

# **Schor Conservation Area**

## **Ecological Description**

prepared for  
**Columbia Land Conservancy**



*Pale Corydalis flower near overlook*

by  
**Farmscape Ecology Program**  
January 2009

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Hawthorne Valley Farm  
327 Route 21C  
Ghent NY 12075  
fep@hawthornevalleyfarm.org

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## EXECUTIVE SUMMARY

The Schor Conservation Area (233 acres) includes upland forest, actively grazed pastures, old fields, shrubland, red cedar woodland, a large permanent pond (“Jon’s Pond”), eight smaller permanent ponds, several vernal pools, small areas of swamp forest, a small wet meadow, a small permanent stream and some intermittent streams, some seepy areas, and significant rocky crest/ledge/talus areas on the western and northern slope of “Overlook Hill” (see Habitat Map). Most, if not all, of the area was historically cleared for agriculture (probably by the mid 19<sup>th</sup> century) and the north-eastern part has since reforested. The youngest forests are located north and east of the driveway and south of “Jon’s Pond” and are dominated by sugar maple sometimes joined by red oak. Other parts of the forest have a mix of white pine and deciduous trees, or are hemlock-dominated.

The preliminary plant list for the Conservation area (see Appendix) includes more than 200 species, of which 168 are native. We found 21 native tree species, 25 native shrubs, 3 vines, and 118 native herbaceous plant species, including 15 types of ferns and clubmosses and 22 species of sedges. The regionally rare (according to Hudsonia’s Biodiversity Assessment Manual, Kiviat & Stevens 2001) ostrich fern grows in a small wet meadow at the southern boundary near the old town road. The regionally uncommon ragged-fringed orchid grows in the parkland above the shelter on the shore of “Jon’s Pond”. Several plant species listed by NY state as exploitably vulnerable occur in the Conservation Area; these include all clubmosses, most ferns (except bracken and hay-scented fern), the already mentioned ragged-fringed orchid, trailing arbutus (found in the hemlock forest of “Overlook Hill”), as well as turtlehead, winterberry, and rosebud azalea (found in the swamp forests). A few invasive plant species also occur throughout the Conservation Area (see Appendix). Due to the mostly acidic and dry soils in the forest, the spring flower display at the Conservation Area seems poor in numbers and diversity compared to nearby areas of deeper, calcium-rich soil (e.g., No-Bottom-Pond in Beebe Hill State Forest, parts of “The Kingdom” and Hand Hollow Public Conservation Area).

The most interesting finds during a day-long bird survey included bobolinks breeding on the meadows, Eastern bluebirds frequenting the nest boxes along the fence rows, and a set of forest species typical of larger, higher forest tracts (i.e., Blackburnian warbler, black-throated blue warbler, black-throated green warbler, and hermit thrush). Their presence speaks for the possibility that, at least for some mobile forest-interior animals, the Schor Conservation Area forms the north-western part of a large forest complex around Beebe Hill State Forest, “The Kingdom”, and Harvey Mountain.

The amount of salamander (Spotted and, possibly, Jefferson Salamanders) and wood frog eggs in the few vernal pools and in some of the small permanent ponds in the meadows was encouraging. Evidently, these terrestrial amphibians who spend their adult life in the forest, find suitable habitat in the Conservation Area. The limiting factor for their populations might be the lack of suitable water bodies where their eggs and larvae are sheltered from predation by fish and other amphibians (e.g., bullfrog, red-spotted newt).

## INTRODUCTION

The Schor Conservation Area is located in Red Rock, in the south-western corner of the Town of Canaan. Its 233 acres include upland forest, actively grazed pastures, old fields, shrubland, red cedar woodland, a large permanent pond (“Jon’s Pond”), eight smaller permanent ponds, several vernal pools, small areas of swamp forest, a small wet meadow, a small permanent stream and some intermittent streams, some seepy areas, and significant rocky crest/ledge/talus areas on the western and northern slope of “Overlook Hill”. It also encompasses two residences and a barn/workshop area. The habitat map shows the locations of these habitats within the Conservation Area. The delineations of habitats on this map are mostly based on features visible in the 2004 aerial photo, combined with geo-referenced field observations. We might not have located every single vernal pool, intermittent stream and seep present in the Conservation Area. Nevertheless, the habitat map gives a good representation of its main ecological features. The Schor Conservation Area is typical of the mosaic of actively managed fields, old fields, and secondary forests that characterize the surrounding landscape. Forest-interior animals might be limited by the vicinity of houses, roads, and driveways located adjacent to the western and eastern boundaries. A less fragmented forest corridor extends somewhat to the north-east (crossed by New Concord Road within 500 m) to I-90 which runs within 1000 and 1700 m from the northern boundary and is probably an impassable barrier for most terrestrial wildlife. Possibly the highest connectivity to a larger forested area is towards the south, where a forested corridor (crossed only by the Red Rock Road within 1000 m) leads to Beebe Hill State Forest, and adjacent forested areas of the “Kingdom” and Harvey Mountain.

The surficial geology of the Conservation Area is formed primarily by glacial till, the bedrock is mostly Austerlitz Phyllite and Rensselaer Graywacke (NYS Geological Survey Web Sites) derived from the Taconics and is exposed in impressive crests and ledges in the south-eastern part of the Area. The soils are mostly acid, stony, channery silt loams, which are not well suited for agriculture because of slope, stoniness, droughtiness, or seasonal wetness. An exception is the deep silt loam of the lower part of the western pasture along Cemetery Road, which is classified as prime farmland (if adequately drained) (Columbia County Soil Survey, Case 1989).

On the historical aerial photograph from 1948, the current pastures in the Conservation Area are already well established. Additional open areas have since turned into shrubland and red cedar woodland. The now-forested areas east of the old town road were still shrubby oldfields in 1948. The larger part of the eastern half of the Conservation Area appears to have forest cover in the 1948 aerial photo. However, the relatively young trees and the remnants of stone walls present even on the northeastern slope lead us to assume that most, if not all, of the Conservation Area had been cleared of its forest cover (presumably for sheep pasture in the early 1800’s) and had obviously been left to regenerate long before 1948. Possibly, some of the hemlock forest on the steep west slope of “Overlook Hill” and areas around the rocky crest of that hill might never have been completely clear-cut.

This ecological description of the Schor Conservation Area is based on field surveys conducted during 2008 for breeding amphibians in permanent ponds and vernal pools (April 14/15), spring ephemerals (May 16), grassland and forest birds (July 4), forest vegetation (July 4 and Sept. 19), and meadow vegetation (Sept. 19). We also include observations from inventories of plants, amphibians, and dragonflies conducted in 2006 in and around “Jon’s Pond” as part of a study of the ponds of Columbia County. The appendix provides the scientific names for all plants mentioned in the text.

## **FIELD OBSERVATIONS**

### **Amphibians**

During our spring survey for breeding vernal-pool amphibians, we found no eggs in “Jon’s Pond” (Pond 1). From the observation of adult frogs and their tadpoles, we know that at least bullfrogs and green frogs live and breed in this pond. These two common species were also the only ones documented at “Jon’s Pond” during frog call surveys in 2006. Predation of amphibian eggs by stocked fish (bass!) is probably very high in this pond. In our study of ponds throughout Columbia County, we have documented the importance of ample aquatic and emergent vegetation for a rich amphibian life in a pond, especially if the pond has predatory fish. In order to boost amphibian diversity and abundance, we recommend to leave longer stretches of shoreline un-mowed and to allow more emergent vegetation to develop as shelter for amphibians.

Spring peepers were calling from the little pond fed by the effluent from “Jon’s Pond” and located on the southern property line (Pond 2). We found approximately 35 egg clusters of spotted or Jefferson salamanders\* in this pond, but no sign of wood frogs.

Across the old town road and up the hill through an old field is a small pond, quite grown-in with cattails and hopping with amphibians (Pond 3). Spring peepers were calling, and we found approx. 20 egg clusters of spotted or Jefferson salamanders\* and approx. 50 egg masses of wood frogs. Red-spotted newts also populate this pond and a painted turtle was observed during our April visit.

The remaining permanent ponds we located on the Conservation Area were all pasture ponds in the western pasture (Pond 4 to 9). The most interesting find was the high variability between these ponds in respect to their amphibian life. Pond 4 (nearest to driveway) had a high number of wood frog egg clusters (> 50 clusters were concentrated along the northern shore), and we saw one red-spotted newt. Pond 5 had a large number of either green or bullfrog tadpoles, but no egg clusters. Pond 6, which receives run-off from Cemetery Road, was covered with a layer of floating algae and had no sign of any

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\* The egg clusters of spotted and Jefferson salamanders tend to differ slightly in size and location. The majority of clusters that we saw in the Conservation Area appeared to be of spotted salamanders. However, there is overlap in characteristics and Jefferson salamanders do occur in similar habitat elsewhere in the County.

amphibian eggs. Pond 7 was visited by a pair of mallards and a goose during the time of the survey. We found two salamander egg clusters in water that had been left very turbid by the fowl. Pond 8 had a seepy shore, was very grown-in with cattails, and did not seem to be visited by cattle very often. Although much of its water surface was not visible during this survey, we nevertheless counted approx. 100 wood frog and approx. 15 salamander egg clusters. Pond 9, which must have been constructed recently, because it is not visible on the 2004 aerial photo, had a dense aquatic vegetation and on the order of 100 wood frog egg masses.

An area north of “Jon’s Pond” had several small vernal pools that had formed in tire ruts and in the root cavity of an uprooted tree. During our visit in April, every little puddle of water in the forest had egg clusters of wood frog and/or salamanders and several of the tire ruts were too shallow to hold water long enough to allow for a successful development of eggs and larvae. It is very likely that the pools in the swamp forests (Swamp Forest 1 and 2) also provide breeding opportunities for these vernal pool amphibians, however we did not locate the swamp forests in time for our spring amphibian egg survey. We recommend to either fill in the tire ruts (to avoid them becoming an ecological sink) or to create some slightly deeper pools in that area to increase the likelihood of successful reproduction for the wood frogs and salamanders.

Throughout the year, we found two-lined salamanders in the ditch along the old town road below “Jon’s Pond” and in the intermittent stream draining “Jon’s Pond”. A dusky salamander (Photo 10) was found in the permanent stream seeping out from under the dam of “Jon’s Pond” and in the intermittent stream draining Swamp Forest 2. Dusky salamanders are considered to be “declining and vulnerable” in the Hudson Valley (Kiviat and Stevens 2001). Red efts, which are the terrestrial juveniles of the aquatic red-spotted newt, were occasionally found along the trails and in the upland forest. They are most easily spotted on a rainy day, when they become active and move about. The most common salamander in the Conservation Area is the red-backed salamander (Photo 9) which can be found under rocks and logs throughout the upland forest, but also in seeps and along the edge of swamps. American toads were common throughout the forest, and one big one was even found right at the outlook. One woodfrog was seen in the forest.

Vernal pool amphibians are generally recognized as being among our rarer amphibians. They have evolved to reproduce in temporary pools. The seasonal nature of such waters forces these species to develop from aquatic egg, through larvae, to terrestrial adult quite quickly so that they can be done before the pools dry up. The benefit of such a natural history is that it allows these species to avoid predation by fish and those other amphibians (e.g., red-spotted newts, bullfrogs) who live only in permanent water. Wood frogs and spotted salamanders are our most common vernal pool amphibians. It was nice to see so much evidence of these species in and around the Schor Conservation Area. Their main requirements are ponds with decent water quality and no fish located relatively close (within about 1000’) to forest. Periodic cattle access does not seem to be problematic, but if ponds are to be used for watering, we recommend that, if possible, shoreline access to the pond be limited by fencing; this helps preserve shoreline vegetation.

Vernal pools should be thoroughly mapped. We are not sure if we identified all such areas on the property. Any trail construction or other development should carefully avoid such areas. Fish stocking should not occur in any of the permanent ponds currently known to have vernal pool amphibian eggs, and surrounding land use should avoid extensive applications of agro-chemicals.

### Spring ephemerals

The spring flora at the Schor Conservation Area does not compare with the spectacular showing of spring flowers at places like Hand Hollow or the nearby “Kingdom” and “No-Bottom-Pond”. It is much more modest in density and diversity and is typical of secondary forests on acidic and shallow soils: a sparse showing of starflower, Canada mayflower, wild sarsaparilla, and Pennsylvania sedge. On somewhat richer, moister soils at the bottom of slopes (for example along the western base of “Outlook Hill”), we found some broad-leaved toothwort, wild geranium, violets, and Jack-in-the-Pulpit. Around the rocky crests and ledges of the outlook, one can find an occasional columbine (Photo 5), hepatica, and wood-violet (*Viola palmata*), potentially indicating small pockets of calcium-rich soil. All plants observed during the spring survey are included in the plant list in the appendix.

### Birds

The following table lists the birds documented in the different habitat types of the Conservation Area on July 4, 2008.

	Habitat								
						Forest Type			
	pastures	field edges	old field	shrubland	Hemlock	Mixed	Oak-Maple	Pine	
American robin							x		
Baltimore oriole							x		
Blackburnian warbler					x				
Black-throated blue warbler					x		x		
Black-throated green warbler					x				
Blue-headed vireo							x		
Bobolink	x		x						
Brown thrasher							x		
Catbird		x		x					
Chickadee		x			x	x	x		
Chipping sparrow							x		
Common yellowthroat		x		x			x		
Crow	x				x		x	x	

	Habitat								
	Forest Type								
	pastures	field edges	old field	shrubland	Hemlock	Mixed	Oak-Maple	Pine	
Downy woodpecker		x							
Eastern bluebird	x								
Eastern towhee		x							
Field sparrow	x	x							
Goldfinch	x			x					
Hermit thrush					x				
Kingbird	x								
Mourning dove		x							
Ovenbird						x	x	x	
Pewee		x				x	x		
Phoebe		x							
Red-eyed vireo					x	x	x	x	
Red-winged blackbird	x		x	x					
Rose-breasted grosbeak				x			x		
Savannah sparrow	x								
Scarlet tanager							x		
Song sparrow		x		x			x		
Tufted titmouse								x	
Tree swallow	x		x						
Veery				x			x	x	
White-breasted nuthatch					x		x		
Woodtrush						x	x	x	

Walking through the meadows we found the common grassland birds: bobolinks (see Photo 3 for a fledgling), savannah sparrows, red-winged blackbirds and the occasional phoebe. Along the field edges, we saw song sparrows, yellowthroats and field sparrows. Bluebirds utilized those boxes (Photo 2) unoccupied by the tree swallows. These birds lined the telephone wires in numbers of 40 or so if they weren't swooping around the various ponds to feed.

The bird community changes in the forest. At the lower elevation sounds of the wood thrush, red-eyed vireo, veery, and ovenbird most commonly resonate. An occasional rose-breasted grosbeak or Baltimore oriole may pop out to see who is there while chickadees and crows sound off at various intervals. Individually, a scarlet tanager, white-breasted nuthatch, or a wood pewee may call out but not as frequently as the others. Listening even closer, one can hear the blue-headed vireo singing slowly and

softly unlike its relative, the red-eyed vireo, who is also present. Walking further up one begins to hear the zee-zee-zoo-zoo-zee of the black-throated green warbler and eventually its friend, the black-throated blue warbler who frequents the higher altitudes. And as you approach the hemlock grove by the overlook, the Blackburnian warbler sits at the treetops throwing out his song while showing off his blazing orange throat.

Bobolink will only survive on lands where tall grass persists through the nesting season. This means that meadows should not be cut until after the first week of July. Extensive grazing that leaves ample long grass during the nesting season is also compatible with bobolinks, although intensive grazing is not. None of the forest birds observed in the Schor Conservation Area are exceedingly rare, however taken as a whole they indicate a boreal “taste” to the avifauna. Maintaining a reasonably large forest block not only in the Schor Conservation Area but on the surrounding land will probably help these species persist.

### **Forest Vegetation**

The eastern half of the Schor Conservation Area is covered by forest of variable composition. The habitat map depicts our preliminary attempt to delineate forest types based on their tree composition and herbaceous vegetation. We distinguished Oak-Maple Forest, Mixed Forest, Sugar Maple Forest, Hemlock Forest, Pine Forest, and Swamp Forest.

The most common canopy trees in the **Oak-Maple Forest** are red oak, sugar maple, red maple, white ash, with occasional white pine, white birch, black birch, hemlock, black cherry, and hickories. Common understory trees are hop-hornbeam, striped maple, choke cherry, and serviceberry. The shrub and herb layers are typically sparse, except in clearings and along the wider trails, where omnipresent weedy species tend to dominate the lower layers. Under the closed canopy, one finds an occasional beaked hazel and maple-leaved viburnum, the most common herbs are starflower and Canada mayflower.

The **Mixed Pine Forest** is distinguished from the similar Oak-Maple Forest by the high density of white pine trees and less red oak in the canopy. Wild sarsaparilla, Solomon’s seal and marginal woodfern join Canada mayflower and starflower in the understory. Both these forest types seem to occur on thin, rocky, acid soils and are similar to, but do not fit exactly the Appalachian Oak-Hickory Forest and Appalachian Oak-Pine Forest communities as described by Edinger et al. (2002). We do not know whether the differences are due to regional variation or reflect the successional nature of the forests at the Schor Conservation Area.

The highest density of white and red pine was found in the area we classified as **Pine Forest**, where many of the above listed species also occurred in lower numbers. The **Hemlock Forest** on the western and northern slope of “Outlook Hill” is characterized by a high density of hemlock in the canopy. Co-dominant are sugar maple, red maple, and red oak, with occasional white oak, white pine, black birch and chestnut oak. Striped maple is the most common understory tree. Blueberries and rosebud azaleas occur in the

shrub layer. Starflower, Canada mayflower, and wild sarsaparilla are joined by wintergreen, trailing arbutus and shining clubmoss in the herb layer. This forest type fits quite well into the category of Hemlock-Northern Hardwood Forest described by Edinger et al. (2002).

The **Sugar Maple Forest** at the western base of “Outlook Hill” and in the valley below “Jon’s Pond” seems to be located on somewhat richer, moister soils and is characterized by a very high density of sugar maple and comparatively few red oak in the canopy. Basswood joins the set of already familiar tree species (red maple, black cherry, shagbark hickory, white pine, white oak, and white ash) mixing with sugar maple in the canopy of this more mesic forest. In the understory, American hornbeam replaces the hop-hornbeam which is common in the other forest types. The most marked difference from the other forest types of the Conservation Area is in the herb layer. In the spring, trout lily and broad-leaved toothwort can be found here. In the summer, spotted jewelweed, clearweed and white snakeroot are common, as is the invasive garlic mustard. However, the community of spring ephemerals is not diverse enough to make this forest a typical example of a Maple-Basswood Rich Mesic forest as described by Edinger et al. (2002).

We found two small **Swamp Forests** in the Conservation Area. The ecologically most interesting (Swamp Forest 1) is located east of the green trail, north of its junction with the red trail. It is the only place in the Schor Conservation Area where we found peat moss, highbush blueberry, royal fern, buttonbush (Photo 8), and a fruiting rosebud azalea. Other than providing a unique floristic microhabitat, the swamp most likely also serves as a breeding area for wood frogs and mole salamanders (spotted and Jefferson salamander). Four-toed salamanders might also occur here. Swamp Forest 2 is a tiny red-maple swamp with typical swamp vegetation composed of red maple, white pine, black birch, cinnamon and sensitive fern, winterberry, nannyberry, sedges and wetland grasses, jewelweed, turtlehead, and other common wetland plants. It probably also serves as an amphibian breeding area.

The rocky outcrops, or “**Crest/Ledge/Talus**” habitat of “Outlook Hill” represent another unique habitat within the Conservation Area. The rocks are covered with two types of lichens, the smooth rock tripe (probably *Umbellicaria mammulata*) and the common toadskin (*Lasallia papulosa*). The tree community around the outlook is very diverse and composed of white pine, hop-hornbeam, red oak, chestnut oak, white oak, red maple, and black birch. We found three individuals of the uncommon pale corydalis (Photo 6 and photo on cover of this report) flowering right around the outlook. On and around the rocks, we also found a few columbines, hepatica, wood violets, and a few fragile ferns (Photo 7). Common up here is Pennsylvania sedge, which forms the “lawn” in the park-like area south-east of the outlook. Several native grasses (including poverty oat-grass and hairgrass) also find their home in this light-filled, thin-soiled environment.

A list of all plants observed during the forest surveys is found in the appendix, which also indicates their distribution across the different habitats.

## **Meadow vegetation**

The plant community on the meadow near the barns (Old Field 1) was dominated by non-native species typical of old hayfields, such as bedstraw, cow vetch, thyme, spotted and brown knapweed, smooth brome, timothy, and orchard grass, but also had some native goldenrods (great resource for many insects!) and some common milkweed, which is famous as a food plant for the monarch caterpillars. No rare or unusual plants were found in this meadow. A different old field community covers the thin soil of the slopes of the adjacent little hill (Old Field 2), where the nutrient and moisture-demanding non-native grassland species get significant competition from native plants. The less common silver rod and grey goldenrod mix with wrinkle-leaved and grass-leaved goldenrod, awl aster, blueberries, and steplebush to form a plant community rich in native species. Old Field 3 is an example of a meadow at a later stage in the natural succession. Significant amounts of shrubby plants (mostly grey dogwood and hawthorn) mix with a variety of grasses and wildflowers, including many native goldenrods (Canada, wrinkle-leaved, grass-leaved, early goldenrod, silverrod) and asters (New England, smooth, and calico aster).

The little wet meadow around Pond 2 is composed of common wetland plants, such as purple-stem aster, Joe-Pye-weed, smooth goldenrod, rice cutgrass, woolgrass, sensitive fern, cinnamon fern and interrupted fern, but also has some of the regionally rare ostrich fern. The small areas around the ponds which are not accessible to the cattle are the only places in the Conservation Area where these native wet meadow plants thrive. An interesting find was a ragged-fringed orchid blooming in the park land maintained near the shelter on the shore of “Jon’s Pond”. According to CLC public conservation area manager Joyce Carroll, there might be a few more spots in the forest where this species occurs in small numbers. Although not listed as rare in the state, this is certainly one of the less common plant species in Columbia County and it is listed as “exploitably vulnerable”. It must not be confused with another orchid found here and there throughout the forest of the Conservation Area, which is the non-native helleborine.

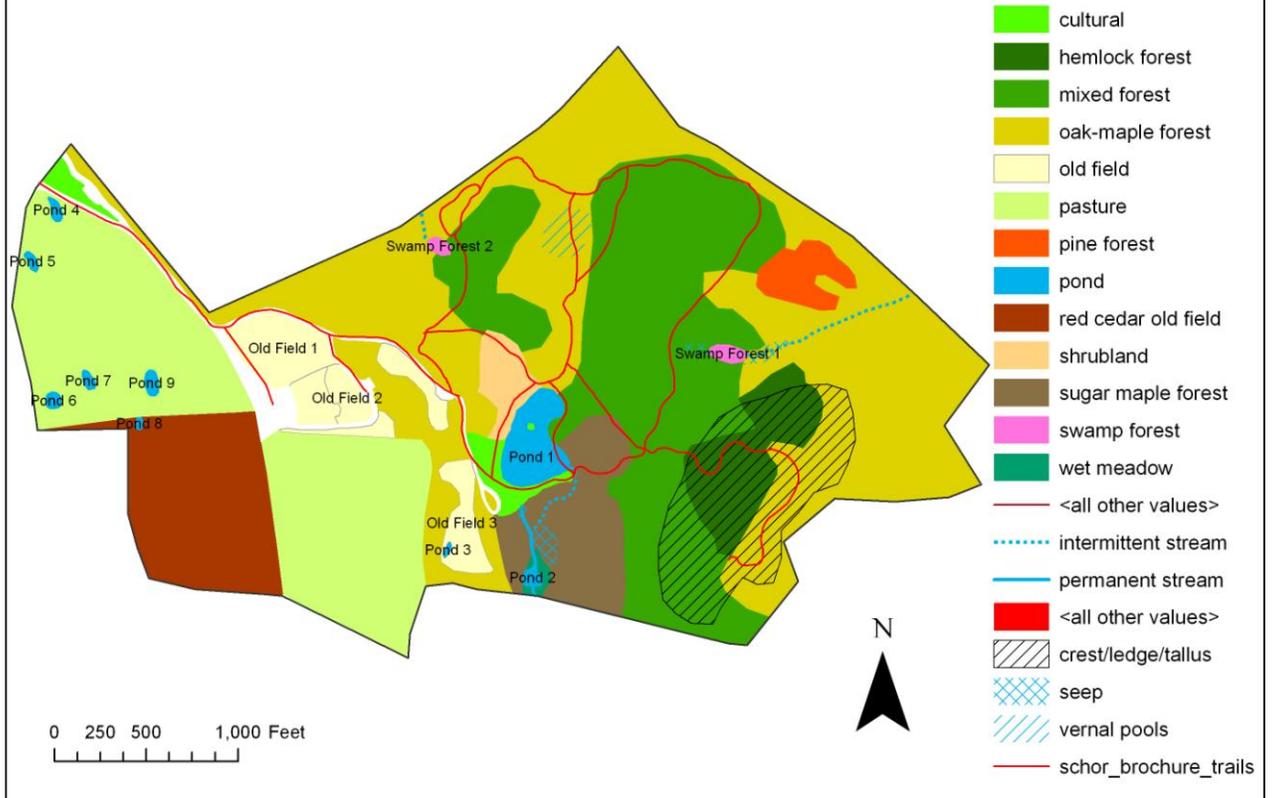
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## Map: Habitat Types at the Schor Conservation Area (Farmscape Ecology Program 2009)



Photos: Schor Conservation Area 2008



*Photo 1: Pasture where bobolinks were nesting*



*Photo 2: Eastern Bluebird on nestbox*



*Photo 3: Bobolink fledgling on July 4*

Photos: Schor Conservation Area 2008



*Photo 4: Forest near overlook. Note stonewall indicative of historical agricultural use.*



*Photo 5: Columbine flower near overlook*



*Photo 6: Pale Corydalis flower at overlook*



*Photo 7: Rock-loving fern (probably a young Fragile Fern) and lichens (incl. Smooth Rock Tripe) on rocks near overlook*

Photos: Schor Conservation Area 2008



*Photo 8: Buttonbush in swamp forest*



*Photo 9: an exceptionally brightly colored Red-backed Salamander found in swamp forest*



*Photo 10: Dusky Salamander found in creek below "Jon's Pond"*



