the Team include geologists, biologists, foresters, soil specialists, engineers and planners. The ERT operates with state funding under the supervision of the Connecticut Resource Conservation and Development (RC&D) Area — a 169 town region.

The services of the Team are available as a public service at no cost to Connecticut towns.

Purpose of the Team

The Environmental Review Team is available to help towns and land trusts in the review of sites proposed for acquisition, conservation, preservation, agriculture and other land use activities. To date, the ERT has been involved in reviewing a wide range of projects including subdivisions, landfills, commercial and industrial developments, sand and gravel excavations, active adult, recreation/open space projects, watershed studies and resource inventories.

Reviews are conducted in the interest of providing information and analysis that will assist towns, developers and land trusts in environmentally sound decision-making. This is done through identifying the natural resource base of the project site and highlighting opportunities and limitations for the proposed land use.

Requesting a Review

Environmental reviews may be requested by the chief elected official of a municipality and/or the chairman of town commissions such as planning and zoning, conservation, inland wetlands, parks and recreation or economic development and land trusts. Requests should be directed to ERT Coordinator. A request form should be completely filled out and should include the required materials. When this request is reviewed by the and approved by the ERT Subcommittee, the Team will undertake the review on a priority basis.

For additional information and request forms regarding the Environmental Review Team please contact the ERT Coordinator: 860-345-3977, Eastern Connecticut RC&D Area, P.O. Box 70, Haddam, Connecticut 06438, e-mail: connecticutert@aol.com.

About the Connecticut RC&D Area

Resource Conservation and Development (RC&D) is a program of the United States Department of Agriculture (USDA). The Secretary of Agriculture gave the Natural Resources Conservation Service (NRCS) [formerly the Soil Conservation Service] responsibility for administering the program. RC&D is unique because it is led by local volunteer councils that help people care for and protect their natural resources in a way that improves the local economy, environment, and living standards. RC&D is a way for people to work together to plan and carry out activities that will make their area a better place in which to live.

Interest in creating the Eastern Connecticut RC&D Area first started in 1965. An application for assistance was prepared and submitted in June 1967 to the Secretary of Agriculture for planning authorization. This authorization was received in August 1968. In 1983, an application by the Eastern Connecticut RC&D's Executive Council was approved by USDA and NRCS to enlarge the area to an 86 town region. The western region RC&D known as King's Mark was authorized in the 1970's and covered 83 towns. The two areas officially merged in October 2014 to form the Connecticut RC&D Area, Inc. which covers the entire state.

The focus of the Connecticut RC&D Program is to help people care for and protect their natural resources, improve local economies, and sustain a high quality of life. The program derives its success from its ability to connect individuals, communities, government entities, and grassroots organizations. These connections and partnerships enable the development of shared visions and resource networks that work toward a healthy future for Connecticut. Current members on the RC&D Council represent the Working Lands Alliance, The Last Green Valley, CT Forest and Park Association, CT Farmland Trust, Town of Canterbury, NECCOG, RiverCOG, ValleyCOG, COGCNV, NorthCentral Conservation District, Eastern Conservation District, CT River and Estuary Conservation District and others.
For more information please visit their website at: www.easternrcd-ct.org.