MANAGEMENT PLAN FOR

THE PINCHOT PRESERVE

Plan developed by Caitlin Cusack for the Branford Land Trust
and the Guilford Land Conservation Trust
April, 2008

I. INTRODUCTION

B. Statement of purpose

The purpose of this plan is to guide the Branford Land Trust (BLT) and Guildford Land Conservation Trust (GLCT) in making future management decisions concerning the Pinchot Preserve that balances public use and enjoyment with the protection of the preserve's ecological and cultural integrity. The management plan describes the natural and cultural resources and management goals for the Pinchot property. Recommendations for management and restoration actions needed to preserve, protect, and restore the Preserve's natural habitats, significant species populations, and cultural resources are also included.

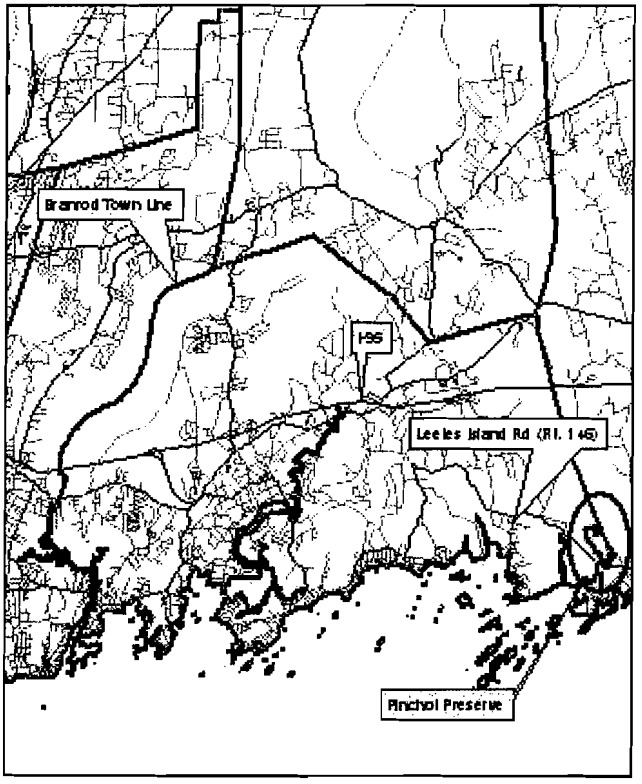
C. General property description

1. Physical characteristics

The 47-acre Pinchot Preserve is situated in a key location between the 300-acre preserved Quarry Property, Westwood Trails system, Towner Swamp and the salt marshes of Long Island Sound. As shown in Figure 1, the Pinchot Preserve is located off of Route 146 (Leetes Island Road) in the towns of Branford and Guilford, Connecticut. The Pinchot Preserve can be directly accessed off of Route 146. The parking lot is located east of the salt marsh right before Leetes Island Road crosses under the railroad tracks. The Pinchot Preserve is part of a larger 111-acre Hoadley Creek Preserve system, which can be accessed at the north end by Quarry Road off of Route 146.

The Pinchot Preserve's rolling terrain has a diversity of estuarine and upland habitats and natural features including mixed hardwood forest, a salt marsh, salt water panne, freshwater pond, and vernal pool. There are no existing structures on the property.

Figure 1. Location of the Pinchot Preserve



2. History and background

Prior to European colonization, the Quinnipiac tribe lived along the coast of Long Island Sound extending from Milford to New London (DeForest, 1991). The Pinchot Preserve is located right along the coast, therefore it is likely that the Quinipiacs were the original inhabitants of the property.

When the European settlers arrived, the Pinchot Preserve was originally part of the Totoket Plantation, (which became the town of Branford after being partitioned from the Quinnipiac Plantation, formerly New Haven) and the Menunkatuck Plantation, which became the town of Guilford. According to Joel Helander, Hoadley Creek, also known as Stony River at the time, formed the boundary between the two plantations and is now the western boundary of the Pinchot Preserve. In 1860 and subsequently in 1885 the boundary between Branford and Guilford was modified to add more acreage to Guilford. The Rose and Linsley families were some of the first to settle Branford and owned the southern section of the Pinchot property. The Leete family was the original colonial owners of the northern end of the property. In 1820 John B. Norton, a stone mason, purchased the lower Pinchot piece for his homestead, part of which extended north along the west side of Hoadley Creek. The rough and rocky

ground, where even today many glacial erratics can be seen, was a great resource for Norton's masonry. As of 1838 this part of the property was "wooded and unimproved." In 1885, according to Government topographic maps the 60 foot hill or bluff next to the railroad was cleared land with a patchwork of stonewalls, still seen today, most likely used to delineate pastures for grazing animals. In 1851 the New Haven and New London Railroad Company bought a strip of ground 742.5 feet long from John Norton to construct a single tract railroad. Between 1878 and 1886 Mr. John Beattie acquired the Pinchot property in four pieces (a total of 32.5 acres) from Jesse B. Norton, the son of John Norton. Beattie acquired the northernmost portion of the property from Lembert Chidsey. The Administrator of John Beattie's Estate conveyed the Pinchot property to Arthur E. Hall in 1954 (Helander, J. 1996, memo to Jody Paviglionite.) In 1972 Sarah Pinchot, wife of Gifford Pinchot purchased the property from Arthur Hall.

3. Ownership

The title of record to the property and all mineral and water rights, including legal access, is held jointly by the Branford Land Trust (BLT) and Guilford Land Conservation Trust (GLCT).

4. Deed Restrictions

The only encumbrances on the property include rights of others that may exist in and to any waterways or woods roads that are located on or across the property. The warranty deeds for the towns of Branford and Guilford are included in Appendix A.

Entrance to the Pinchot Preserve off of Leetes Island Road

5. Abutters

The following organizations or individuals abut the Pinchot Preserve:

- Yale University
- Terry Paviglionite
- Jody Paviglionite
- Joanne Paviglionite
- Joel Rosenbaum
- Stephen Dellaporta
- V. Holley

- P. Woerner

Maps showing the locations of these abutters are provided in Appendix B.

6. Other use/management restrictions

Per policy of the Branford Land Trust and Guilford Land Conservation Trust the following activities are restricted on the Pinchot Preserve:

- use of motorized vehicles;
- fires;
- camping;
- alcoholic beverages; and
- hunting.

5. Current management

There are two main trail systems on the property- the red trail and the white trail or Branford Trail. The red trail was created and is maintained by the Branford Land Trust and the white trail was created and maintained by the White Blaze Trail Group and connects the Pinchot Preserve with Medlyn Woods, Santacroce Woods and eventually with the Kelly/Van Wie Preserves. Other management issues include maintenance of the dam on Holley Pond, control of non-native invasive species, and removal of hazard trees along trails. The Pinchot Preserve is jointly managed by the BLT and GLCT. A draft of the memo of understanding is contained in Appendix C.

II. GENERAL MANAGEMENT GOALS FOR THE PINCHOT PRESERVE

Protection of open space
Provide the public with opportunities for passive recreation and scenic enjoyment
Provide opportunities for nature study, environmental education, and scientific research
Protection of cultural resources
Protection of water quality and forest health
Protection and enhancement of native species diversity

III. BIOPHSYICAL CHARACTERISTICS OF THE PRESERVE

A. Geography and Topography

The Pinchot Preserve is located in the southeastern corner of the town of Branford and a small percentage in the southwestern corner of the town of Guilford, Connecticut as shown in Figure 1. The topography is best described as rolling terrain.

B. Geology

The bedrock beneath the Pinchot property and much of Branford is part of the Iapetos (oceanic) terrane, which is composed of schist and gneiss of the Hartland and Gneiss

Dome belts (CT DEP, 1996.) The surficial geology is composed of glacial till (Stone et al., 1992). Many glacial erratics are strewn across the property, indicative of past glacial activity that brought these rocks from a different area with bedrock that differs from the Pinchot property.

C. Soils

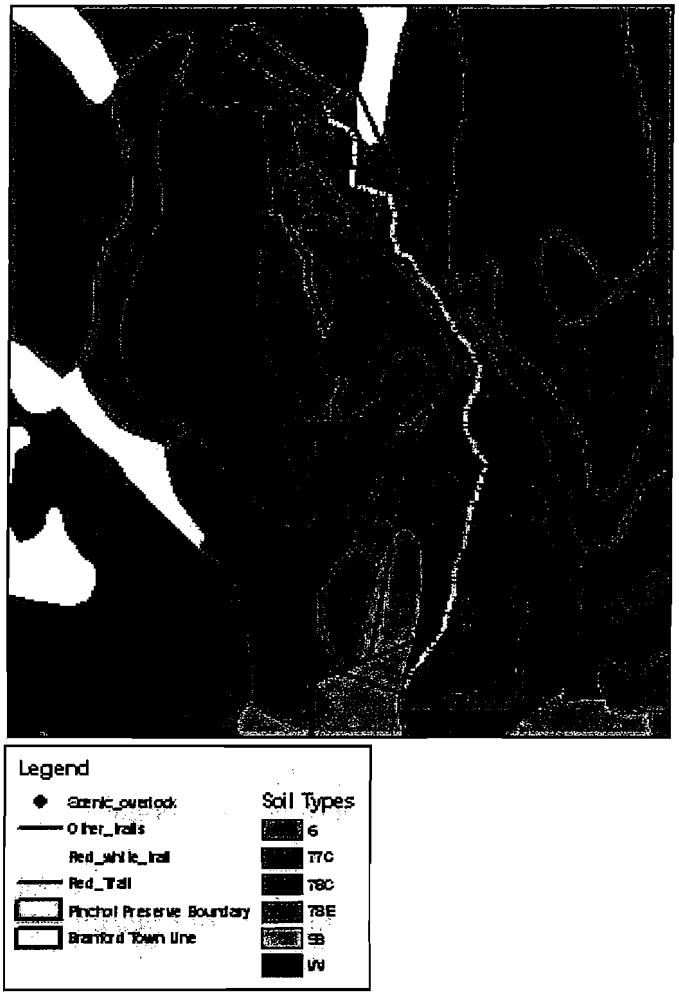
Five different soil types are found on the Pinchot Preserve, as listed in Table 1. Poorly drained Westbrook mucky peat compromises the soil of the salt marsh, as shown in Figure 2. The shallow, excessively drained Holyoke-outcrop complex soils are found on the hills and knolls. Side slopes are mainly composed of the Cheshire-Holyoke Complex, which are well-drained coarse-loamy soils. Poorly drained Wilbraham and Menlo Soils comprise the floodplain soils of the Hoadley Creek and wetland area just northwest of the salt marsh. Most of the soils on the Pinchot Preserve are very rocky and were most likely not used for agriculture.

Table 1. Soil types found on the Pinchot Preserve

Soil Unit Symbol	Soil Type	Description
6	Wilbraham and Menlo Soils	Coarse-loamy mixed, mesic Aquic Fragiochrepts, extremely stony, poorly drained
77C	Cheshire-Holyoke Complex	Coarse-loamy, mixed, mesic Typic Dystrochrepts, well drained, very rocky, located on broad hilltops, ridge tops and side slopes, 3-15% slope
78C	Holyoke-outcrop complex	Loamy, mixed, mesic Lithic Dystrochrepts, shallow, somewhat excessively drained, located on hills, ridges and knolls, 3-15% slope
78E	Holyoke-outcrop complex	Loamy, mixed, mesic Lithic Dystrochrepts, shallow, somewhat excessively drained, located on hills, ridges and knolls, 15-45% slope
98	Westbrook mucky peat	Euic, mesic Typic Sulfihemists, poorly drained, mucky peat over gray silt loam, subject to tidal flooding twice a day

Source: USDA Soil Conservation Service. 1979. Soil Survey of New Haven County, Connecticut. USDA Soil Conservation Service in cooperation with Connecticut Agricultural Experiment Station and Storrs Agricultural Experiment Station.

Figure 2. Location of soil types on the Pinchot Preserve



D. Hydrology

The Pinchot Preserve is part of the South Central Shoreline Watershed. Hoadley Creek flows south to empty into Long Island Sound. Hoadley Creek connects Towner Swamp, to the northwest of the property, with Holley Pond, and eventually with Emery Pond to the south of the property before flowing into Long Island Sound. The other main water feature located on the property is the salt marsh. Before construction of the railroad bed the salt marsh would have been subject to tidal flooding twice daily under a normal hydrologic regime.

E. Natural Habitats

Mixed hardwood forest, tidal marsh, a pond and creek are the main natural habitats located on the Pinchot Preserve and have a diversity of plant and animal species.

1. Forests

The mixed hardwood forest found on the Pinchot Preserve is typical of southern New England and is not primary forest. It was most likely cleared in some sections for pasture and has been harvested more recently for timber, indicated partly by the occurrence of oaks with two stems coming out of one stump. The dry upland areas tend to be dominated by oaks, mainly red with some white and black, while tulip poplar, yellow birch and sugar maples dominate the floodplain area of Hoadley Creek. When you first enter the property via the parking lot off of Leetes Island Road, red oaks dominate the overstory with mountain laurel and witch hazel occurring in the understory. Oaks and hickories dominate the upland forest to the east of the salt marsh leading to the scenic outlook. As you continue along the red/white trial more hickories, black birches, red cedar and American beech can be observed. Beech bark disease, signified by a white scale on the bark and prolific sprouting, has infected some of the American beech. Chestnut oaks dominate the knoll in the northern part of the property.

This two-stemmed red oak most likely sprouted following cutting and indicates past land use history.

Eastern hemlock, white pines and red cedar are the three coniferous trees observed on the Pinchot Preserve. Conifers can play an important role for wildlife by providing thermal protection during the winter. Remnant red cedars are scattered in various pockets around the preserve. The largest cluster of red cedars can be observed in the upland area to the east of the salt marsh. Coupled with the presence of a number of stonewalls, red cedars indicate that this site was most likely used as pasture for grazing animals. Eastern hemlocks can be found mixed with the hardwoods particularly in the northeastern corner of the property. Most trees have been attacked by the hemlock woolly adelgid. Native to Asia, the hemlock woolly adelgid was first introduced into the United States in the 1950's, has no known natural enemies, and is a significant threat to the future of hemlocks in eastern forests. Unfortunately the long-term implications of the loss of the Eastern hemlock are uncertain. Only standing snags and downed woody debris remain of many hemlocks on the Pinchot Preserve.

Witch hazel, shadbush, willow, highbush blueberry, lowbush blueberry, winterberry holly, and arrowwood are other species found in the understory of the upland forest. Spicebush, mountain laurel, skunk cabbage, and other wetland species are found in the

understory of the Hoadley Creek floodplain. A full list of plant species observed on the Pinchot Preserve can be found in Appendix D.

2. Wetlands

Tidal Marshes

The Pinchot Preserve boasts a seven-acre tidal marsh filled with high marsh grass (*Spartina patens*). Located in the southern end of the property just north of Leetes Island Road, shown in Figure 3, the marsh is connected to the system of tidal marshes south of the road by a culvert under Leetes Island Road and the railroad tracks. Tidal water collects at the far end of the marsh as a result of soil compaction. This section of the marsh is called panne.

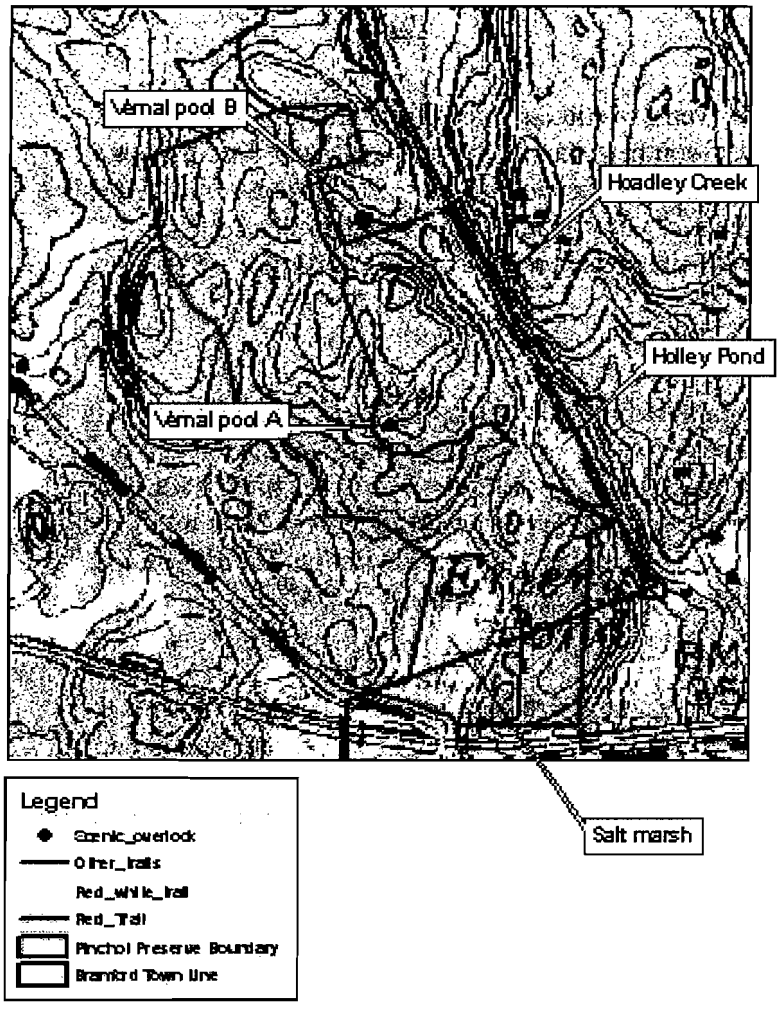
Holley Pond

Hoadley Creek was originally dammed for hydroelectric power. Holley Pond was created when the granite dam located at the southern end was constructed. Holley Pond contains shallow water grasses and water lilies and provides habitat for fish, frogs and other pond animals. The pond seems to be filling in with litter and woody debris. Apparently the pond used to be stocked annually with fish for recreational fishing (J. Paviglionite, personal communication, February 7, 2008.)

Hoadley Creek

Hoadley Creek provides important habitat for macroinvertebrates and connects the major inland wetland, Towner's Swamp to the north with Long Island Sound and serves as the water supply for Holley Pond and Emery's Pond. The floodplain is important in spring and during heavy rains to catch excess water that the creek channel is unable to capture.

Figure 3. Wetland areas on the Pinchot Preserve



4. Special Habitats:

Vernal pools

There are two vernal pools shown on Figure 3. The larger of the two is most likely located on the Yale University property. Vernal pools are areas that do not have an input or output water flow and are filled with water on a seasonal basis during the winter and spring. Vernal pools are unique habitats critical to the reproduction of many amphibian species. The forest surrounding vernal pools is important for the majority of amphibians' life cycle. Fallen wood, leaf litter and well uncompacted soil with many holes from burrowing mammals or decayed roots provide important habitat and protection (Hammerson, 2004.)

Granite ridges

There are small ridges of exposed granite scattered across the rolling terrain of the preserve. Exposed rocks on ledges and ridges can be important habitat for hibernating

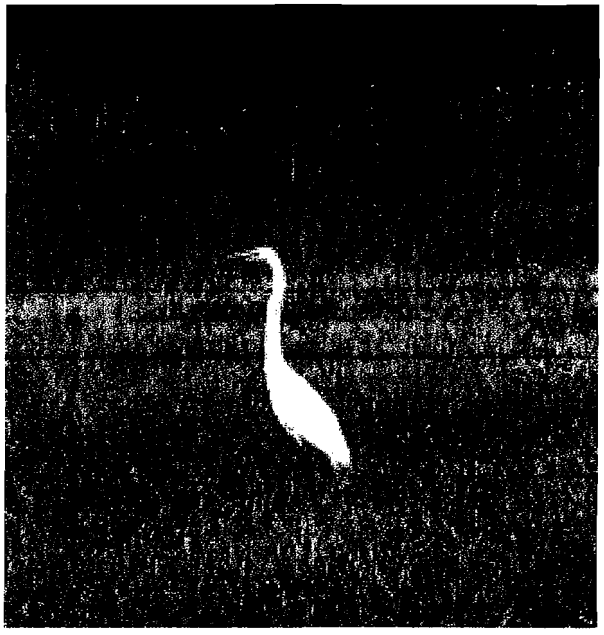
and basking reptiles and amphibians. Chipmunks and mice also use rock piles to store food.

Snags
Many of the standing dead hemlocks are ridden with woodpecker holes. Snags provide habitat and food for woodpeckers and other birds but when located close to trails they can provide a significant hazard to users of the property. Flying squirrels, gray squirrels, deer mice, wood ducks, screech owls, chickadees, nuthatches, tree swallows, tree frogs and some snakes use abandoned woodpecker holes.

Coarse Woody Debris
When trees fall to the ground and decompose, nutrients are released back into the forest. Downed woody debris also provides habitat for amphibians, reptiles, fungi, invertebrates and other microorganisms. As a result of the hemlock wooly adelgid there is a lot of downed woody debris scattered around the property.

F. Wildlife Species

Oaks and hickories produce hard nuts, which provide a great source of food for a number of wildlife species common to mixed hardwood forests including ruffed grouse, wild turkey, Eastern chipmunk, flying squirrels, gray squirrels, white-tailed deer, woodpeckers and blue jays. Black cherry and arrowwood provide another source of food.



Great egret, a state listed threatened species, wading in the Pinchot Preserve salt marsh

The marsh provides habitat and foraging area for many mammals, birds and marine life. Wading birds such as great egrets, snowy egrets, great blue herons, green herons, and greater yellowlegs have been observed here feeding on small fish and other marine animals.

The property is located on the Atlantic Flyway—a major migration route for land and water birds—therefore many species of birds have been observed on the property. Of the 53 bird species observed on the property, there are several species of high conservation value. These species have been identified as conservation targets by Partners in Flight, a cooperative effort involving partnerships among federal, state and local government agencies,

philanthropic foundations, professional organizations, conservation groups, industry, the academic community, and private individuals. Branford is part of the Southern New England physiographic area. As shown in Table 2, species of high continental priority for mature deciduous forest habitat observed on the Pinchot Preserve include the Louisiana waterthrush, worm eating warbler and ovenbird. The prairie warbler was observed on the Pinchot property and is a high priority species for early successional scrub/pine habitat. The black and white warbler has also been observed on the property and is a Tier IIA species, which are experiencing declines in the core of their range and require short-term conservation action to reverse or stabilize trends. Other species observed on the property include the red-shouldered hawk and great blue heron, which are listed as species of special concern in the state of Connecticut. The great egret and snowy egret are listed as threatened in Connecticut. The Pinchot Preserve provides important habitat contributing to the conservation of many bird species with varying needs for protection. A complete list of bird species observed on the Pinchot Preserve is listed in Appendix D.

Table 2. Bird species of high conservation priority observed on the Pinchot Preserve

Common Name	Scientific Name	Deciduous Forest	Salt Marsh	Pond	Special Conservation Status
Black and white warbler	*Mniotilta varia*	X			Partners in Flight Tier IIA
Great blue heron	*Ardea herodias*		X	X	Listed as a species of special concern in the state of CT
Great egret	*Ardea alba*		X	X	Listed as threatened in the state of CT
Louisiana waterthrush	*Seiurus motacilla*	X			Partners in Flight Tier IA
Prairie warbler	*Dendroica discolor*	X			Partners in Flight Tier IA
Red-shouldered hawk	*Buteo lineatus*	X			Listed as a species of special concern in the state of CT
Snowy egret	*Egretta thula*	X	X	X	Listed as threatened in the state of CT
Worm eating warbler	*Helmitheros vermivorus*	X			Partners in Flight Tier IA

Bird species were observed on the Pinchot Preserve and recorded by Noble Proctor on April 14, April 29 and May 12, 1996.

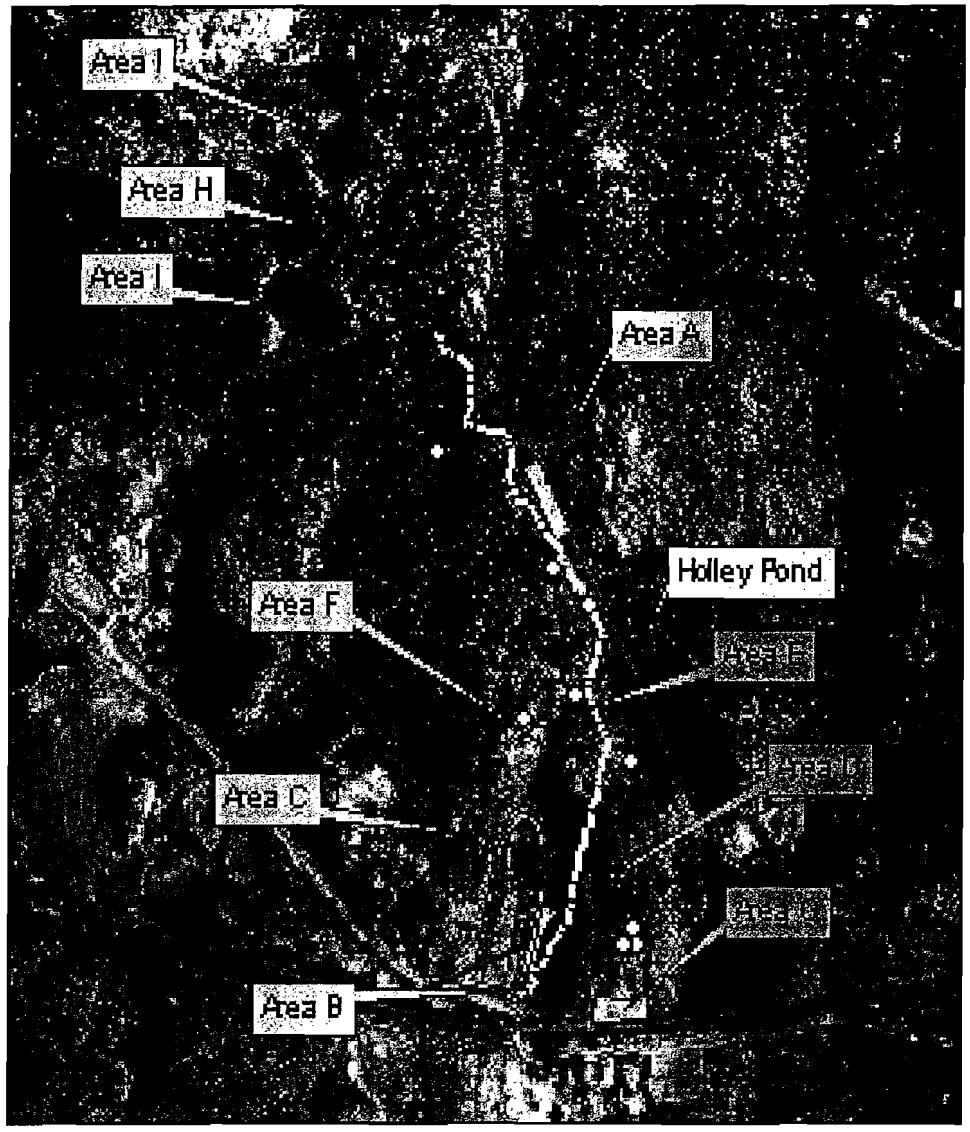
G. Native and Non-native Invasive Plant Species

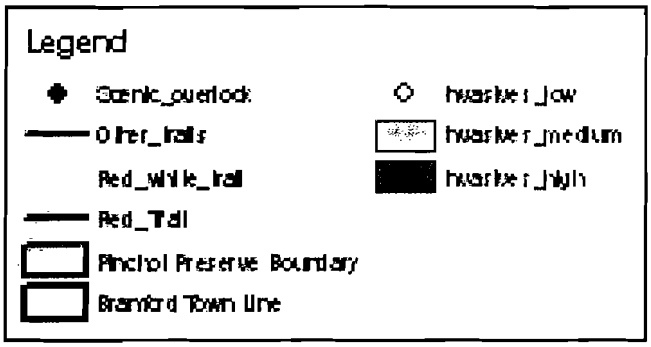
Many of the plant species found on the Pinchot Preserve have been listed in the natural habitat section. A complete list of plant species observed on the Pinchot property can be found in Appendix D. Eight non-native invasive plant species, listed in Table 3, were observed on the property or right on the border. Figure 4 indicates the location of non-native invasive plants by the level of infestation. Individual plants or patches of less than 20 individuals were found scattered in various locations along trails, stone walls or Hoadley Creek and are labeled as low levels of infestation. Areas A-G have over 20 individuals in a single or multiple patches sparsely scattered over a large area and are more medium levels of infestation. The areas of high infestation are not actually located on the property but are included because there is a significant risk that these dense patches of over 100 individuals can spread into the Pinchot property. Appendix D provides a more detailed list of the species and more information on the location and number of individuals found for each area.

Bloodroot can be observed in bloom along the banks of Hoadley Creek in April

Table 3. Non-native invasive plant species observed on the Pinchot Preserve					
Common Name	**Scientific Name**	**Shrub**	**Vine**	**Grass**	**Preferred Habitat**
Japanese barberry	*Berberis thunbergii*	X			Roadsides, fields, open woods, stream banks, sun and shade-tolerant
Multiflora rose	*Rosa multiflora*	X			Old pastures, roadsides, hedgerow, reverting fields, woodland borders
Non-native honeysuckle	*Lonicera sp.*	X			Old pastures, roadsides, hedgerow, reverting fields, woodland borders
Japanese honeysuckle	*Lonicera japonica*		X		Roadsides, thickets, fields, near abandoned settlement sides, openings in forest canopy
Common reed	*Phragmites australis*			X	Sunny wetland habitats in fresh or brackish water
Autumn olive		X			Disturbed areas, roadsides, pastures and fields, gap openings in the forest but not under dense tree canopy
Oriental bittersweet	*Celastrus orbiculatus*		X		Disturbed edges, abandoned fields, timber clearings, along rivers and streams
Wineberry	*Rubus phoenicolasius*	X			Old pastures, roadsides, hedgerow, reverting fields, woodland borders

Figure 4. Location of non-native invasive plants observed on the Pinchot Preserve

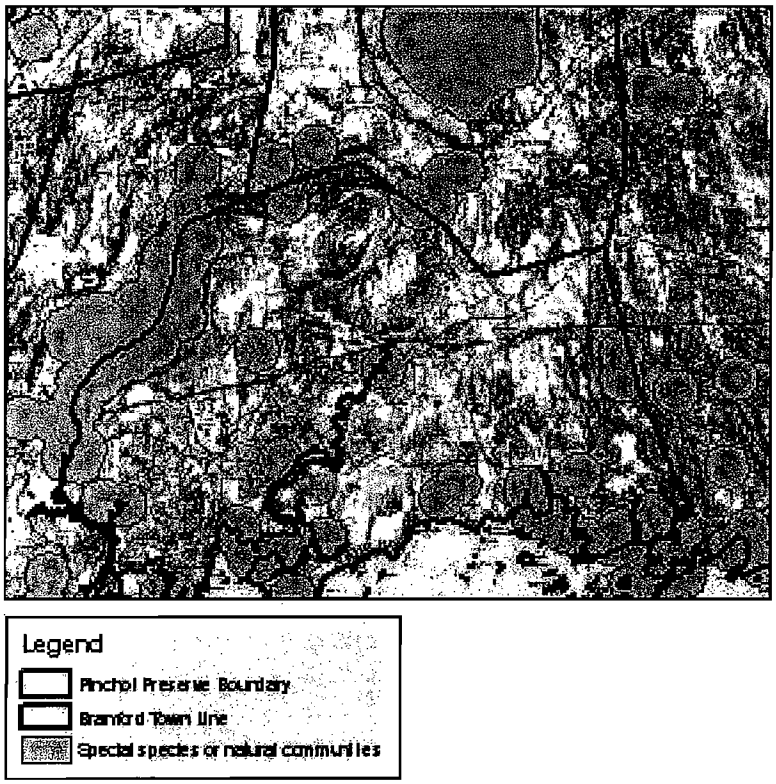




G. Endangered, threatened, and special concern species

There are no known endangered, rare or threatened plant species of concern found on the Pinchot property. The southwestern corner of the property borders a general area of concern with regard to state and federally listed endangered, threatened, and special concern species and significant natural communities as shown in Figure 5. There are a handful of bird species that have been identified by Partners in Flight as high priority conservation species or are threatened or special concern species in the state of Connecticut. These species are discussed in the wildlife section.

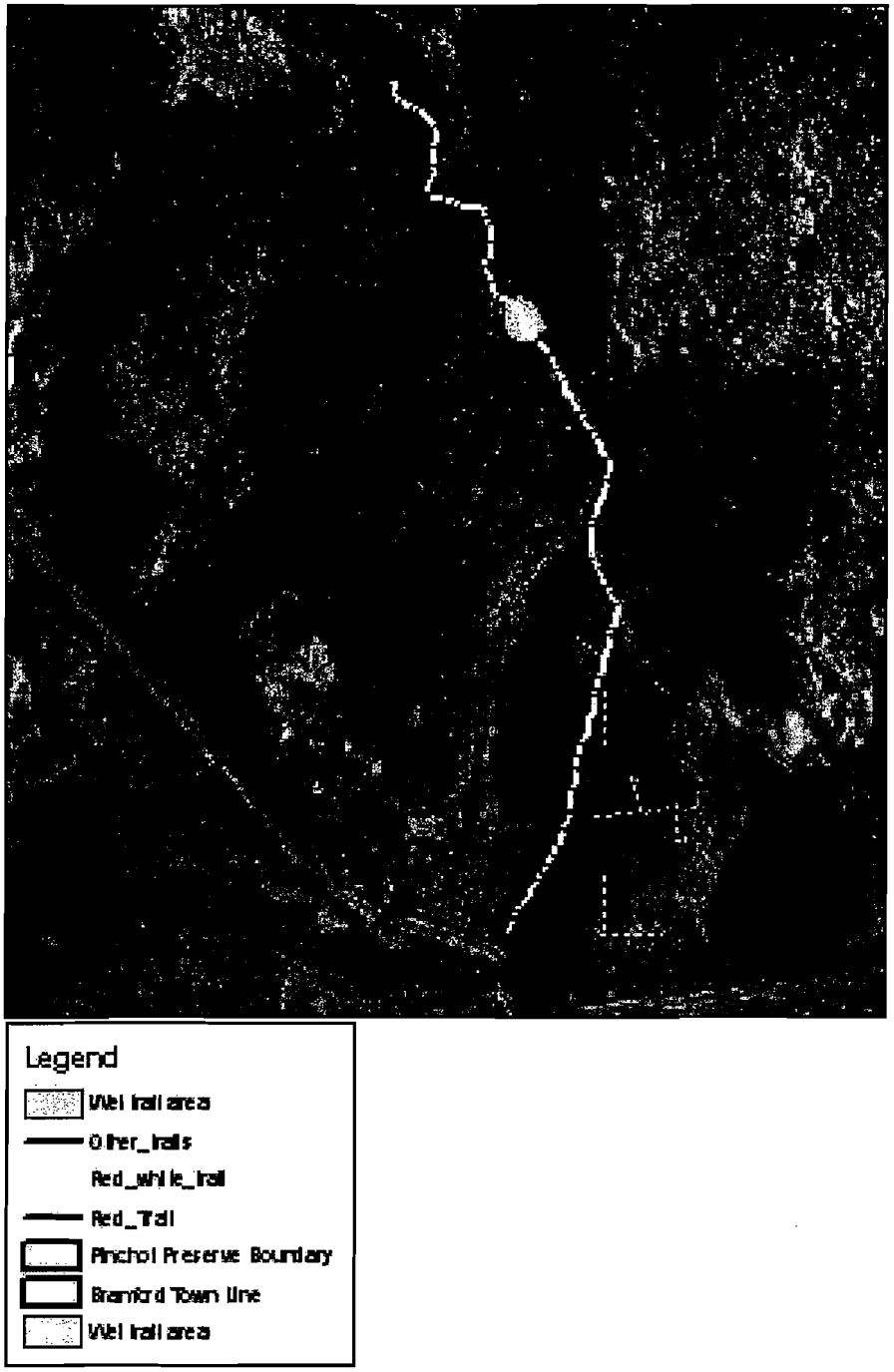
Figure 5. Special concern species and significant natural communities



H. Cultural Resources

Stone walls, the dam in Holley Pond, and the former quarry area are all important cultural resources on the Pinchot property. Stone walls can be found distributed across the property, many of which are shown in Figure 6. Coupled with the fact that the soil is very rocky the property was most at some point used as grazing land for livestock. The granite dam is a relic from when water was used to generate electricity. In addition, there is one particular outcrop facing east that was quarried about a century ago. Some have observed rocks with drill holes where dynamite was placed (Helander, J. 1996, memo to Jody Paviglionite.).

Figure 6. Stone walls and Pinchot Preserve trails



IV. EXISTING ACTIVITIES IN THE PRESERVE

A. Current Recreational Uses

1. Allowed uses

The Pinchot Preserve is open to the public year round from one hour before sunrise to an hour after sunset. Passive recreational opportunities, research and educational opportunities are encouraged. A sign in the parking lot off of Leetes Island Road clearly marks the entrance to the preserve but the boundaries are not clearly marked. Permitted activities are compatible with the conservation goals, stewardship principles and the mission of the organizations. Permitted activities occur only when the activity poses no significant threat to the important conservation values, reduces threats or restores ecological processes, and/or advances learning and demonstration opportunities.

a. Passive Recreation:

i. Trail use

The red trail was created and is maintained by the Branford Land Trust and the white trail, Branford Trail, was created and maintained by the White Blaze Trail group and connects the Pinchot Preserve with Medlyn Woods, Santacroce Woods and eventually with the Kelly/Van Wie Preserves. Trails are shown in Figure 6. Most activities like hiking, birding, dog walking and other passive recreational activities are allowed on designated trails but some active recreational activities like mountain biking and geocaching are also allowed. Walking off of designated trails is strongly discouraged, especially in sensitive wetland areas, although some off-trail areas have been used for geocaching.

2. Recreational uses that are NOT allowed

The use of motorized vehicles is strictly prohibited on the Pinchot Preserve and other Branford Land Trust properties. Camping, fires, hunting and use of alcoholic beverages are also not allowed.

B. Research

Research is allowed on the Preserve.

C. Education

The Preserve is open for educational uses and has been used by the Boy Scouts and other local school and hiking groups.

V. MANAGEMENT ISSUES, CURRENT MANAGEMENT ACTIVITIES, and PLANNED MANAGEMENT ACTIVITIES

A. Natural Habitats/Plants/Wildlife

1. Vernal pools

The small vernal pool labeled as Vernal Pool A in Figure 3 is located right next to the trail. Erosion from the trail has the potential to adversely affect the water quality for breeding amphibians. Amphibians also rely on the undisturbed surrounding forest for most of their life cycle. An exposed, compacted trail provides a challenge for amphibians migrating to upland areas. There are no current management activities involving vernal pools. Protection of the vernal pool from degradation is the future desired condition.

2. Holley Pond dam

Dam owners have historically been held liable for downstream damages incurred as a result of the failure of their dams. Holley Pond dam is not considered to be a high-risk dam by the Connecticut DEP and therefore BLT is not required to create an Emergency Operation Plan (EOP). Connecticut DEP does recommend registering the dam and having an engineer inspect the dam for structural integrity as well as establishing a procedure for monitoring the dam during periods of heavy rainfall and runoff. Dam registration forms are found in Appendix E. CT DEP (2002) provides guidelines for the inspection and maintenance of dams.

Holley Pond dam constructed in the 1800's for power

3. Forest and wetland habitats

Non-native invasive plant species can significantly alter the ecological processes and functions of natural ecosystems, displace native species, obstruct scenic views and impede travel among other things. There were eight non-native invasive plant species observed on the Pinchot Preserve in the floodplain forest, forest-wetland edge, salt marsh, field and interior forest in areas A-F. Areas G, H and I are not currently on the Pinchot Preserve but have the

potential to spread into the property and therefore should be monitored to prevent encroachment.

Table 4. Non-native invasive plant species by habitat			
Area	**Species present**	**Level of infestation**	**Habitat affected**
A	Japanese barberry	Medium	Floodplain forest
	Multiflora rose		
B	Japanese honeysuckle	Medium	Forest-wetland edge
	Multiflora rose		
C	Phragmites	High	Salt marsh
D	Multiflora rose	Medium	Forest-wetland edge
E	Japanese barberry	Medium	Forest
F	Japanese barberry	Medium	Forest
	Multiflora rose		
	Japanese honeysuckle		
G	Japanese barberry	High	Forest edge
	Multiflora rose		
	Japanese honeysuckle		
	Bush honeysuckle		
H & I	Japanese barberry	High	Field and forest edge
	Multiflora rose		
	Japanese honeysuckle		
	Wineberry		
	Oriental bittersweet		
	Autumn olive		

B. Cultural Resources

1. Stone walls

Many of the rocks in the abandoned stone walls have either fallen off or been removed over the years. The increase in commercial sales of stones for landscaping has made both the legal, wholesale strip-mining of New England's abandoned stone walls and theft of stone walls a significant concern for landowners (Nicholas F. Bellantoni, personal communication, April 18, 2008.) While there has been no observed theft or removal of any of the stone walls on the property, BLT and GCLT should be aware of the potential threat. In addition, overgrowth of plants, especially non-native invasive plants, can over time undermine the integrity of the stone wall. Vegetation management activities could keep stone walls free of bushes and vines. There are no current management activities related to stone walls. The desired future condition is to preserve the current stone walls on the Pinchot Preserve and protect them from further degradation.

C. Recreational/Educational Activities

1. Boundaries

The boundaries have not been clearly posted. There are no signs of encroachment by any abutters.

2. Existing Trails

The existing trail system needs regular maintenance, including removal of downed debris and marking of trails. There is one section along the red/white trail shown in Figure 6 that passes through a wetland area. During seasonally wet times of year rutting and erosion have been observed.

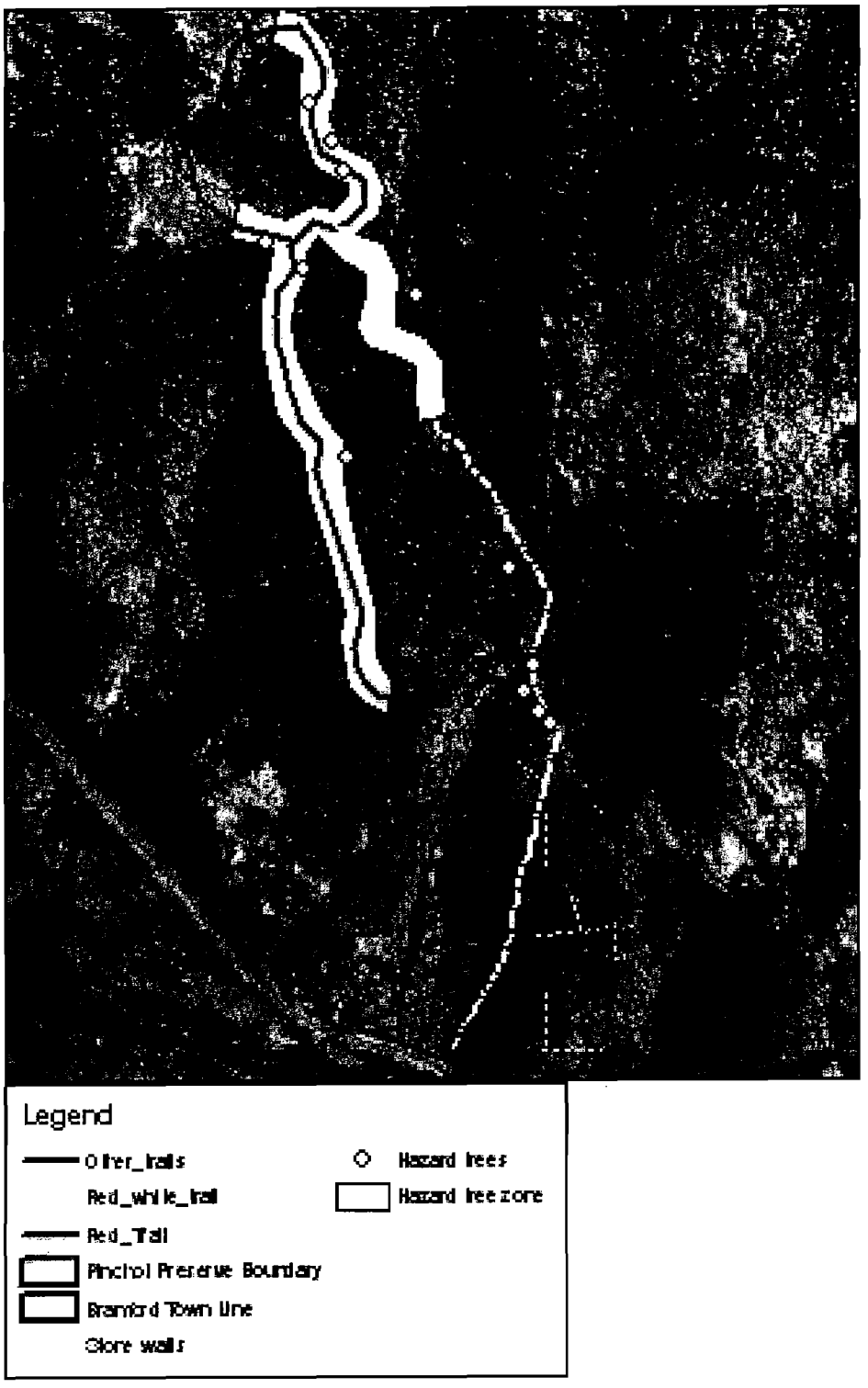
Dead hemlocks located close to trails, like this one, are a significant safety hazard for visitors

The Eastern hemlocks part of the mixed hardwood forest are dying from the hemlock wooly adelgid and are either snags or coarse woody debris. A number of the dead hemlocks occur within close proximity to existing trails and pose a safety hazard to recreationalists and other visitors and area thus a considerable liability to BLT and GLCT. The location of individual hazard trees is shown in Figure 7 along with a hazard tree zone where there are a number of dead trees within 50 feet of the trail. There are no current management activities but the desired condition is to have trails free of safety hazards and to protect hemlock snags and coarse woody debris for wildlife habitat and nutrient cycling.

3. Planned educational activities

The Pinchot Preserve has the potential to serve as an ambassador property to educate the general public about conservation, the importance of protected open space and support the BLT mission of "promoting community appreciation of Branford's diverse natural features." A nature walk with interpretive signs along the trail could help to teach visitors about the natural history of the property.

Figure 7. Location of hazard trees on the Pinchot Preserve



VI. MANAGEMENT RECOMMENDATIONS and PLANNED ACTIVITIES

Management recommendations are listed in Table 5, with recommendations specific to non-native invasive plant control listed separately in Table 6.

Table 5. Management Recommendations and Activities			
	Management Recommendation	Schedule	Priority
A. Natural Habitats/plants/wildlife			
Natural habitat/resource:			
Vernal pools	Consider moving the red trail to create a 150 foot buffer (Calhoun and deMaynadier, 2004) of no trails or disturbance surrounding vernal pool A		Low
Holley Pond	Hire a professional to inspect the dam, develop an Emergency Operation Plan and make repairs if needed		High
	Preserve steward monitors dam for structural integrity	1X/year and during and after high rain events	Medium
Forest and wetland habitats	Preserve steward and/or volunteers control non-native invasive species on the property and prevent their spread from areas on the boarder	See Table 6 for species and area-specific control recommendations	High
	Preserve steward and/or volunteers conduct non-native invasive plant species monitoring	1X/year, it is best done in early to mid-April before most other species have leafed out	High
B. Cultural Resources			
Stone walls			
	If future trails are needed minimize the number of cuts made through them.		

	Preserve steward monitors to make sure there is no theft, vandalism or overgrowth of vegetation.	1X/year	Medium
C. Recreational/Educational Uses			
Trails	Fell hazard trees and leave wood on the ground off the trail.	When needed	High
	Annual maintenance conducted by preserve steward		Medium
	Design a nature trail guide		Low

Table 6. Non-native invasive plant control recommendations				
Area	**Species present**	**Level of infestation**	**Control method[1]**	**Estimated time**
A	Japanese barberry	Medium	The use of a hoe, weed wrench, or mattock is suggested to uproot the entire bush and associated roots in May before it flowers. Gloves will help protect hands from the spines. The uprooted shrubs can be piled on higher ground out of the floodplain as cover for small animals. Plants growing in rock piles, which are difficult to dig out, can be treated with herbicide.	It would take 1 volunteer about 2-3 hours to remove manually Yearly for 5-10 years to eradicate
	Multiflora rose		Cutting or wetland-approved herbicide application before it flowers in May has proven to be an effective control method and either would be appropriate in this location.	
B	Japanese honeysuckle	Medium	Option A. Hand-pulling – limited effectiveness unless the entire plant (roots and shoots) is removed. Cut material can take root and should be placed in a black plastic bag and removed from the site. Option B. Spray with herbicide shortly after the first killing frost, and before the first hard frost (ca. -4.0oC). Contact Donna Ellis (donna.ellis@uconn.edu) with UConn Extension and the Invasive Plant Working Group for wetland-approved herbicidal control recommendations.	It would take 1 volunteer about 2-3 hours to remove manually Yearly for 5-10 years to eradicate
	Multiflora rose		Cutting or herbicide application has proven to be an effective control method and either would be appropriate in this location. Contact Donna Ellis (donna.ellis@uconn.edu) with	

			UConn Extension and the Invasive Plant Working Group for wetland-approved herbicidal control recommendations.	
C	Phragmites australis	Medium	Option A. Restore salt water tidal flows Option B. Mechanical cutting with a weed whacker and application of wetland-approved herbicide directly into the shoot. Contact Donna Ellis (donna.ellis@uconn.edu) with UConn Extension and the Invasive Plant Working Group for wetland-approved herbicidal control recommendations. See Appendix F for detailed information.	It would take 5 volunteers about 8 hours to cut and treat the entire perimeter of the salt marsh. Yearly for 5-10 years to eradicate.
D	Multiflora rose	Medium	Cutting or wetland-approved herbicide application has proven to be an effective control method and either would be appropriate in this location.	It would take 1 volunteer about 8 hours to cut and treat this area. Yearly for 5-10 years to eradicate.
E	Japanese barberry	Medium	The use of a hoe, weed wrench, or mattock is suggested to uproot the entire bush and associated roots. Gloves will help protect hands from the spines. The uprooted shrubs can be piled on the stone wall as cover for small animals. Plants growing in rock piles, which are difficult to dig out, can be treated with herbicide. Contact Donna Ellis (donna.ellis@uconn.edu) with UConn Extension and the Invasive Plant Working Group for wetland-approved herbicidal control recommendations.	It would take 1 volunteer about 8 hours to cut and treat this area. Yearly for 5-10 years to eradicate.
F	Japanese	Medium	The use of a hoe, weed wrench,	It would take

	barberry		or mattock is suggested to uproot the entire bush and associated roots; gloves will help protect hands from the spines. The uprooted shrubs can be piled as cover for small animals. Plants growing in rock piles, which are difficult to dig out, can be treated with herbicide.	1 volunteer about an hour to remove plants. Yearly for 5-10 years to eradicate.
	Multiflora rose		Cutting or herbicide application has proven to be an effective control method and either would be appropriate in this location.	
	Japanese honeysuckle		Option A. Hand-pulling – limited effectiveness unless the entire plant (roots and shoots) is removed. Cut material can take root and should be placed in a black plastic bag and removed from the site. Option B. Spray with herbicide shortly after the first killing frost, and before the first hard frost (ca. -4.0oC). Contact Donna Ellis (donna.ellis@uconn.edu) with UConn Extension and the Invasive Plant Working Group for control recommendations.	
G	Japanese barberry	High	It is most likely illegal to remove plants on public property therefore monitoring the boundary between the railroad property and the Pinchot Preserve will prevent encroachment. Any plants discovered north of the boundary (stone wall) should be immediately pulled, bagged and removed.	Annual monitoring
	Multiflora rose			
	Japanese honeysuckle			
	Bush honeysuckle			
H & I	Japanese barberry	High	The use of a hoe, weed wrench, or mattock is suggested to uproot the entire bush and associated roots; gloves will	

			help protect hands from the spines. The uprooted shrubs can be piled as cover for small animals. Plants growing in rock piles, which are difficult to dig out, can be treated with herbicide.	
	Multiflora rose		Annual mowing has been effective at controlling Multiflora rose in the fields. Plants are still growing around rocks, stone pilings and trees where the mower is unable to reach. A weed whacker should be used to control plants in these areas.	
	Japanese honeysuckle		Option A. Hand-pulling – limited effectiveness unless the entire plant (roots and shoots) is removed. Cut material can take root and should be placed in a black plastic bag and removed from the site. Option B. Spray with herbicide shortly after the first killing frost, and before the first hard frost (ca. -4.0oC). Contact Donna Ellis (donna.ellis@uconn.edu) with UConn Extension and the Invasive Plant Working Group for control recommendations.	
	Wineberry		Contact Donna Ellis (donna.ellis@uconn.edu) with UConn Extension and the Invasive Plant Working Group for control recommendations.	
	Oriental bittersweet		Regular, weekly mowing or cutting will exclude oriental bittersweet. However, less frequent mowing, eg. 2-3 mowings per year, stimulates rootsuckering. Herbicide application may be necessary if plants do not respond to cutting.	
	Autumn olive		Because it resprouts following	

			cutting or burning the best method is to cut the plant off at the main stem and paint herbicide on the stump. Contact Donna Ellis (donna.ellis@uconn.edu) with UConn Extension and the Invasive Plant Working Group for control recommendations	
	1 – Information on control methods for each species were obtained from The Nature Conservancy's Element Stewardship Abstracts.			

VII. IMPLEMENTATION SCHEDULE AND FUNDING

A. Current ongoing activities

ACTION	WHO	WHEN (initiation and completion dates)	RESOURCES	EVALUTION/ MONITORING
Trail maintenance	Land steward	Year round	Saw Clippers	Annual by land steward

B. Recommended activities

ACTION	WHO	WHEN	RESOURCES	PRIORITY	EVALUTION/ MONITORING
Hazard tree removal	Chainsaw certified volunteer	May 2008	Chainsaw	High	Annual by land steward
Dam inspection & registration	Volunteer land trust member/ professional			High	Annual by land steward
Non-native invasive species control	Volunteers	April-June	Clippers, saws, weed whacker Herbicide Black trash bags Gloves	High	Annual by land steward and volunteers
Trail maintenance	Land steward	Year round	Saw Clippers	Medium	Annual by land steward
Ask opinion of biologist about whether the red trail is too close to vernal pool A.	Volunteer or professional	Spring		Medium	
Boardwalk construction in wet trail area	Volunteers	June-August	Untreated lumber Tools	Medium	Annual by land steward
Boundary marking	Volunteer/ professional		Survey map, compass Hand ax and paint	Low	Annual by land steward

VII. LITERATURE CITED

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