

# **Round Ball Conservation Area**

## **Preliminary Ecological Description**

prepared for

**Columbia Land Conservancy**

November 2009

by

Farmscape Ecology Program

Hawthorne Valley Farm

327 Route 21C

Ghent NY 12075

[fep@hawthornevalleyfarm.org](mailto:fep@hawthornevalleyfarm.org)



## **CONTENTS:**

INTRODUCTION

GEOLOGY and SOILS

LAND USE HISTORY

METHODOLOGY for FIELD OBSERVATIONS and HABITAT MAPPING

HABITAT TYPES

- Oak-Hickory Forest

- Non-Carbonate Crest, Ledge, and Talus

- Mature Early-Successional Forest

- Mature Creek-Side Forest

- Mesic Hardwood Forest

- Carbonate Crest, Ledge, and Talus

LITERATURE CITED

MAP 1: Aerial Photo of the Round Ball Public Conservation Area

MAP 2: Round Ball Public Conservation Area as part of a forest corridor

MAP 3: Soil Map of the Round Ball Public Conservation Area

MAP 4: Historical Aerial Photograph (1942) of Round Ball

MAP 5: Habitat Map of the Round Ball Public Conservation Area

APPENDIX (4 pages): Preliminary List of Plants of the Round Ball Public Conservation Area

## INTRODUCTION

The Round Ball Public Conservation Area is located in Ancram, in the extreme south-eastern corner of Columbia County. It comprises slightly more than 100 acres of deciduous upland forest covering a hill and its plateau at 1318 ft elevation (Map 1), and is part of a forested corridor (Map 2) which parallels Route 22 on the west and continues into Dutchess County. The Conservation Area contains two un-named woodland streams, flowing east along the northern and southern boundary, both draining into the calcareous wetland that forms the source of Webatuck Creek (part of the Connecticut River watershed). This wetland and adjacent uplands, including the northern and eastern part of Round Ball Public Conservation Area (delineated with a pink line on Map 3) have been identified by the New York Natural Heritage Program as an important conservation area for the federally endangered Bog Turtle.

The eastern boundary of the Conservation Area lies just below the 1000 ft contour line in a forested slope, abutting open farmland at its south-eastern tip. The western boundary stays above 1100 ft in elevation, abuts an extensive area of open farmland in the north and follows a flat, gently descending, forested valley to Carson Road. There is one residence located within the Conservation Area, accessible by dirt road from Carson Road. From this dirt road, a trail leads around the perimeter of the Conservation Area with a spur to the edge of the northern woodland stream and a loop around the plateau (Map 1, light green). A driveway to an abandoned building site is still clearly discernable in the southern part of the Area, but has not been included in the trail system.

Compared to other Public Conservation Areas in Columbia County, the habitats provided by the deciduous upland forest of Round Ball for native plants and animals seem relatively homogeneous. This Area contains neither ponds, vernal pools, seeps, or other wetlands (except for the two creeks), nor any significant openland. However, there is some variation in the forest structure and composition due to variation in slope, soil depth, and rock content, as well as land use history, which translates into forest patches of different habitat quality.

## **GEOLOGY and SOILS**

The bedrock in the area of Round Ball is composed of carbonate rocks (Walloomsac Formation, USGS), while the surficial geology in the Conservation Area is mostly glacial till of variable composition, depth and texture, with a band of glacial outwash sand and gravel along the eastern border. The predominant soil has been classified by the Soil Survey of Columbia County (Case 1989) as Nassau channery silt loam (NbE on Map 3), which is characterized as acid, rocky, excessively drained, thin soil of little agricultural and limited forestry potential. This soil underlays more than half of the Conservation Area, including the plateau, all of the eastern slope and the upper southern, western and northern slopes. Judging from the absence of calcareous indicator plants, the boulders and rocky outcrops on the steep, upper southern and eastern slopes seem to be composed of non-calcareous rocks. Along the creeks in the north and south, the soils are classified as deeper silt loams (Stockbridge and Bernardston; StE and BeE on Map 3), which are considered too steep for agricultural use, but have significantly better growing conditions for trees. We located a few calcareous boulders in the bed of the northern creek and found small calcareous outcrops in the south-eastern corner of the Conservation Area. Both creek beds and adjacent uplands provide habitat to a variety of calcium-loving herbaceous plants. A patch of somewhat flatter Bernardston silt loam (BeC on Map 3) is located in the north-western corner of the Conservation Area. Just south of it, along the western boundary, is a small patch of a soil type classified as prime farmland (Pittstown silt loam; PtB on Map 3). The steeper area south of the prime farmland has also been classified as Pittstown silt loam (PtC on Map 3).

## **LAND USE HISTORY**

The earliest aerial photo available for the Conservation Area (1942) gives a glimpse into its land-use history (Map 4). At that time, the majority of the Area was covered in closed-canopy, deciduous forest. It is very likely that this has not always have been so. We assume that at least the plateau and the gentler slopes had been cleared for sheep pasture in the first half of the 19<sup>th</sup> century. However, by 1942, a secondary forest had covered

most of the Area. There were two exceptions: a clearing roughly coinciding with the silt loams (BeC and PtB; Map 3) in the north-western corner and a clearing on silt loam (BeE; Map 3) in the south-eastern corner seemed to have been abandoned to reforestation only a few years before this historical aerial photo had been taken. They still show sparse tree cover with extensive grassy areas between the trees on the 1942 aerial photo (Map 4).

## **METHODOLOGY of FIELD OBSERVATIONS and HABITAT MAPPING**

This ecological description of the Round Ball Conservation Area is based on four field visits (4 May 2008; 5 May, 27 June, and 10 Sept. 2009). It describes habitat types mostly as reflected in the observable plant communities. The field reconnaissance was conducted by walking the trails as well as the areas between trails to become familiar with the entire Conservation Area. We noted our observations “on the go” and referenced them with GPS coordinates. With the exception of a focused search for stream salamanders on the September visit, we did not conduct any fauna surveys, but report our anecdotal observations of birds and amphibians. The appendix provides the scientific names for all plants mentioned in the text.

The habitat map (Map 5) shows the approximate locations of different habitat types within the Conservation Area. The delineations on this map are based on features visible in the 2004 black & white aerial photo, combined with geo-referenced field observations.

## **HABITAT TYPES**

### **Mature Oak-Hickory Forest**

This habitat type, which develops on thin, acid soils, is the most prevalent in the Round Ball Conservation Area and coincides largely with the area mapped as Nassau channery silt loam by the soil survey. However, the Oak-Hickory Forest typical of the slopes of Round Ball also extends down the northern slope almost to the creek into the area mapped as Stockbridge silt loam, which is a deeper, less acid to neutral soil.

The canopy of this habitat type is dominated throughout by oaks of the red-oak group, accompanied by White Oak, Chestnut Oak, Pignut Hickory, Black Birch, and Red Maple. We noted a single stand of Big-tooth Aspen and found White Birch scattered in small numbers throughout this habitat. The Mature Oak-Hickory Forest is characterized by the absence or very small number of Ash, Wild Cherry, Sugar Maple, Yellow Birch, Hemlock, White Pine and Beech.

The understory is composed of Shadbush, Witchhazel, Ironwood, Striped Maple, and occasional stump sprouts of American Chestnut.

The shrub layer is dominated by ericaceous species, such as Lowbush Blueberry, Squawberry, Black Huckleberry, and Pinkster-flower. The latter occurs quite commonly throughout this habitat, but hardly ever seems to exceed a foot in height and we have only been able to locate a single reproductive individual. Pinkster-flower appears to be browsed preferentially by deer and its population seems to be suppressed by high deer densities throughout the county. Maple-leaved Viburnum occurs throughout this habitat and occasionally, one sees a Red Elderberry or a Bush-honeysuckle.

The herbaceous layer in this habitat is generally quite sparse, and markedly poor in spring ephemerals. Wild Sarsaparilla, Starflower, Canada Mayflower, White Wood Aster, and Blue-stem Goldenrod are among the most widespread herbaceous plants in this habitat, which also harbors an occasional Sessile-leaved Bellwort, Solomon's Seal, Indian Pipe, Trailing Arbutus, Wintergreen, and a few patches of Pennsylvania Sedge, as well as areas with certain ferns (Lady, Christmas, Hay-scented, and Bracken).

We documented Woodthrush, American Robin, Yellow-bellied Sapsucker, and Pileated Woodpecker vocalizing in this habitat in May 2009. Furthermore, we located a Turkey Vulture nest under one of the big boulders on the upper southern slope of Round Ball.

The fact that this habitat is embedded in a much larger forested matrix (Map 2) might make it suitable breeding habitat for interior-forest birds, as well as for wide-ranging

mammals, such as coyote, bob-cat and black bear. According to Hudsonia's Harlem Valley Biodiversity Manual Supplement on Upland Deciduous Forest (posted at [www.hudsonia.org](http://www.hudsonia.org)), native giant silk moths, such as Luna Moth and Polyphemus Moth, maintain large populations in Oak-Hickory Forest habitat.

Parts of the plateau, trails and the entire length of the abandoned driveway on the southern edge of this habitat have a high density and diversity of "weedy" herbaceous plants (both native and non-native) that thrive in canopy openings and disturbed soil. Throughout the Mature Oak-Hickory Forest, there is a very low occurrence of invasive plant species.

The steep southern slope between the plateau and the residence/abandoned driveway is very rocky with some large boulders, crevices and caves and represents a **Non-carbonate Crest, Ledge, and Talus** habitat (Kiviat and Stevens, 2001). Along the upper edge of that steep rocky slope, we located some unique plants, such as the Yellow Wild Indigo and Rattlesnake Weed, which we didn't see anywhere else in the Conservation Area. Because of the calcareous bedrock in this area, we looked quite intensively for any plants that might indicate a calcareous environment, but we did not find any calcium-loving plants on this upper rocky slope. However, even a "non-carbonate crest, ledge, and talus" habitat has unique potential for nesting or den-sites of a variety of animals of special concern (Kiviat and Stevens, 2001). Other than the Turkey Vulture (one nest located during our surveys), Common Raven, Winter Wren, Hermit Thrush, and a variety of warblers might nest in such rocky ledges Small-footed Bat, Boreal Redback Vole, Longtail Shrew, Fisher, and Bobcat might seek shelter in this area. Among the interesting reptiles and amphibians that might occur here are Black Rat Snake, Marbled Salamander, and Fowler's Toad.

### **Mature Early-Successional Forest**

This habitat type currently covers the more recently abandoned farmland in the north-western corner of the Conservation Area. It is easily recognizable by the high density of White Birch, which might have been the species that initially colonized the abandoned

fields in the early 20<sup>th</sup> century. The White Birch trees are large and some of them seem close to the end of their life. We termed this habitat “Mature” Early-Successional Forest, to emphasize that this is not a sapling stand. As one walks along the perimeter trail (which seems to have been the edge of the field), one can easily see the difference in tree composition on either side of the trail. Joining the large White Birch on the west side are Sugar Maple, Red Maple, White Ash and Black Cherry. Oaks and Hickories are also present, but do not dominate this forest.

The understory tree composition is similar to that of the Mature Oak-Hickory Forest, but its structure seems to be more open. Marked is the total absence of any ericaceous shrubs. Maple-leaf Viburnum is the most common shrub. This habitat also harbors some Japanese Barberry, an introduced, invasive species that we did not note in the Mature Oak-Hickory Forest.

The herbaceous layer is indicative of moist, nutrient-rich forest soil, supporting Blue Cohosh, Red Trillium, Baneberry, Wild Geranium, and Jack-in-the-Pulpit. An exciting find in this habitat was a population of Mayapple, which is located along the western property line. The invasive Garlic Mustard seemed to be more common here, than in the Mature Oak-Hickory Forest.

### **Mature Creek-side Forest**

This habitat is located on deep silt loams and extends in narrow bands along the northern and southern boundary of the Conservation Area. On these deeper soils and in the somewhat cooler, moister micro-climate, Sugar and Red Maple join the Oaks and Hickories in the canopy; one also sees more Ash and American Beech. Along the northern creek, even an occasional Hemlock and Yellow Birch can be found. A large Beech grove along the southern creek was heavily infected with beech bark disease.

Witchhazel, Striped Maple, Musclewood and Ironwood were the most common understory trees. As in other habitats with deeper soils, the shrub-layer was characterized by the absence of ericaceous species. The ubiquitous Maple-leaved Viburnum was joined



along the creeks by Common Elderberry and Alternate-leaved Dogwood, which is a species of a somewhat northern affinity, as well as by the regionally-rare Leatherwood (found only along the northern creek).

The herbaceous plants on the creek terraces included Broad-leaved Toothwort, False Hellebore, Skunk Cabbage, Jack-in-the-Pulpit, Red trillium, and False Solomon's Seal. Blue Cohosh and Miterwort only occurred along the northern creek, while Wild Leek was common on the terrace of the southern creek.

Both creeks had thriving populations of Two-lined Salamanders. In addition, they might be home to the regionally-rare Dusky Salamander.

### **Mesic Hardwood Forest**

This habitat type is mostly located on Bernardston silt loam, but also extends along the western boundary into an area mapped as Pittstown silt loam and in the south-east somewhat into the Nassau channery silt loam. The Mesic Hardwood Forest is characterized by a high diversity of canopy and understory trees. Red Oak and Pignut Hickory grow next to Ash, Beech, Sugar and Red Maple, White, Black, and Yellow Birch, as well as root sprouts of American Chestnut.

The understory is a diverse mix of Striped Maple, Ironwood, Muscledwood, Shadbush, and Witchhazel. Among the sparse shrub layer are some invasive Japanese Barberry bushes. As expected, ericaceous shrubs are not common in this habitat.

The most diverse set of spring ephemerals found in the Conservation Area grows right along the trail in this habitat, including some species we did not find in other parts of Round Ball, such as Sweet Cicely, Canada Sanicle, Early Saxifrage, White Avens, and Golden Ragwort. This habitat also harbors the highest diversity of ferns, including Ostrich Fern, Sensitive Fern, Interrupted Fern, Lady Fern, Christmas Fern, Fragile Fern and the calcium-loving Maidenhair Fern. Within this habitat are small outcrops of calcareous bedrock (**Carbonate Crest, Ledge, and Talus** habitat) which were the only

places where we found Columbine, Fragile Fern and the regionally-rare Round-leaved Dogwood. Right on the trail next to the northernmost outcrop, we saw in September 2009 several flowering individuals of Spotted Coralroot, a saprophytic species of orchid. Near the southern outcrop is a very large, old-looking Tulip-tree and the south-eastern corner of the Conservation Area has Tulip-trees in all size classes scattered throughout the forest.

This habitat includes the area of a clearing still visible on the 1942 aerial photograph. Judging from our quick plant reconnaissance work, the plant composition in this most recent clearing seems to be quite similar to that of the more mature Mesic Hardwood Forest. However, the former clearing is still characterized by a high density of large grape-vines and it was here that we also noticed the invasive Oriental Bittersweet.

#### LITERATURE CITED

Case, R.J. 1989. Soil Survey of Columbia County, New York. United States Department of Agriculture, Soil Conservation Service in cooperation with the Cornell University Experiment Station.

Kiviat, E. and G. Stevens. 2001. Biodiversity Assessment Manual for the Hudson River Estuary Corridor. Hudsonia Ltd., Annandale, NY.

## Map 1: Aerial Photo of the Round Ball Public Conservation Area

with Area Boundary (red); Trails and Driveways (green), Creeks (blue)



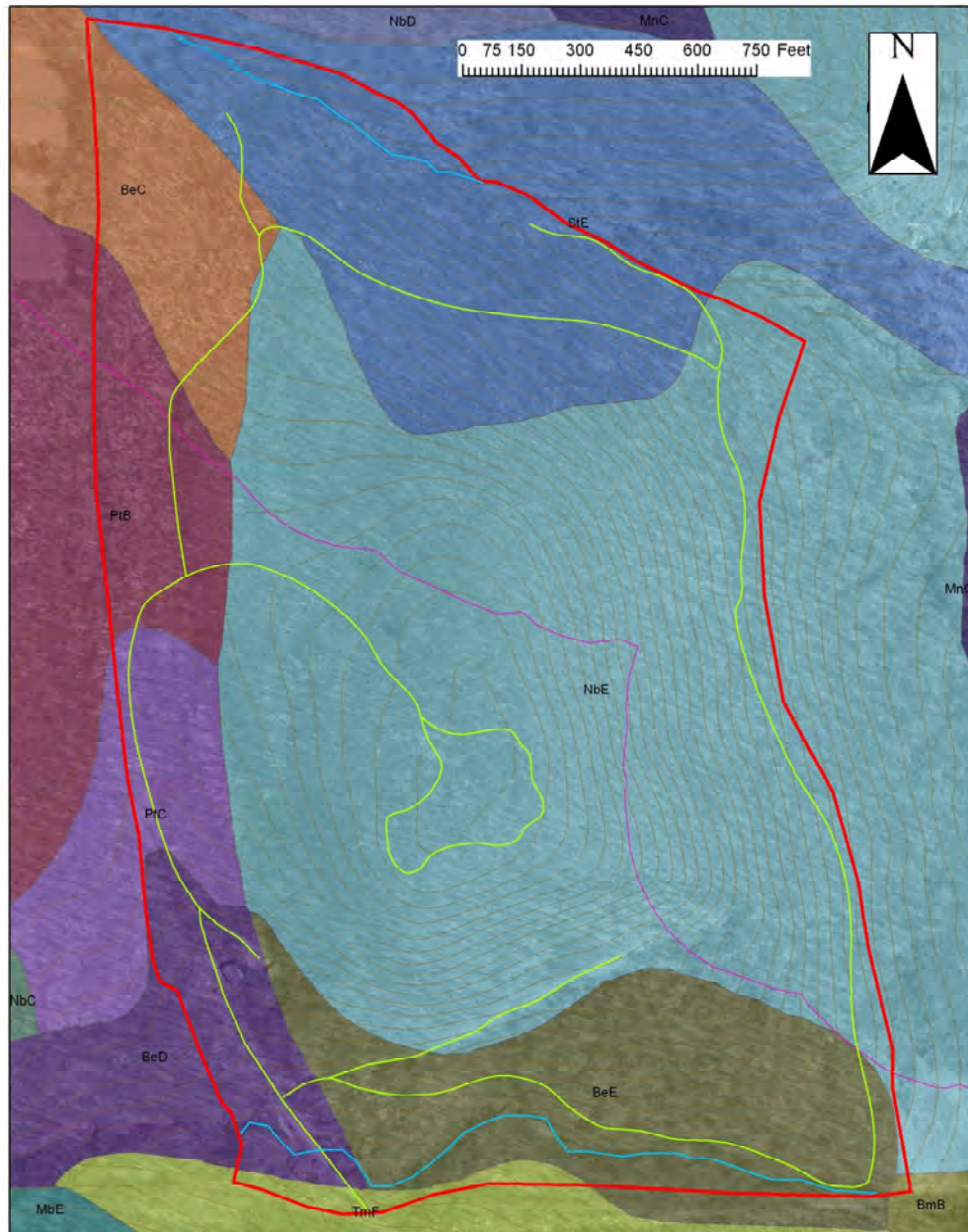
**Map 2: Round Ball Public Conservation Area as part of  
a forested corridor** extending north-south parallel to Route 22



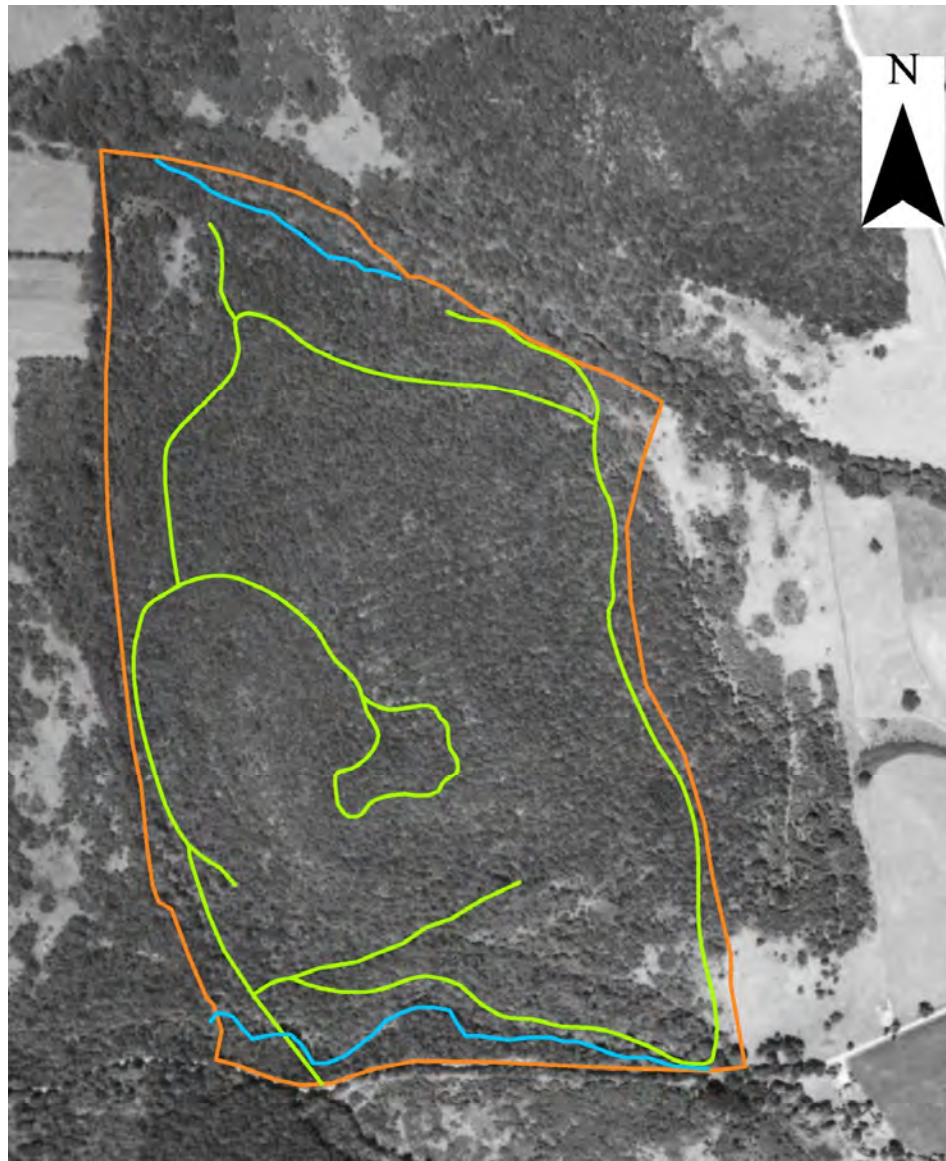


### Map 3: Soil Map of the Round Ball Public Conservation Area

(for abbreviations of soil types please see GEOLOGY and SOILS section in text)  
with Area Boundary (red); Trails and Driveways (green), Creeks (blue), 5m-topo  
lines (brown), and Important Conservation Area for Bog Turtle (pink)

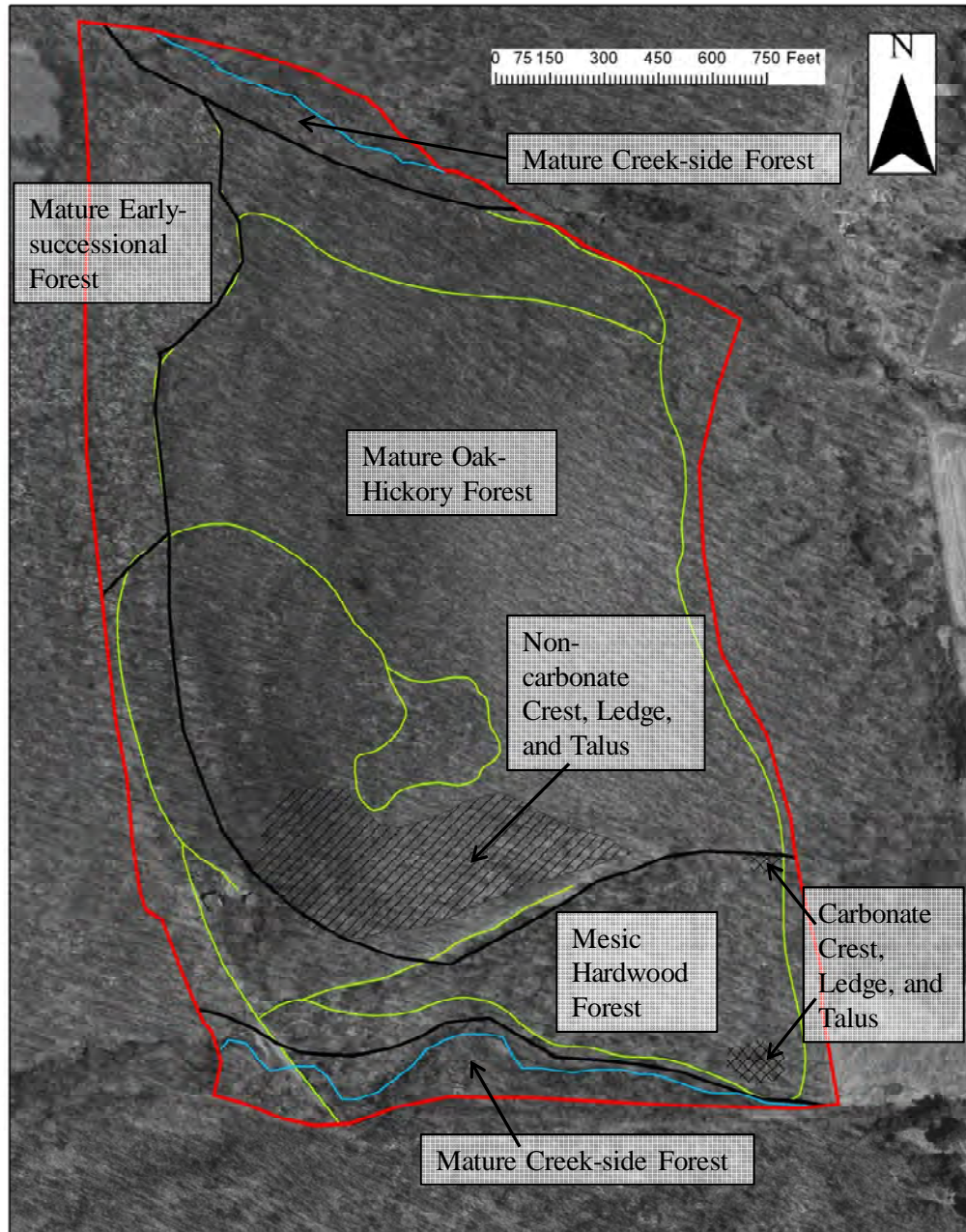


**Map 4: Historical Aerial Photograph (1942) of Round Ball**  
with current Area Boundary (orange); current Trails and Driveways (green),  
and current Creeks (blue)





**Map 5: Habitat Map of the Round Ball Public Conservation Area**



# APPENDIX (1 of 5 pages): Preliminary List of Plants of the Round Ball Public Conservation Area

(compiled by the Farmscape Ecology Program 2009)

			Mature Oak-Hickory Forest	non-carb. CLT	Mature Early-Successional Forest	Mature Creek-Side Forest	Mesic Hardwood Forest	carbonate CLT
Common Name	Species	Habitat Type						
Alternate-leaved dogwood	Cornus alternifolia					x	x	
American beech	Fagus grandifolia		x		x	x	x	
American chestnut	Castanea dentata		x				x	
Arrowhead violet	Viola sagittata		x					
Arrow-wood	Viburnum dentatum var. lucidum		x					
Ash	Fraxinus sp.				x	x	x	
Aster	Aster sp.			x				
Avens	Geum sp.						x	
Baneberry	Actaea sp.		x		x		x	
Bastard toad-flax	Comandra umbellata		x					
Bellwort	Uvularia sp.		x					
Big-tooth aspen	Populus grandidentata		x					
Birch	Betula sp.		x			x		
Birdsfoot trefoil	Lotus corniculatus							
Black birch	Betula lenta		x				x	
Black huckleberry	Gaylussacia baccata		x					
Bladder campion	Silene vulgaris							
Blue cohosh	Caulophyllum thalictroides				x			
Blue marsh violet	Viola cucullata						x	
Blueberry	Vaccinium sp.		x	x				
Blue-stemmed goldenrod	Solidago caesia		x				x	
Bottlebrush grass	Elymus hystrix		x					
Bracken fern	Pteridium aquilinum		x			x		
Broad-leaved sedge	Carex platyphylla		x				x	
Bugle	Ajuga reptans							
Bush-honeysuckle	Diervilla lonicera		x					
Buttercup	Ranunculus sp.						x	
Canada mayflower	Maianthemum canadense		x		x	x	x	
Canada thistle	Cirsium arvense		x					
Canada-sanicle	Sanicula canadensis						x	
Celandine	Chelidonium majus						x	
Chestnut oak	Quercus prinus		x					
Choke cherry	Prunus virginiana			x				
Christmas-fern	Polystichum acrostichoides		x		x	x	x	
Coltsfoot	Tussilago farfara							
Columbine	Aquilegia canadensis						x	x
Common blue violet	Viola sororia (incl. V. papilionaceae)						x	x
Common cinquefoil (or. Running five-	Potentilla simplex (or. P. canadensis)		x				x	
Common elderberry	Sambucus canadensis		x				x	
Common enchanter's nightshade	Circaea lutetiana						x	
Common flat-topped goldenrod	Euthamia graminifolia		x					
Common lowbush blueberry	Vaccinium angustifolium		x					



## APPENDIX (2 of 5 pages): Preliminary List of Plants of the Round Ball Public Conservation Area

(compiled by the Farmscape Ecology Program 2009)

			Mature Oak-Hickory Forest	non-carb. CLT	Mature Early- Successional Forest	Mature Creek-Side Forest	Mesic Hardwood Forest	carbonate CLT
	Habitat Type							
Common milkweed	<i>Asclepias syriaca</i>		x					
Common mullein	<i>Verbascum thapsus</i>		x					
Common poison-ivy	<i>Toxicodendron radicans</i>		x		x		x	
Common polypody	<i>Polypodium virginianum</i>		x	x				
Common reed	<i>Phragmites australis</i>		x					
Common speedwell	<i>Veronica officinalis</i>		x				x	
Common Wood-sorrel	<i>Oxalis stricta</i>		x				x	
Cottonwood	<i>Populus deltoides</i>				x			
Cottonwood	<i>Populus deltoides</i>				x			
Cypress spurge	<i>Euphorbia cyparissias</i>							
Daisy fleabane	<i>Erigeron annuus</i>						x	
Day lily	<i>Hemerocallis fulva</i>						x	
Debtford pink	<i>Dianthus armeria</i>							
Dewberry	<i>Rubus flagellaris</i>				x			
Dogbane	<i>Apocynum sp.</i>							
Early goldenrod	<i>Solidago juncea</i>							
Early meadow rue	<i>Thalictrum dioicum</i>		x	x		x	x	x
Early saxifrage	<i>Saxifraga virginensis</i>			x			x	x
False hellebore	<i>Veratrum viride</i>					x		
False Solomon's seal	<i>Smilacina racemosa</i>					x	x	x
Field peppergrass	<i>Lepidium campestre</i>							
Field-pussytoe	<i>Antennaria neglecta</i>		x					
Fireweed, Pilewort	<i>Erechtites hieraciifolia</i>		x					
Fleabane	<i>Erigeron spp.</i>		x					
Fly-honeysuckle	<i>Lonicera canadensis</i>			?				
Forest bedstraw	<i>Galium circaezans</i>		x			x	x	
Forest-goldenrod	<i>Solidago arguta</i>		x				x	
Forest-muhly	<i>Muhlenbergia sylvatica</i>		x					
Fragile fern	<i>Cystopteris fragilis</i>		x				x	x
Fringed polygala	<i>Polygala paucifolia</i>		x				x	
Garlic mustard	<i>Alliaria petiolata</i>		x		x		x	
Goblet aster	<i>Aster lateriflorus</i>		x				x	
Golden ragwort	<i>Senecio aureus</i>						x	x
Graceful sedge	<i>Carex gracillima</i>				x		x	
Grape	<i>Vitis sp.</i>		x					
Green ash	<i>Fraxinus pennsylvanica</i>						x	
Hawkweed	<i>Hieracium sp.</i>		x					
Hayscented fern	<i>Dennstaedtia punctilobula</i>		x					
Hazel	<i>Corylus sp.</i>		x					
Heal-all	<i>Prunella vulgaris</i>		x					
Helleborine	<i>Epipactis helleborine</i>					x	x	
Hemlock	<i>Tsuga canadensis</i>					x		
Hickory	<i>Carya sp.</i>		x					

## APPENDIX (3 of 5 pages): Preliminary List of Plants of the Round Ball Public Conservation Area

(compiled by the Farmscape Ecology Program 2009)

			Mature Oak-Hickory Forest	non-carb. CLT	Mature Early-Successional Forest	Mature Creek-Side Forest	Mesic Hardwood Forest	carbonate CLT
	Habitat Type							
Hog-peanut	Amphicarpaea bracteata						x	
Honeysuckle	Lonicera sp.		x					
Horsetail	Equisetum arvense		x					
Indian pipe	Monotropa uniflora		x				x	
Indian tobacco	Lobelia inflata		x				x	
Interrupted fern	Osmunda claytoniana		x		x	x	x	
Ironwood	Ostrya virginiana		x		x	x	x	
Jack in the pulpit	Arisaema triphyllum		x	x	x	x	x	
Japanese barberry	Berberis thunbergii		x		x		x	x
Lady-fern	Athyrium filix-femina		x		x	x	x	
Large-tooth aspen	Populus grandidentata		x					
Leatherwood	Dirca palustris					x		
Loose-flowered sedge	Carex laxiflora						x	
Maidenhair fern	Adiantum pedatum		x			x	x	
Maple-leaved viburnum	Viburnum acerifolium		x	x	x	x	x	
Marginal wood-fern	Dryopteris marginalis		x					
Mayapple	Podophyllum peltatum				x	x		
Miterwort	Mitella diphylla					x		
Mugwort	Artemisia vulgaris							
Mugwort	Artemisia sp.						x	
Multiflora rose	Rosa multiflora		x				x	
Musclewood, Blue beech	Carpinus caroliniana						x	
New York fern	Thelypteris noveboracensis		x					
Oak	Quercus sp.		x					
Orchard grass	Dactylis glomerata		x					
Oriental bittersweet	Celastrus orbiculatus		x				x	
Ostrich fern	Matteuccia struthiopteris		x				x	
Ox-eye daisy	Chrysanthemum leucanthemum							
Palmate hop-clover	Trifolium aureum							
Panic grass	Panicum lanuginosum		x					
Panicled hawkweed	Hieracium paniculatum		x					
Partridgeberry	Mitchella repens		x					
Pasture rose	Rosa carolina		x					
Pennsylvania bittercress	Cardamine pensylvanica		x					
Pennsylvania sedge	Carex pensylvanica		x				x	
Pignut	Carya glabra		x				x	
Pinkster-flower	Rhododendron periclymenoides		x	x				
Pointed broom sedge	Carex scoparia							
Poverty oatgrass	Danthonia spicata		x					
Purple-stemmed aster	Aster puniceus			x				
Rattlesnake-root	Prenanthes sp.		x					
Rattlesnake-weed	Hieracium venosum		x					
Red maple	Acer rubrum		x		x	x	x	

## APPENDIX (4 of 5 pages): Preliminary List of Plants of the Round Ball Public Conservation Area

(compiled by the Farmscape Ecology Program 2009)

	Habitat Type	Mature Oak-Hickory Forest	non-carb. CLT	Mature Early-Successional Forest	Mature Creek-Side Forest	Mesic Hardwood Forest	carbonate CLT
Red oak	Quercus rubra	x		x		x	
Red trillium	Trillium erectum			x	x	x	
Red-berried elderberry	Sambucus racemosa	x	x				
Rough cinquefoil	Potentilla norvegica						
Round-leaved dogwood	Cornus rugosa	x					
Rue anemone	Anemonella thalictroides	x			x	x	
Sedge	Carex appalachica					x	
Sedge	Carex leptoneuria					x	
Sedge	Carex normalis					x	
Sedge	Carex swanii					x	
Sensitive fern	Onoclea sensibilis				x	x	
Serviceberry	Amelanchier spp.	x					
Sessile-leaved bellwort	Uvularia sessilifolia	x				x	
Shadbush, eastern serviceberry	Amelanchier canadensis	x	x	x		x	
Shinleaf	Pyrola sp.					x	
Silverrod	Solidago bicolor	x					
Skunk cabbage	Symplocarpus foetidus				x		
Small-flowered crowfoot, Kidney-leaved	Ranunculus abortivus				x	x	
Smooth goldenrod, Late goldenrod	Solidago gigantea	x					
Smooth rock-cress	Arabis laevigata	x					
Solomon's seal	Polygonatum pubescens					x	
Solomon's seal	Polygonatum sp.	x	x		x	x	
Spotted coral-root	Corallorhiza maculata	x					
Squawberry	Vaccinium stamineum	x					
Starflower	Trientalis borealis	x		x	x		
Stickseed	Hackelia virginiana					x	
Striped maple, Moosewood	Acer pensylvanicum	x	x	x		x	
Sugar maple	Acer saccharum	x		x	x	x	
Sweet cicely	Osmorhiza claytonii					x	
Sweet clover	Melilotus sp.						
Thistle	Cirsium sp.	x					
Thyme-leaved speedwell	Veronica serpyllifolia var. serpyllifolia					x	
Toothwort	Dentaria diphylla				x	x	
Tower mustard	Arabis glabra						
Trailing arbutus	Epigaea repens	x					
Trillium	Trillium sp.			x	x	x	
Tulip-tree	Liriodendron tulipifera	x				x	
Virginia creeper	Parthenocissus quinquefolia	x		x			
White ash	Fraxinus americana		x	x			
White avens	Geum canadense					x	
White baneberry, Doll's eyes	Actaea alba				x	x	x
White birch	Betula papyrifera	x		x	x	x	
White grass	Leersia virginica	x					

## APPENDIX (5 of 5 pages): Preliminary List of Plants of the Round Ball Public Conservation Area

(compiled by the Farmscape Ecology Program 2009)

			Mature Oak-Hickory Forest	non-carb. CLT	Mature Early- Successional Forest	Mature Creek-Side Forest	Mesic Hardwood Forest	carbonate CLT
	Habitat Type							
White oak	Quercus alba		x		x		x	
White snakeroot	Eupatorium rugosum		x					
White wood aster	Aster divaricatus		x	x			x	x
Wild black cherry	Prunus serotina				x			
Wild carrot, Queen Ann's Lace	Daucus carota							
Wild geranium	Geranium maculatum				x	x	x	
Wild leek	Allium tricoccum					x	x	
Wild licorice	Galium lanceolatum		x				x	
Wild sarsaparilla	Aralia nudicaulis		x			x	x	
Wild strawberry	Fragaria virginiana							
Wintergreen	Gaultheria procumbens		x					
Wirestem-muhly	Muhlenbergia mexicana		x					
Witch-hazel	Hamamelis virginiana		x		x	x	x	
Wood anemone	Anemone quinquefolia					x		
Wood violet	Viola palmata						x	
Woodrush	Luzula multiflora		x					
Wrinkle-leaved goldenrod	Solidago rugosa		x					
Yellow birch	Betula alleghaniensis					x	x	
Yellow forest-violet	Viola pubescens					x	x	
Yellow wild indigo	Baptisia tinctoria		x					
Zig-zag goldenrod	Solidago flexicaulis						x	