



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: Ellen Snyder, Ibis Wildlife Consulting
26 Johnson Drive
Newmarket NH 03857

From: Sara Cairns, NH Natural Heritage Bureau

Date: 2014-05-12

Re: Review by NH Natural Heritage Bureau of request dated 2014-05-07

NHB File ID: 1867

Town: Durham

Project type: Landowner Request

Location: Packers Falls R (Tax Map 13 Lots 14-2, 13-1, 13-5)

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):

| | Mapping Precision | % within tract | Last Reported | Listing Status | | Conservation Rank | |
|---|-------------------|----------------|---------------|----------------|----|-------------------|-------|
| Invertebrate Species | | | | Federal | NH | Global | State |
| Bog Elfin (<i>Callophrys lanoraieensis</i>) | Good | 100 | 1900 | -- | -- | G3 | SH |
| Lyre-tipped Spreadwing (<i>Lestes unguiculatus</i>) | Good | 100 | 1942 | -- | -- | G5 | S1 |
| Ringed Boghaunter (<i>Williamsonia lintneri</i>) | Good | 100 | 2000 | -- | E | G3 | S2 |
| Natural Community | | | | Federal | NH | Global | State |
| Kettle hole bog system | Good | 100 | 1996 | -- | -- | - | S2 |
| Red maple floodplain forest | Good | 8 | 1996 | -- | -- | - | S2 |
| Plant species | | | | Federal | NH | Global | State |
| Netted Chain Fern (<i>Woodwardia areolata</i>) | Good | 100 | 1973 | -- | E | G5 | S1 |
| Vertebrate species (For more information, contact Kim Tuttle, NH F&G at 271-6544) | | | | Federal | NH | Global | State |
| Vesper Sparrow (<i>Poocetes gramineus</i>) | Good | 4 | 1984 | -- | SC | G5 | S2B |

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

| | Last Reported | Listing Status | | Conservation Rank | |
|--|---------------|----------------|----|-------------------|-------|
| Vertebrate species (For more information, contact Kim Tuttle, NH F&G at 271-6544) | | Federal | NH | Global | State |
| Jefferson/Blue-spotted Salamander Complex (<i>Ambystoma hybrid pop. 3</i>) | 2013 | -- | -- | -- | S2 |
| Pied-billed Grebe (<i>Podilymbus podiceps</i>) | 2004 | -- | T | G5 | S2B |
| Least Bittern (<i>Ixobrychus exilis</i>) | 2013 | -- | SC | G5 | S1B |
| Sora (<i>Porzana carolina</i>) | 2013 | -- | SC | G5 | S3B |
| Common Moorhen (<i>Gallinula chloropus</i>) | 2006 | -- | SC | G5 | S2B |
| Upland Sandpiper (<i>Bartramia longicauda</i>) | 2001 | -- | E | G5 | S1B |
| Sedge Wren (<i>Cistothorus platensis</i>) | 2001 | -- | E | G5 | S1B |
| Marsh Wren (<i>Cistothorus palustris</i>) | 2013 | -- | -- | G5 | S3B |
| American Brook Lamprey (<i>Lampetra appendix</i>) | 2007 | -- | E | G4 | S1 |
| Sea Lamprey (<i>Petromyzon marinus</i>) | 2008 | -- | SC | G5 | S3 |
| American Eel (<i>Anguilla rostrata</i>) | 2008 | -- | SC | G4 | S3 |
| Swamp Darter (<i>Etheostoma fusiforme</i>) | 2005 | -- | SC | G5 | S3 |
| Spotted Turtle (<i>Clemmys guttata</i>) | 2002 | -- | T | G5 | S2 |
| Blanding's Turtle (<i>Emydoidea blandingii</i>) | 1966 | -- | E | G4 | S1 |
| Natural Community | | Federal | NH | Global | State |
| Herbaceous seepage marsh | 1996 | -- | -- | -- | S3 |
| Red maple - lake sedge swamp | 1996 | -- | -- | -- | S3 |
| Red maple - Sphagnum basin swamp | 1996 | -- | -- | -- | S4 |
| Hemlock - beech - oak - pine forest | 2006 | -- | -- | -- | S5 |
| Invertebrate Species | | Federal | NH | Global | State |
| Taiga Bluet (<i>Coenagrion resolutum</i>) | 1982 | -- | -- | G5 | S2 |
| Plant species | | Federal | NH | Global | State |
| Northern Blazing Star (<i>Liatris novae-angliae</i>) | 1942 | -- | E | T3 | S1 |
| Beck's water-marigold (<i>Bidens beckii</i>) | 1962 | -- | T | G4 | S2 |
| green rockcress (<i>Boechera missouriensis</i>) | 1943 | -- | T | G5 | S2 |
| crested sedge (<i>Carex cristatella</i>) | 1946 | -- | E | G5 | S1 |
| long-leaved pondweed (<i>Potamogeton nodosus</i>) | 1994 | -- | T | G5 | S2 |
| Marsh Horsetail (<i>Equisetum palustre</i>) | 1973 | -- | E | G5 | S1 |

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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Listing codes: T = Threatened, E = Endangered SC = Special Concern

Rank prefix: G = Global, S = State, T = Global or state rank for a sub-species or variety (taxon)

Rank suffix: 1-5 = Most (1) to least (5) imperiled. "--", 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.

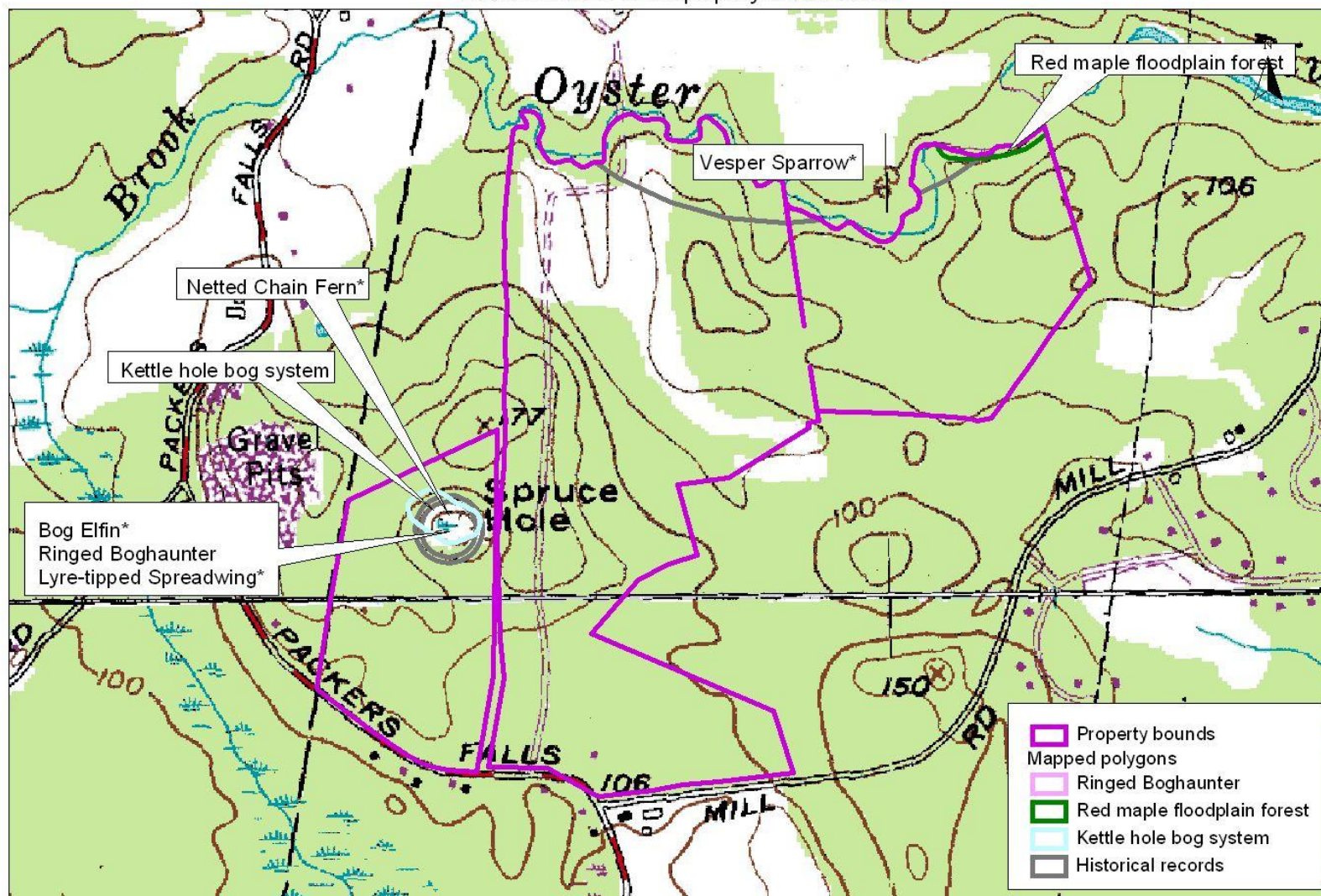
NOTE: This review *cannot* be used to satisfy a permit or other regulatory requirement to check for rare species or habitats that could be affected by a proposed project, since it provides detailed information only for records actually on the property.



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: Town of Durham

*Historical record

New Hampshire Natural Heritage Bureau - Animal Record

Bog Elfin (*Callophrys lanoraieensis*)

Legal Status

Federal: Not listed

State: Not listed

Conservation Status

Global: Rare or uncommon

State: Not ranked (need more information)

Description at this Location

Quality Rank: Historical records only - current condition unknown.

Quality Comments:

Detailed Description: 1900: Specimen collected.

General Area: 1900: Kettle hole bog.

General Comments:

Management

Comments:

Location

Survey Site Name: Spruce Hole

Managed By: Spruce Hole Conservation Area

County: Strafford

Town(s): Durham

Size: 2.8 acres

USGS quad(s): Dover West (4307028)

Lat, Long: 430734N, 0705803W

Elevation: 100 feet

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

Directions: Spruce Hole.

Dates documented

First reported: 1900

Last reported: 1900

The New Hampshire Fish & Game Department has jurisdiction over rare wildlife in New Hampshire. Please contact them at 2 Hazen Drive, Concord, NH 03301 or at (603) 271-2461.

New Hampshire Natural Heritage Bureau - Animal Record

Lyre-tipped Spreadwing (*Lestes unguiculatus*)Legal Status

Federal: Not listed

State: Not listed

Conservation Status

Global: Demonstrably widespread, abundant, and secure

State: Critically imperiled due to rarity or vulnerability

Description at this Location

Quality Rank: Historical records only - current condition unknown.

Quality Comments:

Detailed Description: 1942: Specimen collected on 7/25.

General Area:

General Comments:

Management

Comments:

Location

Survey Site Name: Spruce Hole

Managed By: Spruce Hole Conservation Area

County: Strafford

Town(s): Durham

Size: 1.9 acres

USGS quad(s): Dover West (4307028)

Lat, Long: 430734N, 0705803W

Elevation:

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

Directions:

Dates documented

First reported: 1942-07-25

Last reported: 1942-07-25

The New Hampshire Fish & Game Department has jurisdiction over rare wildlife in New Hampshire. Please contact them at 2 Hazen Drive, Concord, NH 03301 or at (603) 271-2461.

New Hampshire Natural Heritage Bureau - Animal Record

Ringed Boghaunter (*Williamsonia lintneri*)

| Legal Status | Conservation Status |
|--------------------------|---|
| Federal: Not listed | Global: Rare or uncommon |
| State: Listed Endangered | State: Imperiled due to rarity or vulnerability |

| Description at this Location |
|--|
| Quality Rank: Not ranked |
| Quality Comments: 2008: Has not been observed here since 1990. Habitat might not be suitable. |
| Detailed Description: 2006: None found. 2000: Species observed. 1994: (5/9) No adults, nymphs, or exuvia were found in over 1.5 hours of searching by 3 searchers. 1992: (5/20) Area searched extensively by P. McCarthy. <i>W. lintneri</i> not found, though many other dragonflies present. 1991: Area searched briefly by K. Helmboldt and A. Cutko, none found. 1990: 1 observed by Don Chandler, no details. 1987: Area searched, none found. 1983: Collected by Wally Morse. 1980: Reported to be present by Paul Meliotis. |
| General Area: Kettle hole bog (see description for natural community here). |
| General Comments: May be unsuitable habitat, Ginger Carpenter (odonatologist, Rhode Island TNC) feels this bog may never have supported a reproducing population of <i>Williamsonia lintneri</i> . Area was not surveyed in 1995. |
| Management Comments: |

| Location |
|---|
| Survey Site Name: Spruce Hole |
| Managed By: Spruce Hole Conservation Area |
| County: Strafford |
| Town(s): Durham |
| Size: 2.8 acres |
| USGS quad(s): Dover West (4307028) |
| Lat, Long: 430734N, 0705803W |
| Elevation: 100 feet |
| Precision: Within (but not necessarily restricted to) the area indicated on the map. |
| Directions: Spruce Hole Bog-off of Packers Fall Road. See site survey form for map to site. |

| Dates documented |
|----------------------|
| First reported: 1969 |
| Last reported: 2000 |

The New Hampshire Fish & Game Department has jurisdiction over rare wildlife in New Hampshire. Please contact them at 2 Hazen Drive, Concord, NH 03301 or at (603) 271-2461.

New Hampshire Natural Heritage Bureau - System Record

Kettle hole bog system

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

Quality Rank: Good quality, condition and landscape context ('B' on a scale of A-D).

Quality Comments:

Detailed Description: 1996: No details.

1993: Dominated by ericaceous shrubs, including *Kalmia angustifolia* (sheep laurel), *Lyonia ligustrina* (male-berry), *Chamaedaphne calyculata* (leatherleaf), and *Gaylussacia baccata* (black huckleberry), with *Decodon verticillatus* (water willow), and *Picea mariana* (black spruce) (collectively covering 80% of shrub strata).

1991(?): Classic kettle hole bog. Characteristic species include *Chamaedaphne calyculata* (leatherleaf), *Kalmia polifolia* (bog laurel), *Calopogon*, *Sarracenia purpurea* (pitcher-plant), and *Drosera*. *Picea mariana* forms dense stand. Rare: *Woodwardia areolata* (netted chain-fern).

(1973) *Williamsonia lintneri*. A moat of thin peat surrounds the bog.

General Area: 1996: Kettle slopes rise above the bog to approximately 30 feet at a slope of about 20 degrees.

1991(?): In closed depression with small pond in center. Hardwood-*Pinus strobus* (white pine) surrounds bog proper on sides of depression.

General Comments: 1991: Brief visit by A. Cutko and K. Helmboldt to look for *Williamsonia lintneri*, none were found.Management
Comments:

Location

Survey Site Name: Spruce Hole

Managed By: Spruce Hole Conservation Area

County: Strafford

USGS quad(s): Dover West (4307028)

Town(s): Durham

Lat, Long: 430735N, 0705804W

Size: 1.9 acres

Elevation: 100 feet

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

Directions: Off Packers Falls Road, east of gravel pit.

Dates documented

First reported: 1962

Last reported: 1996-08-15

New Hampshire Natural Heritage Bureau - Community Record

Red maple floodplain forest

| Legal Status | Conservation Status |
|---------------------|---|
| Federal: Not listed | Global: Not ranked (need more information) |
| State: Not listed | State: Imperiled due to rarity or vulnerability |

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

| Location | |
|-------------------|---|
| Survey Site Name: | Oyster River/College Woods |
| Managed By: | UNH - College Woods |
| County: | Strafford |
| Town(s): | Durham |
| Size: | 8.2 acres |
| USGS quad(s): | Dover West (4307028) |
| Lat, Long: | 430758N, 0705719W |
| 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 |

New Hampshire Natural Heritage Bureau - Plant Record

Netted Chain Fern (*Woodwardia areolata*)Legal Status

Federal: Not listed
State: Listed Endangered

Conservation Status

Global: Demonstrably widespread, abundant, and secure
State: Critically imperiled due to rarity or vulnerability

Description at this Location

Quality Rank: Historical records only - current condition unknown.

Quality Comments:

Detailed Description: 1973: 1 clump found.

General Area: 1973: *Kettle hole bog system*. 1973: Acid peat bog.

General Comments: 1991: A. Cutko and K. Helmboldt visited the site briefly in 1991 but did not look for this plant.

Management

Comments:

Location

Survey Site Name: Spruce Hole

Managed By: Spruce Hole Conservation Area

County: Strafford

USGS quad(s): Dover West (4307028)

Town(s): Durham

Lat, Long: 430734N, 0705803W

Size: 2.8 acres

Elevation: 100 feet

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

Directions: Spruce Hole Bog off Packers Falls Road, east of gravel pit.

Dates documented

First reported: 1973

Last reported: 1973

New Hampshire Natural Heritage Bureau - Animal Record

Vesper Sparrow (*Pooecetes gramineus*)Legal Status

Federal: Not listed
State: SC

Conservation Status

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

Description at this Location

Quality Rank: Historical records only - current condition unknown.
Quality Comments:

Detailed Description: 1984: 1 adult, sex unknown, 1 immature, sex unknown, seen and heard (Obs_id 1231).
General Area: 1984: Terrestrial - grassland / field (Obs_id 1231).
General Comments: 1984: Adult associating with fledgling; also found in this area in 1982 (Obs_id 1231).
Management
Comments:

Location

Survey Site Name: Layne Hill, SE of
Managed By: UNH Property

County: Strafford
Town(s): Durham
Size: 278.0 acres

USGS quad(s): Dover West (4307028)
Lat, Long: 430811N, 0705736W
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