



Natural Resources Assessment for Property of  
JLB Partners Worthen Road, Durham, NH

Christopher Kane, May 13, 2008



**Christopher Kane**

Conservation Biologist

6 Donovan Street • Concord, NH 03301 • 603-848-7572 • [kane.chris@comcast.net](mailto:kane.chris@comcast.net)

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# Introduction and Background

## *Background*

This report aims to provide information about the natural resources on and in the vicinity to certain parcels in Durham, NH under the control of JLB Partners of Irving, Texas. The goal is for this field and research-based assessment of natural resources is to inform land conservation and development decisions relative to the subject property.

The study area consists of approximately 85 acres of undeveloped land of which significant portions are wetlands. The site is almost entirely forested, and it borders the Oyster River to the north, and an old field area to the west and southwest. The UNH natural area College Woods abuts to the east. Portions of property to the south on Worthen Road have been developed for residential uses.

Specifically, the subject parcels are Town of Durham Tax Map 13 / Lot 6-3 (entire lot), Map 13 / Lot 14-14 (north portion) and Map 13 / Lot 14-2 (east portion). The subject parcels are under consideration for a residential development project that will incorporate the protection of a portion of the property as conservation land. Section 10. of the Durham Subdivision Regulations allows for additional investigations to provide more information about a project site. Total acreage of the study area is approximately 85 acres. See the Appendices for a map of the subject parcels and study area.

Guidance for this project was derived from Article XIX, Section 175-107 *Conservation Subdivisions* of the Durham Zoning Ordinance which states the following regarding the purposes and considerations of conservation subdivision projects:

- A. **Purpose.** The purposes of these provisions are to assure that conservation subdivisions developed in the Town of Durham:
1. Preserve those areas of the site that have the highest value for conservation purposes;
  2. Preserve identified historic, known archeological and identified cultural features located on the site;
  3. Locate the buildings and structures on those portions of the site that are most appropriate for development considering both the development suitability of the site and its conservation value;
  4. Create continuous open spaces or “greenways” by linking the common open spaces in adjoining subdivisions wherever possible; and

5. Minimize the impact of residential development on the Town, neighboring properties, and the natural environment.

Site work already completed prior to this investigation includes delineation and mapping of wetlands, a high-intensity soil survey, and a boundary survey. Regulatory restrictions applying to the site include jurisdictional wetlands, a 75 ft. wetland buffer surrounding all wetlands, a 250 ft. buffer zone associated with the Oyster River under the Comprehensive Shoreland Protection Act, setbacks under the Durham Shoreland Protection Overlay District (Zoning Ordinance Article XIV) and a portion of the Durham Aquifer Protection Overlay District (Zoning Ordinance Article XVI).

## Methods and Materials

### *Scope of Work*

Resources suggested by the above Conservation Subdivision Purposes guided the scope of work. This Natural Resources Assessment consists of three components: Landscape Analysis and Research, Field Assessment, and Documentation and Interpretation. The two upland and presumably developable portions of the subject property are located east and west of a forested wetland on Lot 13 / Lot 6-3. The primary goal of this present Assessment is to compare these two areas as far as their conservation values, and by extension their relative desirability for permanent land conservation.

### *Landscape Analysis and Research*

GIS data available from GRANIT, additional data supplied by the engineering firm hired by the property owner, and maps available on the Town of Durham website provided a spatial context for the location of resources on the subject property. These data were analyzed to provide preliminary guidance and help develop priorities for the field work. The results of this “coarse filter analysis” were taken to the field for further investigation. Mapped resources, to the extent that they might apply to the subject property, were studied in advance of the field assessment. The following list of data categories includes the conservation values or specific resource that may be associated with each category:

Soils - hydric; special productive class

Topographical Features - (steep slopes, bedrock exposures, etc.) wildlife habitat, natural communities

Wetlands - wildlife habitat, natural communities, water resource protection

Aquifers, Wellhead protection zones - ground water drinking supplies

Perennial streams - wildlife corridors, habitat, water resource protection

Land Cover Type - wildlife habitat and corridors, natural communities, scenic vistas

Conservation and public lands - opportunities for enhancement, connection

Wildlife Action Plan - priority habitats, conservation priority areas

Recreation - mapped trails, recreation access

New Hampshire Natural Heritage Bureau - data on rare or threatened plant and animal species and natural communities / systems.

## ***Field Assessment***

The Field Assessment concentrated on the series of resources listed below, as guided by the landscape analysis:

Upland habitat – natural community type, wildlife and plant observations

Wetland Habitat – natural community types, wildlife and plant observations

Exotic plant species – identify and locate invasive species

Vernal pools, wetlands – document wildlife and natural communities

Streams and ponds – wildlife and plant observations, document conservation values

Property context – document scenic frontage, opportunity for connections

Historic / Cultural – document evidence of cultural past, recreational use, access

The Field Assessment was conducted on May 6, 2008. It was composed of three parts: breeding bird survey, upland habitat survey, and wetland habitat survey. Incidental observations of any of the above resources were also recorded as observed during all portions of the assessment.

## **Bird Survey**

Starting at 6:00 AM a series of 12 sample points were established throughout the study area to record early morning bird songs, calls and visuals. These observations were made during a 5 minute period at each station, and all observed species were recorded according to their approximate compass quadrant relative to the sample point. See the map in the Appendices for the display of the bird survey sample points.

## **Upland Habitat Survey**

The upland portions of the study area were surveyed for unusual and dominant plant species, natural community composition, wildlife habitat, land use history and cultural features. Dominant species of canopy trees, understory trees, shrubs and herbaceous plant species were recorded at select points. Unusual or high-quality natural community areas were delineated with GPS. The location of unusual trees and invasive exotic plant species were also recorded by GPS. Photos of select areas were also taken.

## Wetland Habitat Survey

The wetland portions of the study area were surveyed to document natural community type, unusual and dominant plant species, and wildlife habitat. Dominant vegetation was recorded by strata, and notations regarding hydrology and substrate were taken. Photos of select areas were taken, and GPS points collected.

## Results

### *Outside Sources*

#### **New Hampshire Natural Heritage Bureau**

The New Hampshire Natural Heritage Bureau finds, tracks, and facilitates the protection of New Hampshire's rare plants and exemplary natural communities as a bureau within the Division of Forests and Lands. NHHNB is not a regulatory agency. They also maintain information on rare wildlife in cooperation with the NH Fish & Game Department's Non-Game and Endangered Wildlife Program, which has legal jurisdiction over New Hampshire wildlife.

A data request was submitted to the Natural Heritage Bureau for information on potential elements in the present study area. Numerous elements were indicated as occurring within one mile of the study area. The data response indicated that two tracked elements are mapped in the actual study area: *Red maple floodplain forest*, and *Vesper Sparrow (Pooecetes gramineus)*. See the Appendices for a map of the elements.

An example of the *Red maple floodplain forest* natural community occurs in the northeast portion of the study area along the Oyster River. The actual area of this natural community is delineated on the attached map. The community is dominated in the canopy by red maple, *Acer rubrum*, with a strong component of other hardwood species such as black cherry, *Prunus serotina*, *Ulmus Americana*, and basswood, *Tilia Americana*. It has a ranking of S2 – “Imperiled due to rarity or vulnerability”. For a more detailed description of this community see the Appendices.

Vesper sparrow is also mapped as occurring in two locations in the north portion of the study area. Animals are mapped as large circles to indicate that they move around, and could occur in different locations. The center of the circular area mapped for this species is located to the north near the UNH farm fields. Two outside portions of this mapped circle fall in the study area. For a more meaningful interpretation of the mapped occurrence, and what it might mean for the conservation of this rare bird species, Pam Hunt of the Audubon Society of New Hampshire was consulted. She is the expert that is most knowledgeable about occurrences of rare grassland bird species in New Hampshire.

According to her, considering the record dates from 1984, and that she is not aware of breeding pairs being observed recently in this area, it is very unlikely that Vesper Sparrows currently occupy the study area. The species is an obligate of large (>20 ac.) shrubby grasslands. According to her, the forested habitat of the immediate study area would not be appropriate for this species.

## **Town of Durham**

The Town of Durham Master Plan (approved in 2000) recognizes the Oyster River as important as a Rural Service Area Greenway, and recommends formal protection by easement or fee acquisition of 250 ft. wide greenway along this river corridor to provide trail and pedestrian linkages.

The Aquifer map for the 2006 Town of Durham Zoning Ordinance (Article XVI), indicates that a portion of the property is subject to the Aquifer Protection Overlay District. This area appears to coincide with the 11.6 ac. aquifer area mapped by GRANIT. Certain restrictions apply to the use of this area.

The Town's website also publishes a recreational trail map of the abutting College Woods natural area. One of the trails along the south side of the Oyster River is shown to continue into the study area.

## **Wildlife Action Plan**

In the most comprehensive and sophisticated study yet undertaken in New Hampshire for wildlife habitat mapping and conservation planning, the New Hampshire Fish & Game Department unveiled its Wildlife Action Plan (WAP) in late 2006. Recently updated, and subject to continuous refinement, it is an important tool for Towns and organizations to use in planning the conservation of high quality and/or imperiled wildlife habitat, rare plant habitat and exemplary natural communities and systems.

The WAP shows four categories of data on or adjacent to the study area. The Matrix Forest of property is mapped as *Appalachian Oak-Pine Forest*. Matrix forest is a broadly defined background forest type that indicates the kind of forest that either exists on the site now or that would be supported there if allowed to return. Appalachian Oak-Pine is the most common matrix forest type of this part of New Hampshire.

The fields immediately to the west of the study area, on parcel 13 / 14-2 is mapped in the WAP as the *Priority Habitat Grassland* type. Grasslands are defined here as areas greater than 10 hectares (about 25 acres) that are dominated by grasses, forbs, and sedges with little shrub or tree cover (generally less than 10%). Grasslands can include agricultural fields, airports, landfills, meadows, or heathlands. Species of concern in New Hampshire associated with this community include: northern harrier, upland



sandpiper, purple marten, eastern meadowlark, horned lark, grasshopper sparrow, vesper sparrow, northern leopard frog, and wood turtle.

This field is also mapped as being in the Highest Rank by Condition in New Hampshire. This is the highest value ranking for wildlife habitat on a State-wide basis. Other areas to the south of the study area, on the north side of Mill Road are mapped as Supporting Landscape that is of value to protect, buffer and expand the highest-ranking habitat nearby.

## **GRANIT**

The GIS data from GRANIT shows a 11.6 acre area of High-yield aquifer (500-1,000 ft.2 / day) in the study area to the east of the large wetland. High-Yield Aquifers are important, reliable high-quality potential sources of drinking water.

## *Field Results*

### **Bird / Wildlife Survey**

A total of 30 species of birds were observed. Considering the time of year and the multiple observations of individual species, it is most likely that most of these species are breeding in the vicinity of the study area. Most of the bird species that were observed are relatively common in this part of New Hampshire. Three species of birds that are not particularly common were observed, however.

A *Common Raven* was observed flying over the study area, mobbed by a flock of American Crows. While it's range extends northerly throughout northern New England, Ravens are at the southern extreme of their range in the NH Seacoast area. They are locally uncommon breeders, and the observation of a Raven at this time of year would suggest that there is a nesting pair in the vicinity.

A *Blue-winged Warbler* was also heard singing in the field just west of the study area. This species is an uncommon to locally common breeder, with its range only extending into the southern portion of the state. Blue-wings require old fields with scattered shrubs or small trees for nesting and feeding habitat, preferring also to be near water. It is very likely that this observation represents a nesting pair.

An *Eastern Towhee* was also heard singing in the field west of the study area. This species is a common breeder in suitable habitat which includes dense shrubby fields, pitch pine/scrub oak barrens, and early-successional habitat resulting from burns or clear cuts. The species is declining in the state due to the reduction of its preferred habitat. The presence of a Towhee in the field indicates a likely breeding pair.

Other notable bird observations include a nest of duck eggs by the Oyster River, a foraging pair of Myrtle Warblers, and a Wood Thrush foraging on the ground.

Several species of amphibians were observed: Green frogs, Tree Frogs and Spring Peepers. A Garter snake was seen sunning after a meal, (see photo below) and two Mourning Cloak butterflies were flying in response to the warmth. Several mammal species were observed: Gray Squirrel, Red Squirrel, Eastern Chipmunk, Porcupine (see photo below) and White-tailed Deer. Northern Spring Peepers and Gray Treefrogs were heard singing, and Green Frogs were seen in the small stream that drains the large wetland. See the Appendices for a complete list of the animal species that were observed.



**Photo 1. Common Garter Snake sunning after a meal in wetland buffer area west of large wetland.**



**Photo 2: Duck nest on banks of Oyster River**



**Photo 3: Porcupine in Hemlock tree in wetland buffer area west of large wetland.**

## Upland Habitat Survey

The survey of upland portions of the study area indicate a past use as pasture. This is most evident in the west portion, on higher ground, where remnant red cedars and dead junipers remain amidst an open woods of young oaks and gray birches. The invasive exotic shrub Glossy Buckthorn (*Frangula alnus*) has invaded the open portions of this area as well. White pines and hemlocks dominate the northwest portion, and hemlocks generally are thickest along the upper banks of the Oyster River to the north. White pines also line the field adjacent to the west portion of the study area, and are scattered generally in the east portion as well.

In areas that are more advanced in age following pasture abandonment, the predominant matrix forest of the site is a variant of *Mesic Appalachian oak – hickory forest*. This natural community is described in the classification published by the NH Natural Heritage Bureau. The Heritage Bureau ranks this community as S2S3, somewhat uncommon, and restricted to coastal and southern New Hampshire.



**Photo 4: Dead junipers in sparse young woods indicate abandonment of former pasture use**

The dominant tree species of this community in the study area are Red Oak (*Quercus rubra*), Black Oak (*Quercus velutina*), White Oak (*Quercus alba*), and Shagbark Hickory, (*Carya ovata*). White Pine (*Pinus strobus*), Red Maple (*Acer rubrum*), Sweet Birch (*Betula lenta*), Eastern Hemlock (*Tsuga canadensis*), and the occasional Basswood (*Tilia americana*), Black Cherry (*Prunus serotina*) and Red Cedar (*Juniperus virginiana*) are sub-dominant or associate canopy species. Understory species include the dry-sited

shrub and small tree species Witch-hazel (*Hamamelis virginiana*), Beaked Hazel (*Corylus cornuta*), Maple-leaved Viburnum (*Viburnum acerifolium*), Fly Honeysuckle (*Lonicera canadensis*) and Ironwood (*Ostrya virginiana*).

The common presence of the wet-sited understory tree Musclewood (*Carpinus caroliniana*) in portions of the community may indicate finer silt loam soils than are typical in this community type. This last species is absent in the portion east of the large wetland, where glaciated bedrock outcrops indicate shallower, drier soils. A tiny grove of Butternut (*Juglans cinerea*) trees was also seen in the southeast corner of the study area. This tree species is declining quickly across its entire range, due to the of the spread of the Butternut Canker fungus *Sirococcus clavigignenti-juglandacearum*. All the butternuts found on the study area had unfortunately already contracted the canker disease, and presumably will not last too many years more.



**Photo 5: Appalachian oak – hickory forest on bedrock outcrop, east portion of study area**



**Photo 6: Appalachian oak – hickory forest in south portion of study area**



**Photo 7: Wood Anemone, *Anemone quinquefolia***

Herb stratum species that are common in this community include Canada Mayflower (*Maianthemum canadense*), Partridgeberry (*Mitchella repens*), Rough-leaved ricegrass (*Oryzopsis asperifolia*). Spring wildflowers were in full bloom in many areas. These species include Wood Anemone (*Anemone quinquefolia*), Trout Lily (*Erythronium americanum*) and Dwarf Ginseng (*Panax trifolia*).

A hiking trail enters the property from the UNH College Woods that abut to the east, and more-or-less parallels the river, ultimately arriving at the field to the west. In several locations along this trail the invasive exotic shrub species Glossy Buckthorn (*Frangula alnus*), Tartarian Honeysuckle (*Lonicera tatarica*), and Japanese Barberry (*Berberis thunbergii*) have gained a foothold, especially west of the large wetland. This trail is mapped in part on the Durham Trail Map for College Woods.

## Wetland Habitat Survey

There are several wetland areas on the subject property. The Oyster River forms the northern boundary, and this important stream meanders through near-level terrain on its way to the Great Bay estuary where it blends with saltwater to become brackish. Along most of this frontage the river banks are steep, and define the river course and associated floodplain. The northeast extent of this floodplain is mapped as the element occurrence *Red maple floodplain forest* by the Natural Heritage Bureau as (see Attachment X). The floodplain area was in full bloom with a profusion of wildflowers including Dwarf Ginseng (*Panax trifolia*), Wood Anemone (*Anemone quinquefolia*), and the relatively uncommon Round-lobed Hepatica (*Anemone americana*).

A large wetland dominates the center of the Lot 13 / 6-3. This wetland originates primarily from groundwater seepages, and is slightly sloped northward toward the river that it flows into from a short section of channelized stream flow. The stream cuts through pure, fine clay/silt deposits of ancient marine origins. This unusual seepage wetland has many of the characteristics of a *Red maple – black ash – swamp saxifrage swamp* community as it is classified by the Natural Heritage Bureau. Black ash is present, though in low numbers. Red maple and Swamp Saxifrage (*Saxifraga pensylvanica*) are both present also, as are lesser amounts of other tree species including Basswood (*Tilia Americana*), American Elm (*Ulmus Americana*), and Red Oak (*Quercus rubra*). On drier locations Shagbark Hickory (*Carya ovata*) and White Pine (*Pinus strobus*) even occur. There is virtually no organic soil layer, the mineral substrate starting directly below the leaf litter and vegetation. The canopy cover is 50%, while the shrub cover is about 80%. Predominant shrub species include Musclewood (*Carpinus caroliniana*), Gray Dogwood (*Cornus recemosa*), Silky Dogwood (*Cornus amomum*), Nannyberry (*Viburnum lentago*) and Winterberry Holly (*Ilex verticillata*). Common herbaceous species include Wild Geranium (*Geranium maculatum*), Water Avens (*Geum rivale*), Dwarf Raspberry (*Rubus pubescens*), Sedges (*Carex* spp.), Ragwort (*Senecio* spp.) and Spotted Touch-me-not (*Impatiens capensis*).

Floodwaters are likely to enter the lower parts of this wetland from the Oyster River during high-water events. In these areas it shares characteristics of another community, *Basswood-white ash-black maple floodplain forest*. Basswood is a dominant in this area, although white ash is uncommon. Trees that appear to be Black maple (*Acer nigrum*) are present in small numbers, along with American Elm and Red Maple.



**Photo 8: Channelized flow of large seepage wetland near river**

Another smaller wetland area crosses the southeast property boundary. This is a relatively common basin wetland community dominated by shrubs including Winterberry Holly, and Musclemwood. A small isolated temporary pool just north of the south boundary of lot 13 / 6-3 was observed. Although it holds some water, and has stained leaves and overhanging conifers, no indicator species that would suggest its value to vernal pool wildlife species were observed. A few features that indicate an agricultural past were observed at the study area. Several boundaries are marked with stone walls, and a series of stone piles in the south portion, south of lot 13 / 6-3 indicates the clearing of field rocks for crop lands or hayfields.





**Photo 9: Wetland with characteristics of *Red maple – black ash – swamp saxifrage swamp* and *Basswood-white ash-black maple floodplain forest***



**Photo 10: Round-lobed Hepatica (*Anemone americana*) near Oyster River**

## Discussion and Recommendations

Results of the research and field work highlight the diversity of habitat of the study area. The goal of this project is to determine what areas of the study area contain the most important natural and cultural resources, and thereby the most significant conservation values. Wetland regulations and other local and State restrictions prevent or restrict uses within the wetlands and a 75 ft. surrounding buffer, and within a 250 ft. buffer to the Oyster River. However, some surrounding upland areas can have disproportionately important supporting roles for wildlife and natural system health if chosen wisely. A point by point comparison of the residual upland areas, one east of and one west of the large central wetland will highlight the differences in the conservation values of these two potential development areas. These will be labeled the East development site, and the West development site for convenience.

### Conservation Values of East Development Site

- Contains significant area of intact natural community - *Mesic Appalachian oak – hickory forest* natural community

- Contains tracked example of *Red maple floodplain forest* natural community
- Contains entire area of a 11.6 acre high-yield aquifer area that is within the Durham Aquifer Protection Overlay District
- Completely surrounded by intact natural habitat
- Shares significant boundary with existing conservation land – College Woods
- Contains portion of intact shrub basin wetland
- Located at trail entry point from College Woods
- Contains supporting upland habitat for wetlands on three sides, including unusual seepage wetland
- Plant diversity is higher in this site than in West site
- Rare species are not known to occur on this site
- Contains intact river frontage on Oyster River
- Contains significant area of bedrock outcrops
- Site is more isolated from existing residential development than West site
- Relatively minor introduction of exotic invasive plant species

### **Conservation Values of West Development Site**

- Contains minor areas of *Mesic Appalachian oak–hickory forest* natural community
- Contiguous to old field in semi-natural condition
- Much of site is old pasture that was abandoned relatively recently
- Wetland buffer area to east has some of the most intact forest on property
- Rare species are not known to occur on this site
- Contains intact river frontage on Oyster River
- More significant introduction of invasive exotic plants

- Contiguous to old field with uncommon grassland bird habitat

### *Recommendations*

Based on the comparison of the conservation values outlined above, it is recommended that the East Site referred to above is the most valuable from a conservation standpoint, and is the best choice for permanent land conservation. Significant natural habitat in excellent condition would be preserved, existing conservation lands would be expanded and enhanced, protection of the Oyster River drainage and thus the Great Bay Estuary would be increased, existing recreation access would be protected, and an important high yield aquifer area would be protected by the conservation of this area.

The land conservation area should ideally include the wetland buffers to the west of the large central seepage wetland. It is also recommended that care be taken to avoid impacts near the Oyster River due to the high-value habitat and recreational access in this area.

It is also recommended that a buffer of trees and low vegetation be maintained along the border of the West Site where it is adjacent to the old field habitat area, to help minimize impacts to the uncommon grassland bird habitat it contains. In addition, road access to the development area would ideally minimize fragmentation of the East Site by being located as far to the west as is practical.

## Sources

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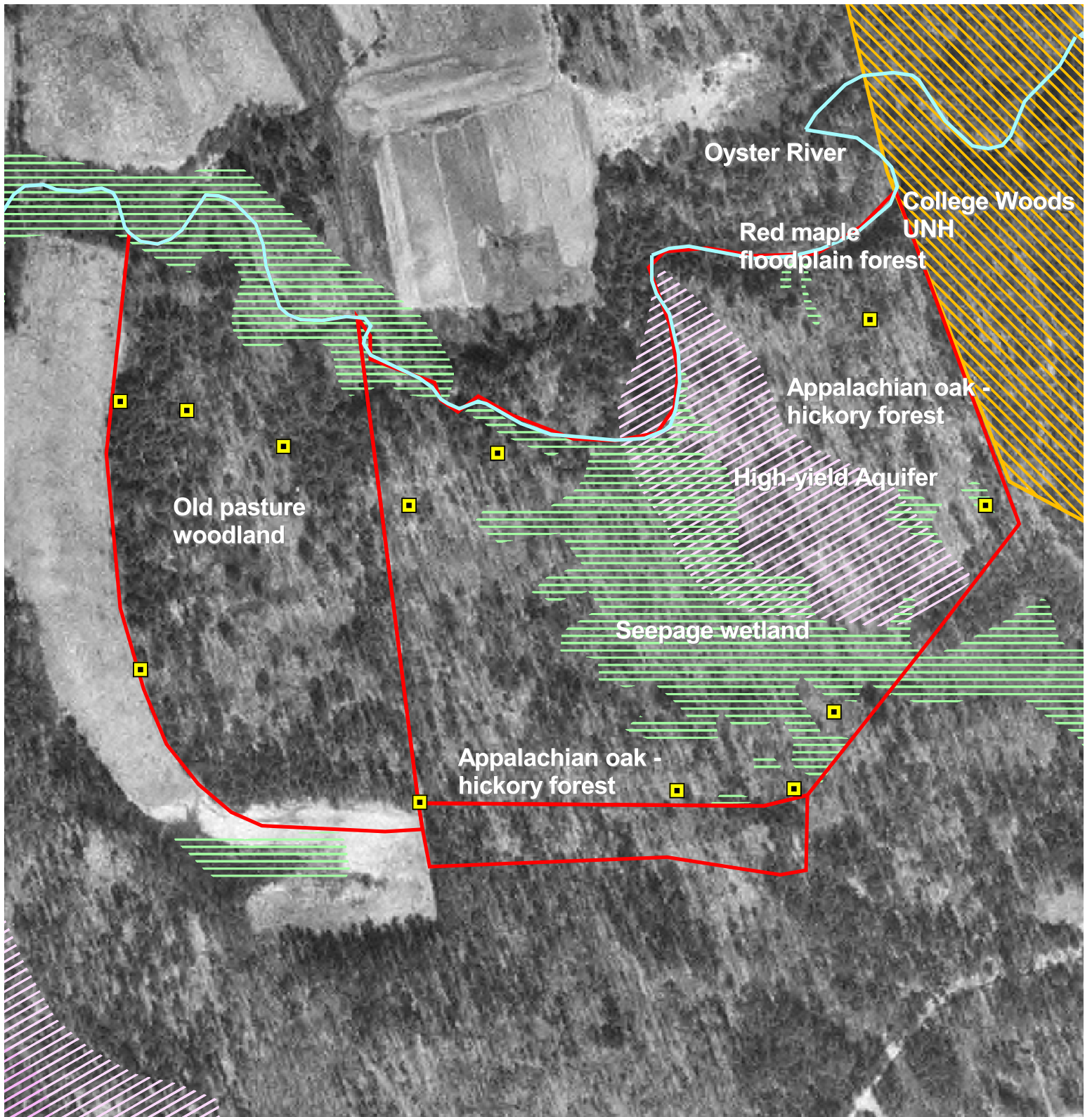
## Table of Appendices

GIS Map of Study Area

College Woods Trail Map

Animal Species List

NH Natural Heritage Bureau Data Response



1998 Digital Orthophoto




# Natural Resources Assessment

Property of JLB Partners  
 Worthen Rd., Durham, NH




Christopher Kane, 5/13/2008





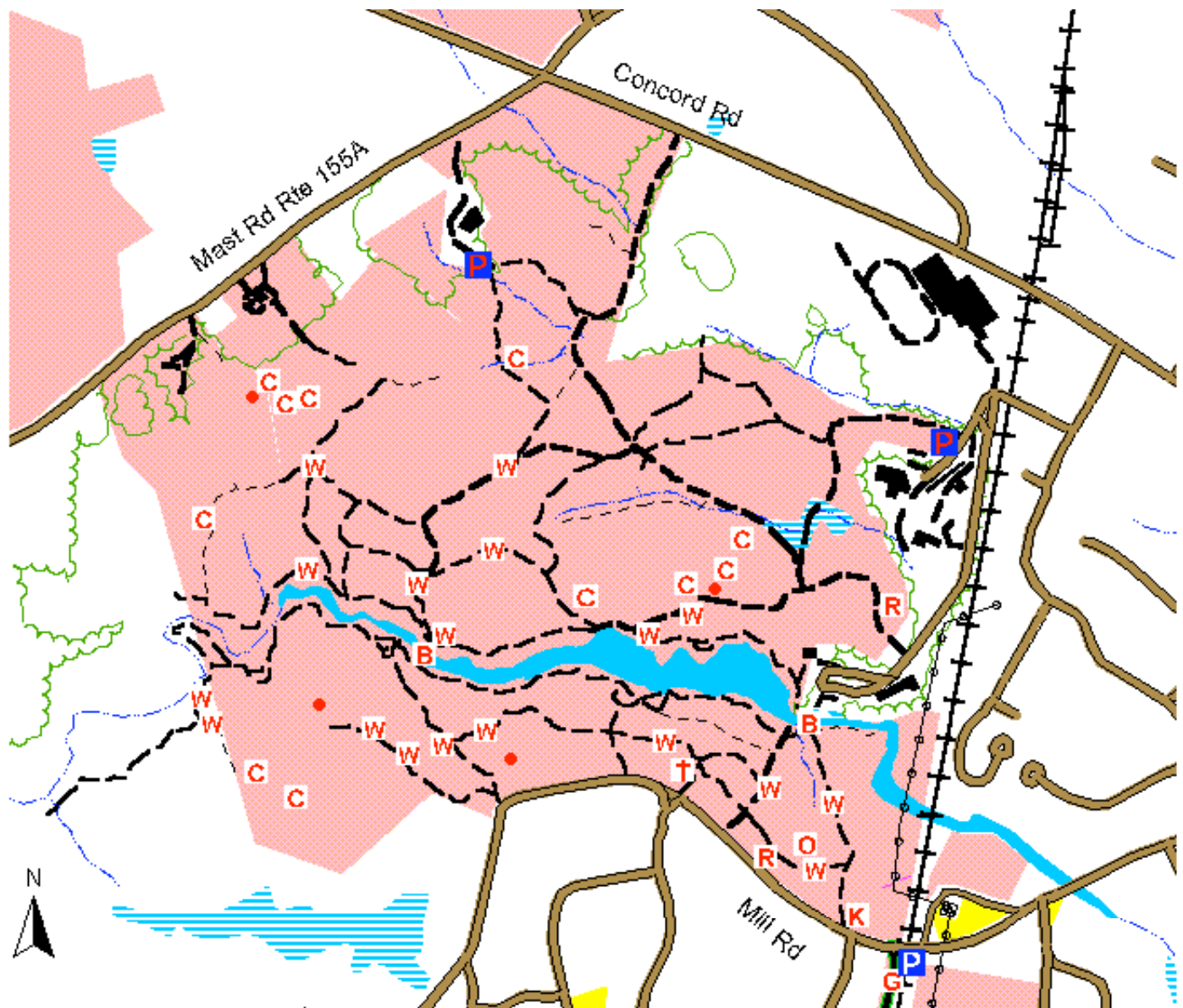
**Legend**

-  Study Area
-  Streams and Rivers
-  Wetlands (Approximate Boundaries)

**Aquifers**

-  500 - 1,000 ft<sup>2</sup>/day (Tmax)
-  2,000 - 4,000
-  >= 6,000

-  Conservation and Public Lands
-  Bird Survey Points



**College Woods**  
**University of New Hampshire**  
**Durham NH**

0 500 1000 1500 2000 2500 Feet

Map by Tony Federer, March 2004

Digital data in NH GRANIT represent the efforts of the contributing agencies to record information from the cited source materials. Complex Systems Research Center (CSRC), under contract to the Office of State Planning (OSP), and in consultation with cooperating agencies, maintains a continuing program to identify and correct errors in these data. OSP, CSRC, and the cooperating agencies make no claim as to the validity or reliability or to any implied uses of these data.

- Road
  - Woods road
  - Trail
  - Faint trail
  - Railroad
  - Power line
  - Stream
  - Field/Forest edge
- Trail Surface**
- Smooth surface
  - Moderate surface
  - Rough surface
  - Rough and steep
- Land Ownership**
- Town/School
  - UNH/State
  - Conservation Org.
- Boulder
  - Gate
  - Footbridge
  - Cliff
  - Ruin/cellar hole
  - Beaver dam
  - Wall crossing/corner
  - Kiosk/memorial
  - Cemetery
  - Picnic table
  - Well
  - Bench
  - Boat landing
  - Shelter
  - Parking
  - Weekend parking
  - Building
  - Water
  - Wetland



## Animal Species Observations

Common Name	Scientific Name	Observation
<b>Birds</b>		
Pine Warbler	<i>Dendroica pinus</i>	song / call
Ovenbird	<i>Seiurus aurocapillus</i>	song / call
Canada Goose	<i>Branta canadensis</i>	(flyover)
Blue Jay	<i>Cyanocitta cristata</i>	song / call
Black-capped Chickadee	<i>Parus atricapillus</i>	song / call
Wood Thrush	<i>Hylocichla mustelina</i>	song / call, male seen foraging
American Goldfinch	<i>Carduelis tristis</i>	song / call
Northern Cardinal	<i>Cardinalis cardinalis</i>	song / call
Eastern Phoebe	<i>Sayornis phoebe</i>	song / call
Brown-headed Cowbird	<i>Molothrus ater</i>	song / call
Tufted Titmouse	<i>Parus bicolor</i>	song / call
Solitary Vireo	<i>Vireo solitarius</i>	song / call
Black and White Warbler	<i>Mniotilta varia</i>	song / call
White-breasted Nuthatch	<i>Sitta carolinensis</i>	song / call
Black-throated Green Warbler	<i>Dendroica virens</i>	song / call
Veery	<i>Catharus fuscescens</i>	song / call
Woodpecker sp.	<i>Picoides sp.</i>	tree call
Red-eyed Vireo	<i>Vireo olivaceus</i>	song / call
Myrtle Warbler	<i>Dendroica coronata</i>	song / call, foraging pair seen
White-throated Sparrow	<i>Zonotrichia albicollis</i>	song / call
Common Yellowthroat	<i>Geothlypis trichas</i>	song / call
Red-winged Blackbird	<i>Agelaius phoeniceus</i>	song / call
Eastern Towhee	<i>Pipilo erythrophthalmus</i>	song / call
Northern Oriole	<i>Icterus galbula</i>	song / call
Northern Parula	<i>Parula americana</i>	song / call
Blue-winged Warbler	<i>Vermivora pinus</i>	song / call
Common Raven	<i>Corvus corax</i>	(flyover, 5/1/08)
American Crow	<i>Corvus brachyrhynchos</i>	(flyover, 5/1/08)
Least Flycatcher	<i>Empidonax minimus</i>	song / call
Mallard or Black Duck	<i>Anas sp.</i>	nest with eggs seen

## Mammals

Red Squirrel	<i>Tamiasciurus hudsonicus</i>	seen foraging
Gray Squirrel	<i>Sciurus carolinensis</i>	seen foraging

Eastern Chipmunk	<i>Tamias striatus</i>	seen foraging
Porcupine	<i>Erethizon dorsatum</i>	seen in tree
White-tailed Deer	<i>Odocoileus virginianus</i>	scat

### **Amphibians**

Gray Treefrog	<i>Hyla versicolor</i>	calling
Northern Spring Peeper	<i>Pseudacris c. crucifer</i>	calling
Green Frog	<i>Rana clamitans melanota</i>	seen in stream

### **Reptiles**

Common Garter Snake	<i>Thamnophis sirtalis</i>	seen west of large wetland
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# NEW HAMPSHIRE NATURAL HERITAGE BUREAU

DRED - DIVISION OF FORESTS & LANDS

PO Box 1856 -- 172 PEMBROKE ROAD, CONCORD, NH 03302-1856  
PHONE: (603) 271-2214 FAX: (603) 271-6488

**To:** Chris Kane  
6 Donovan Street  
Concord NH 03301

**From:** Sara Cairns, NH Natural Heritage Bureau  
**Date:** 2008-05-07

**Re:** Review by NH Natural Heritage Bureau of request dated 2008-05-07

**NHB File ID:** 415

**Town:** Durham

**Project type:** Landowner Request

**Location:** South side of Oyster River (Tax map-Lot: 13-14-2; 13-6-3; 13-14-14)

I have searched our database for records of rare species and exemplary natural communities on the property(s) identified in your request. Our database includes known records for species officially listed as Threatened or Endangered by either the state of New Hampshire or the federal government, as well as species and natural communities judged by experts to be at risk in New Hampshire but not yet formally listed.

NHB records on the property(s):

Natural Community	Mapping Precision	% within tract	Last Reported	Listing Status		Conservation Rank	
				Federal	NH	Global	State
Red maple floodplain forest	Good	23.2	1996	--	--	-	S2
<b>Vertebrate species (For more information on animal species, contact Kim Tuttle, NH F&amp;G at 271-6544)</b>				<b>Federal</b>	<b>NH</b>	<b>Global</b>	<b>State</b>
Vesper Sparrow ( <i>Pooecetes gramineus</i> )	Good	3.2	1984	--	--	G5	S2B

NHB records within one mile of the property(s):

Vertebrate species (For more information on animal species, contact Kim Tuttle, NH F&G at 271-6544)	Last Reported	Listing Status		Conservation Rank	
		Federal	NH	Global	State
Upland Sandpiper ( <i>Barrania longicauda</i> )	2001	--	E	G5	S1
Fish Crow ( <i>Corvus ossifragus</i> )	1982	--	--	G5	S3
Sedge Wren ( <i>Cistothorus platensis</i> )	2001	--	E	G5	S1
American Brook Lamprey ( <i>Lampetra appendix</i> )	2006	--	--	G4	S2

**NOTE: This review cannot be used to satisfy a permit or other regulatory requirement to check for rare species or habitats that could be affected by a proposed project, since it provides detailed information only for records actually on the property.**



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Vertebrate species (cont.)	Federal	NH	Global	State
Swamp Darter ( <i>Etheostoma fusiforme</i> )	--	--	G5	S3
Spotted Turtle ( <i>Clemmys guttata</i> )	--	--	G5	S3
<b>Natural Community</b>	<b>Federal</b>	<b>NH</b>	<b>Global</b>	<b>State</b>
Herbaceous seepage marsh	--	--	--	S3
Red maple - lake sedge swamp	--	--	--	S3
Red maple - Sphagnum basin swamp	--	--	--	S4
Hemlock - beech - oak - pine forest	--	--	--	S5
Kettle hole bog system	--	--	--	S2
<b>Invertebrate Species</b>	<b>Federal</b>	<b>NH</b>	<b>Global</b>	<b>State</b>
Bog Elfin ( <i>Callophrys lanorataeensis</i> )	--	--	G3	SH
Ringed Bog Haunter ( <i>Williamsonia lintneri</i> )	--	E	G3	S1
<b>Plant species</b>	<b>Federal</b>	<b>NH</b>	<b>Global</b>	<b>State</b>
Northern Blazing Star ( <i>Liatris scariosa</i> var. <i>novae-angliae</i> )	--	E	T3	S1
Water Marigold ( <i>Megalodonta beckii</i> )	--	E	G4	S1
Missouri Rock Cress ( <i>Arabis missouriensis</i> )	--	T	G5	S2
American Plum ( <i>Prunus americana</i> )	--	E	G5	S1
Small-crested Sedge ( <i>Carex cristatella</i> )	--	T	G5	S2
Star Duckweed ( <i>Lemna trisulca</i> )	--	E	G5	S1
Netted Chain Fern ( <i>Woodwardia areolata</i> )	--	E	G5	S1
Marsh Horsetail ( <i>Equisetum palustre</i> )	--	E	G5	S1
Engelmann's Quillwort ( <i>Isoetes engelmannii</i> )	--	E	G4	S1

Listing codes: T = Threatened, E = Endangered

Rank prefix: G = Global, S = State,

Rank suffix: 1-5 = Most (1) to least (5) imperiled. "--", U, NR = Not ranked.

B = Breeding population, N = Non-breeding, H = Historical, X = Extirpated.

T = Global or state rank for a sub-species or variety (taxon)

"--", U, NR = Not ranked.

B = Breeding population, N = Non-breeding, H = Historical, X = Extirpated.

A negative result (no record in our database) does not mean that no rare species are present. Our data can only tell you of known occurrences, based on information gathered by qualified biologists and reported to our office. However, many areas have never been surveyed, or have only been surveyed for certain species. An on-site survey would provide better information on what species and communities are indeed present.

**NOTE: This review cannot be used to satisfy a permit or other regulatory requirement to check for rare species or habitats that could be affected by a proposed project, since it provides detailed information only for records actually on the property.**



Known locations of rare species and exemplary natural communities

Sensitive species are labelled but not mapped. All other records are clipped to the property boundaries. Occurrences not on the property are not shown.



Property: JLB Partners

1:24000 0 0.25 0.5 0.75 1 Miles

\*Historical record

07 May 2008

## New Hampshire Natural Heritage Bureau - Community Record

### Red maple floodplain forest

#### Legal Status

Federal: Not listed  
State: Not listed

#### Conservation Status

Global: Not ranked (need more information)  
State: Imperiled due to rarity or vulnerability

#### Description at this Location

Conservation Rank: Fair quality, condition and/or lanscape context ('C' on a scale of A-D).

**Detailed Description:** 1996: A series of small sites along a 1-mile stretch of the Oyster River. The tree canopy was dominated by *Acer rubrum* (red maple), with considerable *Prunus serotina* (black cherry) and *Ulmus americana* (American elm), and occasional *Tilia americana* (basswood), *Acer saccharum* (sugar maple), *Quercus bicolor* (swamp white oak), and *Carya ovata* (shagbark hickory). *Carpinus caroliniana* (musclewood) was abundant in the subcanopy. Other shrubs included *Cornus amomum* (silky dogwood) and *Toxicodendron radicans* (poison ivy), and occasional to frequent non-native species including *Lonicera morrowii* (Morrow's honeysuckle), *Berberis thunbergii* (Japanese barberry), and *Rhamnus cathartica* (European buckthorn). Characteristic floodplain herbs included *Cinna arundinacea* (wood reed), *Solidago rugosa* (rough goldenrod), *Athyrium filix-femina* (lady fern), *Smilacina racemosa* (false-solomon's seal), *Thalictrum pubescens* (tall meadow rue), and *Elymus cf. riparius* (river wild rye).

**General Area:** 1996: The floodplains and river channel are, on average, approximately 30 m (100') in width between upland banks along the lower portion of this stretch of river, and widen to about 152 m (500') at its west end at the transition to the alluvial red maple streamside swamp. The annual floodplain appeared to be approximately 2-3.5 feet above the present river level (the level may have been slightly elevated from recent higher water associated with recent heavy rains). Soils ranged from fine sandy loams on somewhat higher terraces and levee features to somewhat poorly drained silt and silt loam soils on lower terraces (buxton, scitico, or podunk soils).

#### Location

Survey Site Name: Oyster River/College Woods  
Managed By: UNH - College Woods

County: Strafford	USGS quad(s): Dover West (4307028)
Town(s): Durham	Lat, Long: 430758N, 0705719W
Size: 8.2 acres	Elevation: 50 feet

**Precision:** Within (but not necessarily restricted to) the area indicated on the map.

**Directions:** From west, take Rte. 4 to University of New Hampshire exit, go east ca. 0.5 miles toward campus. Site is at south end of College Woods along the Oyster River, ca. 0.25 miles southwest of Mast Rd (Rte. 155A).

#### Dates documented

First reported: 1996-09	Last reported: 1996-09
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Nichols, B. & D. Sperduto. 1997. Ecological Assessment of Selected Towns in the Great Bay Area. New Hampshire Natural Heritage Program, Concord NH. 141 pp.

## New Hampshire Natural Heritage Bureau - Animal Record

### Vesper Sparrow (*Pooecetes gramineus*)

#### Legal Status

Federal: Not listed  
State: Not listed

#### Conservation Status

Global: Demonstrably widespread, abundant, and secure  
State: Not ranked (need more information)

#### Description at this Location

Conservation      Historical records only - current condition unknown.

Rank:

Comments on

Rank:

Detailed              1984: 1 adult, sex unknown, 1 immature, sex unknown, seen and heard (Obs\_id 1231).

Description:

General Area:      1984: Terrestrial - grassland / field (Obs\_id 1231).

1984: Adult associating with fledgling; also found in this area in 1982 (Obs\_id 1231).

#### Location

Survey Site      Layne Hill, SE of

Name:

Managed By:      UNH Property

County:      Strafford

USGS              Dover West (4307028)

quad(s):

Town(s):      Durham

Lat, Long:      430811N, 0705736W

Size:      278.0 acres

Elevation:

Precision:      Within (but not necessarily restricted to) the area indicated on the map.

Directions:      1984: UNH hayfield on Mast Road (Moore Fields) [Right after the Durham/Lee townline.] (Obs\_id 1231).

#### Dates documented

First reported:      1984-07-13

Last reported:      1984-07-13