

Natural Resources Survey

Bennett College Property
Route 343
Village of Millbrook, New York

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1.0 INTRODUCTION

Ecological Solutions, LLC conducted a flora and fauna inventory on the Bennett College property located on Route 343 in the Village of Millbrook, New York. The purpose of the inventory was to document existing habitat cover types and wildlife species on the previously developed property and determine if critical habitat for Federal and New York State listed threatened or endangered species or unique habitat occurs on the property. Direct impacts to habitat cover types as well as mitigation is documented.

Ecological Solutions, LLC conducted the analysis during the summer and fall of 2005 and Spring 2006 and was focused on field investigation of the development portion of the property and identification of species and habitat. Methods and findings for this study are outlined below in this report. The remainder of the report focuses on anticipated impacts to these resources, and proposed mitigation measures and alternatives that might be considered to avoid or minimize impacts.

2.0 METHODS

As part of the environmental review for the subject site prior records from state and federal agencies regarding the status of rare, threatened, or endangered species on and in the vicinity of the site were requested. A field survey was also conducted and the methods are outlined below. The “List of Endangered, Threatened and Special Concern Fish and Wildlife Species of New York State”, prepared by the Division of Fish, Wildlife and Marine Resources, New York State Department of Environmental Conservation, was referred to in preparing the site investigation methodology and for identification of possible species of concern for the site investigation.

2.1 AGENCY INQUIRY

The Applicant made written inquiries to both the New York State Department of Environmental Conservation - Natural Heritage Program (NHP) and US Fish and Wildlife Service to obtain information or prior records about any known special concern, threatened, or endangered species or significant habitats on or near the site.

2.2 VEGETATION AND HABITAT FIELD INVENTORY

The vegetation inventory prepared by Ecological Solutions, LLC, included identification of broad vegetation or habitat cover types that involved identifying species on the site. Cover type surveys were conducted by investigating the habitats on the site to identify and classify each. Cover types were identified, classified, and mapped to show their distributions.

Within each cover type, visual searches for herbaceous and woody plant species or parts thereof, including leaves, bark, twigs, seeds, or other identifiable plant structures were conducted to identify and document plant material on the site. The Plot Transect method was employed for the field review. This method was supplemented with the Opportunistic Encounter and Systematic Area Search Techniques as outlined in *Community Biodiversity Survey Manual*¹. Plants were identified to species level when possible. A cumulative list of vegetation found on the site is provided in Appendix A.

¹ National Parks Association of NSW, 1998

2.3 WILDLIFE FIELD INVENTORY

Field surveys were conducted by Ecological Solutions, LLC to determine the wildlife species utilizing the property and to identify and locate state and federally listed species of special concern and threatened and endangered species or their appropriate habitats. Multiple methods were used in these surveys, as multiple methodologies increase the potential accuracy of surveys. Methods used are outlined below.

A. Mammals

The following survey methods that are outlined in detail in *Community Biodiversity Survey Manual* were utilized during the field survey:

1. Sign search, in which the observer records any recognizable signs (tracks, droppings, hair, bones, etc.) of mammal species.
2. Opportunistic mammal sightings, in which the observer identifies mammals encountered in the field at random.

Mammals were identified based on visual encounters, vocalizations, tracks, fur, bones, rubs, scrapes, droppings, or other recognizable signs throughout the property. Sampling routes were established throughout the property to cover all of the identified habitat cover types. Established sampling routes throughout the site (transects) were walked, and wildlife was recorded as encountered. Mammals identified on the site are listed in the cumulative wildlife list in Appendix A.

B. **Birds.** Field methods used to survey for avian species were based on methods outlined in *Community Biodiversity Survey Manual*. This method included:

1. Strip transect, in which the observer records all species encountered (seen/heard) along a trail.
2. Opportunistic bird sighting, in which the observer records birds encountered randomly.
3. Sign search, in which the observer records signs (feathers, nests, droppings, tracks, etc.) of birds encountered in the field.

Birds were detected and identified by visual encounter with individuals, vocalizations, tracks, feathers, bones, droppings, castings, nests, drillings, or other recognizable signs. Avian species identified on the site are listed in the cumulative wildlife list in Appendix A.

C. **Herptiles (Reptiles and Amphibians).** Field methods used to survey for herptile species were based on methods outlined in *Community Biodiversity Survey Manual*. This method included:

1. Log rolling (overturning logs, large stones, and other debris to reveal herptiles underneath).
2. Aural surveys were conducted for vocal herptiles. Herptiles were detected and identified by visual encounter, vocalizations, egg masses, and remains.

2.4 WETLAND DELINEATION

A wetland delineation was performed on the site in September 2005. Site investigations regarding wetland boundaries on the site were done to the specifications of the Routine Delineation Method outlined in the *Corps of Engineers Wetlands Delineation Manual, Technical Report Y-87-12*. This included a review of published data and field investigations and sampling. In addition, each wetland boundary flag was survey located and placed on the development plan.

A. **Data Review.** The data review for this wetland delineation included the review of NWI maps and NYSDEC Freshwater Wetland Maps for previously identified wetlands on the site. It also included a review of the Dutchess County Soil Survey to determine if soils on the site were conducive to wetland formation.

B. **Field Investigation and Sampling.** Federal wetlands were delineated based upon the identification of the three mandatory criteria for wetland determination as outlined in the 1987 Federal Manual: dominant hydrophytic vegetation, hydric soils, and evidence of wetland hydrology. To identify the wetlands, the site was walked and the general characteristics of the property observed. The Routine Methodology procedure for wetland delineation was used. Sample transects were established at each wetland. Each transect consisted of at least two sample points, one in the wetland and one in the

² (U.S. Army Corps of Engineers Environmental Laboratory, 1987)

adjacent upland. Dominant vegetation around each sample point was identified and its percent cover quantified. Areas with an appropriate landscape position were checked in detail for the presence of wetland hydrologic indicators. Soil profiles were then observed and characterized at each point.

The detailed field investigation included:

1. Identification of vegetation species with a dominance of hydrophytic plants and areas containing transitional but primarily wetland-oriented species.
2. Determination of features of hydric (poorly and very poorly drained) natural soils, transitional but wetland-oriented soils, and disturbed and filled soils that display an aquic (water-saturated) regime.
3. Observation of site features displaying evidence of wetland hydrology based on the presence of inundated areas, apparent high seasonal water tables, and evidence of saturation within 12 inches of the surface (considered the root zone) during sufficient periods during the growing season to provide for anaerobic/hydric soil conditions.

Test plots were made at selected locations on the property to identify the various habitat types and to establish the wetland-upland interface. The wetland border was marked with pink flagging tape labeled (Wetland Delineation) and was based on the test plot data and observations made at mini-test plot locations along the wetland border. Each distinct wetland area was designated with a letter and each wetland flag within a wetland area was numbered sequentially (e.g. A1, A2, etc.).

3.0 FINDINGS

3.1 HABITAT COVER TYPES

There are 3 distinct broad cover types identified on the site during the field investigation by, Ecological Solutions, LLC, as classified by Kiviat and Stevens, and Reschke Table 3.1-1.

**TABLE 3.1-1
COVER TYPES IDENTIFIED ON
BENNETT COLLEGE PROPERTY**

<u>EQUIVALENT COVER TYPE NAMES</u>		
NO.	KIVIAT AND STEVENS, 2001	RESCHKE, 1990
1	Nontidal Hardwood Swamp	Red Maple Hardwood Swamp
2	Mesophytic Forest	Successional Northern Hardwoods
3	Developed Area	Developed Area

Cover type 1 is wetland habitat, while cover types 2 and 3 are upland habitats. Detailed descriptions of each cover type are outlined below.

1. Red Maple Hardwood Drainage Corridor/Wet Meadow

This ecological community is a common type of wetland that occurs in poorly drained depressions usually on inorganic soils in New York State. Red maple (*Acer rubrum*) is dominant and the co dominants consist of American elm (*Ulmus Americana*), and pin oak (*Quercus palustris*) associated with an existing intermittent watercourse. The shrub layer consists mainly of silky dogwood (*Cornus amoemum*). The herbaceous layer contains some skunk cabbage (*Symplocarpus foetidus*). A portion of the wetland is recognized as an old pond area by the golf course and a wet meadow dominated by soft rush and pockets of shrubs such as red-osier dogwood (*Cornus stolonifera*) and highbush blueberry (*Vaccinium corymbosum*). These wetlands occupy areas associated with the intermittent watercourse that flows along the property boundary and forms this distinct ecological community. This ecological community will remain materially undisturbed by the proposed development.

2. Mesophytic Forest Community

A. (Mixed Upland Forest) - This mixed forest community occurs on well-drained sites, usually on upper slopes or south and west-facing slopes. The soils are usually loams or sandy loams. This is a broadly defined forest community with several regional and edaphic variants. The variant here is a forest where the dominant trees are white ash (*Fraxinus americana*), black cherry (*Prunus serotina*), and red maple (*Acer rubrum*) with some red cedar (*Juniperus virginiana*), black locust (*Robinia pseudoacacia*), and tree-of-heaven (*Ailanthus altissima*). The shrub layer and ground layer here includes multiflora rose (*Rosa multiflora*), barberry (*Berberis thunbergii*), Honeysuckle (*Lonicera sp.*), Witch hazel (*Hamamelis virginia*), and blackberry. This ecological community occurs on the well-drained, upland sites between the wetlands and around the existing developed areas.

3. Developed Areas

Several acres of existing developed area including school buildings, roads, and landscaped area exist in a mosaic (campus setting) on the property.

3.2 WILDLIFE

Special Concern, Threatened, and Endangered Species. No threatened or endangered species or special concern species was observed on the site.

3.2.1 Indiana Bats

A portion of the property is undeveloped and contains second growth mixed upland forest and wetland/tributary area. A large portion of the property is developed area with large structures, roads, and landscaping. The property has gentle to steep slopes in the mixed upland forest areas. The wetland area on the property is Federal wetland. The wetland and upland on the property contains few trees over 9" dbh with loose exfoliating bark or crevices. Few trees contain cavities or holes and the site is considered to have low potential for Indiana Bat utilization.

3.2.2 Bog Turtle

Wetlands on the property do not contain suitable hydrology or vegetative structure associated with Bog Turtle habitat. No fen indicator species occur in any wetland on the property. With the lack of suitable hydrology and vegetative structure it is concluded that no bog turtle habitat exists the property or immediately adjacent in the observable areas off the property.

4.0 ANTICIPATED DIRECT IMPACTS

The proposed Bennett College development and its appurtenant features will necessarily require the re-development of the existing school buildings, roads, and landscaped area and some moderate clearing of vegetation in the existing successional forest area. Earth moving (excavation, filling, and grading), operation of heavy machinery, construction, and alteration to existing drainage patterns, addition of some impervious surfaces, changes in traffic patterns, and increased human activity will occur on the subject property. These activities have a low potential to adversely impact the existing environmental elements of the site since the property was once a fully operational school. Anticipated impacts from these activities are outlined below. Approximately 17 (+-) acres of property will be utilized for the proposed project. From the review of the property and its natural resources by Ecological Solutions, LLC the proposed project constitutes a low impact to the entire property especially since the majority of the proposed development is on previously developed land.

4.1 IMPACTS TO VEGETATION AND COVER TYPES

A. **Wetland.** Development activities have been planned to avoid impacts to Federal wetlands on the property. No impact to this resource is anticipated and no Federal wetland permit is required for the proposed project.

B. **Mesophytic Forest.** Construction activities including the placement of the access road, water quality basins, and associated grading and appurtenant features will impact approximately 5 (+-) acres of successional forest area and 12(+-) acres of developed area on the site. The forest area will be replaced with cultural cover types, such as mowed lawn with street trees such as currently exist on the property. For this project the cultural cover type will continue to provide usable wildlife habitat. Overall a decrease in natural wildlife habitat value is not anticipated but should remain constant since the site does contain several large structures and was previously heavily utilized.

C. **Developed Area.** The developed area will be the focus of the construction of the proposed project. This area has undergone extensive manipulation over the decades and its conversion to this use is not considered a significant impact to wildlife in the area.

4.2 IMPACTS TO WILDLIFE

A. **All Species.** Direct impacts to wildlife from the proposed development will primarily be short-term displacement during construction activities. The species found on the site are typically found in suburban settings and have already adapted to proximal human habitation. These species will remain on the developed portion of the site, though likely in fewer numbers, as availability of basic habitat features (food, water, cover, and space) may be decreased in the developed area.

B. **Listed Species.** No state or federally listed species of special concern, threatened or endangered species will be directly impacted by development activities on the site.

5.0 MITIGATION MEASURES

The proposed development is anticipated to have low potential for adverse environmental impacts because of the previous development on the property. These low impacts that cannot be avoided will be minimized through the implementation of mitigative measures. These are actions taken to prevent or lower the probability of adverse effects from the development. Mitigative measures for the potential impacts are outlined below.

5.1 MITIGATION FOR VEGETATION AND COVER TYPE IMPACTS

To minimize loss of habitat, the developer will minimize removal of natural vegetation as much as possible to preserve natural cover types on the site.

All of the delineated wetlands will remain undisturbed by the proposed work.

Other habitat aspects of the site will be preserved where they do not interfere with the functioning of the development. Such elements include existing landscape areas. This element or parts thereof should be protected where possible.

Finally, an erosion and sedimentation control plan will be implemented to prevent soil translocation off the property.

5.2 MITIGATION FOR WILDLIFE IMPACTS

Temporary wildlife displacement during construction is a short-term impact that will be minimized through the provision of more than half of the property for wildlife use. No other mitigation measure is required.

Bog Turtles - No mitigation is proposed for this species since there was no Bog Turtle habitat observed on the site and no direct or indirect impacts to this species or habitat are anticipated.

Indiana Bats - The Bennett College property is considered to possess low potential as Indiana Bat habitat.

APPENDIX A VEGETATION/WILDLIFE LIST

TREES, SHRUBS AND VINES

COMMON NAME

Tatarian Honeysuckle
Red Maple
Pin Oak
White Pine
Scots Pine
Sugar Maple
Japanese Barberry
American Elm
Gray Dogwood
Red-osier Dogwood
Silky Dogwood
Spicebush
Virginia Creeper
White Ash
Eastern Red Cedar
Poison Ivy
Staghorn Sumac
Witch Hazel
Black Walnut
Multiflora Rose
Black Raspberry
Black Cherry
Fox Grape

SCIENTIFIC NAME

Lonicera tatarica
Acer rubrum
Quercus palustris
Pinus strobus
Pinus sylvestris
Acer saccharum
Berberis thunbergii
Ulmus americana
Cornus racemosa
Cornus stolonifera
Cornus amomum
Lindera benzoin
Parthenocissus quinquefolia
Fraxinus americana
Juniperus virginiana
Rhus radicans
Rhus typhina
Hamamelis virginiana
Juglans nigra
Rosa multiflora
Rubus occidentalis
Prunus serotina
Vitis labrusca

FLOWERING PLANTS/GRASSES/FORBS/FERNS

Garlic Mustard
Soft Rush
Common Ragweed
Common Milkweed
Timothy Grass
Skunk Cabbage
White Wood Aster
Queen Anne's Lace
Goldenrods
Sensitive Fern

Allaria officinalis
Juncus effusus
Ambrosia artemisiifolia
Asclepias syriaca
Phleum pretense
Symplocarpus foetidus
Aster divaricatus
Daucus carota
Solidago spp.
Onoclea sensibilis

BIRDS	HABITAT TYPE	SCIENTIFIC NAME
Black-capped Chickadee	Mesophytic Forest	<u>Poecile atricapillus</u>
Red-breasted Nuthatch	Mesophytic Forest	<u>Sitta canadensis</u>
White-breasted Nuthatch	Mesophytic Forest	<u>Sitta carolinensis</u>
Tufted Titmouse	Mesophytic Forest	<u>Parus bicolor</u>
White Throated Sparrow	Mesophytic Forest	<u>Zonotrichia albicollis</u>
Blue Jay	Developed Area	<u>Cyanocitta cristata</u>
Common Crow	Developed Area	<u>Corvus brachyrhincous</u>
American Robin	Developed Area	<u>Turdus migratorius</u>
Cardinal	Mesophytic Forest	<u>Cardinalis cardinalis</u>
American Goldfinch	Developed Area	<u>Carduelis tristis</u>
Mourning Dove	Developed Area	<u>Zenaida macroura</u>
Downy Woodpecker	Mesophytic Forest	<u>Picoides pubescens</u>
Turkey	Mesophytic Forest	<u>Meleagris gallopavo</u>
Great horned Owl	Mesophytic Forest	<u>Bubo virginiana</u>
MAMMALS		
Deer Mouse	Developed Area	<u>Peromyscus maniculatus</u>
Gray Squirrel	Mesophytic Forest	<u>Sciurus carolinensis</u>
Eastern Chipmunk	Mesophytic Forest	<u>Tamias striatus</u>
Eastern Cottontail	Developed Area	<u>Sylvilagus floridanus</u>
Raccoon	Mesophytic Forest	<u>Procyon lotor</u>
Striped Skunk	Mesophytic Forest	<u>Mephitis mephitis</u>
White-tailed Deer	Wetland	<u>Odocoileus virginiana</u>
REPTILES		
Red-backed Salamander	Mesophytic Forest	<u>Plethodon cinerea</u>

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