Crossroads at New Paltz

Appendix E-1

Ecology
Vegetation and Habitat Report
M. Klemens Letter re:
Habitat and Wetlands

ENGINEERING PROPERTIES, PC

WILDLIFE AND HABITAT ASSESSMENT REPORT

For

SECTION 86.12, BLOCK 5, LOTS 12.310 & 12.320

TOWN OF NEW PALTZ, ULSTER COUNTY, NY

August 31, 2006; revised February 28, 2008

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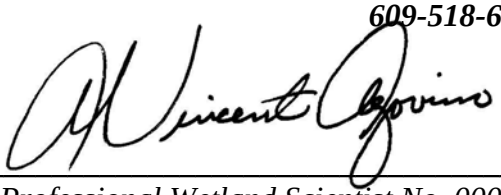

Professional Wetland Scientist No. 000241

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E. Introduction

1.1 Site Description

The subject site consists of two lots, totaling ±57.26 acres, known more specifically as Section 86.012, Block 5, Lots 12.31 and 12.32, in the Town of New Paltz, Ulster County, NY. The property is bounded by the New York State Thruway access ramp on the west, Paradies Lane to the northwest; NYS Route 299 to the northeast and South Ohioville Road to the east. Residential, commercial and vacant land border the property to the south. The site currently has no permanent structures within its boundaries although structures, including a barn, chicken coop, garage and shed, previously existed on site. These buildings were located in the northern portion of the site with paved and dirt lanes connecting them to Paradies Lane and South Ohioville Road. In addition, eight water wells were previously drilled at the site during the late 1980's as part of a hydrogeologic test for another development proposal.

Of the 57.26 acres, there are 11.79 acres of ACOE wetlands and 45.47 acres of uplands. The site is generally flat with elevations ranging from 375.0 feet above mean sea level in the west central part of the site, to 352.5 feet above mean sea level in the extreme northeastern part of the site. The topography rises to 372.0 feet above mean sea level in the southeastern corner of the site. Surface drainage tends to flow west to east from property line to property line, finally reaching the drainage swales and wetlands at the eastern side of the site. The site lies in the drainage basin of the Wallkill River.

Central Hudson Gas and Electric Company and New York Telephone Company maintain a 30-foot wide overhead transmission line and easement that crosses the site from west to east at approximately mid-site.

1.2 Adjacent Land and Uses

Adjacent land uses are residential, commercial, highway and vacant. To the west and southwest is the access ramp of the New York State Thruway. The northern part of the site is bounded by Paradies Lane with residential and commercial properties occupying the northern side of Paradies Lane. New York State Route 299 and a gasoline station are located along the northeastern border of the site. Across Route 299 are residential and commercial properties. Along South Ohioville Road, to the east, and traveling from north to south, are the following land uses: the site directly fronts South Ohioville Road for approximately 400 feet, followed by six single-family homes, then a 50-foot right-of-way to the site, followed by a commercial facility and additional residential properties. The properties across South Ohioville Road are residential. The southern portion of the site is bordered by a residential property and vacant land, with an extensive wetland located at the extreme southeastern portion of the abutting property.

1.3 Proposed Development

The proposed project is a mixed use development consisting of retail, officel and residential uses. On the northern portion of the site, the applicant is proposing approximately 103,340 square feet of retail/office space, a 120 room hotel, a 10,000 SF restaurant and 250 residential, along with associated parking. There is no development proposed for the southern portion of the property which the applicant is proposing to protect through a conservation easement, restricting the land from any further development but reserving the right to use the land for recreational purposes. The applicant is proposing to clear a pathway which will serve as a nature trail and to install trail makers at appropriate locations.

The site plan does not disturb any portion of the wetlands.

2.0 Methodology

A. V. Agovino Associates, LLC (AVAA) conducted a comprehensive environmental and ecological review of the site. This review consisted of a request for information from appropriate Federal and State agencies regarding the status of rare, threatened or endangered species on the site. Field surveys were conducted between November 2004 and April 2006 as discussed in the Introduction of this report. Field survey methods are discussed in section 2.2 below.

2.1 Agency Inquiries

Written inquiries were made to the New York State Department of Environmental Conservation, Natural Heritage Program (NHP) and the United States Fish and Wildlife Service (USFWS) to obtain information concerning records relating to the presence of rare, threatened or endangered species or significant habitats on or near the subject site. The surrounding vicinity was included since wildlife and other natural elements may have territories or zones of influence which extend over an area larger than the subject site. Hence, elements located off-site may be influenced by activities proposed for the site.

On July 11, 2005, the NHP responded by letter, a copy of which is attached to this report as Appendix A, indicating that there is potential for the presence of the Federally and State listed endangered bog turtle, as well as the New York State listed endangered Prairie Wedgegrass (spehenopholis obtusata), last seen in the area in 1957. On January 19, 2006, the USFWS responded by letter, a copy of which is attached to this report as Appendix B, advising that there is potential for the presence of two federally listed endangered species, specifically, the Indiana bat and bog turtle.

2.2 Vegetation and Habitat Field Inventory

AVAA examined and inventoried the vegetation at the site over a period of 16 months on 15 separate occasions. Specifically, site visits were made on November 23 and

December 15, 2004, March 24, April 21, May 10 and 31, June 1, 8 and 22, August 11, September 28 and November 15, 2005 and March 23 and April 10, and 27, 2006. Field data sheets for these site visits are included in Appendix C. The evaluation included identification of broad vegetation or habitat cover types as well as specific plant species present on the site. This evaluation was conducted in general accordance with the *Habitat Assessment Guidelines Town of Milan*. (Schneller-McDonald, 2005) General cover types were first identified by reviewing aerial photographs of the site and vicinity and then investigating the habitats for identification and classification purposes. Cover types were identified, classified and approximately mapped on maps prepared by Engineering Properties, P.C., of Walden, New York. These maps are attached as Appendix D.

Within each cover type, visual examination for herbaceous and woody plant species, or such parts as leaves, twigs, bark, seeds, flowers, fruits or other structures was conducted to identify and document on-site species. The Plot Transect method was employed for the vegetation inventory. In addition, the Opportunistic Encounter and Systematic Area Search Technique discussed in the *Community Biodiversity Survey Manual* prepared by the National Parks Association of New South Wales was utilized to supplement the inventory. (National Parks Association of New South Wales, 1998) The Nature Conservancy's *Designing Field Studies for Biodiversity Conservation* (Feinsinger, 2001), the Hudsonia Ltd. *Biodiversity Assessment Manual for the Hudson River Estuary Corridor* (Kiviat and Stevens, 2001) and *Ecological Census Techniques: A Handbook* (Sutherland, 1996) were also utilized. Plants were identified to species level whenever possible. The list of vegetation is found in Section 5 of this report.

2.3 Wildlife Field Inventory

Field surveys for wildlife species were conducted over a period of 16 months on 15 separate occasions. Specifically, site visits were made on November 23 and December 15, 2004, March 24, April 21, May 10 and 31, June 1, 8 and 22, August 11, September 28 and November 15, 2005 and March 23 and April 10, and 27, 2006. These surveys included mammals, birds, reptiles and amphibians. Species listed as special concern or threatened and endangered were the subject of special surveys targeted to the specific habitats for those species. Accordingly, multiple methodologies were utilized to increase the potential accuracy. Methods for each are described below.

2.3.1 Mammals

Mammalian species present or potentially present at the site were determined through identification of habitat, opportunistic sightings and search for scat, carcass and track marks. Sampling routes were established along transects through the property and included all cover types. The routes were walked and species recorded. Mammals identified were included on the data sheets appended to this report and are more fully discussed in Section 5 of this report.

2.3.2 Birds

AVAA used the methods described in the *Community Biodiversity Survey Manual* for identification of the avian species. Bird species encountered at the site through sightings, calls or nest evaluations were recorded. The strip transect method (where the surveyor records all species seen or heard along a trail), the opportunistic bird sighting method (where the surveyor records randomly encountered birds) and the sign search (where the surveyor records signs such as feathers, nests, droppings and tracks) were all used during the field visits. Avian species identified were included on the data sheets and are included in the species list in Section 5.

2.3.3 Herptiles (Reptiles and Amphibians)

The least mobile species of vertebrates observed on site belong to the reptilian and amphibian families. Herpetological species on the site were searched for by overturning stones, logs and other debris, especially in the areas in and adjacent to the freshwater wetlands, identified by active searches or by sound for vocal herptiles.

3.0 Existing Habitat

No critical habitats were observed during the site investigations. "Critical habitat" is designated for threatened and endangered species by the U.S. Fish and Wildlife Service and defined as "a specific designated area declared essential for the survival of a protected species under authority of the Endangered Species Act."

Approximately 20% of the total property is classified as wetlands that are anticipated to be of moderate value as biotic communities.

3.1 Wetlands

3.1.1 Overall description and acreage

There are 5 identified wetland areas comprising 11.79 acres. A description of the on-site wetlands and associated dominant vegetation is presented in Table 3-1 below:

Table 3-1: Wetland Areas Delineated		
ACOE Wetland Designation	***Area (acres)***	***Wetland Description***
AA-A	**3.56**	Emergent wetland dominated by Carex stricta (Tussock Sedge, OBL), Typha latifolia (Common Cattail, OBL), Phalaris arundinacea (Reed Canarygrass, FACW+) & Polygonum sagittatum (Arrow Leaved Tear-Thumb, OBL). Scrub shrub wetland dominated by Acer rubrum (Red Maple, FAC), Lythrum salicaria (Purple Loosestrife, FACW+) w/ Cornus racemosa (red-panicle dogwood, NL) & Salix discolor (Pussy Willow, FACW).
B	**0.38**	Emergent wetland dominated by Polygonum sagittatum (Arrow Leaved Tear-Thumb, OBL), Lythrum salicaria (Purple Loosestrife, FACW+) & Juncus effusus (Soft Rush, FACW+)
C-D	**7.41**	Red maple swamp wetland dominated by Acer rubrum (Red Maple, FAC), Quercus palustris (Pin Oak, FACW), Cornus racemosa (red-panicle dogwood, NL), Alnus rugosa (Speckled Alder, FACW+), Carpinus caroliniana (American Hornbeam, FAC) and Lonicera tartarica (Tartarian honeysuckle, NL) trees and shrubs. Carex stricta (Tussock Sedge, OBL), Symplocarpus foetidus (Skunk Cabbage, OBL), Juncus effusus (Soft Rush, FACW+), Osmunda regalis (Royal fern, OBL), Thelypteris palustris (Marsh fern, FACW+), Lycopodium lucidulum (Shining clubmoss, FACW-), Dryopteris spinulosa (Wood fern, FAC+)
E	**0.41**	Scrub shrub wetland dominated by Acer rubrum (Red Maple, FAC), Quercus palustris (Pin Oak, FACW), Cornus racemosa (red-panicle dogwood, NL) and Lonicera tartarica (Tartarian honeysuckle, NL)
F	**0.03**	Disturbed emergent wetland dominated by Juncus effusus (Soft Rush, FACW+) and Lythrum salicaria (Purple Loosestrife, FACW+)

3.1.2 Soils

The mapped hydric soil on the site is Canandaigua silt loam. This is a deep, nearly level, poorly drained soil formed in glacial lake deposits dominated by clay, silt and very fine sand. It occurs in depressions on uplands and is generally slightly sloping. The surface layer is very dark gray silt loam 8 inches thick. The subsoil is 27 inches thick and is mottled, very dark gray silt loam in the first 12 inches. The lower part is mottled grayish brown silty clay loam 15 inches thick. The substratum, from 35 to 60 inches is dark brown fine sand that is mottled in the upper part.

3.1.3 Vegetation

Based on the presence of Canandaigua silt loam, the wetlands identified in Table 3-1 above, are generally classified as open mineral soil wetlands, shallow emergent marsh based upon the New York State Department of environmental conservation's *Ecological Communities of New York State*. (Edinger, 2002) Generally, the emergent wetlands AA-

A are dominated by Carex stricta (Tussock Sedge, OBL), Typha latifolia (Common Cattail, OBL), Polygonum sagittatum (Arrow Leaved Tear-Thumb, OBL), and Lythrum salicaria (Purple Loosestrife, FACW+). Scattered Acer rubrum (Red Maple, FAC) and Salix discolor (Pussy Willow, FACW) trees and saplings are present, with several dead trunks. Wetland B near the existing gravel driveway is emergent with similar vegetation, excluding the tussock sedge.

The remaining wetlands are either red maple hardwood swamps or shrub swamp wetlands based upon the New York State Department of Environmental Conservation's *Ecological Communities of New York State*. (Edinger, 2002) These are generally dominated by Acer rubrum (Red Maple, FAC), Quercus palustris (Pin Oak, FACW) and Betula populifolia (Gray Birch, FAC) saplings, along with shrubs of Rosa multiflora (Multiflora Rose, FACU), Vaccinium corymbosum (Highbush Blueberry, FACW-) Viburnum recognitum (Northern Arrowwood, FACW-) and Lonicera tartarica (Tartarian honeysuckle, NL). Wetland D in the southern portion of the site, is dominated by red maple, gray birch and pin oak, along with Carpinus caroliniana (American Hornbeam, FAC) and Hamamelis virginiana (Witch Hazel, FAC-). Polystichum acrostichoides (Christmas Fern, FACU-) and Osmunda regalis (Royal fern, OBL) are the dominant herbaceous species. (Edinger, 2002)

A tree survey was prepared for the Town of New Paltz by its consultant, Mr. Al Wegener. The survey, a copy of which is included in the DEIS, identified exceptional trees and others to be protected whenever possible. None of the identified trees were within the mapped wetlands on the site. A full description of the vegetation in the uplands portion of the property is discussed in Section 3.2.4 below.

3.1.4 Connections to Adjacent Lands

In general, the wetland areas above are all connected to larger wetland systems which continue off-site. Wetland C-D as well as the wetlands designated as A-AA flow generally north to a culvert under South Ohioville road. The on-site wetlands are regulated by the US Army Corp of Engineers. The project proposes no disturbance to the wetlands and the existing vegetative communities in the south, east and center of the site will remain in tact during and after construction and their connection to the larger wetland systems in the region will continue undisturbed.

3.1.5 Quality of Habitat

The wetland areas are generally of intermediate quality based upon existing vegetation and extent of the invasive Purple Loosestrife. The ditch along the eastern border of the site retains some standing water during the wet season, although it dries up in the summer months. The absence of year round water eliminates this area as a viable habitat for fish. The D wetland, located in the southern portion of the site is of higher quality based upon the vegetation community present and the relative absence of invasive species.

3.1.6 Impairment or Loss Resulting from Project

This project avoids all impacts on the wetlands. Open space adjacent to wetlands AA-A and B will be reduced; however, this open space area has previously been highly disturbed by farming activity and does not provide significant value to the wetland. Its loss is not expected to materially affect the functioning of the wetlands.

3.2 Non-Wetlands

3.2.1 Overall Description and Acreage

The non-wetland portions of the site consist of former agricultural fields (successional oldfields), successional shrublands and successional southern hardwood forest. The approximate size of these areas and their dominant vegetation are summarized in Table 3.2 below:

3.2.2 Overall Description and Acreage

Table 3.2: Non-wetland Communities

Habitat Type	*Approximate Area (acres)*	*% of Total site*	*Dominant Vegetation*
Disturbed- Former Residential Area	2.39	4.2	Pinus sylvestris (Scotch Pine, NL), Plantago major (Common plantain, FACU), Plantago lanceolata (English Plantain, UPL), Erigeron sp. (Fleabane, FACU), Verbascum blattaria (Moth Mullein, NL), Aster sp. (species not identified), Verbascum thapsus (Common Mullein, NL), Rosa multiflora (Multiflora Rose, FACU)
Former Agricultural Fields	30.81	53.8	Erigeron sp. (Fleabane, FACU), Verbascum blattaria (Moth Mullein, NL), Aster sp. (species not identified), Verbascum thapsus (Common Mullein, NL), Solidago juncea (Early Goldenrod, NL), Allium canadense (Meadow Onion, FACU), Arctium minus (Common burdock, NL), Linaria vulgaris (Butter and eggs, NL), Vicia sativa (Common vetch, FACU), Medicago sativa (Alfalfa, NL), Solidago spp. (Goldenrods), Erigeron canadensis (Horseweed, NL), Rosa multiflora (Multiflora Rose, FACU), Solidago rugosa (Wrinkled goldenrod, FAC; FAC),
Successional Shrubland	9.03	15.8	Acer rubrum (Red Maple, FAC), Pinus sylvestris (Scotch Pine, NL), Juniperus virginiana (Red Cedar, FACU), Rosa multiflora (Multiflora Rose, FACU), Rubus allegheniensis (Blackberry, FACU), Eupatorium perfoliatum (Common Boneset, FACW+), Erigeron sp. (Fleabane, FACU), Verbascum blattaria (Moth Mullein, NL), Aster sp. (species not identified), Verbascum thapsus (Common Mullein, NL), Solidago juncea (Early Goldenrod, NL), Allium canadense (Meadow Onion, FACU), Solidago spp. (Goldenrods) Erigeron canadensis (Horseweed, NL), Rosa multiflora (Multiflora Rose, FACU), Solidago rugosa (Wrinkled goldenrod, FAC; FAC),

Successional forest	3.24	5.7	Acer rubrum (Red Maple, FAC), Quercus alba (White Oak, FACU-), Quercus rubra (Northern Red Oak, FACU-), Carya ovata (Shagbark Hickory, FACU-), Hamamelis virginiana (Witch Hazel, FAC-), Carpinus caroliniana (American Hornbeam, FAC), Rosa multiflora (Multiflora Rose, FACU), Parthenocissus quinquefolia (Virginia Creeper, FACU), Toxicodendron radicans (Poison Ivy, FAC), Rhus typhina (Staghorn Sumac, NL), Alliaria petiolata (Garlic mustard, FACU-), Allium canadense (Meadow Onion, FACU), Aster divaricatus (White wood aster, FACU), Pteridium aquilinum (Bracken Fern, FACU), Polystichum acrostichoides (Christmas Fern, FACU-)

3.2.3 Soils

The following four soil types are present in the non-wetland portions of the site:

- Mardin series is a deep, moderately well drained, gently sloping soil formed in glacial till deposits derived from sandstone, shale and slate. It has a dense fragipan in the subsoil and is found on broad divides, hills and ridges. Typically, the surface layer is dark brown gravelly silt loam 8 inches thick. The upper 7 inches of the subsoil is yellowish brown gravelly silt loam. The next 5 inches is a leached layer of mottled pale brown gravelly silt loam. Extending from 20 to 60 inches is a firm, olive brown channery silt loam fragipan. Water table is perched above the fragipan in the springtime. Mardin series does not appear on the hydric soils list.
- Chenango gravelly silt loam is a deep, well-drained to somewhat excessively drained gently sloping soil formed in glacial outwash deposits that have a high gravel content. It is usually found on undulating terraces and on plains. In typical profile, the surface layer is very dark grayish brown gravelly silt loam 6 inches thick. The subsoil is 22 inches thick. The upper part is yellowish brown, very gravelly silt loam and the lower part is dark brown very gravelly loam. The substratum to a depth of 60 inches is loose, dark grayish brown stratified sand and gravel. Chenango series does not appear on the hydric soils list.
- Volusia series gravelly silt loam is classified as fine-loamy, mixed, mesic Aeric Fragiaquepts. These soils are deep, somewhat poorly drained and nearly level to sloping which are on glacial till plains. They formed in glacial till derived from mainly shale, siltstone and sandstone. There is a dense fragipan at a depth of 15 inches. The surface layter is typically dark grayish brown gravelly silt loam 8 inches thick. The upper part of the subsoil extends to a depth of 15 inches. It is friable, mottled yellowish brown gravelly silt loam. A firm, leached layer of mottled light brownish gray gravelly silt loam about 4 inches thick separates the upper part of the subsoil from the lower part. The lower part of the subsoil to a depth of about 58 inches is a very firm and brittle, olive brown gravelly silt loam fragipan. The substratum is olive brown gravelly silt loam that extends to a depth of about 70 inches.

- Bath and Mardin Soils, very stony, consists of well drained Bath soils and moderately well drained Mardin soils that are mainly on hilltops and hillsides. These deep, very stony soils formed in glacial till and slopes range from 8 to 15%. In profile, the Bath series has a dark brown shaly silt loam surface layer 10 inches thick. The subsoil is 44 inches thick. The upper 17 inches is yellowish brown shaly silt loam, the middle 3 inches is mottled olive brown shaly silt loam; and the bottom is olive brown very shaly silt loam fragipan. Dark gray shale bedrock is at 53 inches. The Mardin portion has been described above.

3.2.4 Vegetation

As indicated in Table 3.2 above, there are four major non-wetland vegetation communities on the site. These are the disturbed former residential area, successional oldfields, successional shrublands and successional southern hardwood forest. (Edinger, 2002) The oldfields are dominated by Erigeron sp. (Fleabane, FACU), Verbascum blattaria (Moth Mullein, NL), Aster sp. (species not identified), Verbascum thapsus (Common Mullein, NL), Solidago juncea (Early Goldenrod, NL), Allium canadense (Meadow Onion, FACU), Solidago spp. (Goldenrods), Erigeron canadensis (Horseweed, NL), Rosa multiflora (Multiflora Rose, FACU), Solidago rugosa (Wrinkled goldenrod, FAC; FAC), with Acer rubrum (Red Maple, FAC), Juniperus virginiana (Red Cedar, FACU), Rosa multiflora (Multiflora Rose, FACU), Rubus allegheniensis (Blackberry, FACU), Eupatorium perfoliatum (Common Boneset, FACW+) appearing in the fields which had not been tilled recently.

The forested areas are dominated by Acer rubrum (Red Maple, FAC), Quercus alba (White Oak, FACU-), Quercus palustris (Pin Oak, FACW) and Juglans nigra (Black Walnut, FACU) in the canopy with Rosa multiflora (Multiflora Rose, FACU), Rhus typhina (Staghorn Sumac, NL) and Berberis thunberghii (Japanese Barberry, FACU) in the shrub and sapling layer. Parthenocissus quinquefolia (Virginia Creeper, FACU) and Toxicodendron radicans (Poison Ivy, FAC) were the common vines, with Alliaria petiolata (Garlic mustard, FACU-), Allium canadense (Meadow Onion, FACU), Aster divaricatus (White wood aster, FACU), Claytonia virginica (Spring Beauty, FACU) and Erythronium americanum (Trout Lily, NL) as the common herbaceous species.

3.2.4.1 Threatened or Endangered Flora

A July 11, 2005 letter from the New York State Department of Environmental Conservation (NYSDEC) indicates the possible presence of Sphenopholis obtusata (Prairie wedgegrass) which was last reported in 1957. Its status in New York State is endangered. This plant is of the Family Poaceae and flowers in May through July. The genus *Sphenopholis* usually has 2-flowered spikelets. Sphenopholis obtusata differs from other members of the genus by its very slender inflorescence and round-tipped scales of the spikelet. The habitat is moist woods, but it may also be found in drier habitats. Stems are erect, smooth or hairy, up to 2 feet tall. Leaves are elongated, narrow, rough to the touch or merely hairy, up to 1/4 inch wide. Flowers are borne in spikelets; the spikelets 2-flowered, up to 1/8 inch long, arranged in a very narrow panicle up to 6 inches long.

Grains are narrowly ellipsoid, yellowish, shiny, about 1/10 inch long. During the site inspections, AVAA closely examined the upland portions of the property to determine if prairie wedgegrass was present. The inspections were conducted over a 2 year period both before and after the site had been mowed. No evidence of Sphenopholis obtusata was observed and therefore, it is our opinion that the species is not present.

3.2.5 Connections to Adjacent Lands

The uplands are generally all connected through corridors between the wetlands areas. The proposed design allows these connections to continue.

3.2.6 Quality of Habitat

The upland habitats are generally successional in nature, with commonly observed invasive species present throughout. The fields have been mowed regularly, decreasing the available cover and food. Diversity is low compared with other areas of the site which have not been regularly disturbed.

3.2.7 Impairment or Loss Resulting from Project

In the upland area, vegetation will necessarily be removed in order to accomplish construction in the safest, most expedient manner. The major development and disturbance will occur primarily in the present oldfields. Mature trees to be saved will be clearly marked to assure their protection. Mature trees will be saved and protected wherever possible by dripline fences and markings. The anticipated addition of shade trees and landscaping around the new buildings will provide additional new vegetation to the site to offset, to some degree, the destruction of the vegetation for construction. The wetlands will remain undisturbed.

4.0 Inventory

The following is a comprehensive listing of those floral and faunal species observed and identified during AVAA's field surveys or likely to be found on site.

4.1 Vegetation

Table 1. *List of plant species with indicator status in upland and wetland communities*

SCIENTIFIC NAME	COMMON NAME (WETLAND CLASSIFICATION)(1)
Osmundaceae	
Osmunda regalis	royal fern (OBL; OBL)
Polypodiaceae	
Onoclea sensibilis	sensitive fern (FACW; FACW)
Polystichum acrostichoides	Christmas fern (FACU-; UPL, FAC)
Pteridium aquilinum	bracken fern (FACU; FACU, FAC)
Thelypteris noveboracensis	New York fern (FAC; FAC)
Pinaceae	
Pinus resinosa	red pine (FACU; FACU)
Pinus strobus	white pine (FACU; FACU)
Cupressaceae	
Juniperus virginiana	red cedar (FACU; FACU)
Typhaceae	
Typha latifolia	common cattail (OBL; OBL)
Poaceae	
Dactylus glomerata	orchardgrass (FACU; FACU)
Dichanthelium clandestinum	deer tongue grass (FAC+; FAC, FACW)
Digitaria sanguinalis	common crabgrass (FACU-; FACU, FAC)
Echinochloa crusgalli	barnyard grass (FACU; FACU, FACW)
Eulalia viminea	beardgrass (FAC; FAC)
Leersia oryzoides	rice cutgrass (OBL; OBL)
Lolium perenne	perennial ryegrass (FACU-; FACU, FAC)
Phalaris arundinacea	reed canary grass (FACW+; FACW, OBL)
Phleum pratense	timothy (FACU; FACU)
Phragmites australis	common reed (FACW; FACW)
Poa compressa	Canadian bluegrass (FACU; FACU, FAC)
Poa pratensis	Kentucky bluegrass (FACU; FACU, FAC)
Setaria faberii	foxtail (UPL; UPL, FACU)
Setaria glauca	yellow foxtail (FAC; FACU, FAC)
Labiatae	
Glechoma hederacea	ground ivy (FACU; UPL,FACU+)
Nymphaeaceae	
Nuphar luteum	yellow pond lily (OBL; OBL)
Cyperaceae	
Carex sp.	sedges (3)
Carex stricta	tussock sedge (OBL; OBL)
Carex vulpinoidea	fox sedge (OBL; OBL)
Cyperus esculentus	nutsedge (FACW; FAC, FACW)
Cyperus strigosus	umbrella sedge (FACW; FACW)
Scirpus cyperinus	wool grass (FACW+; FACW, OBL)
Araceae	
Arisaema triphyllum	Jack-in-the-pulpit (FACW-; FAC, FACW)
Symplocarpus foetidus	skunk cabbage (OBL; OBL)

Commelinaceae	
Commelina virginica	Virginia dayflower (FACW; FAC, FACW)
Juncaceae	
Juncus effusus	soft rush (FACW+; FACW, OBL)
Juncus tenuis	path rush (FAC-; FAC-, FACW)
Liliaceae	
Allium vineale	field garlic (FACU-; FACU)
Allium sp.	wild onion (3)
Maianthemum canadense	mayflower (FAC-; FACU, FAC)
Smilacina racemosa	false Solomon's seal (FACU-; FACU, FAC)
Erythronium americanum	trout lilly (NL)
Salicaceae	
Populus deltoides	common cottonwood (FAC; FAC, FACW)
Populus tremula	quaking aspen (FACU; FACU, FAC)
Salix sp.	willow (3)
Salix discolor	pussy willow (FACW)
Juglandaceae	
Carya glabra	pignut hickory (FACU-; FACU)
Cary ovata	shagbark hickory (FACU-; FACU)
Juglans nigra	black walnut (FACU; FACU)
Betulaceae	
Carpinus caroliniana	American hornbeam (FAC; FAC)
Betula populifolia	gray birch (FAC; FAC)
Fagaceae	
Fagus grandifolia	American beech (FACU; FACU)
Quercus alba	white oak (FACU-; FACU)
Quercus bicolor	swamp oak (FACW+; FACW, OBL)
Quercus palustris	pin oak (FACW; FAC, FACW)
Quercus rubra	red oak (FACU-; FACU)
Polygonaceae	
Polygonum cuspidatum	Japanese knotweed (FACU-; UPL, FACU)
Polygonum pennsylvanicum	pinkweed (FACW; FACW, OBL)
Polygonum persicaria	ladies thumb (FACW; FAC, OBL)
Polygonum sagittatum	arrow-leaved tear-thumb (OBL; OBL)
Rumex acetosella	sheep sorrel (UPL; UPL, FACW)
Rumex crispus	curly dock (FACU; FACU, FACW)
Chenopodiaceae	
Chenopodium album	Lamb's quarters (FACU+; FACU, FAC)
Phytolaccaceae	
Phytolacca americana	pokeweed (FACU+; FACU, FAC)
Portulacaceae	
Claytonia virginica	spring beauty (FACU; FACU)
Berberidaceae	
Podophyllum peltatum	may apple (FACU; FACU)
Lauraceae	
Lindera benzoin	spice bush (FACW-; FACW)
Sassafras albidum	sassafras (FACU-; FACU)
Brassicaceae	
Alliaria petiolata	garlic mustard (FACU-; FACU, FACW)
Hamamelidaceae	
Hamamelis virginiana	witch hazel (FAC-; FACU, FAC)
Liquidambar styraciflua	sweet gum (FAC; FAC, FACW)
Rosaceae	
Rubus idaeus	common red raspberry (FAC-,UPL,FAC)
Fragaria virginiana	wild strawberry (FACU; UPL, FACU)
Geum sp.	avens (3)

Prunus serotina	black cherry (FACU; FACU)
Rosa multiflora	multiflora rose (FACU; UPL, FACU)
Rubus allegheniensis	blackberry (FACU-; UPL, FACU)
Fabaceae	
Gleditsia triacanthus	honey locust (FAC-; FACU, FAC)
Robinia pseudo-acacia	black locust (FACU-; UPL, FAC)
Trifolium pratense	red clover (FACU-; FACU, FAC)
Trifolium repens	white clover (FACU-; FACU, FAC)
Oxalidaceae	
Oxalis stricta	yellow wood sorrel (NL)
Anacardiaceae	
Rhus typhina	staghorn sumac (2)
Toxicodendron radicans	poison ivy (FAC; FACU, FACW)
Aceraceae	
Acer rubrum	red maple (FAC; FAC)
Balsaminaceae	
Impatiens capensis	jewelweed (FACW; FACW)
Vitaceae	
Parthenocissus quinquifolia	Virginia creeper (FACU; FACU, FAC)
Vitis sp.	grape (3)
Elaeagnaceae	
Elaeagnus umbellata	autumn olive (2)
Lythraceae	
Lythrum salicaria	purple loosestrife (FACW+; FACW, OBL)
Onagraceae	
Oenothera biennis	evening primrose (FACU-; FACU)
Apiaceae	
Daucus carota	Queen Anne's lace (2)
Cornaceae	
Cornus racemosa	red-panicle dogwood (2)
Ericaceae	
Vaccinium corymbosum	highbush blueberry (FACW-; FACW)
Oleaceae	
Fraxinus americana	white ash (FACU; FACU)
Fraxinus pennsylvanica spp. subintegerrima	green ash (FACW; FAC, FACW)
Apocynaceae	
Apocynum spp.	dogbane (3)
Apocynum cannabinum	common dogbane (FACU; FACU, FAC)
Asclepiadaceae	
Asclepias syriaca	common milkweed (2)
Convolvulaceae	
Ipomoea hederacea	Ivy-Leaf Morning Glory (FACU; FACU,FAC)
Scrophulariaceae	
Penstemon digitalis	white beardtongue (FAC; FAC-, FACW-)
Verbascum thapsus	common mullein (2)
Verbascum blattaria	moth mullein (2)
Bignoniaceae	
Catalpa speciosa	northern catalpa (FAC; FACU, FAC)
Plantaginaceae	
Plantago lanceolata	English plantain (UPL; UPL, FAC)
Plantago major	common plantain (FACU; FACU, FACW)
Caprifoliaceae	
Lonicera japonica	Japanese honeysuckle (FAC-; FACU, FAC)
Lonicera tartarica	tartarian honeysuckle (2)
Viburnum recognitum	northern arrowwood (FACW-; FAC)

Viburnum acerifolium	maple leaf viburnum (NL)
Asteraceae	
Achillea millefolium	yarrow (FACU; FACU)
Ambrosia artemisiifolia	annual ragweed (FACU; FACU, FAC)
Ambrosia trifida	giant ragweed (FAC; FAC, FACW)
Aster spp.	asters (3)
Bidens sp.	beggar-ticks (3)
Cichorium intybus	chicory (2)
Cirsium sp.	thistle (3)
Erigeron canadensis	horseweed (2)
Eupatorium perfoliatum	boneset (FACW+; FACW, OBL)
Solidago altissima	tall goldenrod (FACU-; FACU)
Solidago canadensis	Canada goldenrod (FACU; FACU)
Solidago graminifolium	lance-leaved goldenrod (2)
Solidago rugosa	wrinkled goldenrod (FAC; FAC)
Solidago spp.	goldenrods (3)
Compositae	
Arctium minus	Common burdock (NL)
Achillea millefolium	yarrow (FACU; FACU)
Aster divaricatus	white wood aster (FACU; UPL, FACU)
Vernonia noveboracensis	New York ironweed (FACW+; FAC+)

Notes:

1 Common name (regional; national wetland classification(s)). + and - designations for national classifications are not included. Species wetland classification is taken from Reed (198b).
2 Species is not included on the USFWS Wetland Plant List. This implies an upland status.
3 Species not identified sufficiently to determine wetland classification.
4 No agreement on the wetland classification of this species.

4.2 Avian Species

Species	***Scientific Name***	***Habitat***	***Status[1]***
Indigo Bunting	*Passerina cyanea*	Mesophytic forest	NP
Eastern Phoebe	*Savornis phoebe*	Successional forest	NP
Wood peewee	*Contopus virens*	Mesophytic forest	NP
Black-capped chickadee	*Poecile atricapillus*	Mesophytic forest	NP
Red-breasted nuthatch	*Sitta canadensis*	Successional forest	NP
White-breasted nuthatch	*Sitta carolinensis*	Successional forest	NP
Brown thrasher	*Orpheus rufus*	Successional forest	NP
Mockingbird	*Orpheus polvglottus*	Successional forest	NP
Tufted titmouse	*Parus bicolor*	Mesophytic forest	NP
Wood thrush	*Hylocichla mustelina*	Mesophytic forest	NP
Red tailed hawk	*Buteo jamaicensis*	Mesophytic forest	NP
White throated sparrow	*Zonotrichia albicollis*	Mesophytic forest	NP
Blue jay	*Cvanocitta cristata*	Successional forest	NP
Carolina wren	*Thryothorus ludovicianus*	Successional forest	NP
Common crow	*Corvus brachvrhvncous*	Successional forest	NP
American redstart	*Setophaga ruticilla*	Successional forest	NP
American robin	*Turdus migratorius*	Mesophytic forest	NP
Eastern cardinal	*Cardinalis cardinalis*	Successional forest	NP

Red breasted grossbeak	*Pheucticus ludovicianus*	Successional forest	NP
Northern flicker	*Colaptes auratus*	Successional forest	NP
Mourning dove	*Zenaida macronra*	Successional forest	NP
Downey woodpecker	*Picoides pubscens*	Mesophytic forest	NP
Warblers	*Dendroica spp.*	Successional forest	NP
Killdeer	*Charadrius vociferus*	Oldfield	NP

4.3 Mammals

Species	***Scientific Name***	***Habitat***	***Status***
Whitetail deer	*Odocoileus virginianus*	Mesophytic forest	NP
Red fox	*Vulpes fulva*	Successional forest	NP
Coyote	*Canis latrans*	Mesophytic forest	NP
Raccoon	*Procyon lotor*	Mesophytic forest	NP
Striped skunk	*Mephitis mephitis*	Mesophytic forest	NP
Woodchuck	*Marmota monax*	Successional forest	NP
Eastern chipmunk	*Tamias striatus*	Successional forest	NP
Eastern gray squirrel	*Sciurus carolinensis*	Mesophytic forest	NP
Deer mouse	*Peromyscus maniculatus*	Mesophytic forest	NP
Cottontail rabbit	*Sylvilagus floridanus*	Mesophytic forest	NP
Short tail shrew	*Blarina brevicavioa*	Mesophytic forest	NP
Opossum	*Didelphus marsupialis*	Successional forest	NP
Little brown bat	*Myogis lucifugis*	Successional forest	NP

4.4 Reptiles and Amphibians

Species	***Scientific Name***	***Habitat***	***Status***
Eastern milk snake	*Lampropeltis triangulum*	Mesophytic forest	NP
Spotted salamander	*Ambystoma maculatum*	Successional forest	NP
Eastern garter snake	*Thamnophis sirtalis*	Mesophytic forest	NP
Spring peeper	*Hyla crucifer*	Mesophytic forest	NP
Red-backed salamander	*Plethodon cinereus*	Successional forest	NP
Red eft	*Notophthalmus viridescens*	Mesophytic forest	NP
Eastern American toad	*Bufo americanus*	Successional forest	NP
Green frog	*Ranaclamitans melanota*	Successional forest	NP
Wood frog	*Rana sylvatica*	Successional forest	NP

5.0 Species Associated with Habitat Types

5.1 Wetland Habitats

5.1.1 Threatened and Endangered Species

Bog Turtles: The USFWS has identified the potential for *Clemmys muhlenbergii* (bog turtle) within two miles of the site. AVAA conducted a Phase 1 survey for the presence of bog turtle habitat, during April and May, 2005, as well as a re-evaluation of that survey in April 2006 to determine the presence or probable absence of the species. By following the United States Fish and Wildlife Service's (USFWS) guidelines, it was determined that the wetlands do not provide suitable habitat for bog turtles. Surveys can be performed any month of the year (except when significant snow cover is present). This flexibility in conducting Phase 1 surveys allows efforts during the Phase 2 survey window to be spent on wetlands most likely to support bog turtles (i.e., those that meet the criteria below).

Potential bog turtle habitat is recognized by three criteria (not all of which may occur in the same portion of a particular wetland). These are as follows:

1. **Suitable hydrology**. Bog turtle wetlands are typically spring-fed with shallow surface water or saturated soils present year-round, although in summer the wet areas may be restricted to near spring heads. Typically these wetlands are interspersed with dry and wet pockets. There is often subsurface flow. In addition, shallow rivulets (less than 10 cm deep) or pseudo-rivulets are often present.
2. **Suitable soils**. Usually a bottom substrate of soft muck or mucky-like soils is present, although in summers of dry years this may be limited to areas near spring heads. In some portions of the species' range, the soft substrate consists of scattered pockets of peat (6+ inches deep) instead of muck. Suitable soils are the critical criterion and were generally absent from the site.
3. **Suitable vegetation**. Dominant vegetation of low grasses and sedges (emergent wetland), often with a scrub-shrub wetland component is common.

Suitable hydrology, soils and vegetation are necessary to provide the critical wintering sites (soft muck, peat, burrows, root systems of woody vegetation) and nesting habitats (open areas with tussocky or hummocky vegetation) for this species. One or more of these criteria may be absent from portions of a wetland or wetland complex supporting bog turtles. Absence of one or more criteria does not preclude bog turtle use of these areas to meet important life functions, including foraging, shelter and dispersal.

If one or more of these criteria (suitable soils, vegetation and hydrology) are present in the wetland, then the wetland is considered to be potential bog turtle habitat, regardless of whether or not that portion of the wetland occurring within the project boundaries

contains all three criteria. If the wetland is determined to be potential habitat and the project will directly or indirectly impact any portion of the wetland, then either completely avoid all direct and indirect effects to the wetland, in consultation with the USFWS and appropriate State wildlife agency, or conduct a Phase II survey to identify or count individuals. (USFWS, 2001)

The absence of mucky substrate and lack of tussocky vegetation lead to the conclusion that adequate habitat is not present. Accordingly, a Phase II survey and report are not necessary.

5.1.2 Common Species

Based upon AVAA's examination of the wetlands on the site and wildlife survey, the following species were observed or can be expected or inhabit the site, including the eastern American toad (*Bufo a. americanus*), northern spring peeper (*Pseudoacris c. (Hyla) crucifer*), green frog (*Ranaclamitans melanota*), and wood frog (*Rana sylvatica*); along with salamanders such as northern redback salamander (*Plethodon c. cinereus*). Birds that may be found include red-winged blackbird (*Agelaius phoeniceus*), marsh wren (*Cistothorus palustris*), and common yellowthroat (*Geothlypis trichas*). (Edinger, 2002)

5.2 Non-Wetland Habitats

5.2.1 Threatened and Endangered Species

Indiana Bats: With regard to the potential presence of the Indiana bat (*Myotis sodalis*) either roosting or as a forager in the woodland habitat present on the site and grasslands nearby, during AVAA's site inspections over the past two years, no such species were observed. Past consultation with and review by the United States Fish and Wildlife Service (USFWS) concerning the bat indicates that one of the closest large hibernacula is in Ulster County, approximately 9 miles from the site, with other known roosts 6.5 miles away. In New York, approximately 13,000 Indiana bats are known to exist in 8 of the 120 sites searched to date. Surveys conducted since the early 1980s suggest they are doing fine in this state and may in fact be increasing.

During the summer, females occupy maternity roosts of up to 100 females in riparian and flood plain forests under the loose bark of dead or dying trees. There are no riparian forests present at the site. The bats have a preference for forests with old growth characteristics, *i.e.* large trees, scattered canopy gaps, and open understories. The subject site does not generally display old growth characteristics, since most of the growth is less than 8 inches dbh (diameter, breast height).

Suitability of roost trees is determined by its dead or live condition, the amount of loose bark, its location relative to other trees and solar exposure, and its relationship to water and foraging habitat (USFWS). According to the USFWS most recent communication to AVAA, shagbark hickory (*Carya ovata*) and Robinia pseudoacacia (Black Locust, FACU-) are the preferred roost trees, but other trees having flaking or exfoliating bark

are also used, especially members of the white oak group. Snags provide important roosts and are naturally ephemeral. They provide suitable roost characteristics for only a few years, depending on tree species. Individual roosts are only suitable until bark sloughs off or the tree falls. (Kurta, et al. 1993). Similar tree species are present on the site (see photographs included); however, the trees on the site are either young, with predominately intact bark, or are out of the area of disturbance. Therefore, it is not anticipated that suitable roost sites are present or will be disturbed by the project.

Ideal foraging habitat for the Indiana bat consists of riparian and upland forest with 50-80 percent overstory canopy cover and less than 40 percent of the forest composed of small [5-12 centimeter (2-5") dbh] trees. Additionally, ideal habitat occurs within 20 meters (65.6") of permanent water and is within an analysis area with at least 30 percent forested cover (3D, 1995). Streams without riparian vegetation do not appear to be suitable foraging habitat. (USDOT, 2001) The site is a possible foraging habitat, by virtue of the age and coverage of the trees present; however, no watercourse is present nearby. No other water source is within at least ¼ mile, making this less likely to be utilized than other similar sites in the vicinity.

Additionally, Indiana bats are known to spend the winter months in secluded caves or mines. As there are no mines or caves on the project site, it is extremely unlikely that the species will be affected by proposed activities on this site.

5.2.2 Common Species

Two characteristic birds associated with the oldfields are the field sparrow (*Spizella pusilla*) and the killdeer (*Charadrius vociferous)*. Birds that were sighted and may be found in successional shrub lands include brown thrasher, blue-winged warbler, golden-winged warbler, chestnut-sided warbler, yellow-breasted chat, eastern towhee, field sparrow, song sparrow, and indigo bunting.

The forested areas provide habitat to a variety of birds including the American redstart (*Setophaga ruticilla*), red-eyed vireo (*Vireo olivaceus*),ovenbird (*Seiurus aurocapillus*), black-throated blue warbler (*Dendroica caerulescens*), least flycatcher(*Empidonax minimus*), Acadian flycatcher (*Empidonax virescens*), chestnut-sided warbler (*Dendroica pensylvanica*) and red-bellied woodpecker (*Melanerpes carolinus*).

See section 4 for an inventory of species identified or likely to be found on site.

6.0 Potential Impacts of Proposed Project Activity

There will be no disturbance to the wetlands on the site. The proposed project will disturb a total of 29.97 acres of upland vegetation, broken down as follows:

- 02.39 Acres of Disturbed Former Residential area
- 26.21 Acres of Former Agriculture/Early Oldfield
- 00.66 Acres of Successional Shrubland

- 0.71 Acres of Successional Forest,

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As described above, the site does not support known threatened or endangered species or State-listed species of special concern. The site is located within a suburbanized area and proximate to NYS Route 299 and the New York State Thruway, with the resultant traffic noise and air emissions. Only species common to suburban areas were identified, and based on the transitional nature of the site vegetation, from former agricultural uses to successional woodlands, only these species are likely to exist on the site. Wetland areas are somewhat more diverse. These wetland areas will remain undisturbed.

In general, as the project site is developed, some species will relocate to other areas of the site which remain undisturbed or similar habitats off-site. For example, the on site deer population will continue to use undeveloped portions of the site, but may also expand to adjacent parcels, most likely the adjacent vacant wooded parcels.

Avian species that are common to the area will continue to utilize remaining trees as resting and nesting spots. Bird species that prefer denser wooded habitat will continue to utilize the protected wooded areas, the undisturbed uplands on the site and/or relocate their nests to adjacent parcels.

Erosion and sedimentation from construction activities is a potential impact that could negatively affect wetland areas if grading activities are left uncontrolled.

7.0 Migration and Mitigation Measures

While the loss of vegetation and resultant wildlife habitat is unavoidable if the site is to be developed in accordance with the proposed plans, measures can be taken to reduce the impacts of proposed activities to some extent and provide continued opportunities for wildlife in the area.

- The project has been designed to preserve large areas of both upland and wetland habitat on the site which will allow the passage of species within corridors of existing habitat to remain.
- Tree and vegetation removal should be limited to the area of disturbance. Any trees to be retained should be clearly marked and protected by dripline fences prior to construction.
- Stormwater runoff should be accomplished in accordance with applicable regulations under the supervision of municipal, county, district and state officials and be required to meet the conditions imposed therein.
- A comprehensive soil erosion and sediment control plan should be implemented during construction for the protection of the soils and surface water.
- All solid waste materials generated during construction should be held onsite in suitable rolloffs, dumpsters or containers and disposed of in accordance with

state, county and local regulations in order to limit impacts to vegetation and wildlife at the site.

- Landscaping materials should include a mixture of native and ornamental species so that the landscaped areas created by the proposed development can be used for forage. Trees and shrubs should be utilized that provide both food and nesting sites for squirrels and avian species.

8.0 References Utilized

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9.0 Qualifications of Preparer

A. Vincent Agovino, President
Sr. Environmental Consultant

- 24 years of environmental consulting experience throughout New Jersey, New York, Pennsylvania, North Carolina, Maine and Maryland.
- 14 years of public service in the environmental and environmental health field with municipalities in Somerset County.
- Conducted approximately 5,000 soil evaluations, 2,000 wetland evaluations and habitat assessments throughout New Jersey, New York, Pennsylvania, Maine and Maryland utilizing currently accepted methodologies.
- Conducted identification and evaluations of habitats of several endangered species in New Jersey and Orange, Sullivan and Ulster Counties in New York, including the timber rattlesnake, Indiana bat, upland sandpiper, wood turtle and bog turtle.
- Authored or co-authored approximately 300 Environmental Impact Statements pursuant to local ordinances in New Jersey, as well as two papers published in professional journals.
- Conducted approximately 200 Phase I Environmental Site Assessments throughout New Jersey in accordance with ASTM Standard E-1527 and the New Jersey *Technical Requirements for Site Remediation*.
- Testified as an expert witness in numerous municipalities before planning boards, boards of adjustment and environmental commissions, as well as in Superior Court, including including municipalities in:

  Somerset County
  Middlesex County
  Hunterdon County
  Morris County
  Monmouth County
  Union County
  Morris County Superior Court
  Middlesex County Superior Court
  Somerset County Superior Court
  Federal District Court – Williamsport, PA

- Community Noise Advisor (CNA) with the former Federal ECHO program and the National League of Cities. One of three original CNA's for New Jersey's first ECHO program.
- Faculty Coordinator and instructor at Cook College, Rutgers University in the following courses:

  Environment and Public Health
  Environmental Audits and Site Assessments
  Preparation of Environmental Impact Statements
  40-Hour Lead Inspector/Risk Assessor Training
  Soils and Site Evaluations for Septic Systems

EDUCATION

- B.S. Environmental Science, Cook College, Rutgers. 1975.
- M.A. Administration, Rider College. 1985.
- Ph.D. Environmental Engineering, Columbia Southern University. 2001.
- Graduate level and continuing education credits in Soils, Soil Morphology, Wetland Soils, Vegetation, Plant Science, Groundwater Hydrology, Wetland Vegetation, Soils and Site

Evaluation, Underground Storage Tanks (UST's), Hazardous Waste Management and Stream Encroachment/Floodplain Management.

PROFESSIONAL REGISTRATIONS

- Professional Wetland Scientist Registration Number 000241
- New Jersey Health Officer Registration Number: A-0390
- NJ Sanitary Inspector (Environmental Health Specialist) Registration Number: B-0904
- NEHA Registered Environmental Health Specialist
- NJDEP Subsurface Evaluation (UST)
- OSHA 40 hour Health and Safety Training (1910.120) and Annual 8 hour Refresher
- OSHA Confined Space Entry Training
- New Jersey Lead Inspector/Risk Assessor Registration Number 003336

TECHNICAL AND PROFESSIONAL SOCIETIES

- Society of Wetland Scientists
- Soil Science Society of America
- Ecological Society of America
- Association of Wetland Managers
- National Environmental Health Association
- New Jersey Environmental Health Association
- New Jersey Health Officers Association

PUBLICATIONS

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- "Groundwater Pollution Control and Soils/Onsite Sewage Disposal" work plan for Somerset County pursuant to the New Jersey *County Environmental Health Act.*
- Agovino, A.V. 2001. “Soil Properties and Other Factors Related to Failing Onsite Sewage Disposal Systems in Northern and Central New Jersey.” Doctoral Dissertation, Columbia Southern University.

10.0 Site Photographs

Photograph 1: Looking southeast across the upland oldfield on the site. Cultural resource plowing has been completed.

Photograph 2: Looking south across the upland oldfield on the site. Cultural resource plowing has been completed.

Photograph 3: Looking west at the stand of Pinus sylvestris (Scotch Pine, NL) near the former buildings.

Photograph 4: Looking north along the ditch at the eastern property line.

Photograph 5: Looking south at the ditch along the eastern property line.

Photograph 6: Typical view of the red maple forested wetlands at A 39.

Photograph 7: Typical view of the red maple wetlands near C-38.

Photograph 8: Typical view of the wetlands near D-45.

Photograph 9: The site of the former buildings on the site and the disturbed area.

Photograph 10: Looking south at the oldfields toward wetland AA-A. Cultural resource plowing has been completed.

APPENDIX A:

NYS DEC Natural Heritage Program Correspondence

New York State Department of Environmental Conservation
Division of Fish, Wildlife & Marine Resources
New York Natural Heritage Program
625 Broadway, 5th floor, Albany, New York 12233-4757
Phone: (518) 402-8935 • **FAX:** (518) 402-8925
Website: www.dec.state.ny.

Erin M. Crotty
Commissioner

July 11, 2005

James Morrison
Engineering Properties
110 Orange Ave
Walden, NY 12586

Dear Mr. Morrison:

In response to your recent request, we have reviewed the New York Natural Heritage Program database with respect to an Environmental Assessment for the Plesser Parcel, Project 136, site as indicated on the map you provided, located on Ohioville Road, Town of New Paltz, Ulster County.

Enclosed is a report of rare or state-listed animals and plants, significant natural communities, and other significant habitats, which our databases indicate occur, or may occur, on your site or in the immediate vicinity of your site. The information contained in this report is considered sensitive and may not be released to the public without permission from the New York Natural Heritage Program.

The presence of rare species may result in this project requiring additional permits, permit conditions, or review. For further guidance, and for information regarding other permits that may be required under state law for regulated areas or activities (e.g., regulated wetlands), please contact the appropriate NYS DEC Regional Office, Division of Environmental Permits, at the enclosed address.

For most sites, comprehensive field surveys have not been conducted; the enclosed report only includes records from our databases. We cannot provide a definitive statement on the presence or absence of all rare or state-listed species or significant natural communities. This information should not be substituted for on-site surveys that may be required for environment impact assessment.

Our databases are continually growing as records are added and updated. If this proposed project is still under development one year from now, we recommend that you contact us again so that we may update this response with the most current information.

Sincerely,

Betty Ketcham gp

Betty A. Ketcham, Information Services
NY Natural Heritage Program

Encs.

cc: Reg. 3, Wildlife Mgr.
Peter Nye, Endangered Species Unit, Albany

latural Heritage Report on Rare Species

NY Natural Heritage Program, NYS DEC, 625 Broadway, [illegible] loor,
Albany, NY 12233-4757
(518) 402-8935

~This report contains **SENSITIVE** information that may not be released to the public without permission from the NY Natural Heritage Program.
~Refer to the User's Guide for explanations of codes, ranks and fields.
~ [illegible] not provide maps for species most vulnerable to disturbance.

REPTILES

Clemmys muhlenbergii

Bog Turtle

				Office Use
NY Legal Status:	Endangered	**NYS Rank:**	Imperiled	9716
Federal Listing:	Threatened	**Global Rank:**	Vulnerable	M
County:	Ulster			ESU
Town:	Lloyd			
Location:	Documented within 1 mile of project site. Animals can move 1 mile or more from documented locations. For information, please contact the NYS DEC Regional Wildlife Manager or NYS DEC Endangered Species Unit at 518-402-8859.			

1 Records Processed

NY Natural Heritage Program, NYS DEC, 625 Broadway, 5th Floor
Albany, NY 12233-4757
(518) 402-8935

~This report contains **SENSITIVE** information that may not be released to the public without permission from the NY Natural Heritage Program.
~Refer to the User's Guide for explanations of codes, ranks and fields.
~Location maps for certain species and communities may not be provided if 1) the species is vulnerable to disturbance, 2) the location and/or extent is not precisely known, and/or 3) the location and/or extent is too large to display.

VASCULAR PLANTS

Sphenopholis obtusata

Office Use

Prairie Wedgegrass

NY Legal Status: Endangered

NYS Rank: S1; Critically imperiled

1810

Global Rank: G5; Demonstrably secure

M

EO Rank: Historical, no recent information

Last Report: 1957-06-22
County: Ulster
Town: New Paltz
Location: New Paltz
Directions:
General Quality and Habitat: Damp soil.

1 Records Processed

APPENDIX B:

US Fish and Wildlife Service Correspondence

United States Department of the Interior

FISH AND WILDLIFE SERVICE
3817 Luker Road
Cortland, NY 13045

January 19, 2006

Mr. James Morrison
Project Planner
Engineering Propeties, PC
110 Orange Avenue
Walden, NY 12586

Dear Mr. Morrison:

This responds to your October 25, 2005, letter requesting information on the presence of endangered or threatened species within the vicinity of the Plesser Property, a site proposed for residential and commercial development, located along Ohioville Road in the Town of New Paltz, Ulster County, New York.

There is potential for the Federally- and State-listed endangered Indiana bat (*Myotis sodalis*) to occur within the proposed project area, which is approximately 6.5 miles from known roosts and approximately 9 miles from known hibernacula in Ulster County. Please see the enclosed fact sheet on Indiana bats for further information.

In addition, there is potential for the Federally-listed threatened and State-listed endangered bog turtle (*Clemmys muhlenbergii*) to occur within the proposed project area, which is within 2 miles from an historic bog turtle site. Please see the enclosed fact sheet on bog turtles for further information.

Except for the potential for Indiana bat, bog turtle, and occasional transient individuals, no other Federally-listed or proposed endangered or threatened species under our jurisdiction are known to exist in the project impact area. In addition, no habitat in the project area is currently designated or proposed "critical habitat" in accordance with provisions of the Endangered Species Act (ESA) (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*). Should project plans change, or if additional information on listed or proposed species or critical habitat becomes available, this determination may be reconsidered. The most recent compilation of Federally-listed and proposed endangered and threatened species in New York* is available for your information. If the proposed project is not completed within one year from the date of this letter, we recommend that you contact us to ensure that listed species presence/absence information for the proposed project is current.

The above comments pertaining to endangered species under our jurisdiction are provided as technical assistance pursuant to the ESA. This response does not preclude additional U.S. Fish and Wildlife Service (Service) comments under other legislation.

As stated above, the Indiana bat and bog turtle are listed as endangered by the State of New York. Additional information regarding the project should be coordinated with both this

office and with the New York State Department of Environmental Conservation (NYSDEC). The NYSDEC contact for the Endangered Species Program is Mr. Peter Nye, Endangered Species Unit, 625 Broadway, Albany, NY 12233 (telephone: [518] 402-8859).

For additional information on fish and wildlife resources or State-listed species, we suggest you contact the appropriate NYSDEC regional office(s)* and the New York Natural Heritage Program Information Services.*

Since wetlands, ponds, and/or streams may be present, you may want to utilize the National Wetlands Inventory (NWI) maps* as an initial screening tool. However, they may or may not be available for the project area. Please note that while the NWI maps are reasonably accurate, they should not be used in lieu of field surveys for determining the presence of wetlands or delineating wetland boundaries for Federal regulatory purposes. Online information on the NWI program and digital data can be downloaded from Wetlands Mapper, http://wetlands.fws.gov/mapper_tool.htm.

Work in certain waters of the United States, including wetlands and streams, may require a permit from the U.S. Army Corps of Engineers (Corps). If a permit is required, in reviewing the application pursuant to the Fish and Wildlife Coordination Act, the Service may concur, with or without recommending additional permit conditions, or recommend denial of the permit depending upon potential adverse impacts on fish and wildlife resources associated with project construction or implementation. The need for a Corps permit may be determined by contacting the appropriate Corps office(s).* In addition, should any part of the proposed project be authorized, funded, or carried out, in whole or in part, by a Federal agency, such as the Corps, further consultation between the Service and that Federal agency pursuant to the ESA may be necessary.

Thank you for your time. If you require additional information please contact Robyn Niver at (607) 753-9334. Future correspondence with us on this project should reference project file 60126.

Sincerely,

Arnold Secord

for David A. Stilwell
Field Supervisor

*Additional information referred to above may be found on our website at: http://www.fws.gov/northeast/nyfo/es/section7.htm

Enclosures

cc: NYSDEC, New Paltz, NY (Attn: S. Joule/A. Ciesluk)
NYSDEC, Albany, NY (Endangered Species; Attn: P. Nye)
NYSDEC, Albany, NY (Natural Heritage)
COE, New York, NY

Indiana Bat Project Review Fact Sheet
New York Field Office
November 2005

The following fact sheet is intended to provide information to assist with the review of projects which occur within the likely range of the Indiana bat (*Myotis sodalis*) within the State of New York. The Indiana bat is Federally- and State-listed as an endangered species. You have received this Fact Sheet because the U.S. Fish and Wildlife Service (Service) has determined that a proposed project which you are associated with is located in an area which we believe has the potential for Indiana bat presence. Additional information on the proposed project (*e.g.*, size, level of impact, habitat) will help us to further examine the likelihood of Indiana bat presence within the proposed project area and potential for Indiana bats to be adversely impacted by the proposed project.

The Indiana bat is known to winter in six counties in New York State. While the Service has learned a great deal about the wintering population with standardized biennial counts organized by the New York State Department of Environmental Conservation (NYSDEC) Endangered Species Unit, we are continuing to study Indiana bat migratory patterns and summer habitat use within the State.

In the Northeast, multiple State and Federal agencies are investigating Indiana bat movements; the most recent studies of bats from hibernacula in Essex and Ulster Counties, New York, provide additional information. In the spring of 2002 through 2005, the NYSDEC successfully tracked female Indiana bats from their hibernacula in Essex, Ulster, and Jefferson Counties to their spring roosts, distances up to approximately 40 miles, however they are capable of flying distances much greater than that.

The Indiana bat typically hibernates in caves/mines in the winter and roosts under bark or in tree crevices in the spring, summer and fall. Suitable potential summer roosting habitat is characterized by trees (dead, dying, or alive) or snags, greater than or equal to 5 inches diameter breast height (d.b.h.) with exfoliating or defoliating bark, or containing cracks or crevices that could potentially be used by Indiana bats as a roost. However, maternity colonies generally use trees greater than or equal to 9 inches d.b.h. Overall, structure appears to be more important than a particular tree species or habitat type. Females appear to be more habitat specific than males presumably because of the warmer temperature requirements associated with gestation and the rearing of young. As a result, they are generally found at lower elevations than males may be found. Roosts are warmed by direct exposure to solar radiation, thus trees exposed to extended periods of direct sunlight are preferred over those in shaded areas. As larger trees afford a greater thermal mass for heat retention, they appear to be preferred over smaller trees. Additional information on potentially suitable summer habitat can be found on our website at http://www.fws.gov/northeast/nyfo/es/ibatdraft99.pdf.

Streams, associated floodplain forests, and impounded water bodies (ponds, wetlands, reservoirs, etc.) provide preferred foraging habitat for Indiana bats, some of which may fly up to 2-5 miles from upland roosts. Indiana bats also forage within the canopy of upland forests, over clearings with early successional vegetation (*e.g.*, old fields), along the borders of croplands, along wooded fencerows, and over farm ponds in pastures (U.S. Fish and Wildlife Service 1999). While Indiana bats appear to forage in a wide variety of habitats, they seem to tend to stay fairly close to tree cover.

such as the Indiana bat, and our recommendations are intended to help applicants and Federal agencies avoid or minimize the risk of "taking" an Indiana bat.

In addition to having concerns about direct impacts to Indiana bats, we are also concerned about the cumulative loss of habitat for the species. Therefore, we recommend protecting potential Indiana bat habitat within proposed projects to the greatest extent possible. In some cases, especially in areas where significant quantity/quality of Indiana bat habitat is present and proposed to be impacted, mist net or other surveys may be warranted to determine if bats are present onsite. Due to the limited time frame when bat surveys can be completed (see http://www.fws.gov/northeast/nyfo/es/ibatdraft99.pdf for recommended protocols), it is strongly recommended that the applicant contact the Service as early as possible in the project planning to determine if surveys or additional avoidance and/or minimization measures will be necessary to avoid project delays. If netting is conducted at a site, we encourage the attachment of radio transmitters on any captured Indiana bats to help understand how the proposed project site is being used by Indiana bats.

The project's environmental documents should identify project activities that might result in adverse impacts to the Indiana bat or their habitat. Information on any potential impacts and the results of any recommended habitat analyses or surveys for the Indiana bat should be provided to this office and they will be used to evaluate potential impacts to the Indiana bat or their habitat, and to determine the need for further coordination or consultation pursuant to the ESA.

References:

U.S. Fish and Wildlife Service. 1999. Agency Draft Indiana Bat (*Myotis sodalis*) Revised Recovery Plan. Fort Snelling, MN: U.S. Department of the Interior, Fish and Wildlife Service, Region 3. 53 p.

Bog Turtle Project Review Fact Sheet
New York Field Office
December 2005

The following fact sheet is intended to provide information to assist with the review of projects which occur within the likely range of the bog turtle (*Clemmys muhlenbergii*) within the State of New York. The bog turtle is Federally-listed as threatened and State-listed as an endangered species. You have received this Fact Sheet because the U.S. Fish and Wildlife Service (Service) has determined that a proposed project which you are associated with is located in an area which we believe has the potential for bog turtle presence. Additional information on the proposed project (*e.g.*, size, level of impact, habitat) will help us to further examine the likelihood of bog turtle presence within the proposed project area and potential for bog turtles to be adversely impacted by the proposed project.

Bog turtles prefer open canopy wetlands with soft, saturated soils such as fens or sedge meadows fed by seeps and springs of cold groundwater that has been in contact with calcium-rich bedrock or soils. In New York, bog turtles are very often found in or near rivulets having deep mucky substrate, but where above-surface water depths are very shallow – usually only a few inches deep at most. Plant species commonly associated with bog turtle habitats include tamarack (*Larix laricina*), cinquefoil (*Potentilla* spp.), alders (*Alnus* spp.), willows (*Salix* spp.), sedges (*Carex* spp.), sphagnum moss (*Sphagnum* sp.), jewelweed (*Impatiens capensis*), rice cut-grass (*Leersia oryzoides*), tearthumb (*Polygonum sagittatum*), arrow arum (*Peltandra virginica*), red maple (*Acer rubrum*), skunk cabbage (*Symplocarpus foetidus*), rushes (*Juncus* spp.), and bulrushes (*Scirpus* spp.).

The Service recommends that an evaluation be completed of any existing wetland habitat that would be disturbed, directly or indirectly, by the project, and its potential to support the bog turtle (Phase 1 survey). Information on surveys can be found at http://www.fws.gov/northeast/nyfo/es/btsurvey.pdf.

The Service and NYSDEC should be sent a copy of the Phase 1 survey results for review and comment including a USGS topographic map indicating location of site; project design map, including location of wetlands and streams; color photographs of the site; surveyors name; date of visit; opinion on potential/not potential habitat; description of the hydrology, soils, and vegetation.

If the Phase 1 survey identifies any wetlands with potentially suitable habitat, an evaluation is needed to determine whether the proposed project will completely avoid all direct and indirect effects to the wetlands, in consultation with the Service and the NYSDEC. Information to assist with the evaluation of potential impacts on bog turtles can be found in Appendix A - Bog Turtle Conservation Zones of the Bog Turtle (*Clemmys muhlenbergii*) Northern Population Recovery Plan (U.S. Fish and Wildlife Service 2001) which can be found at http://www.fws.gov/northeast/nyfo/es/btconszone.pdf. If impacts cannot be avoided, a Phase 2 survey should be completed. The purpose of the Phase 2 survey is to determine the likely presence of bog turtles at the site in potentially suitable habitat. Please see detailed instructions regarding survey protocols at http://www.fws.gov/northeast/nyfo/es/btsurvey.pdf. Also, please contact this office before conducting any Phase 2 surveys.

APPENDIX C:

Data Sheets

Habitat Assessment and Summary of Data

Client and Property Information				
Client: Meadowcreek	**Date:** 11/23/04	**Site:** Plesser	**Photo:**	**Map Key: WL C-D**
Municipality: New Paltz	**County:** Ulster	**State:** New York	**Recorder:** A V Agovino	
Time (From/to): 10:00-10:30	**Temp.: 5 C**	**Cloud cover: 20%**	**Precipitation: none**	

Geomorphology Information Recorded at the Sample Station			
Elevations:	370 ±	Slope Aspect, looking downslope:	5^0
Profile position:	toeslope	Slope Gradient:	5%
Geomorphic component:	base slope	Rock outcrops: [] yes	[x] no
Slope shape: Linear [x] Concave [] Convex [] Combination []			

Water Resources Information			
Aquifer:		Wetlands:	On site emergent shrub swamp
Streams:	none	Vernal pools:	none
Wetland hydrology:	*Inundated:* [x] yes [] no *Buttressed Roots:* [x] yes [] no *Other Hydrology Indicators:* yes		

Vegetation Species Recorded at the Sample Station						
Dominant Species	Indicator Status	Stratum		Dominant Species	Indicator Status	Stratum
Acer rubrum (Red Maple, FAC)	FAC	T				
Lonicera tartarica(Tartarian honeysuckle, NL)	NL	Shr				
Lindera benzoin (Spice-Bush, FACW)	FACW-	Shr				
Vaccinium corymbosum (Highbush Blueberry, FACW-)	FACW	Shr				
Cornus racemosa (red-panicle dogwood, NL)	NL	Shr				
Viburnum recognitum (Northern Arrowwood, FACW-)	FACW	Shr				

- Do normal environmental conditions exist at the plant community? [x] yes [] no
- Has the vegetation, soil and/or hydrology been significantly disturbed? [] yes [x] no
- Percent of Species which are OBL, FACW, and/or FAC: 80+
- Is the Hydrophytic Vegetation Criterion met? [x] yes [] no
- Approximate % of Invasive Species: 10

Soil Information Recorded at the Sample Station			
Series & Phase: Canandaigua		On Hydric Soils List: [x] yes [] no	
Is soil a Histosol: [] yes [x] no		Histic Epipedon present: [] yes [x] no	
Munsell & Mottling Information	Mottled? [x] yes [] no	Mottle color: 10YR 3/4	Matrix color: 10YR 4/2
Gleyed: [] yes [x] no	Other Indicators:		Boring Depth: 18 ”
Hydric Soil Criterion met? [x] yes [] no	Basis: Series, matrix color, mottles		

Habitat Evaluation at the Sample Station			
Habitat Type	**Size (Acres)**	**% of Total Site Area**	**Dominant Vegetation**
Red maple swamp	7.21	12%	Red maple, pin oak, highbush blueberry, arrowwood

Wildlife Species Identification		
White tailed deer		
Raccoon		
Gray squirrel		

Species of Conservation Concern Identification		
Species of Conservation Concern	**Habitat**	**Quality**
none		

Habitat Assessment and Summary of Data

Client and Property Information				
Client: Meadowcreek	**Date:** 11/23/04	**Site:** Plesser	**Photo:**	**Map Key: WL AA-A**
Municipality: New Paltz	**County:** Ulster	**State:** New York	**Recorder:** A V Agovino	
Time (From/to): 10:30-10:50	**Temp.: 5 C**	**Cloud cover: 20%**	**Precipitation: none**	

Geomorphology Information Recorded at the Sample Station			
Elevations:	365 +	Slope Aspect, looking downslope:	5^0
Profile position:	toeslope	Slope Gradient:	5%
Geomorphic component:	base slope	Rock outcrops: [] yes	[x] no
Slope shape: Linear [x] Concave [] Convex [] Combination []			

Water Resources Information			
Aquifer:		Wetlands:	On site shrub swamp
Streams:	none	Vernal pools:	none
Wetland hydrology:	*Inundated:* [] yes [x] no *Buttressed Roots:* [x] yes [] no *Other Hydrology Indicators:* yes		

Vegetation Species Recorded at the Sample Station						
Dominant Species	Indicator Status	Stratum		Dominant Species	Indicator Status	Stratum
Acer rubrum (Red Maple, FAC)	FAC	T				
Lonicera tartarica(Tartarian honeysuckle, NL)	NL	Shr				
Lindera benzoin (Spice-Bush, FACW)	FACW-	Shrub				
Lythrum salicaria (Purple Loosestrife, FACW+)	FACW	H				
Phragmites australis (Common Reed, FACW)	FACW	H				
Salix discolor (Pussy Willow, FACW)	FACW	Shr				

- Do normal environmental conditions exist at the plant community? [x] yes [] no
- Has the vegetation, soil and/or hydrology been significantly disturbed? [] yes [x] no
- Percent of Species which are OBL, FACW, and/or FAC: 87
- Is the Hydrophytic Vegetation Criterion met? [x] yes [] no
- Approximate % of Invasive Species: 75+

Soil Information Recorded at the Sample Station			
Series & Phase: Canandaigua		On Hydric Soils List: [x] yes [] no	
Is soil a Histosol: [] yes [x] no		Histic Epipedon present: [] yes [x] no	
Munsell & Mottling Information	Mottled? [x] yes [] no	Mottle color: 10YR 3/4	Matrix color: 10YR 4/2
Gleyed: [] yes [x] no	Other Indicators:		Boring Depth: 18 ”
Hydric Soil Criterion met? [x] yes [] no	Basis: Series, matrix color, mottles		

Habitat Evaluation at the Sample Station			
Habitat Type	**Size (Acres)**	**% of Total Site Area**	**Dominant Vegetation**
Emergent shrub swamp	2.4	4.2%	Red maple, spice bush, purple loosestrife, common reed

Wildlife Species Identification		
White tailed deer		
Raccoon		
Red winged blackbird		

Species of Conservation Concern Identification		
Species of Conservation Concern	**Habitat**	**Quality**
none		

Habitat Assessment and Summary of Data

Client and Property Information				
Client: Meadowcreek	**Date:** 11/23/04	**Site:** Plesser	**Photo:**	**Map Key: Succ For**
Municipality: New Paltz	**County:** Ulster	**State:** New York	**Recorder:** A V Agovino	
Time (From/to): 10:50-11:30	**Temp.: 5 C**	**Cloud cover: 20%**	**Precipitation: none**	

Geomorphology Information Recorded at the Sample Station			
Elevations:	375+	Slope Aspect, looking downslope:	5^0
Profile position:	footslope	Slope Gradient:	5 %
Geomorphic component:	side slope	Rock outcrops: [] yes	[x] no
Slope shape: Linear [] Concave [] Convex [x] Combination []			

Water Resources Information			
Aquifer:		Wetlands:	On site
Streams:	none	Vernal pools:	none
Wetland hydrology:	*Inundated:* [] yes [x] no *Buttressed Roots:* [] yes [x] no *Other Hydrology Indicators:* none		

Vegetation Species Recorded at the Sample Station						
Dominant Species	Indicator Status	Stratum		Dominant Species	Indicator Status	Stratum
Quercus alba (White Oak, FACU-)	FACU-	Tree				
Acer saccharum (Sugar Maple, FACU)	FACU-	Tree				
Lindera benzoin (Spice-Bush, FACW)	FACW-	Shrub				
Fagus grandifolia (American Beech, FACU)	FACU	Tree				
Acer rubrum (Red Maple, FAC)	FAC	T				

- Do normal environmental conditions exist at the plant community? [x] yes [] no
- Has the vegetation, soil and/or hydrology been significantly disturbed? [] yes [x] no
- Percent of Species which are OBL, FACW, and/or FAC: 40
- Is the Hydrophytic Vegetation Criterion met? [] yes [x] no
- Approximate % of Invasive Species: 25

Soil Information Recorded at the Sample Station			
Series & Phase: BRC		On Hydric Soils List: [] yes [x] no	
Is soil a Histosol: [] yes [x] no		Histic Epipedon present: [] yes [x] no	
Munsell & Mottling Information	Mottled? [x] yes [] no	Mottle color: 10YR 3/1	Matrix color: 10YR 4/4
Gleyed: [] yes [x] no	Other Indicators:		Boring Depth: 18 "
Hydric Soil Criterion met? [] yes [x] no	Basis: Series, matrix color		

Habitat Evaluation at the Sample Station			
Habitat Type	**Size (Acres)**	**% of Total Site Area**	**Dominant Vegetation**
Upland successional forest	1.1	> 2	White oak, sugar maple

Wildlife Species Identification		
White tailed deer	Red tailed hawk	Chipmunk
Raccoon	Mockingbird	Gray squirrel
Turkey	White throated sparrow	Blue Jay

Species of Conservation Concern Identification		
Species of Conservation Concern	**Habitat**	**Quality**
none		

Habitat Assessment and Summary of Data

Client and Property Information				
Client: Meadowcreek	**Date:** 12/15/04	**Site:** Plesser	**Photo:**	**Map Key: Succ For**
Municipality: New Paltz	**County:** Ulster	**State:** New York	**Recorder:** A V Agovino	
Time (From/to): 11:30-12:00	**Temp.: -5 C**	**Cloud cover: 25%**	**Precipitation: none**	

Geomorphology Information Recorded at the Sample Station			
Elevations:	365	Slope Aspect, looking downslope:	5^0
Profile position:	Summit	Slope Gradient:	5 %
Geomorphic component:	head slope	Rock outcrops: [] yes	[x] no
Slope shape: Linear [] Concave [] Convex [x] Combination []			

Water Resources Information			
Aquifer:		Wetlands:	On site
Streams:	none	Vernal pools:	none
Wetland hydrology:	*Inundated:* [] yes [x] no *Buttressed Roots:* [] yes [x] no *Other Hydrology Indicators:* none		

Vegetation Species Recorded at the Sample Station						
Dominant Species	Indicator Status	Stratum		Dominant Species	Indicator Status	Stratum
Quercus alba (White Oak, FACU-)	FACU-	Tree		Berberis thunberghii (Japanese Barberry,)	FACU	Shr
Acer saccharum (Sugar Maple, FACU)	FACU-	Tree				
Acer rubrum (Red Maple, FAC)	FAC	Sap				
Fagus grandifolia (American Beech, FACU)	FACU	Tree				
Allium canadense (Meadow Onion, FACU)	FACU	H				
Alliaria petiolata (Garlic mustard, FACU-)	FACU	H				

- Do normal environmental conditions exist at the plant community? [x] yes [] no
- Has the vegetation, soil and/or hydrology been significantly disturbed? [] yes [x] no
- Percent of Species which are OBL, FACW, and/or FAC: 14
- Is the Hydrophytic Vegetation Criterion met? [] yes [x] no
- Approximate % of Invasive Species: 10

Soil Information Recorded at the Sample Station			
Series & Phase: VoA		On Hydric Soils List: [] yes [x] no	
Is soil a Histosol: [] yes [x] no		Histic Epipedon present: [] yes [x] no	
Munsell & Mottling Information	Mottled? [x] yes [] no	Mottle color: 10YR 3/1	Matrix color: 10YR 4/4
Gleyed: [] yes [x] no	Other Indicators:		Boring Depth: 18 ”
Hydric Soil Criterion met? [] yes [x] no	Basis: Series, matrix color		

Habitat Evaluation at the Sample Station			
Habitat Type	**Size (Acres)**	**% of Total Site Area**	**Dominant Vegetation**
Upland successional forest	2.2	4	White oak, sugar maple, beech

Wildlife Species Identification		
White tailed deer	Red tailed hawk	
Raccoon	Mockingbird	
Turkey	Downy woodpecker	

Species of Conservation Concern Identification		
Species of Conservation Concern	**Habitat**	**Quality**
none		

Habitat Assessment and Summary of Data

Client and Property Information

Client: Meadowcreek	**Date:** 12/15/04	**Site:** Plesser	**Photo:**	**Map Key: WL AA-A**
Municipality: New Paltz	**County:** Ulster	**State:** New York	**Recorder:** A V Agovino	
Time (From/to): 12:00-12:40	**Temp.: -5 C**	**Cloud cover: 25%**	**Precipitation: none**	

Geomorphology Information Recorded at the Sample Station

Elevations:	360-	Slope Aspect, looking downslope: 5 ^{0}	
Profile position:	toeslope	Slope Gradient: 2%	
Geomorphic component:	base slope	Rock outcrops: [] yes [x] no	
Slope shape: Linear [] Concave [x] Convex [] Combination []			

Water Resources Information

Aquifer:		Wetlands:	On site emergent marsh
Streams:	none	Vernal pools:	none
Wetland hydrology:	*Inundated:* [x] yes [] no *Buttressed Roots:* [x] yes [] no *Other Hydrology Indicators:* none		

Vegetation Species Recorded at the Sample Station

Dominant Species	Indicator Status	Stratum		Dominant Species	Indicator Status	Stratum
Acer rubrum (Red Maple, FAC)	FAC	T		Typha latifolia (Common Cattail, OBL)	OBL	H
Lonicera tartarica(Tartarian honeysuckle, NL)	NL	Shr		Phragmites australis (Common Reed, FACW)	FACW	H
Lindera benzoin (Spice-Bush, FACW)	FACW-	Shrub				
Lythrum salicaria (Purple Loosestrife, FACW+)	FACW	H				
Salix discolor (Pussy Willow, FACW)	FACW	Shr				
Phalaris arundinacea (Reed Canarygrass, FACW+)	FACW	H				

- Do normal environmental conditions exist at the plant community? [x] yes [] no
- Has the vegetation, soil and/or hydrology been significantly disturbed? [] yes [x] no
- Percent of Species which are OBL, FACW, and/or FAC: 75
- Is the Hydrophytic Vegetation Criterion met? [x] yes [] no
- Approximate % of Invasive Species: 50

Soil Information Recorded at the Sample Station

Series & Phase: Canandaigua		On Hydric Soils List: [x] yes [] no	
Is soil a Histosol: [] yes [x] no		Histic Epipedon present: [] yes [x] no	
Munsell & Mottling Information	Mottled? [x] yes [] no	Mottle color: 10YR 3/4	Matrix color: 10YR 4/2
Gleyed: [] yes [x] no	Other Indicators:		Boring Depth: 18 "
Hydric Soil Criterion met? [x] yes [] no	Basis: Series, matrix color, mottles		

Habitat Evaluation at the Sample Station

Habitat Type	Size (Acres)	% of Total Site Area	Dominant Vegetation
emergent marsh	1	2	Purple loosetrife

Wildlife Species Identification

Species of Conservation Concern Identification

Species of Conservation Concern	Habitat	Quality
none		

Habitat Assessment and Summary of Data

Client and Property Information

Client: Meadowcreek	**Date:** 3/24/05	**Site:** Plesser	**Photo:**	**Map Key: WL B**
Municipality: New Paltz	**County:** Ulster	**State:** New York	**Recorder:** A V Agovino	
Time (From/to): 1:00- 3:00	**Temp.: 2 C**	**Cloud cover: 25**	**Precipitation: heavy**	

Geomorphology Information Recorded at the Sample Station

Elevations:	357 ±	Slope Aspect, looking downslope:	$<5^0$
Profile position:	toeslope	Slope Gradient:	< 5%
Geomorphic component:	base slope	Rock outcrops: [] yes	[x] no
Slope shape: Linear [x] Concave [] Convex [] Combination []			

Water Resources Information

Aquifer:		Wetlands:	On site emergent shrub swamp
Streams:	none	Vernal pools:	none
Wetland hydrology:	*Inundated:* [x] yes [] no *Buttressed Roots:* [x] yes [] no *Other Hydrology Indicators:* yes		

Vegetation Species Recorded at the Sample Station

Dominant Species	Indicator Status	Stratum		Dominant Species	Indicator Status	Stratum
Lythrum salicaria (Purple Loosestrife, FACW+)	FACW	H				
Polygonum sagittatum (Arrow Leaved Tear-Thumb, OBL)	OBL	H				
Juncus effusus (Soft Rush, FACW+)	FACW	H				

- Do normal environmental conditions exist at the plant community? [x] yes [] no
- Has the vegetation, soil and/or hydrology been significantly disturbed? [] yes [x] no
- Percent of Species which are OBL, FACW, and/or FAC: 100
- Is the Hydrophytic Vegetation Criterion met? [x] yes [] no
- Approximate % of Invasive Species: 33

Soil Information Recorded at the Sample Station

Series & Phase: Canandaigua		On Hydric Soils List: [x] yes [] no	
Is soil a Histosol: [] yes [x] no		Histic Epipedon present: [] yes [x] no	
Munsell & Mottling Information	Mottled? [x] yes [] no	Mottle color: 10YR 3/4	Matrix color: 10YR 4/2
Gleyed: [] yes [x] no	Other Indicators:		Boring Depth: 18 ”
Hydric Soil Criterion met? [x] yes [] no	Basis: Series, matrix color, mottles		

Habitat Evaluation at the Sample Station

Habitat Type	Size (Acres)	% of Total Site Area	Dominant Vegetation
Emergent shrub swamp	0.03	<1%	Purple loostrife

Wildlife Species Identification

White tailed deer		
Raccoon		

Species of Conservation Concern Identification

Species of Conservation Concern	Habitat	Quality
none		

Habitat Assessment and Summary of Data

Client and Property Information				
Client: Meadowcreek	**Date:** 3/24/05	**Site:** Plesser	**Photo:**	**Map Key: WL AA-A**
Municipality: New Paltz	**County:** Ulster	**State:** New York	**Recorder:** A V Agovino	
Time (From/to): 1:00-2:00	**Temp.: 2 C**	**Cloud cover: 25%**	**Precipitation: none**	

Geomorphology Information Recorded at the Sample Station			
Elevations:	380-	Slope Aspect, looking downslope: 5 ^{0}	
Profile position:	toeslope	Slope Gradient: 2%	
Geomorphic component:	base slope	Rock outcrops: [] yes [x] no	
Slope shape: Linear [] Concave [x] Convex [] Combination []			

Water Resources Information			
Aquifer:		Wetlands:	On site red maple swamp
Streams:	none	Vernal pools:	none
Wetland hydrology:	*Inundated:* [x] yes [] no *Buttressed Roots:* [x] yes [] no *Other Hydrology Indicators:* none		

Vegetation Species Recorded at the Sample Station						
Dominant Species	Indicator Status	Stratum		Dominant Species	Indicator Status	Stratum
Acer rubrum (Red Maple, FAC)	FAC	T				
Lonicera tartarica(Tartarian honeysuckle, NL)	NL	Shr				
Lindera benzoin (Spice-Bush, FACW)	FACW-	Shrub				
Lythrum salicaria (Purple Loosestrife, FACW+)	FACW	H				
Carex stricta (Tussock Sedge, OBL)	OBL	H				

- Do normal environmental conditions exist at the plant community? [x] yes [] no
- Has the vegetation, soil and/or hydrology been significantly disturbed? [] yes [x] no
- Percent of Species which are OBL, FACW, and/or FAC: 75
- Is the Hydrophytic Vegetation Criterion met? [x] yes [] no
- Approximate % of Invasive Species: 50

Soil Information Recorded at the Sample Station			
Series & Phase: Canandaigua		On Hydric Soils List: [x] yes [] no	
Is soil a Histosol: [] yes [x] no		Histic Epipedon present: [] yes [x] no	
Munsell & Mottling Information	Mottled? [x] yes [] no	Mottle color: 10YR 3/4	Matrix color: 10YR 4/2
Gleyed: [] yes [x] no	Other Indicators:		Boring Depth: 18 ”
Hydric Soil Criterion met? [x] yes [] no	Basis: Series, matrix color, mottles		

Habitat Evaluation at the Sample Station			
Habitat Type	**Size (Acres)**	**% of Total Site Area**	**Dominant Vegetation**
Red maple swamp	0.72	1.0	Red maple, tussock sedge

Wildlife Species Identification		
White tailed deer	Canada goose	
Red eft		
Black duck		

Species of Conservation Concern Identification		
Species of Conservation Concern	**Habitat**	**Quality**
none		

Habitat Assessment and Summary of Data

Client and Property Information				
Client: Meadowcreek	**Date:** 4/21/05	**Site:** Plesser	**Photo:**	**Map Key: Succ For**
Municipality: New Paltz	**County:** Ulster	**State:** New York	**Recorder:** A V Agovino	
Time (From/to): 21:00-22:00	**Temp.: 15 C**	**Cloud cover: 25%**	**Precipitation: none**	

Geomorphology Information Recorded at the Sample Station			
Elevations:	370 ±	Slope Aspect, looking downslope:	<5^0
Profile position:	Summit	Slope Gradient:	<5 %
Geomorphic component:	head slope	Rock outcrops: [] yes	[x] no
Slope shape: Linear [] Concave [] Convex [] Combination [x]			

Water Resources Information			
Aquifer:		Wetlands:	On site to the northwest and east
Streams:	none	Vernal pools:	none
Wetland hydrology:	*Inundated:* [] yes [x] no *Buttressed Roots:* [] yes [x] no *Other Hydrology Indicators:* none		

Vegetation Species Recorded at the Sample Station						
Dominant Species	Indicator Status	Stratum		Dominant Species	Indicator Status	Stratum
Quercus alba (White Oak, FACU-)	FACU-	Tree		Allium canadense (Meadow Onion, FACU)	FACU	H
Acer rubrum (Red Maple, FAC)	FAC	Sap		Aster divaricatus (White wood aster, FACU)	FACU	H
Fagus grandifolia (American Beech, FACU)	FACU	Tree				
Juglans nigra (Black Walnut, FACU)	FACU	T				
Alliaria petiolata (Garlic mustard, FACU-)	FACU	H				

- Do normal environmental conditions exist at the plant community? [x] yes [] no
- Has the vegetation, soil and/or hydrology been significantly disturbed? [] yes [x] no
- Percent of Species which are OBL, FACW, and/or FAC: 14
- Is the Hydrophytic Vegetation Criterion met? [] yes [x] no
- Approximate % of Invasive Species: 30

Soil Information Recorded at the Sample Station			
Series & Phase: BRC		On Hydric Soils List: [] yes [x] no	
Is soil a Histosol: [] yes [x] no		Histic Epipedon present: [] yes [x] no	
Munsell & Mottling Information	Mottled? [x] yes [] no	Mottle color: 10YR 3/1	Matrix color: 10YR 4/4
Gleyed: [] yes [x] no	Other Indicators:		Boring Depth: 18 ”
Hydric Soil Criterion met? [] yes [x] no	Basis: Series, matrix color		

Habitat Evaluation at the Sample Station			
Habitat Type	**Size (Acres)**	**% of Total Site Area**	**Dominant Vegetation**
Upland successional forest	1	1.5	White oak, red maple

Wildlife Species Identification		
White tailed deer	Red tailed hawk	Spring peeper
Raccoon	Mockingbird	Red eft
Turkey	Downy woodpecker	

Species of Conservation Concern Identification		
Species of Conservation Concern	**Habitat**	**Quality**
none		

Habitat Assessment and Summary of Data

Client and Property Information				
Client: Meadowcreek	**Date:** 4/21/05	**Site:** Plesser	**Photo:**	**Map Key: WL AA-A**
Municipality: New Paltz	**County:** Ulster	**State:** New York	**Recorder:** A V Agovino	
Time (From/to): 3:00-4:00	**Temp.: 15 C**	**Cloud cover: 25%**	**Precipitation: none**	

Geomorphology Information Recorded at the Sample Station			
Elevations:	355	Slope Aspect, looking downslope: <5 ^{0}	
Profile position:	toeslope	Slope Gradient: 2%	
Geomorphic component:	base slope	Rock outcrops: [] yes [x] no	
Slope shape: Linear [] Concave [x] Convex [] Combination []			

Water Resources Information			
Aquifer:		Wetlands:	On site red maple swamp
Streams:	none	Vernal pools:	none
Wetland hydrology:	*Inundated:* [x] yes [] no *Buttressed Roots:* [x] yes [] no *Other Hydrology Indicators:* none		

Vegetation Species Recorded at the Sample Station						
Dominant Species	Indicator Status	Stratum		Dominant Species	Indicator Status	Stratum
Acer rubrum (Red Maple, FAC)	FAC	T				
Lonicera tartarica(Tartarian honeysuckle, NL)	NL	Shr				
Lindera benzoin (Spice-Bush, FACW)	FACW-	Shrub				
Typha latifolia (Common Cattail, OBL)	OBL	H				
Symplocarpus foetidus (Skunk Cabbage, OBL)	OBL	H				
Lythrum salicaria (Purple Loosestrife, FACW+)	FACW	H				

- Do normal environmental conditions exist at the plant community? [x] yes [] no
- Has the vegetation, soil and/or hydrology been significantly disturbed? [] yes [x] no
- Percent of Species which are OBL, FACW, and/or FAC: 87
- Is the Hydrophytic Vegetation Criterion met? [x] yes [] no
- Approximate % of Invasive Species: 33

Soil Information Recorded at the Sample Station			
Series & Phase: Canandaigua		On Hydric Soils List: [x] yes [] no	
Is soil a Histosol: [] yes [x] no		Histic Epipedon present: [] yes [x] no	
Munsell & Mottling Information	Mottled? [x] yes [] no	Mottle color: 10YR 3/4	Matrix color: 10YR 4/2
Gleyed: [] yes [x] no	Other Indicators:		Boring Depth: 18 ”
Hydric Soil Criterion met? [x] yes [] no	Basis: Series, matrix color, mottles		

Habitat Evaluation at the Sample Station			
Habitat Type	**Size (Acres)**	**% of Total Site Area**	**Dominant Vegetation**
Red maple swamp/emergent	1.0	2	Red maple, loostrife

Wildlife Species Identification		
White tailed deer	Green frog	
Canada goose	Spring peeper	
Black duck		

Species of Conservation Concern Identification		
Species of Conservation Concern	**Habitat**	**Quality**
none		

Habitat Assessment and Summary of Data

Client and Property Information				
Client: Meadowcreek	**Date:** 5/31/05	**Site:** Plesser	**Photo:**	**Map Key: WL D**
Municipality: New Paltz	**County:** Ulster	**State:** New York	**Recorder:** A V Agovino	
Time (From/to): 2:00-3:00	**Temp.: 15 C**	**Cloud cover: 25%**	**Precipitation: none**	

Geomorphology Information Recorded at the Sample Station			
Elevations:	366	Slope Aspect, looking downslope: 5 ^{0}	
Profile position:	toeslope	Slope Gradient: 2%	
Geomorphic component:	base slope	Rock outcrops: [] yes [x] no	
Slope shape: Linear [] Concave [x] Convex [] Combination []			

Water Resources Information			
Aquifer:		Wetlands:	On site red maple swamp
Streams:	none	Vernal pools:	none
Wetland hydrology:	*Inundated:* [x] yes [] no *Buttressed Roots:* [x] yes [] no *Other Hydrology Indicators:* none		

Vegetation Species Recorded at the Sample Station						
Dominant Species	Indicator Status	Stratum		Dominant Species	Indicator Status	Stratum
Acer rubrum (Red Maple, FAC)	FAC	T		Dryopteris spinulosa (Wood fern, FAC+)	FAC+	H
Carpinus caroliniana (American Hornbeam, FAC)	FAC	Sap		Hamamelis virginiana (Witch Hazel, FAC-)	FAC	Shr
Alnus rugosa (Speckled Alder, FACW+)	FACW	Sap				
Osmunda regalis (Royal fern, OBL)	OBL	H				
Lycopodium lucidulum (Shining clubmoss, FACW-)	FACW	H				
Thelypteris palustris (Marsh fern, FACW+)	FACW	H				

- Do normal environmental conditions exist at the plant community? [x] yes [] no
- Has the vegetation, soil and/or hydrology been significantly disturbed? [] yes [x] no
- Percent of Species which are OBL, FACW, and/or FAC: 100
- Is the Hydrophytic Vegetation Criterion met? [x] yes [] no
- Approximate % of Invasive Species: <10

Soil Information Recorded at the Sample Station			
Series & Phase: Canandaigua		On Hydric Soils List: [x] yes [] no	
Is soil a Histosol: [] yes [x] no		Histic Epipedon present: [] yes [x] no	
Munsell & Mottling Information	Mottled? [x] yes [] no	Mottle color: 10YR 3/4	Matrix color: 10YR 4/2
Gleyed: [] yes [x] no	Other Indicators:		Boring Depth: 18 ”
Hydric Soil Criterion met? [x] yes [] no	Basis: Series, matrix color, mottles		

Habitat Evaluation at the Sample Station			
Habitat Type	**Size (Acres)**	**% of Total Site Area**	**Dominant Vegetation**
Red maple swamp	7	15	Red maple, hornbeam, marsh fern

Wildlife Species Identification		
White tailed deer	Canada goose	Wood frog
Green winged teal	Red eft	
Black duck	Green frog	

Species of Conservation Concern Identification		
Species of Conservation Concern	**Habitat**	**Quality**
none		

Habitat Assessment and Summary of Data

Client and Property Information

Client: Meadowcreek	**Date:** 4/21/05	**Site:** Plesser	**Photo:**	**Map Key: WL D**
Municipality: New Paltz	**County:** Ulster	**State:** New York	**Recorder:** A V Agovino	
Time (From/to): 21:00-22:00	**Temp.: 15 C**	**Cloud cover: 25%**	**Precipitation: none**	

Geomorphology Information Recorded at the Sample Station

Elevations:	366	Slope Aspect, looking downslope: 5 ^{0}	
Profile position:	toeslope	Slope Gradient: 2%	
Geomorphic component:	base slope	Rock outcrops: [] yes [x] no	
Slope shape: Linear [] Concave [x] Convex [] Combination []			

Water Resources Information

Aquifer:		Wetlands:	On site red maple swamp
Streams:	none	Vernal pools:	none
Wetland hydrology:	*Inundated:* [x] yes [] no *Buttressed Roots:* [x] yes [] no *Other Hydrology Indicators:* none		

Vegetation Species Recorded at the Sample Station

Dominant Species	Indicator Status	Stratum		Dominant Species	Indicator Status	Stratum
Acer rubrum (Red Maple, FAC)	FAC	T		Dryopteris spinulosa (Wood fern, FAC+)	FAC+	H
Carpinus caroliniana (American Hornbeam, FAC)	FAC	Sap		Hamamelis virginiana (Witch Hazel, FAC-)	FAC	Shr
Alnus rugosa (Speckled Alder, FACW+)	FACW	Sap				
Osmunda regalis (Royal fern, OBL)	OBL	H				
Lycopodium lucidulum (Shining clubmoss, FACW-)	FACW	H				
Thelypteris palustris (Marsh fern, FACW+)	FACW	H				

- Do normal environmental conditions exist at the plant community? [x] yes [] no
- Has the vegetation, soil and/or hydrology been significantly disturbed? [] yes [x] no
- Percent of Species which are OBL, FACW, and/or FAC: 100
- Is the Hydrophytic Vegetation Criterion met? [x] yes [] no
- Approximate % of Invasive Species: <10

Soil Information Recorded at the Sample Station

Series & Phase: Canandaigua		On Hydric Soils List: [x] yes [] no	
Is soil a Histosol: [] yes [x] no		Histic Epipedon present: [] yes [x] no	
Munsell & Mottling Information	Mottled? [x] yes [] no	Mottle color: 10YR 3/4	Matrix color: 10YR 4/2
Gleyed: [] yes [x] no	Other Indicators:		Boring Depth: 18 ”
Hydric Soil Criterion met? [x] yes [] no	Basis: Series, matrix color, mottles		

Habitat Evaluation at the Sample Station

Habitat Type	Size (Acres)	% of Total Site Area	Dominant Vegetation
Red maple swamp	7	15	Red maple, hornbeam, marsh fern

Wildlife Species Identification

White tailed deer	Canada goose	
Spring peeper	Wood frog	
Turkey	Green frog	

Species of Conservation Concern Identification

Species of Conservation Concern	Habitat	Quality
none		

Habitat Assessment and Summary of Data

Client and Property Information

Client: Meadowcreek	**Date:** 5/31/05	**Site:** Plesser	**Photo:**	**Map Key: WL D**
Municipality: New Paltz	**County:** Ulster	**State:** New York	**Recorder:** A V Agovino	
Time (From/to): 20:00-21:00	**Temp.: 15 C**	**Cloud cover: 25%**	**Precipitation: none**	

Geomorphology Information Recorded at the Sample Station

Elevations:	366	Slope Aspect, looking downslope: 5 ^{0}	
Profile position:	toeslope	Slope Gradient: 2%	
Geomorphic component:	base slope	Rock outcrops: [] yes [x] no	
Slope shape: Linear [] Concave [x] Convex [] Combination []			

Water Resources Information

Aquifer:		Wetlands:	On site red maple swamp
Streams:	none	Vernal pools:	none
Wetland hydrology:	*Inundated:* [x] yes [] no *Buttressed Roots:* [x] yes [] no *Other Hydrology Indicators:* none		

Vegetation Species Recorded at the Sample Station

Dominant Species	Indicator Status	Stratum		Dominant Species	Indicator Status	Stratum
Acer rubrum (Red Maple, FAC)	FAC	T		Dryopteris spinulosa (Wood fern, FAC+)	FAC+	H
Carpinus caroliniana (American Hornbeam, FAC)	FAC	Sap		Hamamelis virginiana (Witch Hazel, FAC-)	FAC	Shr
Alnus rugosa (Speckled Alder, FACW+)	FACW	Sap				
Osmunda regalis (Royal fern, OBL)	OBL	H				
Lycopodium lucidulum (Shining clubmoss, FACW-)	FACW	H				
Thelypteris palustris (Marsh fern, FACW+)	FACW	H				

- Do normal environmental conditions exist at the plant community? [x] yes [] no
- Has the vegetation, soil and/or hydrology been significantly disturbed? [] yes [x] no
- Percent of Species which are OBL, FACW, and/or FAC: 100
- Is the Hydrophytic Vegetation Criterion met? [x] yes [] no
- Approximate % of Invasive Species: <10

Soil Information Recorded at the Sample Station

Series & Phase: Canandaigua		On Hydric Soils List: [x] yes [] no	
Is soil a Histosol: [] yes [x] no		Histic Epipedon present: [] yes [x] no	
Munsell & Mottling Information	Mottled? [x] yes [] no	Mottle color: 10YR 3/4	Matrix color: 10YR 4/2
Gleyed: [] yes [x] no	Other Indicators:		Boring Depth: 18 ”
Hydric Soil Criterion met? [x] yes [] no	Basis: Series, matrix color, mottles		

Habitat Evaluation at the Sample Station

Habitat Type	Size (Acres)	% of Total Site Area	Dominant Vegetation
Red maple swamp	7	15	Red maple, hornbeam, marsh fern

Wildlife Species Identification

White tailed deer	Canada goose	
Spring peeper	Wood frog	
Turkey	Green frog	

Species of Conservation Concern Identification

Species of Conservation Concern	Habitat	Quality
none		

Habitat Assessment and Summary of Data

Client and Property Information				
Client: Meadowcreek	**Date:** 6/8/05	**Site:** Plesser	**Photo:**	**Map Key: WL D**
Municipality: New Paltz	**County:** Ulster	**State:** New York	**Recorder:** A V Agovino	
Time (From/to): 1:00-2:00	**Temp.: 20 C**	**Cloud cover: 25%**	**Precipitation: rain**	

Geomorphology Information Recorded at the Sample Station			
Elevations:	366	Slope Aspect, looking downslope: <5 ^{0}	
Profile position:	toeslope	Slope Gradient: 2%	
Geomorphic component:	base slope	Rock outcrops: [] yes [x] no	
Slope shape: Linear [] Concave [x] Convex [] Combination []			

Water Resources Information			
Aquifer:		Wetlands:	On site red maple swamp
Streams:	none	Vernal pools:	none
Wetland hydrology:	*Inundated:* [x] yes [] no *Buttressed Roots:* [x] yes [] no *Other Hydrology Indicators:* none		

Vegetation Species Recorded at the Sample Station						
Dominant Species	Indicator Status	Stratum		Dominant Species	Indicator Status	Stratum
Acer rubrum (Red Maple, FAC)	FAC	T		Dryopteris spinulosa (Wood fern, FAC+)	FAC+	H
Carpinus caroliniana (American Hornbeam, FAC)	FAC	Sap		Hamamelis virginiana (Witch Hazel, FAC-)	FAC	Shr
Alnus rugosa (Speckled Alder, FACW+)	FACW	Sap				
Osmunda regalis (Royal fern, OBL)	OBL	H				
Lycopodium lucidulum (Shining clubmoss, FACW-)	FACW	H				
Thelypteris palustris (Marsh fern, FACW+)	FACW	H				

- Do normal environmental conditions exist at the plant community? [x] yes [] no
- Has the vegetation, soil and/or hydrology been significantly disturbed? [] yes [x] no
- Percent of Species which are OBL, FACW, and/or FAC: 100
- Is the Hydrophytic Vegetation Criterion met? [x] yes [] no
- Approximate % of Invasive Species: <10

Soil Information Recorded at the Sample Station			
Series & Phase: Canandaigua		On Hydric Soils List: [x] yes [] no	
Is soil a Histosol: [] yes [x] no		Histic Epipedon present: [] yes [x] no	
Munsell & Mottling Information	Mottled? [x] yes [] no	Mottle color: 10YR 3/4	Matrix color: 10YR 4/2
Gleyed: [] yes [x] no	Other Indicators:		Boring Depth: 18 ”
Hydric Soil Criterion met? [x] yes [] no	Basis: Series, matrix color, mottles		

Habitat Evaluation at the Sample Station			
Habitat Type	**Size (Acres)**	**% of Total Site Area**	**Dominant Vegetation**
Red maple swamp	7	15	Red maple, hornbeam, marsh fern

Wildlife Species Identification		
White tailed deer	Wood frog	Box turtle
Red eft	Green frog	
Turkey		

Species of Conservation Concern Identification		
Species of Conservation Concern	**Habitat**	**Quality**
Box turtle	Wetland C-D	Moderate-high

Habitat Assessment and Summary of Data

Client and Property Information				
Client: Meadowcreek	**Date:** 6/8/05	**Site:** Plesser	**Photo:**	**Map Key: Succ For**
Municipality: New Paltz	**County:** Ulster	**State:** New York	**Recorder:** A V Agovino	
Time (From/to): 2:00-2:30	**Temp.: 20 C**	**Cloud cover: 20%**	**Precipitation: rain**	

Geomorphology Information Recorded at the Sample Station			
Elevations:		Slope Aspect, looking downslope: $<5^0$	
Profile position:	footslope	Slope Gradient: <5 %	
Geomorphic component:	side slope	Rock outcrops: [] yes [x] no	
Slope shape: Linear [] Concave [] Convex [x] Combination []			

Water Resources Information			
Aquifer:		Wetlands:	On site to the northeast, east and south
Streams:	none	Vernal pools:	none
Wetland hydrology:	*Inundated:* [] yes [x] no *Buttressed Roots:* [] yes [x] no *Other Hydrology Indicators:* none		

Vegetation Species Recorded at the Sample Station						
Dominant Species	Indicator Status	Stratum		Dominant Species	Indicator Status	Stratum
Quercus alba (White Oak, FACU-)	FACU-	Tree		Aster divaricatus (White wood aster, FACU)	FACU	H
Acer saccharum (Sugar Maple, FACU)	FACU-	Tree		Claytonia virginica (Spring Beauty, FACU)	FACU	H
Lindera benzoin (Spice-Bush, FACW)	FACW-	Shrub		Alliaria petiolata (Garlic mustard, FACU-)	FACU	H
Fagus grandifolia (American Beech, FACU)	FACU	Tree		Allium canadense (Meadow Onion, FACU)	FACU	H
Toxicodendron radicans (Poison Ivy, FAC)	FAC	V				
Erythronium americanum (Trout Lily, NL)	NL	H				

- Do normal environmental conditions exist at the plant community? [x] yes [] no
- Has the vegetation, soil and/or hydrology been significantly disturbed? [] yes [x] no
- Percent of Species which are OBL, FACW, and/or FAC: 10
- Is the Hydrophytic Vegetation Criterion met? [] yes [x] no
- Approximate % of Invasive Species: 25

Soil Information Recorded at the Sample Station			
Series & Phase: ErA		On Hydric Soils List: [] yes [x] no	
Is soil a Histosol: [] yes [x] no		Histic Epipedon present: [] yes [x] no	
Munsell & Mottling Information	Mottled? [x] yes [] no	Mottle color: 10YR 3/1	Matrix color: 10YR 4/4
Gleyed: [] yes [x] no	Other Indicators:		Boring Depth: 18 "
Hydric Soil Criterion met? [] yes [x] no	Basis: Series, matrix color		

Habitat Evaluation at the Sample Station			
Habitat Type	**Size (Acres)**	**% of Total Site Area**	**Dominant Vegetation**
Upland successional forest	45	> 50	White oak, sugar maple

Wildlife Species Identification		
White tailed deer	White throated sparrow	Chipmunk
Cardinal	Mockingbird	Killdeer (vocal)
Turkey	Downy woodpecker	Robin

Species of Conservation Concern Identification		
Species of Conservation Concern	**Habitat**	**Quality**
none		

Habitat Assessment and Summary of Data

Client and Property Information				
Client: Meadowcreek	**Date:** 11/15/05	**Site:** Plesser	**Photo:**	**Map Key: WL A**
Municipality: New Paltz	**County:** Ulster	**State:** New York	**Recorder:** A V Agovino	
Time (From/to): 10:00-11:00	**Temp.: 5 C**	**Cloud cover: 25%**	**Precipitation: rain mix**	

Geomorphology Information Recorded at the Sample Station			
Elevations:	380-	Slope Aspect, looking downslope: 5 ^{0}	
Profile position:	toeslope	Slope Gradient: 2%	
Geomorphic component:	base slope	Rock outcrops: [] yes [x] no	
Slope shape: Linear [] Concave [x] Convex [] Combination []			

Water Resources Information			
Aquifer:		Wetlands:	On site red maple swamp
Streams:	none	Vernal pools:	none
Wetland hydrology:	*Inundated:* [x] yes [] no *Buttressed Roots:* [x] yes [] no *Other Hydrology Indicators:* none		

Vegetation Species Recorded at the Sample Station						
Dominant Species	Indicator Status	Stratum		Dominant Species	Indicator Status	Stratum
Acer rubrum (Red Maple, FAC)	FAC	T		Typha latifolia (Common Cattail, OBL)	OBL	H
Lonicera tartarica(Tartarian honeysuckle, NL)	NL	Shr		Phragmites australis (Common Reed, FACW)	FACW	H
Lindera benzoin (Spice-Bush, FACW)	FACW-	Shrub				
Lythrum salicaria (Purple Loosestrife, FACW+)	FACW	H				
Salix discolor (Pussy Willow, FACW)	FACW	Shr				
Phalaris arundinacea (Reed Canarygrass, FACW+)	FACW	H				

- Do normal environmental conditions exist at the plant community? [x] yes [] no
- Has the vegetation, soil and/or hydrology been significantly disturbed? [] yes [x] no
- Percent of Species which are OBL, FACW, and/or FAC: 87
- Is the Hydrophytic Vegetation Criterion met? [x] yes [] no
- Approximate % of Invasive Species: >50

Soil Information Recorded at the Sample Station			
Series & Phase: Canandaigua		On Hydric Soils List: [x] yes [] no	
Is soil a Histosol: [] yes [x] no		Histic Epipedon present: [] yes [x] no	
Munsell & Mottling Information	Mottled? [x] yes [] no	Mottle color: 10YR 3/4	Matrix color: 10YR 4/2
Gleyed: [] yes [x] no	Other Indicators:		Boring Depth: 18 ”
Hydric Soil Criterion met? [x] yes [] no	Basis: Series, matrix color, mottles		

Habitat Evaluation at the Sample Station			
Habitat Type	**Size (Acres)**	**% of Total Site Area**	**Dominant Vegetation**
Red maple swamp		15	Red maple, tussock sedge

Wildlife Species Identification		
Black duck	Canada goose	

Species of Conservation Concern Identification		
Species of Conservation Concern	**Habitat**	**Quality**
none		

Habitat Assessment and Summary of Data

Client and Property Information				
Client: Meadowcreek	**Date:** 11/15/05	**Site:** Plesser	**Photo:**	**Map Key: FA/SO**
Municipality: New Paltz	**County:** Ulster	**State:** New York	**Recorder:** A V Agovino	
Time (From/to): 11:40-12:30	**Temp.: 5 C**	**Cloud cover: 20%**	**Precipitation: rain mix**	

Geomorphology Information Recorded at the Sample Station			
Elevations:	369	Slope Aspect, looking downslope:	$<5^0$
Profile position:	footslope	Slope Gradient:	<5%
Geomorphic component:	base slope	Rock outcrops: [] yes	[x] no
Slope shape: Linear [] Concave [] Convex [x] Combination []			

Water Resources Information			
Aquifer:		Wetlands:	On site east and south
Streams:	none	Vernal pools:	none
Wetland hydrology:	*Inundated:* [] yes [x] no *Buttressed Roots:* [] yes [x] no *Other Hydrology Indicators:* none		

Vegetation Species Recorded at the Sample Station						
Dominant Species	Indicator Status	Stratum		Dominant Species	Indicator Status	Stratum
Erigeron sp. (Fleabane, FACU)	FACU			Pinus resinosa (Red Pine, FACU)	FACU	Sap
Verbascum thapsus (Common Mullein, NL)	NL			Lythrum salicaria (Purple Loosestrife, FACW+)	FACW	H
Solidago spp. (Goldenrods)						
Allium canadense (Meadow Onion, FACU)	FACU					
Arctium minus (Common burdock, NL)	NL					
Medicago sativa (Alfalfa, NL)	NL					

- Do normal environmental conditions exist at the plant community? [x] yes [] no
- Has the vegetation, soil and/or hydrology been significantly disturbed? [] yes [x] no
- Percent of Species which are OBL, FACW, and/or FAC: 0
- Is the Hydrophytic Vegetation Criterion met? [] yes [x] no
- Approximate % of Invasive Species: 25

Soil Information Recorded at the Sample Station			
Series & Phase: MdB		On Hydric Soils List: [] yes [x] no	
Is soil a Histosol: [] yes [x] no		Histic Epipedon present: [] yes [x] no	
Munsell & Mottling Information	Mottled? [x] yes [] no	Mottle color: 10YR 3/1	Matrix color: 10YR 4/4
Gleyed: [] yes [x] no	Other Indicators:		Boring Depth: 18 ”
Hydric Soil Criterion met? [] yes [x] no	Basis: Series, matrix color		

Habitat Evaluation at the Sample Station			
Habitat Type	**Size (Acres)**	**% of Total Site Area**	**Dominant Vegetation**
Former ag/oldfield	30	40	Goldenrod, loosetrife

Wildlife Species Identification		
White tailed deer	Woodchuck	
Blue jay	Cottontail	
Killdeer		

Species of Conservation Concern Identification		
Species of Conservation Concern	**Habitat**	**Quality**
none		

Habitat Assessment and Summary of Data

Client and Property Information				
Client: Meadowcreek	**Date:** 11/15/05	**Site:** Plesser	**Photo:**	**Map Key: WL D**
Municipality: New Paltz	**County:** Ulster	**State:** New York	**Recorder:** A V Agovino	
Time (From/to): 1:00-1:30	**Temp.: 5 C**	**Cloud cover: 20%**	**Precipitation: rain mix**	

Geomorphology Information Recorded at the Sample Station			
Elevations:	366	Slope Aspect, looking downslope: <5 ^{0}	
Profile position:	toeslope	Slope Gradient: 2%	
Geomorphic component:	base slope	Rock outcrops: [] yes [x] no	
Slope shape: Linear [] Concave [x] Convex [] Combination []			

Water Resources Information			
Aquifer:		Wetlands:	On site red maple swamp
Streams:	none	Vernal pools:	none
Wetland hydrology:	*Inundated:* [x] yes [] no *Buttressed Roots:* [x] yes [] no *Other Hydrology Indicators:* none		

Vegetation Species Recorded at the Sample Station						
Dominant Species	Indicator Status	Stratum		Dominant Species	Indicator Status	Stratum
Acer rubrum (Red Maple, FAC)	FAC	T				
Carpinus caroliniana (American Hornbeam, FAC)	FAC	Sap				
Alnus rugosa (Speckled Alder, FACW+)	FACW	Sap				
Osmunda regalis (Royal fern, OBL)	OBL	H				
Lycopodium lucidulum (Shining clubmoss, FACW-)	FACW	H				
Thelypteris palustris (Marsh fern, FACW+)	FACW	H				

- Do normal environmental conditions exist at the plant community? [x] yes [] no
- Has the vegetation, soil and/or hydrology been significantly disturbed? [] yes [x] no
- Percent of Species which are OBL, FACW, and/or FAC: 100
- Is the Hydrophytic Vegetation Criterion met? [x] yes [] no
- Approximate % of Invasive Species: <10

Soil Information Recorded at the Sample Station			
Series & Phase: Canandaigua		On Hydric Soils List: [x] yes [] no	
Is soil a Histosol: [] yes [x] no		Histic Epipedon present: [] yes [x] no	
Munsell & Mottling Information	Mottled? [x] yes [] no	Mottle color: 10YR 3/4	Matrix color: 10YR 4/2
Gleyed: [] yes [x] no	Other Indicators:		Boring Depth: 18 ”
Hydric Soil Criterion met? [x] yes [] no	Basis: Series, matrix color, mottles		

Habitat Evaluation at the Sample Station			
Habitat Type	**Size (Acres)**	**% of Total Site Area**	**Dominant Vegetation**
Red maple swamp	7	15	Red maple, hornbeam, marsh fern

Wildlife Species Identification		
White tailed deer	titmice	
Cardinal	Downy woodpecker	
Turkey		

Species of Conservation Concern Identification		
Species of Conservation Concern	**Habitat**	**Quality**
none		

Habitat Assessment and Summary of Data

Client and Property Information				
Client: Meadowcreek	**Date:** 4/27/06	**Site:** Plesser	**Photo:**	**Map Key: WL B**
Municipality: New Paltz	**County:** Ulster	**State:** New York	**Recorder:** A V Agovino	
Time (From/to): 10:00-11:30	**Temp.: 11 C**	**Cloud cover: 20%**	**Precipitation: none**	

Geomorphology Information Recorded at the Sample Station			
Elevations:	366	Slope Aspect, looking downslope: <5 ^{0}	
Profile position:	toeslope	Slope Gradient: 2%	
Geomorphic component:	base slope	Rock outcrops: [] yes [x] no	
Slope shape: Linear [] Concave [x] Convex [] Combination []			

Water Resources Information			
Aquifer:		Wetlands:	On site red maple swamp
Streams:	none	Vernal pools:	none
Wetland hydrology:	*Inundated:* [x] yes [] no *Buttressed Roots:* [x] yes [] no *Other Hydrology Indicators:* none		

Vegetation Species Recorded at the Sample Station						
Dominant Species	Indicator Status	Stratum		Dominant Species	Indicator Status	Stratum
Acer rubrum (Red Maple, FAC)	FAC	T		Dryopteris spinulosa (Wood fern, FAC+)	FAC+	H
Carpinus caroliniana (American Hornbeam, FAC)	FAC	Sap		Hamamelis virginiana (Witch Hazel, FAC-)	FAC	Shr
Alnus rugosa (Speckled Alder, FACW+)	FACW	Sap				
Osmunda regalis (Royal fern, OBL)	OBL	H				
Lycopodium lucidulum (Shining clubmoss, FACW-)	FACW	H				
Thelypteris palustris (Marsh fern, FACW+)	FACW	H				

- Do normal environmental conditions exist at the plant community? [x] yes [] no
- Has the vegetation, soil and/or hydrology been significantly disturbed? [] yes [x] no
- Percent of Species which are OBL, FACW, and/or FAC: 100
- Is the Hydrophytic Vegetation Criterion met? [x] yes [] no
- Approximate % of Invasive Species: <10

Soil Information Recorded at the Sample Station			
Series & Phase: Canandaigua		On Hydric Soils List: [x] yes [] no	
Is soil a Histosol: [] yes [x] no		Histic Epipedon present: [] yes [x] no	
Munsell & Mottling Information	Mottled? [x] yes [] no	Mottle color: 10YR 3/4	Matrix color: 10YR 4/2
Gleyed: [] yes [x] no	Other Indicators:		Boring Depth: 18 ”
Hydric Soil Criterion met? [x] yes [] no	Basis: Series, matrix color, mottles		

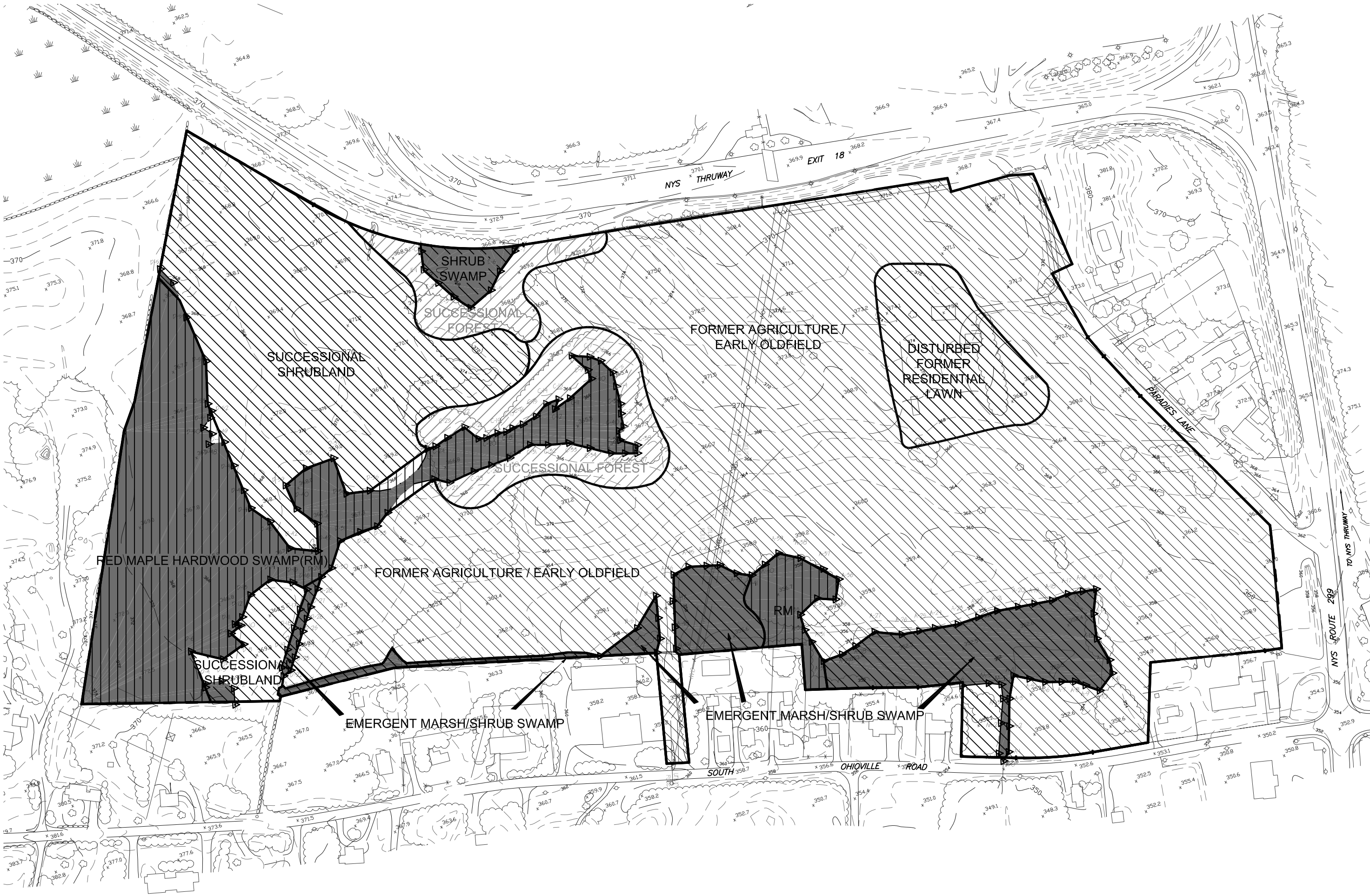
Habitat Evaluation at the Sample Station			
Habitat Type	**Size (Acres)**	**% of Total Site Area**	**Dominant Vegetation**
Red maple swamp	7	15	Red maple, hornbeam, marsh fern

Wildlife Species Identification		
White tailed deer	Box turtle	
Red eft	Garter snake	
Turkey	woodpeckers	

Species of Conservation Concern Identification		
Species of Conservation Concern	**Habitat**	**Quality**
Box turtle	Wetland C-D	Moderate-high

APPENDIX D:

Cover types

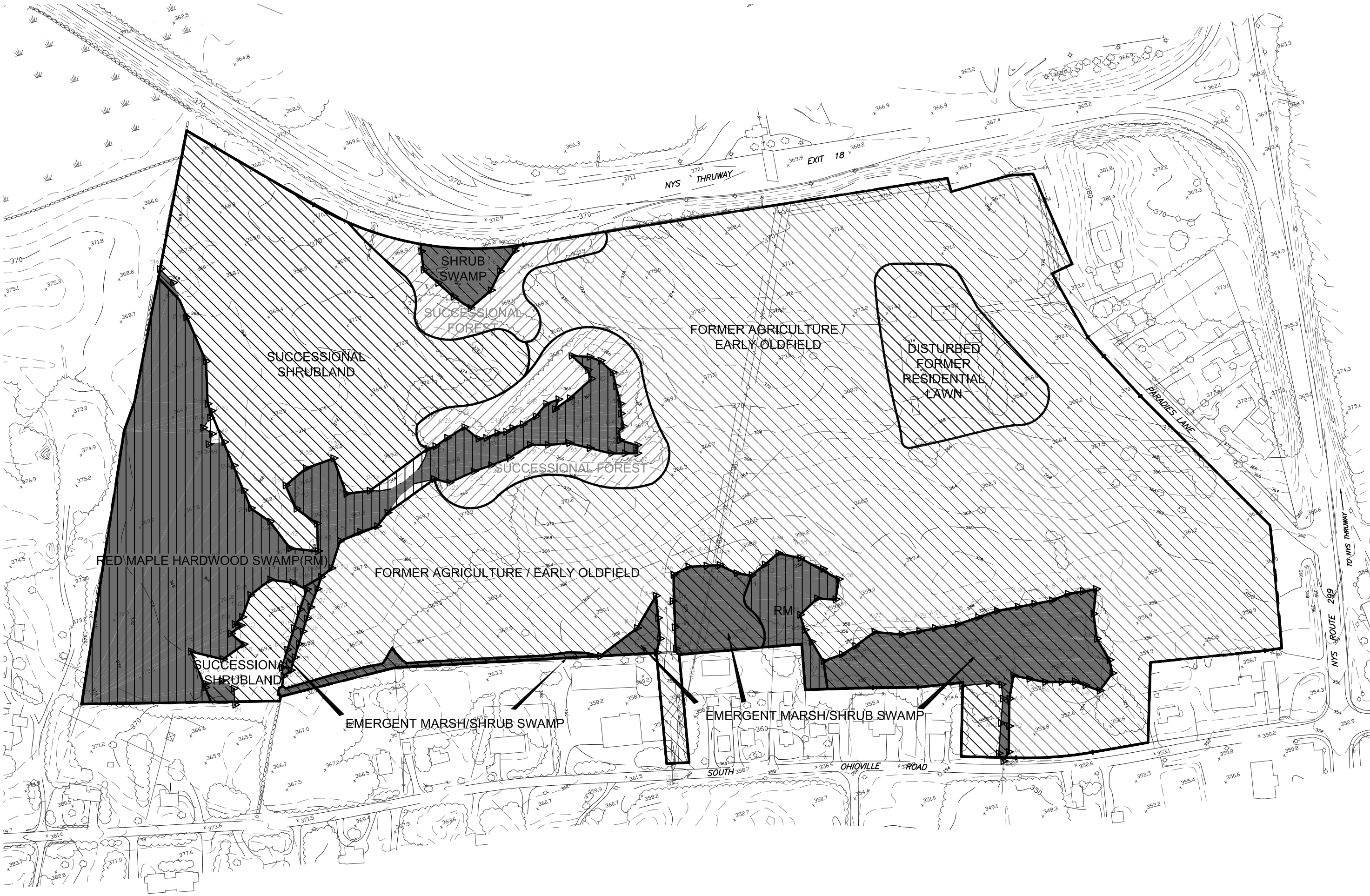


EP ENGINEERING PROPERTIES, PC
110 ORANGE AVE.
WALDEN, NY 12586
Ph: (845) 778-4313
Fx: (845) 778-4669

DATE: MARCH 2008
JOB #: 136.01
SCALE: 1" = 200'
SHEET #: F-1

CROSSROADS AT NEW PALTZ
NYS RTE 299 & SOUTH OHIOVILLE RD
TOWN OF NEW PALTZ
ULSTER COUNTY, NEW YORK

COVER TYPES



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CROSSROADS AT NEW PALTZ
NYS RTE 299 & SOUTH OHIOVILLE RD
TOWN OF NEW PALTZ
ULSTER COUNTY, NEW YORK

COVER TYPES

Michael W. Klemens, LLC
POB 432
Falls Village, CT 06031
March 20, 2008

Jayne Daly, Esq.
110 Orange Avenue
Walden, NY 12586

Dear Jayne:

I have reviewed the site plan, wetlands map, and wildlife and habitat assessment report by A. Vincent Agovino for the Crossroads at New Paltz on behalf of your client, Meadow Creek Development, LLC. I also conducted a site visit of the subject property on Monday afternoon, March 17th 2008. The site is primarily post agricultural land with herbaceous cover—it appears quite scarified in portions. Toward the south end of the property are a series of wetlands that appear to be a mosaic of red maple swampland that likely serves as breeding habitat for vernal pool obligate species (A. Vincent Agovino reported finding both wood frogs (*Rana sylvatica*) and spotted salamanders (*Ambystoma maculatum*) on the site). Another wetland system parallels South Ohioville Road. It has been channelized in portions, but its lower reach (closest to the junction of South Ohioville Road and Rte. 299) contains a nice shrub wetland, however the herbaceous under-story is dominated by purple loosestrife and there is an area of *Phragmites* invasion associated with the stream channel emptying under South Ohioville Road.

My recommendations for improvement of the proposed development are quite limited as the natural resource values are confined to the southern portion of the site which is not slated for development except the placement of a water tank. I would recommend that the road that runs roughly east-west along the edge of the wooded wetland be designed with a minimum of 12-inch high vertical smooth concrete barrier to exclude amphibians from moving onto the road from the nearby forested wetland. This exclusion barrier should extend along the entire road length where the road parallels the forested wetland and also in the forested area. As the road enters the cleared fields the barrier should curve slightly south to re-direct amphibians back into the woods.

Concerning the wetland paralleling South Ohioville Road please note the following: I recommend that the large detention basin be reconfigured into a stepped bio-filtration wetland. The natural topography of the site would allow the bio-filtration wetland to enter the existing wetland channel near the crossing of the unpaved road. This stepped wetland would have major habitat values and would serve storm water renovation purposes very effectively. A stepped bio-filtration system is one where the water passes through a series of different created vegetated wetlands before entering the existing wetland system. The redesign of this large detention basin would also reduce the potential if inadvertently creating a decoy breeding pool effect that would encourage amphibians to breed in it. The current design may create a decoy amphibian breeding

pool by being so close to the forested wetlands and holding water for extended periods of time.

I also would recommend that the detention basin at the northeastern portion of the wetland corridor (nearest the junction of South Ohioville Road and Rte. 299) be left as a deep basin, with water discharging into the outflow under South Ohioville Road. I make this recommendation so as to not accelerate the spread of the *Phragmites* patch that lies within this area. The smallest detention basin that lies in the mid-point of the wetland could also be naturalized—that portion of the wetland corridor is channelized and quite disturbed and is a good candidate for restoration.

I was asked whether or not a walking trail would create impacts to the vernal pool and wetland wildlife that occurs on the southern portions of the site. If a trail could be constructed in a manner that would not allow ATV access, and would create a boardwalk over seasonally flooded portions of the site, it would be an amenity for the residents of the proposed development. I would also recommend that the woods and wetlands be cleared of debris and piles of rusted metal, tires, plastic, and discarded appliances.

If I can be of further assistance, please do not hesitate to contact me.

Michael W. Klemens, PhD

Attachment: CV

MICHAEL W. KLEMENS

Michael W. Klemens, LLC
POB 432, Falls Village, CT 06031

860-824-7630 or 860-824-8185
Cellular 203-448-8068

FenBois@comcast.net

EDUCATION

PhD Ecology/Conservation Biology
University of Kent at Canterbury, U.K. (1990)
Dissertation: The herpetofauna of southwestern New England.

MSc Zoology
University of Connecticut (1978)
Thesis: Variation and distribution of the turtle, Chrysemys picta (Schneider) in Connecticut.

BSc Education
University of Connecticut (1975)

CURRENT CONSERVATION, RESEARCH, AND EDUCATION POSTS

Scenic Hudson

Director of Conservation Science, 2007-present.

Responsibilities include the scientific accuracy of the organization's core programs of land use advocacy, land acquisition, parks, and policy as well as representing the organization at the regional level concerning issues and opportunities of biodiversity conservation. Developed adaptive, precautionary strategies to address climate change in the Hudson Valley. These adaptive strategies included climate change precautionary zoning, brown-field mitigation, and carbon footprint reduction.

Wildlife Conservation Society (WCS)

Senior Conservationist, 2002–July 1, 2008 &
Founding Director, Metropolitan Conservation Alliance, 1998-July 1, 2008.

The Metropolitan Conservation Alliance (MCA) provides leadership and education to more than 89 communities in the New York tri-State area on the integration of complex ecological information into the local land-use decision-making process. MCA produces multi-town biodiversity conservation strategies and works with communities to

implement those strategies into their local land use practices through the adoption of innovative best management practices, capitalizing on the broad authority available to local jurisdictions devolved from the state land-use enabling legislation.

Director for Program Development, 1994-1998.

Worked with the various divisions of WCS to produce programs that united field conservation, facilities (i.e., zoo), and veterinary services to address complex field conservation problems. Sought financial support (both corporate and foundation) for these programs and developed methodologies that more equitably divided responsibilities for seeking/reporting on grants between project scientists and the development and financial offices of WCS.

Research Fellow, 1992-1994.

In partnership with the American Museum of Natural History, developed a multi-year program (that continued through 1998) of biodiversity assessment and monitoring in the National Parks of Tanzania. This program received multi-year consecutive funding from the John D. and Catherine T. Mac Arthur Foundation. The goals of the program were to build national capacity in biodiversity assessment, specimen collection, and data management. This program was conducted in partnership with the University of Dar es Salaam and several Tanzanian government agencies charged with wildlife and parks management. The program also provided academic training to promising Tanzanian nationals and professional development opportunities for faculty at the University of Dar es Salaam. This program was expanded to train MSc level students in the UK through the Darwin Initiative at the University of Kent. This joint program of the University of Kent and WCS selected promising students from WCS field sites in three African nations, Malagasy Republic, Tanzania, and Zaire. A total of nine students received scholarships to attend university in the UK through the Darwin Initiative component of the program.

American Museum of Natural History (AMNH)

Research Associate in Herpetology, May 1994-current.

After leaving AMNH to join WCS, I continued my strong relationship with the Museum, including biodiversity assessment and expeditionary studies in Africa and the eastern United States, which resulted in significant collections of more than 18,000 specimens that have been added to the permanent research collections. Publications focus on African amphibians, biogeography and conservation of northeastern US amphibians and reptiles, and biochemical studies of polyploid and unisexual salamanders.

Director, Special Projects, Center for Biodiversity and Conservation, 1993-1994 & Director, Environmental Initiatives, 1990-1993.

Envisioned and created the Museum's Center for Biodiversity and Conservation to make available to policy and decision-making, as well as public information, the accumulated data contained in more than 30 million samples of biodiversity collected around the globe. Worked with Museum scientists to enable them to become disseminators of that data, to secure funding for these endeavors, and to maintain the scientific integrity of the information while recognizing that the requirements for information to inform decision-

making is at times different from that of more traditional scientific inquiry. Since its inception, the Center has continued to be a voice for biodiversity conservation, treading carefully the interface between scholarly investigation and the need for scientific engagement in the ever-growing biodiversity crisis.

Senior Scientific Assistant/Scientific Assistant, Herpetology, 1979-1989.
Joining the AMNH as a technical officer in 1979, my responsibilities were assisting curators in their research and the management (cataloging and data retrieval) of the preserved collection of amphibians and reptiles, which at that time included about 300,000 specimens.

Michael W. Klemens, LLC

Managing Director, 2002-current.
Provides technical services on a for-profit basis to NGO's, government agencies, municipalities, and private entities on the integration of biodiversity conservation and best management practices as they pertain to land-use decision making and ecologically-appropriate (i.e., "green") development.

Center for Humans and Nature

Senior Consultant, 2007-current.
I am currently developing of a program to link the Consortium of Colleges and University of the Hudson Valley, American Museum of Natural History, New York Historical Society, and the Center for Human and Nature in a multi-year exploration of the cultural norms that underlie our collective relationship with the natural world. The ultimate goal of this program is to create a forum that will allow communities (broadly defined) to envision their sustainable future free from the traditional encumbrances of positional arguments and pre-conceived outcomes. The project seeks to develop a culture of democratic ecological citizenship through engagement and participation within the Hudson Valley region.

Pace University, School of Law, Land Use Law Center

Course Lecturer, Land Use Leadership Alliance (LULA) Training Program, 1998-current
This innovative program seeks to instill a different culture in land-use decision-making, by making information available to local leaders, and training them in how to use that information in a conflict-neutral manner. My involvement in the program is teaching modules on biodiversity conservation at the local level, integration of sustainable development techniques, and community visioning techniques.

University of Maine, Department of Plant, Soil, and Environmental Sciences

Adjunct Graduate Faculty, 2003-current
Co-supervising and advising MSc students.

PAST CONSERVATION, RESEARCH, AND EDUCATION POSTS

Columbia University, Center for Environmental Education and Conservation

Research Associate, 1998-2006.

University of Massachusetts, Amherst

Adjunct Assistant Professor, 1996-2002.

IUCN -The World Conservation Union

Editor, Species, Journal of the World Conservation Union, Species Survival Commission, 1999-2000.
Vice Chairman, Tortoise and Freshwater Turtle Specialist Group, 1991-1998.
Action Plan Director, Tortoise and Freshwater Turtle Specialist Group, 1989-1998.
Member, African Amphibian and Reptile Specialist Group, 1992-current.
Member, Repatriation and Relocation Specialist Group, 1993-current.

University of Kent, Durrell Institute of Conservation and Ecology

Visiting Research Fellow, 1990-1995.

Turtle Recovery Program

Founder/Director, 1989-2000.

Simon's Rock College

Adjunct Faculty, 1986-1988.

Massachusetts Division of Fisheries and Wildlife

Cooperating Wildlife Researcher, 1984-1990.

United States Department of the Interior, National Park Service

Herpetologist, Roosevelt-Vanderbilt National Historic Site, 1988.

University of Michigan, Museum of Zoology

Curatorial Assistant, 1978-1979.

University of Connecticut, Museum of Natural History

Curatorial Assistant, 1975-1978.

Town of Vernon, Connecticut

Environmental Educator, Valley Falls Park, 1975-1977.

CURRENT APPOINTMENTS: COMMISSIONS, BOARDS & PANELS

State of Connecticut Department of Environmental Protection
Landscape Stewardship Steering Committee
& Non-harvested Wildlife Amphibian and Reptiles Advisory Committee

Town of Salisbury, Connecticut Planning and Zoning Commission
Elected (municipal elections) November 2007

Westchester Land Trust
Advisory Board

Federated Conservationists of Westchester County
Advisory Board

The Bay Foundation and the Josephine Bay Paul and C. Michael Paul Foundation, Inc.
Biodiversity Leadership Awards Elector

The H. John Heinz III Center for Science, Economics and the Environment
Urban and Suburban Work Group Member, Designing a Report on the State of the Nation's Ecosystems Project

PAST APPOINTMENTS: COMMISSIONS, BOARDS & PANELS

New Jersey Highlands Water Protection and Planning Council

New Jersey Landscape Project
Technical Advisory Committee

City of Rye, NY
Chairman, Master Plan Update Task Force, 2000-2003.
Chairman, Planning Commission, 1997-2003.
Vice Chairman, Planning Commission, 1996-1997.
Member, Planning Commission, 1992-1996.

New York League of Conservation Voters, Westchester Chapter Board
Board Member, 2000-2001.

American Rivers
Science and Technical Advisory Board, 1992-2001.

Stewart Airport Lands Citizens Advisory Committee (gubernatorial appointment)
1998-1999.

Hudsonia, Ltd.
Board of Directors, 1995-1999.

The Jay Heritage Center, Rye, New York
Interpretive Planning Panel, 1998.

Westchester Land Trust
Board of Directors, 1997-1999.

PROFESSIONAL DISTINCTIONS

Herpetological Journal
Editorial Board, 1992-1994.

Chelonian Conservation and Biology
Editorial Board, 1993-2006.

Nature in Fragments: The Legacy of Urban Sprawl, Spring Symposium, 2000
Conference Co-organizer, 2000.

Society for the Study of Amphibians and Reptiles
Conservation Committee Chairman, 1998-1999.

Land Use Law Center, Pace University School of Law
Community Leadership Alliance Graduate, 1997.

Catalogue of American Amphibians and Reptiles
Editor, <u>*Testudines*</u>, 1991-1994.

Conservation, Restoration, and Management of Tortoises and Turtles-
An International Conference
Chairman and Conference Organizer, 1993.

AWARDS & TRIBUTES

American Planning Association, Connecticut Chapter
2007 Award for excellence in "integrating complex ecological processes into local land-use decisions.

Resolution from the City of Rye
Commending Michael Klemens for his service to the City (Conservation Commission Advisory Committee/Planning Commission/Chair of Planning Commission.) March 10, 2004.

Office of the County Executive Certificate of Appreciation
Westchester County, October 2003. In grateful appreciation for service

rendered to the County of Westchester.

Science and Technical Advisory Committee Achievement Award
American Rivers, October 2001. In recognition of outstanding contribution and commitment to river conservation.

21 New Yorkers to Watch in the 21st Century
Daily News, January 1, 2000, p. 22.

Orange Environment Award
November 13, 1999.

The Edith G. Read Conservation Award
For drafting Rye City's Wetlands Ordinance, 1991.

The Nature Conservancy, Connecticut Chapter
Recipient, White Oak Award for Conservation Research, 1980.

American Museum of Natural History
Associate Patron

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Bogart, J. P. and M. W. Klemens. 2008-*in press*. **Additional distributional records of *Ambystoma laterale* , *A. jeffersonianum* (Amphibia: Caudata) and their unisexual kleptogens in northeastern North America.** American Museum of Natural History—accepted for publication before July 2008 either in their Bulletin or Novitates series.

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INVITED PAPERS & PRESENTATIONS

Status of Amphibians and Reptiles in the Tri-State New York Metro Region. The Hotchkiss School, Lakeville, CT. February 14, 2008.

Effective Preservation of Biological Communities: Local and Regional Strategies. Yale University, New Haven, CT. February 5, 2008.

The North Castle Biodiversity Plan. Town Hall, Armonk, NY. January 9, 2008.

Planning and Designing for Biodiversity. Bedford-Somers Continuing Education Course for Land-use Decision Makers: Biodiversity Lecture Series. Katonah Library, Katonah, NY . December 6, 2007

Effective Preservation of Biological Communities: Local and Regional Strategies. Keynote Address, Connecticut Association of Inland Wetlands and Conservation Commissions (CACIWC) 30th Annual Meeting and Environmental Conference, Wallingford, CT. November 10, 2007.

Keeping Connected: Securing Biodiversity in a Changing Landscape. New York City Bar Association Annual Conference on Animals and the Law. NY, NY. September 29, 2007.

Stream Pirates, Clones and Island Hoppers: A Herpetological View of Coastal New England. Henry L. Ferguson Museum. Fishers Island, NY August 19, 2007.

Nature in Fragments: Confronting Sprawl Through Enlightened Land Use Planning. United States Society for Ecological Economics, 4th Biennial Conference. Pace University NY City Campus. June 25, 2007.

The Metropolitan Conservation Alliance: Confronting Sprawl Through Enlightened and Use Planning in the NYC Watershed. Open Space Institute Lunch Seminar. NY, NY May 9, 2007.

The Metropolitan Conservation Alliance: Confronting Sprawl Through Enlightened Land Use Planning in the NYC Watershed. Presented in conjunction with Nature-Network to Ted Kheel and Nurture New York's Nature. NY, NY. May 9, 2007.

Keynote Address: Dutchess County Planning Federation: Annual Awards Dinner. Bridging the Gap Between Conservation Science and Land-use Planning. Poughkeepsie, NY. April 30, 2007.

Bedford Biodiversity Study. Bedford Town Hall, Bedford, NY. April 4, 2007.

Biodiversity Conservation in a Rapidly Developing Environment. Penn State Schuylkill Library. Co-sponsored by the Schuylkill Conservation District, Schuylkill County Sportsmen's Advisory Board, DCNR-Bureau of Forestry, and the Schuylkill County Conservancy. March 28, 2007.

Local Land Use Planning and Herpetofauna Conservation. NYTTS Seminar, American Museum of Natural History, NY, NY. March 25, 2007.

Biodiversity Planning and Agriculture. Marlborough, NY. February 28, 2007.

Nature in Fragments: Confronting Sprawl Through Enlightened Land Use Planning. Ridgefield Conservation Commission. Ridgefield, CT. April 6, 2006.

Nature in Fragments: Confronting Sprawl Through Enlightened Land Use Planning. Great Swamp Biodiversity Partnership Workshop. Dover, NY. March 30, 2006.

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Nature in Fragments: Confronting Sprawl Through Enlightened Land Use Planning. University of Chicago. Chicago, IL. February 9, 2006.

Nature in Fragments: Confronting Sprawl Through Enlightened Land Use Planning. Chicago Wilderness. Peggy Notebaert Nature Museum. Chicago, IL. February 8, 2006.

Nature in Fragments: Confronting Sprawl Through Enlightened Land Use Planning. Lake Forest College. Chicago, IL. February 7, 2006.

Nature in Fragments: Confronting Sprawl Through Enlightened Land Use Planning. Professor Caleb Gordon's Conservation Biology Class. Lake Forest College. Chicago, IL. February 7, 2006.

Our Extraordinary Backyards: Realizing the Croton-to-Highlands Biodiversity Plan. Keynote address. *Our Extraordinary Backyards.* Workshop co-sponsored by WCS/MCA, Westchester Land Trust, and Cortlandt Land Trust. Cortlandt, NY. January 21, 2006.

Gotham's Footprint: Can Science and Planning Save our Biological Heritage? CUNY Nature of New York Course. New York, NY. November 29, 2005.

The Wild Choice: Intelligent Planning for Wildlife and Wild Places. South Carolina Coastal Conservation League. Charleston, SC. November 28, 2005.

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The Wild Choice: Intelligent Planning for Wildlife and Wild Places. Association of New Jersey Environmental Commissions 32nd Annual Environmental Congress. The Conference Center at Mercer. Mercer Community College, West Windsor, NJ. October 21, 2005.

The Link Between Intact Ecosystems and Livable Human Communities. Association of New Jersey Environmental Commissions 32nd Annual Environmental Congress. The Conference Center at Mercer. Mercer Community College, West Windsor, NJ. October 21, 2005.

The Wild Choice: Intelligent Planning for Wildlife and Wild Places. Washington, CT Environmental Council. Washington, CT. July 14, 2005.

Gotham's Footprint: Can Science and Planning Save our Biological Heritage? CUNY Nature of New York Course. New York, NY. June 13, 2005.

Integrating Biodiversity Principles into Land Use Decisions. Connecticut Land Use Leadership Alliance (LULA). June 3, 2005.

Wildlife Conservation in an Urbanizing World. WCS International Conservation Committee. Bronx Zoo. May 5, 2005.

Wildlife Conservation in an Urbanizing World. WCS Lunchtime Lecture Series. Central Park Zoo. May 4, 2005.

Integrating Biodiversity Principles into Land Use Decisions. Connecticut Land Use Leadership Alliance (LULA). Ellington, CT. April 29, 2005.

Finding the Forest between the Trees: The Challenges of Ecologically Scaling Land Use Decisions. *Conserving our Local Landscapes: Build Your Tool-Kit of Land Management Practices.* Symposium funded by The Henry Philip Kraft Family Memorial Fund of the Westchester Community Foundation. Edith May Conference Center, Briarcliff Manor, NY. April 28, 2005.

Biodiversity & Local Land Use Planning. *Southern Wallkill Biodiversity Meeting* – Towns of Chester, Goshen, and Warwick. Warwick Town Hall, Warwick, NY. April 27, 2005.

The Ecological Basis for Conservation Overlay Districts. Dutchess County Environmental Management Council. Farm and Home Center, Millbrook, NY. April 21, 2005.

Postcards from the Edge: Nature at the Suburban-Rural Frontier. *Nature Network Launching Conference.* The Graduate Center, City University of New York, New York, NY. April 14, 2005.

Status of Amphibians and Reptiles in the Tri-State New York Metro Region. *Nature Network Launching Conference.* The Graduate Center, City University of New York, New York, NY. April 13, 2005.

Planning with Nature in New Jersey. *Biodiversity & Land Use Planning Workshop* – New Jersey Townships of Chester, Washington, and Lebanon. Lebanon Township Municipal Building, Glen Gardner, NJ. March 19, 2005.

Moving Forward: The Eastern Westchester Biotic Corridor and Beyond. *Our Extraordinary Backyards*. Lewisboro Land Trust & Waccabuc Landowners Council. Waccabuc County Club, Waccabuc, NY. March 5, 2005.

Planning for Nature and **Wetlands, Biodiversity.** *Planning for Nature Workshop*. Connecticut Southwest Conservation District. The Center Building, Woodbridge, CT. February 19, 2005.

Tools for Local Land Use Planning. *Planning for Nature Workshop*. Connecticut Southwest Conservation District. The Center Building, Woodbridge, CT. February 19, 2005.

The Wild Choice: Intelligent Planning for Wildlife and Wild Places. New Jersey Intermunicipal Meeting – Chester, Lebanon, and Washington Townships. Lebanon Township Municipal Building, Glen Gardner, NJ. January 27, 2005.

Planning for Nature. *Planning for Nature Workshop*. Connecticut North Central Conservation District. Tolland County Agricultural Center, Vernon, CT. January 22, 2005.

Wetlands, Biodiversity, and Tools for Local Land Use Planning. *Planning for Nature Workshop*. Connecticut North Central Conservation District. Tolland County Agricultural Center, Vernon, CT. January 22, 2005.

The Wild Choice: Intelligent Planning for Wildlife and Wild Places. Falls Village Inland Wetlands/Conservation Commission. Housatonic Valley Regional High School, Falls Village, CT. January 21, 2005.

Gotham's Footprint: Can Science and Planning Save our Biological Heritage? . CUNY *Nature of New York* course. The School of Professional Studies at the University Center, New York, NY. December 12, 2004.

Natural Systems, Human Systems, Planning and Design. American Institute of Architects – *Conservation, Planning and Architecture: Biodiversity at Home and Abroad Session One: The MCA.* Center for Architecture, New York, NY. November 15, 2004.

The Wild Choice: Intelligent Planning for Wildlife and Wild Places. Warwick Valley Chamber of Commerce Annual Membership Dinner. Warwick Valley Country Club, Warwick, NY. November 12, 2004.

Croton-to-Highlands Biodiversity Plan. Town of New Castle Town Board Meeting. New Castle, NY Town Hall. November 9, 2004.

Gaining Ground Clinics: Celebrating Successful Local Leaders. Natural Resource Protection. The New York State Judicial Institute, Pace University School of Law. White Plains, NY. November 6, 2004.

The Wild Choice: Intelligent Planning for Wildlife and Wild Places. Rockefeller Brothers Fund. Tarrytown, NY. November 4, 2004.

Protecting Biodiversity While Planning for Growth. Pace University Land Use Law Center, Land Use Leadership Alliance. Hudson Valley Center, New Windsor, NY. October 29, 2004.

Moving Forward: The Eastern Westchester Biotic Corridor and Beyond. Eastern Westchester Biotic Corridor Implementation Meeting. North Salem, NY. October 21, 2004.

Assembling the Pieces: A Bricks and Mortar Approach to Conservation. Association of New Jersey Environmental Commissions (ANJEC), *Beyond Home Rule: Protecting the Environment through Regional Planning*. Mercer County Community College, West Windsor, New Jersey. October 15, 2004.

Creative Planning to Conserve Wildlife*:* An Update from the Bronx Zoo's Backyard. WCS International, Bronx Zoo. Bronx, NY. September 15, 2004.

Croton-to-Highlands Biodiversity Plan. Town of Putnam Valley Town Board Meeting. Putnam Valley, NY Town Hall. September 22, 2004.

Croton-to-Highlands Biodiversity Plan. Town of Yorktown Town Board Meeting. Yorktown, NY Town Hall. September 7, 2004.

Will Better Land Use Decisions Protect our Region's Biodiversity? Society for Conservation Biology 18th Annual Meeting. Columbia University, New York, NY. July 30 – August 2, 2004.

Extreme Frogs: A Celebration of the Second Plague. American Museum of Natural History. *Extreme Frogs*. Kaufman Theater, New York, NY. June 29, 2004.

Croton-to-Highlands Biodiversity Plan: Implementation Phase. Meeting with the towns of Cortlandt, New Castle, Putnam Valley, and Yorktown to discuss implementation strategies and priorities. Town of New Castle, NY. June 14, 2004.

Assembling the Pieces: A Bricks and Mortar Approach to Conservation. Westchester Land Trust & Westchester Community Foundation Conference. *Smart Growth from the Ground Up: How Community-Based Planning is Reshaping our Region's Land Use Policies.* Manhattanville College, Purchase, NY. May 18, 2004**.**

Assembling the Pieces: A Bricks and Mortar Approach to Conservation. *Norfolk Inland Wetlands Agency***.** Norfolk, CT. April 24, 2004.

Croton-to-Highlands Biodiversity Plan Press Conference. Turkey Mountain Nature Preserve, Town of Yorktown, NY. April 22, 2004.

Assembling the Pieces: A Bricks and Mortar Approach to Conservation. Annual meeting of the *Goshen Land Trust*. St. Thomas Church, Goshen, CT. April 16, 2004.

Assembling the Pieces: A Bricks and Mortar Approach to Conservation. Meeting of the *Association of New Jersey Environmental Commissions (ANJEC)*. March 29, 2004.

Keeping Connected: Securing Biodiversity in a Changing Landscape. Conference of New England Governors and Eastern Canadian Premiers, Suffolk University Law School, Boston, MA. March 15-16, 2004.

Assembling the Pieces: A Bricks and Mortar Approach to Conservation in Connecticut. The Hotchkiss School, Lakeville, CT. March 2, 2004.

Amphibians & Reptiles of Connecticut: 1975-Present. Hotchkiss School. Lakeville, CT. March 2, 2004.

Assembling the Pieces: A Bricks and Mortar Approach to Conservation in the Wallkill Valley. Inter-Municipal Biodiversity Project Meeting, Goshen Town Hall, Goshen NY. February 2, 2004.

Assembling the Pieces: A Bricks and Mortar Approach to Conservation in the Wallkill Valley. Inter-Municipal Biodiversity Project Meeting, Lloyd Town Hall, Lloyd, NY. February 4, 2004.

Intelligent Planning for Wildlife and Wild Places. The Linnaean Society of New York. New York, NY. January 13, 2004.

Linking Conservation to Scale in Westchester County. Manhattanville College, Purchase, NY. December 10, 2003.

Assembling the Pieces: A Bricks and Mortar Approach to Conservation. Connecticut Land Trust, Norwalk, CT. November 18, 2003.

Wetlands: Is there life after Avalon? Connecticut Association of Conservation and Inland Wetland Commissions, Wallingford, CT. November 15, 2003.

Assembling the Pieces: A Bricks and Mortar Approach to Conservation. Connecticut Association of Conservation and Inland Wetland Commissions, Wallingford, CT. November 15, 2003.

Assembling the Pieces: A Bricks and Mortar Approach to Conservation. CERC – Graduate Seminar, Columbia University, New York, NY. November 11, 2003.

Assembling the Pieces: A Bricks and Mortar Approach to Conservation. Croton-to-Highlands Corridor Meeting – Towns of Cortlandt, New Castle, Putnam Valley, & Yorktown, NY. October 27, 2003.

Whose Water Is It? Dutchess County Environmental Management Council, Vassar College, NY.

What is Biodiversity? Audubon Greenwich, Greenwich, CT. October 24, 2003.

Wetlands and Vernal Pools. Westchester County Park Curators Vernal Pool Walk/Lecture, Rye, NY. October 10, 2003.

Assembling the Pieces: A Bricks and Mortar Approach to Conservation. Eastern Connecticut District Workshop, Norwich, CT. September 29, 2003.

Assembling the Pieces: A Bricks and Mortar Approach to Conservation. New York Bar Association, Fall Meeting, Hancock, MA. September 20, 2003

Assembling the Pieces: A Bricks and Mortar Approach to Conservation. The Society for Conservation Biology, Annual Meeting, Duluth, MN. June 28 – July 1, 2003.

Planning for Nature: Integrating Biodiversity into Local Land-Use Decisions. CT River Coastal Conservation District, Inc. – Planning for Nature Workshop, Haddam, CT. June 14, 2003.

Intelligent Planning For Wildlife and Wild Places. Sherman Conservation Commission – Conservation and Responsible Growth Workshop, Sherman, CT. June 7, 2003.

Planning for Nature: Integrating Biodiversity into Local Land-Use Decisions. Torrington, CT. May 17, 2003.

Intelligent Planning for Wildlife and Wild Places. Pomperaug River Watershed Coalition, Inc., Southbury, CT. April 30, 2003.

Conservation Practices and Strategies in the New York City Region. Society Wide Educator Meeting: Conservation Update – "WCS, leading the fight to save and protect our planet's Living Landscapes", Bronx Zoo, Bronx, NY. April 21, 2003.

Sustaining Biodiversity at the Suburban-Rural Frontier. Knollwood Garden Club, Greenwich, CT. April 8, 2003.

Intelligent Planning for Wildlife and Wild Places. CT Green Building Council; CT Chapter American Society of Landscape Architects – "Let Nature Do the Work!", New Haven, CT. March 21, 2003.

Planning for Nature. Planning For Nature Workshop, New Paltz, NY. March 19, 2003.

MCA Program and FoSA Analysis. Town of Lloyd Town Board Workshop, Lloyd, NY. March 5, 2003.

Intelligent Planning for Wildlife and Wild Places. Shawangunk Biodiversity Partnership: Eighth Annual Winter Lecture Series. SUNY New Paltz, New Paltz, NY. February 27, 2003.

Local Conservation Issues. The Little Garden Club of Rye, Rye, NY. February 11, 2003.

Biodiversity and the Empire State: Conserving our Landscapes. TNC, CERC, & SIPA – "Biodiversity on the Brink: Challenges in Science and Policy." Columbia University, New York, NY. February 6, 2003.

Assessing the Needs of the Towns Within the Croton-to-Highlands Corridor. Meeting of towns within the Croton-to-Highlands Corridor. Cortlandt, New Castle, Putnam Valley, and Yorktown, NY. January 16, 2003.

Conserving Vernal Pools for Biodiversity and Public Health. Northeastern Mosquito Control Association Annual Meeting. Mystic, CT. December 2, 2002.

Discovering and Defending the City's Wildlife: A Conversation with Conservationists. New York Public Library Public Program. Urban Neighbors, Urban Neighborhoods: Celebrating and Protecting New York's Wildlife and Green Spaces. New York, NY. November 7, 2002.

Intelligent Planning for Wildlife and Wild Places. Let Nature Do the Work. Federated Conservationists of Westchester County Informational Seminar. Pace University, Pleasantville, NY. October 18, 2002.

Conservation at the Suburban-Rural Frontier. Litchfield County Conservation District Annual Meeting. Bridgewater, CT. October 17, 2002.

Connecticut Chapter of the American Planning Association Meeting. Biodiversity Protection and Conservation Area Overlay Districts. Rocky Hill, CT. June 21, 2002.

Land Trusts, Public Officials and Scientists: Collaborating on Quality Communities. Tenth Anniversary New York Land Trust Conference. Saratoga Springs, NY. June 1, 2002.

Biodiversity Protection: New Opportunities for Land Trusts and Public Agencies. Tenth Anniversary New York Land Trust Conference. Saratoga Springs, NY. June 1, 2002.

Eastern Westchester Biotic Corridor. North Salem Town Board Meeting. North Salem, NY. May 28, 2002.

Defenders of Wildlife National Workshop on Land-Use Planning &

Biodiversity Conservation. Aspen Wye River Conference Center, Maryland. February 28-March 1, 2002.

Sustaining Ecosystems in Westchester County: Making Smart Growth Work for Wildlife. Backyard Biodiversity: Conservation at the Community Level. Irvington Garden Club. February 19, 2002.

Uncovering and Covering: The Region's Unexplored Environmental Stories - Society of Environmental Journalists 2002 Boston-to-Baltimore Briefing. Sponsored by SEJ, EOHSI, the Hudson River Foundation and the New Jersey Center for Environmental Indicators. January 18, 2002.

Biodiversity and Land-Use Advisory Meeting. Island Press, Washington, DC. December 17-18, 2001.

Examples of Regional Biodiversity Initiatives. Farmington River Watershed Workshop, Simsbury, CT. November 30, 2001.

Sustaining Ecosystems in Westchester County: Making Smart Growth Work for Wildlife. PACE University Lecture, Anna Giorgeou class, White Plains, NY. November 29, 2001.

Sustaining Ecosystems in Westchester County: Making Smart Growth Work for Wildlife. Westchester Land Trust Conference: Growing Smarter: How to Plan for Quality Communities, White Plains, NY. November 17, 2001.

Sustaining Ecosystems in a Changing Landscape. Farmington River Watershed Association (FRWA) Meeting, Simsbury, CT. November 15, 2001.

Sustaining Ecosystems in a Changing Landscape. PACE University Seminar, Dr. Josh Schwartz class, Pleasantville, NY. October 19, 2001.

Sustaining Ecosystems in a Changing Landscape. Stamford Land Conservation Trust Annual Meeting, Stamford, CT. October 16, 2001.

Biodiversity and Agriculture. Wallkill Valley Community Leadership Alliance Training Program. Cold Spring, NY. October 15, 2001.

The Metropolitan Conservation Alliance: Protecting Wildlife at the Rural/Suburban Frontier. Conservation Medicine in the New York Bioscape: A Research, Education, and Policy Agenda - Wildlife Trust, Tarrytown, NY. October 5, 2001.

Conservation Strategies Combined with Local Land-Use Planning. Tools for

Watershed Management Workshop. Brooklyn, NY. October 3, 2001.

The Geological and Ecological Framework of the Wallkill Valley. Wallkill Valley Community Leadership Alliance Training Program. Cold Spring, NY. October 1, 2001.

Wise Use in the Absence of Wisdom. Property and the Commons: Rights and Responsibilities, Humans and Nature Consortium, July 17-18, 2001. Sponsored by The Hastings Center. Chicago, IL. July 18, 2001.

Wallkill Valley Conservation: Placing Growth in an Ecological Context. Informative Slideshow & Public Discussion: Wildlife in the Wallkill Valley - How we can learn about and protect it. Sponsored by the Wallkill River Task Force - Ulster Branch. New Paltz, NY. July 11, 2001.

Sustaining Ecosystems in a Changing Landscape. Orange County Land Trust Dinner. Warwick Center, Warwick, NY. June 14, 2001.

Stormwater Design and Its Impact on Biodiversity. 2001 Southeast NY Stormwater Conference and Trade Show, June 13-14. Sponsored by the Lower Hudson Coalition of Conservation Districts and Hudson Valley Regional Council. Fishkill, NY. June 13, 2001.

Repatriation, Relocation, and Translocation: Real Solutions. 57th Annual Northeast Fish and Wildlife Conference, April 22-25, 2001. Sponsored by the New York State Department of Environmental Conservation. Saratoga Springs, NY. April 24, 2001.

Biodiversity and Agriculture. 2001 APA National Planning Conference, March 10-14, 2001. Sponsored by the American Planning Association. New Orleans, LA. March 12, 2001.

Wildlife-Friendly Transportation Planning. 2001 APA National Planning Conference, March 10-14, 2001. Sponsored by the American Planning Association. New Orleans, LA. March 11, 2001.

Sustaining Biodiversity in a Changing Landscape. Massachusetts Association of Conservation Commissions - 2001 Annual Meeting. Worcester, MA. March 3, 2001.

Strategies for Providing Biodiversity Data to Key Decision-Makers (panel speaker). Status of the States: Innovative State Strategies for Biodiversity Conservation. National Biodiversity Symposium. Sponsored by the Environmental Law Institute, January 17-18, 2001. Washington, DC. January 18, 2001.

Justice: Humans, Nature and Time. Humans, Nature, and Environmental Justice, Humans and Nature Consortium, January 15-16, 2001. Sponsored by The Hastings Center. St. Helen Island, SC. January 16, 2001.

Biodiversity Conservation at the Suburban-Rural Frontier: New Opportunities for Land Trusts. National Land Trust Rally 2000, October 12-22, 2000. Sponsored by the Land Trust Alliance. Portland, OR. October 22, 2000.

Sustaining Biodiversity in a Changing Landscape. Presentation to the Selectmen and interested public officials in the towns of Granby, East Granby, Simsbury, Avon, Canton, and Farmington Towns, Farmington Valley, CT. September 21, 2000.

Sustaining Biodiversity in a Changing Landscape-Special Multi-Town Meeting. Hosted by the Planning & Zoning Board/Inland Wetland Commission, Ridgefield Town Hall Annex, Ridgefield, CT. June 21, 2000.

Biodiversity at the Rural Suburban Frontier: A U.S. Perspective. The Consultative Group on Biological Diversity 2000 Annual Meeting, The Colony Hotel, Kennebunkport, ME. June 15, 2000.

Wild New York: Local Conservation Strategies in the Metropolitan Region. Wine and Cheese Evenings with Experts, Wild New York Speaking Engagement, Central Park Zoo New York, NY. May 3, 2000.

Sustaining Biodiversity in a Changing Landscape. The Institute of Ecosystems Study and the Conservation Committee of the Millbrook Garden Club Lecture, Millbrook, NY. April 28, 2000.

No Place Like Home – The Metropolitan Conservation Alliance. Wildlife Conservation Society Annual Meeting 2000, Lincoln Center, New York, NY. April 17, 2000.

Ecological Effects of Poorly Planned Development. Nature in Fragments: The Legacy of Urban Sprawl, Spring Symposium, American Museum of Natural History, New York, NY. April 13, 2000.

Conservation of Wetland Landscapes in the NY Metropolitan Region: Science, Awareness, Policy, and Practice. Environmental Protection Agency, Vernal Pools of the Northeast Conference, University of Rode Island, Kingston, RI. April 1, 2000.

Keynote Address: Wetlands and Wildlife: Conservation Issues. Connecticut Association of Wetland Scientists 2000 Annual Meeting, Ramada Plaza Hotel, Meriden, CT. February 17, 2000.

Keynote Address: Landscape Conservation: Implications for the Protection and

Management of Reptiles and Amphibians. Conservation and Ecology of Turtles of the Mid-Atlantic Region Conference, National Wildlife Visitor Center, Patuxent Research Refuge, Laurel, MD. October 30, 1999.

Linking Conservation, Land-Use Regulation, and Science. American Planning Association Symposium, Chicago, IL. September 17-18, 1999.

The Big Apple's Biodiversity: Prospects for Survival in the Post-Eisenhowerian Era. Biodiversity and Climate Change: Center for Biodiversity and Conservation Spring Symposium, American Museum of Natural History, New York, NY. May 1, 1999.

Conservation of Amphibians and Reptiles in the Northeast. Fifty-fifth Annual Northeast Fish and Wildlife Conference, Holiday Inn, Manchester, NH. April 13, 1999.

Sustaining Biodiversity in a Changing Landscape. The Colebrook Land Conservancy Annual Meeting, YMCA Camp Jewel, Colebrook, CT. April 8, 1999.

The Role of Veterinarians in Monitoring the Health Status of Free-Ranging Chelonians. Association of Reptilian and Amphibian Veterinarians Fifth Annual Conference, Crowne Plaza, Kansas City, MO. September 28, 1998.

Keynote Address: Ephemeral Wetlands – Ephemeral Protection? Our Hidden Wetlands: A Symposium on Vernal Pools in Connecticut, Wesleyan University, Wesleyan, CT. November 15, 1997.

Urban Growth and Biodiversity: Can They Co-Exist? Lecture for the Westchester Environmental Management Council and Federated Conservationists of Westchester County, Texaco, Inc. October 27, 1995**.**

Post-glacial Landscape Ecology of the Long Island Sound Basin: A Herpetological Perspective. Jay Heritage Center Annual Meeting, Rye, NY. June 7, 1995.

Global Conservation in a Changing Environment. Biotechnologies for the Ecological, Evolutionary and Conservation Sciences Earth Day Symposium, University of Florida, Gainesville, FL. April 29, 1995.

From Kilimanjaro to Storm King: International Perspectives on Conserving Local Biodiversity. Environmental Problem Solving in Dutchess County Lecture Series, Vassar College, Poughkeepsie, NY. January 26, 1995.

Local Wetlands and Their Associated Uplands: A Conservation Challenge. Wetlands Watch Lecture (Sierra Club), Chappaqua, NY. November 1, 1994.

Turtle at the Crossroads. A Symposium on the Status and Conservation of Florida Turtles, Eckerd College, St. Petersburg, FL. April 3, 1994.

Reptiles and Amphibians of the Metropolitan Region: Threats, Causes, Solutions. Eco Impact Lectures, American Museum of Natural History, New York, NY. February 24, 1994.

Conservation of Amphibians and Reptiles in the Hudson Valley. Our Own Backyard. The Hudson River and New York Harbor: A Natural History, American Museum of Natural History, New York, NY. February 9, 1994.

The Role of Museums and Systematics in the Biodiversity Crisis. Durrell Institute of Conservation and Ecology, University of Kent, U.K. November 11, 1993.

Conservation Action Planning. World Conservation Monitoring Centre, Cambridge, U.K. November 9, 1993.

The Biological Significance of Aquatic Ecosystems. The Future of America's Rivers/A Celebration of the 25th Anniversary of the National Wild and Scenic Rivers Act, Washington, DC. November 5, 1993.

Preserving Local Biodiversity: Lessons from Herpetology. 1993 New York State Conference on the Environment, White Plains, NY. October 23, 1993.

Baseline Health Parameters of Free-ranging Pancake Tortoises, *Malacochersus tornieri*, in Tanzania. Conservation, Restoration, and Management of Tortoises and Turtles-An International Conference, Purchase, NY. July 11-16, 1993.

Status and Exploitation of the Pancake Tortoise (*Malacochersus tornieri)* in Tanzania. Eighteenth Annual Symposium, Desert Tortoise Council, Palm Springs, CA. May 14-16, 1993.

Conservation Efforts: Past Experiences, Future Needs. Symposium on the Status and Conservation of Turtles of the Northeast, Worcester College. March 20, 1993.

At Risk-Local Biodiversity. Millbrook Garden Club, Salisbury, CT. October 19, 1992.

Worldwide Turtle and Tortoise Conservation Efforts by the Turtle Recovery Program. Minnesota Herpetological Society, Saint Paul, MN. May 1, 1992.

Worldwide Turtle and Tortoise Conservation Efforts. University of Minnesota, Conservation Biology Program, Minneapolis, MN. April 30, 1992.

Turtles in Crisis-The Problems and Possible Solutions. Brookfield Zoological Society, Brookfield, IL. April 29, 1992.

Tortoise and Fresh Water Turtle Recovery Program. Chicago Herpetological Society, Chicago, IL. April 28, 1992.

Tortoise and Fresh Water Turtle Recovery Program. 633rd Meeting of The Kennicott Club, Chicago, IL. April 27, 1992.

Building Conservation Partnerships to Conserve Turtles. 17th Annual Symposium. Desert Tortoise Council, Las Vegas, NV. March 6-9, 1992.

Nonmarine Turtle Decline. Northeast Nongame Technical Committee Meeting, Luray, VA. September 26, 1991.

Conservation Status of the Amphibians and Reptiles of Connecticut. 71st Annual Meeting of the American Society of Ichthyologists and Herpetologists, New York, NY. June 15-20, 1991.

Building a Coalition for Conserving Chelonian Biodiversity: The IUCN/SSC Action Plan. 71st Annual Meeting of the American Society of Ichthyologists and Herpetologists, New York, NY. June 15-20, 1991.

Massachusetts and Connecticut Bog Turtle Situations and Projects. Bog Turtle Research Symposium, Moravian College, Lehigh, PA. April 27, 1991.

Turtle Action Plan Initiative (IUCN). Bog Turtle Research Symposium, Moravian College, Lehigh, PA. April 27, 1991.

The IUCN's Tortoise and Freshwater Turtle Conservation Action Plan: Reporting the First Year of Progress. Seminar, Middlebury College, VT. April 4, 1991.

The IUCN/Tortoise and Freshwater Turtle Specialist Group Conservation Action Plan: Report of the First Year's Progress. 16th Annual Symposium. Desert Tortoise Council. Las Vegas, NV. March 8-11, 1991.

Tortoises and Freshwater Turtles: An Action Plan for Their Conservation. Joint initiative of the American Museum of Natural History and the World Conservation Union Species Survival Commission (IUCN/SSC), Special Members Lecture, American Museum of Natural History, New York, NY. February 6, 1991.

IUCN Global Action Plan for the Conservation of Freshwater Turtles and Tortoises and **Recommendations on an Upland Habitat Acquisition Program for the Gopher Tortoise Council**. Twelfth Annual Meeting of the Gopher Tortoise Council, Brooksville, FL. October 26-28, 1990.

Implementing the International Union for the Conservation of Nature Tortoise and Freshwater Turtle Action Plan. Symposium on Turtles and Tortoises: Conservation and Captive Husbandry. Chapman College, Orange, CA. August 9-12, 1990.

Think Globally Act Locally: The Importance of Maintaining Local Wildlife Populations. Long Island's Natural Habitat Management Series: Managing and Protecting Long Island's Endangered Species, Suffolk Community College, Long Island, NY. June 8, 1990.

The IUCN Global Action Plan for the Conservation of Tortoises and Freshwater Turtles. New York Turtle and Tortoise Society Fifth Annual Seminar, Fordham University, Bronx, NY. April 28, 1990.

Postglacial Hybridization of *Ambystoma jeffersonianum* and *Ambystoma laterale* (Amphibia: Caudata) in the northeastern United States. First World Congress of Herpetology, Canterbury, UK. September 11-19, 1989.

FUNDRAISING EXPERIENCE: AWARDS RECEIVED

State of Connecticut Department of Environmental Protection

Support for "Planning for Nature in Connecticut" workshop series, Wildlife Conservation Society, Metropolitan Conservation Alliance, 2003 – 2005.
Support for "Farmington Valley Biodiversity Project" and "From Planning to Action: Biodiversity Conservation in Connecticut Towns", Wildlife Conservation Society, Metropolitan Conservation Alliance, 2004 – current.

New York State Department of Environmental Conservation

Funding for "Integrating Biodiversity Conservation into Municipal Planning Goals and Pracitces", Wildlife Conservation Society, Metropolitan Conservation Alliance, 2004 – 2007.
Funding for "Integrating Biodiversity Conservation into Municipal Planning Goals and Pracitces for Target Communities", Wildlife Conservation Society, Metropolitan Conservation Alliance, 2001 – 2003.

Geraldine R. Dodge Foundation

Support for "A Cooperative, Science-Based Approach to Improving Wildlife Management in New Jersey", Wildlife Conservation Society, Metropolitan Conservation Alliance, 2003, renewal grant 2005.

Westchester Community Foundation

Renewed support for Westchester Biotic Corridor projects, Wildlife Conservation Society, Metropolitan Conservation Alliance Program. 1999 - 2007.

Gage Fund

Renewed annual support for Eastern Westchester Biotic Corridor. 2002-2007

Surdna Foundation, Inc.

Funding for Wildlife Conservation Society, Metropolitan Conservation Alliance Program, 1998-2000.

Funding for Wildlife Conservation Society, NY Metro Program, 1997.

Sweet Water Trust

Support for "Wetland Landscapes of the Northeast," 1999-2000.
Support for "Inventory, Information, and Research Accomplishments in the Great Swamp," Wildlife Conservation Society, NY Metro Program, 1997.

Doris Duke Charitable Foundation

Funding for Wildlife Conservation Society, Metropolitan Conservation Alliance Program, 1999, 2001.

Leo Model Foundation

Wildlife Conservation Society, Tanzania Biodiversity and Training Program, 1997.

The Bay Foundation

Support for "Assessment of Amphibian and Reptile Biodiversity in Tanzania's National Parks," 1995-1997.

Geoffrey Hughes Foundation

Support for Massachusetts/Connecticut bog turtle ecosystem study, 1995-1997.

The Norcross Wildlife Foundation

Funding for the Wildlife Conservation Society, International Programs, 1995-1997.
Support for the publication of "Amphibians and Reptiles of Connecticut and Adjacent Regions," 1993.
Funding for Turtle Recovery Program, American Museum of Natural History, 1991-1992.

United States Department of Agriculture (Forest Service)

Support for "Conservation, Restoration, and Management of Tortoises and Freshwater Turtles-An International Conference," 1993.

United States Department of Defense (Legacy Program)

Support for "Conservation, Restoration, and Management of Tortoises and Freshwater Turtles-An International Conference," 1993.

National Science Foundation

Support for "Conservation, Restoration, and Management of Tortoises and Freshwater Turtles-An International Conference", 1993.

United State Department of the Interior (Bureau of Land Management)

Support for preparing conference proceedings "Conservation, Restoration, and Management of Tortoises and Freshwater Turtles-An International Conference," 1993.

Support for "Conservation, Restoration, and Management of Tortoises and Freshwater Turtles-An International Conference", 1992.

Wildlife Conservation International (Now WCS International Programs)

Field Assessment of the Status and Exploitation of the Pancake Tortoise *(Malacochersus tornieri)* in Tanzania, 1992.

John D. and Catherine T. MacArthur Foundation

Tropical Rainforests: Can We Regain Paradise Lost? (educational programming grant), 1990.

Capacity building in Tanzanian National Parks: Biodiversity assessment and monitoring, 1994-1998.

FUNDRAISING EXPERIENCE: NGO, COPORATE & INDIVIDUAL SUPPORT

Acorn Foundation

American Federation of Herpetoculturists

Aquarion Co.

Roland Betts

Brystie, Inc.

California Turtle and Tortoise Club

Camden House Publishing

Chelonia Institute

Chicago Zoological Society

Conservation and Research Foundation

Conservation International *(2 grant awards)*

Desert Tortoise Council *(2 grant awards)*

Martin Diamond *(multiple grant awards)*

Dorothy R. Donnelley Charitable Trust *(6 grant awards)*

Gordon Douglas

Institute for Herpetological Research.

J. P. Morgan & Co

IUCN/SSC Trade Specialist Group

Jersey Wildlife Preservation Trust *(2 grant awards)*

Knoxville Zoological Gardens

Leyland Alliance

New York Return A Gift to Wildlife *(2 grant awards)*

New York Turtle and Tortoise Society *(3 grant awards)*

Norcross Wildlife Foundation *(3 grant awards)*

Oklahoma City Zoological Park

Peter Scott Fund-IUCN *(3 grant awards)*

Sabin Conservation Fund *(7 grant awards)*

Saint Augustine Alligator Farm

Sweet Water Trust *(2 grant awards)*

Tampa Bay Herpetological Society

Tennessee Aquarium

Tipton and Maglione

US Fish and Wildlife Service

Dr. Lucy Waletzky