

SECTION 1

INTRODUCTION

Project Overview

This report summarizes the results of plant and natural community investigations in Connecticut's Appalachian Trail corridor in 2003. This survey has three primary goals:

- 1) documentation of rare plant populations
- 2) compilation of a comprehensive checklist of native and naturalized non-native vascular plants
- 3) identification, sampling, and description of the plant communities in the survey area, using the Draft Vegetation Classification for Connecticut (Metzler and Barrett 2003) as a guide.

The Appalachian Trail corridor is defined in this report as the 50-mile length of the Trail in Connecticut to a distance of 500 feet on either side of the footpath. The Trail corridor in Connecticut is entirely within Litchfield County. Most of the land in the corridor is owned by the state of Connecticut or by the National Park Service.

In general, surveys extended to a maximum distance of 500 feet on either side of the footpath where the land was owned by the state or the federal government. At certain sites where National Park Service ownership extended beyond 500 feet and there was a possibility of finding rare plants and habitats, the survey covered a broader area. At the Bear Mountain and Bulls Bridge Sites, for example, field investigations went farther than 500 feet from the footpath. Where the corridor of public land was narrower than 500 feet from the footpath, investigations extended to the limit of state or federally owned land. Private land was not surveyed except for property owned by the Appalachian Mountain Club on Bear Mountain and by the Mt. Riga Corporation in Wachocastinook Ravine,

This report supplements an earlier inventory of the natural resources of the Connecticut Appalachian Trail area conducted in 1991 by biologists from the Connecticut Natural Diversity Database (McKay et al. 1992). That inventory encompassed a wider trail corridor, and investigated rare fauna as well as rare plants. This project has as its focus the corridor's flora and natural communities.

For most of its 50-mile length, the Appalachian Trail in Connecticut is located on a series of hills and ridges with a north-south orientation. From north to south, these ridges are: the Taconic (or Mt. Riga) Plateau from Bear Mountain to Lion's Head; Wetauwanchu Mountain Ridge; Mount Prospect and Raccoon Hill; Sharon Mountain; Pine Knob, Breadloaf Mountain, and Silver Hill; the ridgeline extending from St. John's Ledges to Caleb's Peak and Fuller Mountain; Schaghticoke Mountain; and Ten Mile Hill (Sills and Hatton 2000).

Between these ridges are a series of valley crossings of the Housatonic River and several of its tributaries. These crossings include: Moore Brook-Spruce Swamp Creek; the Housatonic River (twice at Falls Village); Carse Brook; Guinea Brook; Macedonia Brook; and the Ten Mile River at its confluence with the Housatonic River.

Most valley crossings are short intervals between long ridgelines, but there are two long stretches of the Trail along the banks of the Housatonic River. One stretch extends for five miles from the base of St. John's Ledges north to the River Road crossing south of Silver Hill. The second stretch parallels the east side of the river from Route 7 to the Iron Bridge crossing in Falls Village, then continues north on the west side of the River to Great Falls (a total of 3.2 miles) before ascending Mt. Prospect.

From north to south, the Trail crosses the towns of Salisbury, Sharon, Kent, and Sherman. The Trail enters Connecticut from Massachusetts on the northern slopes of Bear Mountain, just south of Sage's Ravine, and leaves the state at the New York State Line at Hoyt Road in Sherman. (On Schaghticoke Mountain, the Trail enters New York State for two miles, then re-enters Connecticut. These two miles are part of the New York section of the Trail and were not inventoried in this survey).

Ecological Regions of the Appalachian Trail in Connecticut

Following Bell's (1985) discussion of the state's topographic and ecological regions, the Appalachian Trail corridor in Connecticut is within the Western Uplands region, traversing several geophysical areas: the Taconic (or Riga) Plateau in the state's northwest corner; a northern section of the Marble Valley between Salisbury and Falls Village; the Housatonic Highlands south of Falls Village to Bulls Bridge in Kent; a central section of the Marble Valley at Bulls Bridge to the Ten Mile River; and a northeastward extension of the Hudson Highlands on Ten Mile Hill. The hills and ridges are underlain by schists and gneisses, and the Housatonic River Valley is underlain by marble.

Dowhan and Craig's (1976) classification of the state's Ecoregions approximates Bell's interpretation, but these authors categorize the area as belonging to the Northwest Highlands, Northwest Uplands, and Northern and Central Marble Valleys.

Topographically, there is not much relief in Connecticut's Trail corridor compared with other New England states (although the relief is greater than it is in the New York and New Jersey sections of the Trail). The lowest point is 250 feet at the confluence of the Ten Mile and Housatonic Rivers, and the highest point is 2318 feet at the summit of Bear Mountain. The Riga Plateau has the highest elevations in Connecticut, and Bear Mountain is the highest mountain entirely within the state.

Bear Mountain and Lion's Head (1738 feet) on the Riga Plateau are the highest elevations along the Trail. The next highest points are Mt. Prospect (1461 feet) and the top of Schaghticoke Mountain (1403 feet) in the Housatonic Highlands. The average

elevation of the Trail corridor on the Riga Plateau ridgeline is about 1500 feet; on the ridgelines south of the Plateau it is about 1000 feet.

Natural Communities and Flora

The Trail corridor in Connecticut is primarily located on upland ridges with mixed deciduous forests on lower slopes and oak/heath forests on middle and upper slopes. Hemlock stands occur frequently in ravines and on steep slopes. The Trail corridor crosses relatively few wetland communities. The two largest wetlands are basin swamps, one on Bear Mountain, and the other near Hoyt Road in Sherman. In places where the Trail follows the Housatonic River, it is generally located on forested terraces above steep banks. At a few sites, it passes near fragments of floodplain forest. Rare and unusual natural communities in the Trail corridor are located primarily at higher elevations on the Riga Plateau and on marble bluffs overlooking the Housatonic River at Great Falls and Bulls Bridge.

A total of 646 native and naturalized non-native vascular plant taxa in 103 plant families have been identified in the Trail corridor in this survey. Approximately 85% of the taxa are native, and 15% are non-native. Altogether, thirty-two rare plant species in forty populations have been documented in the Trail corridor as it is defined in this survey (see Table 2).

Two rare wildlife species were also seen in this survey: timber rattlesnakes (*Crotalus horridus*) at two sites, and common ravens (*Corvus corax*) at three sites. These observations are discussed in the individual Site Summaries.

Field Surveys

A total of 29 field days were spent investigating the Trail corridor in the spring and summer of 2003. The surveys began on April 23 and ended on September 8. During this time, the entire length of the Trail in Connecticut was covered. I catalogued the vascular plant species observed in the field, searched for rare plant species, and documented rare plant populations.

In the first two months of the survey, I did a reconnaissance of the plant communities in the Trail corridor, identifying both rare and representative plant communities for plot locations later in the season. The Draft Vegetation Classification for Connecticut (Metzler and Barrett 2003) and field observations form the basis for plant community identification. In August and September, a total of 19 plots were sampled, with detailed notes taken on the environmental conditions, vegetation structure, and floristic composition within the plots (completed field forms are attached as Appendix C).

GPS points and photographs were taken of rare plant populations and plot locations.

Limitations of the Survey

This survey covered a large area, and it had multiple objectives (rare plant searches and documentation; comprehensive floristic survey; identification and sampling of natural communities; management recommendations for sensitive sites) that were a challenge to complete in a single field season. Within the limitations of time and budget, the results of this survey should present a reasonably full picture of the present condition of the flora and natural communities in Connecticut's Trail corridor. Future surveys should add to the lists of flora and rare species occurring along the Trail, and refine the classification of the area's natural communities. Specific areas that could be priorities for future work include: Bear Mountain and Brassie Brook Ravine, the NPS-owned slopes and ridgeline near Stony and Stewart Hollow Brooks, and Bulls Bridge.

Natural Heritage Sites

Section IV of this report provides detailed summaries of the 17 sites in the Trail corridor where rare plants, communities, or fauna were observed in 2003. Topographic site maps and rare plant and community maps for each rare occurrence follow the discussion of each site. The site summaries include an assessment of threats and recommended conservation actions to protect species and habitats exposed to human or natural impacts.

Acknowledgements

I would like to express my appreciation to the following individuals for guidance, technical support, information, editorial comments, and help in the field: Kent Schwarzkopf and Casey Reese of the Appalachian Trail Park Office; Alice Schori of the Appalachian Trail Conference; Ken Metzler and Nancy Murray of the Connecticut Natural Diversity Database; Les Mehrhoff of the University of Connecticut Herbarium; Paul Palmer and Doug Christie (Trail monitors); Bob Zaremba, Bill Moorhead, and Deb Dunlop (Botanists). My thanks also to my parents, Edward and Ann Elliman, and to Bob and Mary Bales for help with transportation and shuttling cars along the Trail.

The National Park Service provided funding for this project.

SECTION 2

FLORISTIC AND RARE PLANT SURVEY RESULTS

Field Methods

From April to September, 2003, I spent 29 days in the field, traversing the entire 50-mile length of the Appalachian Trail corridor in Connecticut. Additional floristic information collected at several sites in 2001 (one field day), 2002 (two field days) and 2004 (one field day) is included in this report.

For most of the AT corridor, the survey area extends to a distance of 500 feet on either side of the footpath. At two sites, Bear Mountain and Bulls Bridge, larger areas were surveyed due to the greater extent of NPS-owned land and the presence of many rare species.

I listed all of the vascular plant species encountered in the field, collecting for later identification those species that could not be immediately identified. For rare plant species, documentation includes information about population numbers, distribution, condition, habitat, elevation, and location, using a Garmin Map76 GPS unit for coordinates.

General Results

A total of 646 plant taxa¹ in 103 plant families have been identified in Connecticut's Appalachian Trail corridor. Of this total, 548 (85%) are native plants, and 98 (15%) are non-native plants.

Appendix A provides a checklist of the plants identified in the Trail corridor. Details about the presence, habitat preferences, and distribution of many plants identified in the survey are provided in the Plant Community and the Site Summary Sections of this report.

Scientific and common plant names used in this report generally follow the names given in Sorrie and Somers (1999), which is based on J.T. Kartesz's *A Synonymized Checklist of Vascular Flora of the United States, Canada, and Greenland* (1994). Gleason and Cronquist's *Manual of the Vascular Flora of the Northeastern United States and Adjacent Canada* (1991) was also consulted for nomenclature, and it was the primary source for the technical identification of plant species.

The plant families with the most species found in the survey area are listed in Table 1.

¹ Taxa refers to plants identified to species and to subspecies level. Of the 642 plant taxa listed in this report, 638 have been identified to species, and four to the subspecific variety.

Table 1: Largest Plant Families in the Connecticut Trail Corridor

Family	Total number of taxa	Non-native taxa in family
Asteraceae	69	10
Cyperaceae	53	0
Poaceae	45	11
Rosaceae	35	3
Ranunculaceae	23	3
Liliaceae	22	3
Scrophulariaceae	19	5
Brassicaceae	17	7
Fabaceae	17	6
Ericaceae	15	0
Lamiaceae	15	3

Non-native Plants

Most of the non-native plants in Connecticut's Trail corridor are upland species occurring at road crossings, fields, and disturbed forests and woodlands. The majority of these plants do not pose a threat to rare species or communities along the Trail, but several invasive species are present in large enough numbers to displace native flora and threaten natural habitats.

Garlic mustard (*Alliaria petiolata*), Japanese barberry (*Berberis thunbergii*), oriental bittersweet (*Celastrus orbiculata*), winged euonymus (*Euonymus alata*), Morrow's honeysuckle (*Lonicera morrowii*), common buckthorn (*Rhamnus cathartica*), and multiflora rose (*Rosa multiflora*) are ubiquitous and abundant in the corridor's uplands. Japanese barberry and Morrow's honeysuckle are particularly widespread, occurring in mature forests as well as in disturbed woodlands and fields. Spotted knapweed (*Centaurea maculosa*), black swallow-wort (*Cynanchum louisae*), and Japanese stilt grass (*Microstegium vimineum*) are aggressive non-native species now present in low numbers but which could increase in the future. Purple loosestrife (*Lythrum salicaria*) is a major presence in several of the corridor's wetland communities.

Rare Plants

During the survey, I searched for old and new occurrences of rare plants. Many rare plant populations were reported during field work for the original Connecticut Inventory in 1991 (McKay et al. 1992). Several more rare populations were documented between 1992 and 2003. I tried to relocate all of the reported rare plant populations within the Trail corridor and to investigate promising sites for new occurrences.

Rare plant species documented in this survey are listed in Appendix 2 and discussed in the Site Summary section of this report. Table 2 lists rare plant populations known to occur at sites in the Appalachian Trail corridor as it is defined in this survey. The 1991 inventory covered a larger area, including several sites that are a considerable distance from the Trail. Rare plant populations noted in the original inventory that are outside the area of the present survey are listed in Table 3.

A total of 32 rare plant species in 40 populations were documented in the Connecticut Trail Corridor as it is defined in this survey in 2003². Seven of these populations, highlighted in bold in Table 2, were documented for the first time in 2003.

Table 2: Rare Plant Populations Documented in 2003

Species	GR/SR	Site
<i>Acer nigrum</i>	G5Q/SU	Wetauwanchu Mountain
<i>Amelanchier sanguinea</i>	G5/S1	Bulls Bridge
<i>Anemone canadensis</i>	G5/S1	Bulls Bridge
<i>Aristolochia serpentaria</i>	G4/S2	Bulls Bridge
<i>Asplenium ruta-muraria</i>	G5/S2	Bulls Bridge
<i>Carex aestivalis</i>	G4/S2	Bear Mountain
<i>Carex crawei</i>	G3G5/S1S2	Bulls Bridge
<i>Carex eburnea</i>	G5/S3	Bulls Bridge
<i>Carex novae-angliae</i>	G5/S1	Bear Mountain
<i>Conioselinum chinense</i>	G5/S3S4	Pine Knob-Hatch Brook
<i>Cryptogramma stelleri</i>	G5/S2	Bulls Bridge
<i>Draba reptans</i>	G5/S2	Great Falls
<i>Gentianella quinquefolia</i>	G5/S1	Bulls Bridge
<i>Hypericum pyramidatum</i>	G4/S1	Ten Mile River
<i>Isotria medeoloides</i>	G2/S1	Pine Knob
<i>Liatris scariosa</i> var. <i>novae-angliae</i>	G5T3 /S2	Bulls Bridge
<i>Onosmodium virginianum</i>	G4/S1	Bulls Bridge
<i>Oxalis montana</i>	G5/S3	Bear Mountain
<i>Oxalis montana</i>	G5/S3	Brassie Brook
<i>Oxalis montana</i>	G5/S3	Wachocastinook Ravine
<i>Oxalis violacea</i>	G5/S2	Glacier Rock
<i>Panax quinquefolius</i>	G3G4/S3	Pine Knob-Hatch Brook
<i>Panax quinquefolius</i>	G3G4/S3	Mt. Prospect-Raccoon Hill
<i>Picea rubens</i>	G5/S2	Bear Mountain
<i>Picea rubens</i>	G5/S2	Brassie Brook
<i>Polygala senega</i>	G4G5/S1	Bulls Bridge
<i>Potentilla tridentata</i>	G5/S1	Bear Mountain
<i>Potentilla tridentata</i>	G5/S1	Lions Head
<i>Ribes glandulosum</i>	G5/S1	Bear Mountain
<i>Solidago rigida</i>	G5/S1	Bulls Bridge
<i>Streptopus amplexifolius</i> var. <i>americanus</i>	G5T5/S1	Wachocastinook Ravine

An additional nine rare plant populations noted in the original inventory that are within the area of this survey were not found in 2003 (McKay et al. 1992). These occurrences are listed in Table 3.

The original inventory documented another 17 rare plant populations that are outside the bounds of this survey. These occurrences are listed in Table 4 on page 12.

² The author documented 37 of these populations; three populations (*Carex crawei*, *Cryptogramma stelleri*, and *Isotria medeoloides*) were reported by other observers.

Table 3: Rare Plant Populations Reported in McKay et al. (1992) Not Found In 2003

Species	Rank	Site	Last Seen
<i>Anemone canadensis</i>	G5/S1	Breadloaf Mountain	1991?
<i>Cryptogramma stelleri</i>	G5/S2	Great Falls	1900
<i>Draba reptans</i>	G5/S2	Bulls Bridge	2000's?
<i>Equisetum scirpioides</i>	G5/S1	Wachocastinook Ravine	1915
<i>Equisetum variegatum</i>	G5/S2S3	Stony Brook	1991
<i>Pinus resinosa</i>	G5/S1	Bear Mountain	1903
<i>Ribes rotundifolium</i>	G5/S1	Wachocastinook Ravine	1904
<i>Schizachne purpurascens</i>	G5/S1	Sharon Mountain	1990
<i>Sporobolus asper</i>	G5/S4	Bulls Bridge	2000's?

Rank and Status Symbols

The numerical "GR" and "SR" rankings listed in Tables 2 refer to the global and state ranks assigned to species by The Nature Conservancy (or NatureServe). NatureServe assigns global and state ranks to all plant taxa.

Plants ranked G1, G2, and G3 are rare on a global basis, with "G1" species being the most rare. Those ranked G4 and G5 are globally widespread and abundant. In Connecticut's Trail corridor small whorled pogonia (*Isotria medeoloides*) is ranked as a globally rare (G2) species. Crawe's sedge (*Carex crawei*-G3G5) and ginseng (*Panax quinquefolius*-G3G4) are marginally rare globally (G3G4).

S1 plants are species that are "critically imperilled because of extreme rarity or some other factor making them especially vulnerable to extirpation..." (typically 1-5 population occurrences in Connecticut).

S2 species are imperilled in the state because of rarity or because of factors making them very vulnerable to extirpation in the state (typically 6-20 occurrences).

S3 species are rare and uncommon in the state (typically 21 to 100 occurrences).

Plants with combined rankings, such as S2S3, for example, fall between the two categories.

The SU category refers to species whose status is unknown.

Plants that are nationally rare in the United States also receive a ranking from the US Fish and Wildlife Service. These rankings are LE (Listed Endangered) for the rarest species, and LT (Listed Threatened). Small whorled pogonia is the only species in Connecticut's Trail corridor with a federal designation (LE).

For those plants that are identified to the subspecific level, such as *Liatris scariosa* var. *novae-angliae*, there is also a "T" rank for the variety or subspecies. In the case of this particular taxon, the species *Liatris scariosa* is ranked as a G5, globally secure plant,

while the variety *novae-angliae* has a rare designation of T3 (Brumback, Mehrhoff et al. 1996).

Element occurrence rankings in the Site Summary Tables refer to the condition of the population or community. An "A" signifies a population or community in excellent condition; "B" signifies good; "C" is fair; and "D" is poor.

Discussion of Rare Plant Occurrences

The rare plant species documented in Connecticut's Trail corridor fall into two major groups. One group includes plants that are typically more northern in distribution, found in the northwestern part of the state, usually in cold habitats at high elevations (examples: *Carex novae-angliae*, *Conioselinum chinense*, *Ribes glandulosum*, *Streptopus amplexifolius*). The Riga Plateau, from Bear Mountain to Lion's Head and Wachocastinook Ravine, is the primary region for these rare species. The second major group of rare plants includes calciphilic species growing on the marble bluffs in at Great Falls and Bulls Bridge. Many of these species are generally more southern and western in their general distribution (examples: *Aristolochia serpentaria*, *Draba reptans*, *Onosmodium virginianum*, and *Solidago rigida*).

Details of each rare plant occurrence are provided in the Site Summary section of this report. The following summary of the rare plants listed in Table 2 comments briefly on the ecological conditions and status of each occurrence.

Acer nigrum (Black maple): Single mature tree on lower, moist forest slopes at Wetauwanchu Mountain Site.

Amelanchier sanguinea (Round-leaved shadbush): One colony on a steep marble overlook at the Great Falls Site.

Anemone canadensis (Canada anemone): The Bulls Bridge population is along the Housatonic River floodplain. The Breadloaf Mountain population is on private land.

Aristolochia serpentaria (Virginia snakeroot): The population is on marble bluffs on the east side of the Housatonic River at Bulls Bridge.

Asplenium ruta-muraria (Wall-rue spleenwort): The population is widely scattered on marble outcrops at Bulls Bridge.

Carex aestivalis (Summer sedge): Occurs in scattered clusters along the Trail in northern hardwood forest on the north side of Bear Mountain.

Carex crawei (Crawe's sedge): Occurs on marble ledges at Bulls Bridge.

Carex eburnea (Ebony sedge): Occurs in marble woodlands at Bulls Bridge.

Carex novae-angliae (New England sedge): There is a small population near the Trail in northern hardwood forest on Bear Mountain's northern slope. The species is at the southern limit of its range in Connecticut (Dowhan and Craig 1976).

Conioselinum chinense (Hemlock-parsley): A small population occurs in a hemlock seepage at Hatch Brook.

Cryptogramma stelleri (Slender cliffbrake): Populations have been reported on marble cliffs at Bulls Bridge and Great Falls. The current status of both populations is not clear. The species is at the southern limit of its range in Connecticut (Dowhan and Craig 1976).

Draba reptans (Carolina whitlow-grass): A very small population on marble ledges at Great Falls was seen in 2002 and 2003, but not in a follow-up visit in 2004. The status of the Bulls Bridge population is not known.

Equisetum scirpioides (Dwarf scouring-rush): The Wachocastinook Ravine population last seen in 1915 may be outside Connecticut's Trail corridor. Dowhan and Craig (1976) note that the species is near the southern limit of its range in Connecticut.

Equisetum variegatum (Variegated horsetail): Noted at the Stony Brook Site in 1991 (McKay et al. 1992), but the location is unknown. I did not find this occurrence in 2003.

Isotria medeoloides (Small whorled pogonia): A small population of this federally listed species occurs in semi-open oak woodlands near Pine Knob, where it is monitored by the Connecticut Natural Diversity Database.

Gentianella quinquefolia (Stiff gentian): A population occurs in red cedar woodlands south of Bulls Bridge.

Hypericum pyramidatum (Giant St. John's-wort): A population occurs on rocky river shores at the confluence of the Housatonic and Ten Mile Rivers. Purple loosestrife appears to be competing with it at the site.

Liatris scariosa var. *novae-angliae* (Northern blazing-star): A population is scattered in marble woodlands south of Bulls Bridge.

Onosmodium virginianum (Virginia false gromwell): A small, clustered population occurs in marble woodlands at Bulls Bridge. This population, which is exposed to trampling, may be the only remaining occurrence of this species in New England.

Oxalis montana (Mountain wood-sorrel): The three populations noted in this survey grow in deeply shaded forest dominated by hemlock. The Brassie Brook and Wachocastinook Ravine populations occur along cold seepages.

Oxalis violacea (Violet wood-sorrel): A small, clustered population grows in a dry oak forest at the Glacier Rock Site.

Panax quinquefolius (American ginseng): Two small populations noted in 2003 occur in mesic forests at the Pine Knob and the Mt. Prospect Marble Outcrops Sites.

Picea rubens (red spruce): Red spruce has a scattered distribution in high elevation forests and wetlands on Bear Mountain and along the upper part of Brassie Brook Ravine.

Pinus resinosa (Red pine): Historic population, last documented on Bear Mountain (probably in the summit area), in 1903.

Polygala senega (Seneca snakeroot): There is a large population on the marble bluffs at Bulls Bridge.

Potentilla tridentata (Three-toothed cinquefoil): The Bear Mountain and Lion's Head populations grow on open, rocky summits.

Ribes glandulosum (Skunk currant): A population grows at the upper edge of a northern hardwood forest on Bear Mountain. Dowhan and Craig (1976) mention that this species typically occurs in cold, swampy conditions in Connecticut.

Schizachne purpurascens (Purple oat): This species occurs on Sharon Mountain's lower slopes. It was not seen in 2003. In Connecticut, it is at the southeastern limit of its range (Dowhan and Craig 1976).

Solidago rigida (Stiff goldenrod): The population is scattered in marble woodlands at the Bulls Bridge Site.

Sporobolus asper (Tall dropseed): A population occurs at the Bulls Bridge Site—it was not seen in 2003.

Steptopus amplexifolius var. *americanus* (White mandarin): A small, clustered population grows in a cold seepage in Wachocastinook Ravine.

Table 4 lists rare plant occurrences at sites described in the original inventory that are outside the limits of the area defined in this survey. McKay et al. (1992) provide details about these rare plant populations.

**Table 4: Rare Plant Populations Reported in McKay et al. (1992)
That Are Outside the A.T. Corridor and the Bounds of this Survey**

Site	Species	GR/SR
Bingham Pond	<i>Arceuthobium pusillum</i>	G5/S1
	<i>Carex limosa</i>	G5/S1
	<i>Gaultheria hispidula</i>	G5/S1
	<i>Picea rubens</i>	G5/S2
	<i>Scheuchzeria palustris</i>	G5/S1
	<i>Smilacina trifolia</i>	G5/S1
	<i>Vaccinium myrtilloides</i>	G5/SH
Bald Peak	<i>Potentilla tridentata</i>	G5/S1
Moore Brook/Spruce Swamp Creek	<i>Carex crawei</i>	G3G5/S1S2
	<i>Hepatica nobilis var. acuta</i>	G5T5/S1
	<i>Petasites frigidus var. palmatus</i>	G5T5/S1
	<i>Schizachne purpurascens</i>	G5/S1
Housatonic River Site	<i>Equisetum variegatum</i>	G5/S2S3
	<i>Hypericum pyramidatum</i>	G4/S1
Kent Falls	<i>Conioselinum chinense</i>	G5/S3S4
	<i>Cryptogramma stelleri</i>	G5/S1
	<i>Gentianella quinquefolia</i>	G5/S1

SECTION 3

PLANT COMMUNITIES

"Whether or not an extent of land is one zone, several zones, or several sub-zones is purely a matter of opinion, and the degree of subdivision depends on its usefulness for purposes of scientific description."
(Frank. E. Egler, quoted in Dowhan and Craig, 1976, pp. 27-28).

Introduction

This section summarizes the variety of plant communities identified in Connecticut's Appalachian Trail corridor. The Draft Vegetation Classification for Connecticut (Metzler and Barrett 2003) is the primary source for the communities described in this discussion. An older classification of Connecticut's plant communities (Appendix VI in McKay et al. 1992), and the state classifications for Massachusetts (Swain and Kearsley 2000), New York (Edinger et al. 2002), and Vermont (Thompson and Sorenson 2000) have also been consulted.

In Edinger et al.'s (2002) classification of ecological communities in New York, a community is defined a "variable assemblage of interacting plant and animal populations that share a common environment (and) occur repeatedly in the landscape... No two examples of a community are identical in composition or environment, however, they are similar within a given range of variability..." (Introduction, p. x).

Swain and Kearsley (2000) state that "A classification provides a convenient mechanism for reducing the complexity of natural vegetation to a relatively small number of somewhat homogeneous...but abstract and artificial groups...Any classification requires somewhat arbitrary categories" (Introduction, p. ii).

These qualified definitions of a community, taking into account floristic variability within consistent patterns of topographic, geologic, hydrologic, and soil conditions in conjunction with dominant species associations, form the basis of this summary.

The pattern and distribution of plant communities in Connecticut's Appalachian Trail corridor are based on its location in the Highlands and Marble Valley in the northwestern part of the state. This region, which includes the "Northwest Highlands Ecoregion", the "Northern/Central Marble Valley Ecoregion", and the "Northwest Uplands Ecoregion" (Bell 1985, Dowhan and Craig 1976, McKay et al. 1992) contain the state's highest hills and a marble valley along the Housatonic River.

Most of the ridgelines within the Trail corridor are protected by the state, federal government, and private conservation groups. The hills are covered with maturing upland forests. Valley lowlands crossed by the Trail are impacted by residential communities, roads, agriculture, and industry, resulting in the fragmentation of natural communities near the Housatonic River. In spite of these disturbances, the marble bedrock in the Housatonic Valley supports several rare and distinct plant communities.

Scale of Natural Communities

Following Thompson and Sorenson's discussion of Vermont's natural communities, plant communities in the Connecticut Trail corridor may be conceived as "matrix", "large patch" and "small patch" communities. To paraphrase Thompson and Sorenson's definitions, matrix communities are the dominant communities in the landscape and "form the background in which smaller communities occur..." Matrix communities "have a broad ecological amplitude, occurring across a wide range of soil and bedrock types..." According to this definition, matrix communities collectively occupy about 75% of the landscape.

"Large patch" communities are ecologically distinct units of moderate size nested within matrix communities. The presence of a large patch community in the landscape is typically determined by a single ecological process such as fire or hydrology. Large patch communities collectively occupy about 20% of the landscape.

"Small patch" communities, also nested within matrix communities, are small ecological units where a particular set of ecological processes and environmental conditions coalesce. Because of this special set of conditions, these small communities may contain a significant share of regional biodiversity (Thompson and Sorenson 2000, pp 71-72). These communities cover 5% or less of the landscape.

According to these definitions, the Appalachian Trail corridor in Connecticut has two matrix communities, one large patch community, and a host of small patch communities.

Matrix Communities

Both of the large-scale, matrix communities in the Connecticut Trail corridor are upland, deciduous forests that occur throughout the 50-mile Trail corridor.

One matrix community is a moist, deciduous, mid-successional forest that occupies lower to middle slopes on all the ridges within the Trail corridor from Ten Mile Hill to Lion's Head. Sugar maple (*Acer saccharum*), white ash (*Fraxinus americana*), black cherry (*Prunus serotina*), and red oak (*Quercus rubra*) are the major canopy species in this community.

The second matrix community is an oak-dominated forest that occupies drier, less fertile soils on middle and upper slopes for the entire length of the A.T. corridor in Connecticut. Red oak and chestnut oak (*Quercus montana*) are the most common trees. Ericaceous shrubs, including black huckleberry (*Gaylussacia baccata*), mountain laurel (*Kalmia latifolia*), and lowbush blueberry (*Vaccinium angustifolium*) dominate the shrub stratum in these oak forests.

Although the patterns of matrix forests are fairly consistent in structure and dominant species, their floristic composition varies from ridge to ridge. Slope position, forest age, disturbance regimes, shading, moisture, and soil characteristics influence the species

composition and richness of individual stands. In ecotonal areas between mixed deciduous and oak forest stands, communities cannot be easily classified as one type or the other.

In general, the patterns of the matrix forest communities are consistent throughout the Connecticut AT corridor, although the higher elevation oak forests on Bear Mountain vary to some degree.

Large Patch Community

Only one large patch community was identified in the Connecticut's Trail corridor: evergreen forest stands dominated by eastern hemlock. Hemlock forests occur from Ten Mile Hill to Bear Mountain, typically along ravines and on shaded, north-facing slopes. Most hemlock stands range from several acres to about 10 acres, embedded within both types of matrix forest communities.

Small Patch Communities

The other communities identified in the survey area are limited in size and/or number of occurrences. Most small patch communities are at most five acres in size, but several, such as the spruce woodland swamp community (the only one in the survey area) and the rocky summit shrubland community (one of two such communities) on Bear Mountain form larger ecological units.

The following arrangement of communities is modified and simplified from the approach used by Metzler and Barrett (2003). The hierarchy of this scheme, in descending order, is: systems, associations, and communities.

Classification of the Communities

For the purposes of the A.T. corridor in Connecticut, there are two main ecological *systems* discussed by Metzler and Barrett: terrestrial (upland) and palustrine (wetland) systems. To these systems, I have added a third, alluvial (riparian) system for communities impacted by periodic flooding on the Housatonic River.

Each of these systems contains forest, woodland, shrubland, herbaceous, and sparsely vegetated *associations*, defined by the structure of the vegetation. Forest associations have a tree canopy of 60% or more; woodland associations have a dispersed tree canopy ranging from 25-60%; shrubland and herbaceous associations have few or no trees and are dominated by shrub and herbaceous species respectively. Sparsely vegetated associations, such as cliffs and talus slopes, consist of bare rock with little vegetation.

Forests and woodlands are subdivided into "evergreen" and "deciduous" categories. Deciduous stands have a hardwood tree canopy comprising more than 50% of the total tree coverage; evergreen stands have a coniferous tree coverage greater than 50% of the total tree coverage.

Within each association, *communities* are defined by dominant floristic components and sometimes by geologic or soil features. Examples include “oak/heath forest community”, “sugar maple-yellow oak-hemlock forest on marble bluffs”, and “black spruce woodland swamp”.

Table 5 lists the vegetation communities identified in the Connecticut Appalachian Trail corridor in this survey. The Table is organized according to “System” (Terrestrial, Palustrine, Alluvial); “Association” (forest, woodland, shrubland, herbaceous, sparse vegetation); “Community” (dominant species and/or significant edaphic features); and “Subtypes”, which are variants of the matrix and large patch communities. State rank (S-rank) numbers are assigned to those communities classified as rare in Connecticut (S1, S2, and S3 communities). A discussion of the communities follows Table 5.

**Table 5: Plant Communities In Connecticut's
Appalachian Trail Corridor**

<i>System</i>	<i>Association</i>	<i>Community</i>	<i>Community Subtypes</i>	<i>Comments</i>	<i>S-rank</i>
TERRESTRIAL					
	Deciduous Forest				
		<i>Mesic deciduous forest</i>		Matrix	
			Circumneutral seepage forest		S2
			Sugar maple-oak forest		
		<i>Oak/heath forest</i>		Matrix	
			Oak/mountain laurel forest on Riga Plateau		
			Oak-hickory/heath forest		
			Enriched oak forest		
			Oak forest seepages		S3/S4
		<i>Northern hardwood forest</i>			
		<i>Shagbark hickory-Pennsylvania sedge forest</i>			
		<i>Sugar maple-yellow oak-hemlock forest on marble bluffs</i>			S3
	Evergreen Forest				
		<i>Hemlock forest</i>		Large Patch	
			Hemlock seepage forest		S3/S4
		<i>Plantation white pine forest</i>			
	Woodlands				
		<i>Red cedar woodlands on marble bluffs</i>			S2
		<i>Successional woodlands on old fields</i>			
	Shrublands				
		<i>Rocky summit shrublands</i>			
	Herbaceous				
		<i>Old fields</i>			
	Sparsely Vegetated				
		<i>Circumneutral cliffs</i>			S1

		<i>Talus slope</i>		(subacidic?)	S1?
PALUSTRINE					
	Forested Swamps				
		<i>Red maple/skunk cabbage swamp</i>			
		<i>Mixed hardwood bottomland swamp</i>		Tuliptree, swamp white oak, red oak, sycamore, black ash	
	Woodland Swamp				
		<i>Black spruce woodland swamp</i>			S1
	Shrub Swamp				
		<i>Riparian fringe shrub swamp</i>		Willows, swamp dogwood	
		<i>Subacidic seepage shrub swamp</i>			
	Herbaceous Wetland				
		<i>Circumneutral sloping fen</i>			S1
ALLUVIAL					
	Forest				
		<i>Floodplain forest</i>		Silver maple, cottonwood, sycamore, green ash	S3
	Herbaceous				
		<i>Riverbank community</i>		Thinly vegetated	S3/4

Terrestrial Communities

Deciduous Forest

Metzler and Barrett's Connecticut Classification has three general categories of upland deciduous forests based on their primary canopy tree species. These forests are dominated by: a) sugar maple, b) oaks, and c) a combination of hickory and white ash.

The Connecticut Classification separates the sugar maple and oak forests into more specific types according to their floristic composition and substrate. I had some difficulty matching my observations of the sugar maple and oak forests along the Connecticut A.T. corridor with the communities described in the Classification, and have substituted the term "mesic deciduous forest" for "sugar maple forest" in this discussion.

Mesic deciduous forest communities in the Trail corridor are usually dominated by sugar maple or sugar maple in combination with other hardwoods, including white ash, black cherry, and several birch species. Red oak is an important component of this community, but it is not a dominant species. Oak/heath forests are stands where oak trees comprise more than 50% of the canopy, and ericaceous species dominate the shrub stratum. The matrix oak/heath forest has two variants: the moist oak/mountain laurel forests on the Riga Plateau, and the oak-hickory/heath forests found in most of the corridor area south of Bear Mountain.

Floristic features of the communities discussed in this section are described in detail in the individual Site Summaries.

Matrix Mesic Deciduous Forest

Mesic deciduous forests cover moist, lower to middle slopes throughout the Trail corridor. These stands are typically mid-successional, often dominated by sugar maple, with white ash, black cherry, red oak, and basswood (*Tilia americana*) co-occurring in the canopy. Remnant old, thin-crowned big-tooth aspen (*Populus grandidentata*) trees sometimes extend above the canopy. Hemlock and white pine are frequently associated in the canopy as minor components. Striped maple (*Acer pensylvanicum*) is common in the understory. Representative herbaceous species include maidenhair fern (*Adiantum pedatum*), jack-in-the-pulpit (*Arisaema triphyllum*), white sedge (*Carex blanda*), wild geranium (*Geranium maculatum*), Solomon's-seal (*Polygonatum pubescens*), Christmas fern (*Polystichum acrostichoides*), and perfoliate bellwort (*Uvularia perfoliata*). The lower and middle slopes of Breadloaf Mountain and the south side of Silver Hill have good examples of lower slope, mesic deciduous forests.

At certain sites, probably due to more acidic soil and somewhat drier conditions, sugar maple is scarce or even absent. Sharon Mountain, for example, has deciduous stands dominated by red maple (*Acer rubrum*), black birch (*Betula lenta*), and red oak in association with pignut hickory (*Carya glabra*), hemlock, and white pine.

Mesic deciduous forests sometimes occur on hilltops and upper ridgelines with moist soils. The species association is essentially the same as it is in the lower slope stands. On the upper slopes of Wetauwanchu Mountain, sugar maple, red maple, black birch, paper birch (*Betula papyrifera*), white ash, hop hornbeam (*Ostrya virginiana*), red oak, and black cherry are mixed in the canopy, with striped maple and witch hazel (*Hamamelis virginiana*) in the understory. The exotic Japanese barberry and Morrow's honeysuckle infest these stands. Herbaceous species include hog-peanut (*Amphicarpaea bracteata*), wild sarsaparilla (*Aralia nudicaulis*), white wood aster (*Aster divaricatus*), hay-scented fern (*Dennstaedtia punctilobula*), false solomon's-seal (*Smilacina racemosa*), and New York fern (*Thelypteris noveboracensis*).

North of Rand's View on Wetauwanchu Mountain there is a rich and fairly pristine upper slope mesic forest patch covers several acres. Sugar maple is the dominant species, associated with paper birch, white ash, and hemlock. Herbaceous plants include columbine (*Aquilegia canadensis*), maidenhair fern, walking fern (*Camptosorus rhizophyllus*), dwarf enchanter's nightshade (*Circaea alpina*), round-lobed hepatica (*Hepatica americana*), broad beech fern (*Phegopteris hexagonoptera*), and bloodroot (*Sanguinaria canadensis*). Upper slopes of Mt. Prospect and Ten Mile Hill also have examples of mesic deciduous forests.

Circumneutral Seepage Forest

The finest example of a lower slope, mesic deciduous forest is a circumneutral seepage forest located near Stony Brook Campsite. This community is described in the Stony Brook Site Summary. Sugar maple is dominant, but a number of other large hardwoods are mixed in the canopy, including bitternut hickory (*Carya cordiformis*), white ash, basswood, chestnut oak, and red oak. Circumneutral seepage forests are ranked as an S2 community in Connecticut.

Mixed Sugar Maple-Oak Forest

The Connecticut Classification describes this community as follows: "This community occurs on very rocky slopes that are well drained to moist. White ash and sugar maple are common in the tree canopy. Oaks...and hickories are also often present in the tree layer..." (Metzler and Barrett 2003, pp. 23-24). Herbaceous species listed in the Connecticut Classification include: white baneberry (*Actaea pachypoda*), rue-anemone (*Anemonella thalictroides*), jack-in-the-pulpit (*Arisaema triphyllum*), broadleaf sedge (*Carex platyphylla*), hepatica (*Hepatica americana*), and early meadow rue (*Thalictrum dioicum*).

Two sugar maple-oak stands with a rich diversity of herbaceous plants were noted in this survey. One stand is located on an east-facing slope of the ridge running from Route 41 north to Lion's Head in Salisbury. Sugar maple, white ash, black cherry, white oak, red oak, pignut hickory, and beech (*Fagus grandifolia*) are mixed in the canopy. Witch hazel occurs in the understory. Herbaceous flora includes: rue anemone, hepatica, fragile fern (*Cystopteris fragilis*), herb robert (*Geranium robertianum*), bishop's-cap (*Mitella*

diphylla), and round-leaved ragwort (*Senecio obovatus*)³. This community grades into a dry oak/heath forest higher on the Lion's Head slope.

Another sugar maple-oak stand occurs on the south end of Schaghticoke Mountain. The Schaghticoke Mountain South Site Summary discusses this community in detail. This forest has an oak-hickory canopy with many sugar maples in the understory and an abundance of white ash seedlings on the forest floor. There is little evident oak regeneration, and the stand appears to be succeeding towards a sugar maple-dominated forest. At least two herbaceous species identified at this site, white baneberry and broadleaf sedge (*Carex platyphylla*), match the Connecticut Classification's description of this community.

Moist Oak/Mountain Laurel Forests of the Riga Plateau

White oak (*Quercus alba*), chestnut oak, red oak, and black oak (*Quercus velutina*) occur in the canopy in the mature forests on the southern and eastern slopes of Bear Mountain. The elevational range of this forest is approximately 850 to 1900 feet. Red maple, yellow birch, black birch, paper birch, beech, white ash, hemlock, and white pine are mixed with the oaks. The rare red spruce (*Picea rubens*) occurs occasionally at the upper edge of these stands. Mountain laurel (*Kalmia latifolia*) thickets are often extensive and dense beneath the canopy. Other shrubs include: striped maple, mountain maple (*Acer spicatum*), witch hazel, hobblebush (*Viburnum lantanoides*) and chestnut (*Castanea dentata*) sprouts. Pipsissewa (*Chimaphila umbellata*), trailing arbutus (*Epigaea repens*), teaberry (*Gaultheria procumbens*), Canada mayflower (*Maianthemum canadense*), Indian pipe (*Monotropa uniflora*), Christmas fern (*Polystichum acrostichoides*), and starflower (*Trientalis borealis*) are representative herbaceous species in these forests.

Oak-Hickory/Heath Forests

Oaks in association with pignut hickory, shagbark hickory (*Carya ovata*), red maple, black birch, sassafras (*Sassafras albidum*), and sometimes hemlock form the characteristic middle slope forest communities from Lion's Head south to Ten Mile Hill. The soils in these stands are thin, rocky, acidic, and dry.

Chestnut oak and red oak are the dominant species. White and black oaks are common, especially in mature stands. Hickory and other hardwoods form a small part of the canopy. Sprouts of American chestnut (*Castanea dentata*) appear frequently in these stands.

Ericaceous shrubs, which dominate the shrub stratum, include: black huckleberry (*Gaylussacia baccata*), mountain laurel, mountain azalea (*Rhododendron prinophyllum*), late lowbush blueberry (*Vaccinium angustifolium*), early lowbush blueberry (*Vaccinium pallidum*), and deerberry (*Vaccinium stamineum*). Wild sarsaparilla (*Aralia nudicaulis*), Pennsylvania sedge (*Carex pensylvanica*), pink lady's-slipper (*Cypripedium acaule*), panicled hawkweed (*Hieracium paniculatum*), whorled loosestrife (*Lysimachia quadrifolia*), and bracken (*Pteridium aquilinum*) are typical herbaceous species.

³ syn: *Packera obovata*

Oak-hickory stands have a low diversity of herbaceous plants and few invasive species.

Enriched Oak Forest

This small, localized community is a diverse variant of the typical oak-hickory/heath forest. Enriched oak forests occur on dry, rocky upper slopes on Ten Mile Hill and near Glacier Rock in Kent. Canopy and shrub species are similar to those in the typical oak-hickory stand. The main difference is in the species richness of the herbaceous flora, due to a higher nutrient content in the local bedrock and (or) to warm, dry slope exposures.

The canopy consists of oaks, pignut hickory, red maple, and black birch. Huckleberry and blueberry are the most common shrubs. Herbaceous flora includes: slender gerardia (*Agalinis tenuifolia*), sickle-pod (*Arabis canadensis*), ebony spleenwort (*Asplenium platyneuron*), wavy-leaved aster (*Aster undulatus*), dwarf dandelion (*Krigia virginica*), yellow flax (*Linum virginianum*), wood betony (*Pedicularis canadensis*), early saxifrage (*Saxifraga virginicensis*), and Venus' looking-glass (*Specularia perfoliata*). The rare violet wood-sorrel (*Oxalis violacea*) occurs in one of these stands.

Seepage Communities within Oak Forests

Seepages within oak-dominated forests were noted near stream courses at Brassie Brook and Sharon Mountain Campsite. The Brassie Brook seepage is within an oak/mountain laurel community on the southeast side of Bear Mountain. Sensitive fern (*Onoclea sensibilis*), cinnamon fern (*Osmunda cinnamomea*), interrupted fern (*Osmunda claytoniana*), and New York fern (*Thelypteris noveboracensis*) occur in this seepage.

At the Sharon Mountain seepage, red and chestnut oak are the dominant species, associated with red maple, black birch, sugar maple, and white ash. Herbaceous flora includes species typical of rich, moist soil conditions: bulblet fern (*Cystopteris bulbifera*), downy rattlesnake plantain (*Goodyera pubescens*), cinnamon fern, dwarf ginseng (*Panax trifolius*), long beech fern (*Phegopteris connectilis*), skunk cabbage (*Symplocarpus foetidus*), red trillium (*Trillium erectum*), and false hellebore (*Veratrum viride*). Acidic seepage forests are ranked as an S3S4 community in Connecticut.

Northern Hardwood Forest

A northern hardwood forest of red maple-beech-red oak was noted on Bear Mountain's steep, northern slope. The stand, which occurs at an elevation of 1800 to 2100 feet, is a southern extension of the cold-deciduous forest community that is common from Massachusetts northward along the Appalachian Trail. This stand is located on moist, rocky, acidic soils beneath a series of benches below Bear Mountain's summit. The stand grades into a hemlock forest near Sage's Ravine.

Red maple, beech, and red oak in approximately equal proportions dominate this forest. Paper birch and yellow birch (*Betula alleghaniensis*) are present in low numbers. There is some striped maple, mountain laurel, and blueberry, but the shrub stratum is sparse. Herbaceous plants include bluebead lily (*Clintonia borealis*), beech-drops (*Epifagus virginiana*), Indian cucumber-root (*Medeola virginiana*), Indian pipe (*Monotropa*

uniflora), solomon's-seal (*Polygonatum pubescens*), starflower (*Trientalis borealis*), and wild oats (*Uvularia sessilifolia*).

Shagbark Hickory/Pennsylvania Sedge Forest

This stand of several acres is located south of Caleb's Peak within an oak-hickory forest on a dry, flat ridgeline. It is described in the St. John's Ledges-Caleb's Peak Site Summary. The dominance of shagbark hickory (approximately 50 feet in height), the absence of oaks, and the carpet of Pennsylvania sedge on the forest floor distinguish this stand. The community has some affinities with the "pignut hickory-white ash forest" described in the Connecticut Classification, and it could be a species-poor variant of that community. However, white ash, hop hornbeam, and oaks—all mentioned in the Connecticut Classification's community description—are absent from this stand.

Sugar Maple-Yellow Oak-Hemlock Forests on Marble Bluffs

This community occurs on marble bedrock on the west side of the Housatonic River at Bulls Bridge. A description of this community is given in the Bulls Bridge Site Summary. Sugar maple, yellow oak (*Quercus muehlenbergii*), and hemlock are mixed in the canopy, with red cedar (*Juniperus virginiana*) occurring on stand edges. The community has a diverse herbaceous flora. This habitat is shaded and moist, in contrast to the dry *Juniperus virginiana* woodland on the opposite side of the river. Mesic circumneutral forests are ranked as an S3 community in Connecticut.

Evergreen Forests

Hemlock Forests

Hemlock forests are the only natural evergreen forest community in the Connecticut Appalachian Trail corridor. Large and small stands of hemlock occur along ravines, steep north-facing slopes, and on moist, shaded upper ridgelines. Hemlock is by far the most abundant tree, with scattered occurrences of red maple, yellow birch, black birch, white ash, and red oak. White pine is sometimes present as an emergent tree with a crown extending above the hemlock canopy. Shrubs and herbaceous plants are sparse in these rocky, moist, acidic, and deeply shaded communities.

Defoliated hemlocks were observed on Schaghticoke Mountain, but there did not appear to be extensive hemlock mortality from the hemlock wooly adelgid in the Connecticut Appalachian Trail corridor.

Hemlock Seepages

Hemlock occurs in cold seepage soils at Brassie Brook, Wachocastinook Ravine, Guinea Brook, and Hatch Brook. Yellow birch is usually associated with hemlock in the seepages. Several rare plants are present in hemlock seepages, including: hemlock-parsley (*Conioselinum chinense*), mountain wood-sorrel (*Oxalis montana*), red spruce, and white mandarin (*Streptopus amplexifolius* var. *americanus*). Acidic seepage forests are ranked as an S3S4 community in Connecticut.

White Pine Plantation Forest

A forest dominated by plantation white pine trees is located on a sandy terrace on the east side of the Housatonic River south of Falls Village. The pines are fairly uniform in height (about 80 feet) and diameter (20 inches). There are no other trees in the canopy. Black birch, white ash, and tall striped maple are scattered in the understory. Oriental bittersweet (*Celastrus orbiculata*) and poison ivy (*Toxicodendron radicans*) are abundant, and Japanese barberry is a common low shrub. There is little diversity of herbaceous plants, but a few species, such as intermediate woodfern (*Dryopteris intermedia*), partridge-berry (*Mitchella repens*), and jack-in-the pulpit (*Arisaema triphyllum*) are abundant in the stand. There is white pine regeneration beneath canopy gaps, but black birch and white ash are the most common sapling and seedling species.

Woodlands and Shrublands

Woodlands are defined as communities where the tree canopy coverage ranges from 25% to 60%. Three terrestrial woodland communities have been identified in the Connecticut Appalachian Trail corridor: rocky summit woodlands on acidic bedrock, dry, red cedar woodlands on marble bluffs, and successional woodlands on abandoned agricultural land. All three communities are small patch, localized occurrences.

Shrublands are communities where the tree cover is less than 25% and shrubs are the dominant growth form. Terrestrial shrublands are typically successional habitats occurring on burned areas, abandoned farmlands, and other disturbed habitats. The only significant example of a shrub-dominated upland community found in this survey was on Bear Mountain's ridgeline.

Rocky Summit Woodlands and Shrublands

Bear Mountain's summit ridgeline has the largest rocky summit community in the Connecticut Appalachian Trail corridor. The vegetation consists of small trees, dense shrub thickets, and a sparse herbaceous flora. The north and east sides of the summit are primarily dominated by small trees, while the west and south sides of the summit are dominated by shrubs. Exposure to wind and snow influences the low stature of the vegetation. Ridgeline soils are thin and acidic, with large areas of exposed bedrock. The elevations on Bear Mountain's ridge are the highest in the survey area (2000-2316 feet).

The dispersed tree canopy consists of pitch pine (*Pinus rigida*), occasional white pine, and young red maple, red oak, and gray birch (*Betula populifolia*). Scrub oak (*Quercus ilicifolia*), to ten feet in height, forms dense thickets. Ericaceous shrubs, especially black huckleberry and lowbush blueberry, are abundant. Other shrubs include downy shadbush (*Amelanchier arborea*), black chokeberry (*Aronia melanocarpa*), and American mountain-ash (*Sorbus americana*).

The Lion's Head ridgeline (1500-1738 feet in elevation) is similar in species, but young trees are a more prominent part of this community. Red maples and red oaks are succeeding along the ridge.

Small, rocky woodland openings, mostly of chestnut oak, red oak, red maple, and pignut hickory with occasional red cedar and pitch pine, occur on rocky summit outlooks on many ridges. Herbaceous species at these outlooks include: silvery sedge (*Carex argyrantha*), pale corydalis (*Corydalis sempervirens*), poverty grass (*Danthonia spicata*), hairgrass (*Deschampsia flexuosa*), fireweed (*Erechtites hieraciifolia*), and sheep sorrel (*Rumex acetosella*).

Red Cedar Woodlands on Marble Bluffs

This regionally rare community is restricted to the dry, west-facing bluffs on the east side of the Housatonic River at Bulls Bridge, and to a small, degraded patch on the west side of the Housatonic at Great Falls. The Bulls Bridge and Great Falls Site Summaries describe this community in detail.

Red cedar is a major constituent of these thin-canopied woodlands. Other trees include: sugar maple, hackberry (*Celtis occidentalis*), hop hornbeam, yellow oak, and the non-native black locust (*Robinia pseudoacacia*).

The red cedar woodland at Bulls Bridge has an extraordinary number of rare plants, including Virginia snakeroot (*Aristolochia serpentaria*), wall-rue spleenwort (*Asplenium ruta-muraria*), stiff gentian (*Gentianella quinquefolia*), blazing-star (*Liatris scariosa*), false gromwell (*Onosmodium virginianum*), and stiff goldenrod (*Solidago squarrosa*).

Dry, circumneutral forests are ranked S2 in Connecticut⁴.

Successional Woodlands/Shrublands

Patches of young trees and shrubs encroaching on abandoned farmlands occur in Salisbury near Cobble Road and on old fields southeast of Lion's Head. Trees and shrubs include red cedar, gray birch, quaking aspen (*Populus tremuloides*), gray-stemmed dogwood (*Cornus racemosa*), staghorn sumac (*Rhus typhina*), and meadowsweet (*Spiraea latifolia*). Non-native species such as apple (*Malus pumila*), Japanese barberry, Morrow's honeysuckle, oriental bittersweet, winged euonymus (*Euonymus alata*), and multiflora rose (*Rosa multiflora*) are common on these old fields.

Herbaceous Communities

Old Fields and Pastures

Upland old fields dominated by grasses and forbs are limited to abandoned and active farm fields near towns and the Housatonic River. The largest area of old fields is located near the Housatonic River on the south side of Silver Hill. Other open fields include a hay field near Cobble Road in Salisbury, a moist pasture north of Route 341 in Kent, grassy corridors at the gas pipeline near Route 55, and along the canal east of Bulls Bridge.

⁴ Presumably dry, circumneutral woodlands such as this one are also ranked S2 [CHECK].

Field flora consists of a mix of native and non-native non-native plants (indicated by an asterisk), including yarrow (*Achillea millefolium*), sweet vernal grass (*Anthoxanthum odoratum*)*, wintercress (*Barbarea vulgaris*)*, orchard grass (*Dactylis glomerata*)*, wild bergamot (*Monarda fistulosa*), English plantain (*Plantago lanceolata*)*, Canada bluegrass (*Poa compressa*), Kentucky bluegrass (*Poa pratensis*)*, bulbous buttercup (*Ranunculus bulbosa*)*, tower mustard (*Sisymbrium altissimum*)*, red clover (*Trifolium pratense*)*, Canada goldenrod (*Solidago canadensis*), and cow vetch (*Vicia cracca*)*.

A moist, circumneutral field near Bunker Road in Salisbury has a large population of fringed gentian (*Gentianopsis crinita*), the only noted location for this attractive native species.

Sparsely Vegetated Communities: Cliffs and Talus Slopes

Sheer marble cliffs with virtually no vegetation occur on the west side of the Housatonic River at Great Falls, and east of the River at Bulls Bridge. A rare fern, slender rock-brake (*Cryptogramma stelleri*) has been documented on rock faces at both sites. Circumneutral cliffs are ranked as an S1 community in Connecticut.

At St. John's Ledges, there is a talus slope of large boulders below the rock precipices near the top of the ridge. Herbaceous plants grow in rock cracks and soil pockets among the boulders. Allegheny-vine (*Adlumia fungosa*), long-beaked sedge (*Carex sprengelii*), pellitory (*Parietaria pensylvanica*), forked chickweed (*Paronychia canadensis*), and Allegheny buttercup (*Ranunculus alleghensisensis*) occur on this slope. Subacidic talus slope communities are ranked as an S1 community in Connecticut.

Palustrine Communities

The largest wetlands in the Connecticut Appalachian Trail corridor are two basin swamps, one at the base of Bear Mountain's eastern slopes, and the second north of Route 55 in Sherman. The third largest wetland is a subacidic seepage swamp west of Spruce Swamp Creek in Salisbury. Most of the other wetlands in Connecticut's A.T. corridor are less than one half acre in size, occurring in swales, slope bottoms, and along stream corridors.

Forested Swamps

Mixed Hardwood Bottomland Swamp

The swamp north of Route 55 in Sherman is a closed canopy bottomland forest with large tuliptrees (*Liriodendron tulipifera*), sycamore (*Platanus occidentalis*), swamp white oak (*Quercus bicolor*), and red oaks growing on hummocks. Black ash (*Fraxinus nigra*) is abundant in the understory. This community, described in the Route 55 Site Summary, has an exceptional diversity of shrubs and herbaceous plants.

Red Maple-Skunk Cabbage Seepage Swamp

The subacidic seepage swamp west of Spruce Swamp Creek has a canopy of red maple, scattered shrubs, and dense patches of sensitive fern and skunk cabbage. Other plants include: marsh marigold (*Caltha palustris*), bladder sedge (*Carex intumescens*), broom sedge (*Carex scoparia*), tussock sedge (*Carex stricta*), purple avens (*Geum rivale*), water pennywort (*Hydrocotyle americana*), dwarf raspberry (*Rubus pubescens*), and swamp saxifrage (*Saxifraga pensylvanica*).

Woodland Swamps

Black Spruce Woodland Swamp

The black spruce woodland swamp on Bear Mountain is a high-elevation (1770 feet) wetland with a thin overstory of tall black spruce (*Picea mariana*) and other trees above dense shrub thickets and scattered herbaceous openings. This pristine community is described in the Bear Mountain Site Summary. Black spruce woodland swamps are ranked as an S1 community in Connecticut.

Shrub Swamps

Shrub Swamps along Riparian Corridors

Fringe wetlands dominated by shrubs occur at the Carse Brook and Spruce Swamp Creek stream crossings. The Spruce Swamp Creek crossing at Route 41 is infested with non-native shrubs (the swamp corridor is privately owned, posted, and inaccessible).

Shrubs at the Carse Brook crossing south of West Cornwall Road include speckled alder (*Alnus rugosa*), swamp dogwood (*Cornus amomum*), maleberry (*Lyonia ligustrina*), slender willow (*Salix petiolaris*), common elder (*Sambucus canadensis*), and steeplebush (*Spiraea tomentosa*). Herbaceous species include: awl-fruited sedge (*Carex stipata*), bulb-bearing water hemlock (*Cicuta bulbifera*), boneset (*Eupatorium perfoliatum*), jewelweed (*Impatiens capensis*), soft rush (*Juncus effusus*), American water-horehound (*Lycopus americanus*), cinnamon fern (*Osmunda cinnamomea*), royal fern (*Osmunda regalis*), woolgrass (*Scirpus cyperinus*), and marsh fern (*Thelypteris palustris*).

Subacidic Seepage Shrub Swamp

A shrubby, subacidic seepage swamp of approximately 0.5 acre is located just north of Hoyt Road along the New York-Connecticut State Line. Shrubs include swamp dogwood, red osier dogwood (*Cornus stolonifera*), spicebush (*Lindera benzoin*), and pussy willow (*Salix discolor*). Patches of cattail (*Typha latifolia*) and spotted Joe-pye weed (*Eupatorium maculatum*) dominate the swamp's herbaceous flora. Other herbaceous species include blue-flag (*Iris versicolor*), fringed loosestrife (*Lysimachia ciliata*), barber pole sedge (*Scirpus microcarpus*), square-stemmed goldenrod (*Solidago patula*), marsh fern, and marsh violet (*Viola cucullata*). Invasive species, including Japanese barberry, common buckthorn (*Rhamnus cathartica*), and purple loosestrife (*Lythrum salicaria*) are common in and around the swamp.

Herbaceous Wetlands

Circumneutral Sloping Fen

A sloping fen on top of the bluffs on the east side of the Housatonic River south of Bulls Bridge was surveyed briefly on September 8. Species noted in this rich community includes: shrubby cinquefoil (*Potentilla fruticosa*), lake-side sedge (*Carex lacustris*), nodding bur-marigold (*Bidens cernua*), giant lobelia (*Lobelia siphilitica*), forget-me-not (*Myosotis scorpioides*), grass-of-parnassus (*Parnassia glauca*), square-stemmed goldenrod (*Solidago patula*), and New York ironweed (*Vernonia noveboracensis*). This fen should be surveyed more thoroughly. Circumneutral fens are an S1 community in Connecticut.

Alluvial Communities

Floodplain Forests and Riverbank Communities

The alluvial system as defined here is limited to vegetated communities along the Housatonic River that are subject to periodic flooding.

Floodplain Forests

The Trail passes near disturbed patches of forested floodplains at Great Falls, River Road in Sharon (the largest area of floodplain forest), Bulls Bridge, and the confluence of the Housatonic and Ten Mile Rivers.

Composite features of floodplain forest patches are a tall canopy of native deciduous trees with a diverse and largely non-native shrub and herbaceous flora. Trees include silver maple (*Acer saccharinum*), bitternut hickory, green ash (*Fraxinus pensylvanica*), sycamore, cottonwood (*Populus deltoides*), black willow (*Salix nigra*), and American elm (*Ulmus americana*). There are native shrubs, such as swamp dogwood and nannyberry (*Viburnum lentago*), but most of the shrubs are non-native. Japanese barberry, Morrow's honeysuckle, multiflora rose, winged euonymus, oriental bittersweet, common buckthorn, and autumn olive (*Elaeagnus umbellata*) infest the floodplain forests. Herbaceous species include fringed brome grass (*Bromus ciliatus*), honewort (*Cryptotaenia canadensis*), bur-cucumber (*Echinocystis lobata*), riverbank rye (*Elymus riparius*), field horsetail (*Equisetum arvense*), scouring rush (*Equisetum hyemale*), wood nettle (*Laportea canadensis*), monkey-flower (*Mimulus ringens*), ostrich fern (*Matteucia struthiopteris*), sensitive fern, starry false solomon's-seal (*Smilacina stellata*), stinging nettle (*Urtica dioica*), and the non-native Queen Anne's-lace (*Daucus carota*), gill-over-the-ground (*Glechoma hederacea*), dame's-rocket (*Hesperis matronalis*), and common plantain (*Plantago major*).

False dragonhead (*Physostegia virginiana*), green coneflower (*Rudbeckia laciniata*), and wingstem (*Verbesina alternifolia*) are three unusual species noted along the floodplain south of River Road in Sharon.

Floodplain forests are an S3 community in Connecticut, but most of the patches in the Trail corridor are fragmented and degraded examples of this community.

Sparsely Vegetated Herbaceous Riverbank Communities

The Connecticut Classification describes riverbank communities as “flood-scoured rocky or gravelly riverbanks with annual or perennial vegetation” (Metzler and Barrett 2003, p. 118). One of these communities is defined as a “big bluestem (*Andropogon gerardii*)-bluebell bellflower (*Campanula rotundifolia*) community”.

The rocky, western edge of the Housatonic River below Bulls Bridge may be the model for the description in the Connecticut Classification. Plants are thinly scattered on flood-scoured ledges and walls along the river. Big bluestem and bellflower occur here, as well as: golden sedge (*Carex aurea*), spotted spurge (*Euphorbia maculata*)⁵, dwarf St. John’s-wort (*Hypericum mutilum*), blue toadflax (*Linaria canadensis*), false pimpernel (*Lindernia dubia*), wild mint (*Mentha arvensis*), ditch stonecrop (*Penthorum sedoides*), Pennsylvania smartweed (*Polygonum pennsylvanicum*), shrubby cinquefoil (*Potentilla fruticosa*), mad-dog skullcap (*Scutellaria lateriflora*), early goldenrod (*Solidago juncea*), Gray’s goldenrod (*Solidago nemoralis*), and clotbur (*Xanthium echinatum*).

Farther downstream, near the confluence of the Housatonic and Ten Mile Rivers, rock walls give way to rocky shallows. There are few plants here, but one is the rare giant St. John’s-wort (*Hypericum pyramidatum*), growing in dense clumps on flood and ice-scoured river edges.

Riverbank beach/shore communities are ranked as an S3/S4 community in Connecticut.

Community Plot Sampling

To collect detailed information on the structure and composition of the plant communities in the Trail corridor, a total of 19 plots were sampled within a variety of natural communities, using the standard plot form developed by NatureServe for the National Park Service.

The forest plots are 20m by 20m in size (seventeen plots); the woodland swamp plot (plot 6) is 15m by 15m; and the ridgetop woodland/shrubland plot (plot 5) is 10m by 10m. Representative and rare communities for plot locations were identified during the initial reconnaissance of the survey area from May to June, 2003. The plots were completed in August and September.

Plot locations were documented with a Garmin Map76 GPS unit. The GPS Datum used is NAD83, and the coordinates (latitude and longitude) are given in degrees, minutes, and decimal minutes.

Time limitations and the survey’s multiple goals prevented more extensive plot sampling. Copies of the completed plot forms are attached as Appendix III of this report.

⁵ *syn*=*Chamaesyce maculata*

In summary, the sampled communities include:

mesic deciduous forest	(plots 1, 14)
circumneutral seepage forest	(plot 3)
sugar maple-oak forest	(plot 11)
oak-hickory/heath forest	(plots 2, 10, 17)
enriched oak forest	(plot 8)
northern hardwood forest	(plot 4)
shagbark hickory/Pa. sedge forest	(plot 18)
sugar maple-yellow oak-hemlock forest	(plot 19)
hemlock forest	(plots 9, 12, 13)
white pine plantation forest	(plot 16)
rocky summit shrubland	(plot 5)
mixed hardwood bottomland swamp	(plot 7)
forested swamp (small, depressional)	(plot 15)
black spruce woodland swamp	(plot 6)

Table 6: Survey Plots

<i>Plot</i>	<i>Location</i>	<i>Community</i>	<i>Ranking (if rare)</i>	<i>Rare species</i>	<i>Comments</i>	<i>GPS of plot center</i>
1	Pine Knob- Hatch Brook	Mesic mid- successional mixed deciduous forest— fairly rich		<i>Panax quinquefolius</i>	Sugar maple dominant; also red oak, red maple. Emergent big-tooth aspens.	N 41.50.120 W 073.23.313
2	Breadloaf Mt.	Dry, upper slope oak- hickory/heath forest			Chestnut and red oaks share dominance. Chestnut oak succeeding. Ericaceous shrubs.	N 41.49.564 W 073.23.123
3	Stony Brook	Circumneutral seepage forest	S2		Mature, diverse hardwood forest with occasional hemlock. Sugar maple most numerous tree.	N 41.47.078 W 073.24.877
4	Bear Mt.	Northern hardwood forest			Beech-red maple-red oak dominant.	N 42.02.919 W 073.27.258
5	Bear Mt.	Rocky summit shrubland		<i>Potentilla tridentata</i>	Scrub oak-heath shrubland with scattered pitch pine and young hardwoods.	N42.02.684 W073.27.291
6	Bear Mt.	Black spruce woodland swamp	S1	<i>Picea rubens</i>	Diversity of trees in swamp, but shrubs are dominant. Black spruce most common tree.	N42.02.531 W073.26.873
7	Route 55 Swamp	Mixed hardwood bottomland swamp			Big trees here—tuliptree, swamp white oak, red oak—diverse flora.	N 41.38.875 W 073.31.031
8	Tenmile Hill	Enriched oak forest			Richer in species than most oak forests. Chestnut, red, black, and white oaks present.	N41.39.097 W073.31.047
9	Mt. Algo	Hemlock forest			Hemlock dominant; some large black birch.	N41.43.845 W 073.29.462
10	Schaghticoke Mt. (N)	Oak-hickory/heath forest			Representative of type.	N41.42.090 W 073.30.169

11	Scahgticoke Mt. (S)	Sugar maple-oak forest			Big trees—area burned in fall, 2000.	N 41.40.969 W 073.30.860
12	Wetauwanchu Mt.	Hemlock forest			Hemlock dominant; white pine emergent.	N41.59.893 W 073.24.866
13	Mt. Prospect-Raccoon Hill	Hemlock forest		Some large <i>Pinus strobus</i> in plot	Some big trees in plot—upper slope, little gradient.	N41.58.614 W 073.23.725
14	Mt. Prospect-Raccoon Hill	Mixed deciduous forest on upper slope			Red oak and white ash most numerous trees on long-abandoned pasture land.	N 41.38.846 W 073.23.515
15	Lions Head	Forested swamp			Very small swamp at base of Lions Head's southern slopes.	N 42.00.594 W 073.26.447
16	Iron Bridge	White pine plantation forest			East side of Housatonic River . Flat, sandy soil.	NO SIGNALS.
17	Sharon Mt.	Oak-hickory/heath forest near ecotone with lower slope deciduous forest			Rocky, steep W-facing slope. Red oak dominant.	N41.52.434 W 073.23.422
18	Caleb's Peak	Shagbark hickory/Pa. sedge forest			Flattish, dry ridgetop Canopy almost all shagbark.	N41.45.364 W 073.27.642
19	Bulls Bridge	Sugar maple-yellow oak-hemlock forest on steep, E-facing bluffs Housatonic River	S3	<i>Asplenium ruta-muraria</i> , <i>Carex eburnea</i>	Shaded and fairly circumneutral stand	N 41.40.354 W 073.30.530 (SW corner of plot)

Future plot studies should refine and improve the definitions of natural communities in the Connecticut Appalachian Trail corridor. The Natural Heritage Site Summary Section that follows provides more specific details about the condition and components of many of the area's plant communities.

SECTION IV

NATURAL HERITAGE SITE SUMMARIES

(Note that the numbering system here corresponds to the site numbers of the original Connecticut inventory. The arrangement of the sites in this report follows a north-south geographic orientation on the Appalachian Trail axis. With the correspondence of the site numbering system between the two reports, the site numbers here do not follow a consistent, chronological pattern since the geographic arrangement of the sites followed a different pattern in the original inventory.)

A number of the sites in the original inventory are omitted here because they are outside of the limits of this survey. The numbers of these sites are: 2, 4, 6, 10, 12, 13, 14, 16, 18, 19, 22, and 24. Site numbers 28 and 29 in this report were not in the original inventory.)

SITE 1: BEAR MOUNTAIN

Location: This site includes the mountain's summit, ridgeline, and northern and eastern slopes. The site's northern boundary, just south of the Massachusetts-Connecticut state line, is formed by property owned by the Appalachian Mountain Club (AMC) and the Appalachian Trail Park Office (ATPO) of the National Park Service. The site's southern point is the Trail crossing of the south branch of Brassie Brook, near Brassie Brook Campsite. The State of Connecticut owns the summit.

Topographic Quadrangles: Bashbish Falls

Quadrangle Codes: 4207314

County: Litchfield

Town: Salisbury

Ownership: AMC, ATPO, State of Connecticut

Elevation: 800-2320 feet

Map Segments: 253

Acreage: 1200

Rare Species and Community Table

Scientific Name	Common Name	Global Rank	State Rank	Federal Status	State Status	Element Occurrence Rank	Last Obs. Date
<i>Carex aestivalis</i>	Summer Sedge	G4	S2		SC	B	6/20/04 ⁶
<i>Carex novae-angliae</i>	New England Sedge	G5	S1		SC	C-D	6/20/04
<i>Oxalis montana</i>	Mountain Wood-sorrel	G5?	S3			A	6/20/04
<i>Picea rubens</i>	Red Spruce	G5	S2		SC	B	8/7/03
<i>Pinus resinosa</i>	Red Pine	G5	S1		E	H	1903
<i>Potentilla tridentata</i>	Three-toothed Cinquefoil	G5	S1		E	A	6/20/04
<i>Ribes glandulosum</i>	Skunk Currant	G5	S1		E	A	6/20/04
Acidic rocky summit/outcrop			S4			A	6/20/04
Black spruce woodland swamp			S1			A	8/7/03
Acidic seepage forest			S3S4			B	5/9/03

⁶ This and the other Bear Mountain occurrences noted on 6/20/04 were observed while leading a field trip for the New England Wild Flower Society. The condition of these occurrences in 2004 was essentially the same as in 2003.

Site and Community Description

This site is the largest and most pristine of the Natural Heritage Sites in the Appalachian Trail corridor in Connecticut. Bear Mountain's semi-open summit slopes steeply to the north, east, and west, and moderately to the south. Scattered pitch pines (*Pinus rigida*), young hardwoods, and dense thickets of scrub oak (*Quercus ilicifolia*), ericaceous plants, and other shrubs cover the ridge, especially on the west side of the summit. The mountain's upper and middle slopes feature extensive, mature forests of mixed hardwoods and hemlock (*Tsuga canadensis*). The largest wetland within Connecticut's AT corridor, a 35-acre woodland swamp, is located at the base of the mountain's eastern slopes. On the southeast side of the site, the north branch of Brassie Brook flows through a steep ravine.

Bear Mountain's upland forests have a diversity of canopy hardwoods, often with a dense mountain laurel (*Kalmia latifolia*) understory. White oak (*Quercus alba*), chestnut oak (*Quercus montana*), red oak (*Quercus rubra*), and black oak (*Quercus velutina*), are the dominant trees on the east and south sides of the mountain. Red maple (*Acer rubrum*), yellow birch (*Betula alleghaniensis*), black birch (*Betula lenta*), beech (*Fagus grandifolia*), and white ash (*Fraxinus americana*) are also present in the canopy. Striped maple (*Acer pensylvanicum*) and witch hazel (*Hamamelis virginiana*) occur in the understory. Herbaceous and ground cover plants include intermediate woodfern (*Dryopteris intermedia*), trailing arbutus (*Epigaea repens*), teaberry (*Gaultheria procumbens*), Canada mayflower (*Maianthemum canadense*), Christmas fern (*Polystichum acrostichoides*), red trillium (*Trillium erectum*), and wild oats (*Uvularia sessilifolia*).

On the north-facing slopes north of the summit, the forest community is a northern hardwoods association, with red maple, beech, and red oak sharing canopy dominance. Yellow birch and paper birch (*Betula papyrifera*) are also present in this community.

Hemlock is associated with hardwood trees throughout the site's forests. Hemlock dominates the lower slopes on the north end of the site.

Bear Mountain's summit and the rocky ridgeline have a thin canopy of pitch pine (*Pinus rigida*) and small gray birch (*Betula populifolia*), red maple, and red oak. Shrubs dominate the ridgetop, with scrub oak forming dense thickets eight to ten feet in height. Other shrubs include: downy shadbush (*Amelanchier arborea*), black chokeberry (*Aronia melanocarpa*), black huckleberry (*Gaylussacia baccata*), and late lowbush blueberry (*Vaccinium angustifolium*). Wild sarsaparilla (*Aralia nudicaulis*), Pennsylvania sedge (*Carex pensylvanica*), bastard-toadflax (*Comandra umbellata*), hairgrass (*Deschampsia flexuosa*), and three-toothed cinquefoil (*Potentilla tridentata*) are among the sparse ground cover flora on the ridge.

The black spruce woodland swamp at the foot of the mountain's eastern slopes has a sphagnum base and a dispersed canopy of both conifers and hardwoods. Tall black spruce trees (*Picea mariana*) are scattered throughout the swamp. Other swamp conifers are

more localized and clustered. These species include tamarack (*Larix laricina*), red spruce (*Picea rubens*), white pine (*Pinus strobus*), and hemlock. Red maple and yellow birch also occur in the swamp.

A diverse shrub layer dominates this swamp. Taller shrubs include red chokeberry (*Aronia arbutifolia*), winterberry (*Ilex verticillata*), maleberry (*Lyonia ligustrina*), mountain holly (*Nemopanthus mucronatus*), swamp azalea (*Rhododendron viscosum*), highbush blueberry (*Vaccinium corymbosum*), and mountain laurel. Lower shrubs include leatherleaf (*Chamaedaphne calyculata*) and sheep laurel (*Kalmia angustifolia*).

Herbaceous flora is also diverse, especially in boggy openings between shrub thickets. A short list of these plants includes: tussock sedge (*Carex stricta*), three-seeded sedge (*Carex trisperma*), goldthread (*Coptis groenlandica*), round-leaved sundew (*Drosera rotundifolia*), three-way sedge (*Dulichium arundinaceum*), cinnamon fern (*Osmunda cinnamomea*), royal fern (*Osmunda regalis*), and skunk cabbage (*Symplocarpus foetidus*).

East of the junction of the Appalachian and Undermountain Trails there is a gently grading seepage area in oak/mountain laurel forest. There are many ferns in this seepage, including cinnamon fern, royal fern, sensitive fern (*Onoclea sensibilis*), and New York fern (*Thelypteris noveboracensis*).

Status of Rare Species

Carex aestivalis (summer sedge): Approximately 100 summer sedge stems are scattered along nearly 0.3 mile of the Appalachian Trail and the access trail from the AMC camp in northern hardwood forest on the site's lower, northern slopes. The population is restricted to trail edges on flat or moderately sloping, shaded ground. Bill Moorhead discovered this population in 1998.

Carex novae-angliae (New England sedge): This population, also discovered by Moorhead in 1998, consists of a small patch on the edge of the Appalachian Trail in northern hardwood forest on the mountain's northern slope. On 28 June 2003, the patch had two fertile stems, and scores of infertile leaves. The condition of the population was the same as it was when Moorhead described it in 1998.

Oxalis montana (Mountain wood-sorrel): Several hundred wood-sorrel plants grow on both sides of the AMC trail in northern hardwood-hemlock forest between the AMC parking lot on Mt. Washington Road and the caretaker's cabin.

Picea rubens (Red spruce): Red spruce has a thin distribution from the northern end of the black spruce swamp to a flat ridgetop south of the swamp. Most of the red spruce trees at this site grow on swamp hummocks. The majority of the red spruces in the swamp are small and immature, but a handful of mature trees were noted near the north end. Several trees had greater lateral than vertical growth, looking like bonsai. Two mature trees were noted in a stand of hemlock, black birch, and chestnut oak on a steep

slope south of the swamp. Red spruce has been known at this site (at least) since the original Connecticut AT Inventory in 1991.

Pinus resinosa (Red pine): Red pine has not been documented on Bear Mountain since 1903.

Potentilla tridentata (Three-toothed cinquefoil): Three-toothed cinquefoil is widespread on Bear Mountain's summit, especially on the edges of the Appalachian Trail and on open ledges west of the peak. It occurs along about 0.6 mile of the Trail at elevations of 1890 to 2315 feet.

Ribes glandulosum (Skunk currant): A vigorous skunk currant population occurs on a steep talus slope with a semi-open hardwood canopy on the mountain's northern slope. Bill Moorhead discovered this population in 1998. Many plants were in fruit when the population was observed on 28 June 2003. The population covers an area of about 1000 square feet, and may be spreading over a larger area of the talus slope.

Threats

The *Carex aestivalis*, *Carex novae-angliae*, and *Potentilla tridentata* populations are exposed to trampling and to accidental damage from trailside maintenance. Only the very small, trailside *Carex novae-angliae* population is at short-term risk of serious damage.

Carex aestivalis tolerates a certain level of trailside disturbance, but increased trampling could impact the population.

The *Potentilla tridentata* population seems to tolerate visitor usage around the summit, but its presence along and near the Trail exposes it to damage.

The *Oxalis montana* population on the AMC access trail from the parking lot is at risk of trailside disturbance.⁷

Acid precipitation and climate change present long-term threats to *Picea rubens* at the site.

There are no threats to the black spruce swamp or to the acidic seepage forest along the Undermountain Trail.

Management Recommendations

The *Carex novae-angliae* population should be checked annually. If trail erosion or hiker impacts are damaging the plants, a low rock wall could be placed around the patch.

⁷ In June, 2004, there was some damage to this population from AMC pickup trucks parked on the access trail. The trucks were there to carry equipment for repairing a bridge near the caretaker's cabin. I notified the AMC crew about the population.

The *Carex aestivalis* and *Potentilla tridentata* populations should be monitored and censused periodically (every three years).

AMC personnel who regularly monitor this area should check the *Oxalis montana* population annually to insure that it is protected from trampling and maintenance activity.

A study of the population structure of the site's *Picea rubens* population—number of mature trees, regeneration, mortality—would provide a better picture of its future prospects.

Site Survey Dates: April 23, May 9, June 28, August 7, 2003. (Also: June 25 and August 19, 2002, and June 20, 2004).

SITE 5: BRASSIE BROOK RAVINE

Location: This site extends from a point 0.25 mile south of Ball Brook to a point about 0.25 mile north of the south branch of Brassie Brook along the Trail. The length of the site is defined by the distribution of red spruce (*Picea rubens*) along this section of the Appalachian Trail. Site dimensions are 1.2 miles in length (N-S) and 0.2 mile in width (E-W).

Topographic Quadrangles: Bashbish Falls

Quadrangle Codes: 4207314

County: Litchfield

Town: Salisbury

Ownership: ATPO, State of Connecticut

Elevation: 1500-1800 feet

Map Segments: 253

Acreage: 150

Rare Species and Community Table

Scientific Name	Common Name	Global Rank	State Rank	Federal Status	State Status	Element Occurrence Rank	Last Obs. Date
<i>Oxalis montana</i>	Mountain Wood-sorrel	G5?	S3			B-C	6/28/03
<i>Picea rubens</i>	Red Spruce	G5	S2		SC	A-B	6/28/03
Acidic seepage forest ⁸			S3S4			B	6/28/03

Site and Community Description

This site features a mature forest of red maple (*Acer rubrum*), paper birch (*Betula papyrifera*), red oak (*Quercus rubra*), and hemlock (*Tsuga canadensis*) in the "saddle" between Lion's Head and Bear Mountain. Mountain laurel (*Kalmia latifolia*) grows in dense patches under the canopy. Other shrubs and small trees include chestnut (*Castanea dentata*) sprouts, witch hazel (*Hamamelis virginiana*), maple-leaf viburnum (*Viburnum acerifolium*), and hobblebush (*Viburnum lantanoides*)⁹. Wild sarsaparilla (*Aralia nudicaulis*), teaberry (*Gaultheria procumbens*), and starflower (*Trientalis borealis*) are common herbaceous plants. Shaded, wet basins within the forest have wetland species

⁸ This name follows the nomenclature of Connecticut Natural Community Types listed in Appendix VI of the original inventory.

⁹ *Viburnum alnifolium* is a synonym for this species.

such as goldthread (*Coptis groenlandica*), blue flag (*Iris versicolor*), cinnamon fern (*Osmunda cinnamomea*), and skunk cabbage (*Symplocarpus foetidus*).

An acidic seepage forest dominated by hemlock and yellow birch (*Betula alleghaniensis*) occurs along the upper part of the Brassie Brook Ravine, west (upslope) of the footpath. Mountain laurel occurs in dense patches along the seepages. Both of the site's rare species, *Oxalis montana* and *Picea rubens*, grow in the seepages along the brook. Acidic seepage forests are an S3S4 community in Connecticut.

Status of Rare Species

Oxalis montana (Mountain wood-sorrel): A small patch of mountain wood-sorrel grows in moist, shaded, acidic seepage forest conditions along the upper section of Brassie Brook Ravine. Hemlock, yellow birch, and mountain laurel are the primary constituents of this community.

Picea rubens (Red spruce): Red spruce has a thin but continuous distribution along 1.2 miles of the Trail at this site. This population has scores of both mature trees and saplings, and appears to be in good condition. At this site, red spruce occurs in upland soils with hemlock and northern hardwoods; in low, wet basins; and occasionally along the upper section of the Brassie Brook Ravine, with hemlock and yellow birch.

Threats

There are no threats to the mountain wood-sorrel, red spruce, or acidic seepage forest at this site.

Management Recommendations

None.

Site Survey Dates: June 2 and June 28, 2003.

SITE 3: LION'S HEAD AND WACHOCASTINOOK RAVINE

Location: This site includes the highest section of Lion's Head and the steep, eastern slopes above Wachocastinook Ravine on the west side of the Lion's Head ridge.

Topographic Quadrangles: Bashbish Falls **Quadrangle Codes:** 4207314

County: Litchfield **Town:** Salisbury

Ownership: ATPO, Mt. Riga Corporation **Elevation:** 1500-1738 feet

Map Segments: 253 **Acreage:** 80

Rare Species and Community Table

Scientific Name	Common Name	Global Rank	State Rank	Federal Status	State Status	Element Occurrence Rank	Last Obs. Date
<i>Oxalis montana</i>	Mountain Wood-sorrel	G5?	S3			A	6/2/03
<i>Potentilla tridentata</i>	Three-toothed cinquefoil	G5	S1		E	B	6/2/03
<i>Streptopus amplexifolius</i> var. <i>americanus</i>	White mandarin	G5T5	S1		T	B	6/2/03
<i>Corvus corax</i>	Common Raven	G5	S2B		SC		6/28/03
Acidic rocky summit/outcrop			S4			B-C	6/28/03
Acidic seepage forest			S3S4			A-B	6/2/03

Site and Community Description

This site includes Lion's Head's rocky ridgeline from the main summit to the northern outlook, and the steep, hemlock (*Tsuga canadensis*)-dominated slopes on the east side of Wachocastinook Ravine.

Lion's Head ridgeline is dominated by small trees and shrubs. There are a few pitch pines (*Pinus rigida*) and small patches of scrub oak (*Quercus ilicifolia*) at the main

summit, but young successional hardwoods, white pine (*Pinus strobus*), and a variety of shrubs dominate most of the ridge.

At the northern summit, young red maple (*Acer rubrum*), gray birch (*Betula populifolia*), red oak (*Quercus rubra*), and white pine are succeeding in the shrub thickets. Shrub species include: downy shadbush (*Amelanchier arborea*), smooth shadbush (*Amelanchier laevis*), black chokeberry (*Aronia melanocarpa*), mountain laurel (*Kalmia latifolia*), mountain azalea (*Rhododendron prinophyllum*), and late lowbush blueberry (*Vaccinium angustifolium*). Herbaceous species growing in rocky openings include: pale corydalis (*Corydalis sempervirens*), hairgrass (*Deschampsia flexuosa*), cow-wheat (*Melampyrum lineare*), and little bluestem (*Schizachyrium scoparium*).

The steep slopes on the east side of Wachocastinook Ravine have a beautiful stand of large hemlocks and yellow birch (*Betula alleghaniensis*). Shrubs include mountain laurel, witch hazel (*Hamamelis virginiana*), American fly-honesuckle (*Lonicera canadensis*), and hobblebush (*Viburnum lantanoides*). Herbaceous species in seepages within the hemlock forest include: jack-in-the pulpit (*Arisaema triphyllum*), scabrous sedge (*Carex scabrata*), small enchanter's nightshade (*Circaea alpina*), bluebead lily (*Clintonia borealis*), and rosy twisted-stalk (*Streptopus roseus*).

Status of Rare Species

Oxalis montana (Mountain wood-sorrel): This population occurs in a seepage approximately 100 feet above (east) of Wachocastinook Creek under hemlocks and yellow birch. It consists of several hundred (c. 400-500) stems. Approximately 5% of the population was in flower when Doug Christie and I observed it on June 25, 2002. On June 2, 2003, no plants were in bloom.

Potentilla tridentata (Three-toothed cinquefoil): This population is confined to an area of approximately 5000 square feet on the northern outlook of Lion's Head. The plants grow in crevices along the Trail and on ledges on Trail edges. On a June 25, 2002 visit to the site with Doug Christie, we counted 350 stems, with about 90 stems in flower. The following year (June 2), I counted a total of 75 stems in five main patches. The plants had not started to bloom.

Streptopus amplexifolius* var. *americanus (White mandarin): A population of 17 white mandarin plants (nine mature and eight immature) is clustered at the top of the sheer Wachocastinook Creek bank in a cold seepage, 50-100 feet downslope of the *Oxalis montana* population. Individual plants are large and vigorous. The mature plants were fruiting on the June 25, 2002 visit, and flowering on the June 2, 2003 visit. This population had not been documented between 1905 and 2002.

Corvus corax (Common raven): Two ravens were heard calling near the Lion's Head summit on June 2, 2003.

Threats

There are no human threats to the *Oxalis montana* and the *Streptopus amplexifolius* populations in Wachcastinook Ravine, nor to the hemlock seepage forest.

The *Streptopus amplexifolius* plants could be vulnerable to such natural processes as land slippage and tree blowdown.

The *Potentilla tridentata* population is vulnerable to trampling on this accessible and much-visited ridgetop. Increased shading by maturing hardwoods and white pine could also impact the population.

Management Recommendations

The *Potentilla tridentata* population should be monitored annually. The reduction in numbers between the 2002 and 2003 is puzzling. A census in June, 2004 is recommended to see if the population is in permanent decline. Signage alerting hikers to be careful of the rare species and to stay on the treadway is recommended if the population is in decline. Rock exclosures may help to protect some of the plants. Young hardwoods and white pines on the summit's northern outlook should be thinned periodically to maintain the open conditions favorable for this species.

The *Streptopus amplexifolius* population should be monitored periodically (three to five years), but there is no need for management.

Site Survey Dates: June 2, 2003 (also June 25, 2002).

SITE 7: WETAUWANCHU MOUNTAIN

Location: This site encompasses a one-mile length of the Trail corridor from the base of Wetauwanchu's northern slopes southward along the west side of the ridge to a stream crossing where the Trail turns eastward.

Topographic Quadrangles: Sharon

Quadrangle Codes: 4107384

County: Litchfield

Town: Salisbury

Ownership: ATPO, Town of Salisbury

Elevation: 685-1250 feet

Map Segments: 254

Acreage: 120

Rare Species and Community Table

Scientific Name	Common Name	Global Rank	State Rank	Federal Status	State Status	Element Occurrence Rank	Last Obs. Date
<i>Acer nigrum</i>	Black maple	G5Q	SU		SC	D	8/20/03

Site and Community Description

The north side of Wetauwanchu Mountain consists of steep, north and west-facing slopes and a long ridgeline. Old farm fields and Route 44 border the northern base of the mountain. The site is well forested with a mix of mature hardwoods and hemlock (*Tsuga canadensis*). Stone walls are a common feature on the top of the ridge.

A disturbed, successional, mesic hardwood forest covers the mountain's lower slopes above the old farm fields. Young sugar maple (*Acer saccharum*), white ash (*Fraxinus americana*), black cherry (*Prunus serotina*), and red oak (*Quercus rubra*) are mixed in the canopy. Shrubs are primarily exotic, invasive species, including Japanese barberry (*Berberis thunbergii*), oriental bittersweet (*Celastrus orbiculata*), and Morrow's honeysuckle (*Lonicera morrowii*). Herbaceous species include the invasive garlic mustard (*Alliaria petiolata*), as well as jack-in-the-pulpit (*Arisaema triphyllum*), wild geranium (*Geranium maculatum*), solomon's-seal (*Polygonatum pubescens*), Christmas fern (*Polystichum acrostichoides*), and bloodroot (*Sanguinaria canadensis*). This community is typical of lower slope, mesic forest associations throughout the Connecticut section of the Appalachian Trail.

Hemlocks assume increasing dominance on the middle and upper sections of the mountain's steep northern slopes. Here, hemlock comprises most of the canopy. Associated trees include shagbark hickory (*Carya ovata*), white ash, red oak, chestnut oak (*Quercus montana*), and tall white pines (*Pinus strobus*) that tower above the general

level of the canopy. Shrubs and herbaceous plants are sparse in the deep shade under the hemlocks. A small population of spotted coralroot (*Corallorhiza maculata*) was noted in the upper part of this hemlock forest.

At the top of the ridge, hemlock forest gives way to a mature, mixed hardwood-hemlock association with a diversity of trees and a disturbed undergrowth. As one proceeds southward on the Trail along the ridge, the ratio of hardwoods to hemlock increases. Hardwood trees include: sugar maple, shagbark hickory, white ash, black birch (*Betula lenta*), paper birch (*Betula papyrifera*), and hop hornbeam (*Ostrya virginiana*). Japanese barberry is pestilential in these ridgetop woods. Other species include: smooth rockcress (*Arabis laevigata*), woodland agrimony (*Agrimonia striata*), prickly gooseberry (*Ribes cynosbati*), dog violet (*Viola conspersa*), and the invasive winged euonymus (*Euonymus alatus*).

A low, swampy basin at the south end of the site has a thin canopy of red maple (*Acer rubrum*) and a diverse flora indicative of a fairly rich substrate. Species include: marsh marigold (*Caltha palustris*), tussock sedge (*Carex stricta*), blue cohosh (*Caulophyllum thalictroides*), crested fern (*Dryopteris cristata*), swamp buttercup (*Ranunculus septentrionalis*), swamp dewberry (*Rubus pubescens*), skunk cabbage (*Symplocarpus foetidus*), and marsh violet (*Viola cucullata*).

Status of Rare Species

Acer nigrum (Black maple): A solitary, large black maple stands near the Trail at the bottom of the slope. This old tree is approximately 70 feet in height with a diameter of 42 inches (106 cm). The tree is surrounded by small sugar maple trees, saplings and seedlings. No more black maples were seen in the area.

Threats

There are no human threats to the tree, which appeared vigorous and had countless samaras when it was observed on May 20. It is an old tree, and subject to disease, insect attack, and storm damage.

Management Recommendations

There are no management recommendations for this site. Future surveys here could search for more black maples on the site's northern slope. The original Connecticut Appalachian Trail Inventory suggested the possibility of removing barberry at this site, but it is so widespread on the mountain that it would be a laborious and time-consuming effort.

Notes

The original Connecticut Inventory described the community at the top of the ridge as a subacidic rocky summit/outcrop with a mature hickory-ash forest. This association is ranked as an S3 community in Connecticut.

I may not have gone high enough (east) on the ridge to see this forest community. The disturbed, mixed hardwood forest that extends for 0.1 mile east of the Trail on the top of the ridge does not correspond closely to the hickory-ash community description.

Site Survey Dates: May 20 and August 20, 2003

SITE 9: MT. PROSPECT MARBLE OUTCROPS

Location: This site extends from Billy's View at the northern end of Raccoon Hill south to the summit of Mt. Prospect, a distance of 1.6 miles along the Trail. The site includes the side trail and steep descent to Limestone Spring Shelter. This site has scenic overlooks at Billy's View, Rand's View, and the summit of Mt. Prospect.

Topographic Quadrangles: Sharon

Quadrangle Codes: 4107384

County: Litchfield

Town: Salisbury

Ownership: ATPO

Elevation: 1000-1460 feet

Map Segments: 255

Acreage: 200

Rare Species and Community Table

Scientific Name	Common Name	Global Rank	State Rank	Federal Status	State Status	Element Occurrence Rank	Last Obs. Date
<i>Panax quinquefolius</i>	American ginseng	G3G4	S3		SC	C	8/20/03

Site and Community Description

Hardwood trees dominate the forest at most of this site, but there are impressive stands of hemlock (*Tsuga canadensis*) north of Mt. Prospect and upslope of Limestone Spring Shelter. Much of the site may be characterized as a sub-acidic and somewhat disturbed hardwood-hemlock community.

The hardwood forest has a canopy of red maple (*Acer rubrum*), paper birch (*Betula papyrifera*), white ash (*Fraxinus americana*), hop hornbeam (*Ostrya virginiana*), and black cherry (*Prunus serotina*). Striped maple (*Acer pensylvanicum*) is abundant in the understory. Herbaceous plants include hog peanut (*Amphicarpaea bracteata*), white wood aster (*Aster divaricatus*), lady fern (*Athyrium filix-femina*), New York fern (*Thelypteris noveboracensis*), blue-stemmed goldenrod (*Solidago caesia*), and wild oats (*Uvularia sessilifolia*). North of Rand's View, there is a richer patch of forest dominated by sugar maple (*Acer saccharum*).

Hemlock occurs with red oak and yellow birch (*Betula alleghaniensis*) north of Mt. Prospect's summit. It is associated with sugar maple and white ash on the steep blue-blazed trail descending westward from the Appalachian Trail to Limestone Spring Shelter. A stand of impressively large hemlock and white pines (*Pinus strobus*), with diameters from 25"-35", occurs on a rocky knoll between Rand's View and Billy's View.

The steep, shaded cliffs and elephant-sized boulders above Limestone Spring have a varied fern flora, including: maidenhair fern (*Adiantum pedatum*), maidenhair spleenwort (*Asplenium trichomanes*), walking fern (*Camptosorus rhizophyllus*), bulblet fern (*Cystopteris bulbifera*), fragile fern (*Cystopteris fragilis*), marginal woodfern (*Dryopteris marginalis*), Christmas fern (*Polystichum acrostichoides*), and rusty woodsia (*Woodsia ilvensis*). Pellitory (*Parietaria pensylvanica*), elsewhere noted only at St. John's Ledges in Kent, also occurs on these rocks. Doll's-eyes (*Actaea pachypoda*), jack-in-the-pulpit (*Arisaema triphyllum*), wild ginger (*Asarum canadense*), bishop's-cap (*Mitella diphylla*), bloodroot (*Sanguinaria canadensis*), and red trillium (*Trillium erectum*) occur in the rich, moist soils along the creek near the shelter.

The open ledges at the top of Mt. Prospect are surrounded by a disturbed, maturing woodland of gray birch (*Betula populifolia*), white pine, pin cherry (*Prunus pensylvanica*), black cherry, red oak, and black oak (*Quercus velutina*). Chokecherry (*Prunus virginiana*) and scrub oak (*Quercus ilicifolia*) occur here, but the dominant shrub is the invasive Morrow's honeysuckle (*Lonicera morrowii*).

Status of Rare Species

Panax quinquefolius (American ginseng): A population of two mature and two immature ginseng plants was found in an area of 0.25 acre below a steep, bouldery slope on the southwest side of Raccoon Hill. Sugar maple, black birch (*Betula lenta*), paper birch, white ash, and hemlock form the canopy in this small, moist, ravine-like patch of forest. Striped maple and witch hazel (*Hamamelis virginiana*) occur in the understory, and there are a few Japanese barberry (*Berberis thunbergii*) shrubs. Herbaceous species include: maidenhair fern, columbine (*Aquilegia canadensis*), dwarf enchanter's-nightshade (*Circaea alpina*), hepatica (*Hepatica americana*), broad beech fern (*Phegopteris hexagonoptera*)¹⁰, bloodroot, and round-leaved ragwort (*Senecio obovatus*).

Threats

The ginseng plants are about two hundred feet from the Trail and concealed from casual view, but any ginseng population is subject to collection. Two of the plants are near the eastern boundary of ATPO land on Raccoon Hill, close to a yellow-blazed survey tree, and could be subject to damage from management activity along the boundary line.

Deer browse (observed at a ginseng site near the AT in Massachusetts) is a potential threat to this tiny population.

Management Recommendations

The few Japanese barberry shrubs here do not threaten the ginseng population, but could be removed. The ginseng plants could be monitored periodically (every three years).

¹⁰ Syn: *Thelypteris hexagonoptera*

The area around Limestone Spring should be investigated again for rare species. It is one of the richest areas of moist, mature forest in Connecticut's Appalachian Trail corridor. If the area west of the shelter is owned by ATPO (I am not clear about ownership here), it should be checked for rare plants.

Site Survey Dates: May 20 and 23; August 20 and 23, 2003

SITE 8: GREAT FALLS

Location: This site includes the marble cliffs, ledges, and associated woodlands on the west side of the Housatonic River spillway at Great Falls in Amesville. Dugway Road runs along the site's western edge. The site has a spectacular overlook of the Falls. Large parking areas and a network of trails are a prominent feature of this heavily-visited site.

Topographic Quadrangles: South Canaan **Quadrangle Codes:** 4107383

County: Litchfield **Town:** Salisbury

Ownership: Northeast Utilities **Elevation:** 600-650 feet

Map Segments: 255 **Acreage:** 5

Rare Species and Community Table

Scientific Name	Common Name	Global Rank	State Rank	Federal Status	State Status	Element Occurrence Rank	Last Obs. Date
<i>Amelanchier sanguinea</i>	Roundleaf shadbush	G5	S1		E	B	5/31/04
<i>Cryptogramma stelleri</i>	Slender cliff-brake	G5	S2		SC	?	2000's?
<i>Draba reptans</i>	Carolina whitlow-grass	G5	S2		SC	D	4/23/03
Circumneutral cliffs			S1			B	8/27/03
Dry, circumneutral forest (woodland)			S1			D	8/27/03
Floodplain Forest			S3			D	8/27/03

Site and Community Description

The site's most prominent features are the falls and the marble cliffs and boulders on the west side of the falls. The site is accessible and popular, and a network of unofficial trails as well as the Appalachian Trail runs between the site's littered parking areas, Dugway Road, and the overlook above the falls.

Most of the site's vegetation consists of disturbed woodland fragments on dry, calcareous ledges and along a riparian corridor above the falls. Exotic plants are abundant.

The disturbed patch of floodplain forest on the north side of the site has a canopy of box elder (*Acer negundo*), silver maple (*Acer saccharinum*), green ash (*Fraxinus pensylvanica*), cottonwood (*Populus deltoides*), and black willow (*Salix nigra*). Much of the shrub and ground cover flora is non-native (as asterisk indicates a non-native species). Shrub species include: Japanese barberry (*Berberis thunbergii*)*, swamp dogwood (*Cornus amomum*), Morrow's honeysuckle (*Lonicera morrowii*)*, choke cherry (*Prunus virginiana*), common buckthorn (*Rhamnus cathartica*)*, and poison ivy (*Toxicodendron radicans*). A short list of herbaceous plants: celandine (*Chelidonium majus*)*, bur-cucumber (*Echinocystis lobata*), dame's-rocket (*Hesperis matronalis*)*, wood nettle (*Laportea canadensis*), motherwort (*Leonurus cardiaca*)*, ostrich fern (*Matteucia struthiopteris*), and starry false solomon's-seal (*Smilacina stellata*).

Flora on the wooded, marble ledges east of Dugway Road is characteristic of rich, dry, circumneutral sites. Sugar maple (*Acer saccharum*), paper birch (*Betula papyrifera*), red cedar (*Juniperus virginiana*), hop hornbeam (*Ostrya virginiana*), yellow oak (*Quercus muehlenbergii*), and white pine (*Pinus strobus*) cast a thin shade over the shrub and ground cover flora. Shrubs include a mix of native and exotic species: oriental bittersweet (*Celastrus orbiculata*)*, winged euonymus (*Euonymus alatus*)*, and prickly ash (*Zanthoxylum americanum*). Native herbaceous species include: ebony spleenwort (*Asplenium platyneuron*), rattlesnake fern (*Botrychium virginianum*), wild licorice (*Galium circaeazans*), sweet cicely (*Osmorhiza claytonii*), round-leaf ragwort (*Senecio obovatus*), and zig-zag goldenrod (*Solidago flexicaulis*).

The sheer marble cliffs rising above the falls are sparsely vegetated. Species on the sides and top of the rocks include: riverbank thimbleweed (*Anemone riparia*), columbine (*Aquilegia canadensis*), thyme-leaved sandwort (*Arenaria serpyllifolia*)*, tower-mustard (*Arabis glabra*), harebell (*Campanula rotundifolia*), spotted knapweed (*Centaurea maculosa*)*, mouse-ear chickweed (*Cerastium vulgatum*)*, forked chickweed (*Paronychia canadensis*), purple-stemmed cliffbrake (*Pellaea atropurpurea*), and common mullein (*Verbascum thapsus*)*.

Status of Rare Species

Amelanchier sanguinea (Roundleaf shadbush): A clonal population of *Amelanchier sanguinea* grows at the top of the sheer ledges at the scenic overlook above Great Falls. A metal railing to prevent visitors from falling into the River also protects the population from visitors. When the population was observed on 16 May 2003, it consisted of at least 60 upright shrubs. Only one of the shrubs had fruit. This population has been stable since the time of the original Connecticut Inventory.

Cryptogramma stelleri (Slender cliff-brake): The original inventory noted that *Cryptogramma stelleri* had not been seen at the site since 1900. Apparently, this population has been seen recently on the site's marble cliffs (Ken Metzler and Paul Palmer, personal communication).

Draba reptans (Carolina whitlow-grass): In the late 1980's, a population of about 500 *Draba reptans* plants was documented on outcrops west of the falls, but the population has declined dramatically. In 2002 and 2003, Paul Palmer and I covered the site, looking specifically for *Draba reptans*. On June 12, 2002, we found eight mature plants on a single outcrop adjacent to a trail leading to the scenic overlook. Hoping to find the population in bloom, we resurveyed the site on April 29, 2003, but this time saw only two *Draba reptans* shoots emerging on the same outcrop. We did not find any plants elsewhere at the site. On a follow-up visit on May 31, 2004, I did not find any *Draba reptans* plants.

Threats

The *Amelanchier sanguinea* population is protected from human damage by the metal railing, and it has been fairly stable for a number of years. The population is in competition with tree saplings and other shrubs at the outlook, and, in 2004, the population appeared to be losing ground to sugar maple, white ash, and basswood saplings as well as to Morrow's honeysuckle and winged euonymus.

More information is needed about the current condition of the *Cryptogramma stelleri* population. Its location on sheer cliffs probably protects it from visitor damage.

The *Draba reptans* population is threatened by trampling, competition with exotic species such as mouse-ear chickweed (*Cerastium vulgatum*), and by shading.

The site's patches of floodplain forest and dry circumneutral woodland are fragmented and degraded by parking areas, trails, litter, and heavy use of the site. The marble cliffs are probably the only part of the site that has remained intact.

Management Recommendations

The *Amelanchier sanguinea* population should be monitored annually. Competing shrubs and tree sapling that are making inroads into the population should be cut back in the very near future.

Draba reptans was not found in 2004, and it may be extirpated from the site. In late April or early May of 2005, all of the site's outcrops should be searched for this tiny plant. Young trees and shrubs near the population (where it was seen in 2002) should be thinned to provide more light for this shade-intolerant species. If any *Draba reptans* plants are found, competing, non-native species such as spotted knapweed and mouse-ear chickweed should be removed from the vicinity of the plants.

Site Survey Dates: April 23, May 16, and August 27, 2003. (Also June 12, 2002 and May 31, 2004)

SITE 11: SHARON MOUNTAIN

Location: Most of this site covers a mile-long section of the AT in the northern part of the Sharon Mountain ridge and a seepage area near Sharon Mountain Campsite¹¹. This site is similar to the Sharon Mountain site discussed in the original Connecticut Inventory.

Topographic Quadrangles: Sharon,
South Canaan

Quadrangle Codes: 4107384
4107383

County: Litchfield

Town: Salisbury and Sharon

Ownership: ATPO, State of Connecticut

Elevation: 550-1240 feet

Map Segments: 287

Acreage: 170

Rare Species and Community Table

Scientific Name	Common Name	Global Rank	State Rank	Federal Status	State Status	Element Occurrence Rank	Last Obs. Date
<i>Schizachne purpurascens</i>	Purple Oat	G5	S1		SC	B	1990?
<i>Crotalus horridus</i>	Timber rattlesnake	G5	S1		E	unknown	5/28/03
Acidic seepage forest			S3S4			A	5/28/03

Site and Community Description

Sharon Mountain's lower and middle slopes have a mid-successional stand of mixed hardwood trees associated with hemlock (*Tsuga canadensis*) and white pine (*Pinus strobus*). Soil moisture ranges from moist on lower slopes to dry on upper slopes and ridgetop. The substrate is fairly acidic, and the ground cover flora is typical of oak forests of moderate diversity. Lower slopes and ridge openings have a number of exotic shrubs and herbaceous plants.

The site's hardwoods include: red maple (*Acer rubrum*), black birch (*Betula lenta*), pignut hickory (*Carya glabra*), old big-tooth aspen (*Populus grandidentata*), white oak (*Quercus alba*), chestnut oak (*Quercus montana*), and red oak (*Quercus rubra*). Native shrubs and small trees include striped maple (*Acer pensylvanicum*), ironwood (*Carpinus*

¹¹ On the site map, the seepage area is the small, circular area south of the main part of the site.

caroliniana), beaked hazelnut (*Corylus cornuta*), and witch hazel (*Hamamelis virginiana*). The non-native Japanese barberry (*Berberis thunbergii*)*, oriental bittersweet (*Celastrus orbiculata*)*, and winged euonymus (*Euonymus alatus*)* are common in these woods. Ground cover flora includes: Pennsylvania sedge (*Carex pensylvanica*), woodrush (*Luzula multiflora*), partridge berry (*Mitchella repens*), starflower (*Trientalis borealis*), and dog violet (*Viola conspersa*).

A fine hemlock stand occurs on a steep, rocky, north-facing pitch higher on the mountain's northern slope. Oak/heath forest dominates the slopes near the top of the ridge. Chestnut oak and red oak are the main canopy trees. Shrubs include black huckleberry (*Gaylussacia baccata*), sheep laurel (*Kalmia angustifolia*), mountain azalea (*Rhododendron prinophyllum*), late lowbush blueberry (*Vaccinium angustifolium*), deerberry (*Vaccinium stamineum*), and early lowbush blueberry (*Vaccinium pallidum*).

Rocky, east-facing outlooks are located at Belter's Bump and the southeast side of the site's highest summit. Flora at these outlooks consists of native and non-native plants, with a handful of gray birch (*Betula populifolia*), red cedar (*Juniperus virginiana*) and pitch pine (*Pinus rigida*) providing a thin overstory. Other species include yarrow (*Achillea millefolium*)*, columbine (*Aquilegia canadensis*), pale corydalis (*Corydalis sempervirens*), speargrass (*Poa annua*)*, Canada bluejoint (*Poa compressa*)*, sheep sorrel (*Rumex acetosella*)*, scrub oak (*Quercus ilicifolia*), and little bluestem (*Schizachyrium scoparium*).

Near Sharon Mountain Campsite, there is an acidic seepage forest east of the footpath. Red and chestnut oak are the dominant trees, with red maple, black birch, sugar maple, and white ash present along the seepage. Herbaceous flora near the seepage includes: bulblet fern (*Cystopteris bulbifera*), downy rattlesnake plantain (*Goodyera pubescens*), cinnamon fern, dwarf ginseng (*Panax trifolius*), long beech fern (*Phegopteris connectilis*), skunk cabbage (*Symplocarpus foetidus*), red trillium (*Trillium erectum*), and false hellebore (*Veratrum viride*).

Status of Rare Species

Crotalus horridus (Timber rattlesnake): The original Connecticut Inventory mentions the possibility of rattlesnakes exactly where I saw them:

"...At the 1 mile mark {from the Trail crossing of Route 7/112} the trail enters a rocky vista with huckleberry and scrub oak vegetation. This vista lies above the talus slope and appears suitable for a rattlesnake hibernacula." (McKay et. al, 1992, p. 31). The elevation of these ledges is about 1190 feet.

On this cool (high-50's), overcast day in late May, three rattlesnakes were curled up in a ball on these southeast-facing ledges (10:30 am). The snakes were about 30-36 inches in length; all were yellowish-brown in color. When I returned to the ledges five hours later, one of the snakes was still there.

Schizachne purpurascens (Purple oat): The original inventory mentions that purple oat was observed at the site in 1990, but does not provide details about the population. I did not find the plant, which probably occurs on rich, lower slopes on the east side of the ridge.

Threats

Rattlesnakes are threatened by collection, persecution, and highway traffic on Route 7.

There are no threats to the acidic seepage community.

More information is needed on the purple oat population.

Management Recommendations

The rattlesnake population could be studied for den location, population size, reproductive success, and movement patterns. A study of specific threats, long-term prospects for the population, and conservation measures (such as land acquisition or easements) are recommended for the rattlesnakes on Sharon Mountain.

The purple oat population may be located on the steep slopes east of the Sharon Mountain ridgeline. Time did not allow for explorations in this area in 2003. These slopes should be surveyed for *Schizachne purpurascens* as well as other rare plants.

Site Survey Date: May 28, 2003