

Attachment F

Natural Heritage and Endangered Species Information



Division of Fisheries & Wildlife

Wayne F. MacCallum, *Director*

October 23, 2009

Kathryn Prybylski
Project Manager
Groundwork Lawrence, Inc.
60 Island St.
Lawrence, MA 01840

Re: Open Space Plan; 09-27299 City of Lawrence

Dear Ms Prybylski:

In response to your request for information and rare species lists for the Open Space and Recreation Plan for the City of Lawrence from the Natural Heritage and Endangered Species Program, we are sending information on the rare species and other forms of biodiversity that we have documented in the City. The most important areas of Lawrence to protect in order to maintain biodiversity are the areas in and around the 2008 Priority Habitat, essentially the Merrimack River (which includes Estimated Habitat, wetland areas completely included in Priority Habitat), available as GIS layers, described at and with links from: http://www.mass.gov/dfwele/dfw/nhesp/gis_resources.htm . An additional area of biodiversity importance not included in the Priority Habitat or other NHESP data layers on MassGIS are undeveloped areas in southeastern Lawrence around the Shawsheen River. The floodplain and adjoining habitats have been degraded by invasive species, encroaching development, and centuries of use and control of the river. These areas, which have a core of city and conservation owned lands, could be managed to protect and restore biodiversity, and the river and its water.

The Priority Habitat along the Merrimack (PH1321, including EH 65) covers land in Lawrence and adjoining towns, indicates habitat used by several species including Bald Eagles that winter on the Merrimack and the dragonfly UMBER Shadowdragon that lives there all year. Some of the historic locations of rare plants previously known to occur in Lawrence are along the shores of the Merrimack. Other historic locations of rare plants that would need restoration to provide habitat include the Spicket and Shawsheen Rivers. In addition, observations of rare species and presence of potential vernal pools in Den Rock Park make that area one where rare species habitat needs to be included in management plans. The Shawsheen River just north of Rt. 114 supports a degraded example of a Small-River Floodplain Forest. After a survey of floodplain forests throughout the state, NHESP described this occurrence as follows: 'this large example of Small-River Floodplain Forest is highly disturbed, with abundant exotic species and no natural buffer to surrounding development.' Small-River Floodplain Forests are silver maple/green ash forests occurring on alluvial soils of small rivers and streams.

Enclosed is a list from our database of all rare species currently known to occur or to have occurred in or have a habitat in Lawrence. The list has species protected under the Massachusetts Endangered Species Act (MESA), and other, not regulated, indicators of local biodiversity, including Plant Watch Listed species, vernal pools, and uncommon types of natural communities. Any species with a most recent observation date within the past 25 years is considered to be current. Older dates may be species occurrences that have not been recently inventoried, or they may be lost from Lawrence as land use has changed. Fact Sheets describing many of the MESA listed species and their habitats are available on our website at http://www.mass.gov/dfwele/dfw/nhesp/species_info/ mesa_list/ mesa_list.htm . A Fact Sheet for floodplain



Natural Heritage & Endangered Species Program

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forest that includes Small-river Floodplain Forests is also available from our website at http://www.mass.gov/dfwele/dfw/nhesp/natural_communities/fact_sheets.htm

Lawrence has lost many species over past the century and a half that records have been kept of plants and animals – of the 11 state listed species on the enclosed list, five are considered current. Protecting and managing remaining habitat or restoring floodplain and riverside areas along the Merrimack, Shawsheen and Spicket rivers, is very important to maintain the species that remain. Completing conservation protection of remaining unprotected land along the rivers, with buffers included where possible, would enhance the viability of these special areas - size and continuity of open space is particularly important for supporting wildlife populations. Preventing habitat fragmentation is vital in protecting the ecosystem, for the rare species on the enclosed list, as well as for additional common species, particularly reptiles and amphibians.

The rare species in Lawrence: As a result of restoration and changed environmental laws, Peregrine Falcons have become an expanding species that now nest in downtown Lawrence. Bald Eagles use the Merrimack for wintering habitat. A Blandings Turtle, recently very near the Lawrence line in Methuen, could be indicating an expanding population, if there is habitat.

The Merrimack River provides habitat for a dragonfly, Umber Shadowdragon, which is a species of medium to large rivers that are unvegetated, and lakes and dammed portions of rivers. The rare invertebrates of Lawrence have included rare freshwater mussels, previously known from the Spicket River, that haven't been relocated there in many years. Freshwater mussels require clear clean water and do best in free flowing rivers to become re-established. The Purple Tiger Beetle, also not seen in Lawrence for a long time, is a species of open grasslands that has declined as agriculture has declined throughout the state.

Several of the rare plants in Lawrence, historically and recently, are species of floodplain forests: River Bulrush (SC) is found on river shores, inland marshes, and freshwater to brackish tidal wetlands; Andrew's Bottle Gentian (E) grows in openings in floodplain forests, thickets, fens, and swampy areas near bodies of water; and Cat-tail Sedge (T) is found in openings of floodplain forests, as is the more habitat generalist, Bristly Buttercup ((SC). River Birch (WL) is a species of floodplain forests that is found in Massachusetts only in the Merrimack watershed. Mud-arrowhead (WL) occupies brackish shallow water and shores of ponds, swamps, and rivers – suggesting that it may have occupied tidal parts of the Merrimack before dams interrupted the tidal influence in Lawrence. Thread Rush (E) and Bog Sedge (WL) are species of peatlands and other wet, acidic, nutrient poor substrates. Plymouth Gentian (SC) is a globally uncommon species that is mostly limited to SE Massachusetts where it occurs on shorelines and shallow water of ponds that fluctuate naturally throughout the year. The robust population in Lawrence is newly known and perhaps introduced to the site, where small ponds provide habitat similar to that in the main area of distribution.

There is an uncommon natural community from Lawrence in the NHESP database, a Small-river Floodplain Forest. The occurrence in Lawrence along the Shawsheen is in poor condition, as described above.

There are no Certified Vernal Pools (CVP) and 12 Potential Vernal Pools (PVP) (identified from aerial photographs, needing verification on the ground) in Lawrence. Areas of swamps also provide habitat for vernal pool species. The PVP data are available as a datalayer from MassGIS at <http://www.mass.gov/mgis/pvp.htm>) and shown on the enclosed map. If no attempt has been made to certify the PVPs, they are a good target for evaluation. Certifying the PVPs would provide more recognition and protection to these wetlands and the species that use them. There are a cluster of PVPs in Den Rock Park and the adjoining Trust land (as identified on MassGIS) and two near the Small-river floodplain Forest. Clusters of PVPs provide extra habitat value for the species that use them since each pool is somewhat different and provides alternate habitats in different years and seasons.

There are no BioMap or Living Waters cores in Lawrence. The Merrimack and short stretches of the Spicket and Shawsheen were modeled as Critical Supporting Watershed (CSW), important support areas for Living Waters areas that did support rare species as of 2003 when the report was written. The BioMap and Living Waters report can be downloaded from the NHESP website at <http://www.mass.gov/dfwele/dfw/nhesp/nhtwnreports.htm> . BioMap and Living Waters cores were produced by NHESP to identify the areas of most importance for biodiversity: they are based on known locations of rare species and uncommon natural communities, and incorporate the habitats needed by rare species to

maintain the local populations. BioMap focused on species of uplands and wetlands; Living Waters focused on aquatic species. Large unfragmented conservation land provides the best opportunities to maintain populations of species and limit further species loss from the City. Land protection that ties in with open space in other municipalities, and other protected open space, public or private is one way to provide important large areas of biodiversity protection. BioMap and Living Waters polygons are also available from MassGIS at <http://www.mass.gov/mgis/biocore.htm> and <http://www.mass.gov/mgis/lwcore.htm>.

Just to differentiate the BioMap and Living Waters core areas from the following Priority and Estimated Habitats: BioMap and Living Waters core areas identify areas particularly important for conservation planning purposes. Priority and Estimated Habitats are regulatory. However they are updated regularly, and the BioMap / Living Waters report is static (data from 2001 and 2003), so misses some of the most recently identified rare species areas.

The NHESP produces the Natural Heritage Atlas with maps for use under the Massachusetts Endangered Species Act (Priority Habitats -PH) and Wetlands Protection Act (Estimated Habitat- EH,, provided to the Conservation Commission and also shown in reduced form in the Natural Heritage Atlas). The PH and EH data layers are also available from MassGIS, requiring access to some form of GIS to view them, at <http://www.mass.gov/mgis/wethab.htm> and <http://www.mass.gov/mgis/prihab.htm>. These two sets of maps are created for regulatory use. Estimated Habitats are a complete subset of Priority Habitats that focus on habitat of rare wetlands wildlife. Priority Habitats are drawn for all rare species. Early planning and review of development projects under the Wetlands Protection Act regulations and Massachusetts Endangered Species Act plays a very positive role in protecting rare species habitats. City commissions and boards are encouraged to request the assistance of the Natural Heritage and Endangered Species Program in reviewing any project proposed in the habitat areas of the regulatory areas of the maps in the Natural Heritage Atlas.

Management and monitoring of conservation lands become important as acquisition and protection are accomplished. All wetlands particularly need to maintain their natural water regime, including normal fluctuations and connections with the uplands and other wetlands. Water quantity and quality are ongoing issues for wetlands. Another aspect of managing conservation lands that is important in many areas is controlling invasive non-native species that alter the habitat and occupy space that native species would otherwise use. We strongly recommend monitoring conservation land, and removing non-native species before they become a problem and impact native species.

Please note that this evaluation is based on the most recent information available in the Natural Heritage database, which is constantly being expanded and updated through ongoing research and inventory. Should new rare species information become available, this evaluation may need to be reconsidered.

Please do not hesitate to call me at (508) 389-6352 if you have any questions.

Sincerely,

Patricia C. Swain, Ph.D.
Ecologist

cc: Melissa Cryan, EOE



Division of Fisheries & Wildlife

Wayne F. MacCallum, *Director*

Rare Species and Natural Communities Documented in or with habitat in the City of Lawrence

AS OF October 22, 2009

<u>Scientific Name</u>	<u>Common Name</u>	<u>MESA Status</u>	<u>Most recent Year</u>
VERTEBRATES			
Falco peregrinus	Peregrine Falcon	E	2006
Haliaeetus leucocephalus	Bald Eagle	E	2005
INVERTEBRATES			
Alasmidonta varicosa	Brook Floater (Swollen Wedgemussel)	E	Historic
Cicindela purpurea	Purple Tiger Beetle	SC	1923
Neurocordulia obsoleta	Umber Shadowdragon	SC	2004
VASCULAR PLANTS			
Betula nigra	River Birch	WL	2008
Bolboschoenus fluviatilis	River Bulrush	SC	1877
Carex exilis	Bog Sedge	WL	
Carex typhina	Cat-tail Sedge	T	1879
Gentiana andrewsii	Andrews' Bottle Gentian	E	1885
Juncus filiformis	Thread Rush	E	1903
Ranunculus pensylvanicus	Bristly Buttercup	SC	1879
Sabatia kennedyana	Plymouth Gentian	SC	2006
Sagittaria rigida	Mud-arrowhead	WL	
Schoenoplectus torreyi	Torrey's Bullsedge	WL	
NATURAL COMMUNITIES			
Small-river floodplain forest	S2, a CD rank occurrence		1997
CERTIFIED VERNAL POOLS			
Certified Vernal Pool (# 0)			

This list does not include data sensitive species.

KEY TO MESA STATUS: E = Endangered. T = Threatened. SC = Special Concern. WL = unofficial Plant Watch List, not regulated. Some Plant Watch List dates are not available. H = Historic, species documented to have occurred in Lawrence in the past, but not in the past 25 years, no date attached to the record. Natural Communities are not regulated. S (state abundance) ranks are on a 1 to 5 scale, with S1 being considered vulnerable, generally having 1 to 5 good occurrences, and S5 being demonstrably secure. Community types ranked S1, S2, and S3 are priority for conservation protection.

Additional species of interest, found just over the city's border, near enough to possibly occur in appropriate habitat in Lawrence

VERTEBRATES

Emydoidea blandingii	Blanding's Turtle	T	2006
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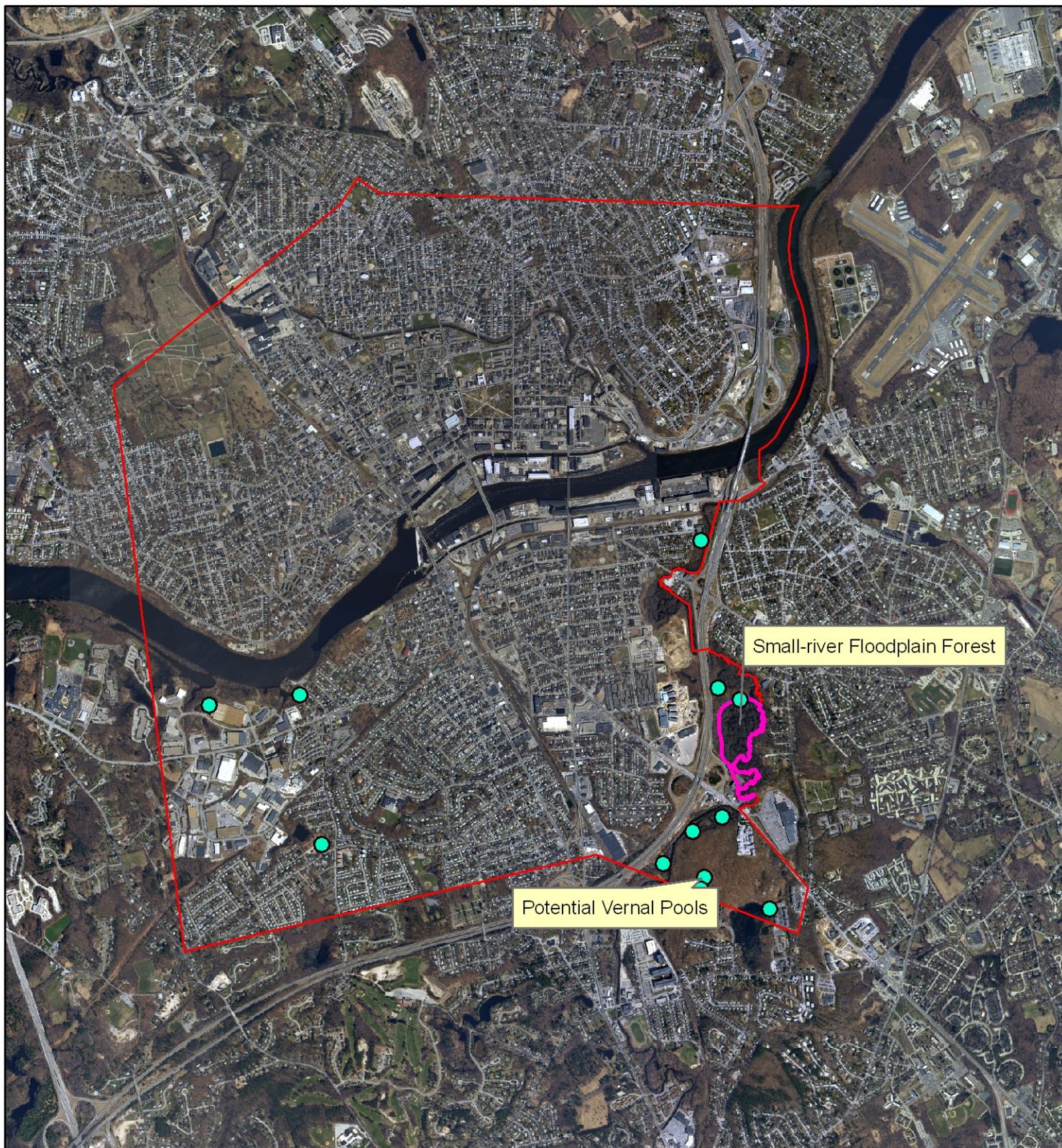
Natural Heritage & Endangered Species Program

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<http://www.nhesp.org>

Lawrence Small-river Floodplain Forest



Legend

-  NHESP Natural Community
-  NHESP Potential Vernal Pools

